TRAFFIC STUDY

## TRAILHEAD LOGISTICS PARK NORTH

MARION COUNTY, FLORIDA

Prepared for:

TRANSWESTERN DEVELOPMENT COMPANY

Prepared by:

KIMLEY-HORN AND ASSOCIATES, INC.

142933004 January 2023 © Kimley-Horn and Associates, Inc. 1700 SE 17th Street, Suite 200 Ocala, FL 34471 352 438 3000

# **Kimley Worn**

### EXECUTIVE SUMMARY

Traffic Impact Analysis Trailhead Logistics Park North

This Traffic Study has been prepared to support a Planned Unit Development (PUD) zoning application for a proposed industrial warehouse / distribution development generally located north of County Road (CR) 484, west of I-75, and east of SW 29<sup>th</sup> Avenue Road. This analysis has been performed in accordance with the City of Ocala/Marion County Traffic Impact Analysis (TIA) guidelines and the methodology, which was approved by Marion County.

The PUD proposes up to 3,600,000 square feet of industrial warehouse/distribution uses within three buildings. A conceptual site plan is included in the **Appendix**. For the purpose of this study, a single buildout year of 2027 was assumed.

Site access will be provided through the following:

- Connection to the south along SW 20<sup>th</sup> Avenue Road, which connects to CR 484 at a signalized intersection
- Connection as a new east leg of the intersection of SW 29<sup>th</sup> Avenue Road and Marion Oaks Trail

SW 20<sup>th</sup> Avenue Road is being constructed from the boundary of the Trailhead North development and Trailhead Logistics Park South site to the existing intersection of SW 20<sup>th</sup> Avenue Road and CR 484. The new roadway extension is being constructed by the Trailhead developer. The new roadway will be a combination of four-lane and two-lane roadway segments. A further extension of SW 20<sup>th</sup> Avenue Road north into the Trailhead North site is proposed as part of the site development. The roadway will continue west to connect to SW 29<sup>th</sup> Avenue Road at the intersection with Marion Oaks Trail.

Florida Department of Transportation (FDOT) has roadway improvements planned and funded for the segment of CR 484 from west of SW 20<sup>th</sup> Avenue Road to east of CR 475A (FPID 433651-1). Construction of these improvements is underway and expected to be complete by 2024, therefore the improvements were utilized when analyzing the roadway network for background traffic conditions. Improvements planned by Marion County at the intersection of Marion Oaks Boulevard and CR 484 (FPID 449277-1) were also included as background improvements prior to the addition of project traffic.

Additional roadway and intersection improvements were identified to be needed within the 2027 timeframe considering background traffic conditions (before the addition of project traffic). These improvements do not require proportionate share mitigation by the Project per Florida Statute. The following improvements were identified to be needed to provide acceptable level of service under future background traffic conditions:

- Widening of CR 484 from Marion Oaks Boulevard to CR 475A from 4 lanes to 6 lanes
- Signalization of the intersection of SW 29<sup>th</sup> Avenue Road at CR 484
- Constructing anticipated buildout geometry of the intersection of SW 20<sup>th</sup> Avenue Road at CR 484 per the prior Marco Polo PUD study

The following additional transportation improvements were found to be needed at project buildout to provide for acceptable level of service and traffic operations

- Lengthening of the westbound left-turn lane on CR 484 at Marion Oaks Boulevard by 120 feet
- Implementing a right-turn overlap for the northbound right-turn movement at the intersection of SW 20<sup>th</sup> Avenue Road and CR 484

Traffic Impact Analysis Trailhead Logistics Park North

Proportionate share mitigation is required for the improvements that are necessary in addition to those under future background traffic conditions to allow for acceptable traffic operations and level of service with the buildout traffic volumes.

SW 29<sup>th</sup> Avenue Road was previously contemplated to be four lanes with the Deltona development agreements. There is 100 feet of right-of-way and portions of the roadway are constructed with four lanes. The projected traffic volumes on SW 29<sup>th</sup> Avenue Road at project buildout do not require widening to four lanes to meet level of service standards; however, the developer has committed to constructing the widening. A traffic signal is shown to be needed at the intersection of SW 29<sup>th</sup> Avenue Road at CR 484 under future background traffic conditions. The developer has committed to constructing a traffic signal at this location, although no proportionate share mitigation is required per Florida Statute. The cost of the improvements to widen SW 29<sup>th</sup> Avenue Road and signalize the intersection with CR 484 will be in excess of the proportionate share requirements identified in this traffic study to mitigate for the traffic impacts of the development. The developer will enter into a Chapter 163 Concurrency Development Agreement and Impact Fee Reimbursement Agreement with Marion County to receive credit against the required proportionate share mitigation and transportation impact fees for the improvements to SW 29<sup>th</sup> Avenue Road.

An interim evaluation was performed for the intersection of SW 20<sup>th</sup> Avenue Road at CR 484 for the time period when the Trailhead Logistics Park North development will be fully built out, but considering that the Marco Polo PUD and Florida Crossroads Commerce Park may not be constructed, nor any associated future improvements at the intersection. The following interim improvements have been identified for the full buildout of the Trailhead Logistics Park North site prior to the full buildout improvements identified to support the Marco Polo PUD development:

- Restriping the north leg of the intersection to have a left-turn lane, shared through/left-turn lane, and right-turn lane
- Implementation of northbound/southbound split phasing and associated timing adjustments

The developer will enter into a Chapter 163 Concurrency Development Agreement with Marion County that will include a requirement to perform an operational study of the intersection with observed traffic volumes for specific development thresholds within the Trailhead Logistics Park North PUD. The findings of the study will be discussed with Marion County to identify if modifications to the north leg of the intersection and/or signal timing and phasing are required.

Traffic Impact Analysis Trailhead Logistics Park North

# **Kimley**»Horn

### CONTENTS

EXECUTIVE SUMMARY	i
INTRODUCTION	. 1
PROJECT TRAFFIC	. 2
Trip Generation	.2
Trip Equivalency Matrix	. 3
Trip Distribution, Assignment, and Study Area	. 3
EXISTING CONDITIONS ANALYSIS	. 9
Existing Traffic Data and Volume Development	. 9
Existing Conditions Roadway Segment Analysis1	10
Existing Conditions Intersection Analysis1	12
FUTURE TRAFFIC CONDITIONS	13
Committed Transportation Improvements1	13
Future Traffic Volume Development1	14
Future Background Roadway Segment Analysis1	17
Future Buildout Roadway Segment Analysis1	19
Future Background Conditions Intersection Analysis2	21
Future Buildout Conditions Intersection Analysis	23
Interim SW 20 <sup>th</sup> Avenue Road at CR 484 Intersection Analysis	24
Turn Lane Evaluation	25
SITE ACCESS ANALYSIS	27
SW 29 <sup>th</sup> Avenue Road at Marion Oaks Trail	27
SW 29 <sup>th</sup> Avenue Road at CR 484	28
SW 20 <sup>th</sup> Avenue Road at CR 484	28
PROPORTIONATE SHARE	29
CONCLUSION	30

# **Kimley**»Horn

### TABLES

Traffic Impact Analysis Trailhead Logistics Park North

Table 1 – Trip Generation	2
Table 2 – Study Area Intersections Percent Heavy Vehicles	0
Table 3 – Existing Conditions PM Peak Hour Roadway Segment Analysis	1
Table 4 – Existing Conditions Intersection Analysis Summary	2
Table 5 – Future Background Conditions PM Peak Hour Roadway Segment Analysis (2027)	8
Table 6 – Buildout Conditions PM Peak Hour Roadway Segment Analysis (2027)	0
Table 7 – Background Conditions Intersection Analysis (2027)       22	2
Table 8 – Background Conditions with Improvements Intersection Analysis (2027)	2
Table 9 – Buildout Conditions Intersection Analysis (2027)       24	4
Table 10 – Buildout Conditions with Improvements Intersection Analysis (2027)	4
Table 11 – Turn Lane Evaluation	6
Table 12 – Right-Turn Lane Analysis	7

### FIGURES

Figure 1 – Automobile Project Trip Distribution	. 5
Figure 2 – Truck Project Trip Distribution	.6
Figure 3 – Site Access Project Trip Distribution	.7
Figure 4 – Study Area Roadway Network	. 8
Figure 5 – AM Peak Hour Buildout Total Traffic	15
Figure 6 – PM Peak Hour Buildout Total Traffic	16

.

# Kimley » Horn

### APPENDICES

Traffic Impact Analysis Trailhead Logistics Park North

APPENDIX A: Conceptual Site Development Plan

- APPENDIX B: Traffic Data
- APPENDIX C: Signal Timing Worksheets
- APPENDIX D: Vested Traffic Info
- APPENDIX E: Intersection Volume Development Worksheets

APPENDIX F: Synchro Output

- F1: AM Peak Hour Existing Traffic Conditions (2022)
- F2: AM Peak Hour Future Year Background Traffic Conditions (2027)
- F3: AM Peak Hour Future Year Background w/ Improvements Traffic Conditions (2027)
- F4: AM Peak Hour Future Year Buildout Traffic Conditions (2027)
- F5: AM Peak Hour Future Year Buildout w/ Improvements Traffic Conditions (2027)
- F6: PM Peak Hour Existing Traffic Conditions (2022)
- F7: PM Peak Hour Future Year Background Traffic Conditions (2027)
- F8: PM Peak Hour Future Year Background w/ Improvements Traffic Conditions (2027)
- F9: PM Peak Hour Future Year Buildout Traffic Conditions (2027)
- F10: PM Peak Hour Future Year Buildout w/ Improvements Traffic Conditions (2027)
- APPENDIX G: Project Driveways Turn Lane Warrants
- APPENDIX H: Background Improvements Excerpts
- APPENDIX I: SW 29th Ave Rd at CR 484 Signal Warrant Analysis
- APPENDIX J: Approved Traffic Analysis Methodology Correspondence
- APPENDIX K: Trip Equivelancy Matrix
- APPENDIX L: Interim SW 20th Avenue Road at CR 484 Intersection Analysis

# **Kimley**»Horn

### INTRODUCTION

Traffic Impact Analysis Trailhead Logistics Park North

Kimley-Horn has performed this traffic study for the proposed Trailhead Logistics Park North industrial facility. The project site is generally located north of the intersection of SW 20<sup>th</sup> Avenue Road and CR 484, west of I-75 in Marion County, Florida. The proposed industrial park will be built in a single phase with an expected 2027 buildout year.

This traffic study was performed assuming 3,600,000 square feet of industrial uses at full buildout. The study identifies transportation needs within the study area under existing conditions, future background conditions (before the addition of project traffic) and project buildout conditions (with project traffic). The analysis has been performed in accordance with the City of Ocala/Marion County Traffic Impact Analysis guidelines and the methodology, which was approved by Marion County. The approved methodology and methodology correspondence are included in the **Appendix**.

Access to the property is proposed via the existing signalized intersection on CR 484 at SW 20<sup>th</sup> Avenue Road and SW 29<sup>th</sup> Avenue Road at Marion Oaks Trail.

To accommodate the Trailhead Logistics Park South development, SW 20<sup>th</sup> Avenue Road is being constructed as a new roadway north of CR 484 by the Trailhead developer. The new roadway will be a combination of a four-lane roadway near CR 484, transitioning to a two-lane roadway at the north end of the Trailhead Logistics South site. The proposed roadway construction has been discussed with the Marion County Office of the County Engineer and construction plans were prepared concurrently with the site plans for the development.

The Trailhead Logistics Park North development will be responsible for extending SW 20<sup>th</sup> Avenue Road to the SW 29<sup>th</sup> Avenue Road at Marion Oaks Trail intersection. A conceptual site plan is included in the **Appendix**.

The following committed improvements were utilized for the analysis:

- CR 484 Interchange Improvements (from west of SW 20<sup>th</sup> Avenue Road to east of CR 475A)
- Marion Oaks Boulevard at CR 484 intersection improvements
- SW 20<sup>th</sup> Avenue Road at CR 484 improvements

These improvements are expected to be completed before full project buildout of the Trailhead Logistics Park North project and were utilized for the background traffic conditions study area analysis. Excerpts detailing the planned improvements are provided in the **Appendix**.

This study is based on data collected by Kimley-Horn and supplemented by information obtained from City of Ocala, Marion County, and the FDOT sources. The study observed the established procedures found in Institute of Transportation Engineers sources, FDOT sources, and the 2016 Highway Capacity Manual (HCM 2016 or HCM6).

**Traffic Impact Analysis** Trailhead Logistics Park North

## **Kimley Wheeler Horn**

### **PROJECT TRAFFIC**

### TRIP GENERATION

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition was used to calculate trip generation potential for the industrial development. ITE Land Use Codes (LUC) 154 (High-Cube Transload and Short-Term Storage Warehouse) and 110 (General Light industrial) were applied in the trip generation calculations. Per the approved methodology, the PM peak hour of generator for ITE LUC 154 was utilized for the trip generation calculations.

No pass-by or internal capture was assumed for the trip generation calculations. Truck traffic was approximated based on information from the ITE Trip Generation Manual (for ITE LUC 110) and the ITE study "High-Cube Warehouse Vehicle Trip Generation Analysis" (for ITE LUC 154). The trip generation calculations are provided in Table 1.

#### **Table 1 – Trip Generation**

Land Use		ntensity		Daily Trips	AM Peak Hour of Adjacent PM Peak Hou aily Trips Street Str					
					Total	In	Out	Total	In	Out
NW Building - ITE LUC 154 SW Building - ITE LUC 110 E Building - ITE LUC 154	1,742,000 684,000 1,174,000	Sq F	t GFA t GFA t GFA	2,439 2,622 1,644	139 469 94	107 413 72	32 56 22	296 161 200	101 23 68	195 138 132
			Subtotal	6,705	702	592	110	657	192	465
Percent Trucks ITE LUC 154 ITE LUC 110	Daily 32.2% 0.25 / 1000 SF GFA	AM 30.8% 0.01 / 1000 SF	PM 21.7% 0.01 / 1000 SF	1,315 171	72 7	55 4	17 3	108 7	37 4	71 3
Buildout Automobil	e Driveway Trij	ps		5,219	623	533	90	542	151	391
Buildout Truck D	riveway Trips			1,486	79	59	20	115	41	74
Note 1: Trip generation calculations were der Note 2: The truck percentages for ITE LUC 110 Note 3: The ITE study "High-Cube Warehouse	were determine	d using the	truck generat	ion per 1,000 s	fpublished					In.

General Light Industrial [ITE 110] Daily

T = 3.76\*(X) + 50.47; (X is 1000 Sq. Ft. GFA); % trucks = 0.25 / 1000 SF GFA

AM Peak Hour of Adjacent Street PM Peak Hour of Adjacent Street T = 0.68\*{X} + 3.81; {X is 1000 Sq. Ft. GFA, 88% in, 12% out}; % trucks = 0.01 / 1000 SF GFA (60% in, 40% out) Ln(T) = 0.72\*Ln(X) + 0.38; (X is 1000 Sq. Ft. GFA, 14% in, 86% out); % trucks = 0.01 / 1000 SF GFA (50% in, 50% out)

#### High-Cube Transload and Short-Term Storage Warehouse IfTE 1541

Daily	T = 1.40*(X); (X is 1000 Sq. Ft. GFA); % trucks = 32.2%
AM Peak Hour of Adjacent Street	T =0.08*(X); (X is 1000 Sq. Ft. GFA, 77% in, 23% out); % trucks = 30.8%
PM Peak Hour of Generator	T = 0.17*{X}; (X is 1000 Sq. Ft. GFA, 34% in, 66% out); % trucks = 21.7%

K:\OCA\_Civil: H2933003-Transwestern North\Traffic\TIA\2nd submittel\calcs\xis\[2023-01- TLPN TIA xism]TG

Traffic Impact Analysis Trailhead Logistics Park North

#### TRIP EQUIVALENCY MATRIX

A trip equivalency matrix has been developed for the project, which allows for minor changes to land use types and intensities without increasing the PM peak hour external project trips generated by the development. The uses included in the Trip Equivalency Matrix are those allowed by the PUD zoning per the Master Plan. The gross trip rate for each land use was obtained by using the trip generation rates and pass by percentages provided in the ITE *Trip Generation*, *11<sup>th</sup> Edition* and based on the trip generation calculations approved during the methodology review process. No internal capture was applied for the trip equivalency gross trip calculations, based on the pass-by capture rates published in the ITE *Trip Generation*, *11<sup>th</sup> Edition*, *11<sup>th</sup> Edition*, *11<sup>th</sup> Edition* for applicable land uses.

The trip equivalency matrix provides a methodology for conversion of land uses and intensities to result in an equal or lesser number of net new PM peak hour project trips. The trip equivalency matrix is provided in the **Appendix**.

#### TRIP DISTRIBUTION, ASSIGNMENT, AND STUDY AREA

The project trip distribution for the site was developed based on Version 7.0 of the Central Florida Regional Planning Model (CFRPM), which is based on the Florida Standard Urban Transportation Model Structure (FSUTMS). The CFRPM model distribution was used to estimate the distribution of automobile trips to and from the site. Manual adjustments were made to the FSUTMS model output based on engineering judgment, understanding of the local transportation network, land uses, and discussions with Marion County. The distribution was approved during the methodology process.

A separate distribution of truck traffic was developed based on the anticipated distribution to and from I-75. The existing traffic volumes on I-75 were utilized to estimate the cardinal distribution of truck traffic along this route. **Figure 1** illustrates the project automobile trip distribution, **Figure 2** illustrates the project truck trip distribution, and **Figure 3** illustrates the site access project traffic assignment on Marion Oaks Trail and SW 20<sup>th</sup> Avenue.

Project traffic was assigned within the study area by applying the external trip distribution to the trip generation potential. The study area for the project included all roadway segments where project traffic consumes three percent (3%) or more of the subject segment's peak hour directional service capacity, plus one segment beyond, consistent with the approved methodology. The service volumes for evaluated roadways were obtained utilizing functional classification and level of service information published by the Ocala Marion Transportation Planning Organization (TPO) and FDOT.

The project significance calculations are provided within the methodology document located in the Appendix.

The following roadway segments are included within the study area, and were evaluated for PM peak hour traffic conditions as approved during the methodology process:

- CR 484, from SW 105th Avenue to SR 200 (one segment beyond impact)
- CR 484, from SR 200 to SE 132<sup>nd</sup> Street Road
- SW 29th Avenue Road, from CR 484 to Marion Oaks Trail
- SE 132nd Street Road, from CR 484 to US 301

## **Kimley**»Horn

Traffic Impact Analysis Trailhead Logistics Park North

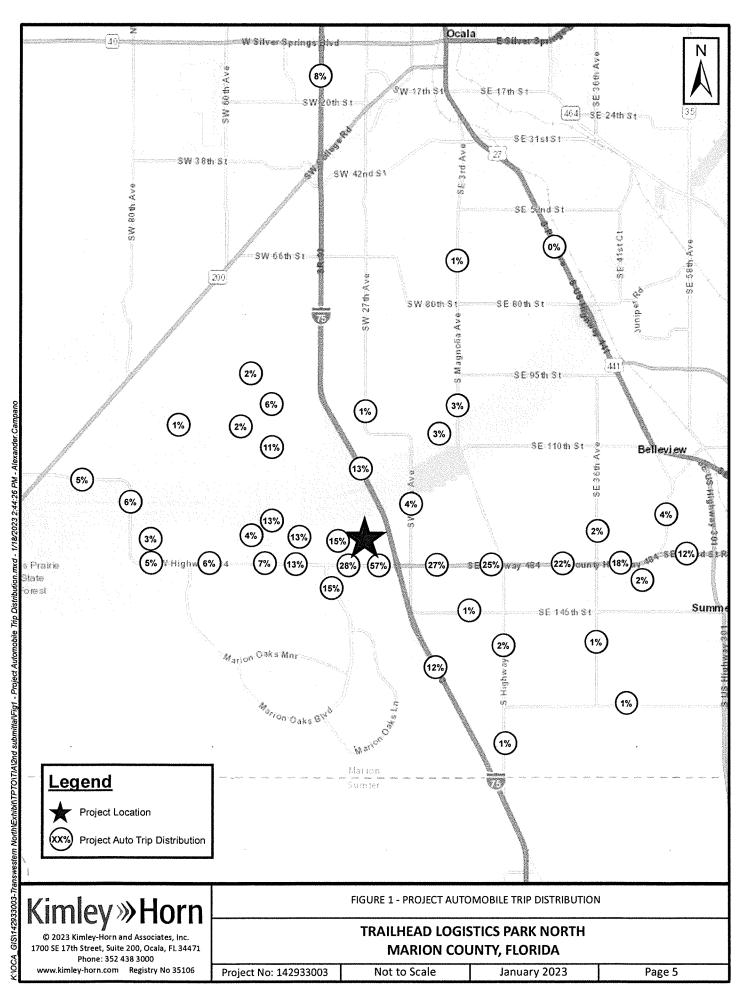
D-10

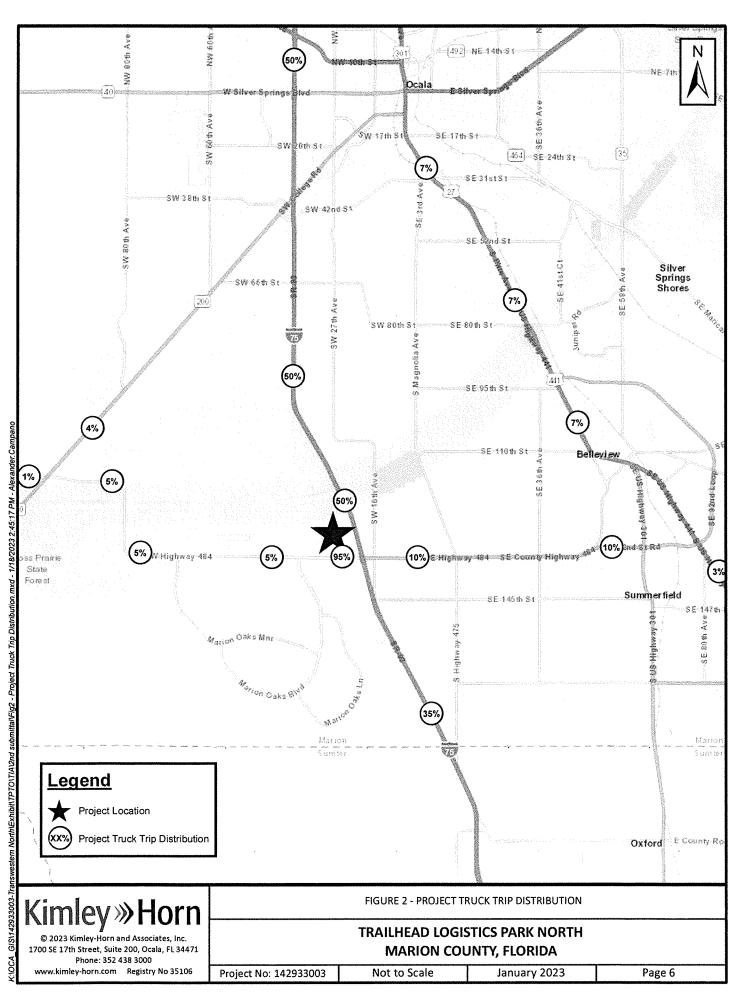
- SE 132nd Street Road, from US 301 to US 441 (one segment beyond impact)
- Marion Oaks Trail, from CR 484 W to SW 49th Avenue (one segment beyond impact)
- Marion Oaks Trail, from Marion Oaks Course to CR 484E

In addition to roadway segment analysis, the following intersections were evaluated for AM and/or PM peak hour traffic conditions, as approved during the methodology process:

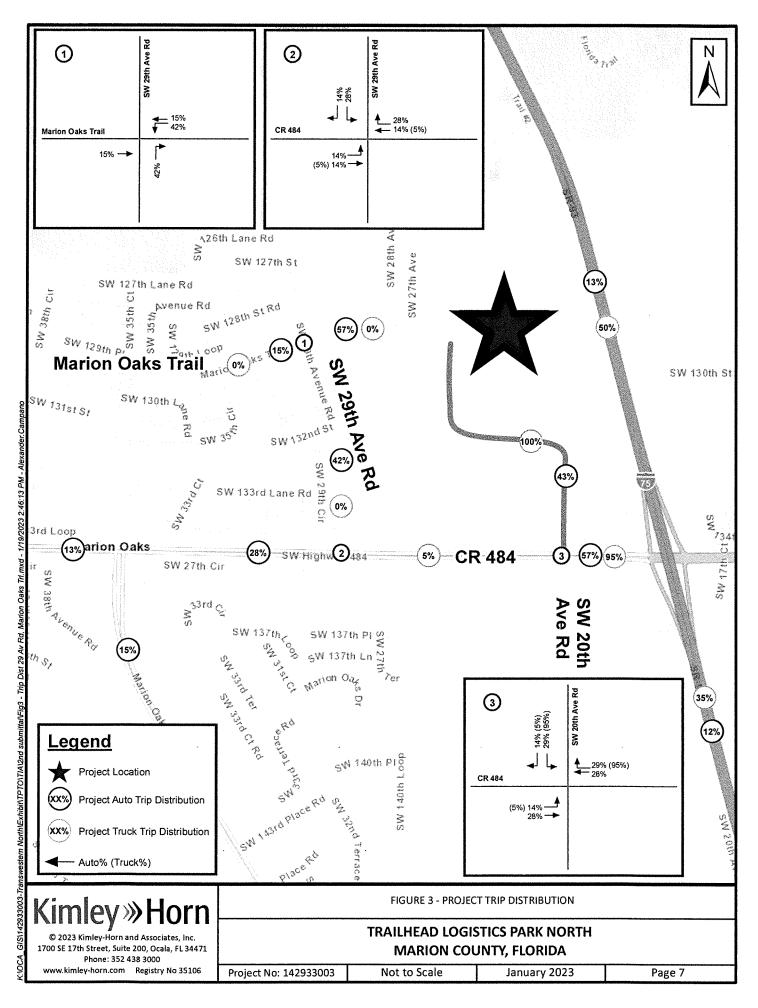
- CR 484 & Marion Oaks Boulevard (PM)
- CR 484 & SW 29th Avenue Road (AM and PM)
- CR 484 & SW 20th Avenue Road (AM and PM)
- CR 484 & I-75 Southbound Ramp (AM and PM)
- CR 484 & I-75 Northbound Ramp (AM and PM)
- CR 484 & CR 475A (PM)
- CR 484 & CR 475 (PM)
- SW 29th Avenue Road & Marion Oaks Trail (AM and PM)

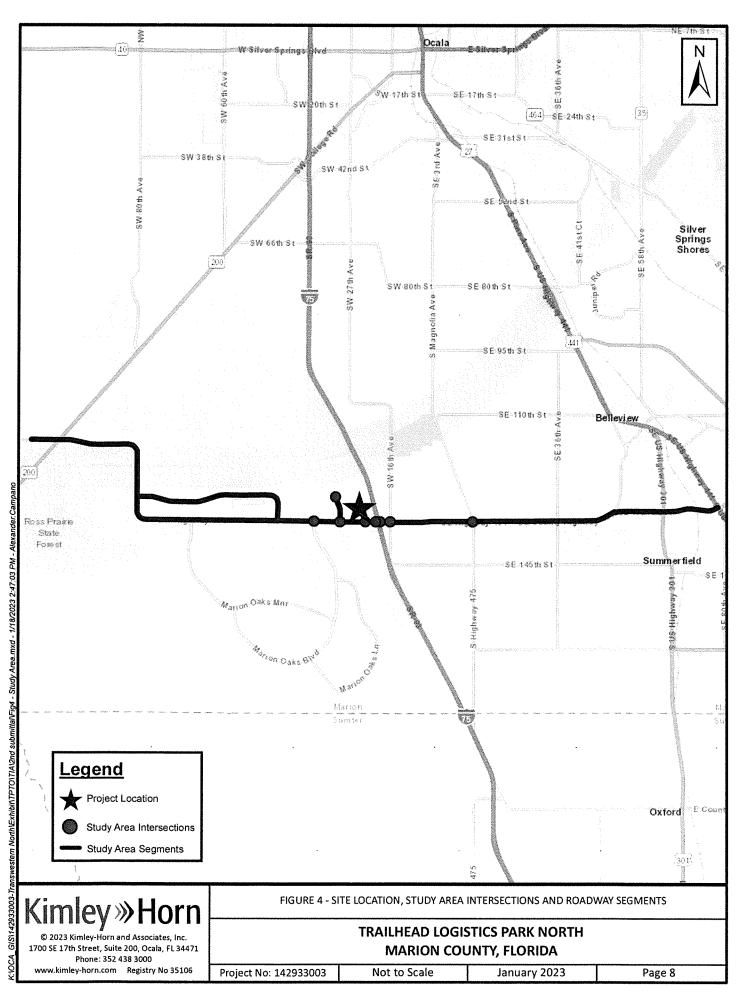
Figure 4 illustrates the project study area utilized for the analysis.





D-13





Traffic Impact Analysis Trailhead Logistics Park North

### EXISTING CONDITIONS ANALYSIS

#### **EXISTING TRAFFIC DATA AND VOLUME DEVELOPMENT**

Turning movement counts (TMCs) were collected at the study area intersections during the AM and PM peak periods. AM peak hour TMCs were collected during the peak hour of the adjacent street (7AM – 9AM) and PM peak hour TMCs were collected from 3PM-5PM (which coincides with the 3PM - 4PM peak hour of ITE LUC 154).

An existing year of 2022 was utilized for the analysis. The 2021 peak season factors from FDOT were used to adjust the observed traffic volumes to peak season volumes. The peak season conversion factor report is provided in the **Appendix**.

The PM peak hour peak season approach and departure volumes at the study area intersections were used for the PM peak hour roadway segment analysis for segments near the study area intersections. For roadway segments further from the study area intersections, the existing PM peak hour traffic volumes were derived using annual average daily traffic (AADT) from the Ocala Marion TPO Congestion Management Process (CMP) and applying a K-factor and D-factor published on the FDOT Traffic Online.

The observed right turn on red percentages (RTOR%) and peak hour factors (PHF) were used for the intersection analysis. The TMC heavy vehicle percentages (%HV) were compared to data available from FDOT Traffic Online, the more conservative of the two were used for the intersection analysis. **Table 2** summarizes the %HV for the study area intersections. The intersection volume development sheets located in the **Appendix** detail the volume development for the study area intersections.

#### Traffic Impact Analysis Trailhead Logistics Park North

#### Table 2 – Study Area Intersections Percent Heavy Vehicles

		E	8 Approad	,	N N	/B Approad	h	N	B Approac	h	S	B Approac	h
Intersection	Heavy Vehide Source	Count Station	T <sub>24</sub> FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor <sup>2</sup>	Count Station	T <sub>24</sub> FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor <sup>2</sup>	Count Station	T₂4 FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor <sup>2</sup>	Count Station	T <sub>24</sub> FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor <sup>2</sup>
CR 484 & Marion Oaks Blvd	FDOT Traffic Online						-	368138	8.50%	4.25%		-	
	AM Turning Movement Counts <sup>3</sup>								-				
	PM Turning Movement Counts <sup>3</sup>		4.90%			3.40%			4.30%				
CR 484 & SW 29th Ave Rd	FDOT Traffic Online						-				-		
	AM Turning Movement Counts <sup>3</sup>		4.00%			10.00%			32.00%			2.00%	
	PM Turning Movement Counts <sup>3</sup>		7.10%			3.80%			2.00%			6.60%	
CR 484 & SW 20th Ave Rd	FDOT Traffic Online								-		-		
	AM Turning Movement Counts <sup>3</sup>		4.00%			10.00%			32.00%				
	PM Turning Movement Counts <sup>3</sup>		5.80%			3.30%			30.40%			-	
CR 484 & I-75 SB Ramps	FDOT Traffic Online	-							-		362002	8.50%	4.25%
	AM Turning Movement Counts <sup>3</sup>		5%			14%						12%	
	PM Turning Movement Counts <sup>3</sup>		8%			5%			-			6%	
CR 484 & I-75 NB Ramps	FDOT Traffic Online							362000	9%	4.25%		-	
	AM Turning Movement Counts <sup>3</sup>		4.90%			10.90%			16.80%				
	PM Turning Movement Counts <sup>3</sup>		7.20%			5.20%			9.00%				
CR 484 & CR 475A	FDOT Traffic Online	-					-				368087	5.30%	2.65%
	AM Turning Movement Counts <sup>3</sup>											-	
	PM Turning Movement Counts <sup>3</sup>		9.20%			7.40%			4.30%			5.30%	
CR 484 & CR 475	FDOT Traffic Online	-			367040	12.40%	6.20%		-		-		
	AM Turning Movement Counts <sup>3</sup>												
	PM Turning Movement Counts <sup>3</sup>		7.60%			5.20%			6.70%			2.40%	
ion Oaks Trail & SW 29th Ave	FDOT Traffic Online	-									-	-	
	AM Turning Movement Counts <sup>3</sup>		2.00%			2.00%			11.00%			2.00%	
	PM Turning Movement Counts <sup>3</sup>		8.70%			2.00%			2.00%			7.70%	

k\oca\_ch/NH2933003-transwastern north\traffic\tia\2nd submitta/calcs\xis\[2023-01-t]pn tia.xism]%

\$26/2023

Notes :

1. T24 Factors derived from the FDOT Traffic Online Historical AADT reports.

2. Design hourly truck factor calculated based on the FDOT Traffic Forecasting Handbook ( $T_{24}$  / 2).

3. Turning Movement Counts were observed in the field during traffic data collection utilized for this TIA, a minimum of 2% was utilized for the Synchro analysis.

### **EXISTING CONDITIONS ROADWAY SEGMENT ANALYSIS**

Roadway segments within the study area were evaluated to determine the existing PM peak hour levels of service. The adopted service volumes were obtained from the latest Marion County Congestion Management Process (CMP) and the 2020 FDOT Quality/Level of Service Handbook. The roadway segment service volumes were approved during the methodology review process.

All the study area roadway segments are shown to operate within the adopted level of service standard under existing PM peak hour traffic conditions. **Table 3** illustrates the existing PM peak hour traffic volume and level of service for study area roadway segments.

### **Kimley»Horn**

Traffic Impact Analysis Trailhead Logistics Park North

Table 3 – Existing Conditions PM Peak Hour Roadway Segment Analysis

			į		ROAD	NAY ATTRI	BUTES <sup>1</sup>	Sector and the sector of th	1975) 1975 - Starten			EXISTING PE	EXISTING PEAK SEASON TRAFFIC CONDITIONS (2022)							
Roadway									TPO Traffic			an a	PM Pea	k Hour <sup>3</sup>						
From	То	TPO CMP Station	FDOT Classification <sup>2</sup>	Area Type	Adopted LOS	Number of Lanes	Daily Service Volume	Pk. Hr. Dir. Service Volume	Counts Growth Rate	TPO CMP Growth Rate	NB/EB Volume	SB/WB Volume	NB/EB V/C	SB/WB V/C	NB/EB LOS	SB/WB LO				
CR 484														1						
SW 105 AV	SR 200	2010.0	NS-UA	Urban	-		70.240		6.3%	3.36%	400	400	0.00							
SW 105 AV SR 200	SR 200 W OF SW 57 AV	2010.0	NS-UA	Urban	E	2	29,340	1,449	6.3% 16.4%	3.36%	438 379	498 431	0.30	0.34	В	B				
W OF SW 57 AV	SW 49 AV	2020.1	NS-DA NS-SA-C1	Urban	ε	2	32,600 37,810	1,610 1,900	15.4%	3.18%	379	431	0.24	0.27	B	B				
SW 49 AV	MARION OAKS BLVD	2020.1	NS-SA-C1	Urban	E	4	35,810	1,900		3.18%	819	952	0.20	0.23	C C	C C				
MARION OAKS BLVD	SW 20 AV RD	2030.0	NS-SA-C1	Urban	ε	4	35,820	1,800		3.93%	1.037	1.191	0.48	0.55		c				
SW 20 AV RD	1-75	2030.0	NS-SA-C1 NS-SA-C1	Urban	Ε	4	35,820	1,800	1.8%	3.93%	1,037	1,730	0.58	0.96						
1-75	CR 475A	2030.0	NS-SA-C1	Urban	D	4	35,820	1,800	4.3%	6.37%	1,148	1,730	0.64	0.95	c	c				
CR 475A	CR 475A	2070.0	NS-SA-C1	Urban	D	4	35,820	1,800	4.3%	4.34%	861	724	0.66	0.65	c					
CR 475	CR 467	2000.0	NS-SA-C1	Urban	D	4	35,820	1,800	5.9%	4.57%	1.044	918	0.48	0.40						
CR 467	SE 132 ST RD	2110.0	NS-SA-C1	Urban		4	35,820	1,800	1.5%	6.56%	905	796	0.50	0.44	c	c				
5W 29th Avneue Road	52 152 51 115						55,520	1,000	1.570	0.5075	505	130	0.50	0.11		Ĭ				
CR 484	MARION OAKS TRL		NS-SA-C2	Urban	E	2	10,920	560		1.00%	73	59	0.13	0.10	с	с				
SE 132nd Street Road																				
CR 484	US 301	7165.0	NS-SA-C1	Urban	E	4	35,820	1,800	5.0%	1.00%	555	489	0.31	0.27	с	c				
US 301	US 441	7170.0	NS-SA-C1	Urban	E	4	35,820	1,800	8.4%	7.29%	608	535	0.34	0.30	с	c				
Marion Oaks Trail																				
CR 484 W	SW 49 AV	8150.0	NS-SA-C1	Urban	E	2	15,930	792		1.00%	113	85	0.14	0.11	с	c				
MARION OAKS CRSE	CR 484 E	8180.0	NS-SC-C1	Urban	Ε	2	15,930	792		1.00%	113	85	0.14	0.11	с	c				

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TTA\2nd submittal\calcs\xis\[2023-01 - TLPN TTA\_xism]segEx

Notes:

142933003

1. The roadway attributes and AADT were obtained from the most recent Ocala Marion Transportation Planning Organization (TPO) Congestion Management Process (CMP) Database and Ocala Marion TPO 2022 Traffic Counts Report. For SW 29th Avenue Road the roadway attributes were derived using the 2020 FDOT Q/LOS Handbook, 2010 FDOT Functional Classification Map for Marion County, and the adopted level of service from the Marion County Comprehensive Plan (Transportation Element, Policy 2.1.2). 2. NS-SA-C1 = non-state, signalized arterial, class 1; ST-UA = state, unsignalized arterial; NS-UA = non-state, unsignalized arterial.

3. The existing traffic volumes were derived from the observed turning movement counts. The existing volumes for SW 132nd Street, Marion Oaks Trail, and CR 484 (west of SW 45th Avenue/east of CR 475) were derived using the Ocala Marion TPO CMP AADTs and K/D factors from FDOT Traffic Online (count stations 368136, 368136, 367039, 367040/367046).

11

\$26/2023

Traffic Impact Analysis Trailhead Logistics Park North

### **EXISTING CONDITIONS INTERSECTION ANALYSIS**

The operating conditions at the study area intersections were analyzed using the Synchro 11 software package, which implements the procedures of the latest Highway Capacity Manual (HCM 6). The existing lane geometry and signal timings (provided by Marion County) were utilized for the analysis.

All study area intersections operate with acceptable overall intersection level of service (LOS) and volume to capacity (V/C) ratios less than 1.0 under existing AM and PM peak hour traffic conditions, with the exception of the stop-controlled approach at the intersection of SW 29<sup>th</sup> Avenue Road at CR 484. The delay experienced for the side-street stop-controlled approach during the AM peak hour represents level of service F for a stop-controlled condition.

The Synchro 11 analysis output is provided in the **Appendix**. **Table 4** provides a summary of the average delay, level of service, and V/C ratios during the AM peak hour and PM peak hour under existing traffic conditions.

에는 사람이 가지 않는 것이 있는 것이 가지 않는 것이 가지 않는 것이 가지 않는 것이 있다. 같은 것이 아니는 것이 같은 것이 같은 것이 같은 것이 가지 않는 것이 같이 있다.	A	M Peak Ho	ur	PM Peak Hour						
Intersection	LOS	Delay (s)	Max V/C	LOS	Delay (s)	Max V/C				
Marion Oaks Blvd & CR 484				В	14.9	0.85				
SW 29th Ave Rd & CR 484	F	82.5	0.89	С	22.5	0.24				
SW 20th Ave Rd & CR 484	A	9.3	0.82	А	5.4	0.56				
I-75 SB Ramp & CR 484	D	44.6	0.83	С	32.8	0.86				
I-75 NB Ramp & CR 484	С	22.5	0.88	В	19.1	0.95				
CR 475A & CR 484				С	27.0	0.90				
CR 475 & CR 484				С	27.8	0.77				
SW 29th Ave Rd & Marion Oaks Trail	A/B	8.8/10.2	0.12	A/A	8.8/0.0	0.06				

#### Table 4 – Existing Conditions Intersection Analysis Summary

Notes:

1. For stop controlled intersections MOEs were reported for the stop controlled approach(es). For signalized intersections the LOS and delay were reported for the overall intersection.

K\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01- TLPN TIA.xlsm]intSum-Ex

1/23/23

Traffic Impact Analysis Trailhead Logistics Park North

### FUTURE TRAFFIC CONDITIONS

#### **COMMITTED TRANSPORTATION IMPROVEMENTS**

There are planned improvements within the study area that have been included as background improvements in the future traffic conditions analysis.

FDOT has programmed improvements along CR 484 west of SW 20<sup>th</sup> Avenue Road to east of CR 475A that will improve local traffic operations. The improvements include access management restrictions, adding turn lanes, and extending turn lanes. Construction is funded for FY 2023-2024 (FPID 433651-1). The following improvements were included in the background evaluation per the FDOT plans:

CR 484 Interchange Improvements (from west of SW 20th Avenue Road to east of CR 475A)

- Construction of a second southbound right-turn lane on CR 484 at the I-75 SB Ramp
- Construction of a second eastbound left-turn lane on CR 484 at the I-75 NB Ramp
- Construction of a second northbound left-turn from the I-75 NB off-Ramp to CR 484
- Construction of a second eastbound left-turn lane on CR 484 at CR 475A
- Construction of a second northbound left-turn lane on CR 475A at CR 484
- Construction of a southbound right-turn lane on CR 475A at CR 484
- Signal timing adjustments

In addition, the Marion Oaks Boulevard at CR 484 intersection has planned improvements with construction funding from FDOT programmed for FY 2024 (FPID 449277-1). The following improvements were included in the background evaluation per the County plans:

#### Marion Oaks Boulevard at CR 484 intersection improvements

- Construction of dual westbound left-turn lanes
- Construction of dual northbound right-turn lanes
- Northbound right permitted/overlap phasing and signal timing adjustments

SW 20<sup>th</sup> Avenue Road is being extended north of CR 484 as part of the Trailhead Logistics South project. The improvements will be complete by end of 2023. The extension of SW 20<sup>th</sup> Avenue Road will include the following improvements at the intersection with CR 484:

#### SW 20th Avenue at CR 484 intersection improvements

- Construction of an eastbound left-turn lane
- Construction of a westbound right- turn lane
- Construction of a north leg of the intersection with a southbound left-turn lane, through lane, and right-turn lane
- Signal timing adjustments

# Kimley»Horn

Traffic Impact Analysis Trailhead Logistics Park North

The signal plans for the intersection of SW 20<sup>th</sup> Avenue Road and CR 484 are provided in the **Appendix**. The traffic study for the Marco Polo PUD included additional improvements at the intersection that would be needed for the projected traffic volumes at buildout of the Marco Polo PUD. Because the Marco Polo PUD is considered as a background/vested project per request of Marion County, the improvements identified in that study were included in the background conditions analysis of the intersection. The following buildout geometry was identified in the Marco Polo PUD study:

Buildout SW 20th Avenue at CR 484 intersection geometry

- One left, two through, and one eastbound through/right lane
- Two left, three through, and one westbound right turn lane
- One left, one through, and one northbound right turn lane
- Two left, and one southbound through/right lane

Additional excerpts detailing the background improvements are provided in the Appendix.

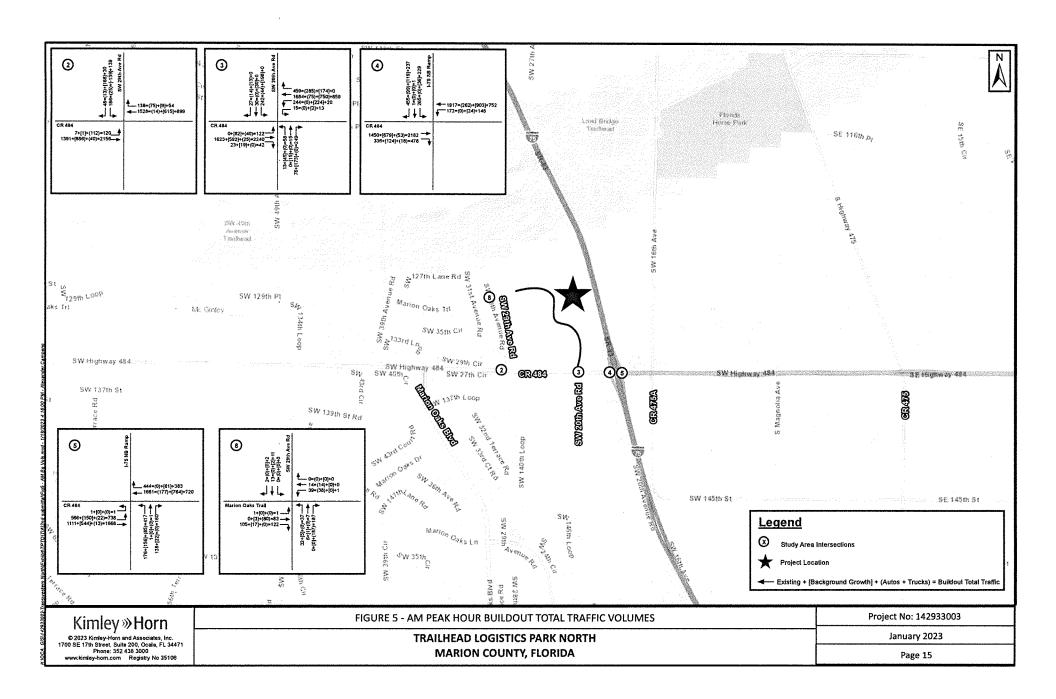
#### FUTURE TRAFFIC VOLUME DEVELOPMENT

The future traffic volumes within the study area were calculated based on the approved methodology. Future background traffic volumes were calculated using existing peak season traffic volumes and an annual background growth rate applied to the buildout year. A 3.0% background annual growth rate was utilized for the future traffic volume projections. In addition to background growth the following vested developments were added as background traffic:

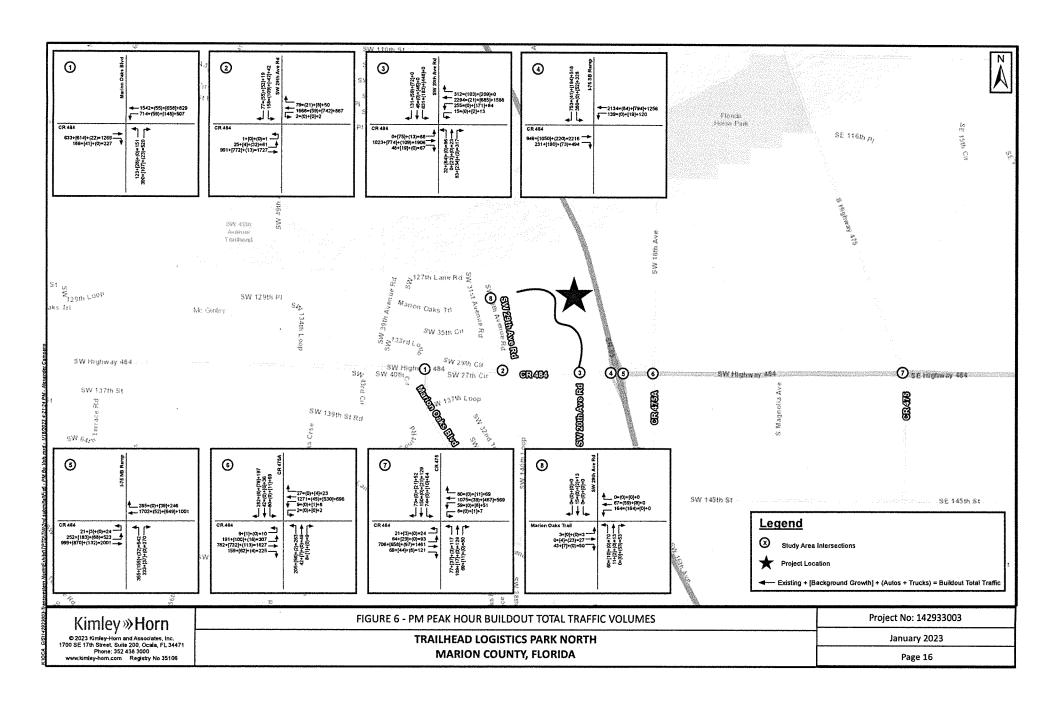
- Trailhead Logistics Park South
- Gas/Convenience Store at CR 484 & SW 20th Ave Rd (included within the Marco Polo PUD)
- Marco Polo PUD
- McGinley Property Phase 2

The total buildout traffic volumes were calculated as the sum of the background traffic volumes and project traffic. For the roadway segment analysis, the PM peak hour project traffic volumes were calculated as an average across the segment length. Project traffic was separated between automobile traffic and truck traffic. A separate trip distribution was applied to each.

Vested traffic excerpts and worksheets detailing the future conditions intersection volume development are contained in the **Appendix**. Buildout total traffic volumes at the study area intersections during the weekday AM and PM peak hours are illustrated in **Figure 5** and **Figure 6**.



D-21



Traffic Impact Analysis Trailhead Logistics Park North

### FUTURE BACKGROUND ROADWAY SEGMENT ANALYSIS

The roadway segments within the study area were evaluated for level of service under future background traffic conditions (before the addition of project traffic) during the PM peak hour. The service volumes for roadways within the study area were obtained utilizing the most recent Ocala Marion TPO CMP and FDOT Quality/Level of Service Handbook per the approved methodology.

The following roadway segments were found to have V/C ratios greater than 1.0 with the addition of background traffic:

- CR 484, from Marion Oaks Boulevard to SW 20th Avenue Road (existing 4-lane roadway)
- CR 484, from SW 20<sup>th</sup> Avenue Road to I-75 (existing 4-lane roadway)
- CR 484, from I-75 to CR 475A (existing 4-lane roadway)

CR 484 is listed within the Ocala Marion TPO Long Range Transportation Plan (LRTP) as needing widening to six lanes from SW 29<sup>th</sup> Avenue to SW 20<sup>th</sup> Avenue Road (project R26) and SW 20<sup>th</sup> Avenue Road to CR 475A (project R27). These improvements are not listed in the cost feasible plan and do not have funding allocated in the current five-year Transportation Improvement Program (TIP). The traffic study performed for the Marco Polo PUD showed a need for CR 484 to be six lanes fronting the Marco Polo PUD.

Marion County has funding in the current five-year TIP for a planning study for widening of CR 484 to two lanes from Marion Oaks Pass to SR 200 (Project C5). No other phases have funding allocated in the five-year TIP.

The other roadway segments within the study area are shown to operate within the adopted service volume with 2027 PM peak hour background traffic conditions. The future background conditions roadway segment analyses are detailed in **Table 5**.

## **Kimley**»Horn

Traffic Impact Analysis Trailhead Logistics Park North

#### Table 5 – Future Background Conditions PM Peak Hour Roadway Segment Analysis (2027)

		ROAD	WAY ATTE	IBUTES <sup>1</sup>	TRAFFIC CO	STING PEAK SEASON RAFFIC CONDITIONS (2022) PM PEAK SEASON BACKGROUND TRAFFIC CONDITION:							CONDITIONS (	(2027)				
Roadway					PM Pea	k Hour <sup>2</sup>					PM Peak	Hour <sup>3</sup>						
From	То	Adopted LOS	Number of Lanes		NB/EB Volume	SB/WB Volume	NB/EB Volume	SB/WB Volume	Vested NB/EB	Vested SB/WB	Total NB/EB	Total SB/WB	NB/EB V/C	SB/WB V/C	NB/EB LOS	SB/WB LO		
CR 484																		
SW 105 AV	SR 200	E	2	1,449	438	498	504	573	25	29	529	602	0.37	0.42	с	с		
SR 200	W OF SW 57 AV	E	2	1,610	379	431	436	496	139	216	575	712	0.36	0.44	в	с		
W OF SW 57 AV	SW 49 AV	E	4	1,900	379	431	436	496	691	633	1,127	1,129	0.59	0.59	с	c		
SW 49 AV	MARION OAKS BLVD	E	4	1,800	819	952	942	1,095	524	534	1,466	1,629	0.81	0.91	c	с		
MARION OAKS BLVD	SW 20 AV RD	E	4	1,800	1,037	1,191	1,192	1,369	596	591	1,788	1,960	0.99	1.09	D	F		
SW 20 AV RD	i-75	Ε	4	1,800	1,148	1,730	1,320	1,989	1,166	752	2,486	2,741	1.38	1.52	F	F		
1-75	CR 475A	D	4	1,800	1,187	1,177	1,364	1,354	713	490	2,077	1,844	1.15	1.02	F	F		
CR 475A	CR 475	D	4	1,800	861	724	990	833	603	417	1,593	1,250	0.89	0.69	c	c		
CR 475	CR 467	D	4	1,800	1,044	918	1,201	1,056	482	330	1,683	1,386	0.94	0.77	с	с		
CR 467	SE 132 ST RD	D	4	1,800	905	796	1,041	915	386	264	1,427	1,179	0.79	0.66	с	с		
SW 29th Avneue Road													1					
CR 484	MARION OAKS TRL	ε	2	560	73	59	84	67	0	o	84	67	0.15	0.12	с	с		
SE 132nd Street Road																		
CR 484	US 301	E	4	1,800	555	489	638	562	294	202	932	764	0.52	0.42	с	c		
US 301	US 441	ε	4	1,800	608	535	699	615	294	202	993	817	0.55	0.45	с	с		
Marion Oaks Trail																		
CR 484 W	SW 49 AV	E	2	792	113	85	130	98	1	2	131	100	0.17	0.13	с	с		
MARION OAKS CRSE	CR 484 E	ε	2	792	113	85	130	98	51	8	181	106	0.23	0.13	с	c		

K:\OCA\_Gvil\142933003-Transwestern North\Traffic\TIA\2nd submittal\caks\xls\[2023-01 - TLPN TIA.xlsm]segBg

#### Notes:

1. The roadway attributes and AADT were obtained from the most recent Ocala Marion Transportation Planning Organization (TPO) Congestion Management Process (CMP) Database and Ocala Marion TPO 2022 Traffic Counts Report. For SW 29th Avenue Road the roadway attributes were derived using the 2020 FDOT Q/LOS Handbook, 2010 FDOT Functional Classification Map for Marion County, and the adopted level of service from the Marion County Comprehensive Plan (Transportation Element, Policy 2.1.2). 2. The existing traffic volumes were derived from the observed turning movement counts. The existing volumes for SW 132nd Street, Marion Oaks Trail, and CR 484 (west of SW 45th Avenue/east of CR 475) were derived using the Ocala Marion TPO CMP AADTs and K/D factors from FDOT Traffic Online (count stations 368136, 367039, 367040)/367046).

3. Background volumes were derived by applying the study area growth rate to the existing volumes and adding vested traffic added.

¥25/202

Traffic Impact Analysis Trailhead Logistics Park North

### FUTURE BUILDOUT ROADWAY SEGMENT ANALYSIS

The roadway segments within the study area were evaluated for level of service under future buildout traffic conditions during the PM peak hour. The service volumes utilized for the analysis are the same as those utilized for the future background conditions analysis, with the addition of background improvements. The following improvements were identified to be necessary to provide for acceptable level of service with the future background traffic volumes during the PM peak hour:

- CR 484, from Marion Oaks Boulevard to SW 20th Avenue Road (existing 4-lane roadway)
- CR 484, from SW 20<sup>th</sup> Avenue Road to I-75 (existing 4-lane roadway)
- CR 484, from I-75 to CR 475A (existing 4-lane roadway)

Service volumes for the improved condition were obtained from the 2020 FDOT Quality/Level of Service Handbook and using the roadway attributes from the Ocala Marion TPO CMP. The roadway segments within the study area are shown to operate within the adopted service volume with PM peak hour buildout traffic volumes and assuming the improvements identified to be needed in the background conditions analysis. No additional roadway widenings were identified to be needed due to the addition of traffic from the proposed Trailhead Logistics Park North site.

The future buildout conditions roadway segment analyses are detailed in Table 6.

### **Kimley»Horn**

#### Traffic Impact Analysis Trailhead Logistics Park North

#### Table 6 – Buildout Conditions PM Peak Hour Roadway Segment Analysis (2027)

				WAY ATTRI	a: wee }				N BACKGROUP			-	PM PEAK SEASON PM PEAK HOUR BUILDOUT TRAFFIC CONDITIONS (2027 w/ Background Improvemental												
oadway					Improve	Improved		TAK SEASU	PM Pes		ONDITIONS	2027)	Projec	t Traffic - Au	din en		t HOUR BUIL	u de la c	Project	is (2027 w/	Background	Improveme	ints)	la de la composición de la com	
From	То	Adopted LOS	Exist. Number of Lanes	Hr. Dir. Service Volume	d Number of Lanes	Pk. Hr. Dir. Service Volume	Total N8/EB	Total SB/WB	NB/EB V/C	SB/WB V/C	NB/EB LOS	\$8/W8 LO5	% Assignment <sup>5</sup>	NB / E8	sa / wa	% Assignment <sup>8</sup>	NB/EB	SB/WB	Peak Direction % Impact <sup>5</sup>	Total NB/EB	Total SB/WB	NB/EB V/C	se/we v/c	NB/EB LOS	SB/WI
7. 484																		1	1		1	1		1	
SW 105 AV	SR 200	1 .	2	1,449	2	1,449	529	602	0.37	0.42		c	4.0%		16										
SR 200	W OF SW 57 AV		2	1,610	2	1,449	575	712	0.3/	0.44			4.0%	6	22	1.0%	2		1.13%	535	618	0.37	0.43	c	1 5
W OF SW 57 AV	SW 49 AV		4	1,900	4	1,900	1,127	1,129	0.59	0.59			6.5%	8 10	25	5.0%	2	1	1.57% 1.53%	585	737 1,158	0.36	0.46	c	1 5
SW 49 AV	MARION DAKS BLVD		4	1.800	4	1,500	1,466	1,629	0.61	0.91			10.0%	15	39	5.0%			2.38%	1,139 1,483	1,158	0.60	0.61	c	C
MARION GAKS BLVD	SW 20 AV RD		1	1,600	6	2,869	1,788	1,960	0.62	0.51			28.0%	42	109	5.0%	2		6.25%	1,483	2,073	0.64		C C	
SW 20 AV RD	F12		4	1,800	6	2,869	2,486	2,741	0.87	0.96			57.0%	223	86	95.0%	70	39	16.29%	2,779	2,866	0.570	0.72		
1.75	C8 475A		4	1,800	6	2,869	2.977	1.844	0.72	0.64			32.0%	125	48	10.0%	1 7	35	7.36%	2,210	1.895	0.77	0.66	c	
CR 475A	CR 475		4	1,800		1,600	1,593	1,250	0.89	0.69			26.0%	102	39	10.0%	1 ;		6.06%	1,702	1,293	0.95	0.00	c	
CR 475	CR 467			1,800	4	1.800	1,683	1,386	0.94	0.77	i c		22.0%	86	33	10.0%			5.19%	1,776	1.423	0.99	0.72	5	
CR 467	SE 132 ST RD	D	4	1,800	4	1,600	1,427	1,179	0.79	0.66	c	c	17.0%	66	26	10.0%	;	4	4.10%	1,501	1,209	0.83	0.67	c	c
W 29th Avneue Road			·											1											1
CR 484	MARION DAKS TRL	ε	2	560	2	560	64	67	0.15	0.12	с	c	42.0%	164	164	0.0%	0	0	29.33%	248	231	0.44	0.41	c	c
E 132nd Street Road			1																						İ
CR 484	US 301	E	4	1,800	4	1,800	932	764	0.52	0.42	c	c	13.0%	51	20	10.0%	7	4	3.24%	990	788	0.55	0.44	c	1
U\$ 301	US 441	E	4	1,600	4	1,800	993	817	0.55	0.45	c	c	12.0%	47	18	3.0%	2	1	2.73%	1,042	836	0.58	0.46	c	c
Marion Oaks Trail																									1
CR 484 W	SW 49 AV	ε	2	792	2	792	131	100	0.17	0.13	c	c	3.5%	5	14	0.0%	0	0	1.73%	136	114	0.17	0,14	c	c
MARION DAKS CRSE	CR 484 E	£	2	792	2	792	181	106	0.23	0.13	c	c	6.5%	10	25	0.0%	0	0	3.21%	191	131	0.24	0.17	c	c
	The fict TAL and an benieve fical es for et (20)	101-11-PW FAM	int)argeto	E	L	í	L	L	JJ	L	L	J		I	L	L	J	I	1		I	1	L	1	1
ites:																									

Notes:

1. The existing roadway attributes and service volumes were obtained from the most recent Ocala Marion Transportation Planning Organization (TPO) Corgestion Management Process (CMP) Database. For the Improved condition, the roadway service volumes were derived using the 2020 FDOT Q/LOS Handbook. The improvements identified to be needed under future background traffic conditions (plot to adding project traffic) were assumed for the buildout conditions analysis.

2. Background volumes were derived by applying the study area growth rate to the existing volumes with vested traffic added.

3. Project traffic was assigned based on the CFRPM output (with manual adjustments) in the approved methodology.

Traffic Impact Analysis Trailhead Logistics Park North

#### FUTURE BACKGROUND CONDITIONS INTERSECTION ANALYSIS

The intersections within the study area were evaluated to determine if improvements are needed to provide an acceptable level of service and intersection operations with future background traffic conditions prior to the addition of project traffic.

Existing signal timings (as obtained from the City of Ocala and Marion County), peak hour factors (as obtained from the traffic counts), and right-turn on red percentages (obtained as previously described in this report) were input into Synchro 11 for analysis. The existing observed percent heavy vehicle percentage was updated for the background conditions analysis to reflect the projected vehicle mix from the addition of background and vested traffic.

Either existing geometry or planned/programmed geometry was utilized based on the committed transportation projects outlined previously.

The intersection of SW 29<sup>th</sup> Avenue Road at CR 484 was evaluated as a directional median opening (all southbound movements are limited to right-turn only) based on input from Marion County on a planned short-term safety improvement. The observed and projected traffic movements at the intersection were reallocated based on the planned movement restriction at the intersection. Existing / projected southbound left-turn movements were allocated to the southbound right-turn movement and eastbound through movement, assuming these vehicles would make a u-turn at the median opening to the west of the intersection.

The background intersection analysis shows the following improvements are necessary to provide for acceptable level of service and operations with future background traffic volumes:

#### SW 29th Avenue Road at CR 484

• Signalization is warranted as a result of background traffic during the AM peak hour based on the FDOT Signal Warrant 3 volume thresholds and LOS F for southbound right-turn movement

#### SW 20th Avenue Road at CR 484

• Signal timing adjustments and assuming the improvements identified to be needed with the Marco Polo PUD buildout

An AM peak hour and PM peak hour signal warrant analysis was conducted for the intersection of SW 29<sup>th</sup> Avenue at CR 484 using the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition for peak hour volume Warrant 3 criteria. Based on the Signal Warrant 3 criteria, a traffic signal is warranted for the background AM peak hour traffic conditions. The peak hour signal warrant analysis outputs are provided in the **Appendix**.

The I-75 at CR 484 interchange is currently under construction. The improvements include dual southbound right turn lanes for the southbound ramp terminal and dual northbound left turn lanes for the northbound ramp terminal. The I-75 Southbound Ramp at CR 484 southbound right-turn movement operates at LOS F (and v/c < 1.0) during the background AM peak hour. The I-75 Northbound Ramp at CR 484 northbound left-turn movement operates at LOS F (and v/c < 1.0) during the background SE (and v/c < 1.0) during the background SE (and v/c < 1.0) during the AM and PM background scenarios.

No background improvements were applied to the intersection of CR 475A at CR 484. With future background traffic volumes, the intersection operates with all V/C ratios less than 1.0 and acceptable LOS for the overall intersection operations, but with LOS F for the eastbound left-turn, northbound left-turn, and

Traffic Impact Analysis Trailhead Logistics Park North

southbound right-turn movements during the PM peak hour. The high delay for these movements is due to the intersection being within the coordinated signal network and having a long cycle length that favors the through traffic on CR 484.

**Table 7** summarizes the resultant intersection LOS with future background traffic volumes and existing and/or programmed intersection geometry. **Table 8** summarizes the resultant intersection LOS with future background traffic volumes and considering the improvements outlined above. The Synchro 11 output reports are provided in the **Appendix**.

	A	M Peak Ho	our	PM Peak Hour					
Intersection	LOS	Delay (s)	Max V/C	LOS	Delay (s)	Max V/C			
Marion Oaks Blvd & CR 484				С	29.9	0.88			
SW 29th Ave Rd & CR 484	F	50.6	0.77	С	21.9	0.26			
SW 20th Ave Rd & CR 484	F	93.9	3.36	F	185.5	5.04			
I-75 SB Ramp & CR 484	С	27.1	0.85	D	38.3	0.995			
I-75 NB Ramp & CR 484	С	26.9	0.83	С	23.9	0.86			
CR 475A & CR 484				С	33.6	0.92			
CR 475 & CR 484				D	42.9	0.99			
SW 29th Ave Rd & Marion Oaks Trail	A/B	9.1/10.5	0.15	A/B	9.0/10.6	0.07			

#### Table 7 – Background Conditions Intersection Analysis (2027)

Notes:

1. For stop controlled intersections MOEs were reported for the stop controlled approach(es). For signalized intersections the LOS and delay were reported for the overall intersection.

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01- TLPN TIA xlsm]intSum-Bg

1/26/23

#### Table 8 – Background Conditions with Improvements Intersection Analysis (2027)

	A	M Peak Ho	PM Peak Hour					
Intersection	LOS	Delay (s)	Max V/C	LOS	Delay (s)	Max V/C		
SW 29th Ave Rd & CR 484 SW 20th Ave Rd & CR 484	B C	14.8 28.6	0.88 0.92	A D	7.6 38.5	0.75 0.94		

Notes:

1. For stop controlled intersections MOEs were reported for the stop controlled approach(es). For signalized intersections the LOS and delay were reported for the overall intersection.

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01- TLPN TIA.xlsm]intSum-BgImps

1/23/23

## Kimley **»**Horn

Traffic Impact Analysis Trailhead Logistics Park North

### FUTURE BUILDOUT CONDITIONS INTERSECTION ANALYSIS

The intersection operations were evaluated under 2027 buildout traffic conditions. The buildout traffic volumes are a sum of the 2027 background traffic volumes and project traffic volumes from the Trailhead Logistics Park North site. Automobile traffic and truck traffic were assigned separately for the buildout conditions volume development. Buildout percent heavy vehicles were derived by summing the background truck volumes and project truck volumes divided by the total volumes for each approach.

The intersection analysis was performed using the geometry identified to be needed for the 2027 future background conditions analysis. The full buildout intersection geometry identified in the Marco Polo Study for the intersection of SW 20<sup>th</sup> Avenue Road at CR 484 was utilized.

The buildout intersection analysis shows the following improvements are needed to provide for acceptable level of service and traffic operations with the projected buildout traffic:

#### Marion Oaks Boulevard at CR 484

• Extend the westbound left-turn lane on CR 484 to 625 feet

#### SW 20th Avenue Road at CR 484

- Implement a northbound right-turn permitted/overlap phasing; a R10-16 sign is recommended to warn u-turning vehicles to yield to right-turn vehicles
- Signal timing adjustments

A third westbound through lane was included in the intersection analysis for the intersection of CR 484 at the I-75 southbound ramp based on the identified background improvement need of widening CR 484 to six lanes. This is considered a background traffic improvement based on the need for widening to six lanes to accommodate the future background (prior to the addition of project) traffic volumes.

The study area intersections are expected to operate with acceptable LOS and V/C ratios with the addition of project traffic and the above identified improvements, in addition to those implemented in the future background with improvement scenario.

**Table 9** provides a summary of the intersection operations with buildout traffic volumes and the improvements identified to be needed for future background traffic conditions. **Table 10** provides a summary of the intersection operations with buildout traffic volumes and the additional improvements identified to be needed for the addition of project traffic. The Synchro 11 output reports are provided in the **Appendix**.

Traffic Impact Analysis Trailhead Logistics Park North

Table 9 – Buildout Conditions Intersection Analysis (2027)

	A	M Peak Ho	ur	PM Peak Hour			
Intersection	LOS	Delay (s)	Max V/C	LOS	Delay (s)	Max V/C	
Marion Oaks Blvd & CR 484				С	33.4	0.90	
SW 29th Ave Rd & CR 484	В	19.3	0.90	В	12.7	0.81	
SW 20th Ave Rd & CR 484	С	30.7	0.95	D	52.0	1.14	
I-75 SB Ramp & CR 484	С	26.6	0.89	С	32.2	0.95	
I-75 NB Ramp & CR 484	с	32.7	0.87	С	26.7	0.87	
CR 475A & CR 484				С	34.2	0.92	
CR 475 & CR 484				D	39.5	0.96	
SW 29th Ave Rd & Marion Oaks Trail	B/B	11.7/13.5	0.32	B/C	10.0/16.6	0.48	

Notes:

1. For stop controlled intersections MOEs were reported for the stop controlled approach(es). For signalized intersections the LOS and delay were reported for the overall intersection.

K\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01-TLPN TIA xlsm]intSum-Bo

126/23

#### Table 10 – Buildout Conditions with Improvements Intersection Analysis (2027)

	A	M Peak Ho	our	PM Peak Hour			
Intersection	LOS	Delay (s)	Max V/C	LOS	Delay (s)	Max V/C	
SW 20th Ave Rd & CR 484	с	28.1	0.89	D	52.6	0.99	
Notes:							

1. For stop controlled intersections MOEs were reported for the stop controlled approach(es). For signalized intersections the LOS and delay were reported for the overall intersection.

K:\OCA\_Civil\142933003-Transwestem North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01- TLPN TIA.xlsm]intSum-BoImps

1/26/23

#### INTERIM SW 20<sup>TH</sup> AVENUE ROAD AT CR 484 INTERSECTION ANALYSIS

SW 20<sup>th</sup> Avenue Road at CR 484 was evaluated considering an "interim" scenario. The traffic volumes for the interim scenario included:

- Existing observed traffic volumes
- Background growth to a buildout year of 2027
- Trailhead Logistics Park South
- Marco Polo Gas/Convenience Store
- Trailhead Logistics Park North (full buildout)

Traffic Impact Analysis Trailhead Logistics Park North

The planned geometry that is currently under construction with the Trailhead Logistics Park South Project was utilized, which includes the following approach geometries:

- Eastbound left-turn lane, through lane, through/right-turn lane
- Westbound left-turn lane, two through lanes, right-turn lane
- Northbound left-turn lane, through/right-turn lane
- Southbound left-turn lane, through lane, right-turn lane

Re-striping of the southbound approach to a southbound left-turn lane, southbound through/left-turn lane, and southbound right-turn lane is required to accommodate the full buildout traffic from the Trailhead Logistics Park North project and the background traffic identified above. Due to restrictions on the south side of the intersection, the north leg must have the through movement in the center southbound lane. This geometry will necessitate a split phase for the northbound and southbound movements, which will require less green time for the CR 484 eastbound and westbound movements.

It is recommended that within 30 days of opening a cumulative development program of 500,000 square feet within the Trailhead Logistics Park North that an operational study be performed to determine what configuration and signal timings are required to accommodate future year traffic patterns; to be reviewed and approved by County staff.

The intersection volume development, Synchro outputs, and vested traffic excerpts utilized for the interim analysis are provided in the **Appendix**.

#### TURN LANE EVALUATION

The turn lanes at the study area intersections utilized by project traffic were evaluated to determine if the existing or planned/programmed length is sufficient for the traffic at buildout. The planned geometry as provided by the design plans for the committed projects on CR 484 at the I-75 interchange and CR 484 at Marion Oaks Boulevard were used. The existing/planned turn lane length was compared against the required deceleration from the FDOT Greenbook and the reported queue length from the Synchro output. The 50<sup>th</sup> percentile and 95<sup>th</sup> percentile queues from the background (with improvement) and buildout (without improvement) scenarios were utilized. The existing/planned turn lane length is considered sufficient if the turn lane can accommodate the required deceleration plus 50<sup>th</sup> percentile queue and the 95<sup>th</sup> percentile queue length can be contained within the turn lane.

**Table 11** provides a summary of the turn lane evaluation. The turn lanes at the study area intersections that are utilized by project traffic will have sufficient storage to accommodate the buildout traffic volumes, with the exception of the following:

- The planned westbound left-turn lane length on CR 484 at Marion Oaks Boulevard needs to be extended by 120 feet to accommodate the increase in traffic in this movement from the project
- The northbound left-turn lane on CR 475A at CR 484 has deficient length for the future background (prior to project traffic) volumes. Traffic from the Trailhead Logistics Park North project does not change the queue length or create an additional deficiency
- The northbound left-turn lane on CR 475 at CR 484 has deficient length for the future background (prior to project traffic) volumes. Traffic from the Trailhead Logistics Park North project does not change the queue length or create an additional deficiency

### **Kimley»Horn**

Table 11 – Turn Lane Evaluation

Traffic Impact Analysis Trailhead Logistics Park North

			Total Turn Lane Length (ft) <sup>2</sup>	AM Peak Hour				PM Peak Hour				Existing / Planned
Intersection Speed Limit				50th Percentile Queue Length (ft) <sup>3</sup>	Oueue Length	Decel L + 50th %tile Queue (ft)		Quaua Langth	95th Percentile Queue Length (ft) <sup>3</sup>	Decel L + 50th %tile Queue (ft)	Taper L + 95th %tile queue (ft)	Storage Length
Marion Oaks Blvd & CR 484												
WBL (background)		185	505	-				275	400	460	500	Y
WBL (buildout)	45	185	505					400	525	585	625	N
I-75 SB Ramp & CR 484												
SBR (background)	35	-	570	200	250	200	250	475	625	475	625	Y
SBR (buildout)	35	-	570	275	350	275	350	525	700	525	700	Y
I-75 NB Ramp & CR 484												
EBL (background)	45	185	675	350	400	535	500	225	250	410	350	Y
EBL (buildout)	45	185	695	375	400	560	500	275	275	460	375	Ŷ
NBL (background)	35	-	530	225	300	225	300	325	425	325	425	Ý
NBL (buildout)	35	-	530	275	400	275	400	350	475	350	475	Ŷ
CR 475A & CR 484												
EBL (background)	45	185	410	-				200	250	385	300	Y
EBL (buildout)	45	185	410			-		225	225	410	275	Ŷ
NBL (background)	45	185	345		_			175	225	360	275	N
NBL (buildout)	45	185	345		-			175	225	360	275	N
CR 475 & CR 484												
EBL (background)	55	350	500		-			75	125	425	175	Y
EBL (buildout)		350	500			_		75	150	425	200	Y Y
NBL (background)		350	295			_		75	150	425	200	N
NBL (buildout)	55	350	295	-		-		100	150	450	200	N

Notes :

1. Based on the 2018 FDOT Green Book (Table 3-31) and FDOT Design Manual (Exhibit 212-1).

2. Turn lane lengths were derived from the existing turn lane lengths. For the intersections of Marion Oaks Blvd, I-75 Ramps, and CR 475A at CR 484, the turn lane lengths were derived from the design plans for those projects. The I-75 off ramp turn lane lengths were not measured to the mainline gore striping, therefore additional storage length is available (SB Ramp ~690 ft, NB Ramp ~785 ft) to accomodate queued traffic exiting onto CR 484.

26

3. Based on the 50th and 95th percentile back of queue length (rounded up in 25 foot increments) as reported in Synchro 11.

4. The storage length was determined to be sufficient if the turn lane could accommodate the summation of the required deceleration length and 50th percentile queue length and the storage length could accommodate the 95th percentile queue length plus taper. For interchange off ramps turn lane length was determined to be sufficient if the turn lanes could accommodate the forecasted queue length.

5. The buildout queue lengths were derived from the buildout scenario (without improvements).

KAOCA\_Civih W2933003-Transwestern North/Traffic\TIA\2nd submitte/calcs\xis\/2023-01-TLPN TIA,xism/turnLaneLangths

126/23

Traffic Impact Analysis Trailhead Logistics Park North

### SITE ACCESS ANALYSIS

The following access locations are proposed for the Project:

- Connection to the south along SW 20<sup>th</sup> Avenue Road, which connects to CR 484 at a signalized intersection
- Connection as a new east leg of the intersection of SW 29<sup>th</sup> Avenue Road and Marion Oaks Trail

The projected traffic volumes on SW 29<sup>th</sup> Avenue Road do not show a need to widen to four lanes. The widening of SW 29<sup>th</sup> Avenue Road to four lanes was previously contemplated with the Deltona development agreements. There is 100 feet of right-of-way and portions of the roadway are constructed with four lanes. The developer plans to widen the roadway to four lanes, although not shown to be necessary to meet level of service standards with the buildout traffic volumes.

### SW 29<sup>TH</sup> AVENUE ROAD AT MARION OAKS TRAIL

The planned connection on SW 29<sup>th</sup> Avenue Road at Marion Oaks Trail was evaluated to determine if an ingress northbound right turn lane is warranted to accommodate project traffic. The FDOT Access Management Guidebook (November 2019) was reviewed to determine whether the projected ingress turning volumes warrant an exclusive northbound right-turn lane. The FDOT Guidebook recommends an ingress right-turn lane if turning volumes are between 80 and 125 vehicles per hour for roadways with a speed limit of 45 mph or less. The lower threshold is more appropriate for a higher volume two-lane roadway and the higher threshold is more appropriate for a multi-lane roadway. SW 29<sup>th</sup> Avenue Road serves minimal development north of Marion Oaks Trail, with very little through volumes expected. With the widening of SW 29<sup>th</sup> Avenue Road to four lanes, the outside lane could turn into a dedicated right-turn lane into the site as there a limited number of through volumes north of Marion Oaks Trail expected.

An excerpt from the FDOT Access Management Guidebook is provided in the **Appendix. Table 12** provides a summary of the right-turn lane analysis.

		ut NBR (veh/hr) <sup>1</sup>	1	ut NBT (veh/hr) <sup>1</sup>	Threshold	Right Turn Lane Required?
Access Connection	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	Right Turn Volumes (veh/hr) <sup>2</sup>	
SW 29th Ave Rd at Marion Oaks Trail	187	53	7	13	80 <sup>.</sup>	NO
Notes:		I	I	l	II	

#### Table 12 – Right-Turn Lane Analysis

1. Projected ingress traffic volumes at full buildout of the development.

2. NBR volumes exceed the FDOT recommended threshold, however based on NCRHP 457 guidance an exclusive right turn lane is not recommended.

Traffic Impact Analysis Trailhead Logistics Park North

#### SW 29<sup>TH</sup> AVENUE ROAD AT CR 484

The intersection of SW 29<sup>th</sup> Avenue Road at CR 484 will be signalized based on the results of the background conditions signal warrant analysis. The southbound approach will include two lanes due to the proposed widening of SW 29<sup>th</sup> Avenue Road. The existing eastbound left-turn lane is 285 feet long. The required deceleration length is 185 feet based on the FDOT Greenbook and the 50<sup>th</sup> percentile queues at buildout are less than 100 feet. The existing eastbound left-turn lane on CR 484 at SW 29<sup>th</sup> Avenue Road has sufficient length for project buildout. The FDOT Design Manual (Chapter 232.2) recommends exclusive right-turn lanes at signalized intersections when peak hour through and right turning volumes each exceed 300 vph. The projected westbound right-turn volume is 138 vehicles during the AM peak hour and 79 vehicles during the PM peak hour; therefore, based on FDOT criteria, an exclusive westbound right-turn lane is not warranted at the future signalized intersection of SW 29<sup>th</sup> Avenue Road at CR 484.

### SW 20<sup>TH</sup> AVENUE ROAD AT CR 484

The intersection of SW 20<sup>th</sup> Avenue Road at CR 484 has planned improvements for the interim condition (under construction now; implemented prior to full Marco Polo buildout) and buildout condition (full Marco Polo buildout, as identified in the Marco Polo study). The interim improvements include a ±480-foot eastbound left-turn lane and +/- 160-foot westbound right-turn lane on CR 484. The north leg will be constructed to have an exclusive 200-foot southbound left turn lane, and a single southbound through and single southbound right turn lane that extend north of the intersection. The planned improvements illustrating the turn lane lengths are provided in the **Appendix**.

The eastbound left-turn lane on CR 484 at SW 20<sup>th</sup> Avenue Road has sufficient length for the projected queues at buildout. The planned westbound right-turn lane is less than the required deceleration length for a 45mph design speed. However, per feedback from Marion County, the westbound right turn lane cannot be lengthened due to the adjacent Popeye's driveway.

The projected 95<sup>th</sup> percentile queue length for the southbound left-turn movement on SW 20<sup>th</sup> Avenue Road at CR 484 is approximately 1,100 feet for project buildout. There is approximately 920 feet of queue storage for the southbound left-turn movement on SW 20<sup>th</sup> Avenue Road between CR 484 and the first median opening on SW 20<sup>th</sup> Avenue Road to the north. During peak egress traffic periods, the queues will extend past the median opening. A "do not block intersection" sign is recommended to minimize impacts between southbound left-turn movements at CR 484 and northbound left-turn movements at the median opening. A northbound left-turn lane is provided on SW 20<sup>th</sup> Avenue Road at the median opening to allow for left-turning traffic to queue outside of the through lanes. No impacts to the CR 484 traffic operations are anticipated from the occasional queueing during peak periods on SW 20<sup>th</sup> Avenue Road. Furthermore, SW 29<sup>th</sup> Avenue Road will be widened to four lanes with a traffic signal at CR 484, which will allow for an additional egress point during peak egress and queueing periods.

An interim evaluation was performed assuming the Trailhead Logistics Park North site may be operational prior to the Marco Polo development, and associated improvements to the intersection of SW 20<sup>th</sup> Avenue Road at CR 484. The results and recommendations from that evaluation were summarized previously and include restriping the southbound approach to have a left-turn lane, through/left-turn lane, and right-turn lane and converting the northbound and southbound signal phasing to split phasing. The timing of the interim improvements will be based on operational studies to be performed at various buildout stages within the Trailhead Logistics Park North development.

Traffic Impact Analysis Trailhead Logistics Park North

### **PROPORTIONATE SHARE**

Per Chapter 163.3180 of the Florida Statutes, an acceptable method for a landowner to mitigate their transportation impacts to is pay a proportionate share cost towards subject improvements. Per the Florida Statutes, proportionate share contributions are not required for improvements identified to correct transportation deficiencies that occur prior to the addition of project traffic. Therefore, any transportation improvements identified to be needed in the background conditions analysis are assumed to be in place for the purposes of the proportionate share calculation.

Several transportation improvements were identified as being required within the study area to provide acceptable traffic operations with future background traffic conditions (before the addition of project traffic) and are therefore not subject to proportionate share mitigation. The improvements required to accommodate background traffic are listed in the background intersection analysis and background roadway segments analysis sections of this report. Background intersection and roadway improvements were assumed to be in place for the proportionate share calculations.

Additional transportation improvements were identified as being required within the study area to provide acceptable traffic operations at project buildout. Mitigation required to support project traffic was calculated based on the following methodology:

#### Marion Oaks Boulevard at CR 484

- Extend the westbound left-turn lane on CR 484 to 625 feet
- Proportionate share calculated as the project traffic utilizing the westbound left-turn movement (59 trips) divided by the total traffic utilizing the westbound left-turn movement (714 trips) at buildout = 8.26%

#### SW 20th Avenue Road at CR 484

- Implement a northbound right-turn permitted/overlap phasing and signal timing adjustments
- Install an R10-16 (U-TURN YIELD TO RIGHT TURN) for the westbound left-turn lane
- Proportionate share calculated as the project traffic at the intersection divided by the increase in capacity generated by the improvement. The total project traffic at the intersection is greater than the increase in capacity generated by the improvement, therefore the proportionate share is 100%.

SW 29th Avenue Road will be widened by the developer to four lanes from CR 484 to Marion Oaks Trail. The widening of SW 29<sup>th</sup> Avenue Road will include a new traffic signal at the intersection of SW 29<sup>th</sup> Avenue Road and CR 484. The widening to four lanes was a prior condition of the Deltona development but is not shown to be needed to accommodate project traffic from the Trailhead Logistics Park North site. A traffic signal at the intersection of SW 29<sup>th</sup> Avenue Road at CR 484 is warranted with future background traffic conditions, prior to the addition of traffic from the Trailhead Logistics Park North site. The cost of the improvements to SW 29<sup>th</sup> Avenue Road and the intersection with CR 484 will exceed the cost of the required proportionate share transportation mitigation for the project.

# **Kimley »Horn**

### CONCLUSION

Traffic Impact Analysis Trailhead Logistics Park North

This traffic study has been performed to support the PUD rezoning for the Trailhead Logistics Park North industrial development. The traffic analysis provided is consistent with the approved methodology document.

The traffic analysis was performed considering a buildout timeframe of 5 years (2027) for the full proposed development program. The operating conditions within the study area were evaluated for existing, future background (before addition of project traffic) conditions and buildout traffic conditions.

The following offsite transportation improvements were identified to be needed based on the background traffic scenario (prior to the addition of project traffic):

- CR 484 Widening to six lanes from Marion Oaks Boulevard to CR 475A
- SW 29th Avenue Road at CR 484 Signalization is warranted with background AM peak hour traffic
- SW 20th Avenue Road at CR 484 Signal timing adjustments

Additional off-site transportation improvements were identified to be needed due to the addition of project traffic from the Trailhead Logistics Park North development. The following mitigation improvements are needed to support project traffic:

- Marion Oaks Boulevard at CR 484 extend the westbound left-turn lane to 625 feet (8.26% proportionate share allocation)
- SW 20th Avenue Road at CR 484 northbound right-turn permitted/overlap phasing with signal timing adjustments and installing an R10-16 (U-TURN YIELD TO RIGHT TURN) sign (100% proportionate share allocation).

The following interim improvements were identified to be needed at the intersection of SW 20<sup>th</sup> Avenue Road at CR 484 to support buildout traffic volumes in advance of the ultimate improvements at the intersection identified within the Marco Polo PUD:

- Re-striping the southbound approach to have a left-turn lane, through/left-turn lane, and right-turn lane
- Implementing split phasing for the northbound and southbound approaches

The developer will enter into a Chapter 163 Concurrency Development Agreement for the widening of SW 29th Avenue Road to four lanes from CR 484 to Marion Oaks Trail and install a traffic signal at the intersection with CR 484. The Concurrency Development Agreement will also address impact fee credits per Section 10-323 of the Marion County Code of Ordinances. The cost of the improvements to SW 29<sup>th</sup> Avenue Road and the intersection with CR 484 will exceed the cost of the required proportionate share transportation mitigation for the project.

The Chapter 163 Concurrency Development Agreement will also require an operational study of the intersection of SW 20<sup>th</sup> Avenue Road at CR 484 at various stages of development to determine the timing of the interim improvements. This traffic impact analysis has been completed based on the standards set forth in the approved methodology and supports the PUD zoning application and future Concurrency Development Agreement for transportation concurrency reservation for the project.

## D-37

# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

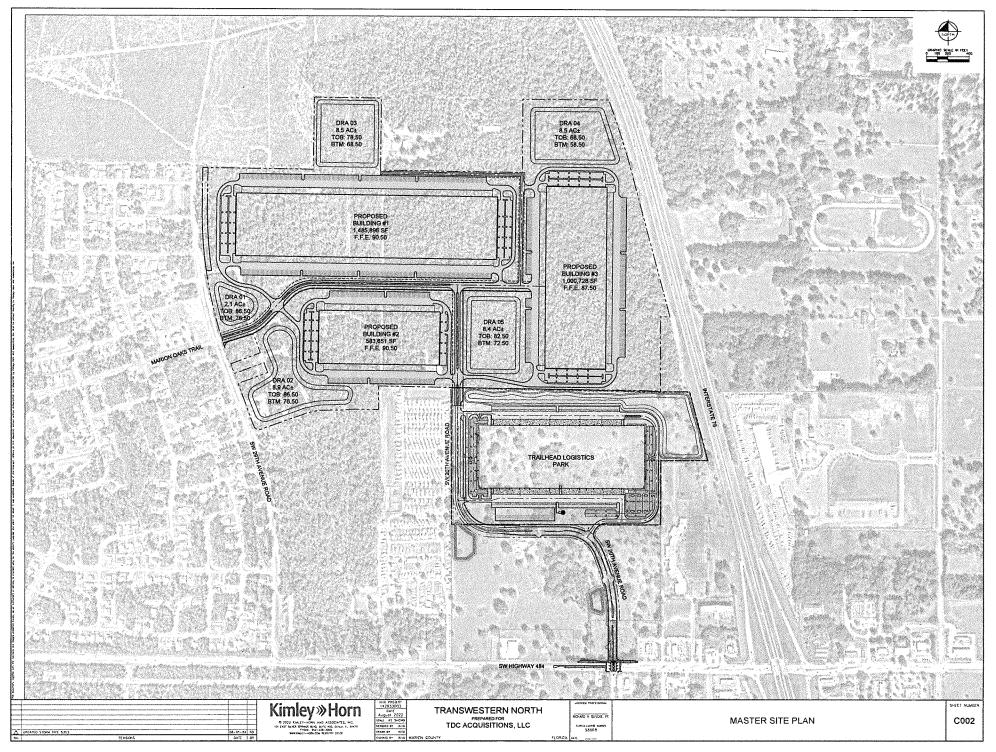
# APPENDICES

**D-38** 

# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

# APPENDIX A: CONCEPTUAL SITE DEVELOPMENT PLAN



**D-40** 

# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

# **APPENDIX B: TRAFFIC DATA**

2021 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL CATEGORY: 3600 MARION COUNTYWIDE

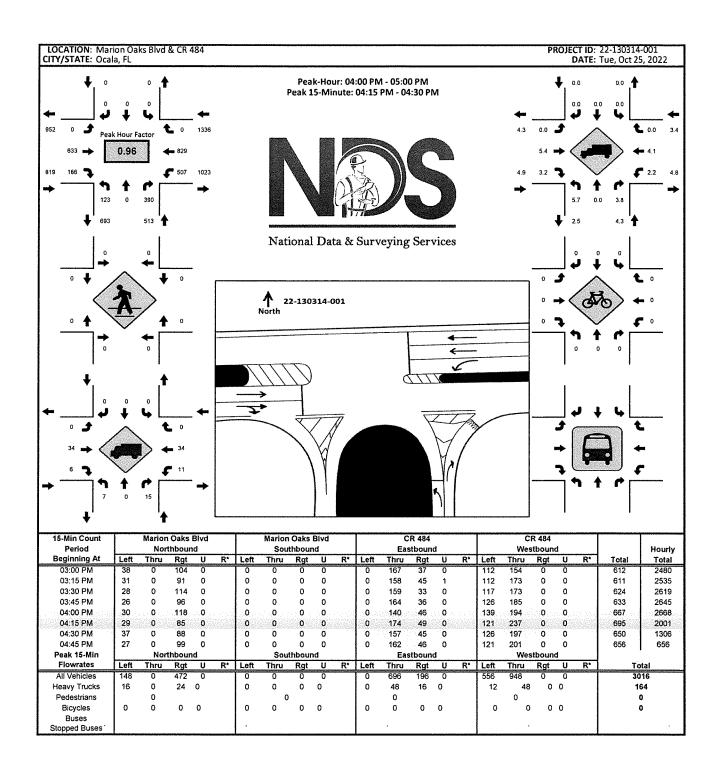
CAIEG	JRI: 3600 MARION COUNTINID	E.	MOCF: 0.98
WEEK	DATES	SF	PSCF
=======================================	01/01/2021 - 01/02/2021	0.98	1.00
2	01/03/2021 - 01/09/2021	1.04	1.06
3	01/10/2021 - 01/16/2021	1.10	1.12
4	01/17/2021 - 01/23/2021	1.09	1.11
5	01/24/2021 - 01/30/2021	1.08	1.10
6	01/31/2021 - 02/06/2021	1.07	1.09
7	02/07/2021 - 02/13/2021	1.06	1.08
8	02/14/2021 - 02/20/2021	1.06	1.08
9 10	02/21/2021 - 02/27/2021 02/28/2021 - 03/06/2021	1.03 1.01	1.05 1.03
11	02/28/2021 - 03/08/2021 03/07/2021 - 03/13/2021	0.99	1.01
*12	03/14/2021 - 03/20/2021	0.96	0.98
*13	03/21/2021 - 03/27/2021	0.96	0.98
*14	03/28/2021 - 04/03/2021	0.96	0.98
*15	04/04/2021 - 04/10/2021	0.96	0.98
*16	04/11/2021 - 04/17/2021	0.96	0.98
*17	04/18/2021 - 04/24/2021	0.97	0.99
*18	04/25/2021 - 05/01/2021	0.98	1.00
*19	05/02/2021 - 05/08/2021	0.99	1.01
*20	05/09/2021 - 05/15/2021	1.01	1.03
*21	05/16/2021 - 05/22/2021	1.00	1.02
*22	05/23/2021 - 05/29/2021	0.99	1.01
*23 *24	05/30/2021 - 06/05/2021 06/06/2021 - 06/12/2021	0.98 0.97	1.00 0.99
25	06/13/2021 - 06/12/2021 06/13/2021 - 06/19/2021	0.97	0.99
25	06/20/2021 - 06/26/2021	0.97	1.00
27	06/27/2021 - 07/03/2021	0.98	1.00
28	07/04/2021 - 07/10/2021	0.99	1.01
29	07/11/2021 - 07/17/2021	1.00	1.02
30	07/18/2021 - 07/24/2021	1.01	1.03
31	07/25/2021 - 07/31/2021	1.01	1.03
32	08/01/2021 - 08/07/2021	1.02	1.04
33	08/08/2021 - 08/14/2021	1.03	1.05
34	08/15/2021 - 08/21/2021	1.04	1.06
35	08/22/2021 - 08/28/2021	1.03	1.05
36	08/29/2021 - 09/04/2021	1.03	1.05
37	09/05/2021 - 09/11/2021	1.03	1.05
38 39	09/12/2021 - 09/18/2021 09/19/2021 - 09/25/2021	1.03 1.02	1.05 1.04
40	09/26/2021 - 10/02/2021	1.01	1.03
41	10/03/2021 - 10/09/2021	1.00	1.02
42	10/10/2021 - 10/16/2021	0.98	1.00
43	10/17/2021 - 10/23/2021	0.98	1.00
44	10/24/2021 - 10/30/2021	0.98	1.00
45	10/31/2021 - 11/06/2021	0.97	0.99
46	11/07/2021 - 11/13/2021	0.97	0.99
47	11/14/2021 - 11/20/2021	0.97	0.99
48	11/21/2021 - 11/27/2021	0.97	0.99
49	11/28/2021 - 12/04/2021	0.97	0.99
50 51	12/05/2021 - 12/11/2021 12/12/2021 - 12/18/2021	0.98 0.98	1.00 1.00
51	12/12/2021 - 12/18/2021 12/19/2021 - 12/25/2021	1.04	1.06
53	12/19/2021 - 12/23/2021 12/26/2021 - 12/31/2021	1.10	1.12

### \* PEAK SEASON

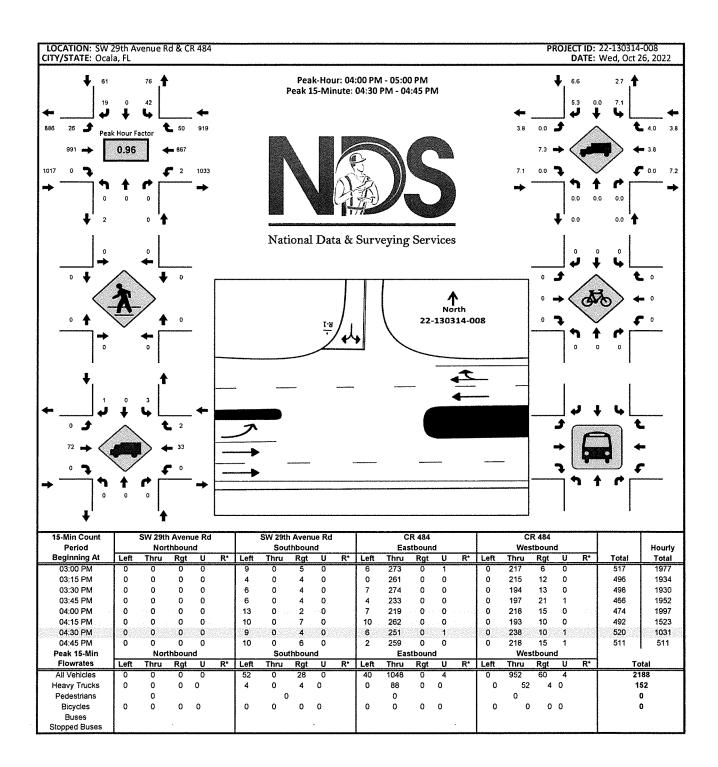
08-MAR-2022 12:36:27

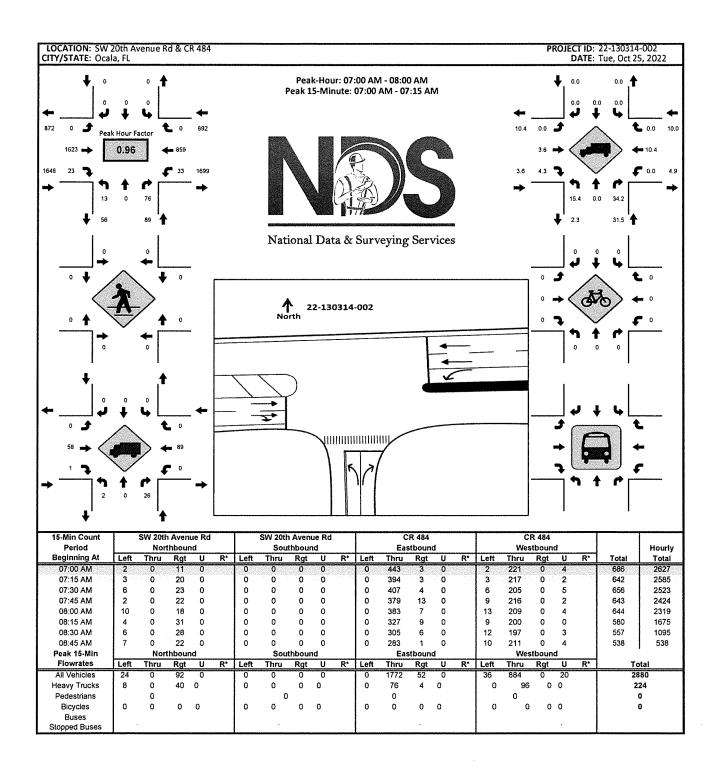
830UPD

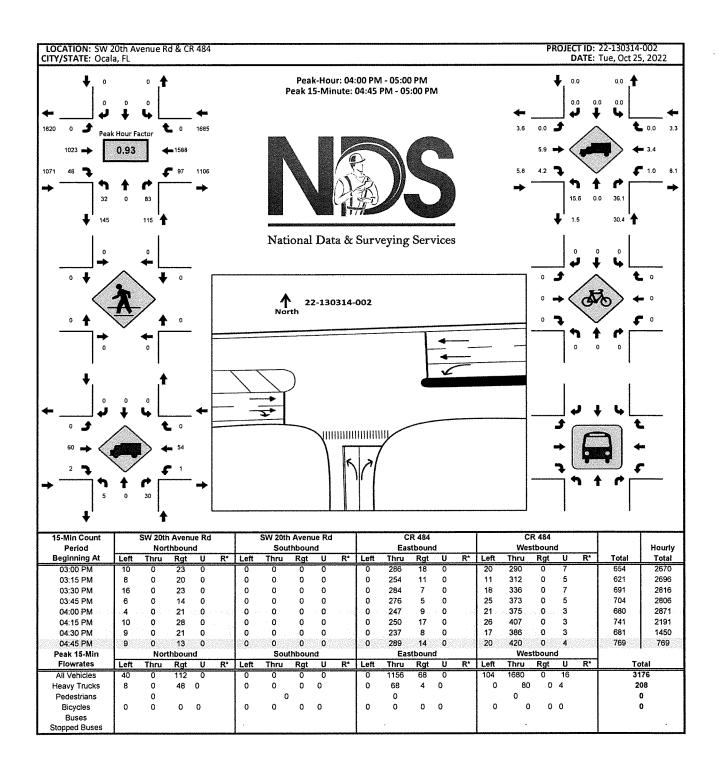
5\_3600\_PKSEASON.TXT

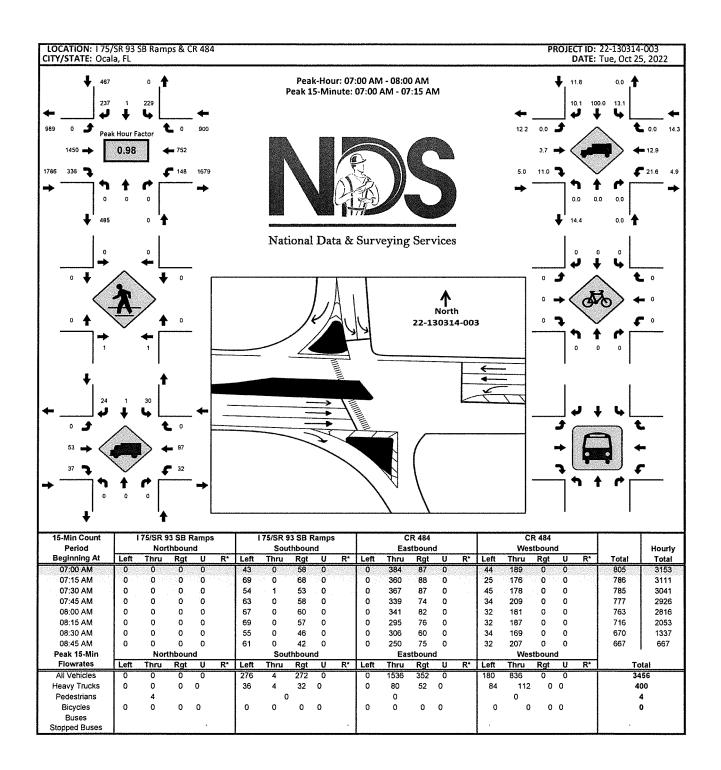


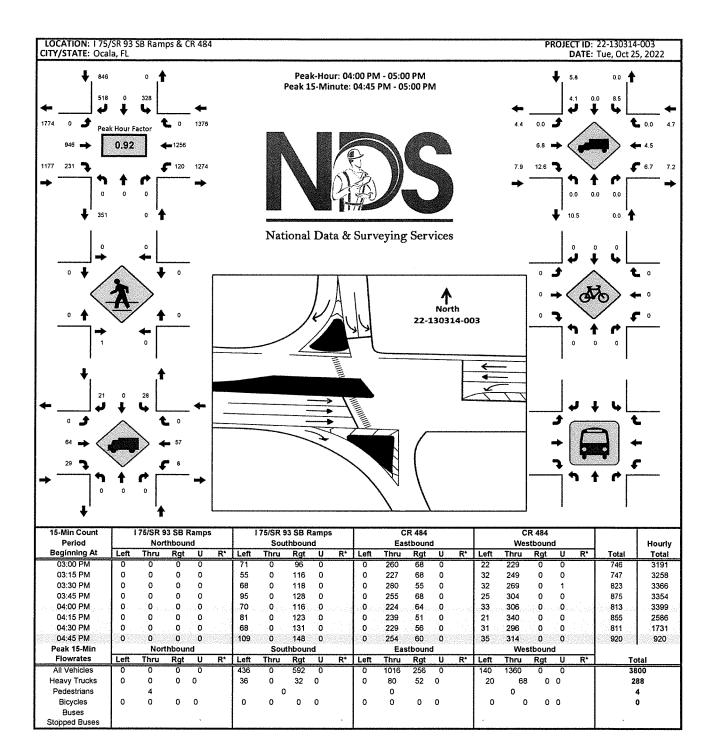
OCATION: SW 2 TY/STATE: Ocal	a, FL			DATE:	Tue, Apr 26, 20	222
♦ 169	61		00 AM - 08:00 AM 07:00 AM - 07:15 AM	• 00	4.9	
30 ليرا	0 139			00 00 الله الج		
29 7 1	<b>£</b> 54 953			9.9 0.0 2	<b>L</b> 5.6	1
Peal	k Hour Factor				$\sim$ -	
1391 🔿	0,90 🔶 899			4.1 🛶 🏈 🚮	10.2	2
				- ~	7 -	
· · ·	<b>F</b> 0 1530			4.1 0.0 🎝	<b>F</b> 0.0	
- <b>-</b> - <b>-</b> - <b>-</b> - <b>-</b> - <b>-</b>				→ <sup></sup> <sup>-</sup> <sup>-</sup> <sup>-</sup> <sup>-</sup>	<b>, ,</b>	•
0	0 0		がノノノ	0.0 0	0.0	
<b>↓</b> 。	₀ <b>'</b> ♠			<b>↓</b> 0.0	0.0	
•••	•			¥		
0	o	National Data &	Surveying Services	0	0 0	
→	←			• •	F & L	
∘ ♦	∧ ♦ °			• 🗲 /	t o	
· /		1	1	/ <b>.</b>	3	
<				∘ → <&		
• • `				· ¬ \	/ <b>r</b> •	
			22-130	0110-001	· · · · · · · · · · · · · · · · · · ·	
-	-					
ľ	°	1-X K-1	1			
1						
•	1	T-N O				
↓ ↓	, <b>↑</b>	<u> </u>				
, •	↓	÷				
د ا	, , , , , , , , , , , , , , , , , , ,				, .	
۔ بہ ا				ا ب به ا		
ٰ بہ لیے . پر و ہ	° ° ° − −			ا ب بہ ا چم و	,	
ا بہ • و • •				ب رہ ا و و و ا		
+ • • • • _ • • •						
+ + • • • • • •						
				· · · · · · · · · · · · · · · · · · ·	· • • −	
					• • •	
					   4   	
57 → ( 0 → 1 0 → 1 15-Min Count		SW 29th Avenue Rd	CR 484/SW Hwy 484		• • •	
57 →	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	SW 29th Avenue Rd Southbound	CR 484/SW Hwy 484 Eastbound	Westbound		
57 + 0 0 3 15-Min Count Period Beginning At	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	SW 29th Avenue Rd Southbound Left Thru Rgt U R*	CR 484/SW Hwy 484 Eastbound Left Thru Rgt U R*	Westbound Left Thru Rgt U R*	Total 1	ota
57 → 0 → 15-Min Count Period Beginning At 07:00 AM		SW 29th Avenue Rd Southbound Left Thru Rgt U R <sup>4</sup>	CR 484/SW Hwy 484 Eastbound Left Thru Rgt U R* 1 407 0 0	Westbound Left Thru Rgt U R* 0 231 21 0	Total 1 697 2	ota 2520
57 + 0 0 3 15-Min Count Period Beginning At		SW 29th Avenue Rd Southbound Left Thru Rgt U R*	CR 484/SW Hwy 484 Eastbound Left Thru Rgt U R*	Westbound Left Thru Rgt U R* 0 231 21 0	Total 1 697 2 651 2 577 2	ota 2520 235 2240
57 → 0 → 15-Min Count Period Beginning At 07:00 AM 07:15 AM 07:30 AM 07:45 AM		SW 29th Avenue Rd Southbound Left Thru Rgt U R <sup>2</sup> 34 0 3 0 32 0 7 0 42 0 10 0 31 0 10 0	CR 484/SW Hwy 484 Eastbound Left Thru Rgt U R* 1 407 0 0 1 355 0 0 0 307 0 0 5 322 0 0	Westbound           Left         Thru         Rgt         U         R*           0         231         21         0           0         245         11         0           0         209         9         0           0         214         13         0	Total 1 697 2 651 2 577 2 595 2	ota 2520 235 2240 220
57 → 0 → 15-Min Count Period Beginning At 07:00 AM 07:15 AM 07:30 AM 07:45 AM 08:00 AM	$\begin{array}{c c} & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ &$	J           SW 29th Avenue Rd Southbound           Left         Thru           Rgt         U           34         0         3           32         0         7           42         0         10           31         0         10           31         0         10           37         0         7	CR 484/SW Hwy 484           Eastbound           Left         Thru         Rgt         U         R°           1         407         0         0         1           1         355         0         0         0           1         355         0         0         0           5         322         0         0         2         295         0         0	Westbound           Left         Thru         Rqt         U         R°           0         231         21         0         0         0         245         11         0         0         209         9         0         0         214         13         0         0         205         7         0         245         7         0         214         13         0         0         205         7         0	Total         1           697         2           651         2           577         2           595         2           534         2	ota 2520 235 2240 220 206
57 → 0 → 15-Min Count Period Beginning At 07:15 AM 07:30 AM 07:45 AM 07:30 AM 08:05 AM		SW 29th Avenue Rd           Southbound           Left         Thru           Rgt         U           34         0         3           0         3         0           32         0         7         0           42         0         10         0           31         0         10         0           17         0         7         0           14         0         3         0	CR 484/SW Hwy 484           Eastbound           Left Thru Rgt U R*           1         407         0         0           1         355         0         0           0         307         0         0           5         322         0         0           2         296         0         0           4         324         0         1	Westbound           Left         Thru         Rgt         U         R*           0         231         21         0           0         245         11         0           0         209         9         0           0         214         13         0           0         205         7         0           0         188         6         0	Total         1           697         2           651         2           577         2           595         2           534         2           540         1	ota 2520 235 2240 220 206 153
57 → 0 3 15-Min Count Period Beginning At 07:15 AM 07:15 AM 07:45 AM 08:15 AM 08:30 AM	↓         ↓	J           Southbound           Left         Thru           Rd         0           34         0         3           32         0         7           34         0         3         0           31         0         10         0           17         0         7         0           17         0         4         0	CR 484/SW Hwy 484 Eastbound           Left         Thru         Rgt         U         R*           1         407         0         0         0         0         0         0         0         0         0         0         0         0         0         0         2         2         0         0         2         295         0         0         4         324         0         1         0         306         0	Westbound           Left         Thru         Rgt         U         R*           0         231         0         -         <	Total         1           697         2           651         2           577         2           595         2           534         2           534         1           534         1	ota 2520 235 2240 2063 153 991
57 → 0 → 15-Min Count Period Beginning At 07:00 AM 07:15 AM 07:30 AM 07:45 AM 08:00 AM 08:30 AM 08:45 AM		J           Southbound           Left         Thru           Rd         0           34         0         3           32         0         7           34         0         3         0           31         0         10         0           17         0         7         0           17         0         4         0	CR 484/SW Hwy 484           Eastbound           Left Thru Rgt U R*           1         407         0         0           1         355         0         0           0         307         0         0           5         322         0         0           2         296         0         0           4         324         0         1	Westbound           Left         Thru         Rgt         U         R*           0         231         0         -         <	Total         1           697         2           651         2           577         2           595         2           534         2           534         1           534         1	ota 2520 235 2240 2063 153 991
57 → 0 3 15-Min Count Period Beginning At 07:00 AM 07:15 AM 07:00 AM 07:45 AM 08:15 AM 08:30 AM 08:30 AM 08:35 AM 9eak 15-Min Flowrates		J           Sw 29th Avenue Rd           Southbound           Left         Thru           Rgt         U           Rdt         0           34         0           32         0           7         0           31         0           10         0           17         0           16         0           17         4           0         3           15         0           30         10           15         0           16         N           17         4           0         10           16         X           17         X           18         X           19         X           10         X           117         X           117         X           117         X           117         X           117         X           117         X           118         X           119         X           110         X           X	CR 484/SW Hwy 484           Eastbound           Left         Thw         Rgt         U         R*           1         407         0         0         0         0         0         0         0         0         0         0         2         2         0         0         2         2         0         0         2         2         2         0         0         2         2         305         0         0         2         2         4         0         1         0         306         0         0         2         2         241         0         0         Eastbound         Eastbound         Left         Thru         Rgt         U         R*	Westbound           Left         Thru         Rgt         U         R*           0         231         21         0           0         245         11         0           0         245         11         0           0         209         9         0           0         205         7         0           0         188         6         0           0         197         10         0           0         190         6         0           Westbound         Heft         Thru         Rgt         U	Total         1           697         2           651         2           577         2           595         2           534         2           540         1           534         2           540         1           534         2           540         1           534         2           Total         1	ota 2520 2357 2240 2065 153 991
57 → 0 → 15-Min Count Period Beginning At 07:00 AM 07:15 AM 07:00 AM 07:15 AM 08:00 AM 08:00 AM 08:05 AM 08:45 AM Peak 15-Min Piowrates All Vehicles	↓       ↓	SW 29th Avenue Rd           Southbound           Left           Thru         Rgt         U           34         0         3         0           32         0         7         0           44         0         3         0           31         0         10         0           17         0         7         0           14         0         3         0           17         0         7         0           14         0         3         0           15         0         3         0           Southbound         Left         Thru         Rgt         U           166         0         40         0	CR 484/SW Hwy 484           Eastbound           Left         Thru         Rgt         U         R*           1         407         0         0         1           1         355         0         0         0           1         355         0         0         0           2         296         0         0         2           2         296         0         0         2           2         296         0         0         2           2         241         0         0         Eastbound           Left         Thru         Rgt         U         R*           20         1628         0         0         0         0	Westbound           Left         Thru         Rqt         U         R*           0         231         21         0         0           0         245         11         0         0           0         245         11         0         0           0         209         9         0         0         0         205         7         0         0         188         6         0         0         197         10         0         0         197         10         0         0         197         10         0         0         190         6         0         Westbound         U         R*         0         980         84         0         1         1         0         1         0         0         1         0         1         0         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1	Total         1           697         2           651         2           577         2           595         2           534         2           534         4           457         Total           Total	ota 2520 2357 2240 2065 153 991
57 → 0 0 15-Min Count Period Beginning At 07:15 AM 07:30 AM 07:45 AM 08:00 AM 08:15 AM 08:30 AM 08:45 AM Peak 15-Min Flowrates All Vehicles Heavy Trucks	↓       ↓	SW 29th Avenue Rd           Southbound           Left         Thru           Rgt         U           32         0           32         0           10         0           31         0           32         7           10         0           17         0           10         0           17         0           168         0           0         0	CR 484/SW Hwy 484           Eastbound           Left         Thru         Rgt         U         R*           1         407         0         0         0         0         0         0         1         355         0         0         0         2         296         0         0         4         324         0         1         0         3056         0         0         2         241         0         0         C         Eastbound         Left         Thru         Rgt         U         R*         20         1628         0         0         0         76         0         0         1	Westbound           Left         Thru         Rqt         U         R*           0         231         21         0         0         0         201         0         0         201         0         0         202         9         0         0         202         9         0         0         214         13         0         0         205         7         0         0         188         6         0         0         197         10         0         0         190         6         0         Westbound         Westbound         Left         Thru         Rqt         U         R*         0         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         113         113         13         13         13         13         13         13         13         13         14         13         14         13         10         13         13         10         1	Total         1           667         2           651         2           577         2           595         2           534         2           537         2           607         1           29200         1           196         2	our fota 252( 22357 224( 2203 2065 153 - 991 457
57 → 0 → 15-Min Count Period Beginning At 07:00 AM 07:15 AM 07:00 AM 07:45 AM 08:00 AM 08:15 AM 08:30 AM 08:30 AM 08:30 AM 08:34 AM Peak 15-Min Flowrates All vehicles Heavy Trucks Pedestrians	↓       ↓       3         ↓       92       ↓         ↓       92       ↓         ↓       92       ↓         ↓       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	SW 29th Avenue Rd           Southbound           Left         Thru           Rd         U           34         0           32         0           7         0           42         0           10         10           17         0           18         0           17         4           0         3           17         4           15         0           3         0           168         0           0         0           0         0	CR 484/SW Hwy 484           Eastbound           Left         Thw Rgt         U         R*           1         407         0         0           1         355         0         0           0         307         0         0           5         322         0         0           2         295         0         0           4         324         0         1           0         306         0         0           241         0         0         Eastbound           Left         Thru         Rgt         U         R*           20         1628         0         0         0           0         0         76         0         0	Westbound           Left         Thru         Rgt         U         R*           0         231         21         0         0         245         11         0         0         245         11         0         0         245         11         0         0         209         9         0         0         205         7         0         0         188         6         0         0         197         10         0         190         6         0         0         190         6         0         Westbound         Westbound         U         R*         0         112         8         0         0         112         8         0         0         0         112         8         0	Total         1           697         2           651         2           577         2           595         2           534         2           534         4           457         Total           Total           Z920	ota 2520 2357 2240 2065 153 991
57 → 0 0 → 10 15-Min Count Period Beginning At 07:15 AM 07:30 AM 07:45 AM 08:00 AM 08:15 AM 08:45 AM Peak 15-Min Flowrates All Vehicles Heavy Trucks	↓       ↓	SW 29th Avenue Rd           Southbound           Left         Thru           Rgt         U           32         0           32         0           10         0           31         0           32         7           10         0           17         0           10         0           17         0           168         0           0         0	CR 484/SW Hwy 484           Eastbound           Left         Thru         Rgt         U         R*           1         407         0         0         0         0         0         0         1         355         0         0         0         2         296         0         0         4         324         0         1         0         3056         0         0         2         241         0         0         C         Eastbound         Left         Thru         Rgt         U         R*         20         1628         0         0         0         76         0         0         1	Westbound           Left         Thru         Rqt         U         R*           0         231         21         0         0         0         201         0         0         201         0         0         202         9         0         0         202         9         0         0         214         13         0         0         205         7         0         0         188         6         0         0         197         10         0         0         190         6         0         Westbound         Westbound         Left         Thru         Rqt         U         R*         0         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         112         8         0         113         113         13         13         13         13         13         13         13         13         14         13         14         13         10         13         13         10         1	Total         1           667         2           657         2           557         2           595         2           534         2           534         4           2920         196           0         0	ota 2520 2357 2240 2065 153 991

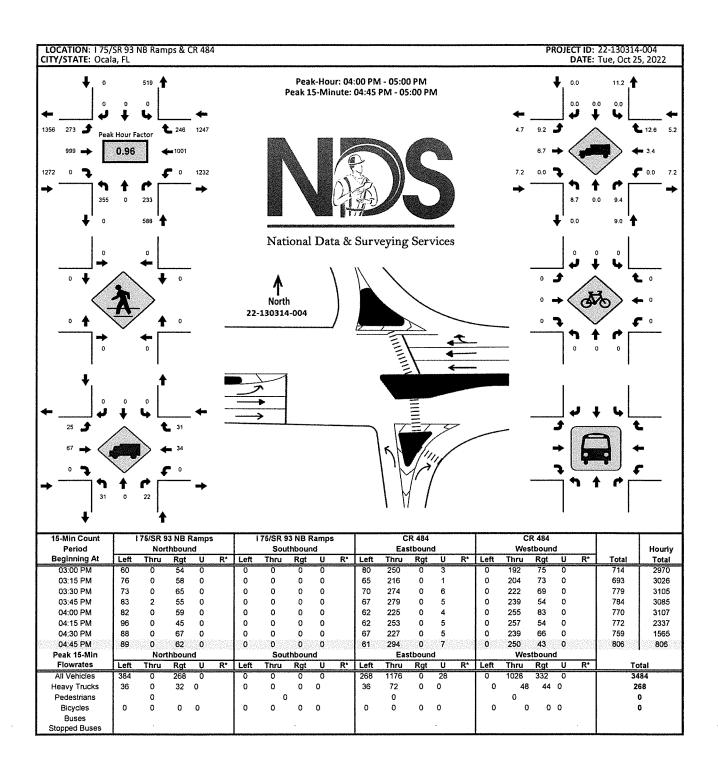


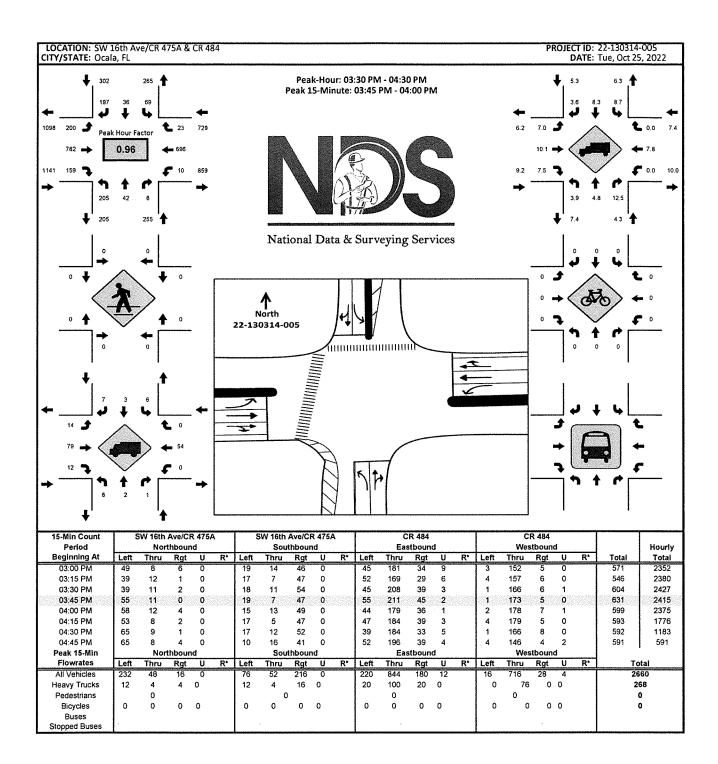


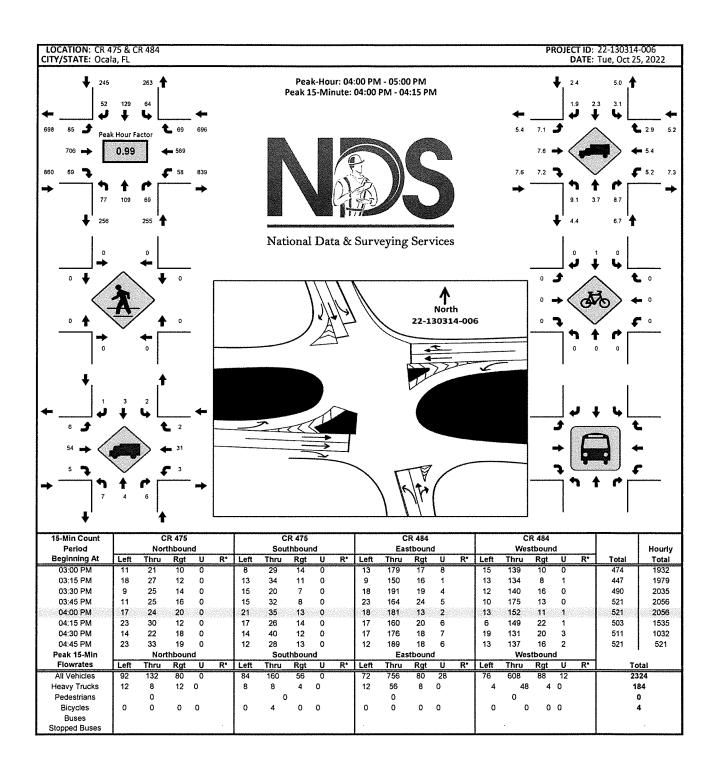


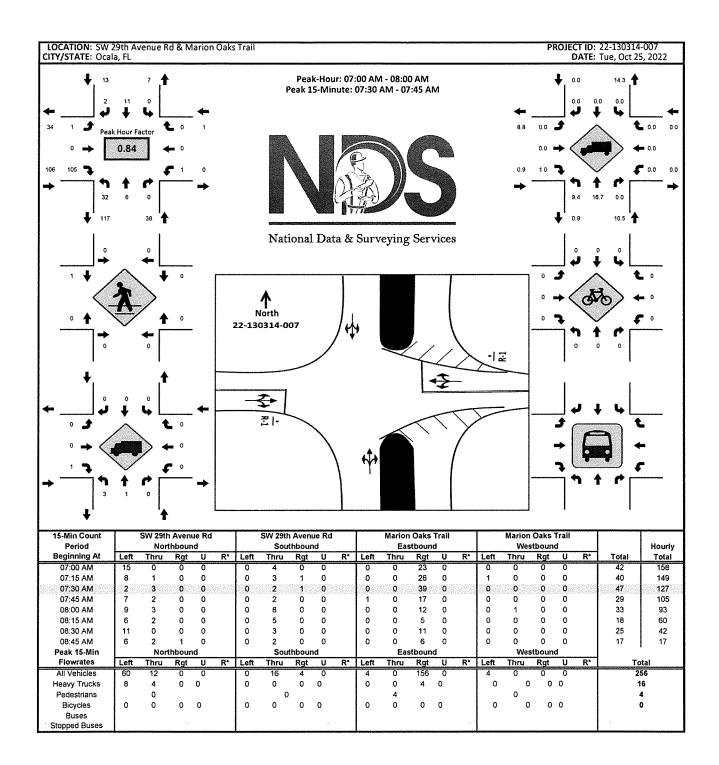


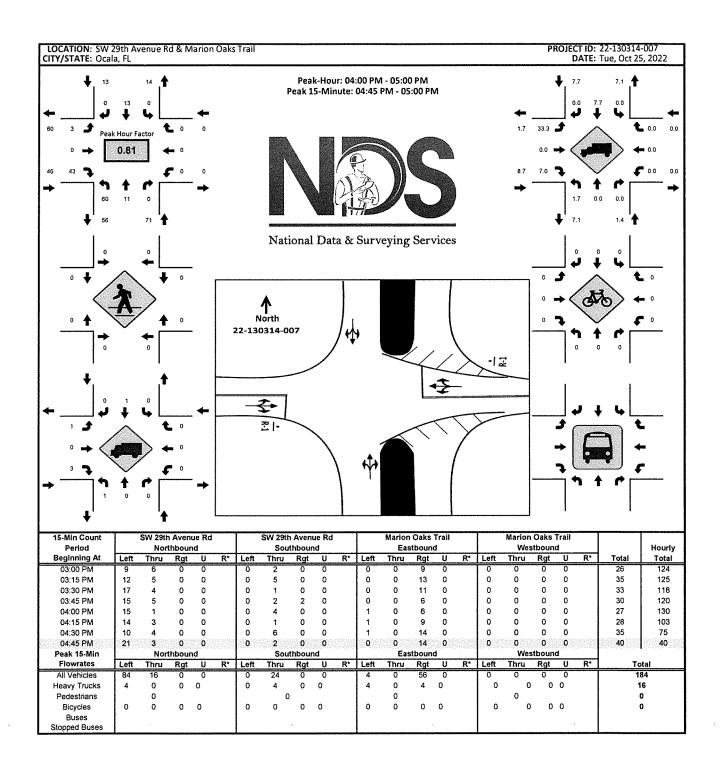














# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

# APPENDIX C: SIGNAL TIMING WORKSHEETS

### Marion County Office of the County Engineer



Signal ID	Major Street		Minor Street		Date		Technician		
158	SWHW	VY 484	Marion C	Daks Blvd	12/10/2020		Watson		
Basic Timing	<b>I</b>		····		<b>I</b>				
PHASE		Φ1	Φ2	Φ3	Φ4	Φ5	Φ6	Φ7	Φ8
DIRECT	ON		WB		NB	WBLT	EB		
MIN GR	1		15		10	10	15		
GAP EXT	Г		3.0		3.0	3.0	3.0		
MAX 1			52		35	25	52		
MAX 2									
YEL CLR	2		4.8		4.8	4.8	4.8		
RED CLF	२		2.0		3.7	2.0	2.0		
WALK									
PED CLF	र								
MIN REC	ALL		X				X		
MAX REG	CALL								
PED REC	CALL								
NON-LO	CK CALL					X			
DUAL E	NTRY		X				X		
					· · ·	1	1		1

### Signal Operating Plan

**REST IN WALK** 



Additional Notes (Turning Retrictions?, Overlaps?, Etc.) 1) Detector switching used for Phase 5 and 6.

Coordination

< No

Yes

Split		Movement Number										
Obuc	1	2	3	4	5	6	7	8	COMMENTS			
1												
2												
3												

**Time Patterns for Coordination** 

Designed By:	S.M.P.	Section		Mile Post		Node	1
Date:	6/8/2022	Sig ID	259	System ID		SOP	12
Checked By:	J.M.	Maj. Street	CR 484	Orientation	E-W	Controller	Siemens m60
Date:	6/8/2022	Min. Street	SW 20th Ave Rd	Orientation	N-S	Firmware	5,3,1

					Data Inpu	ıts		zanorazanunit tartiz sinit			Time Of Day		
	ovement # oller Phas		1	2	3	4	5	6	7	8	We	ekday*	
	Direction			WB		NB	WBL	EB			Plan	C-O-S	Time
Spee	d Limit (m	ph)		45		35	45	45			FREE	254	0:01
Vehicle	Traversed	Width		98		89	106	93			AM	1	6:10
Appr	oach Grad	ies		0.4%		1.0%	0.4%	-1.7%			MIDDAY	19	9:00
Ped-X	(curb to c	urb)									PM	37	15:00
Cro	ssing Tim	e									MIDDAY	19	18:30
Ped-X (	button to	curb)									FREE	254	21:00
Ped-X (b	utton to fa	r curb)											
Crossing	Time (to f	ar curb)											
				Contro	ller Timings	s (seconds)							
	ovement # olier Phas		1	2	3	4	5	6	7	8	w	eekend	
1	Direction			WB		NB	WBL	EB			Sa	iturday	
Т	'um Type						Prot/Perm				Plan	C-O-S	Time
N	lin Green			15		10	10	15			FREE	254	0:01
	Ext			4.0		5.0	4.0	5.0			WKND OffPk	59	9:00
Yellow Change Interval			4.9		4.0	4.8	4.9			WKND	55	12:00	
Red Cle	Red Clearance Interval			2.0		2.0	2.5	2.0			WKND OffPk	59	19:00
	Max I			34		35	25	35			FREE	254	21:00
	Max II			0		0	0	0					
	Walk												
Flashi	ing Don't V	Valk									S		
N	Ain Splits			22.0		16.0	18.0	22.0			Plan	c-o-s	Time
Non-Lo	ocking Me	mory				ON	ON				FREE	254	0:01
Det. C	Cross Swit	ch.					ON				WKND	55	9:45
	Recall			Min				Min			FREE	254	20:00
D	ual Entry			ON				ON					
Co	ord Phase	)		YES				YES					
													<u> </u>
					Coordi		ings (secon	us)			Cycle		
Plan	Pattern	C-O-S				Sp	olits				Length	Offset	Seq
АМ	1		-	154	-	26	28	126	-	-	180	165	0
MIDDAY	19		-	116	-	24	23	93		-	140	100	0
РМ	37		-	154	-	26	27	127	-	-	180	83	0
WKND	55		-	116		24	23	93	-	-	140	100	0
WKND OffPk	59		-	116	-	24	23	93	-	-	140	100	0
								•			· · ·		ļ
						ļ			ļ		<b>_</b>		<b> </b>
							ļ						ļ
					L				L	L		L	

Notes:

1) Offset referenced to "end of mainstreet green"

2) Use Plan Force Offs

3) Use Inhibit Max termination during coordination

\*Friday follows standard weekday plan except Pattern 37 begins at 14:00

		All Plans						
Ring-1		2	4					
Ring-2	5	6						

Designed By:	S.M.P.	Section		Mile Post		Node	2
Date:	6/8/2022	Sig ID	58	System ID		SOP	14
Checked By:	J.M.	Maj. Street	CR 484	Orientation	E-W	Controller	Siemens m60
Date:	6/8/2022	Min. Street	I-75 SB Ramps	Orientation	N-S	Firmware	5.3.1

					Data Inpu	ıts					Time Of Day		
	vement # oller Phas		1	2	3	4	5	6	7	8	w	ekday*	
1	Direction			WB		SB	WBL	EB			Plan	C-O-S	Time
Spee	d Limit (m	ph)		45		35	45	45			FREE	254	0:01
Vehicle	Traversed	Width		114		120	78	105			AM	1	5:30
Appr	oach Grad	les		1.6%		-1.0%	1.6%	-5.2%			MIDDAY	19	9:00
Ped-X	(curb to c	urb)		26		104					PM	37	15:00
Cro	ssing Tim	e		8		30					MIDDAY	19	18:30
Ped-X (	button to	curb)		18		19			]		FREE	254	21:00
Ped-X (b	utton to fa	r curb)		44		123					1		
Crossing	Time (to f	ar curb)		15		41					1		
				Contro	ller Timing	s (seconds)				2004-YARAKIAKI - A J			
	vement # oller Phas		1	2	3	4	5	6	7	8	w	eekend	
t	Direction			WB		SB	WBL	EB			Sa	aturday	
Т	um Type						Prot/Perm				Plan	C-O-S	Time
N	lin Green			18		7	7	18			FREE	254	0:01
	Ext			3.0		3.0	4.0	3.0			WKND OffPk	59	9:00
Yellow	Yellow Change Interval			5.4		4.1	5.4	5.4			WKND	55	12:00
Red Cle	Red Clearance Interval			2.0		2.9	2.0	2.0			WKND OffPk	59	19:00
	Max I			50		25	20	50			FREE	254	21:00
******	Max II			75		25	20	80					
	Walk			7		7							
Flashi	ng Don't V	Valk		12		30					s	unday	
N	lin Splits			27.0		44.0	15.0	26.0			Plan	C-0-S	Time
Non-Lo	cking Me	mory				ON	ON				FREE	254	0:01
Det. C	ross Swit	ch.					ON				WKND	55	9:45
	Recall			Min				Min			FREE	254	20:00
D	ual Entry			ON				ON			1		
Co	ord Phase	)		YES				YES					
									****				
					Coord	ination Tim	ings (secon	ds)					
Plan	Pattern	c-o-s				Sp	lits				Cycle Length	Offset	Seq
АМ	1		-	134	-	46	28	106	-	-	180	6	2
MIDDAY	19		-	102	-	38	24	78	-	-	140	118	2
РМ	37		-	120	-	60	27	93	-	-	180	58	2
WKND	55		-	102	-	38	27	75	-	-	140	114	2
WKND OffPk	59		-	103	-	37	27	76	-	•	140	114	2
		·			•			•					

### Notes:

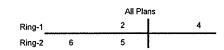
1) Offset referenced to "end of mainstreet green"

2) Use Plan Force Offs

3) Use Inhibit Max termination during coordination

4) Use Min Recall on phase 5 during coordination

\*Friday follows standard weekday plan except 37 begins at 14:00



Designed By:	S.M.P.	Section		Mile Post		Node	3
Date:	6/8/2022	Sig ID	36	System ID		SOP	15
Checked By:	J.M.	Maj. Street	CR 484	Orientation	E-W	Controller	Siemens m60
Date:	6/8/2022	Min, Street	I-75 NB Ramps	Orientation	N-S	Firmware	5.3.1

				*****	Data Inpu	its					Time Of Day		
	ovement # oller Phase		1	2	3	4	5	6	7	8	W	eekday*	
[	Direction		EBL	WB		NB		EB			Plan	C-O-S	Time
Spee	d Limit (m	ph)	45	45		35		45			FREE	254	0:01
Vehicle	Traversed	Width	99	94		103		112			AM	1	5:30
Appr	oach Grad	es	-1.5%	1.2%		-1.0%		-1.5%			MIDDAY	19	9:00
Ped-X	(curb to c	urb)		22		101					PM	37	15:00
Cro	ssing Tim	e		7		29					PM Peak	7	16:45
Ped-X (	button to	:urb)		11		19					PM OffPk	23	18:30
Ped-X (b	utton to fa	r curb)		33		120					FREE	254	21:00
Crossing	Time (to fa	ar curb)		11		40							
				Contro	ller Timing	s (seconds)							
	ovement # oller Phase		1	2	3	4	5	6	7	8	w	eekend	
E	Direction		EBL	WB		NB		EB			Sa	turday	
T	um Type		Prot/Perm								Plan	C-O-S	Time
N	lin Green		7	20		7		20			FREE	254	0:01
	Ext		4.0	4.0		5.0		4.0			WKND OffPk	59	9:00
Yellow	Yellow Change Interval		4.9	4.9		4.1		4.9			WKND	55	12:00
Red Cle	Red Clearance Interval		2.3	2.0		2.4		2.0			WKND Pk	63	13:00
	Max I		15	70		45		70			WKND	55	14:00
	Max II		30	90		23		80			WKND OffPk	59	19:00
	Walk			7		7					FREE	254	21:00
Flashi	ng Don't V	Valk		12		29					s	unday	
N	lin Splits		15.0	27.0		43.0		27.0			Plan	C-O-S	Time
Non-Lo	ocking Mer	nory	ON			ON					FREE	254	0:01
Det. C	cross Swit	ch.									WKND	55	9:45
	Recall			Max		Min		Max			FREE	254	20:00
D	ual Entry			ON				ON					
Co	ord Phase	•		YES				YES					
									****				
			r		Coord	ination Timi	ngs (secon	ds)			Cycle	1	<u> </u>
Plan	Pattern	c-o-s				Sp	lits				Length	Offset	Seq
АМ	1		70	71	-	39	-	141	-	~	180	33	0
MIDDAY	19		44	59	-	37	-	103	-	-	140	137	0
РМ	37		51	79	-	50	-	130	-	~	180	65	0
PM Peak	7		47	79	-	54	-	126	-	-	180	61	0
PM OffPk	23		44	52	-	44	-	96	-	-	140	137	0
WKND	55 ·		36	67	-	37	-	103	-	-	140	134	0
WKND OffPk	59		34	70	-	36	-	104	-	-	140	135	0
WKND Pk	63		34	71	-	35	-	105	-	-	140	134	0

Notes:

1) Offset referenced to "end of mainstreet green"

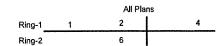
2) Use Plan Force Offs

3) Use Inhibit Max termination during coordination

4) Use Max Recall on phase 1 during coordination

5) Following general recall configuration due to bad loop on phase 1

\*Friday follows standard weekday plan except 37 begins at 14:00



Designed By:	S.M.P.	Section		Mile Post		Node	4
Date:	6/8/2022	Sig ID	38	System ID		SOP	10
Checked By:	J.M.	Maj. Street	CR 484	Orientation	E-W	Controller	Siemens m60
Date:	6/8/2022	Min. Street	CR 475A/SW 16th Ave	Orientation	N-S	Firmware	5,3,1

ſ					Data Inpu	Its					Time	e Of Day	/
B C C C C C C C C C C C C C C C C C C C	vement # oller Phase		1	2	3	4	5	6	7	8	We	ekday*	
[	Direction		WBL	EB	NBL	SB	EBL	WB	SBL	NB	Plan	C-O-S	Time
Spee	d Limit (m	ph)	45	45	45	45	45	45	45	45	FREE	254	0:01
Vehicle	Fraversed	Width	118	113	94	97	120	119	91	115	АМ	1	6:10
Appr	oach Grad	les	-0.7%	-1.0%	-1.1%	-1.0%	-1.0%	-0.7%	-1.0%	-1.1%	MIDDAY	19	9:00
Ped-X	(curb to c	urb)				94		85			PM	37	15:00
Cro	ssing Tim	e				27		25			PM OffPk	41	17:30
Ped-X (	button to	curb)				13		14			MIDDAY	19	18:30
Ped-X (b	utton to fa	r curb)				107		99			FREE	254	21:00
Crossing	Time (to fa	ar curb)				36		33					
				Contro	ller Timings	(seconds)							
	vement # oller Phase		1	2	3	4	5	6	7	8	w	eekend	
τ	Direction		WBL	EB	NBL	SB	EBL	WB	SBL	NB	Sa	turday	
Т	urn Type		Prot/Perm		Prot/Perm		Prot/Perm		Prot/Perm		Plan	C-O-S	Time
N	lin Green		6	15	6	10	6	15	6	10	FREE	254	0:01
	Ext		3.0	4.5	3.0	3.0	3.0	4.5	3.0	3.0	WKND OffPk	59	9:00
Yellow	Change Inf	terval	4.8	4.9	4.9	4.9	4.9	4.9	4.9	4.9	WKND	55	12:00
Red Cle	arance Int	terval	2.8	2.0	2.2	2.0	2.9	2.0	2.1	2.0	WKND OffPk	59	19:00
	Max I		20	50	25	30	20	50	25	30	FREE	254	21:00
	Max II		0	0	0	0	0	0	0	0	ļ		
	Walk					7		7					
Flashi	ng Don't V	Valk				27		25	<u> </u>		₿	unday	
N	lin Splits		14.0	22.0	14.0	41.0	14.0	39.0	13.0	17.0	Plan	C-O-S	Time
Non-Lo	cking Mer	nory	ON		ON	ON	ON		ON	ON	FREE	254	0:01
Det. C	ross Swit	ch.	ON		ON		ON		ON		WKND	55	9:45
	Recall			Min				Min			FREE	254	20:00
	ual Entry			ON		ON		ON		ON	ļ		
Co	ord Phase	•		YES				YES		[	<b> </b>		
					Coordi	nation Tim	ings (secon	ds)			1	•	in a success to be
Plan	Pattern	c-o-s					lits				Cycle Length	Offset	Seq
АМ	1		18	91	30	41	50	59	21	50	180	10	0
MIDDAY	19		20	67	27	26	28	59	27	26	140	125	0
РМ	37		18	97	34	31	29	86	26	39	180	58	0
PM OffPk	41		18	88	40	34	28	78	25	49	180	58	0
WKND	55		20	69	28	23	29	60	25	26	140	130	0
WKND OffPk	59		20	· 73	24	23	29	64	24	23	140	130	0
									ļ			ļ	
											L		
l								L	<u> </u>	<u> </u>	L	L	1

Notes:

1) Offset referenced to "end of mainstreet green"

2) Use Cycle Force Offs

3) Use Inhibit Max termination during coordination

\*Friday follows standard weekday plan except 37 begins at 14:00

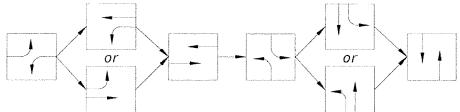
		All Pla	ns	
Ring-1	1	2	3	4
Ring-2	5	6	7	8

### Marion County Office of the County Engineer



Field Notes Signal ID Ma	jor Street	Minor St	reet	Date		Technician		
37	SE HWY 484		HWY 475		0/2020	Technician	Watson	
I	0211011404		11001 475	12/1	0/2020	1	VValSON	
Basic Timing								
PHASE	Φ	1 Φ2	Φ3	Φ4	Φ5	Φ6	Φ7	Φ8
DIRECTION	EBI	_T WB	SBLT	NB	WBLT	EB	NBLT	SB
MIN GRN	8	17	8	8	8	17	8	8
GAP EXT	3.0	) 3.0	3.5	3.0	3.0	3.0	3.0	3.0
MAX 1	25	5 45	25	25	20	45	25	25
MAX 2								
YEL CLR	5.5	5 5.7	5.5	5.5	5.5	5.7	5.5	5.5
RED CLR	4.1	1 2.0	4.5	2.7	3.0	2.0	4.5	2.7
WALK								
PED CLR								
MIN RECALI	-	X				X		
MAX RECAL	L							
PED RECAL	L							
NON-LOCK	CALL		X	X			X	X
DUAL ENTR	Y			X				X
<b>REST IN WA</b>	LK							

### Signal Operating Plan



Additional Notes (Turning Retrictions?, Overlaps?, Etc.)

Coordination

Yes No

<u>Split</u>		Movement Number									
Spin	1	2	3	<u>4</u>	5	6	7	8	COMMENTS		
1											
2											
3											

**Time Patterns for Coordination** 

D-61

# **Kimley**»Horn

.

Traffic Impact Analysis Trailhead Logistics Park North

# **APPENDIX D: VESTED TRAFFIC INFO**

Traffic Impact Analysis Trailhead Logistics Park

# Kimley»Horn

## PROJECT TRAFFIC

### TRIP GENERATION

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10<sup>th</sup> Edition* was used to calculate trip generation potential for the industrial development. ITE Land Use Code (LUC) 154 (High-Cube Transload and Short-Term Storage Warehouse) was applied in the trip generation calculations. The daily trip generation rate and AM Peak Hour of Adjacent Street Traffic rates published in the tables for ITE LUC 154 were utilized for those time periods.

The site is estimated to operate in three work shifts with approximately 220 employees in the first two shifts and 100 employees in the overnight shift. To estimate the trip generation of the site during the PM peak hour of generator, an hourly distribution of daily traffic was utilized. The hourly breakdown of daily traffic provided in ITE LUC 154 for the peak PM period was applied to the daily trip generation to estimate the trip generation during the PM peak hour of generator. A 0.294 rate of daily trips was applied, resulting in an estimated 395 trips during the PM peak hour. The entering and exiting percentages reported in the graph for the PM peak hour of generator (33% in, 67% out) was utilized.

Based on the methodology outlined above, the project is anticipated to generate 1,344 net new daily trips, 115 net new AM peak hour trips, and 395 net new PM peak hour trips at buildout.

A project truck percentage of 31.0% was utilized for the AM peak hour, 22.0% for the PM peak hour, and an average of the AM and PM peak hour percent trucks was utilized for the daily trips (26.5% daily percent truck traffic) based on guidance within ITE for this type of facility.

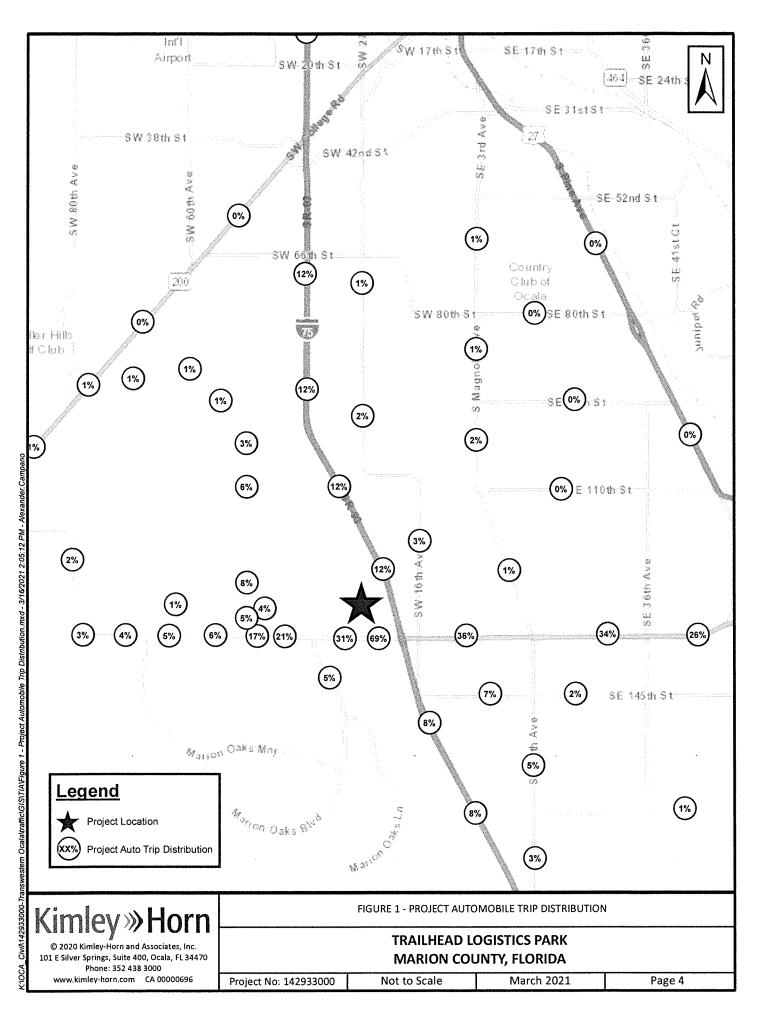
The trip generation calculations are provided in Table 1.

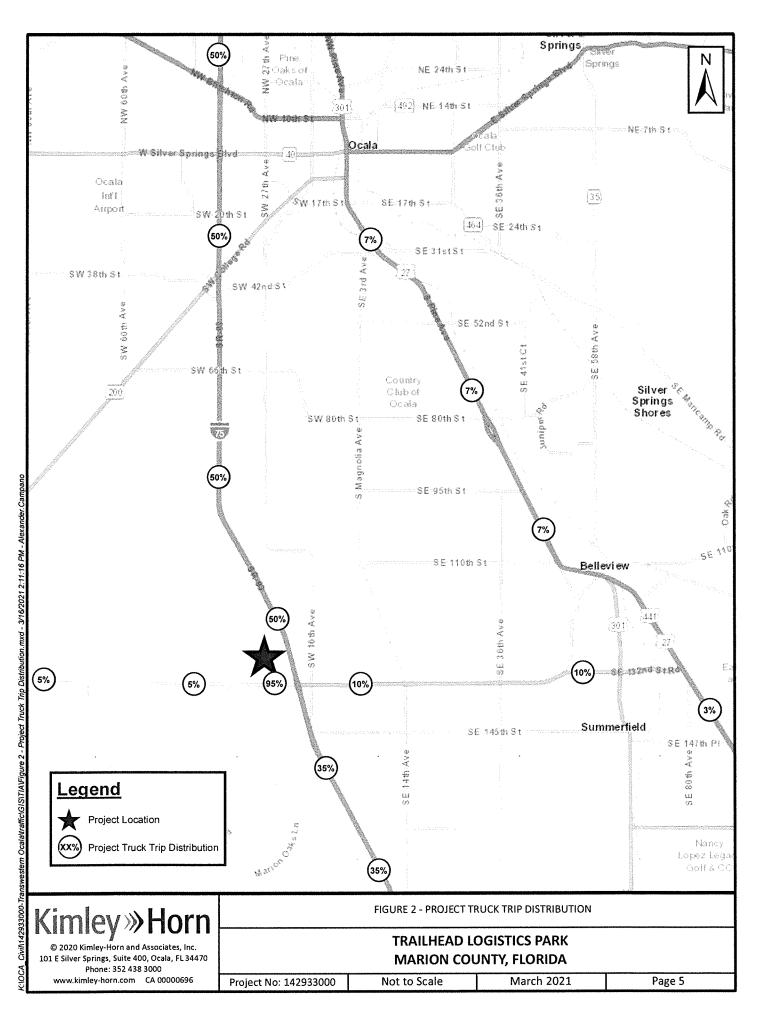
Land Use Intensity				Daily Trips	AM Pea	k Hour of A Street	djacent	PM Peak Hour of Generator			
					Total	In	Out	Total	In	Out	
Proposed Site											
Industrial High Cube Warehouse		960,000	Sq Ft GFA	1,344	115	95	20	395	130	265	
Percent Trucks	Daily 26.5%	AM 31.0%	PM 22.0%	356	36	28	8	87	24	63	
Buildout Automol	oile Driveway	Trips		988	79	67	12	308	106	202	
Buildout Truck	Driveway Trip	os		356	36	28	8	87	24	63	
Note 1: Trip generation calculations based on	ITE's Trip Gene	ration Manual	, 10th Edition.	4			L	1	L	I	
Note 2: Proposed trip generation is based on	ITE Trip General	tion Manual, 1	Edition code	154.							
Note 3: Percent trucks based on ITE Trip Gener	ration (10/2016	) study for ITE	LUC 154 AM 31	% and PM 22%. v	vith an aver	rage of AM a	nd PM used	d for daily tr	ips.		

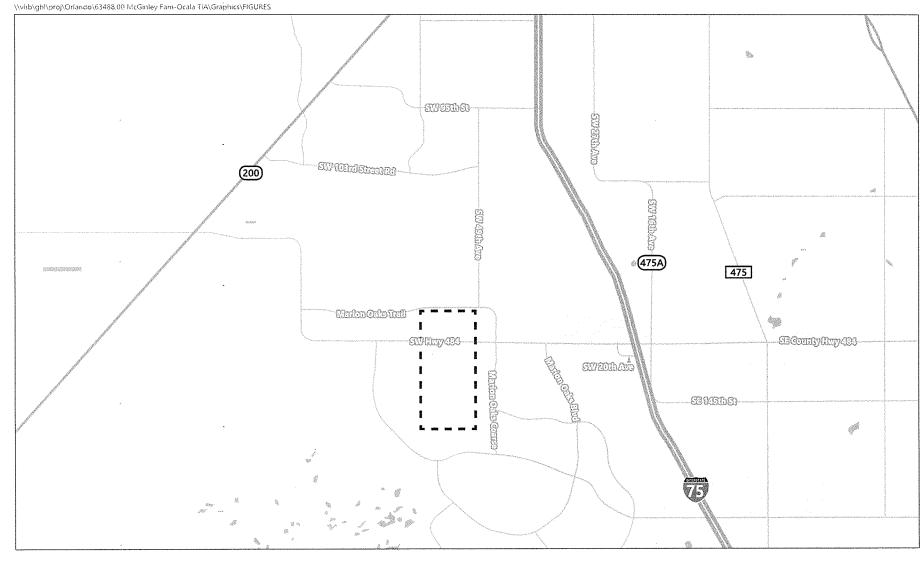
### Table 1 - Trip Generation

High-Cube Transload and Short-Term Storage Warehouse [ITE 154]

1*	THE REAL TRUE AND AND A REAL PLACE THE TAXABLE TO A DECK	
	Daily	T = 1.40*X; (X is 1000 Sq. Ft. GFA, 50% in, 50% out); Truck % = 31.0%
	AM Peak Hour of Adjacent Street	T = 0.12 *(X); (X is 1000 Sq. Ft. GFA, 83% in, 17% out); Truck % = 22.0%
	PM Peak Hour of Generator	T = 0.294*(Daily Trip Generation); (33% in, 67% out) Truck % = 26.5%
		* Based on Hourly Distribution of Traffic from ITE for LUC 154

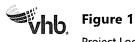








Ø N.T.S.



Project Location Map

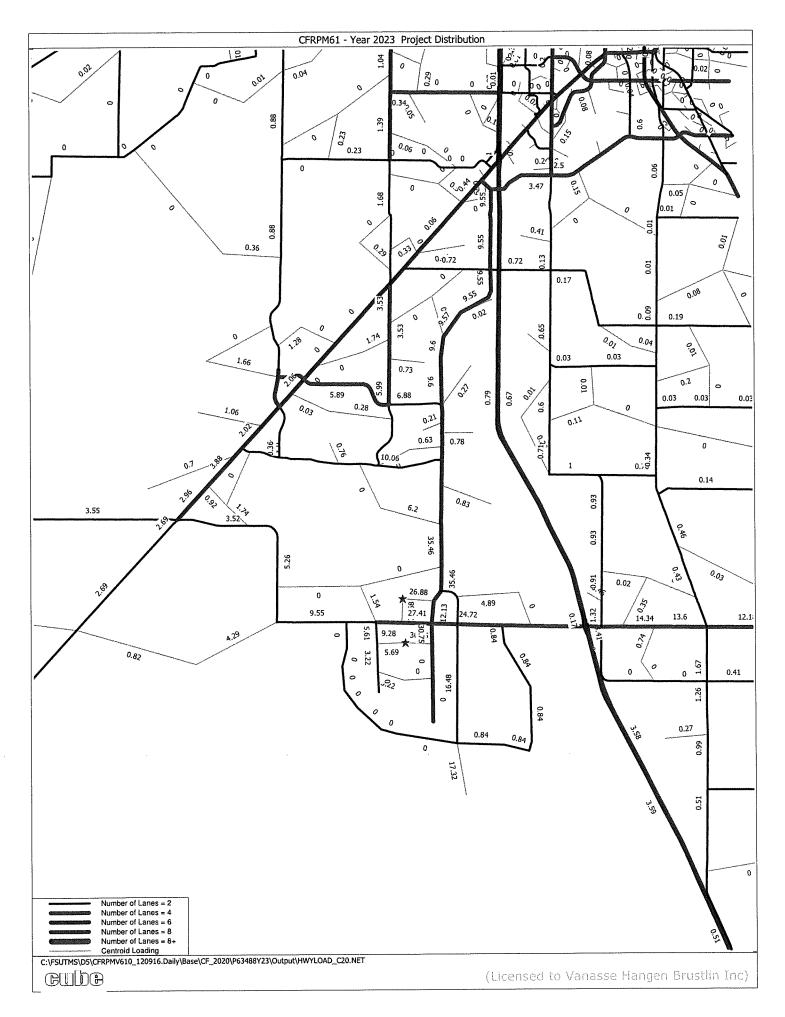
Florida Crossroads Commerce Park

hb

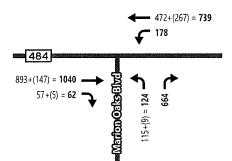
### **Table 1: Project Trip Generation**

			Daily		AM	Peak	Daily AM Peak Period					PM Peak Period			
	ITE		Trip	-	In	C	)ut			In	C	Dut			
Land Use	Code	Intensity	Ends	%	Trips	%	Trips	Total	%	Trips	%	Trips	Total		
Phase 1 (Approved)															
High-Cube Warehouse/ Dist. Center	154	3,200 KSF	4,480	77%	197	23%	59	256	31%	99	69%	221	320		
Buildout															
Manufacturing	140	758 KSF	2,920	78%	431	22%	122	553	36%	207	64%	368	575		
Single Family	210	230 DU	2,237	25%	42	75%	126	168	63%	142	37%	84	226		
Multi-Family Housing (Mid-Rise)	221	350 DU	1,906	26%	33	74%	93	126	61%	90	39%	57	147		
Shopping Center	820	500 KSF	17,961	62%	291	38%	179	470	48%	858	52%	930	1,788		
High-Cube Warehouse/ Dist. Center	154	8,400 KSF	11,760	77%	517	23%	155	672	31%	260	69%	580	840		
Total			36,784		1,314		675	1,989		1,557		2,019	3,576		
					Interna	al Capt	ure (9%	)		161		161	322		
					Pass-b	y (34%	of reta	il)		304		304	608		
					Net Ne	ew Trip	os (Build	out)		1,092		1,554	2,646		
Phase 2 Trips (Buildout - Phase 1)															
			32,304		1,117		616	1,733		993		1,333	2,326		

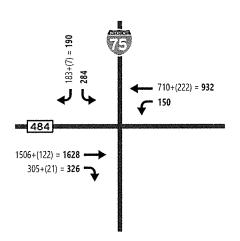
Source ITE Trip Generation, 10th Edition



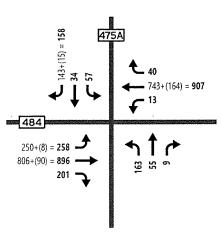
\\vhb\gbi\proj\Orlando\63488.02 McGinley Fam-Ocala TIA\Graphics\FIGURES\PDF

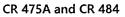


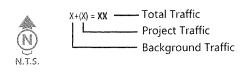


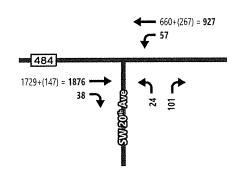


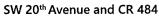


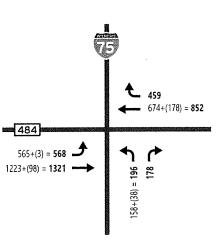




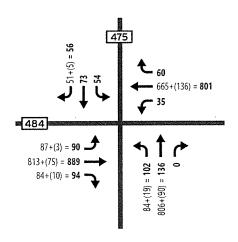












CR 475 and CR 484



Figure 4-3 Phase 2 AM TMCs McGinley Fam - Ocala TIA



101 1508

160

77

=SW90®St

107+(38) = 145

7

## D-69

\\vhb\gbl\proj\Orlando\65488.02 McGinley Fam-Ocala TIA\Graphics\FIGURES\PDF

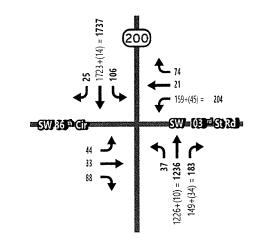
้วกต่

84+(51) = 135

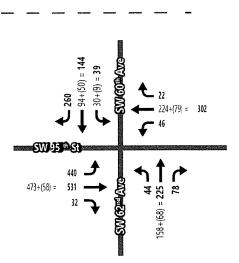
82÷(27) = 109

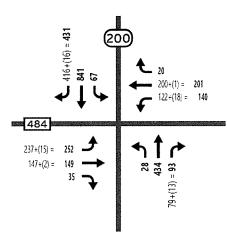
111+(20) = 132

SW 95 9St



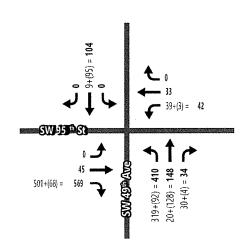
SR 200 and SW 86th Circle/SW 103rd Street Road

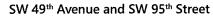


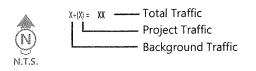


SR 200 and SW 90th Street/SW 95th Street

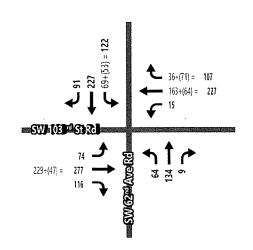








SW 60<sup>th</sup> Avenue/SW 62<sup>nd</sup> Avenue and SW 95<sup>th</sup> Street



SW 62<sup>nd</sup> Avenue Road and SW 103<sup>rd</sup> Street Road



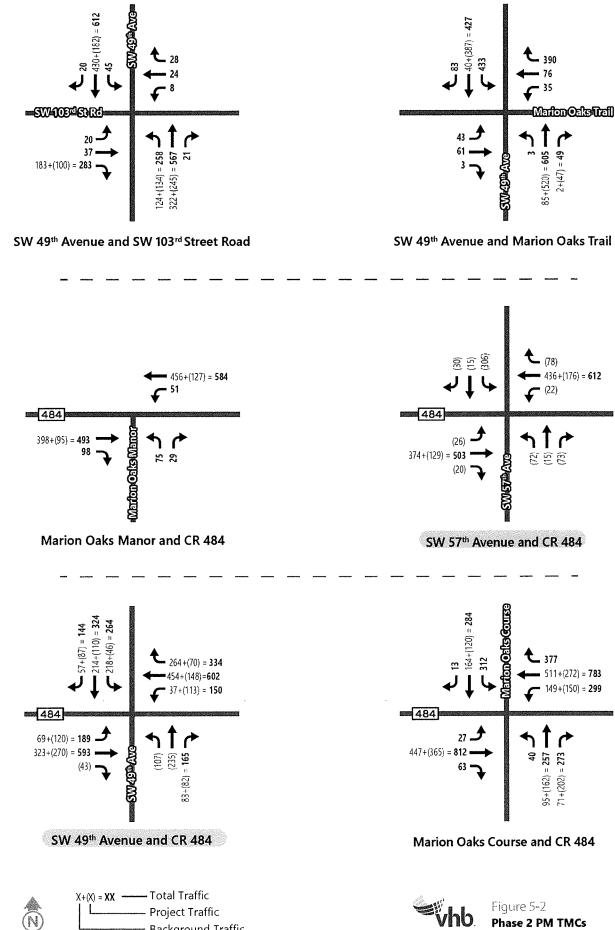
Figure 5-1 Phase 2 PM TMCs McGinley Fam - Ocala TIA

N.T.S.

Background Traffic

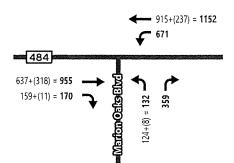
## D-70

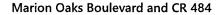
\\vhb\gbl\proj\Orlando\63488.02 McGinley Fam Ocala TIA\Graphics\FIGURES\PDF

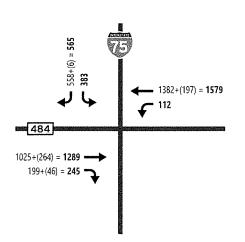


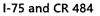
Phase 2 PM TMCs McGinley Fam - Ocala TIA

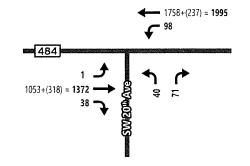
\\vhb\gbl\proj\Orlando\63488.02 McGinley Fam-Ocala TIA\Graphics\FIGURES\PDF

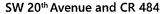


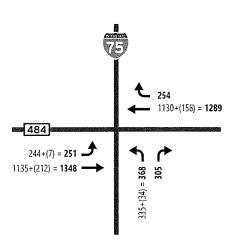






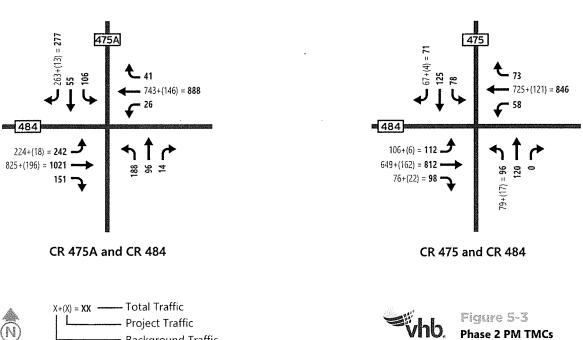








McGinley Fam - Ocala TIA



Background Traffic

N.T.S.

D-71

### Marco Polo PUD Trip Generation with Trailhead Logistics Park Reduction

Highway Commercial General Light Industrial Industrial Park       138,600 Sq Pt GFA 59,100 Sq Pt GFA 480,000 Sq Pt GFA       12,22 54       606 47       605 77       1,212 41       606 7       605 423       1,212 54       606 47       605 77       1,212 41       606 7       605 423       1,212 40       606 432       605 77       1,212 40       606 7       605 423       1,212 40       606 432       605 77       1,212 40       606 432       605 75       1,212 40       606 43       605 423       1,212 40       606 43       605 423       1,212 40       606 43       605 422       1,212 40       606 43       605 43       1,212 40       606 43       605 43       1,212 40       606 43       605 43       1,222 422       400 43       1,22 402       40 43       1,22 402       40 420       1,22 402       1,20 40	Land Use	In	tensity	Daily Trips	AM Pea	k Hour of <i>I</i> Street	ajacent	PM Pea	k Hour of A Street	ldjacent
North Side Highway Commercial General Light Industrial Industrial Park.         158,600 Sig Pt GFA 59,100 Sig Pt GFA 750,100 Sig Pt GFA         13,227 2,603         606 300         606 47         606 75         607 75         70 75					Total	In	Out	Total	In	Out
Highway Commercial General Light Industrial Industrial Park       158,600 5g Ft GFA 59,000 5g Ft GFA 28,000 5g Ft GFA 28,000 5g Ft GFA 1,066       12,22 40       606 43       606 47       1,212 75       606 47       606 7       1,212 40       606 43       606 43       1,212 40       606 43       606 43       1,212 40       606 43       606 43       617 43       1,212 57       606 43       606 43       1,212 40       606 43       606 43       1,212 43       606 43       618 422       1,212 43       606 43       1,212 43       606 43       1,212 43       606 43       1,212 43       606 43       1,212 43       1,01 43	Marco Polo POD									
General Light Industrial Industrial Park         55 (10 Sg Pt GFA 750,100 Sg Pt GFA         282 2,603         54 300         47 233         77 300         63 63         237 237           Reduction form Trailhead Logistics Park Industrial Park         480,000 Sg Pt GFA         -1,666         -192         -156         -36         -192         40         -152           South Side Highway Commercial Dusiness Park         110,400 Sg Pt GFA         9,371         843         422         422         843         422         43         5           South Side Enteral Light Industrial Industrial Park         6.5%         875         79         39         39         79         30         2           South Side Industrial Park         6.5%         169         20         16         44         20         41         15           South Side Industrial Park         6.5%         160         55         27	North Side									
Industrial Park       750,100 Sq Pt GFA       2,603       300       243       57       300       63       237         Reduction from Trailhead Logistics Park Industrial Park       480,000 Sq Pt GFA       -1,666       -192       -156       -36       -192       400       -152         South Side Highway Commercial Business Park       110,400 Sq Pt GFA       9,371       843       422       422       843       422       422         North Side Highway Commercial General Light Industrial Industrial Park       6.5%       79       39       39       79       39       39       79       39       39       79       39       39       20       40       1,570         North Side Highway Commercial General Light Industrial Industrial Park       6.5%       138       44       3       0       3       0       2       148       2,775       1,206       1,570         North Side Highway Commercial Business Park       6.5%       138       69       55       27       77       53       100       2       77       10       27         Pass-by Highway Commercial General Light Industrial Industrial Park       3.4%       1,0%       1,925       186       109       74       182       77       100	Highway Commercial	158,600 9	Sq Ft GFA	13,467	1,212	606	606	1,212	606	606
Reduction from Trailhead Logistics Park Industrial Park       480,000 Sq Pt GFA       -1,666       -192       -1.56       -3.6       -1.92       4.0       -1.52         South Side Highway Commercial Business Park       110,400 Sq Pt GFA       5,371       843       422       422       843       422       422         North Side Memor Commercial Business Park       110,400 Sq Pt GFA       5,9371       843       422       422       843       422       422         North Side Memor Commercial General Light Industrial Industrial Park       5,956       29,621       2,831       1,684       1,148       2,775       1,206       1,570         North Side Memor Commercial Business Park       6,5%       875       79       39       39       79       39       30       2         North Side Medication From Trailhead Industrial Park       6,5%       -108       -12       -10       -2       -12       -3       -10         South Side Mighway Commercial Business Park       6,5%       -108       -12       -10       -2       -12       -3       -10         Name Commercial Business Park       34%       4,281       385       193       193       193       193       193       193       193       193       193	General Light Industrial	1				47	7	1	7	34
industrial Park         480,000 Sq Pt GFA         -1,666         -192         -156         -36         -192         -40         -152           South Side Business Park         110,040 Sq Pt GFA         9,371         843         422         922         923         571         148         422         422         423         423         423           South Side Business Park         5.60         79         39         39         79         30         30	Industrial Park	750,100 \$	Sq Ft GFA	2,603	300	243	57	300	63	237
industrial Park         480,000 Sq Pt GFA         -1,666         -192         -156         -36         -192         -40         -152           South Side Business Park         110,040 Sq Pt GFA         9,371         843         422         922         923         571         148         422         422         423         423         423           South Side Business Park         5.60         79         39         39         79         30         30	Reduction from Trailbead Logistics Park									
Highway Commercial       110,400 Sq Pt GFA       9,371       843       422       422       843       422       423         ntermal Capture       Subtord       29,621       2,831       1,684       1,148       2,775       1,206       1,570         North Side       Highway Commercial       6.5%       875       79       39       39       79       39       39       79       39       39       79       39       39       79       39       39       79       39       30       2       164       4       20       4       10       2       10       14       20       4       10       2       10       12       -10       -2       -12       -3       -10       10       17       10	-	480,000 5	Sq Ft GFA	-1,666	-192	-156	-36	-192	-40	-152
Highway Commercial       110,400 Sq Pt GFA       9,371       843       422       422       843       422       423         ntermal Capture       Subtord       29,621       2,831       1,684       1,148       2,775       1,206       1,570         North Side       Highway Commercial       6.5%       875       79       39       39       79       39       39       79       39       39       79       39       39       79       39       39       79       39       30       2       164       4       20       4       10       2       10       14       20       4       10       2       10       12       -10       -2       -12       -3       -10       10       17       10										
Business Park         451,600 Sq Pt GFA         5,564         614         522         92         571         148         423           ntemal Capture North Side General Light Industrial Industrial Park         6.5%         29,621         2,831         1,684         1,148         2,775         1,206         1,570           Reduction from Trailhead Industrial Park         6.5%         875         79         39         39         79         39         39           South Side Industrial Park         6.5%         169         20         16         4         20         4         15           Reduction from Trailhead Business Park         6.5%         -108         -12         -10         -2         -12         -3         -10           Yass-by Highway Commercial (North) Highway Commercial (South)         34%         4,281         385         193         193         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         194         268         1										
Subtotal         29,621         2,831         1,684         1,148         2,775         1,206         1,570           ntemal Capture North Side         Highway Commercial General Light industrial Industrial Park         6.5%         875         79         39         39         79         39         30         2           Reduction from Trailhead         6.5%         169         4         20         4         15           Reduction from Trailhead         6.5%         -108         -12         -10         -2         -12         -3         -10           South Side         6.5%         -108         -12         -10         -2         -12         -3         -10           South Side         6.5%         -108         -12         -10         -2         -12         -3         -10           South Side         6.5%         -108         -12         -10         -2         -12         -3         10         27           Pass-by         Highway Commercial (North)         34%         4,281         385         193         134         134         134           General Light Industrial Industrial Park         3.4%         1.0%         0         0         0         0         0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>1</td> <td></td>								1	1	
nternal Capture North Side Highway Commercial General Light Industrial Industrial Park Reduction from Trailhead South Side Highway Commercial Business Park Arth Side Highway Commercial Business Park Arth Side Highway Commercial South Side Highway	Business Park	451,600 \$	Sq Ft GFA	5,564	614	522	92	571	148	423
North Side         6.5%         875         79         39         39         79         30         30         30			Subtotal	29,621	2,831	1,684	1,148	2,775	1,206	1,570
North Side Highway Commercial General Light Industrial Industrial Park         6.5% 6.5%         875 18 169         79 20         39 16         79 4         39 20         20         16         4         20         4         15           Reduction from Trailhead Business Park         6.5%         -108         -12         -10         -2         -12         -3         -10           South Side Highway Commercial (North)         34%         -6         37         10         27           ass-by         Highway Commercial (South)         34%         1,925         186         109         74         182         77         100           Trucks         Trucks         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	nternal Capture									
Highway Commercial General Light Industrial Industrial Park         875         79         39         39         79         39         39         39         30         2         2           Reduction from Trailhead industrial Park         6.5%         -108         -12         -10         -2         -12         -3         -10           South Side Highway Commercial Business Park         6.5%         -09         55         27         27         55         27         27           Pass-by Highway Commercial (North)         34%         4,281         385         193         193         385         193         193           A         1192         268         134         134         268         134         134           A         0.0%         0.0%         1,925         186         109         74         182         77         100           A         7         1,925         186         109         74         182         77         100           A         M         PM         1,925         186         109         74         182         77         100           General Light Industrial Industrial Park         3.4%         14.0%         10         8		6.5%								
General Light Industrial Industrial Park         18         4         3         0         3         0         2           Reduction from Trailhead Industrial Park         6.5%         -108         -12         -10         -2         -12         -3         -10           South Side Business Park         6.5%         609         55         27         27         55         27         27           Highway Commercial Business Park         34%         4,281         385         193         193         385         193         134         268         134         134           rass-by Highway Commercial (North) Righway Commercial (South)         34%         1,925         186         109         74         182         77         100           Trucks General Light Industrial Industrial Park         0.0%         0.0%         0	Highway Commercial			875	79	39	39	79	39	39
Reduction from Trailhead Industrial Park South Side Highway Commercial Business Park       6.5%       -108       -12       -10       -2       -12       -3       -10         rass-by Highway Commercial Business Park       6.5%       609       55       27       27       55       27       27         rass-by Highway Commercial (North) Highway Commercial (South)       34%       4,281       385       193       193       385       193       134       134         Commercial (North) Highway Commercial (South)       34%       2,979       28       100       77       100       134         North Side Highway Commercial General Light Industrial Industrial Park       AM       PM       1,925       186       109       74       182       77       100         Industrial Park       0.0%       0.0%       0       0       0       0       0       0       1       1       2       0       1 <t< td=""><td></td><td></td><td></td><td>18</td><td>4</td><td>3</td><td>0</td><td>3</td><td>0</td><td>2</td></t<>				18	4	3	0	3	0	2
Industrial Park South Side Highway Commercial Business Park       -108       -12       -10       -2       -12       -3       -10         Pass-by Highway Commercial (North) Highway Commercial (South)       34%       4,281       385       193       193       385       193       193       385       193       134         Pass-by Highway Commercial (South)       34%       4,281       385       109       74       182       77       100         Amage Commercial (South)       34%       1,925       186       109       74       182       77       100         Amage Commercial (South)       34%       1,925       186       109       74       182       77       100         Amage Commercial (South)       34%       1,925       186       109       74       182       77       100         Corth Side Highway Commercial Industrial Park       0,0%       0,0%       0	Industrial Park			169	20	16	4	20	4	15
South Side         6.5%         609         55         27         27         55         27         27           Pass-by         Business Park         34%         4,281         385         193         193         385         193         193         134         134         134           Pass-by         Highway Commercial (North)         34%         2,979         268         193         193         385         193         134         1434 </td <td>Reduction from Trailhead</td> <td>6.5%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Reduction from Trailhead	6.5%								
Highway Commercial Business Park       609 362       55 40       27 34       27 6       55 37       27 10       27 27         Pass-by Highway Commercial (North) Highway Commercial (South)       34% 34%       4,281 34%       385 2,979       193 268       193 134       193 268       193 134       193 268       193 134       193 268       193 134       193 268       193 134	Industrial Park			-108	-12	-10	-2	-12	-3	-10
Business Park       362       40       34       6       37       10       27         rass-by       Highway Commercial (North)       34%       4,281       385       193       193       385       193       193       134 <td></td> <td>6.5%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		6.5%								
Pass-by Highway Commercial (North) Highway Commercial (South)       34%       4,281       385       193       193       268       193 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td>1</td><td>1</td><td></td></t<>							1	1	1	
Highway Commercial (North)       34%       4,281       385       193       193       385       193       193       134       268       134       134         Highway Commercial (South)       34%       1,925       186       109       74       182       77       100         North Side       AM       PM       Trucks       0 <td< td=""><td>Business Park</td><td></td><td></td><td>362</td><td>40</td><td>34</td><td>6</td><td>37</td><td>10</td><td>27</td></td<>	Business Park			362	40	34	6	37	10	27
Highway Commercial (North)       34%       4,281       385       193       193       385       193       193       134       268       134       134         Highway Commercial (South)       34%       1,925       186       109       74       182       77       100         North Side       AM       PM       Trucks       0 <td< td=""><td>Pass-by</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Pass-by									
Subtotal         1,925         186         109         74         182         77         100           North Side         AM         PM         1,925         186         109         74         182         77         100           Highway Commercial         0.0%         0.0%         0         <		34%		4,281	385	193	193	385	193	193
North Side       AM       PM       0.0%       0.0%       0	Highway Commercial (South)	34%		2,979	268	134	134	268	134	134
North Side       AM       PM       0.0%       0.0%       0			Subtotal	1,925	186	109	74	182	77	100
North Side       AM       PM       0.0%       0.0%       0										
Highway Commercial General Light Industrial Industrial Park       0.0% 8.1%       0.0% 4.1% 3.4%       0       1       1       1       2       0       1       1       1       2       0       1       1       1       2       0       1       1       1       2       0       1       1       1       2       0       1       1       1       2       0       1       1       1       2       0       1		1								
General Light Industrial Industrial Park       8.1%       4.1%       4       4       1       2       0       1         Reduction from Trailhead Logistics Park Industrial Park       3.4%       14.0%       -6       -5       -1       -25       -5       -20         South Side Highway Commercial Business Park       0.0%       0.0%       0					•					
Industrial Park       3.4%       14.0%       10       8       2       39       8       31         Reduction from Trailhead Logistics Park Industrial Park       3.4%       14.0%       -6       -5       -1       -25       -5       -20         South Side Highway Commercial Business Park       0.0%       0.0%       0       0       0       0       0       0       0       25       -5       -20       -20       -5       -5       -20       -5       -20       -5       -20       -5       -20       -5       -20       -5       -20       -							1		1	
Leduction from Trailhead Logistics Park Industrial Park 3.4% 14.0% -6 -5 -1 -25 -5 -20   outh Side Highway Commercial Business Park 0.0% 4.7% 0.0% 6.3% 0 <	-						1		1	
Industrial Park       3.4%       14.0%       -6       -5       -1       -25       -5       -20         outh Side       0.0%       0.0%       0.0%       0		3.470	14.0%		10	0	2	35	°	21
South Side       0.0%       0.0%       0.0%       0       25        34       9       25       37         34       9       25       37         37        37        37        37        37        37        37        37        37        37        37        37         37         37         37         37          37          37           37          37               37	Reduction from Trailhead Logistics Park									
Highway Commercial Business Park       0.0% 4.7%       0.0% 6.3%       0.0% 27       0 23       0 4       0 34       0 9       0 25         Subtotal Total Net New Trips         Total Net New Trips         Total Net New Trips         Total Driveway Trips       27,696       2,645       1,575       1,074       2,593       1,129       1,470         Truck Driveway Trips       0       35       30       6       50       12       37	Industrial Park	3.4%	14.0%		-6	-5	-1	-25	-5	-20
Highway Commercial Business Park       0.0% 4.7%       0.0% 6.3%       0.0% 27       0 23       0 4       0 34       0 9       0 25         Subtotal Total Net New Trips         Total Net New Trips         Total Net New Trips         Total Driveway Trips       27,696       2,645       1,575       1,074       2,593       1,129       1,470         Truck Driveway Trips       0       35       30       6       50       12       37	jouth Side									
Business Park       4.7%       6.3%       27       23       4       34       9       25         Subtotal         Subtotal         Total Net New Trips         Total Net New Trips         Total Driveway Trips       27,696       2,645       1,575       1,074       2,593       1,129       1,470         Truck Driveway Trips       0       35       30       6       50       12       37		0.0%	0.0%		0	0	0	0	0	0
Subtotal     0     35     30     6     50     12     37       Total Net New Trips     27,696     2,645     1,575     1,074     2,593     1,129     1,470       Truck Driveway Trips     0     35     30     6     50     12     37		1	1					1	1	25
Total Net New Trips         27,696         2,645         1,575         1,074         2,593         1,129         1,470           Truck Driveway Trips         0         35         30         6         50         12         37	······································									ļ
Total Driveway Trips       27,696       2,645       1,575       1,074       2,593       1,129       1,470         Truck Driveway Trips       0       35       30       6       50       12       37			Subtotal	0	35	30	6	50	12	37
Total Driveway Trips         27,696         2,645         1,575         1,074         2,593         1,129         1,470           Truck Driveway Trips         0         35         30         6         50         12         37								ļ		
	Total Driveway Tri	ps		27,696	2,645	1,575	1,074	2,593	1,129	1,470
Automobile Driveway Trips 27,696 2,610 1,545 1,068 2,543 1,117 1,433	Truck Driveway Tr	ps		0	35	30	6	50	12	37
								1	1	1

1. Trip generation volumes, internal capture, and pass-by for daily, AM, and PM were taken from the Marco Polo Industrial PUD.

2. The reduction is based on the Transwestern facility use being separate from the rest of the proposed development.

K:\OCA\_Givi\143933003-Transwestern North\Traffic\TIA\calcs\uls\[2022-11 - TLPN TIA\_ulsm]TG\_MP

# Marco Polo 484 Planned Unit Development 2040 CR 484 Needs Analysis

#### Introduction

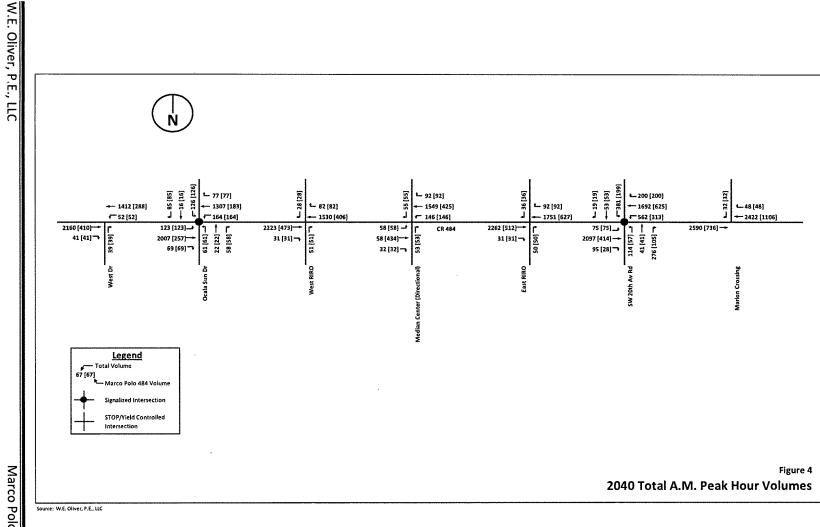
Marco Polo Builders, Inc. has secured PUD approval from Marion County, Florida, of an industrial and business park development located on both the north and south sides of CR 484, west of I-75 in Marion County, Florida. The site location, boundaries, and a preliminary concept development plan are provided in Figure 1. The development is proposed to allow approximately 1.55 million square feet of highway commercial, business park, light industrial, and industrial park uses, to develop over the coming ten to 20 years. Table 1, below, provides a summary of a typical square footage of development and traffic generation estimates, based on the acreage of the site.

As a condition of the PUD approval was a requirement that a site access plan be developed and analyzed so that needed improvements on CR 484 and the site connections to CR 484 along the site frontage could be planned for and necessary right-of-way be reserved to support long-term needs. This study was undertaken to address these issues through a horizon year of 2040, and considers traffic not only from the Marco Polo 484 development, but additional traffic from other expected non-Marco Polo development as well.

Total Developm	ent	:	D	aily		,	A.M. Pea	ık Hour			P.M. Peak Hr					
Land Use	LUC	Size/Unit	Rate	VTE	Rate	2-Way	A.M. K	A.M. Din	In	Out	Rate	2-Way	P.M. K	P.M. Din	In	Out
Highway Commercial	mix	269 ksf	84.89	22,838	0.09	2,055	0.090	0.5	1,028	1,028	0.09	2,055	0.090	0.5	1,028	1,02
Business Park	770	452 ksf	12.32	5,564	1.36	614	0.110	0.85	522	92	1.26	571	0.103	0.26	148	423
General Light Industrial	110	59 ksf	4.77	282	0.92	54	0.193	0.87	47	7	0.69	41	0.146	0.18	7	34
Industrial Park	130	750 ksf	3.47	2,603	0.40	300	0.115	0.81	243	57	0.40	300	0.115	0.21	63	237
		Totals:		31,287		3,023			1,840	1,184		2,968			1,247	1,72
									D:	0.608					D:	0.42
									К:	0.097					к:	0.09
North Side:			D	aily		1	A.M. Pea	k Hour					P.M. I	Peak Hr		
Land Use	LUC	Size/Unit	Rate	VTE	Rate	2-Way	A.M. K	A.M. Din	In	Out	Rate	2-Way	P.M. K	P.M. Din	In	Out
Highway Commercial	mix	158.6 ksf	84.89	13,467	0.09	1,212	0.090	0.5	606	606	0.09	1,212	0.090	0.5	606	606
Business Park	770	0.0 ksf	n/a	358	n/a	0	0.000	n/a	0	0	n/a	0	0.000	0	0	0
General Light Industrial	110	59.1 ksf	4.77	282	0.92	54	0.193	0.87	47	7	0.69	41	0.146	0.18	7	34
Industrial Park	130	750.1 ksf	3.47	2,603	0.40	300	0.115	0.81	243	57	0.40	300	0.115	0.21	63	237
		Totals:		16,710		1,567			896	670		1,553			676	877
									D:	0.572					D:	0.43
									К:	0.094					К:	0.09
South Side:			D	aily		1	A.M. Pea	k Hour					P.M. I	Peak Hr		
Land Use	LUC	Size/Unit	Rate	VTE	Rate	2-Way	A.M. K	A.M. Din	In	Out	Rate	2-Way	P.M. K	P.M. D <sub>in</sub>	In	Out
Highway Commercial	mix	110.4 ksf	84.89	9,371	0.09	843	0.090	0.5	422	422	0.09	843	0.090	0.5	422	422
Business Park	770	451.6 ksf	12.32	5,564	1.36	614	0.110	0.85	522	92	1.26	571	0.103	0.26	148	423
General Light Industrial	110	0.0 ksf	n/a	0	n/a	0	n/a	n/a	0	0	n/a	0	0.000	0	0	0
Industrial Park	130	0.0 ksf	n/a	0	n/a	0	n/a	n/a	0	0	n/a	0	0.000	0	0	0
		Totals:		14,935		1,457			943	514		1,415			570	844
									D:	0.647					D:	0.40
										0.0-17					÷.	

# Table 1Summary of Typical Land Uses and Traffic Generation Estimate





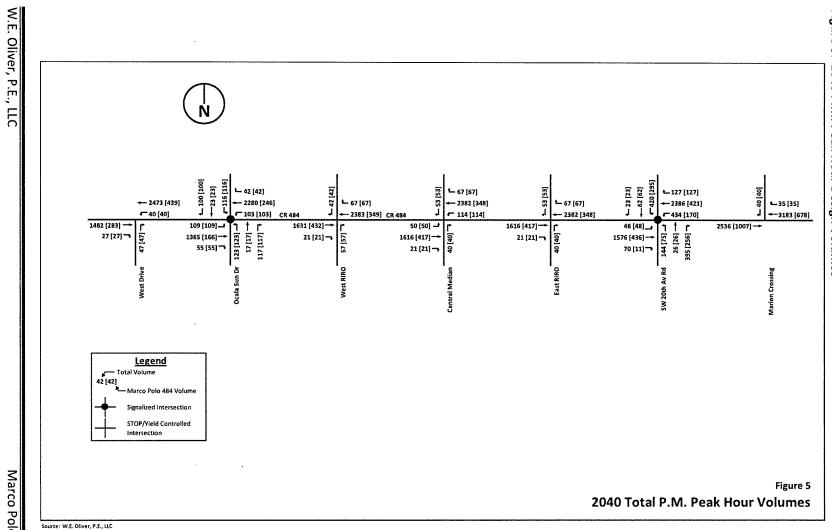
# Figure 4: 2040 A.M. Peak Hour Design Volumes

9

March, 2021

Marco Polo 484 PUD 2040 CR 484 Needs Analysis

D-74





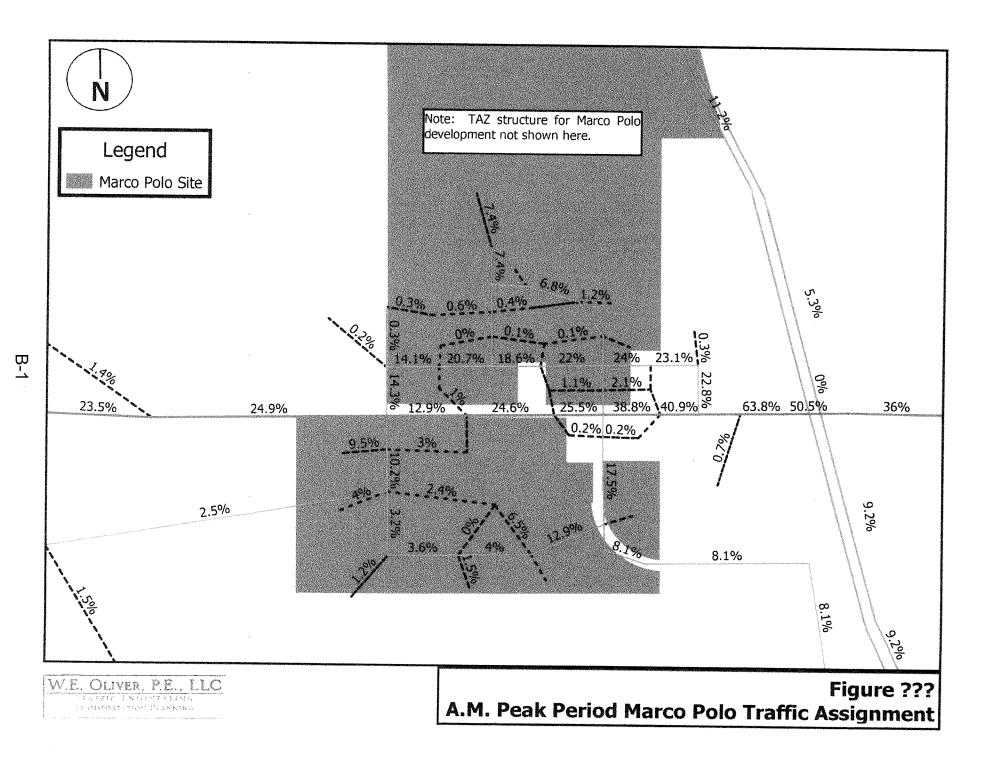
Marco Polo 484 PUD 2040 CR 484 Needs Analysis

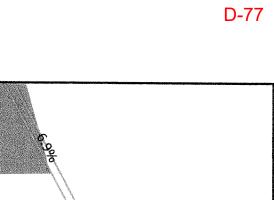
-10-

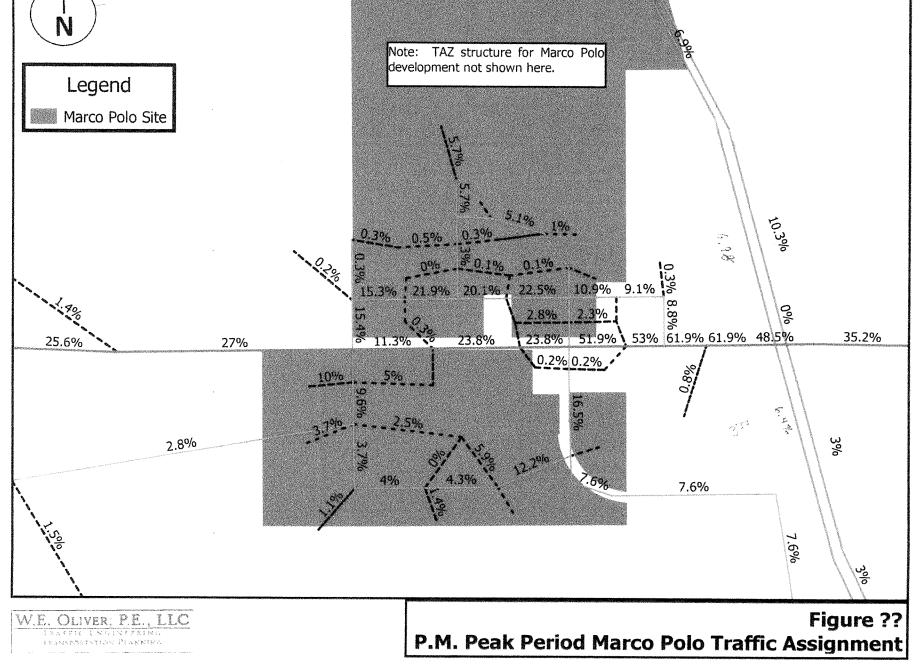
March, 2021

ATTACHMENT D

D-75









# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

# APPENDIX E: INTERSECTION VOLUME DEVELOPMENT WORKSHEETS

INTERSECTION:
PM COUNT DATE:
PM PEAK HOUR FACTOR:

CR 484 & Marion Oaks Blvd October 25, 2022 0.96

"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL.	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	0	0	633	186	0	507	829	0	0	123	0	390	0	0	0	0
Peak Season Correction 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	1.00	1.00	1.00	1.00
PM EXISTING CONDITIONS	0	0	633	186	0	507	829	0	0	123	0	390	0	0	0	o
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos			18			10	34					5				
Trailhead Logistics Park South, Trucks			1				3									
McGinley Property Phase 2	T		318	11			237			8						
Marco Polo PUD	1		176			57	252					40				
Marco Polo PUD Pass-By																l
VESTED TRAFFIC	0	0	513	11	0	67	526	0	0	8	0	45	0	0	0	0
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3,0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	0	0	101	30	0	81	132	0	0	20	0	62	0	0	0	0
PM BACKGROUND TRAFFIC	0	0	1,247	227	0	655	1,487	0	0	151	0	497	0	0	0	0

CR 484 & SW 29th Ave Rd
April 26, 2022
October 26, 2022
0.90
0.96

"AM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM Raw Turning Movements	0	7	1,391	0	0	0	899	54	0	0	0	0	0	139	0	30
Peak Season Correction 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	1.00	1.00	1.00	1.00
							•									
AM EXISTING CONDITIONS	0	7	1,391	0	0	0	899	54	0	0	0	0	0	139	0	30
"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	1	25	991	0	2	0	867	50	0	0	0	0	0	42	0	19
Peak Season Correction 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	1.00	1.00	1.00	1.00
					•											
PM EXISTING CONDITIONS	1	25	991	0	2	0	867	50	0	0	0	0	0	42	0	19
"AM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos			18				3									
Trailhead Logistics Park South, Trucks			1				0									
McGinley Property Phase 2	T		147				267									
Marco Polo PUD	1		337				202									
Marco Polo PUD Pass-By	1						1	1							l	
VESTED TRAFFIC	0	0	503	0	0	0	472	0	0	0	0	0	0	0	0	0
L.,		1		·	<b>1</b>									·		
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
AM TRAFFIC GROWTH	0	1	222	0	O	0	143	9	0	0	0	0	0	22	0	5
								r		,					· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
AM BACKGROUND TRAFFIC	0	8	2,277	0	0	0	1,514	63	0	0	0	0	0	0	0	196
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos			29				55									
Trailhead Logistics Park South, Trucks			1				3									
McGinley Property Phase 2			318				237									
Marco Polo PUD			217				309									
Marco Polo PUD Pass-By	1															
VESTED TRAFFIC	0	0	565	0	0	0	604	0	0	0	0	0	0	0	0	0
	•••		·			-	-	-	-							
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	0	4	158	0	0	0	138	8	0	0	0	0	0	7	0	3
			·····		·····											······
PM BACKGROUND TRAFFIC	1	29	1,763	0	2	0	1,609	58	0	0	0	0	0	0	0	71

INTERSECTION:	CR 484 & SW 20th Avenue
AM COUNT DATE:	October 25, 2022
PM COUNT DATE:	October 25, 2022
AM PEAK HOUR FACTOR:	0.96
PM PEAK HOUR FACTOR:	0.93

"AM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM Raw Turning Movements	0	0	1,623	23	13	20	859	0	0	13	0	76	0	0	0	0
Peak Season Correction 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	1.00	1.00	1.00	1.00
				,	<del>.</del>	,		· · · · · · · · · · · · · · · · · · ·	,		r					
AM EXISTING CONDITIONS	0	0	1,623	23	13	20	859	0	0	13	0	76	0	0	0	0
"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	0	0	1,023	48	13	84	1,588	0	0	32	0	83	0	0	0	0
Peak Season Correction 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	1.00	1.00	1.00	1.00
	T		r	r		r								r		
PM EXISTING CONDITIONS	0	0	1,023	48	13	84	1,588	0	0	32	0	83	0	0	0	0
"AM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos		18			T			8						8		3
Trailhead Logistics Park South, Trucks	1	1						8						8		0
McGinley Property Phase 2	1		147				267									
Marco Polo PUD		50	202	12		175	424	125		30	15	112		127	30	7
Marco Polo PUD Pass-By	0	13	-16	3	0	46	-78	33	0	13		49		55		3
VESTED TRAFFIC	0	82	333	15	0	221	613	174	0	43	15	161	0	198	30	13
																L
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3,0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
AM TRAFFIC GROWTH	0	0	259	4	2	3	137	0	0	2	0	12	0	0	0	0
	<del></del>			r	r	·····		r					······	r	·····	
AM BACKGROUND TRAFFIC	0	82	2,215	42	15	244	1,609	174	0	58	15	249	0	198	30	13
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos		29			1		<u></u>	73						139	1	55
Trailhead Logistics Park South, Trucks		1			<u> </u>			23						60		3
McGinley Property Phase 2		L	318				237									
Marco Polo PUD		32	309	8		112	273	80		46	23	172		194	46	11
Marco Polo PUD Pass-By	0	13	-16	3	0	46	-78	33	0	13		49		55		3
VESTED TRAFFIC	0	75	611	11	0	158	432	209	0	59	23	221	0	448	46	72
			<b>.</b>		·	·			·				L			·
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	0	0	163	8	2	13	253	0	0	5	0	13	0	0	0	0
PM BACKGROUND TRAFFIC	0	75	1,797	67	15	255	2,273	209	0	96	23	317	0	448	46	72
	J	h		••••••	•••••••			******					•	fartate	•	· · · · · ·

INTERSECTION:	CR 484 & 1-75 SB Ramp
AM COUNT DATE:	October 25, 2022
PM COUNT DATE:	October 25, 2022
AM PEAK HOUR FACTOR:	0.98
PM PEAK HOUR FACTOR:	0.92

"AM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM Raw Turning Movements	0	0	1,450	336	0	148	752	0	0	0	0	0	0	229	1	237
Peak Season Correction 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	1.00	1.00	1.00	1.00
											-					······
AM EXISTING CONDITIONS	0	0	1,450	336	0	148	752	0	0	0	0	0	0	229	1	237
"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	0	0	946	231	0	120	1,256	0	0	0	0	0	0	328	0	518
Peak Season Correction 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	1.00	1.00	1.00	1.00
						,		r					r	r	r	<b></b> 1
PM EXISTING CONDITIONS	0	0	946	231	0	120	1,256	0	0	0	0	0	0	328	0	518
"AM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos			7	1			36	I				1	<u> </u>		1	8
Trailhead Logistics Park South, Trucks			5	3			13								l	14
McGinley Property Phase 2			122	21	<u> </u>		222									7
Marco Polo PUD			314	45			512	<u> </u>								52
Marco Polo PUD Pass-By																
VESTED TRAFFIC	0	0	448	70	0	0	783	0	0	0	0	0	0	0	0	81
VESTED MARTIN						L	/00		I			L	· · · ·		<u> </u>	<u> </u>
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
AM TRAFFIC GROWTH	0	0	231	54	0	24	120	0	0	0	0	0	0	36	0	38
<b></b>			ç			r	r	r	,		r	·····	·····	r	· · · · · · · · · · · · · · · · · · ·	
AM BACKGROUND TRAFFIC	0	0	2,129	460	0	172	1,655	0	0	0	0	0	0	265	1	356
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos			117	16	1120	1	57	T				1	T	r <u></u>	<u> </u>	13
Trailhead Logistics Park South, Autos			38	22			11	<u> </u>						<u> </u>		12
McGinley Property Phase 2			264	46			197					1	<u> </u>			6
Marco Polo PUD	<u> </u>		480	69			329				<u> </u>					80
Marco Polo PUD Pass-By			400	03			52.5					<u> </u>		<u> </u>		
VESTED TRAFFIC	0	0	899	153	0	0	594	0	0	0	0	0	0	0	0	111
VESTED INAFIN	<u> </u>	<u> </u>	033	155	1	I		I	·	L	<u> </u>	<u> </u>	I	<u> </u>	Jÿ	
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	0	0	151	37	0	19	200	0	0	0	0	0	0	52	0	83
						· · · · · · · · · · · · · · · · · · ·					*					
											·					

INTERSECTION:

#### TRAFFIC VOLUMES AT STUDY INTERSECTIONS

CR 484 & I-75 NB Ramp

AM COUNT DATE			- 15 - 15 I		ı <b>p</b>											
	•															
PM COUNT DATE			er 25, 20	22												
AM PEAK HOUR FACTOR		0.97														
PM PEAK HOUR FACTOR	:	0.96														
"AM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM Raw Turning Movements	1	566	1,111	0	0	0	720	383	0	176	1	138	0	0	0	0
Peak Season Correction 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	1.00	1.00	1.00	1.00
AM EXISTING CONDITIONS	1	566	1,111	0	0	0	720	383	0	176	1	138	0	0	0	0
"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	21	252	999	0	0	0	1,001	246	0	355	0	233	0	0	0	0
Peak Season Correction 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	1.00	1.00	1.00	1.00
					*****		,	,	,		·				·····	,
PM EXISTING CONDITIONS	21	252	999	0	0	0	1,001	246	0	355	0	233	0	0	0	0
"AM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos	T	1	6				31	T	ſ	5					I	
Trailhead Logistics Park South, Trucks		4	1		1		3	1		10						
McGinley Property Phase 2		3	98				178			38						
Marco Polo PUD		52	262				437			75						
Marco Polo PUD Pass-By																
VESTED TRAFFIC	0	60	367	0	0	0	649	0	0	128	0	0	0	0	0	0
		,	r		r	1	T		<b>.</b>		1	·		·	1	
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
AM TRAFFIC GROWTH	0	90	177	0	0	0	115	61	0	28	0	22	0	0	0	0
AM BACKGROUND TRAFFIC	1	716	1,655	0	0	0	1,484	444	0	332	1	160	0	0	0	
		1			·	<u>ا</u>	1 .0.2	1	L		<b>I</b>		1			لــــــ
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos		24	93		ļ		49		<u> </u>	8	ļ	ļ				ļ
Trailhead Logistics Park South, Trucks		32	6		L		2	1	ļ	8	L					
McGinley Property Phase 2		7	212		L		158			34						
Marco Polo PUD		80	400	L			281			48	ļ			ļ		
Marco Polo PUD Pass-By								ļ			L			<u> </u>		
VESTED TRAFFIC	0	143	711	0	0	0	490	0	0	98	0	0	0	0	0	0
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	3.0%	40	159	0	0	0	159	39	0	57	0	37	0.070	0.070	0.0 /	0.0 /0
	1 3	1 40	1.139	<u> </u>	L	L	1 100	1 55	LY		· · ·	,		L		ا
PM BACKGROUND TRAFFIC	24	435	1,869	0	0	0	1,650	285	0	510	0	270	0	0	0	0

INTERSECTION: PM COUNT DATE: PM PEAK HOUR FACTOR: CR 484 & CR 475A October 25, 2022 0.99

"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL.	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	9	191	782	159	2	8	696	23	0	205	42	8	0	69	36	197
Peak Season Correction 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	1.00	1.00	1.00	1.00
PM EXISTING CONDITIONS	9	191	782	159	2	8	696	23	0	205	42	8	0	69	36	197
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos		6	73	14			38			7						3
Trailhead Logistics Park South, Trucks			6				2									
McGinley Property Phase 2		18	196				146									13
Marco Polo PUD		46	332	23			233			16						32
Marco Polo PUD Pass-By																
VESTED TRAFFIC	0	70	607	37	0	0	419	0	0	23	0	Û	0	0	0	48
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	1	30	125	25	0	1	111	4	0	33	7	1	0	11	6	31
PM BACKGROUND TRAFFIC	10	291	1,514	221	2	9	1,226	27	0	261	49	9	0	80	42	276

INTERSECTION:
PM COUNT DATE:
PM PEAK HOUR FACTOR:

CR 484 & CR 475 October 25, 2022 0.96

"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	21	64	706	69	7	51	569	69	0	77	109	69	0	64	129	52
Peak Season Correction 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	1.00	1.00	1.00	1.00
	<b>T</b>				,	·····	···								r	
PM EXISTING CONDITIONS	21	64	706	69	7	51	569	69	0	77	109	69	0	64	129	52
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos		2	69				36									1
Trailhead Logistics Park South, Trucks			6				2									
McGinley Property Phase 2		6	162	22			121			17						4
Marco Polo PUD		11	309	11			217			8						8
Marco Polo PUD Pass-By	1															
VESTED TRAFFIC	0	19	546	33	0	0	376	0	0	25	0	0	0	0	0	13
Years To Buildout	1 5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	3	10	112	11	1	8	91	11	0	12	17	11	0	10	21	8
PM BACKGROUND TRAFFIC	24	93	1,364	113	8	59	1,036	80	0	114	126	80	0	74	150	73

INTERSECTION: PM COUNT DATE: PM PEAK HOUR FACTOR: SW 29th Ave Rd & Marion Oaks Trail October 25, 2022 0.81

"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	0	3	0	43	0	0	0	0	0	60	11	0	0	0	13	0
Peak Season Correction 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	1.00	1.00	1.00	1.00
PM EXISTING CONDITIONS	0	3	0	43	0	0	0	0	0	60	11	0	0	0	13	0
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos	T		4				8									
Trailhead Logistics Park South, Trucks																
McGinley Property Phase 2																
Marco Polo PUD																
Marco Polo PUD Pass-By																
VESTED TRAFFIC	0	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
PM TRAFFIC GROWTH	0	0	0	7	0	Ō	0	0	0	10	2	0	0	0	2	0
PM BACKGROUND TRAFFIC	0	3	4	50	0	0	8	0	0	70	13	0	0	0	15	0

D-87

# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

# **APPENDIX F: SYNCHRO OUTPUT**

D-88

# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

# F1: AM Peak Hour Existing Traffic Conditions (2022)

#### Lanes, Volumes, Timings 2: CR 484 & SW 29th Ave Rd

#### Existing Conditions Timing Plan: AM Peak Hour

	٦		←	×.	1	1	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	3	<b>^</b>	<b>≜</b> †}		Y		
Traffic Volume (vph)	7	1391	899	54	139	30	
Future Volume (vph)	7	1391	899	54	139	30	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	4%	4%	10%	10%	2%	2%	
Adj. Flow (vph)	8	1546	999	60	154	33	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	8	1546	1059	0	187	0	
Sign Control		Free	Free		Stop		

Control Type: Unsignalized

D-89

#### HCM 6th TWSC 2: CR 484 & SW 29th Ave Rd

D-90

Existing Conditions Timing Plan: AM Peak Hour

Intersection							
Int Delay, s/veh	5.6						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	A	<b>^</b>	<b>†</b> Þ		Y		
Traffic Vol, veh/h	7	1391	899	54	139	30	
Future Vol, veh/h	7	1391	899	54	139	30	
Conflicting Peds, #/hr	0	0	0	0	0	· 0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized		None	an di	None	1997 - 1997 <del>-</del>	None	
Storage Length	144	-	-	-	0	-	
Veh in Median Storage, #		· 0	0	-	1	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	
Heavy Vehicles, %	4	4	10	10	2	2	
Mvmt Flow	8	1546	999	60	154	33	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1059	0		0	1818	530	
Stage 1	1000			i de la Composition de la Comp	1029	000	
Stage 2			_		789	-	
Critical Hdwy	4.18				6.84	6.94	
Critical Hdwy Stg 1		_	-	_	5.84	0.04	
Critical Hdwy Stg 2	a da se	_			5.84	÷	
Follow-up Hdwy	2.24	-	_		3.52	3.32	
Pot Cap-1 Maneuver	642				~ 69	493	
Stage 1		-	· .		306	-	
Stage 2	e statu j	· · ·	-		408		
Platoon blocked, %		-	-	·			
Mov Cap-1 Maneuver	642		-		~ 68	493	
Mov Cap-2 Maneuver	• • • • •	-	-	-	189	-	
Stage 1		12.52	1 - C - L		302	·	
Stage 2	· · · ·	_	-	-	408	-	
Approach	EB		WB		SB		
HCM Control Delay, s	0.1		0		82.5		
HCM LOS					F		
	a part de la sedara						
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	642	• • • •		e tovato To	212		
HCM Lane V/C Ratio	0.012	-	-	-	0.886		
HCM Control Delay (s)	10.7	-	-	-	82.5		
HCM Lane LOS	В	-	-	-	F		
HCM 95th %tile Q(veh)	0	-	-	-	7		
Notes							

~: Volume exceeds capacity

\$: Delay exceeds 300s +: Computation Not Defined \*: All major volume in platoon

Lanes,	Volumes	, Tim	ings	
3: SW	20th Ave	Rd &	CR 484	

# Existing Conditions Timing Plan: AM Peak Hour

		$\mathbf{F}$	1	◄	1	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>†</b> ‡		ኘ	<u>†</u> †	ሻ	T	
Traffic Volume (vph)	1623	23	33	859	13	76	
Future Volume (vph)	1623	23	33	859	13	76	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	4%	4%	10%	10%	32%	32%	
Adj. Flow (vph)	1691	24	34	895	- 14	79	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1715	0	34	895	14	79	
Turn Type	NA		pm+pt	NA	Prot	Perm	
Protected Phases	6		5	2	4		
Permitted Phases			2			4	
Detector Phase	6		5	2	4	4	
Switch Phase							
Minimum Initial (s)	15.0		10.0	15.0	10.0	10.0	
Minimum Split (s)	21.9		17.3	21.9	16.0	16.0	
Total Split (s)	126.0		28.0	154.0	26.0	26.0	
Total Split (%)	70.0%		15.6%	85.6%	14.4%	14.4%	
Yellow Time (s)	4.9		4.8	4.9	4.0	4.0	
All-Red Time (s)	2.0		2.5	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.9		7.3	6.9	6.0	6.0	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	C-Min		None	C-Min	None	None	
v/c Ratio	0.63		0.15	0.31	0.17	0.53	
Control Delay	9.9		2.4	2.2	83.5	27.1	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	9.9		2.4	2.2	83.5	27.1	
Queue Length 50th (ft)	424		1	17	16	0	
Queue Length 95th (ft)	551		14	298	43	59	
Internal Link Dist (ft)	3132			1240	650		
Turn Bay Length (ft)			170			220	
Base Capacity (vph)	2734		320	2842	151	206	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	0		0	0	0	0	
Storage Cap Reductn	0		0	0	0	0	
Reduced v/c Ratio	0.63		0.11	0.31	0.09	0.38	

Cycle Length: 180 Actuated Cycle Length: 180 Offset: 165 (92%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow Natural Cycle: 80 Control Type: Actuated-Coordinated

#### Splits and Phases: 3: SW 20th Ave Rd & CR 484

✓ Ø2 (R)	<b>1</b> Ø4
1545	6 s 🔰 🚺
✓ Ø5 → Ø6 (R)	
28.5	

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

#### Existing Conditions Timing Plan: AM Peak Hour

	-+	7	4	+	•	1	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>†</b> Þ		ኘ	<b>^</b>	ሻ	۴	
Traffic Volume (veh/h)	1623	23	33	859	13	76	
Future Volume (veh/h)	1623	23	33	859	13	76	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1841	1841	1752	1752	1426	1426	
Adj Flow Rate, veh/h	1691	24	34	895	14	55	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	4	4	10	10	32	32	
Cap, veh/h	2778	39	273	2905	75	67	
Arrive On Green	0.79	0.79	0.09	1.00	0.06	0.06	
Sat Flow, veh/h	3622	50	1668	3416	1358	1208	
Grp Volume(v), veh/h	836	879	34	895	14	55	
Grp Sat Flow(s), veh/h/in	1749	1832	1668	1664	1358	1208	
Q Serve(g_s), s	35.2	35.4	0.6	0.0	1.8	8.1	
Cycle Q Clear(g_c), s	35.2	35.4	0.6	0.0	1.8	8.1	
Prop In Lane		0.03	1.00	0.0	1.00	1.00	
Lane Grp Cap(c), veh/h	1376	1441	273	2905	75	67	
V/C Ratio(X)	0.61	0.61	0.12	0.31	0.19	0.82	
Avail Cap(c_a), veh/h	1376	1441	389	2905	151	134	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00	
Uniform Delay (d), s/veh	7.8	7.9	6.3	0.0	81.1	84.1	
Incr Delay (d2), s/veh	2.0	1.9	0.3	0.3	2.5	38.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	12.1	12.8	0.3	0.1	0.7	6.1	
Unsig. Movement Delay, s/veh				•	•	••••	
LnGrp Delay(d),s/veh	9.8	9.8	6.6	0.3	83.6	122.6	
LnGrp LOS	A	A	A	A	F	F	
Approach Vol, veh/h	1715			929	69		in et al speciel de la service de la serv
Approach Delay, s/veh	9.8			0.5	114.7		
Approach LOS	A			Â	F		
Timer - Assigned Phs		2		4	5	- 6	
Phs Duration (G+Y+Rc), s		164.0		16.0	15.5	148.5	
Change Period (Y+Rc), s		6.9		6.0	7.3	6.9	
Max Green Setting (Gmax), s		147.1		20.0	20.7	119.1	
Max Q Clear Time (g_c+l1), s		2.0		10.1	2.6	37.4	
Green Ext Time (p_c), s		11.1		0.2	0.1	49.6	
Intersection Summary							
HCM 6th Ctrl Delay		14.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	9.3		5 19. 19. 19. 19. 19. 19. 19. 19. 19. 19.	a se	A service of the serv
HCM 6th LOS			A				
Notes							
NOICO							

User approved ignoring U-Turning movement.

#### Lanes, Volumes, Timings

**Existing Conditions** 

4: CR 484 & I-75 SB	Off-Ram	ıp										Timing Pla	an: AM Peak Hou
	۶	-	$\mathbf{F}$	¥	-	×.	•	t	1	\$	ŧ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		<u> </u>		٢	<u>†</u> †					ኘ	ų	۲	
Traffic Volume (vph)	0	1450	336	148	752	0	0	0	0	229	1	237	
Future Volume (vph)	0	1450	336	148	752	0	0	0	0	229	1	237	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	5%	5%	5%	14%	14%	14%	2%	2%	2%	12%	12%	12%	
Adj. Flow (vph)	0	1480	343	151	767	0	0	0	0	234	1	242	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	0	1823	0	151	767	: · · · · · 0	0	0	0	117	118	242	
Turn Type		NA		pm+pt	NA					Prot	NA	Perm	
Protected Phases		6		5	2					7	4		
Permitted Phases				2								4	
Detector Phase		6		5	2					7	4	4	
Switch Phase													
Minimum Initial (s)		18.0		7.0	18.0					7.0	7.0	7.0	
Minimum Split (s)		25.4		14.4	25.4					14.0	14.0	14.0	
Total Split (s)		106.0		28.0	134.0					46.0	46.0	46.0	
Total Split (%)		58.9%		15.6%	74.4%					25.6%	25.6%	25.6%	
Yellow Time (s)		5.4		5.4	5.4					4.1	4.1	4.1	
All-Red Time (s)		2.0		2.0	2.0					2.9	2.9	2.9	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0	
Total Lost Time (s)		7.4		7.4	7.4					7.0	7.0	7.0	
Lead/Lag		Lead		Lag									
Lead-Lag Optimize?		Yes		Yes									
Recall Mode		C-Min		Min	C-Min					None	None	None	
v/c Ratio		0.57		0.54	0.30					0.75	0.76	0.66	
Control Delay		18.8		21.2	4.9					104.3	104.7	15.9	
Queue Delay		0.0		0.0	0.4					0.0	0.0	0.0	
Total Delay		18.8		21.2	5.3					104.3	104.7	15.9	
Queue Length 50th (ft)		542		53	91					148	149	0	
Queue Length 95th (ft)		633		m121	138					197	198	81	
Internal Link Dist (ft)		1240			424			1185			1125		
Turn Bay Length (ft)		1.								325		475	
Base Capacity (vph)		3225		299	2590					331	156	502	
Starvation Cap Reductn		0		0	1191					0	0	0	
Spillback Cap Reductn		90		Ō	0					0	0	0	
Storage Cap Reductn		Ö		Ū.	Ō					0	0	0	
Reduced v/c Ratio		0.58		0.51	0.55					0.35	0.76	0.48	

Intersection Summary

Cycle Length: 180 Actuated Cycle Length: 180

Offset: 6 (3%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 4: CR 484 & I-75 SB Off-Ramp

♥ Ø2 (R)		₫ Ø4
1345		-16-5
•	<b>√</b> Ø5	<b>1</b> 07
106 s	28 5	455

# HCM 6th Signalized Intersection Summary 4: CR 484 & I-75 SB Off-Ramp

**Existing Conditions** 

$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	4: CR 484 & I-75 SB C													in: AM Peak Hour
Lame Configurations         Image of the configurations <thimage configurations<="" of="" th="" the="">         Image</thimage>		۶		$\mathbf{i}$	4	◄	×.	1	t	1	5	Ļ	1	
Traffic Volume (veh/h)         0         1450         336         148         752         0         0         0         0         229         1         237           Future Volume (veh/h)         0         1450         336         148         752         0 </td <td>Movement</td> <td>EBL</td> <td></td> <td>EBR</td> <td></td> <td></td> <td>WBR</td> <td>NBL</td> <td>NBT</td> <td>NBR</td> <td></td> <td></td> <td></td> <td></td>	Movement	EBL		EBR			WBR	NBL	NBT	NBR				
Future Veenhip         0         1450         336         148         752         0         0         0         229         1         237           Initial Q (2b), vein         0<	Lane Configurations		<b>↑</b> ↑₽		ሻ	<u>†</u> †					ኘ			
Land S (Cal), veh         0         1 do         1 do         1 do         0 </td <td>Traffic Volume (veh/h)</td> <td>0</td> <td>1450</td> <td>336</td> <td>148</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Traffic Volume (veh/h)	0	1450	336	148									
Indus Gov, Out, Parting Bus, Adj         1.00         1.00         1.00         1.00         1.00         1.00           Parking Bus, Adj         1.00         1.00         1.00         1.00         1.00         1.00         1.00           Adj Sat Flow, xeh/hl         0         1.825         1826         1693         0         1722         1722         1722           Adj Sat Flow, xeh/hl         0         1825         1826         1693         0         1722         1722         1722           Adj Flow, resk, veh/h         0         1825         1826         1693         0         1825         0         0           Peacent Heavy Veh, %         0         5         14         4         0         121         12         12         12         2         0	Future Volume (veh/h)	0	1450	336	148		-	0	0	0				
Backman Day, Cybory         1.00         No         No           Work Zone On Approach         No         1480         0         151         767         0         235         0         0         Peak Hour Factor         0.98         0	Initial Q (Qb), veh	0	0	0	0	0						0		
Parking Bus, Aqj 100 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Ped-Bike Adi(A_pbT)	1.00		1.00	1.00		1.00							
Ag Sat Flow, veh/h/m       0       1826       1693       1693       0       1722       1722       1722         Ad Flow Rate, veh/h       0       1480       0       151       767       0       235       0       0         Peak Hour Factor       0.98 <t< td=""><td>Parking Bus, Adj</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1.00</td><td></td><td></td><td></td><td>1.00</td><td>1.00</td><td>1.00</td><td></td></t<>	Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Alg Low Rate, vehin       0       1480       0       151       767       0       235       0       0         Peak Hour Factor       0.98       0.90       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00 <td>Work Zone On Approach</td> <td></td> <td>No</td> <td></td> <td></td> <td>No</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Work Zone On Approach		No			No								
Adj Flow Rate, veh/h       0       1480       0       151       767       0       235       0       0         Peak Hour Factor       0.98 </td <td></td> <td>0</td> <td>1826</td> <td>1826</td> <td>1693</td> <td>1693</td> <td>0</td> <td></td> <td></td> <td></td> <td>1722</td> <td>1722</td> <td>1722</td> <td></td>		0	1826	1826	1693	1693	0				1722	1722	1722	
Peak Hour Factor         0.98         0.90         0.00         0.00		0		0	151	767	0				235	0	0	
Percent Heavy Veh, %       0       5       5       14       14       0       12		0.98		0.98	0.98	0.98	0.98				0.98	0.98	0.98	
Cap, veh/n         0         1836         750         2682         0         282         0           Arrive On Green         0.00         0.25         0.00         0.85         1.00         0.00         0.09         0.00         0.00           Grp Oolume(v), veh/n         0         1612         3300         0         2380         0         14459           Grp Sat Flow, (s), veh/n         0         1612         1608         0         1640         0         1459           Grp Sat Flow, (s), veh/n         0         1612         1608         0         1640         0         1459           Grp Sat Flow, (s), veh/n         0         1612         1608         0         1640         0         1459           Garc(g, c), s         0.0         50.3         0.0         0.0         0.0         1.00         1.00         1.00           Lane Grp Cap(c), veh/n         0         1836         750         2682         0         711         0         0           V/C Ratio(X)         0.00         0.81         0.20         2.00         1.00         1.00         1.00         1.00           V/C Ratio(X), siveh         0.0         67         0.00											12	12	12	
Arive On Green         0.00         0.25         0.00         0.85         1.00         0.00         0.00         0.00         0.00           Sat Flow, veh/h         0         5313         0         1512         300         0         3280         0         1459           Grp Volume(v), veh/h         0         1662         0         1612         1608         0         1640         0         1459           G serve(g, s), s         0.0         50.3         0.0         0.0         0.0         12.7         0.0         0.0           Cycle C Clear(g, c), s         0.00         0.00         0.00         1.00         1.00         1.00           Lane Grp Cap(c), veh/h         0         1836         750         2682         0         282         0           VC Ratic(X)         0.00         0.41         0.20         0.29         0.00         0.83         0.00           VC Ratic(X)         0.00         0.67         6.7         2.00         2.00         1.00         1.00         1.00           Lane Grp Cap(c), veh/h         0         67         0.7         2.00         1.00         1.00         1.00         1.00         1.00         1.00 <td< td=""><td></td><td></td><td></td><td>-</td><td></td><td></td><td>0</td><td></td><td></td><td></td><td>282</td><td>0</td><td></td><td></td></td<>				-			0				282	0		
Sat Flow, veh/h         0         5313         0         1612         3300         0         3280         0         1459           Grp Volume(v), veh/h         0         1460         0         151         767         0         235         0         0           Grp Sat Flow(s), veh/h         0         1662         0         1644         0         1459           Grp Cap, S., s         0.0         50.3         0.0         0.0         0.0         12.7         0.0         0.0           Cycle Clear(g, C), s         0.0         50.3         0.0         0.0         0.0         1.00         1.00           Lane Grp Cap(c), veh/h         0         1836         750         2682         0         282         0           V/C Ratic(X)         0.00         0.81         0.00         1.00         1.00         1.00         1.00         1.00           Uniform Delay, exh/h         0         2731         750         2682         0         711         0           Uniform Delay (d), exh/h         0         2731         750         2682         0         711         0           Uniform Delay (d), exh/h         0.067         0.07         0.00 <t< td=""><td></td><td></td><td></td><td>0.00</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.09</td><td>0.00</td><td>0.00</td><td></td></t<>				0.00							0.09	0.00	0.00	
Och Totali         O         1480         0         151         767         0         235         0         0           Grp Satt Flow(s), veh/h/in         0         1662         1612         1608         0         1640         0         1459         0											3280	0	1459	
Op Outline(U), weight int       0       1662       0       1612       1603       0       1603       0       1459         Q Serve(g, s), s       0.0       50.3       0.0       0.0       0.0       0.0       12.7       0.0       0.0         Cycle Q Clear(g, c), s       0.0       50.3       0.0       0.0       0.0       0.0       12.7       0.0       0.0         Lane Gro Cap(c), veh/h       0       1836       750       2882       0       2822       0       700       0.0         Lane Gro Cap(c), veh/h       0       1836       750       2882       0       282       0       282       0       282       0       282       0       282       0       282       0       700       0.0       0.0         V/C Ratio(X)       0.00       0.81       0.20       0.29       0.00       0.83       0.00         Uniform Delay (d), siveh       0.0       0.67       0.67       2.00       2.00       1.00       1.00       1.00       1.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td></td><td></td></th<>												0		
Dip Set 100(c)/relimint       0       502       0       0.0       0.0       12.7       0.0       0.0         Cycle Q Clear(g, c), s       0.0       50.3       0.0       0.0       0.0       0.0       1.00       1.00         Prop In Lane       0.00       0.00       1.00       0.00       1.00       1.00       1.00         Lane Grp Cap(c), veh/h       0       1836       750       2682       0       282       0         V/C Ratio(X)       0.00       0.81       0.20       0.29       0.00       0.83       0.00         Avail Cap(c, a), veh/h       0       2731       750       2682       0       711       0         HCM Platoon Ratio       1.00       0.67       0.67       2.00       1.00       1.00       1.00       1.00         Upstream Filter(I)       0.00       0.67       0.00       0.00       1.00       0.00       0.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       0.00       1.00       0.00       0.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00							-						-	
Control (2, f)         COS         COS <thcos< th="">         &lt;</thcos<>		-					-							
Option Lane     0.00     0.00     0.00     1.00     1.00       Lane     0.00     0.00     0.00     0.00     1.00       V/C Ratio(X)     0.00     0.81     0.20     0.29     0.00     0.83     0.00       Avail Cap(c_a), veh/h     0     2731     750     2682     0     711     0       HCM Platoon Ratio     1.00     0.67     0.67     2.00     2.00     1.00     1.00     0.00       Uniform Delay (d), siveh     0.00     6.67     2.00     2.00     1.00     1.00     0.00       Uniform Delay (d), siveh     0.0     6.7     0.00     0.00     0.00     0.00       Intitial Q Delay (d), siveh     0.0     0.0     0.0     0.0     0.0     0.0       Unsig. Movement Delay, siveh     0.0     6.7     0.1     0.0     87.3     0.0     0.0       Unsig. Movement Delay, siveh     0.0     6.7     0.1     0.0     87.3     0.0     0.0       Unsig. Movement Delay, siveh     0.0     64.7     0.1     0.0     87.3     0.0     0.0       LnGrp Delay (d), siveh     64.7     7.1     0.0     87.3     0.0     0.0       LnGrp Delay, siveh     64.7     7.2     7.3<														
Index       Color       1836       1750       2682       0       282       0         V/C Ratio(X)       0.00       0.81       0.20       0.29       0.00       0.83       0.00         Avail Cap(c_a), veh/h       0       2731       750       2682       0       711       0         HCM Platon Ratio       1.00       0.67       0.67       2.00       2.00       1.00       1.00       1.00         Upstream Filter(I)       0.00       0.74       0.00       0.49       0.49       0.00       1.00       0.00       0.00         Uniform Delay (d), siveh       0.0       6.7       0.0       0.0       81.0       0.0       0.0         Initial Q Delay(d), siveh       0.0			50.5			0.0						0.0		
Lanc Sup Delay (C)       0.10       0.83       0.00       0.83       0.00         Avail Cap(C_a), veh/h       0       2731       750       2682       0       711       0         HCM Platoon Ratio       1.00       0.67       0.67       2.00       2.00       1.00       1.00       1.00       1.00         Upstream Filter(I)       0.00       0.74       0.00       0.49       0.49       0.00       100       0.00       0.00         Uniform Delay (d), siveh       0.0       6.7       0.0       0.0       81.0       0.0       0.0         Uniform Delay (d), siveh       0.0       6.7       0.0	· · · · · · · · · · · · · · · · · · ·		4000	0.00		0000						0	1.00	
Normation       Order       Order <thorder< th=""></thorder<>														
Nam obpo_dy, edition       1.0       1.0       1.00       1														
Hom Falch Falch       Hoo       Hoo <td></td> <td>-</td> <td>4.00</td> <td></td>												-	4.00	
Opsitem rate(r)       Solo       Gr.7       O.0       Gr.7       O.0       O.0       B1.0       O.0       O.0       Intra Delay (d), siveh       O.0       O.0       O.0       O.0       O.0       O.0       O.0       Intra Delay (d), siveh       O.0       O.0<														
Onin Delay (d), shch     0.0     0.11     0.0     0.1     0.1     0.1     0.0       Inicr Delay (d2), siveh     0.0     0.0     0.0     0.0     0.0     0.0       Initial Q Delay (d2), siveh     0.0     0.0     0.0     0.0     0.0       Wile BackOfQ(50%), veh/ln     0.0     22.2     0.0     1.0     0.0     0.0       Unsig. Movement Delay, siveh     0.0     64.7     0.0     6.7     0.1     0.0       LnGrp Delay(d), siveh     0.0     64.7     0.0     6.7     0.1     0.0       LnGrp Delay(d), siveh     0.0     64.7     0.0     6.7     0.1     0.0       LnGrp Delay(d), siveh     0.0     64.7     0.0     6.7     0.1     0.0       LnGrp Delay(d), siveh     0.0     64.7     0.0     6.7     0.1     0.0       Approach Vol, veh/h     1480     A     918     235     A       Approach LOS     E     A     F     A       Timer - Assigned Phs     2     4     5     6       Phe Duration (G+Y+Rc), s     157.5     22.5     83.8     73.7       Change Period (Y+Rc), s     7.4     7.4     7.4       Max Green Setting (Gmax), s     126.6     39.0 <td>• • • • • •</td> <td></td>	• • • • • •													
Initial Q Delay (Q2), siveh     0.0     0.0     0.0     0.0     0.0     0.0     0.0       Wile BackOfQ(50%), veh/ln     0.0     22.2     0.0     1.0     0.0     0.0     0.0     0.0       Unsig. Movement Delay, siveh     0.0     64.7     0.0     6.7     0.1     0.0     87.3     0.0     0.0       LnGrp Delay(d), siveh     0.0     64.7     0.0     6.7     0.1     0.0     87.3     0.0     0.0       LnGrp DOS     A     E     A     A     A     F     A       Approach Vol, veh/h     1480     A     918     235     A       Approach LOS     E     A     A     F     A       Approach LOS     E     A     F     A       Timer - Assigned Phs     2     4     5     6       Phs Duration (G+Y+Rc), s     157.5     22.5     83.8     73.7       Change Period (Y+Rc), s     7.4     7.0     7.4     7.4       Max Green Setting (Gmax), s     126.6     39.0     20.6     98.6       Max Q Clear Time (p_c), s     5.8     0.8     0.6     14.0       Intersection Summary     HCM 6th Ctrl Delay     44.6       HCM 6th LOS     D     D   <														
Initial Coord (C50%) veh/n       0.0       22.2       0.0       1.0       0.0       0.0       5.6       0.0       0.0         Valle BackOfQ(50%) veh/n       0.0       64.7       0.0       6.7       0.1       0.0       87.3       0.0       0.0         LnGrp Delay(d),s/veh       0.0       64.7       0.0       6.7       0.1       0.0       87.3       0.0       0.0         LnGrp LOS       A       E       A       A       A       F       A         Approach Vol, veh/h       1480       A       918       235       A         Approach Delay, s/veh       64.7       1.2       87.3       A       B       235       A         Approach LOS       E       A       A       918       235       A         Timer - Assigned Phs       2       4       5       6       9	Incr Delay (d2), s/veh													
Alle backol (G/v), vermin       U.0       I.0       I.0 <thi.0< th="">       I.0       <thi i.0<="" th=""> <t< td=""><td>Initial Q Delay(d3),s/veh</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<></thi></thi.0<>	Initial Q Delay(d3),s/veh													
LnGrp Delay(d),s/veh         0.0         64.7         0.0         6.7         0.1         0.0         87.3         0.0         0.0           LnGrp LOS         A         E         A         A         A         A         F         A           Approach Vol, veh/h         1480         A         918         235         A           Approach Delay, s/veh         64.7         1.2         87.3         F         A           Approach LOS         E         A         F         A         F           Timer - Assigned Phs         2         4         5         6           Phs Duration (G+Y+Rc), s         157.5         22.5         83.8         73.7           Change Period (Y+Rc), s         7.4         7.0         7.4         7.4           Max Green Setting (Gmax), s         126.6         39.0         20.6         98.6           Max Q Clear Time (g_c+11), s         2.0         14.7         2.0         52.3           Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary         44.6         D         D	%ile BackOfQ(50%),veh/In	0.0	22.2	0.0	1.0	0.0	0.0				5.6	0.0	0.0	
LnGrp LOS     A     E     A     A     A       Approach Vol, veh/h     1480     A     918     235     A       Approach Delay, s/veh     64.7     1.2     87.3       Approach LOS     E     A     F       Timer - Assigned Phs     2     4     5     6       Phs Duration (G+Y+Rc), s     157.5     22.5     83.8     73.7       Change Period (Y+Rc), s     7.4     7.0     7.4     7.4       Max Green Setting (Gmax), s     126.6     39.0     20.6     98.6       Max Q Clear Time (g_c+H1), s     2.0     14.7     2.0     52.3       Green Ext Time (p_c), s     5.8     0.8     0.6     14.0       Intersection Summary     44.6     D     D	Unsig. Movement Delay, s/veh													
Littop Los       A       L       A       A         Approach Vol, ve/h       1480       A       918       235       A         Approach Delay, s/veh       64.7       1.2       87.3       F         Approach LOS       E       A       F       F         Timer - Assigned Phs       2       4       5       6         Timer - Assigned Phs       2       4       5       6         Timer - Assigned Phs       2       4       5       6         The Duration (G+Y+Rc), s       157.5       22.5       83.8       73.7         Change Period (Y+Rc), s       7.4       7.0       7.4       7.4         Max Green Setting (Gmax), s       126.6       39.0       20.6       98.6         Max Q Clear Time (g_c+I1), s       2.0       14.7       2.0       52.3         Green Ext Time (p_c), s       5.8       0.8       0.6       14.0         Intersection Summary       HCM 6th Ctrl Delay       44.6         HCM 6th LOS       D       D       144.6	LnGrp Delay(d),s/veh	0.0	64.7	0.0	6.7	0.1	0.0						0.0	
Approach Delay, s/veh       64.7       1.2       87.3         Approach LOS       E       A       F         Timer - Assigned Phs       2       4       5       6         Phs Duration (G+Y+Rc), s       157.5       22.5       83.8       73.7         Change Period (Y+Rc), s       7.4       7.0       7.4       7.4         Max Green Setting (Gmax), s       126.6       39.0       20.6       98.6         Max Q Clear Time (g_c+I1), s       2.0       14.7       2.0       52.3         Green Ext Time (p_c), s       5.8       0.8       0.6       14.0         Intersection Summary       44.6       D       D	LnGrp LOS	А	E		Α	A	<u>A</u>				F			
Approach Delay, s/veh         64.7         1.2         87.3           Approach LOS         E         A         F           Timer - Assigned Phs         2         4         5         6           Phs Duration (G+Y+Rc), s         157.5         22.5         83.8         73.7           Change Period (Y+Rc), s         7.4         7.0         7.4         7.4           Max Green Setting (Gmax), s         126.6         39.0         20.6         98.6           Max Q Clear Time (g_c+I1), s         2.0         14.7         2.0         52.3           Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary         44.6         D         D	Approach Vol. veh/h		1480	A	11.00	918						235	A	
Approach LOS         E         A         F           Timer - Assigned Phs         2         4         5         6           Phs Duration (G+Y+Rc), s         157.5         22.5         83.8         73.7           Change Period (Y+Rc), s         7.4         7.0         7.4         7.4           Max Green Setting (Gmax), s         126.6         39.0         20.6         98.6           Max Qclear Time (g_c+I1), s         2.0         14.7         2.0         52.3           Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary         44.6         D         D	••					1.2								
Phs Duration (G+Y+Rc), s         157.5         22.5         83.8         73.7           Change Period (Y+Rc), s         7.4         7.0         7.4         7.4           Max Green Setting (Gmax), s         126.6         39.0         20.6         98.6           Max Q Clear Time (g_c+I1), s         2.0         14.7         2.0         52.3           Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary         44.6         D         D			Е			Α						F		
Phs Duration (G+Y+Rc), s         157.5         22.5         83.8         73.7           Change Period (Y+Rc), s         7.4         7.0         7.4         7.4           Max Green Setting (Gmax), s         126.6         39.0         20.6         98.6           Max Q Clear Time (g_c+I1), s         2.0         14.7         2.0         52.3           Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary         44.6         D	Timer - Assigned Phs		2		4	5	6							
Change Period (Y+Rc), s     7.4     7.0     7.4     7.4       Max Green Setting (Gmax), s     126.6     39.0     20.6     98.6       Max Q Clear Time (g_c+I1), s     2.0     14.7     2.0     52.3       Green Ext Time (p_c), s     5.8     0.8     0.6     14.0       Intersection Summary     44.6       HCM 6th LOS     D							100000000000000000000000000000000000000							
Max Green Setting (Gmax), s         126.6         39.0         20.6         98.6           Max Q Clear Time (g_c+I1), s         2.0         14.7         2.0         52.3           Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary           HCM 6th Ctrl Delay         44.6           HCM 6th LOS         D														
Max Q Clear Time (g_c+I1), s         2.0         14.7         2.0         52.3           Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary         44.6         D														
Green Ext Time (p_c), s         5.8         0.8         0.6         14.0           Intersection Summary         Intersection Sum														
Intersection Summary HCM 6th Ctrl Delay 44.6 HCM 6th LOS D														
HCM 6th Ctrl Delay 44.6 HCM 6th LOS D			<b>J.U</b>		0.0	U.U	V.F1							
HCM 6th LOS D														
	-													
	Notes													

User approved volume balancing among the lanes for turning movement. User approved ignoring U-Turning movement. Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings 5: I-75 NB Off-Ramp & CR 484

**Existing Conditions** 

5: I-75 NB Off-Ram		84											an: AM Peak Hour
	٦		$\mathbf{F}$	4		×	•	Ť	1	\$	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	×,	<u>††</u>			<b>11</b>			<del>4</del>	1				
Traffic Volume (vph)	567	1111	0	0	720	383	176	1	138	0	0	0	
Future Volume (vph)	567	1111	0	0	720	383	176	1	138	0	0	0	
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 (%)	5%	5%	5%	11%	11%	11%	17%	17%	17%	2%	2%	2%	
Adj. Flow (vph)	585	1145	0	0	742	395	181	1	142	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	585	1145	0	0	1137	0	0	182	142	-0	0	0	
Turn Type	pm+pt	NA			NA		Perm	NA	Perm				
Protected Phases	1	6			2			4					
Permitted Phases	6						4		4				
Detector Phase	1	6			2		- 4	4	4				
Switch Phase													
Minimum Initial (s)	7.0	20.0			20.0		7.0	7.0	7.0				
Minimum Split (s)	14.2	26.9			26.9		13.5	13.5	13.5				
Total Split (s)	70.0	141.0			71.0		39.0	39.0	39.0				
Total Split (%)	38.9%	78.3%			39.4%		21.7%	21.7%	21.7%				
Yellow Time (s)	4.9	4.9			4.9		4.1	4.1	4.1				
All-Red Time (s)	2.3	2.0			2.0		2.4	2.4	2.4				
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0				
Total Lost Time (s)	7.2	6.9			6.9			6.5	6.5				
Lead/Lag	Lead				Lag								
Lead-Lag Optimize?	Yes				Yes								
Recall Mode	Max	C-Min			C-Min		None	None	None				
v/c Ratio	0.74	0.43			0.80			0.77	0.43				
Control Delay	26.5	8.9			57.5			94.5	12.6				
Queue Delay	2.0	0.3			0.0			0.0	0.0				
Total Delay	28.5	9.2			57.5			94.5	12.6				
Queue Length 50th (ft)	502	484			426			209	0				
Queue Length 95th (ft)	#768	115			451			297	68				
Internal Link Dist (ft)		424			1171			1111			1102		
Turn Bay Length (ft)									320				
Base Capacity (vph)	791	2658			1631			279	365				
Starvation Cap Reductn	96	800			0			0	0				
Spillback Cap Reductn	0	0			0			0	0				
Storage Cap Reductn	0	0			0			0	0				
Reduced v/c Ratio	0.84	0.62			0.70			0.65	0.39				

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180 Offset: 33 (18%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

#### Splits and Phases: 5: I-75 NB Off-Ramp & CR 484

	<b>4</b> −− Ø2 (R)	ģ	Ø4
70 s	71s		39 s
		ę	
141.6			

# HCM 6th Signalized Intersection Summary 5: I-75 NB Off-Ramp & CR 484

	٦	<b>→</b>	$\mathbf{\hat{F}}$	4		×	1	1	1	5	ŧ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Ϋ́	<b>†</b> †			<b>^</b>			र्स	7				
Traffic Volume (veh/h)	567	1111	0	0	720	383	176	1	138	0	0	0	
Future Volume (veh/h)	567	1111	Ó	Ó	720	383	176	1	138	0	0	0	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0				
Ped-Bike Adi(A_pbT)	1.00	-	1.00	1.00	-	1.00	1.00	•	1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach		No			No			No					
Adj Sat Flow, veh/h/In	1826	1826	0	0	1737	1737	1648	1648	1648				
Adj Flow Rate, veh/h	585	1145	õ	õ	742	0	181	1	0				
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97				
Percent Heavy Veh, %	5	5	0.37	0.07	11	11	17	17	17				
Cap, veh/h	842	2756	ŏ	ŏ	1923		205	1					
Arrive On Green	0.70	1.00	0.00	0.00	0.27	0.00	0.13	0.13	0.00				
Sat Flow, veh/h	1739	3561	0.00	0.00	5055	0.00	1561	9	1397				
				0		0		<u>9</u>	1397	N 3			
Grp Volume(v), veh/h	585	1145	0	-	742	-	182	-	-				
Grp Sat Flow(s),veh/h/In	1739	1735	0	0	1581	0	1570	0	1397				
Q Serve(g_s), s	20.1	0.0	0.0	0.0	22.9	0.0	20.5	0.0	0.0				
Cycle Q Clear(g_c), s	20.1	0.0	0.0	0.0	22.9	0.0	20.5	0.0	0.0				
Prop In Lane	1.00		0.00	0.00		0.00	0.99		1.00				
Lane Grp Cap(c), veh/h	842	2756	0	0	1923		206	0					
V/C Ratio(X)	0.70	0.42	0.00	0.00	0.39		0.88	0.00					
Avail Cap(c_a), veh/h	842	2756	0	0	1923		283	0					
HCM Platoon Ratio	2.00	2.00	1.00	1.00	0.67	0.67	1.00	1.00	1.00				
Upstream Filter(I)	0.79	0.79	0.00	0.00	1.00	0.00	1.00	0.00	0.00				
Uniform Delay (d), s/veh	4.7	0.0	0.0	0.0	47.3	0.0	76.8	0.0	0.0				
Incr Delay (d2), s/veh	3.8	0.4	0.0	0.0	0.6	0.0	27.0	0.0	0.0				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(50%),veh/In	3.5	0.1	0.0	0.0	9.5	0.0	9.8	0.0	0.0				
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	8.5	0.4	0.0	0.0	47.9	0.0	103.8	0.0	0.0				
LnGrp LOS	А	Α	А	Α	D		F	А					
Approach Vol, veh/h	N STATE	1730	8 (19 - 19 - 19 - 19 - 19 - 19 - 19 - 19	ala seberat	742	A	영영관	182	Α				
Approach Delay, s/veh		3.1			47.9			103.8					
Approach LOS		Α			D			F					
Timer - Assigned Phs	1	2		4		6							
Phs Duration (G+Y+Rc), s	70.0	79.9	ser an ang	30.1	S. S. S. S. S. S. S.	149.9							
Change Period (Y+Rc), s	* 7.2	6.9		6.5		6.9							
Max Green Setting (Gmax), s	* 63	64.1		32.5		134.1							
Max Q Clear Time (g_c+l1), s	22.1	24.9		22.5		2.0							
Green Ext Time (p_c), s	3.5	7.8		1.1		16.7							
Intersection Summary													
HCM 6th Ctrl Delay HCM 6th LOS	na sana sana sana sana sana sana sana s	e dal nacionali	22.5 C	a an an taga ta	en an talansi T	ng Alberton A	in the second	an an the state of the	eriter eri	e te de la calega de	ada Andelada A	in an an the states	i en el la comencia de la comencia d La comencia de la come
Notes													

User approved ignoring U-Turning movement.

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

**Existing Conditions** Timing Plan: AM Peak Hour

# Lanes, Volumes, Timings 8: SW 29th Ave Rd & Marion Oaks Trail

# Existing Conditions Timing Plan: AM Peak Hour

	٦		$\mathbf{F}$	4	◄	×.	•	t	1	\$	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4			4			4		
Traffic Volume (vph)	1	ò	105	1	<b>↔</b> 0	0	32	6	0	0	11	2	
Future Volume (vph)	1	0	105	1	0	0	32	6	0	0	11	2	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	11%	11%	11%	2%	2%	2%	
Adj. Flow (vph)	1	0	125	1	0	0	38	7	0	: 0	13	2	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	126	0	0	1	0	0	45	0	0	15	0	
Sign Control		Stop			Stop			Free			Free		

Control Type: Unsignalized

#### HCM 6th TWSC 8: SW 29th Ave Rd & Marion Oaks Trail

 	-	-

4	
KHA Analyst	
January 2023	

Intersection													
int Delay, s/veh	7.5												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		\$			4			4>			4		
Traffic Vol, veh/h	1	0	105	1	0	0	32	6	0	0	11	2	
Future Vol, veh/h	1	0	105	1	0	0	32	6	0	0	11	2	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	•	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	~	
/eh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84	
Heavy Vehicles, %	2	2	2	2	2	2	11	11	11	2	2	2	
Mvmt Flow	1	0	125	1	0	0	38	7	0	. 0	13	2	
Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	97	97	14	160	98	7	15	0	0	7	0	0	
Stage 1	14	14	-	83	83			· •	Ľ		<u> </u>	2	
Stage 2	83	83	-	77	15	-		-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.21	·	· _ ·	4.12	-	· · · ·	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52		-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	1 A.		-	· .		-		
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.299	-	-	2.218	-	-	
Pot Cap-1 Maneuver	885	793	1066	806	792	1075	1546		5 <u>-</u>	1614	-	÷	
Stage 1	1006	884	-	925	826	-	-	_	-	-	-	-	
Stage 2	925	826	-	932	883	1. s. j. 🛓	· -	-	· _		-	-	
Platoon blocked. %		020						-	-		-		
Nov Cap-1 Maneuver	868	773	1066	698	772	1075	1546	-	· · · ·	1614	-	-	
Nov Cap-2 Maneuver	868	773	-	698	772	-		-	-	-	-	-	
Stage 1	981	884	-	902	805			- <u>-</u>		1990 <b>-</b> 1	· _		
Stage 2	902	805	-	823	883	-	-	-	-	-	· -	-	
Approach	EB			WB			NB			SB			
ICM Control Delay, s	8.8			10.2			6.2			0			
HCM LOS	A			В									
/inor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1546	-	-	1064	698	1614	-	-				
HCM Lane V/C Ratio		0.025	-	-	0.119	0.002	-	-	-				
HCM Control Delay (s)		7.4	0	-	8.8	10.2	0	-	-				
ICM Lane LOS		A	Å	-	Â	B	Ă	-	-				
		0.1	~		0.4	0	0						

# Existing Conditions Timing Plan: AM Peak Hour

**D-99** 

# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

# F2: AM Peak Hour Future Year Background Traffic Conditions (2027)

#### Lanes, Volumes, Timings 2: CR 484 & SW 29th Ave Rd

#### Background Conditions Timing Plan: AM Peak Hour

D-100

					•	
BL.	EBT	WBT	WBR	SBL	SBR	
٢	<b>^</b>	<b>†</b> ]-		¥		
8	2277	1514	63	Ö	196	
8	2277	1514	63	0	196	
.90	0.90	0.90	0.90	0.90	0.90	
7%	7%	4%	4%	7%	7%	
9	2530	1682	70	0	218	
9	2530	1752	0	218	0	
	Free	Free		Stop		
	BL 8 8 90 9 9	↑         ↑↑           8         2277           8         2277           90         0.90           7%         7%           9         2530           9         2530	***         ****           8         2277         1514           8         2277         1514           9         0.90         0.90           7%         7%         4%           9         2530         1682           9         2530         1752	↑         ↑           8         2277         1514         63           8         2277         1514         63           90         0.90         0.90         0.90           7%         4%         4%           9         2530         1682         70           9         2530         1752         0	↑         ↑         ↑         ↓         ↓           8         2277         1514         63         0           8         2277         1514         63         0           90         0.90         0.90         0.90         0.90           7%         7%         4%         4%         7%           9         2530         1682         70         0           9         2530         1752         0         218	**         **         **           8         2277         1514         63         0         196           8         2277         1514         63         0         196           90         0.90         0.90         0.90         0.90         0.90           7%         7%         4%         4%         7%         7%           9         2530         1682         70         0         218           9         2530         1752         0         218         0

Control Type: Unsignalized

#### HCM 6th TWSC 2: CR 484 & SW 29th Ave Rd

#### Background Conditions Timing Plan: AM Peak Hour

Intersection							
Int Delay, s/veh	2.5						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	٢	<u>†</u> †	<b>†</b> ‡		W		
Traffic Vol, veh/h	8	2277	1514	63	0	196	
Future Vol, veh/h	8	2277	1514	63	0	196	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	144	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	1	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	90	90	90	90	90	90	
Heavy Vehicles, %	7	7	4	4	7	7	
Mvmt Flow	9	2530	1682	70	0	218	
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1752	0	INIGIOI 2	0	3000	876	
Stage 1	-	v.			1717	0/0	
Stage 2	-			-	1283	-	
Critical Hdwy	4.24	_	-	-	6.94	7.04	
Critical Hdwy Stg 1	7.27	-	-	_	5.94	1.04	
Critical Hdwy Stg 2	-	-	· _	-	5.94	-	
Follow-up Hdwy	2.27	-	-	-	3.57	3.37	
Pot Cap-1 Maneuver	333	-		-	10	282	
Stage 1		-	· -	-	124		
Stage 2	-	-	-	_	215	-	
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver	333	-	-	-	10	282	
Mov Cap-2 Maneuver	-	-	-	-	75	-	
Stage 1	· _			· · · -	121	-	
Stage 2	-	-	-	-	215	-	
Approach	EB		WB		SB		
HCM Control Delay, s	0.1		0		50.6		
HCM LOS					F		
	u <sup>a</sup>						na si ta ta si na si na si kwa kwa na si na si kwa Na si kwa
Minor Lane/Major Mvmt		EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)		333	-	-	-	282	
HCM Lane V/C Ratio		0.027	-	-	-	0.772	
HCM Control Delay (s)		16.1	-	-	-	50.6	
HCM Lane LOS		С	-	-	-	F	
HCM 95th %tile Q(veh)		0.1	-	-	-	5.9	

#### D-102

Lanes, Volumes, Timings	
3: SW 20th Ave Rd & CR 48	4

#### Background Conditions Timing Plan: AM Peak Hour

	۶		$\mathbf{F}$	F	<b>↓</b>	×.	-	1	1	1	Ļ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ň	<b>†</b> ‡		ሻ	<u>†</u> †	1		4 <b>`</b> Þ		۲	1	1	
Traffic Volume (vph)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Future Volume (vph)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	11%	11%	11%	13%	13%	13%	
Adj. Flow (vph)	85	2307	44	270	1676	181	60	16	259	206	31	14	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	85	2351	0	270	1676	181	0	335	0	206	31	14	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm	
Protected Phases	1	6		5	2			4			8		
Permitted Phases	6			2		2	4			8		8	
Detector Phase	1	6		5	2	2	4	4		8	8	8	
Switch Phase													
Minimum Initial (s)	10.0	15.0		10.0	15.0	15.0	10.0	10.0		10.0	10.0	10.0	
Minimum Split (s)	17.0	21.9		17.3	21.9	21.9	16.6	16.6		16.6	16.6	16.6	
Total Split (s)	26.0	120.0		26.0	120.0	120.0	34.0	34.0		34.0	34.0	34.0	
Total Split (%)	14.4%	66.7%		14.4%	66.7%	66.7%	18.9%	18.9%		18.9%	18.9%	18.9%	
Yellow Time (s)	4.8	4.9		4.8	4.9	4.9	4.0	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.2	2.0		2.5	2.0	2.0	2.6	2.6		2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0	6.9		7.3	6.9	6.9		6.6		6.6	6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes							
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None	
v/c Ratio	0.42	1.10		1.23	0.71	0.17		0.64		2.31	0.12	0.05	
Control Delay	13.4	86.2		183.0	21.5	6.9		42.7		654.2	67.5	0.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay	13.4	86.2		183.0	21.5	6.9		42.7		654.2	67.5	0.4	
Queue Length 50th (ft)	22	~1655		~342	913	44		103		~394	32	0	
Queue Length 95th (ft)	37	#1766		#543	487	73		164		#578	69	0	
Internal Link Dist (ft)		3132			1240			650			1393		
Turn Bay Length (ft)	114			170		144				114			
Base Capacity (vph)	284	2133		220	2349	1075		523		89	255	275	
Starvation Cap Reductn	0	0		0	0	0		0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0		0	0	0	
Storage Cap Reductn	0	0		0	0	- 0		0		0 - 1	0	0	
Reduced v/c Ratio	0.30	1.10		1.23	0.71	0.17		0.64		2.31	0.12	0.05	

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180

Offset: 165 (92%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

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: 3: SW 20th Ave Rd & CR 484

▶ <sub>Ø1</sub>	Ø2 (R)	d
26 s	120 \$	34 s
<b>√</b> Ø5	 	↓ <sub>ØS</sub>
26 s	120 s	34 s

#### D-103

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

Background Conditions Timing Plan: AM Peak Hour

	۶		$\mathbf{r}$	4	<b>←</b>	×.	1	t	1	4	ţ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	٢	<b>†</b> ‡		ሻ	<b>†</b> †	۴		4 î <b>þ</b>		ኘ	<b>†</b>	7	
Traffic Volume (veh/h)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Future Volume (veh/h)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	· · · · 0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1737	1737	1737	1707	1707	1707	
Adj Flow Rate, veh/h	85	2307	44	270	1676	181	60	16	181	206	31	14	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	6	6	6	4	4	4	11	11	11	13	13	13	
Cap, veh/h	292	2170	41	222	2375	1059	180	44	204	61	260	220	
Arrive On Green	0.07	0.84	0.84	0.14	0.90	0.90	0.15	0.15	0.15	0.15	0.15	0.15	
Sat Flow, veh/h	1725	3454	66	1753	3497	1560	950	287	1340	1082	1707	1447	
Grp Volume(v), veh/h	85	1145	1206	270	1676	181	76	0	181	206	31	14	**** • • • • • • • • • • • • • • • • •
Grp Sat Flow(s), veh/h/ln	1725	1721	1799	1753	1749	1560	1237	ŏ	1340	1082	1707	1447	
Q Serve(g_s), s	3.0	113.1	113.1	18.7	23.0	2.4	8.6	0.0	23.8	3.6	2.8	1.5	
Cycle Q Clear(g_c), s	3.0	113.1	113.1	18.7	23.0	2.4	11.4	0.0	23.8	27.4	2.8	1.5	
Prop In Lane	1.00	110.1	0.04	1.00	20.0	1.00	0.79	0.0	1.00	1.00	2.0	1.00	
Lane Grp Cap(c), veh/h	292	1081	1131	222	2375	1059	224	0	204	61	260	220	
V/C Ratio(X)	0.29	1.06	1.07	1.22	0.71	0.17	0.34	0.00	0.89	3.36	0.12	0.06	
Avail Cap(c_a), veh/h	380	1081	1131	222	2375	1059	224	0.00	204	61	260	220	
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	0.70	0.70	0.70	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	10.1	14.8	14.8	67.6	3.9	2.9	70.4	0.00	74.8	89.4	65.9	65.3	
Incr Delay (d2), s/veh	0.5	44.6	46.4	122.4	3.9 1.3	0.2	0.9	0.0	34.3	1100.0	05.9	03.3	
Initial Q Delay(d3),s/veh	0.0	44.0 0.0	40.4 0.0	122.4 0.0	0.0	0.2	0.9	0.0	0.0	0.0	0.2	0.1	
%ile BackOfQ(50%),veh/in	1.1	36.3	0.0 38.6	0.0 17.0	4.1	0.0	3.3	0.0	10.2	21.7	1.3	0.0	
Unsig. Movement Delay, s/veh	1.1	30.3	30.0	17.0	4.1	0.0	3.3	0.0	10.2	21.1	1.5	0.0	
	10.6	59.4	61.2	400.0	5.2	2.0	74.0	0.0	100.0	1400 4	66.1	105 A	
LnGrp Delay(d),s/veh	10.6 В	59.4 F	01.Z F	189.9 F		3.2	71.2 E		109.0 F	1189.4	00.1 E	65.4 E	
LnGrp LOS	D		<b>F</b>	<u>г</u>	A	Α	<u> </u>	A	<u> </u>	F		<u> </u>	
Approach Vol, veh/h		2436			2127			257			251		
Approach Delay, s/veh		58.6			28.4			97.9			988.0		
Approach LOS		E			С			F			F		
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	16.9	129.1		34.0	26.0	120.0		34.0					
Change Period (Y+Rc), s	*7	6.9		6.6	7.3	6.9		6.6					
Max Green Setting (Gmax), s	* 19	113.1		27.4	18.7	113.1		27.4					
Max Q Clear Time (g_c+l1), s	5.0	25.0		25.8	20.7	115.1		29.4					
Green Ext Time (p_c), s	0.1	23.3		0.2	0.0	0.0		0.0					
Intersection Summary													
HCM 6th Ctrl Delay			93.9										
HCM 6th LOS			F										
						n an				ang sa	anisana kanana ka		
Notes							arrier						

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### D-104

Lanes, Volumes,	Timings
4: CR 484 & I-75	SB Off-Ramp

Background Conditions	
Timing Plan: AM Peak Hour	

	۶		$\mathbf{F}$	¥	<b>4</b>	×.	1	1	t	4	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4111		ኘ	<b>^</b>					ኘ	र्भ	77	
Traffic Volume (vph)	0	2129	460	172	1655	0	0	0	0	265	1	356	
Future Volume (vph)	0	2129	460	172	1655	0	0	0	0	265	1	356	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	0%	0%	0%	7%	7%	7%	
Adj. Flow (vph)	0	2172	469	176	1689	0	0	0	0	270	1	363	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	0	2641	0	176	1689	0	0	0	0	135	136	363	
Turn Type		NA		Prot	NA					Split	NA	Prot	
Protected Phases		6		5	2					4	4	4	
Permitted Phases													
Detector Phase		6		5	2					4	4	4	
Switch Phase													
Minimum Initial (s)		18.0		7.0	18.0					7.0	7.0	7.0	
Minimum Split (s)		25.4		14.4	25.4					14.0	14.0	14.0	
Total Split (s)		106.0		28.0	134.0					46.0	46.0	46.0	
Total Split (%)		58.9%		15.6%	74.4%					25.6%	25.6%	25.6%	
Yellow Time (s)		5.4		5.4	5.4					4.1	4.1	4.1	
All-Red Time (s)		2.0		2.0	2.0					2.9	2.9	2.9	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0	
Total Lost Time (s)		7.4		7.4	7.4					7.0	7.0	7.0	
Lead/Lag		Lead		Lag									
Lead-Lag Optimize?		Yes		Yes									
Recall Mode		Min		Min	C-Min					None	None	None	
v/c Ratio		0.73		0.88	0.64					0.57	0.57	0.80	
Control Delay		22.0		114.2	37.8					80.1	80.1	71.0	
Queue Delay		0.3		0.0	49.0					0.0	0.0	0.0	
Total Delay		22.3		114.2	86.7					80.1	80.1	71.0	
Queue Length 50th (ft)		324		184	741					158	161	192	
Queue Length 95th (ft)		m325		m#269	810					229	231	246	
Internal Link Dist (ft)		1240			424			1185			1125		
Turn Bay Length (ft)										325		475	
Base Capacity (vph)		3605		203	2656					347	348	635	
Starvation Cap Reductn		0		0	1401					0	0	0	
Spillback Cap Reductn		362		0	0					0	0	Ō	
Storage Cap Reductn		0		0	Ő					Ō	Ö	Ō	
Reduced v/c Ratio		0.81		0.87	1.35					0.39	0.39	0.57	
	nasion/doctoraries	nakaan baan baar	an a		esiabet-viktoiritoraabieter		en dan berten was kar	(Antonio di Antonio di	000000000000000000000000000000000000000	CHATCHING AND PROVIDENT	0.0000000000000000000000000000000000000	tantai mata mata mana sa ana	

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180 Offset: 6 (3%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: CR 484 & I-75 SB Off-Ramp

← ∅2 (R)	ų.	∳ Ø4
1345		H65
	<b>√</b> Ø5	•
106 s	28.5	

## D-105

# HCM 6th Signalized Intersection Summary 4: CR 484 & I-75 SB Off-Ramp

Background Conditions
Timing Plan: AM Peak Hour

	۶	-	¥	4	<b>←</b>	×.	•	1	1	1	ţ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4111		r.	<u></u>					ሻ	र्भ	77	
Traffic Volume (veh/h)	0	2129	460	172	1655	0	0	0	0	265	1	356	
Future Volume (veh/h)	0	2129	460	172	1655	0	0	0	0	265	1	356	
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	0	1767	1767	1826	1826	0				1796	1796	1796	
Adj Flow Rate, veh/h	0	2172	0	176	1689	0				271	0	363	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98	
Percent Heavy Veh, %	0	9	9	5	5	0				7	7	7	
Cap, veh/h	0	2670		521	2706	Ō				479	0	426	
Arrive On Green	0.00	0.58	0.00	0.40	1.00	0.00				0.14	0.00	0.14	
Sat Flow, veh/h	0	6572	0	1739	3561	0				3421	0	3045	
Grp Volume(v), veh/h	0	2172	0	176	1689	0				271	0	363	
Grp Sat Flow(s), veh/h/ln	ŏ	1519	ŏ	1739	1735	Ö				1711	ŏ	1522	
Q Serve(g_s), s	0.0	51.0	0.0	12.7	0.0	0.0				13.3	0.0	21.0	
Cycle Q Clear(q_c), s	0.0	51.0 51.0	0.0	12.7	0.0	0.0				13.3	0.0	21.0	
Prop In Lane	0.00	01.0	0.00	1.00	0.0	0.00				1.00	0.0	1.00	
Lane Grp Cap(c), veh/h	0.00	2670	0.00	521	2706	0.00				479	0	426	
V/C Ratio(X)	0.00	0.81		0.34	0.62	0.00				0.57	0.00	0.85	
Avail Cap(c_a), veh/h	0.00	3329		521	2706	0.00				741	0.00	660	
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00	
	0.00	0.09	0.00	0.40	0.40	0.00				1.00	0.00	1.00	
Upstream Filter(I)	0.00	31.6	0.00	41.7	0.40	0.00				72.3	0.00	75.6	
Uniform Delay (d), s/veh			0.0		0.0	0.0				12.5	0.0	6.5	
Incr Delay (d2), s/veh	0.0	0.1		0.2								0.0 0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0 5.9	0.0	17.3	
%ile BackOfQ(50%),veh/In	0.0	16.6	0.0	5.2	0.2	0.0				0.9	0.0	17.5	
Unsig. Movement Delay, s/veh	• •	04.77	• •	40.0	~ 4					70.0	0.0	00.4	
LnGrp Delay(d),s/veh	0.0	31.7	0.0	42.0	0.4	0.0				73.3	0.0	82.1	
LnGrp LOS	Α	C		D	A	A				E	A	F	
Approach Vol, veh/h		2172	A		1865						634		
Approach Delay, s/veh		31.7			4.4						78.3		
Approach LOS		C			Α						E ∶		
Timer - Assigned Phs		2		4	5	6							
Phs Duration (G+Y+Rc), s		147.8		32.2	61.3	86.5							
Change Period (Y+Rc), s		7.4		7.0	7.4	7.4							
Max Green Setting (Gmax), s		126.6		39.0	20.6	98.6							
Max Q Clear Time (g_c+l1), s		2.0		23.0	14.7	53.0							
Green Ext Time (p_c), s		22.3		2.2	0.3	26.1							
Intersection Summary													
HCM 6th Ctrl Delay	10.000 (Conjecture)		27.1			an a				a general anger a	ang kapang sa sa s		en de la companya de
HCM 6th LOS			C										
Notes													

User approved volume balancing among the lanes for turning movement. Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

#### D-106

Lanes, Volumes, Timings 5: I-75 NB Off-Ramp & CR 484

#### Background Conditions Timing Plan: AM Peak Hour

	٦		$\mathbf{F}$	¥	←	×.	-	Ť	1	1	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<b>†</b> †			<b>^</b>	7	۲	र्भ	*				
Traffic Volume (vph)	717	1655	0	0	1484	444	332	1	160	0	0	0	
Future Volume (vph)	717	1655	0	0	1484	444	332	1	160	0	0	0	
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 (%)	8%	8%	8%	5%	5%	5%	9%	9%	9%	0%	0%	0%	
Adj. Flow (vph)	739	1706	0	0	1530	458	342	1	165	0	0	0	
Shared Lane Traffic (%)							50%						
Lane Group Flow (vph)	739	1706	0	0	1530	458	171	172	165	0	0	0	
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm				
Protected Phases	1	6			2		4	4					
Permitted Phases						2			4				
Detector Phase	1	6			2	2	4	4	4				
Switch Phase													
Minimum Initial (s)	7.0	20.0			20.0	20.0	7.0	7.0	7.0				
Minimum Split (s)	14.2	26.9			26.9	26.9	13.5	13.5	13.5				
Total Split (s)	70.0	141.0			71.0	71.0	39.0	39.0	39.0				
Total Split (%)	38.9%	78.3%			39.4%	39.4%	21.7%	21.7%	21.7%				
Yellow Time (s)	4.9	4.9			4,9	4.9	4.1	4.1	4.1				
All-Red Time (s)	2.3	2.0			2.0	2.0	2.4	2.4	2.4				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	7.2	6.9			6.9	6.9	6.5	6.5	6.5				
Lead/Lag	Lead				Lag	Lag							
Lead-Lag Optimize?	Yes				Yes	Yes							
Recall Mode	Max	C-Min			C-Min	C-Min	None	None	None				
v/c Ratio	0.60	0.66			0.87	0.70	0.72	0.73	0.59				
Control Delay	32.5	16.6			60.6	36.3	89.4	89.6	49.6				
Queue Delay	1.5	2.8			21.2	0.0	77.3	77.2	0.0				
Total Delay	34.0	19.4			81.8	36.3	166.7	166.9	49.6				
Queue Length 50th (ft)	334	753			619	301	204	205	108				
Queue Length 95th (ft)	376	1084			683	445	292	293	190				
Internal Link Dist (ft)		424			1171			1111			1102		
Turn Bay Length (ft)						144	320		320				
Base Capacity (vph)	1227	2589			1759	658	284	284	322				
Starvation Cap Reductn	292	740			0	0	0	0	0				
Spillback Cap Reductn	0	0			281	0	189	189	0				
Storage Cap Reductn	0	0			0	0	0	0	0				
Reduced v/c Ratio	0.79	0.92			1.04	0.70	1.80	1.81	0.51				
Intersection Summary													

Intersection Summary Cycle Length: 180

Cycle Length: 180 Actuated Cycle Length: 180 Offset: 33 (18%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow Natural Cycle: 80 Control Type: Actuated-Coordinated

#### Splits and Phases: 5: I-75 NB Off-Ramp & CR 484

▶ <sub>∅1</sub>	Ø2 (R)	<b>• 1</b>
70 s	715	295
		V
1415		

#### D-107

# HCM 6th Signalized Intersection Summary 5: I-75 NB Off-Ramp & CR 484

Background	Conditions
Timing Plan:	AM Peak Hour

	۶	-	$\mathbf{F}$	¥		×	•	1	1	1	ţ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<u>†</u> †			<b>†</b> ††	7	ሻ	र्भ	۲				
Traffic Volume (veh/h)	717	1655	0	0	1484	444	332	1	160	0	0	0	
Future Volume (veh/h)	717	1655	0	0	1484	444	332	1	160	0	0	0	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach		No			No			No					
Adj Sat Flow, veh/h/ln	1781	1781	0	0	1826	1826	1767	1767	1767				
Adj Flow Rate, veh/h	739	1706	0	0	1530	0	343	0	0				
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97				
Percent Heavy Veh, %	8	8	0	0	5	5	9	9	9				
Cap, veh/h	1148	2720	0	0	2067		411	0					
Arrive On Green	0.46	1.00	0.00	0.00	0.55	0.00	0.12	0.00	0.00				
Sat Flow, veh/h	3291	3474	0	0	5149	1547	3365	0	1497				
Grp Volume(v), veh/h	739	1706		0	1530	0	343	0	0				
Grp Sat Flow(s), veh/h/ln	1646	1692	ŏ	-0	1662	1547	1682	Ő	1497				
Q Serve(g_s), s	30.9	0.0	0.0	0.0	41.9	0.0	17.9	0.0	0.0				
Cycle Q Clear(g_c), s	30.9	0.0	0.0	0.0	41.9	0.0	17.9	0.0	0.0				
Prop In Lane	1.00	0.0	0.00	0.00	41.0	1.00	1.00	0.0	1.00				
Lane Grp Cap(c), veh/h	1148	2720	0.00	0.00	2067	1.00	411	0	1.00				
V/C Ratio(X)	0.64	0.63	0.00	0.00	0.74		0.83	0.00					
Avail Cap(c_a), veh/h	1148	2720	0.00	0.00	2067		608	0.00					
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00				
Upstream Filter(I)	0.62	0.62	0.00	0.00	1.00	0.00	1.00	0.00	0.00				
Uniform Delay (d), s/veh	39.7	0.02	0.00	0.00	33.0	0.00	77.2	0.0	0.00				
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.0	2.4	0.0	10.3	0.0	0.0				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(50%),veh/ln	11.9	0.0	0.0	0.0	15.7	0.0	8.4	0.0	0.0				
	11.9	0.5	0.0	0.0	10.7	0.0	0.4	0.0	0.0				
Unsig. Movement Delay, s/veh LnGrp Delay(d),s/veh	41.4	0.7	0.0	0.0	35.5	0.0	87.6	0.0	0.0				
LnGrp LOS	41.4 D	0.7 A	0.0 A	A U.U	35.5 D	0.0	07.0 F	0.0 A	0.0				
warman and a second	U	2445	<u>M</u>	<u> </u>	1530	A	<u>۲</u>	343	A		N		
Approach Vol, veh/h						А		87.6	A				
Approach Delay, s/veh		13.0			35.5			67.0 F					
Approach LOS		В	0.4147.0.1147.0156.017.0182	2040-00400-00600-0060000	D	in the second		F	section and the				
Timer - Assigned Phs	1	2		4		6							
Phs Duration (G+Y+Rc), s	70.0	81.5		28.5		151.5							
Change Period (Y+Rc), s	* 7.2	6.9		6.5		6.9							
Max Green Setting (Gmax), s	* 63	64.1		32.5		134.1							
Max Q Clear Time (g_c+l1), s	32.9	43.9		19.9		2.0							
Green Ext Time (p_c), s	4.7	13.4		2.0		40.7							
Intersection Summary													
HCM 6th Ctrl Delay			26.9										
HCM 6th LOS			С										
Notes													
Hotes	a omong ti	na lanca fa	eperatura e	0.00000	•								

User approved volume balancing among the lanes for turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings 8: SW/ 29th Ave Rd & Marion Oak

8: SW 29th Ave Rd & Marion Oaks Trail

Background Conditions Timing Plan: AM Peak Hour

	٦		$\mathbf{F}$	4	◄	×.	1	†	*	4	ţ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		\$			\$			4			÷		
Traffic Volume (vph)	1	3	122	1	0	0	37	7	0	0	13	2	
Future Volume (vph)	1	3	122	1	0	0	37	7	0	0	13	2	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Heavy Vehicles (%)	8%	8%	8%	0%	0%	0%	2%	2%	2%	7%	7%	7%	
Adj. Flow (vph)	1	4	145	1	0	0	-44	8	0	0	15	2	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	150	0	0	1	0	0	52	0	0	17	0	
Sign Control		Stop			Stop			Free			Free		
Intersection Summary													

Control Type: Unsignalized

#### HCM 6th TWSC 8: SW 29th Ave Rd & Marion Oaks Trail

Background Conditions Timing Plan: AM Peak Hour

										Metargeologica			
Intersection Int Delay, s/veh	7.7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		<u>دی</u>	CON	1106	4)- 4)-	MOIN	11000	4) 4)	india	- UUL	4) 4)	ODIA	
Traffic Vol, veh/h	1	3	122	1	0	0	37	7	0	0	13	2	
Future Vol, veh/h	1	3	122	1	0	0	37	7	0	Ő	13	2	
Conflicting Peds, #/hr	. 0	ő	0	0	÷õ	0	- 0	Ó	ŏ	Ő	0	ō	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	otop	-	None	Stop	Stop	None	1166	1166	None	1100	1100	None	
Storage Length	-	-	None	-		None	-	-	HUNC	_	-	Hone	
Veh in Median Storage, #		0	-		0	_	_	0	-	_	0	_	
Grade, %	-	0 0	-		ŏ	_	-	Ő	-		Ő	_	
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84	
Heavy Vehicles, %	8	8	8	04	04	04	2	2	2	7	7	7	
Mvmt Flow	o 1	4	ہ 145	1	0	0	44	2	0	0	15	2	
WINE Flow	I	4	140	1	U	U	44	0	U	U	10	2	
Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	112	112	16	187	113	8	17	0	0	8	0	0	
Stage 1	16	16	-	96	96	-		-	· .			-	
Stage 2	96	96	-	91	17	-	-			-	-	-	
Critical Hdwy	7.18	6.58	6.28	7.1	6.5	6.2	4.12	-	·	4.17	-	-	
Critical Hdwy Stg 1	6.18	5.58	-	6.1	5.5	-	-			-	-	-	
Critical Hdwy Stg 2	6.18	5.58	-	6.1	5.5	-	-			-	-	•	
Follow-up Hdwy	3.572	4.072	3.372	3.5	4	3.3	2.218	-		2.263	-	-	
Pot Cap-1 Maneuver	852	767	1046	778	781	1080	1600	<u> </u>	-	1580	-	÷ .	
Stage 1	988	870	-	916	819			_	-		-	-	
Stage 2	896	804	-	921	885			2	· _	-	-		
Platoon blocked, %	000	004		521	000			-	-		-	-	
Mov Cap-1 Maneuver	834	746	1046	654	759	1080	1600		-	1580	-	· ·	
Mov Cap-2 Maneuver	834	746	1040	654	759	1000	,000			1000	_	-	
Stage 1	960	870	1. <u>-</u>	890	796	_						1. a 🛓	
Stage 2	871	781	-	790	885	-			-	-	-	_	
Oldye z	0/1	701		150									
Approach	EB			WB			NB			SB			
HCM Control Delay, s	9.1			10.5			6.2			0			
HCM LOS	A			В									
		en de seu tradação da casta da mante a casa					hain-liennes kankier-meet	manageth integration (and web-size	· ·	might black and the court		n an su ag Participant	
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1600			1034	654	1580	1999 - 1999 - 1999 1 <b>9</b>	•				
HCM Lane V/C Ratio		0.028	-	-	0.145	0.002	-	•	-				
HCM Control Delay (s)		7.3	0	-	9.1	10.5	0	-	-				
HCM Lane LOS		А	Α	-	Α	В	А	-	-				
HCM 95th %tile Q(veh)		0.1	-	-	0.5	0	0	-	-				

D-109

D-110

# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

## F3: AM Peak Hour Future Year Background w/ Improvements Traffic Conditions (2027)

#### Lanes, Volumes, Timings 2: CR 484 & SW 29th Ave Rd

## D-111

#### Background Conditions w/ Improvements Timing Plan: AM Peak Hour

Lane GroupEBLLane ConfigurationsTTraffic Volume (vph)8Future Volume (vph)8Peak Hour Factor0.90Heavy Vehicles (%)7%Adj. Flow (vph)9Shared Lane Traffic (%)Lane Group Flow (vph)9Turn Typepm+ptProtected Phases5Permitted Phases2Detector Phase5Switch Phase50Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNonev/c Ratio0.05	EBT 2116 2116 2116 215 2351 2351 NA 2 2 2 5.0 23.5 131.0 72.8%	WBT + 1- 1514 152 NA 6 5.0 23.5 105.0 58.3%	WBR 63 63 0.90 4% 70 0	SBL           161           161           0.90           7%           179           179           Prot           4           5.0           23.5           49.0	SBR 7 35 35 0.90 7% 39 9 Perm 4 4 4 5.0 23.5 49.0	
Traffic Volume (vph)8Future Volume (vph)8Peak Hour Factor0.90Heavy Vehicles (%)7%Adj. Flow (vph)9Shared Lane Traffic (%)1Lane Group Flow (vph)9Turn Typepm+ptProtected Phases5Permitted Phases2Detector Phase5Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)26.0Total Split (s)2.0Lost Time (s)6.8Lead/LagLeadLead/LagLeadLead-Lag Optimize?YesRecall ModeNone	2116 2116 0.90 7% 2351 2351 NA 2 2 2 2 2 5.0 23.5 131.0 72.8%	1514 1514 0.90 4% 1682 1752 NA 6 6 5.0 23.5 105.0	63 0.90 4% 70	161 161 0.90 7% 179 Prot 4 4 5.0 23.5 49.0	35 35 0.90 7% 39 9 Perm 4 4 4 5.0 23.5	
Future Volume (vph)8Peak Hour Factor0.90Heavy Vehicles (%)7%Adj. Flow (vph)9Shared Lane Traffic (%)1Lane Group Flow (vph)9Turn Typepm+ptProtected Phases5Detector Phase5Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)26.0Total Split (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead/LagVelimize?YesRecall ModeNoneSone	2116 0.90 7% 2351 2351 NA 2 2 2 2 5.0 23.5 131.0 72.8%	1514 0.90 4% 1682 1752 NA 6 6 5.0 23.5 105.0	63 0.90 4% 70	161 0.90 7% 179 179 Prot 4 4 5.0 23.5 49.0	35 0.90 7% 39 99 Perm 4 4 4 5.0 23.5	
Peak Hour Factor0.90Heavy Vehicles (%)7%Adj. Flow (vph)9Shared Lane Traffic (%)1Lane Group Flow (vph)9Turn Typepm+ptProtected Phases5Permitted Phases2Detector Phase5Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)6.8Lead/LagLeadLead/LagLeadLead-Lag Optimize?YesRecall ModeNone	0.90 7% 2351 2351 NA 2 2 2 5.0 23.5 131.0 72.8%	0.90 4% 1682 1752 NA 6 6 5.0 23.5 105.0	0.90 4% 70	0.90 7% 179 179 Prot 4 4 5.0 23.5 49.0	0.90 7% 39 9 Perm 4 4 5.0 23.5	
Heavy Vehicles (%)7%Adj. Flow (vph)9Shared Lane Traffic (%)9Lane Group Flow (vph)9Turn Typepm+ptProtected Phases5Permitted Phases2Detector Phase55Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)26.0Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)6.8Lead/LagLeadLead/LagLeadLead-Lag Optimize?YesRecall ModeNone	7% 2351 2351 NA 2 2 5.0 23.5 131.0 72.8%	4% 1682 1752 NA 6 6 5.0 23.5 105.0	4% 70	7% 179 179 Prot 4 4 5.0 23.5 49.0	7% 39 9 Perm 4 4 5.0 23.5	
Adj. Flow (vph)9Shared Lane Traffic (%)Lane Group Flow (vph)9Turn TypeProtected Phases5Permitted Phases2Detector Phase5Switch PhaseMinimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)2.0Lost Time (s)4.8All-Red Time (s)0.0Total Lost Time (s)6.8Lead/LagLead/LagLead-Lag Optimize?YesRecall ModeNone	2351 2351 NA 2 2 5.0 23.5 131.0 72.8%	1682 1752 NA 6 6 5.0 23.5 105.0	70	179 Prot 4 5.0 23.5 49.0	39 99 Perm 4 4 5.0 23.5	
Shared Lane Traffic (%)Lane Group Flow (vph)9Turn Typepm+ptProtected Phases5Permitted Phases2Detector Phase5Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)26.0Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNone	2351 NA 2 5.0 23.5 131.0 72.8%	1752 NA 6 5.0 23.5 105.0		179 Prot 4 4 5.0 23.5 49.0	39 Perm 4 4 5.0 23.5	
Lane Group Flow (vph)9Turn Typepm+ptProtected Phases5Permitted Phases2Detector Phase5Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)26.0Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNone	NA 2 5.0 23.5 131.0 72.8%	NA 6 5.0 23.5 105.0	0	Prot 4 5.0 23.5 49.0	Perm 4 4 5.0 23.5	
Turn Typepm+ptProtected Phases5Permitted Phases2Detector Phase5Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)26.0Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNone	NA 2 5.0 23.5 131.0 72.8%	NA 6 5.0 23.5 105.0	0	Prot 4 5.0 23.5 49.0	Perm 4 4 5.0 23.5	
Protected Phases5Permitted Phases2Detector Phase5Switch Phase5Minimum Initial (s)5.0Minimum Split (s)11.8Total Split (s)26.0Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNone	2 5.0 23.5 131.0 72.8%	6 6 23.5 105.0		4 5.0 23.5 49.0	4 4 5.0 23.5	
Permitted Phases     2       Detector Phase     5       Switch Phase     5       Minimum Initial (s)     5.0       Minimum Split (s)     11.8       Total Split (s)     26.0       Total Split (%)     14.4%       Yellow Time (s)     4.8       All-Red Time (s)     2.0       Lost Time Adjust (s)     0.0       Total Lost Time (s)     6.8       Lead/Lag     Lead       Lead-Lag Optimize?     Yes       Recall Mode     None	2 5.0 23.5 131.0 72.8%	6 5.0 23.5 105.0		4 5.0 23.5 49.0	4 5.0 23.5	
Detector Phase     5       Switch Phase     5.0       Minimum Initial (s)     5.0       Minimum Split (s)     11.8       Total Split (s)     26.0       Total Split (%)     14.4%       Yellow Time (s)     4.8       All-Red Time (s)     2.0       Lost Time Adjust (s)     0.00       Total Lost Time (s)     6.8       Lead/Lag     Lead       Lead-Lag Optimize?     Yes       Recall Mode     None	5.0 23.5 131.0 72.8%	5.0 23.5 105.0		5.0 23.5 49.0	4 5.0 23.5	
Switch Phase         Minimum Initial (s)       5.0         Minimum Split (s)       11.8         Total Split (s)       26.0         Total Split (s)       26.0         Total Split (%)       14.4%         Yellow Time (s)       4.8         All-Red Time (s)       2.0         Lost Time Adjust (s)       0.0         Total Lost Time (s)       6.8         Lead/Lag       Lead         Lead-Lag Optimize?       Yes         Recall Mode       None	5.0 23.5 131.0 72.8%	5.0 23.5 105.0		5.0 23.5 49.0	5.0 23.5	
Minimum Initial (s)         5.0           Minimum Split (s)         11.8           Total Split (s)         26.0           Total Split (s)         26.0           Total Split (%)         14.4%           Yellow Time (s)         4.8           All-Red Time (s)         2.0           Lost Time Adjust (s)         0.0           Total Lost Time (s)         6.8           Lead/Lag         Lead           Lead-Lag Optimize?         Yes           Recall Mode         None	23.5 131.0 72.8%	23.5 105.0		23.5 49.0	23.5	
Minimum Split (s)         11.8           Total Split (s)         26.0           Total Split (%)         14.4%           Yellow Time (s)         4.8           All-Red Time (s)         2.0           Lost Time Adjust (s)         0.0           Total Lost Time (s)         6.8           Lead/Lag         Lead           Lead-Lag Optimize?         Yes           Recall Mode         None	23.5 131.0 72.8%	23.5 105.0		23.5 49.0	23.5	
Total Split (s)26.0Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNone	131.0 72.8%	105.0		49.0		
Total Split (%)14.4%Yellow Time (s)4.8All-Red Time (s)2.0Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNone	72.8%				49.0	
Yellow Time (s)     4.8       All-Red Time (s)     2.0       Lost Time Adjust (s)     0.0       Total Lost Time (s)     6.8       Lead/Lag     Lead       Lead-Lag Optimize?     Yes       Recall Mode     None		58.3%				
All-Red Time (s)     2.0       Lost Time Adjust (s)     0.0       Total Lost Time (s)     6.8       Lead/Lag     Lead       Lead-Lag Optimize?     Yes       Recall Mode     None				27.2%	27.2%	
Lost Time Adjust (s)0.0Total Lost Time (s)6.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNone	4.8	4.8		3.7	3.7	
Total Lost Time (s)     6.8       Lead/Lag     Lead       Lead-Lag Optimize?     Yes       Recall Mode     None	2.0	2.0		2.0	2.0	
Lead/Lag Lead Lead-Lag Optimize? Yes Recall Mode None	0.0	0.0		0.0	0.0	
Lead-Lag Optimize? Yes Recall Mode None	6.8	6.8		5.7	5.7	
Recall Mode None		Lag				
		Yes				
	None	None		None	None	
	0.89	0.68		0.77	0.16	
Control Delay 5.5	19.0	13.4		87.2	17.0	
Queue Delay 0.0	0.0	0.0		0.0	0.0	
Total Delay 5.5	19.0	13.4		87.2	17.0	
Queue Length 50th (ft) 2	808	370		182	0	
Queue Length 95th (ft) 8	1206	737		270	36	
Internal Link Dist (ft)	3183	3132		3021		
Turn Bay Length (ft) 144						
Base Capacity (vph) 304	2640	2594		460	440	
Starvation Cap Reductn 0	0	0		0	0	
Spillback Cap Reductn 0	0	0		0	0	
Storage Cap Reductn 0	0	0		0	0	
Reduced v/c Ratio 0.03	0.89	0.68		0.39	0.09	

Intersection Summary Cycle Length: 180 Actuated Cycle Length: 158.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

#### Splits and Phases: 2: CR 484 & SW 29th Ave Rd

		<b>1</b> 04
1315		49 s
•	<b>4</b>	
Ø5	Ø6	
26 s	105 s	

# HCM 6th Signalized Intersection Summary 2: CR 484 & SW 29th Ave Rd

#### Background Conditions w/ Improvements Timing Plan: AM Peak Hour

Timing	Plan:	AM	Peak	ł

	٦		◄	×.	\$	4	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	۲	<b>^</b>	<b>↑</b> ₽		٦	٢	
Traffic Volume (veh/h)	8	2116	1514	63	161	35	
Future Volume (veh/h)	8	2116	1514	63	161	35	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1796	1796	1841	1841	1796	1796	
Adi Flow Rate, veh/h	9	2351	1682	70	179	39	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	7	7	4	4	7	7	
Cap, veh/h	191	2672	2467	102	210	186	
Arrive On Green	0.01	0.78	0.72	0.72	0.12	0.12	
Sat Flow, veh/h	1711	3503	3514	142	1711	1522	
Grp Volume(v), veh/h	9	2351	856	896	179	39	
Grp Sat Flow(s), veh/h/in	1711	1706	1749	1815	1711	1522	
Q Serve(g_s), s	0.2	63.5	35.4	36.0	13.6	3.0	
Cycle Q Clear(g_c), s	0.2	63.5	35.4	36.0	13.6	3.0	
Prop In Lane	1.00	00.0	00.4	0.08	1.00	1.00	
Lane Grp Cap(c), veh/h	191	2672	1261	1309	210	186	
V/C Ratio(X)	0.05	0.88	0.68	0.68	0.85	0.21	
Avail Cap(c_a), veh/h	421	3207	1299	1349	560	499	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	9,9	10.0	10.1	10.2	56.8	52.2	
Incr Delay (d2), s/veh	0.1	2.7	1.4	1.4	9.5	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/in	0.0	17.7	11.7	12.4	6.4	2.7	
Unsig. Movement Delay, s/veh	0.1	17.7	11.7	14.4	0.4	2.1	
LnGrp Delay(d),s/veh	10.0	12.7	11.5	11.6	66.3	52.8	
LnGrp LOS	B	B	B	B	E	02.0 D	
Approach Vol, veh/h		2360	1752	- <u>-</u>	218	U	
Approach Delay, s/veh		12.7	11.5		63.9		
		12.7 B	11.5 B		03.9 E		
Approach LOS	NAMES OF STREET		CANGE VARIABLE OF STREET			•	
Timer - Assigned Phs		<u>2</u> 110.3		<u>4</u> 21.9	<u>5</u> 8.2	<u>6</u> 102.1	
Phs Duration (G+Y+Rc), s				= · · · ·	6.2 6.8	6.8	
Change Period (Y+Rc), s		6.8		* 5.7			
Max Green Setting (Gmax), s		124.2		* 43	19.2 2.2	98.2 38.0	
Max Q Clear Time (g_c+l1), s Green Ext Time (p_c), s		65.5 38.0		15.6 0.6	2.2 0.0	20.2	
· · · ·				¥.V			
Intersection Summary HCM 6th Ctrl Delay			14.8				
HCM 6th LOS			14.0 B				
Notes					hases cro		

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

### D-113

Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

#### Background Conditions w/ Improvements Timing Plan: AM Peak Hour

	٦		$\mathbf{F}$	4	-	×	1	†	1	1	ţ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	<b>ተተ</b> ኩ		ኘኘ	***	7	ኻ	<b>†</b>	۲	ሻሻ	4		
Traffic Volume (vph)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Future Volume (vph)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	11%	11%	11%	13%	13%	13%	
Adj. Flow (vph)	85	2307	44	270	1676	181	60	16	259	206	31	14	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	85	2351	0	270	1676	181	60	16	259	206	45	0	
Turn Type	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	1	6		5	2		7	4		3	8		
Permitted Phases	6					2			4				
Detector Phase	1	6		5	2	2	7	4	4	3	8		
Switch Phase													
Minimum Initial (s)	5.0	15.0		10.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0		
Minimum Split (s)	12.0	21.9		17.3	21.9	21.9	11.1	16.6	16.6	11.1	16.6		
Total Split (s)	17.0	100.0		25.6	108.6	108.6	18.2	32.6	32.6	21.8	36.2		
Total Split (%)	9.4%	55.6%		14.2%	60.3%	60.3%	10.1%	18.1%	18.1%	12.1%	20.1%		
Yellow Time (s)	4.8	4.9		4.8	4.9	4.9	3.5	4.0	4.0	3.5	4.0		
All-Red Time (s)	2.2	2.0		2.5	2.0	2.0	2.6	2.6	2.6	2.6	2.6		
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)	7.0	6.9		7.3	6.9	6.9	6.1	6.6	6.6	6.1	6.6		
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None		
v/c Ratio	0.46	0.86		0.81	0.55	0.18	0.62	0.08	0.89	0.80	0.18		
Control Delay	19.6	39.5		106.0	28.1	10.9	109.8	69.3	64.0	102.3	53.0		
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	19.6	39.5		106.0	28.1	10.9	109.8	69.3	64.0	102.3	53.0		
Queue Length 50th (ft)	31	896		158	687	45	70	17	137	125	36		
Queue Length 95th (ft)	58	1001		#224	599	73	126	43	#255	#184	78		
Internal Link Dist (ft)		3132			1240			650			1393		
Turn Bay Length (ft)	114			170		144	144			114			
Base Capacity (vph)	201	2718		348	3051	989	109	247	335	270	272		
Starvation Cap Reductn	0	0		0	0	0	0	0	0	Ö	0		
Spillback Cap Reductn	Ó	0		0	0	0	0	0	0	0	0		
Storage Cap Reductn	Ö	0		0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.42	0.86		0.78	0.55	0.18	0.55	0.06	0.77	0.76	0.17		

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

#### Splits and Phases: 3: SW 20th Ave Rd & CR 484

▶ <sub>∅1</sub>	<b>σ</b> 2 (R) <b>Γ</b>	Ø3	<b>1</b> ø4
17 5	108.6 \$	21.8 s	32.6 s
<b>√</b> Ø5		<b>1</b> Ø7	<b>↓</b> Ø8
25.6 s	100.5	18.26	5.2 s

### D-114

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

#### Background Conditions w/ Improvements Timing Plan: AM Peak Hour

	۶		¥	4		×.	4	1	۲	1	ŧ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ኘ	<b>†</b> †î>		ሻሻ	<u> </u>	۲	ኘ	1	1	ሻኘ	¢Î		
Traffic Volume (veh/h)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Future Volume (veh/h)	82	2215	42	259	1609	174	58	15	249	198	30	13	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1737	1737	1737	1707	1707	1707	
Adj Flow Rate, veh/h	85	2307	44	270	1676	181	60	16	181	206	31	14	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	6	6	6	4	4	4	11	11	11	13	13	13	
Cap, veh/h	238	2750	52	307	3064	951	74	232	196	241	184	83	
Arrive On Green	0.04	0.73	0.73	0.12	0.81	0.81	0.04	0.13	0.13	0.08	0.16	0.16	
Sat Flow, veh/h	1725	4995	95	3401	5025	1560	1654	1737	1472	3155	1114	503	
Grp Volume(v), veh/h	85	1521	830	270	1676	181	60	16	181	206	0	45	····
Grp Sat Flow(s), veh/h/ln	1725	1648	1794	1700	1675	1560	1654	1737	1472	1577	ŏ	1617	
Q Serve(q_s), s	3.9	57.6	58.1	14.1	20.4	4.7	6.5	1.5	21.9	11.6	0.0	4.3	
Cycle Q Clear(g_c), s	3.9	57.6	58.1	14.1	20.4	4.7	6.5	1.5	21.9	11.6	0.0	4.3	
Prop In Lane	1.00	07.0	0.05	1.00	20.4	1.00	1.00	1.0	1.00	1.00	0.0	0.31	
Lane Grp Cap(c), veh/h	238	1814	988	307	3064	951	74	232	196	241	a	267	
V/C Ratio(X)	0.36	0.84	0.84	0.88	0.55	0.19	0.81	0.07	0.92	0.85	0.00	0.17	
Avail Cap(c_a), veh/h	278	1814	988	346	3064	951	111	251	213	275	0.00	267	
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.35	0.35	0.35	0.70	0.70	0.70	1.00	1.00	1.00	1.00	0.00	1.00	
1						7.1	85.2	68.2		82.1	0.0	64.6	
Uniform Delay (d), s/veh	16.6	18.5 1.8	18.6	78.2	8.6 0.5	0.3	22.6	0.1	77.1 39.3	20.3	0.0	04.0	
Incr Delay (d2), s/veh	0.3		3.2	15.3								0.0	
Initial Q Delay(d3),s/veh	0.0 1.5	0.0	0.0	0.0	0.0	0.0 1.6	0.0 3.2	0.0 0.7	0.0	0.0 5.4	0.0 0.0	1.8	
%ile BackOfQ(50%),veh/In	1.5	17.5	19.6	6.6	5.3	1.0	3.2	0.7	10.5	0.4	0.0	1.0	
Unsig. Movement Delay, s/veh	47.0	00.0	04.0	02.5	<b>0</b> 4	7 4	407.0	CO 4	440.0		0.0	64.0	
LnGrp Delay(d),s/veh	17.0	20.3	21.8	93.5	9.1	7.4	107.8	68.4	116.3	102.4	0.0	64.9	
LnGrp LOS	B	C	<u>C</u>	F	A	A	<u>F</u>	E	F	F	<u>A</u>	E	
Approach Vol, veh/h		2436			2127			257	à,		251		
Approach Delay, s/veh		20.7			19.6			111.4			95.7		
Approach LOS		C			В			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	12.9	116.7	19.9	30.6	23.6	106.0	14.2	36.3					
Change Period (Y+Rc), s	*7	6.9	6.1	6.6	7.3	6.9	6.1	6.6					
Max Green Setting (Gmax), s	* 10	101.7	15.7	26.0	18.3	93.1	12.1	29.6					
Max Q Clear Time (g_c+l1), s	5.9	22.4	13.6	23.9	16.1	60.1	8.5	6.3					
Green Ext Time (p_c), s	0.1	21.0	0.1	0.1	0.2	22.5	0.0	0.2					
Intersection Summary													
HCM 6th Ctrl Delay			28.6										
HCM 6th LOS			C										
Notes			-										
NUCO	•					ostrata (198							

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

D-115

# **Kimley**»Horn

Traffic Impact Analysis Trailhead Logistics Park North

## F4: AM Peak Hour Future Year Buildout Traffic Conditions (2027)

#### Lanes, Volumes, Timings 2: CR 484 & SW 29th Ave Rd

#### **Buildout Conditions** Timing Plan: AM Peak Hour

	٦	>	◄	*	1	4	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	ሻ	<u>†</u> †	<b>≜</b>		η	٢	
Traffic Volume (vph)	120	2156	1528	138	186	48	
Future Volume (vph)	120	2156	1528	138	186	48	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	7%	7%	4%	4%	2%	2%	
Adj. Flow (vph)	133	2396	1698	153	207	53	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	133	2396	1851	0	207	53	
Turn Type	pm+pt	NA	NA		Prot	Perm	
Protected Phases	5	2	6		4		
Permitted Phases	2					4	
Detector Phase	5	2	6		4	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.8	23.5	23.5		23.5	23.5	
Total Split (s)	26.0	131.0	105.0		49.0	49.0	
Total Split (%)	14.4%	72.8%	58.3%		27.2%	27.2%	
Yellow Time (s)	4.8	4.8	4.8		3.7	3.7	
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0 6.8	0.0 6.8	0.0 6.8		0.0 5.7	0.0 5.7	
Total Lost Time (s)	Lead	0.0			ə.7	ə. <i>1</i>	
Lead/Lag	Yes		Lag Yes				
Lead-Lag Optimize? Recall Mode	None	None	None		None	None	
v/c Ratio	0.68	0.92	0.83		0.79	0.19	
Control Delay	47.6	22.4	27.2		86.8	14.7	
Queue Delay	0.0	0.0	0.0		0.0	0.0	
Total Delay	47.6	22.4	27.2		86.8	14.7	
Queue Length 50th (ft)	69	920	739		213	0	
Queue Length 95th (ft)	153	#1391	1083		307	41	
Internal Link Dist (ft)		3183	3132		3021		
Turn Bay Length (ft)	144						
Base Capacity (vph)	258	2609	2231		477	465	
Starvation Cap Reductn	0	0	0		0	0	
Spillback Cap Reductn	0	0	0		0	0	
Storage Cap Reductn	0	0	0		0	0	
Reduced v/c Ratio	0.52	0.92	0.83		0.43	0.11	
Intersection Summary							

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 160.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

#### Splits and Phases: 2: CR 484 & SW 29th Ave Rd

ø₂	Ø4
1315	49 s
264	

## D-116

# HCM 6th Signalized Intersection Summary 2: CR 484 & SW 29th Ave Rd

	٦	->	<b>←</b>	×	1	1	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	٢	<u>^</u>	<b>≜</b> †}		ሻ	7	
Traffic Volume (veh/h)	120	2156	1528	138	186	48	
Future Volume (veh/h)	120	2156	1528	138	186	48	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Nork Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/In	1796	1796	1841	1841	1870	1870	
Adj Flow Rate, veh/h	133	2396	1698	153	207	53	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %	7	7	4	4	2	2	
Cap, veh/h	198	2656	2251	200	238	211	
Arrive On Green	0.04	0.78	0.69	0.69	0.13	0.13	
Sat Flow, veh/h	1711	3503	3340	289	1781	1585	
Grp Volume(v), veh/h	133	2396	904	947	207	53	
Grp Sat Flow(s),veh/h/ln	1711	1706	1749	1789	1781	1585	
Q Serve(q_s), s	3.1	74.0	46.6	48.9	16.1	4.2	
Cycle Q Clear(g_c), s	3.1	74.0	46.6	48.9	16.1	4.2	
Prop In Lane	1.00			0.16	1.00	1.00	
ane Grp Cap(c), veh/h	198	2656	1212	1240	238	211	
V/C Ratio(X)	0.67	0.90	0.75	0.76	0.87	0.25	
Avail Cap(c_a), veh/h	366	2992	1212	1240	545	485	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	25.0	11.7	13.8	14.2	60.2	55.0	
Incr Delay (d2), s/veh	3.9	3.9	2.6	2.9	9.5	0.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	3.4	22.2	16.8	18.1	7.9	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.9	15.6	16.4	17.0	69.7	55.6	
LnGrp LOS	С	В	В	В	E	E	
Approach Vol, veh/h		2529	1851		260		
Approach Delay, s/veh		16.3	16.7		66.8		
Approach LOS		В	В		E		
Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		117.1		24.6	12.1	105.0	이 가지 않는 것 같은 것 같이 있는 것 같은 것을 알 못했지? 것 같이 가지 않는 것이다.
Change Period (Y+Rc), s		6.8		* 5.7	6.8	6.8	
Max Green Setting (Gmax), s		124.2		* 43	19.2	98.2	
Vlax Q Clear Time (g_c+l1), s		76.0		18.1	5.1	50.9	
Green Ext Time (p_c), s		34.3		0.8	0.3	21.3	
Intersection Summary							
HCM 6th Ctrl Delay			19.3				
HCM 6th LOS			В				
Notes							
			9999609996005560				

User approved volume balancing among the lanes for turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

Buildout Conditions	
Timing Plan: AM Peak Hour	

	٦	-	$\mathbf{F}$	4	←	×.	•	t	1	1	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	ተተኩ		ሻሻ	***	7	۲	<b>↑</b>	۲	ኘኘ	f,		
Traffic Volume (vph)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Future Volume (vph)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	11%	11%	11%	18%	18%	18%	
Adj. Flow (vph)	127	2333	44	270	1754	478	60	16	259	252	31	28	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	127	2377	0	270	1754	478	60	16	259	252	59	0	
Turn Type	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	· '1	6		5	2		7	4		3	8		
Permitted Phases	6					2			4				
Detector Phase	1	6		5	2	2	7	4	4	3	8		
Switch Phase													
Minimum Initial (s)	5.0	15.0		10.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0		
Minimum Split (s)	12.0	21.9		17.3	21.9	21.9	9.5	16.6	16.6	11.1	16.6		
Total Split (s)	24.0	101.0		25.0	102.0	102.0	18.2	30.0	30.0	24.0	35.8		
Total Split (%)	13.3%	56.1%		13.9%	56.7%	56.7%	10.1%	16.7%	16.7%	13.3%	19.9%		
Yellow Time (s)	4.8	4.9		4.8	4.9	4.9	3.5	4.0	4.0	3.5	4.0		
All-Red Time (s)	2.2	2.0		2.5	2.0	2.0	1.0	2.6	2.6	2.6	2.6		
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)	7.0	6.9		7.3	6.9	6.9	4.5	6.6	6.6	6.1	6.6		
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None		
v/c Ratio	0.64	0.89		0.82	0.61	0.49	0.59	0.09	0.90	0.88	0.23		
Control Delay	33.7	41.3		111.3	38.9	22.2	104.7	71.3	63.5	108.0	45.2		
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	33.7	41.3		111.3	38.9	22.2	104.7	71.3	63.5	108.0	45.2		
Queue Length 50th (ft)	50	941		165	762	176	70	17	128	153	38		
Queue Length 95th (ft)	116	1009		#244	812	294	125	44	#267	#232	88		
Internal Link Dist (ft)	110	3132		114-11	1240	201	.20	650	11		1393		
Turn Bay Length (ft)	114	0102		170	1240	144	144	000		114			
Base Capacity (vph)	247	2685		337	2868	981	123	222	323	295	266		
Starvation Cap Reductn	277	2000		0	2000	0	0	0	0	200	200		
Spillback Cap Reductn	0	0		0	Ő	ő	0 0	ŏ	ŏ	õ	õ		
Storage Cap Reductn	0	ŏ		0	Ő	Ő	Ö	ő	Ő	ŏ	ŏ		
Reduced v/c Ratio	0.51	0.89		0.80	0.61	0.49	0.49	0.07	0.80	0.85	0.22		

Intersection Summary

Cycle Length: 180 Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow Natural Cycle: 120

Control Type: Actuated-Coordinated # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

#### Splits and Phases: 3: SW 20th Ave Rd & CR 484

▶ <sub>∅1</sub>	Ø2 (R) ₩	Ø3	<b>1</b> Ø4
245	102.5	243	30 s
<b>√</b> Ø5	→206 (R)	▲ Ø7 ↓	Ø8
255	101 s	18.2 5 35.8	s

## D-119

HCM 6th Signalized Intersection Summary
3: SW 20th Ave Rd & CR 484

Buildout	Conditions
Timing Plan:	AM Peak Hour

	٦		$\mathbf{\hat{z}}$	∢	<b>4</b>	×.	1	Ť	1	1	ŧ	-	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	<b>†</b> †‡		ኘኘ	<b>†</b> ††	7	7	1	7	ኘኘ	1		
Traffic Volume (veh/h)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Future Volume (veh/h)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1811	1811	1737	1737	1737	1633	1633	1633	
Adi Flow Rate, veh/h	127	2333	44	270	1754	478	60	16	181	252	31	28	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	6	6	6	6	6	6	11	11	11	18	18	18	
Cap, veh/h	233	2674	50	305	2879	894	74	226	191	284	149	134	
Arrive On Green	0.06	0.71	0.71	0.12	0.77	0.77	0.04	0.13	0.13	0.09	0.19	0.19	
Sat Flow, veh/h	1725	4996	94	3346	4944	1535	1654	1737	1472	3018	791	714	
Grp Volume(v), veh/h	127	1537	840	270	1754	478	60	16	181	252	0	59	
Grp Sat Flow(s), veh/h/in	1725	1648	1794	1673	1648	1535	1654	1737	1472	1509	ŏ	1505	
Q Serve(g_s), s	6.1	63.7	64.4	14.3	27.3	21.6	6.5	1.5	22.0	14.9	0.0	6.0	
Cycle Q Clear(g_c), s	6.1	63.7	64.4	14.3	27.3	21.6	6.5	1.5	22.0	14.9	0.0	6.0	
Prop In Lane	1.00	00.7	0.05	1.00	21.5	1.00	1.00	1.0	1.00	1.00	0.0	0.47	
Lane Grp Cap(c), veh/h	233	1764	960	305	2879	894	74	226	191	284	0	283	
V/C Ratio(X)	0.54	0.87	0.87	0.88	0.61	0.53	0.81	0.07	0.95	0.89	0.00	0.21	
	317	1764	960	329	2879	894	126	226	191	300	0.00	283	
Avail Cap(c_a), veh/h	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
HCM Platoon Ratio	0.30	0.30	0.30	0.77	0.77	0.77	1.00	1.00	1.00	1.00	0.00	1.00	
Upstream Filter(I)	18.6	21.3	21.3	78.1	11.6	10.9	85.2	68.8	77.7	80.6	0.00	61.7	
Uniform Delay (d), s/veh	10.0 0.6	21.3	3.7	18.4	0.7	1.8	05.2 18.1	00.0	49.6	24.9	0.0	01.7	
Incr Delay (d2), s/veh						1.0 0.0	0.0	0.0	49.0	24.9 0.0	0.0	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0		3.2			6.8	0.0	2.3	
%ile BackOfQ(50%),veh/In	2.4	20.1	22.5	6.7	7.4	6.5	3.2	0.7	11.0	0.0	0.0	2.5	
Unsig. Movement Delay, s/veh	40.0	00.0	25.0	00.5	40.0	40.7	402.2	60 A	407.0	105 F	0.0	62.1	
LnGrp Delay(d),s/veh	19.2	23.3	25.0	96.5	12.3	12.7	103.3 F	68.9 E	127.2 F	105.5		62.1 E	
LnGrp LOS	B	C	C	F	B	B	<u> </u>		r	F	<u>A</u>	<u>E</u>	· · · · · · · · · · · · · · · ·
Approach Vol, veh/h		2504			2502			257			311		
Approach Delay, s/veh		23.6			21.5			118.0			97.3		
Approach LOS		С			С			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	15.2	111.7	23.1	30.0	23.7	103.2	12.6	40.5					
Change Period (Y+Rc), s	* 7	6.9	6.1	6.6	7.3	6.9	4.5	6.6					
Max Green Setting (Gmax), s	* 17	95.1	17.9	23.4	17.7	94.1	13.7	29.2					
Max Q Clear Time (g_c+l1), s	8.1	29.3	16.9	24.0	16.3	66.4	8.5	8.0					
Green Ext Time (p_c), s	0.2	26.0	0.1	0.0	0.1	20.1	0.0	0.2					
Intersection Summary													
HCM 6th Ctrl Delay		0.000.0	31.1									and the second	PROPERTY OF THE PROPERTY OF TH
HCM 6th LOS			C										
Notes													
* HCM 6th computational engine	requires	oqual cloar	ance time	s for the r	hases cro	esina the	harrier						

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

## D-120

Lanes, Volumes, Timings	
4: I-75 SB Off-Ramp & CR 484	

Buildout	Conditions
Timing Plan:	AM Peak Hour

	٦		$\mathbf{r}$	¥	4	×	1	1	۲	1	Ļ	-	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4111		٦	<u> </u>					ሻ	र्भ	77	
Traffic Volume (vph)	0	2182	478	172	1917	0	0	0	0	265	1	455	
Future Volume (vph)	0	2182	478	172	1917	0	0	0	0	265	1	455	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	0%	0%	0%	8%	8%	8%	
Adj. Flow (vph)	0	2227	488	176	1956	0	0	0	0	270	1	464	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	0	2715	0	176	1956	0	0	0	0	135	136	464	
Turn Type		NA		Prot	NA					Split	NA	Prot	
Protected Phases		6		5	2					4	4	4	
Permitted Phases													
Detector Phase		6		5	2					4	4	4	
Switch Phase		-											
Minimum Initial (s)		18.0		7.0	18.0					7.0	7.0	7.0	
Minimum Split (s)		25.4		14.4	25.4					14.0	14.0	14.0	
Total Split (s)		106.0		28.0	134.0					46.0	46.0	46.0	
Total Split (%)		58.9%		15.6%	74.4%					25.6%	25.6%	25.6%	
Yellow Time (s)		5.4		5.4	5.4					4.1	4.1	4.1	
All-Red Time (s)		2.0		2.0	2.0					2.9	2.9	2.9	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0	
Total Lost Time (s)		7.4		7.4	7.4					7.0	7.0	7.0	
Lead/Lag		Lead		Lag									
Lead-Lag Optimize?		Yes		Yes									
Recall Mode		Min		Min	C-Min					None	None	None	
v/c Ratio		0.80		0.92	0.54					0.46	0.46	0.85	
Control Delay		29.5		111.4	27.8					69.8	69.8	75.1	
Queue Delay		0.6		0.0	48.0					0.0	0.0	0.0	
Total Delay		30.1		111.4	75.7					69.8	69.8	75.1	
Queue Length 50th (ft)		478		191	557					150	151	260	
Queue Length 95th (ft)		531		m214	m584					223	225	328	
Internal Link Dist (ft)		1240			424			1185			1125		
Turn Bay Length (ft)										325		475	
Base Capacity (vph)		3381		194	3601					344	345	626	
Starvation Cap Reductn		0		0	1827					0	0	0	
Spillback Cap Reductn		294		õ	0					Ő	Õ	ŏ	
Storage Cap Reductn		0		ŏ	ŏ					- Õ	Ō	Ő	
Reduced v/c Ratio		0.88		0.91	1.10					0.39	0.39	0.74	
									service and	uni sustanessas			SECONDERVISION NO.

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180 Offset: 6 (3%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: I-75 SB Off-Ramp & CR 484

← ∅2 (R)	Ų	<b>↓</b> <sub>Ø4</sub>
1345		46.5
	<b>√</b> Ø5	
106 s	28.5	

# HCM 6th Signalized Intersection Summary 4: I-75 SB Off-Ramp & CR 484

<b>Buildout Conditions</b>	
Timing Plan: AM Peak Hour	

	۶	-+	$\mathbf{\hat{z}}$	4	←	×	4	Ť	1	\$	Ļ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4111P		٦	***					ኘ	र्भ	77	
Traffic Volume (veh/h)	0	2182	478	172	1917	0	0	0	0	265	1	455	
Future Volume (veh/h)	0	2182	478	172	1917	0	0	0	0	265	1	455	
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/In	0	1752	1752	1811	1811	0				1781	1781	1781	
Adj Flow Rate, veh/h	0	2227	0	176	1956	0				271	0	464	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98	
Percent Heavy Veh, %	0	10	10	6	6	0				8	8	8	
Cap, veh/h	0	2715		440	3691	0				589	0	524	
Arrive On Green	0.00	0.60	0.00	0.34	0.99	0.00				0.17	0.00	0.17	
Sat Flow, veh/h	0	6517	0	1725	5107	0				3393	0	3019	
Grp Volume(v), veh/h	0	2227	0	176	1956	0				271	0	464	
Grp Sat Flow(s),veh/h/in	Ō	1507	0	1725	1648	Ō				1697	0	1510	
Q Serve(g_s), s	0.0	52.4	0.0	14.0	1.1	0.0				12.9	0.0	27.0	
Cycle Q Clear(g_c), s	0.0	52.4	0.0	14.0	1.1	0.0				12.9	0.0	27.0	
Prop in Lane	0.00	•=	0.00	1.00		0.00				1.00		1.00	
ane Grp Cap(c), veh/h	0.00	2715	0.00	440	3691	0.00				589	0	524	
//C Ratio(X)	0.00	0.82		0.40	0.53	0.00				0.46	0.00	0.89	
Avail Cap(c_a), veh/h	0.00	3301		440	3691	0.00				735	0.00	654	
ICM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00	
Jpstream Filter(I)	0.00	0.34	0.00	0.19	0.19	0.00				1.00	0.00	1.00	
Uniform Delay (d), s/veh	0.0	30.3	0.0	49.0	0.2	0.0				66.8	0.0	72.6	
ncr Delay (d2), s/veh	0.0	0.5	0.0	0.2	0.1	0.0				0.6	0.0	11.8	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	0.0	16.9	0.0	5.8	0.2	0.0				5.7	0.0	22.0	
Unsig. Movement Delay, s/veh	0.0	10.5	0.0	5.0	0.2	0.0				0.7	0.0	££.V	
_nGrp Delay(d),s/veh	0.0	30.8	0.0	49.1	0.3	0.0				67.4	0.0	84.4	
InGrp LOS	0.0 A	50.0 C	0.0	43.1 D	0.5 A	A O.O				57.4 E	0.0 A	54.4 F	
Approach Vol, veh/h		2227	A		2132						735	<u></u>	
Approach Delay, s/veh		30.8	~		4.3						78.1		
Approach LOS		50.0 C			4.5 A						E		
											L		
imer - Assigned Phs		2		4	5	6							
Phs Duration (G+Y+Rc), s		141.8		38.2	53.3	88.5							
Change Period (Y+Rc), s		7.4		7.0	7.4	7.4							
Max Green Setting (Gmax), s		126.6		39.0	20.6	98.6							
Max Q Clear Time (g_c+l1), s Green Ext Time (p_c), s		3.1 28.2		29.0 2.2	16.0 0.3	54.4 26.7							
		-V.L		£.£	0.0	•••••							
Intersection Summary			26.6										
HCM 6th Ctrl Delay HCM 6th LOS			26.6 C										
	web week to Date Tare """		ں ر					ante matéricanatio more	orm influence and a state				
lotes													
lear approved volume halancing	among th	a lanae fr	v turnina r	novoment									

User approved volume balancing among the lanes for turning movement. Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings 5: I-75 NB Off-Ramp & CR 484

Buildout Conditions	
Timing Plan: AM Peak Hour	

	٦	-+	$\mathbf{F}$	4	←	×	1	t	1	1	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<b>†</b> †			<u> </u>	T	ሻ	र्स	*				
Traffic Volume (vph)	739	1668	0	0	1661	444	417	1	160	0	0	0	
Future Volume (vph)	739	1668	0	0	1661	444	417	1	160	0	0	0	
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 (%)	9%	9%	9%	5%	5%	5%	11%	11%	11%	0%	0%	0%	
Adj. Flow (vph)	762	1720	0	0	1712	458	430	1	165	0	· · · 0	0	
Shared Lane Traffic (%)							50%						
Lane Group Flow (vph)	762	1720	0	0	1712	458	215	216	165	0	-0	0	
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm				
Protected Phases	1	6			2		4	4					
Permitted Phases						2			4				
Detector Phase	1	6			2	2	4	4	4				
Switch Phase													
Minimum Initial (s)	7.0	20.0			20.0	20.0	7.0	7.0	7.0				
Minimum Split (s)	14.2	26.9			26.9	26.9	13.5	13.5	13.5				
Total Split (s)	70.0	141.0			71.0	71.0	39.0	39.0	39.0				
Total Split (%)	38.9%	78.3%			39.4%	39.4%	21.7%	21.7%	21.7%				
Yellow Time (s)	4.9	4.9			4.9	4.9	4.1	4.1	4.1				
All-Red Time (s)	2.3	2.0			2.0	2.0	2.4	2.4	2.4				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	7.2	6.9			6.9	6.9	6.5	6.5	6.5				
Lead/Lag	Lead				Lag	Lag							
Lead-Lag Optimize?	Yes				Yes	Yes							
Recall Mode	Max	C-Min			C-Min	C-Min	None	None	None				
v/c Ratio	0.66	0.69			0.97	0.71	0.83	0.83	0.55				
Control Delay	35.8	13.9			72.5	39.2	97.7	97.8	47.0				
Queue Delay	2.2	7.8			0.1	0.0	71.1	71.1	0.0				
Total Delay	37.9	21.7			72.6	39.2	168.8	168.8	47.0				
Queue Length 50th (ft)	371	656			732	323	257	260	106				
Queue Length 95th (ft)	377	1127			#836	469	#390	#391	191				
Internal Link Dist (ft)		424			1171			1111			1102		
Turn Bay Length (ft)						144	320		320				
Base Capacity (vph)	1162	2510			1759	646	278	279	317				
Starvation Cap Reductn	257	758			0	0	0	0	0				
Spillback Cap Reductn	0	0			1	0	171	172	0				
Storage Cap Reductn	Ō	0			0	Ó	0	0	0				
Reduced v/c Ratio	0.84	0.98			0.97	0.71	2.01	2.02	0.52				

Intersection Summary

Cycle Length: 180 Actuated Cycle Length: 180

Offset: 33 (18%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow Natural Cycle: 90

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

#### Splits and Phases: 5: I-75 NB Off-Ramp & CR 484

<i>▶</i> <sub>Ø1</sub>	Ø2 (R)	• 14	Ø4
70 s	715	39 5	
1415			

#### HCM 6th Signalized Intersection Summary 5: I-75 NB Off-Ramp & CR 484

D-123

Timing Plan: AM Peak Hour

	۶	-	$\mathbf{\hat{z}}$	4	4	×.	1	Ť	1	4	Ļ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ኻኻ	<b>†</b> †			<u> </u>	7	۲	÷.	7				
Traffic Volume (veh/h)	739	1668	0	0	1661	444	417	1	160	0	0	0	
Future Volume (veh/h)	739	1668	0	0	1661	444	417	1	160	0	0	0	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach		No			No			No					
Adj Sat Flow, veh/h/ln	1767	1767	0	0	1826	1826	1737	1737	1737				
Adj Flow Rate, veh/h	762	1720	0	0	1712	0	431	0	0				
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97				
Percent Heavy Veh, %	9	9	0	0	5	5	11	11	11				
Cap, veh/h	1139	2606	0	0	1931		494	0					
Arrive On Green	0.46	1.00	0.00	0.00	0.52	0.00	0.15	0.00	0.00				
Sat Flow, veh/h	3264	3445	0	0	5149	1547	3309	0	1472	111			
Grp Volume(v), veh/h	762	1720	0	0	1712	0	431	0	0				
Grp Sat Flow(s),veh/h/ln	1632	1678	0	0	1662	1547	1654	0	1472				
Q Serve(g_s), s	32.7	0.0	0.0	0.0	55.2	0.0	22.9	0.0	0.0				
Cycle Q Clear(g_c), s	32.7	0.0	0.0	0.0	55.2	0.0	22.9	0.0	0.0				
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00				
Lane Grp Cap(c), veh/h	1139	2606	0	0	1931		494	0					
V/C Ratio(X)	0.67	0.66	0.00	0.00	0.89		0.87	0.00					
Avail Cap(c_a), veh/h	1139	2606	0	0	1931		597	0					
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00				
Upstream Filter(I)	0.52	0.52	0.00	0.00	1.00	0.00	1.00	0.00	0.00				
Uniform Delay (d), s/veh	40.2	0.0	0.0	0.0	40.1	0.0	74.9	0.0	0.0				
Incr Delay (d2), s/veh	1.6	0.7	0.0	0.0	6.5	0.0	14.1	0.0	0.0				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(50%),veh/in	12.5	0.3	0.0	0.0	21.6	0.0	10.7	0.0	0.0				
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	41.8	0.7	0.0	0.0	46.5	0.0	89.0	0.0	0.0				
LnGrp LOS	D	А	А	А	D		F	А					
Approach Vol, veh/h		2482		1.1	1712	A		431	Α	1.28.25	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	1144	na shekara
Approach Delay, s/veh		13.3			46.5			89.0					
Approach LOS		В			D			F					
Timer - Assigned Phs	1	2		4		6							
Phs Duration (G+Y+Rc), s	70.0	76.6		33.4		146.6				9 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -			
Change Period (Y+Rc), s	* 7.2	6.9		6.5		6.9							
Max Green Setting (Gmax), s	* 63	64.1		32.5		134.1							
Max Q Clear Time (g_c+l1), s	34.7	57.2		24.9		2.0							
Green Ext Time (p_c), s	4.8	5.9		1.9		41.6							
Intersection Summary													
HCM 6th Ctrl Delay			32.7				1000 00 00 00 00 00 00 00 00 00 00 00 00					at shiresaya	
HCM 6th LOS			C										
								delako con director	NAMBOR STATES		000000000000000000000000000000000000000		
Notes													
User approved volume balancing	i amono th	lanes fo	r turnina n	novement									

User approved volume balancing among the lanes for turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

## D-124

Lanes	, Volum	ies, 1	<b>Fimings</b>	
<u>6: CR</u>	475A 8		484	

Buildout C	Conditions
Timing Plan: A	M Peak Hour

	٦	-+	$\mathbf{\hat{z}}$	4		×.	4	t	1	1	ţ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<b>†</b> ‡		η	<b>†</b> ‡		ኘኘ	Ą		ኘ	1	1	
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	4%	4%	4%	5%	5%	5%	
Adj. Flow (vph)	0	.0	0	0	0	0	0	0	0	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Turn Type	Prot			pm+pt			Prot			pm+pt		Perm	
Protected Phases	5	2		1	6		3	8		7	4		
Permitted Phases				6						4		4	
Detector Phase	5	2		1	6		3	8		7	4	4	
Switch Phase													
Minimum Initial (s)	6.0	15.0		6.0	15.0		6.0	10.0		6.0	10.0	10.0	
Minimum Split (s)	13.8	21.9		13.6	21.9		13.1	16.9		13.0	16.9	16.9	
Total Split (s)	50.0	91.0		18.0	59.0		30.0	50.0		21.0	41.0	41.0	
Total Split (%)	27.8%	50.6%		10.0%	32.8%		16.7%	27.8%		11.7%	22.8%	22.8%	
Yellow Time (s)	4.9	4.9		4.8	4.9		4.9	4.9		4.9	4.9	4,9	
All-Red Time (s)	2.9	2.0		2.8	2.0		2.2	2.0		2.1	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.8	6.9		7.6	6.9		7.1	6.9		7.0	6.9	6.9	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None	
v/c Ratio													
Control Delay													
Queue Delay													
Total Delay													
Queue Length 50th (ft)													
Queue Length 95th (ft)													
Internal Link Dist (ft)		1171			10343			554			865		
Turn Bay Length (ft)													
Base Capacity (vph)													
Starvation Cap Reductn													
Spillback Cap Reductn													
Storage Cap Reductn													
Reduced v/c Ratio						and a second				000000000000000000000000000000000000000	12999940200000000	an managang kan sa	na kun an
Intersection Summary													
Cycle Length: 180													

Cycle Length: 180 Actuated Cycle Length: 180 Offset: 10 (6%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow Natural Cycle: 70 Control Type: Actuated-Coordinated

#### Splits and Phases: 6: CR 475A & CR 484

✓ Ø1 → Ø2 (R)		ų	<b>1</b> Ø3	<b>↓</b> ~ <sub>Ø4</sub>	
18 \$ 91 \$			30 s	1419	
▶ <sub>05</sub>			<b>1</b>	<b>↑</b> Ø8	
50 s	59 s	i i i	21.5	50 s	

## D-125

#### HCM 6th Signalized Intersection Summary 6: CR 475A & CR 484

Buildout	Conditions
Timing Plan:	AM Peak Hour

	۶		$\mathbf{F}$	¥	◄	×.	1	Ť	1	5	ŧ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ኘካ	<b>†</b> ‡		ሻ	<b>1</b>		ካካ	4		ኘ	1	۴	
Traffic Volume (veh/h)	0	Ö	0	o	0	0	Ő	Ō	0	Ő	Ó	0	
Future Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Q (Qb), veh	0	0	0	Ó	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	-	1.00	1.00	-	1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1781	1781	1781	1796	1796	1796	1841	1841	1841	1826	1826	1826	
Adj Flow Rate, veh/h	0	0	-20	0	0	-4	0	0	-16	0	0	-232	
Peak Hour Factor	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Percent Heavy Veh, %	0.2.5	0.25	8	0.25	0.25	0.23	4	4	4	5	5	5	
Cap, veh/h	2	1627	705	1350	1641	441	2	0	374	41	1	1	
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	, 0.00	0.00	
	3291		0.00	1711	3503	0.00	3401	1841	0.00	1739	1826	1547	
Sat Flow, veh/h		3474											
Grp Volume(v), veh/h	0	-20	-20	0	-4	-4	0	-16	-16	0	0	-232	
Grp Sat Flow(s),veh/h/In	1646	1692	1510	1711	1706	1522	1700	1841	1560	1739	1826	1547	
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.00	1.00		1.00	
Lane Grp Cap(c), veh/h	2	1627	0	1350	1641	0	2	0	0	41	1	1	
V/C Ratio(X)	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-269.85	
Avail Cap(c_a), veh/h	772	1627	0	1448	1641	0	433	0	0	175	346	293	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LnGrp LOS	Α	А	А	А	А	А	А	А	А	Α	Α	Α	
Approach Vol. veh/h		-40			-8			-32		1.1.1.1	-232		an a
Approach Delay, s/veh		0.0			0.0			0.0			0.0		
Approach LOS		A			A			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	0.0	180.0	0.0	0.0	0.0	180.0	0.0	0.0					
Change Period (Y+Rc), s	* 7.6	6.9	* 7.1	6.9	7.8	6.9	7.0	6.9					
Max Green Setting (Gmax), s	* 10	84.1	* 23	34.1	42.2	52.1	14.0	43.1					
Max Q Clear Time (g_c+l1), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Intersection Summary	v.v	v.v	•.•		v.v	•.•							
			0.0										
HCM 6th Ctrl Delay HCM 6th LOS			0.0 A										
	and the second secon	and a state of the st	A	and coloralisation out	where the the state of the stat								Specificantiascopycopycon
Notes													

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings 8: SW 29th Ave Rd & Marion Oaks Trail

Buildout Conditions Timing Plan: AM Peak Hour

	٦		$\mathbf{F}$	4	4	×.	*	t	1	\$	ţ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			\$		ሻ	¢Î			\$		
Traffic Volume (vph)	1	83	122	39	14	0	37	7	187	0	13	2	
Future Volume (vph)	1	83	122	39	14	0	37	7	187	0	13	2	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Heavy Vehicles (%)	6%	6%	6%	0%	0%	0%	1%	1%	1%	7%	7%	7%	
Adj. Flow (vph)	1	99	145	46	17	0	44	8	223	0	15	2	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	245	0	0	63	0	44	231	0	0	17	0	
Sign Control		Stop			Stop			Free			Free		

Control Type: Unsignalized

#### HCM 6th TWSC 8: SW 29th Ave Rd & Marion Oaks Trail

ntersection													
nt Delay, s/veh	6.7												
lovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
ane Configurations		4			4		ኘ	₽			<b>4</b> >		
raffic Vol, veh/h	1	83	122	39	14	0	37	7	187	0	13	2	
uture Vol, veh/h	1	83	122	39	14	0	37	7	187	0	13	2	
onflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
ign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
T Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
torage Length	-	-	-	-	-	-	0	-	-	-	-	-	
eh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %		0	-	-	0	-	-	0	-	-	0	-	
eak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84	
leavy Vehicles, %	6	6	6	0	0	0	1	1	1	7	7	7	
Nvmt Flow	1	99	145	46	17	0	44	8	223	0	15	2	
/ajor/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	232	335	16	346	225	120	17	0	0	231	0	0	
Stage 1	16	16	- 10	208	208	120	17	U	v	231	U	U	
	216	319	-	138	200	-	-	-	-	-	-	-	
Stage 2	7.16	6.56		7.1	6.5	6.2	4.11	-	-	4.17	-	-	
ritical Hdwy			6.26		0.0 5.5	0.2	4.11	-	-	4.17	-	-	
critical Hdwy Stg 1	6.16	5.56	-	6.1 6.1	ວ.ວ 5.5		-	-	-	-	-		
Critical Hdwy Stg 2	6.16	5.56	-			-		-	-	-	-	-	
ollow-up Hdwy	3.554	4.054	3.354	3.5	4	3.3	2.209	-	-	2.263	-	-	
ot Cap-1 Maneuver	714	579	1052	612	678	937	1607	-	-	1308	-	-	
Stage 1	993	874	-	799	734	-	-	-	-	-	-	-	
Stage 2	777	646	-	870	885	-	-	-	-	-	-	-	
latoon blocked, %			4050				4007	-	-	4000	-	-	
lov Cap-1 Maneuver	685	563	1052	447	660	937	1607	-	-	1308	•	-	
lov Cap-2 Maneuver	685	563	-	447	660	-	-	-	-	-	-	-	
Stage 1	966	874	-	777	714	-	- 1	-	· · · ·	-	-	-	
Stage 2	738	629	-	665	885	•			-	-	•		
pproach	EB			WB			NB			SB			
CM Control Delay, s	11.7	and and		13.5	1997) 1997)		1.2			0			
ICM LOS	В			В									
linor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
apacity (veh/h)		1607	-	-	778	489	1308		-				
ICM Lane V/C Ratio		0.027	-	-	0.315	0.129		-	-				
ICM Control Delay (s)		7.3	-		11.7	13.5	0	-	-				
om oontor boldy (s)			-					-	-				
ICM Lane LOS		A		-	В	В	A	_	_				

D-127

D-128

# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

# F5: AM Peak Hour Future Year Buildout w/ Improvements Traffic Conditions (2027)

# Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

Buildout Conditions w/ Improvements Timing Plan: AM Peak Hour

	٦		$\mathbf{F}$	4	<b>∢</b>	×.	1	Ť	1	1	Ļ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	<b>^</b>		ኘሻ	<u> </u>	*	ሻ	1	1	ኘኘ	4		
Traffic Volume (vph)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Future Volume (vph)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	11%	11%	11%	18%	18%	18%	
Adj. Flow (vph)	127	2333	44	270	1754	478	60	16	259	252	31	28	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	127	2377	0	270	1754	478	60	16	259	252	59	Ö	
Turn Type	pm+pt	NA		Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		
Protected Phases	. 1	6		-5	2		7	4	5	3	8		
Permitted Phases	6					2			4				
Detector Phase	1	6		5	2	2	7	4	5	3	8		
Switch Phase													
Minimum Initial (s)	5.0	15.0		10.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0		
Minimum Split (s)	12.0	21.9		17.3	21.9	21.9	9.5	16.6	17.3	11.1	16.6		
Total Split (s)	24.0	101.0		25.0	102.0	102.0	18.2	30.0	25.0	24.0	35.8		
Total Split (%)	13.3%	56.1%		13.9%	56.7%	56.7%	10.1%	16.7%	13.9%	13.3%	19.9%		
Yellow Time (s)	4.8	4.9		4.8	4.9	4.9	3.5	4.0	4.8	3.5	4.0		
All-Red Time (s)	2.2	2.0		2.5	2.0	2.0	1.0	2.6	2.5	2.6	2.6		
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)	7.0	6.9		7.3	6.9	6.9	4.5	6.6	7.3	6.1	6.6		
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None		
v/c Ratio	0.57	0.85		0.57	0.55	0.45	0.59	0.17	0.78	0.76	0.44		
Control Delay	25.3	36.4		87.7	26.8	15.6	104.4	85.4	69.8	92.3	61.0		
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	25.3	36.4		87.7	26.8	15.6	104.4	85.4	69.8	92.3	61.0		
Queue Length 50th (ft)	40	842		168	759	176	70	18	234	153	41		
Queue Length 95th (ft)	92	1009		215	808	294	125	48	327	#232	96		
Internal Link Dist (ft)		3132			1240			650			1393		
Turn Bay Length (ft)	114			170		144	144			114			
Base Capacity (vph)	271	2810		475	3203	1071	123	222	330	332	261		
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	0.47	0.85		0.57	0.55	0.45	0.49	0.07	0.78	0.76	0.23		
Intersection Summary													

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases:	3: SW 20th Ave Rd & CR 484		
•	4		<b>+</b>
<b>•</b> Ø1	Ø2 (R)	<b>*</b> Ø3	04
245	102 s	24 s	30 s
<b>1</b> 05	→ ⊅Ø6 (R)	<b>1</b> 07 ↓	Ø8
255	1018	18.2 5 35.	3 6

2: SIM 20th Aug Dd 8 CD 494 0-14

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

D-130

	۶		$\mathbf{F}$	4	<b>←</b>	*	1	1	1	5	ŧ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Υ	朴朴		ሻሻ	<u> </u>	1	٦	1	1	ኻኻ	1+		
Traffic Volume (veh/h)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Future Volume (veh/h)	122	2240	42	259	1684	459	58	15	249	242	30	27	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1811	1811	1737	1737	1737	1633	1633	1633	
Adj Flow Rate, veh/h	127	2333	44	270	1754	478	60	16	181	252	31	28	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	6	6	6	6	6	6	11	11	11	18	18	18	
Cap, veh/h	236	2714	51	305	2922	907	74	212	314	284	142	129	
Arrive On Green	0.06	0.72	0.72	0.12	0.79	0.79	0.04	0.12	0.12	0.09	0.18	0.18	
Sat Flow, veh/h	1725	4996	94	3346	4944	1535	1654	1737	1472	3018	791	714	
Grp Volume(v), veh/h	127	1537	840	270	1754	478	60	16	181	252	0	59	
Grp Sat Flow(s), veh/h/in	1725	1648	1794	1673	1648	1535	1654	1737	1472	1509	Ō	1505	
Q Serve(g_s), s	6.0	61.4	62.0	14.3	25.9	20.5	6.5	1.5	19.9	14.9	0.0	6.0	
Cycle Q Clear(g_c), s	6.0	61.4	62.0	14.3	25.9	20.5	6.5	1.5	19.9	14.9	0.0	6.0	
Prop In Lane	1.00	•	0.05	1.00	20.0	1.00	1.00		1.00	1.00		0.47	
Lane Grp Cap(c), veh/h	236	1790	974	305	2922	907	74	212	314	284	0	271	
V/C Ratio(X)	0.54	0.86	0.86	0.88	0.60	0.53	0.81	0.08	0.58	0.89	0.00	0.22	
Avail Cap(c_a), veh/h	321	1790	974	329	2922	907	126	226	326	300	0	271	
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.30	0.30	0.30	0.77	0.77	0.77	1.00	1.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	17.8	19.9	20.0	78.1	10.6	10.1	85.2	70.0	63.5	80.6	0.0	63.0	
Incr Delay (d2), s/veh	0.6	1.8	3.3	18.4	0.7	1.7	18.1	0.1	2.3	24.9	0.0	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/in	2.3	19.0	21.3	6.7	6.8	6.0	3.2	0.7	7.7	6.8	0.0	2.4	
Unsig. Movement Delay, s/veh	2.0	10.0	21.0	0.1	0.0	0.0		•					
LnGrp Delay(d),s/veh	18.3	21.7	23.3	96.5	11.4	11.8	103.3	70.2	65.9	105.5	0.0	63.4	
LnGrp LOS	10.0 B	21.1 C	20.0 C	50.0 F	B	B	F	E	E	F	A	E	
Approach Vol, veh/h		2504			2502			257			311		
Approach Delay, s/veh		22.1			20.6			74.9			97.5		
Approach LOS		22.1 C			20.0 C			E			F		
	4	2	3	4	5	6	7	- 8					
Timer - Assigned Phs	45.4		CTPORTON CONTRACTOR CONTRACTOR	In the state of the state of the state									
Phs Duration (G+Y+Rc), s	15.1	113.3	23.1	28.6	23.7	104.7	12.6	39.0					
Change Period (Y+Rc), s	*7	6.9	6.1	6.6	7.3	6.9	4.5	6.6					
Max Green Setting (Gmax), s	* 17	95.1	17.9	23.4	17.7	94.1	13.7	29.2					
Max Q Clear Time (g_c+l1), s	8.0	27.9	16.9	21.9	16.3	64.0	8.5	8.0					
Green Ext Time (p_c), s	0.2	26.1	0.1	0.1	0.1	21.3	0.0	0.2		00000000000000000000000000000000000000		aninenskeitanen	
Intersection Summary			00.4										
HCM 6th Ctrl Delay HCM 6th LOS			28.1 C										
Notes													

Notes
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

D-131

# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

# F6: PM Peak Hour Existing Traffic Conditions (2022)

# Lanes, Volumes, Timings 1: Marion Oaks Blvd & CR 484

Existing	Conditions
Timing Plan:	PM Peak Hour

		$\mathbf{r}$	4	<b>∢</b> —	*	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>≜</b> ti-		ኘ	<u>†</u> †	ሻ	7	
Traffic Volume (vph)	633	186	507	829	123	390	
Future Volume (vph)	633	186	507	829	123	390	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	5%	5%	3%	3%	4%	4%	
Adj. Flow (vph)	659	194	528	864	128	406	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	853	0	528	864	128	406	
Turn Type	NA		pm+pt	NA	Prot	Perm	
Protected Phases	6		5	2	4		
Permitted Phases			2	_		4	
Detector Phase	6		5	2	4	4	
Switch Phase							
Minimum Initial (s)	15.0		10.0	15.0	10.0	10.0	
Minimum Split (s)	21.8		16.8	21.8	18.5	18.5	
Total Split (s)	58.8		31.8	58.8	43.5	43.5	
Total Split (%)	43.8%		23.7%	43.8%	32.4%	32.4%	
Yellow Time (s)	4.8		4.8	4.8	4.8	4.8	
All-Red Time (s)	2.0 0.0		2.0 0.0	2.0	3.7 0.0	3.7 0.0	
Lost Time Adjust (s) Total Lost Time (s)	6.8		0.0 6.8	0.0 6.8	0.0 8.5	0.0 8.5	
Lead/Lag	Lag		0.0 Lead	0.0	0.0	0.0	
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	Min		None	Min	None	None	
v/c Ratio	0.78		0.88	0.36	0.51	0.71	
Control Delay	31.9		38.0	6.7	44.2	11.5	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	31.9		38.0	6.7	44.2	11.5	
Queue Length 50th (ft)	214		204	90	67	0	
Queue Length 95th (ft)	313		#493	151	136	89	
Internal Link Dist (ft)	1332			3183	1673		
Turn Bay Length (ft)			360				
Base Capacity (vph)	1962		602	3249	685	859	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	0		0	0	0	0	
Storage Cap Reductn	° О		0	0	0	0	
Reduced v/c Ratio	0.43		0.88	0.27	0.19	0.47	

Intersection Summary

Cycle Length: 134.1 Actuated Cycle Length: 89.6 Natural Cycle: 80

Control Type: Actuated-Uncoordinated # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 1: Marion Oaks Blvd & CR 484

₹ ø2		▲ 04
58.8 s		43.51
<b>√</b> ø5	•06	
31.8 s	58,8 5	

# D-132

#### HCM 6th Signalized Intersection Summary 1: Marion Oaks Blvd & CR 484

# D-133

Existing	Conditions
Timing Plan:	PM Peak Hour

	+	$\mathbf{F}$	4	<b>4</b>	•	1	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>≜</b> ₽		ሻ	<b>†</b> †	٦	ŕ	
Traffic Volume (veh/h)	633	186	507	829	123	390	
Future Volume (veh/h)	633	186	507	829	123	390	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1826	1856	1856	1841	1841	
Adj Flow Rate, veh/h	659	0	528	864	128	0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	5	5	3	3	4	4	
Cap, veh/h	945		623	2197	245		
Arrive On Green	0.27	0.00	0.24	0.62	0.14	0.00	
Sat Flow, veh/h	3652	0	1767	3618	1753	1560	
Grp Volume(v), veh/h	659	0	528	864	128	0	
Grp Sat Flow(s),veh/h/in	1735	0	1767	1763	1753	1560	
Q Serve(g_s), s	11.0	0.0	12.4	7.9	4.4	0.0	
Cycle Q Clear(g_c), s	11.0	0.0	12.4	7.9	4.4	0.0	
Prop In Lane		0.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	945		623	2197	245		
V/C Ratio(X)	0.70		0.85	0.39	0.52		
Avail Cap(c_a), veh/h	2800		876	2845	952		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	21.0	0.0	11.8	6.1	25.7	0.0	
Incr Delay (d2), s/veh	0.9	0.0	5.6	0.1	1.7	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	4.0	0.0	4.9	2.2	1.8	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	22.0	0.0	17.4	6.2	27.5	0.0	
LnGrp LOS	С		В	А	С		
Approach Vol. veh/h	659	A		1392	128	A	
Approach Delay, s/veh	22.0			10.5	27.5		
Approach LOS	С			В	c		
Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		46.9		17.5	22.6	24.4	
Change Period (Y+Rc), s		6.8		* 8.5	6.8	6.8	
Max Green Setting (Gmax), s		52.0		* 35	25.0	52.0	
Max Q Clear Time (g_c+l1), s		9.9		6.4	14.4	13.0	
Green Ext Time (p_c), s		7.5		0.3	1.4	4.6	
Intersection Summary							
HCM 6th Ctrl Delay			14.9				
HCM 6th LOS			В				
Notes							

Notes \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings 2: CR 484 & SW 29th Ave Rd

	5	۶		F	<b>4</b>	×	5	∢	
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR	
Lane Configurations		à	<u> </u>		<b>†</b> ‡		Y		
Traffic Volume (vph)	1	25	991	2	867	50	42	19	
Future Volume (vph)	1	25	991	2	867	50	42	19	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	7%	7%	
Adj. Flow (vph)	1	26	1032	2	903	52	44	20	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	27	1032	0	957	0	64	0	
Sign Control			Free		Free		Stop		

Control Type: Unsignalized

#### HCM 6th TWSC 2: CR 484 & SW 29th Ave Rd

Intersection

Int Delay, s/veh	0.8			*****					
Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR	
Lane Configurations		A	<b>^</b>		<b>†</b> 1>		Y		
Traffic Vol, veh/h	1	25	991	2	867	50	42	19	
Future Vol, veh/h	1	25	991	2	867	50	42	19	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	-	None	•	-	None	-	None	
Storage Length	-	144	-	-	-	-	0	-	
Veh in Median Storage, #	-	-	0	-	0	-	- 1	-	
Grade, %	-	-	0	-	0	-	0	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	7	7	7	4	4	4	7	7	
Mvmt Flow	1	26	1032	2	903	52	44	20	
Major/Minor	Major1			Major2			Minor2		-
Conflicting Flow All	955	955	0	1032	-	0	1503	478	
Stage 1	-	-	-	-	-	-	933	-	a di tanàna amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana ami
Stage 2	-	-	-	-	_	-	570	-	
Critical Hdwy	6.54	4.24	-	6.48	-	-	6.94	7.04	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.94	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.94	-	
Follow-up Hdwy	2.57	2.27	-	2.54	-	-	3.57	3.37	
Pot Cap-1 Maneuver	341	686	-	311	-	-	107	520	
Stage 1	-	-	-	-	-	-	332	-	
Stage 2	-	-	-	-	-	-	515	-	
Platoon blocked, %			-		-	-			
Mov Cap-1 Maneuver	659	659	-	311	-	-	101	520	
Mov Cap-2 Maneuver	-	-	-	-	-	-	221	-	
Stage 1	· _	· .	· -	-	-	· •	318	-	
Stage 2	-	-	-	-	-	-	508	-	
Approach	EB			WB			SB		
HCM Control Delay, s	0.3			0			22.5		
HCM LOS							С		
Minor Lane/Major Mvmt		EBL	EBT	WBT	WBR	SBLn1			
Capacity (veh/h)		659	-	-	-	269			
HCM Lane V/C Ratio		0.041	-	-	-	0.236			
HCM Control Delay (s)		10.7	-	-	-	22.5			
HCM Lane LOS		В	-	-	-	С			

# Existing Conditions Timing Plan: PM Peak Hour

D-135

# Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

Existing	Conditions
Timing Plan:	PM Peak Hour

		$\mathbf{F}$	4	-	1	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>1</b> 1	*********************	ኘ	<b>^</b>	٢	7	
Traffic Volume (vph)	1023	48	97	1588	32	83	
Future Volume (vph)	1023	48	97	1588	32	83	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	6%	6%	3%	3%	30%	30%	
Adj. Flow (vph)	1100	52	104	1708	34	89	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1152	0	104	1708	34	89	
Turn Type	NA		pm+pt	NA	Prot	Perm	
Protected Phases	6		5	2	4		
Permitted Phases			2			4	
Detector Phase	6		5	2	4	4	
Switch Phase							
Minimum Initial (s)	15.0		10.0	15.0	10.0	10.0	
Minimum Split (s)	21.9		17.3	21.9	16.0	16.0	
Total Split (s)	127.0		27.0	154.0	26.0	26.0	
Total Split (%)	70.6%		15.0%	85.6%	14.4%	14.4%	
Yellow Time (s)	4.9		4.8	4.9	4.0	4.0	
All-Red Time (s)	2.0		2.5	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.9		7.3	6.9	6.0	6.0	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	C-Min		None	C-Min	None	None	
v/c Ratio	0.45		0.26	0.57	0.36	0.53	
Control Delay	8.3		3.6	7.5	90.1	25.1	
Queue Delay	0.0		0.0	0.2	0.0	0.0	
Total Delay	8.3		3.6	7.7	90.1	25.1	
Queue Length 50th (ft)	227		11	538	39	0	
Queue Length 95th (ft)	294		m40	615	80	62	
Internal Link Dist (ft)	3132			1240	650		
Turn Bay Length (ft)			170			220	
Base Capacity (vph)	2586		480	3015	154	217	
Starvation Cap Reductn	<b>0</b> - 1		0	469	0	0	
Spillback Cap Reductn	0		0	0	0	0	
Storage Cap Reductn	0		0	0	0	0	
Reduced v/c Ratio	0.45		0.22	0.67	0.22	0.41	

Intersection Summary

Cycle Length: 180 Actuated Cycle Length: 180

Offset: 83 (46%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow Natural Cycle: 65

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 3: SW 20th Ave Rd & CR 484

€ Ø2 (R)		1	<b>1</b> ∕04
<u>154 s</u>			26 s
<b>√</b> Ø5		1	
275	1278		

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

		$\mathbf{F}$	4		-	1	
Novement	EBT	EBR	WBL	WBT	NBL	NBR	
ane Configurations	<b>≜</b> ₽		ኘ	<b>††</b>	٦	1	
raffic Volume (veh/h)	1023	48	97	1588	32	83	
uture Volume (veh/h)	1023	48	97	1588	32	83	
nitial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00	
arking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Vork Zone On Approach	No			No	No		
dj Sat Flow, veh/h/ln	1811	1811	1856	1856	1455	1455	
dj Flow Rate, veh/h	1100	50	104	1708	34	37	
eak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	
ercent Heavy Veh, %	6	6	3	3	30	30	
ap, veh/h	2610	119	463	3083	75	67	
Arrive On Green	0.78	0.78	0.11	1.00	0.05	0.05	
Sat Flow, veh/h	3442	152	1767	3618	1386	1233	
Grp Volume(v), veh/h	564	586	104	1708	34	37	
Srp Sat Flow(s),veh/h/ln	1721	1784	1767	1763	1386	1233	
) Serve(g_s), s	19.5	19.5	1.8	0.0	4.3	5.3	
cycle Q Clear(g_c), s	19.5	19.5	1.8	0.0	4.3	5.3	
rop In Lane		0.09	1.00		1.00	1.00	
ane Grp Cap(c), veh/h	1340	1389	463	3083	75	67	
//C Ratio(X)	0.42	0.42	0.22	0.55	0.45	0.56	
vail Cap(c_a), veh/h	1340	1389	559	3083	154	137	
ICM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00	
Jpstream Filter(I)	1.00	1.00	0.50	0.50	1.00	1.00	
Jniform Delay (d), s/veh	6.6	6.6	3.7	0.0	82.6	83.0	
ncr Delay (d2), s/veh	1.0	0.9	0.2	0.4	9.0	14.6	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
/ile BackOfQ(50%),veh/in	6.7	6.9	0.5	0.2	1.7	3.9	
Insig. Movement Delay, s/veh							
.nGrp Delay(d),s/veh	7.5	7.5	3.9	0.4	91.5	97.6	
nGrp LOS	A	А	А	A	F	F	
pproach Vol, veh/h	1150			1812	71		
pproach Delay, s/veh	7.5			0.6	94.7		
Approach LOS	A			A	F		
imer - Assigned Phs		2		4	5	6	
hs Duration (G+Y+Rc), s	- <u> </u>	164.3	- <u>18 - 18</u> - 18	15.7	17.2	147.0	an a
Change Period (Y+Rc), s		6.9		6.0	7.3	6.9	
lax Green Setting (Gmax), s		147.1		20.0	19.7	120.1	
Aax Q Clear Time (g_c+l1), s		2.0		7.3	3.8	21.5	
Green Ext Time (p_c), s		41.1		0.3	0.3	23.4	
ntersection Summary							
ICM 6th Ctrl Delay			5.4				
ICM 6th LOS			А				

User approved ignoring U-Turning movement.

#### Existing Conditions Timing Plan: PM Peak Hour

#### Lanes, Volumes, Timings 4: CR 484 & I-75 SB Off-Ramp

KHA Analyst

January 2023

	٦		$\mathbf{F}$	4	4	×.	•	Ť	1	1	Ļ	-	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		ተተኈ		۲	<u>†</u> †					ኘ	र्स	7	
Traffic Volume (vph)	0	946	231	120	1256	0	0	0	0	328	Ó	518	
Future Volume (vph)	0	946	231	120	1256	0	0	0	0	328	0	518	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	2%	2%	2%	6%	6%	6%	
Adj. Flow (vph)	0	1028	251	130	1365	0	0	0	0	357	0	563	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	0	1279	0	130	1365	0	0 - 1	0	0	178	179	563	
Turn Type		NA		pm+pt	NA					Prot	NA	Perm	
Protected Phases		6		5	2					7	4		
Permitted Phases				2								4	
Detector Phase		6		5	2					7	- 4	4	
Switch Phase													
Minimum Initial (s)		18.0		7.0	18.0					7.0	7.0	7.0	
Minimum Split (s)		25.4		14.4	25.4					14.0	14.0	14.0	
Total Split (s)		93.0		27.0	120.0					60.0	60.0	60.0	
Total Split (%)		51.7%		15.0%	66.7%					33.3%	33.3%	33.3%	
Yellow Time (s)		5.4		5.4	5.4					4.1	4.1	4.1	
All-Red Time (s)		2.0		2.0	2.0					2.9	2.9	2.9	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0	
Total Lost Time (s)		7.4		7.4	7.4					7.0	7.0	7.0	
Lead/Lag		Lead		Lag									
Lead-Lag Optimize?		Yes		Yes									
Recall Mode		C-Min		Min	C-Min					None	None	None	
v/c Ratio		0.76		0.49	0.79					0.27	0.27	0.84	
Control Delay		48.3		37.9	27.6					38.7	38.7	52.8	
Queue Delay		0.0		0.0	0.1					0.0	0.0	0.0	
Total Delay		48.3		37.9	27.7					38.7	38.7	52.8	
Queue Length 50th (ft)		485		57	323					142	142	519	
Queue Length 95th (ft)		528		m100	235					258	260	#954	
Internal Link Dist (ft)		1240			424			1185			1125		
Turn Bay Length (ft)										325		475	
Base Capacity (vph)		2240		298	2150					670	670	673	
Starvation Cap Reductn		0		0	122					0	0	0	
Spillback Cap Reductn		0		0	0					0	0	0	
Storage Cap Reductn		0		0	0					0	0	0 1 1 1	
Reduced v/c Ratio		0.57		0.44	0.67					0.27	0.27	0.84	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 58 (32%), Referenced to phase 2:WBTL and 6:EBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 4: CR 484 & I-75 SB Off-Ramp

🕈 Ø2 (R)	Ş	<b>↓</b> Ø4
120 s		60 s
	<b>√</b> Ø5	<b>V</b> Ø7
935	275	60 s

Existing Conditions Timing Plan: PM Peak Hour

# HCM 6th Signalized Intersection Summary 4: CR 484 & I-75 SB Off-Ramp

**Existing Conditions** Timing Plan: PM Peak Hour

	۶		$\mathbf{F}$	4	<b>←</b>	×.	4	Ť	1	1	Ļ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		<b>11</b>		٢	<b>^</b>					۲	4	1	
Traffic Volume (veh/h)	0	946	231	120	1256	0	0	0	0	328	0	518	
Future Volume (veh/h)	0	946	231	120	1256	0	0	0	0	328	0	518	
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	0	1781	1781	1826	1826	0				1811	1811	1811	
Adj Flow Rate, veh/h	0	1028	0	130	1365	0				357	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92	
Percent Heavy Veh, %	0	8	8	5	5	0				6	6	6	
Cap, veh/h	0	1227		946	2776	0				413	0		
Arrive On Green	0.00	0.34	0.00	1.00	1.00	0.00				0.12	0.00	0.00	
Sat Flow, veh/h	0	5184	0	1739	3561	0				3450	0	1535	
Grp Volume(v), veh/h	0	1028	0	130	1365	0				357	0	0	
Grp Sat Flow(s), veh/h/ln	ŏ	1621	- Ŭ	1739	1735	ŏ				1725	ŏ	1535	
Q Serve(g_s), s	0.0	35.2	0.0	0.0	0.0	0.0				18.3	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	35.2	0.0	0.0	0.0	0.0				18.3	0.0	0.0	
Prop In Lane	0.00	00.2	0.00	1.00	0.0	0.00				1.00	0.0	1.00	
Lane Grp Cap(c), veh/h	0.00	1227	0.00	946	2776	0.00				413	0	1.00	
V/C Ratio(X)	0.00	0.84		0.14	0.49	0.00				0.86	0.00		
Avail Cap(c_a), veh/h	0.00	2313		946	2776	0.00				1016	0.00		
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00				1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.89	0.00	0.53	0.53	0.00				1.00	0.00	0.00	
Uniform Delay (d), s/veh	0.00	56.4	0.0	0.0	0.0	0.0				77.8	0.0	0.0	
Incr Delay (d2), s/veh	0.0	6.2	0.0	0.0	0.3	0.0				5.5	0.0	0.0	
Initial Q Delay(d3), s/veh	0.0	0.2	0.0	0.0	0.0	0.0				0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	0.0	14.3	0.0	0.0	0.0	0.0				8.5	0.0	0.0	
Unsig. Movement Delay, s/veh	0.0	14.0	0.0	0.0	0.1	0.0				0.0	0.0	0.0	
	0.0	62.6	0.0	0.0	0.3	0.0				83.2	0.0	0.0	
LnGrp Delay(d),s/veh	0.0 A	02.0 E	0.0	A O.U	0.5 A	0.0 A				05.2 F	0.0 A	0.0	
LnGrp LOS	A			<u></u>		~					357	A	
Approach Vol, veh/h		1028	A		1495						83.2	A	
Approach Delay, s/veh		62.6 E			0.3						63.2 F		
Approach LOS	Salah di Kara di Karanga di Karang			ni znavni swami zajeći	Α			-			Г		
Timer - Assigned Phs		2		4	5	6					<u></u>		
Phs Duration (G+Y+Rc), s		151.4		28.6	98.6	52.8							
Change Period (Y+Rc), s		7.4		7.0	7.4	7.4							
Max Green Setting (Gmax), s		112.6		53.0	19.6	85.6							
Max Q Clear Time (g_c+l1), s		2.0		20.3	2.0	37.2							
Green Ext Time (p_c), s		14.0		1.3	0.5	8.3							
Intersection Summary													
HCM 6th Ctrl Delay			32.8										
HCM 6th LOS			С										
Notes													
110100	0001959999000			1999 CHARGE CHARGE		NA 1997 1997 1997 1997 1997 1997 1997 199					terg and the state of the		

User approved volume balancing among the lanes for turning movement. User approved ignoring U-Turning movement. Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

### Lanes, Volumes, Timings

5: I-75 NB Off-Ramp & CR 484

Existing	Conditions
Timing Plan:	PM Peak Hour

	٨		$\mathbf{r}$	4	<b>4</b>	Ł	1	t	1	1	ţ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲,	<u>†</u> †			<b>11</b>			ર્સ	1				
Traffic Volume (vph)	273	999	0	0	1001	246	355	Ó	233	0	0	0	
Future Volume (vph)	273	999	0	0	1001	246	355	0	233	0	0	0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	9%	9%	9%	2%	2%	2%	
Adj. Flow (vph)	284	1041	0	0	1043	256	370	0	243	0	0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	284	1041	0	0	1299	-0	0	370	243	0	0	0	
Turn Type	pm+pt	NA			NA		Perm	NA	Perm				
Protected Phases	1	6			2			4					
Permitted Phases	6	-					4		4				
Detector Phase	1	6			2		4	4	4				
Switch Phase		•			-			•					
Minimum Initial (s)	7.0	20.0			20.0		7.0	7.0	7.0				
Minimum Split (s)	14.2	26.9			26.9		13.5	13.5	13.5				
Total Split (s)	51.0	130.0			79.0		50.0	50.0	50.0				
Total Split (%)	28.3%	72.2%			43.9%		27.8%	27.8%	27.8%				
Yellow Time (s)	4.9	4.9			4.9		4.1	4.1	4.1				
All-Red Time (s)	2.3	2.0			2.0		2.4	2.4	2.4				
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0				
Total Lost Time (s)	7.2	6.9			6.9			6.5	6.5				
Lead/Lag	Lead	0.0			Lag								
Lead-Lag Optimize?	Yes				Yes								
Recall Mode	Max	C-Min			C-Min		None	None	None				
v/c Ratio	0.53	0.46			0.78			0.86	0.49				
Control Delay	58.2	9.3			51.5			83.2	24.9				
Queue Delay	0.8	0.3			0.0			0.0	0.0				
Total Delay	59.0	9.6			51.5			83.2	24.9				
Queue Length 50th (ft)	202	168			477			405	90				
Queue Length 95th (ft)	347	176			566			#623	193				
Internal Link Dist (ft)	547	424			1171			1111	100		1102		
Turn Bay Length (ft)		424						1111	320		1102		
Base Capacity (vph)	532	2322			1942			435	498				
Starvation Cap Reductn	76	568			0			400	490 0				
Spillback Cap Reductn	70 0	0			0			0	0				
Storage Cap Reductn	0	0			0			0	0				
Reduced v/c Ratio	0.62	0.59			0.67			0.85	0.49				

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 65 (36%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

#### Splits and Phases: 5: I-75 NB Off-Ramp & CR 484

▶ <sub>∅1</sub>	← ∅2 (R)	■ <sup>*</sup> 1ø4
51\$	79 s	50 s
130 s		

# HCM 6th Signalized Intersection Summary 5: I-75 NB Off-Ramp & CR 484

	≯		$\mathbf{F}$	1	-	•	1	Ť	1	1	¥	4		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	۲	<b>††</b>			<b>††‡</b>			ę	f					
Traffic Volume (veh/h)	273	999	0	0	1001	246	355	Ő	233	0	0	0		
Future Volume (veh/h)	273	999	0	0	1001	246	355	0	233	0	0	0		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0					
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Work Zone On Approach		No			No			No						
Adj Sat Flow, veh/h/ln	1796	1796	0	0	1826	1826	1767	1767	1767					
Adj Flow Rate, veh/h	284	1041	0	0	1043	0	370	0	0					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96					
Percent Heavy Veh, %	7	7	0	0	5	5	9	9	9					
Cap, veh/h	636	2366	0	0	2043		391	0						
Arrive On Green	0.49	1.00	0.00	0.00	0.82	0.00	0.23	0.00	0.00					
Sat Flow, veh/h	1711	3503	0	0	5313	0	1682	0	1497					
Grp Volume(v), veh/h	284	1041	0	0	1043	0	370	0	0					
Grp Sat Flow(s),veh/h/ln	1711	1706	Ő	· • 0	1662	Ő	1682	× õ	1497					
Q Serve(g s), s	10.2	0.0	0.0	0.0	11.7	0.0	39.0	0.0	0.0					
Cycle Q Clear(g_c), s	10.2	0.0	0.0	0.0	11.7	0.0	39.0	0.0	0.0					
Prop In Lane	1.00	0.0	0.00	0.00		0.00	1.00	0.0	1.00					
Lane Grp Cap(c), veh/h	636	2366	0	0	2043	0.00	391	0						
V/C Ratio(X)	0.45	0.44	0.00	0.00	0.51		0.95	0.00						
Avail Cap(c_a), veh/h	636	2366	0.00	0.00	2043		407	0.00						
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00					
Upstream Filter(I)	0.65	0.65	0.00	0.00	0.86	0.00	1.00	0.00	0.00					
Uniform Delay (d), s/veh	8.6	0.0	0.0	0.0	10.6	0.0	68.0	0.0	0.0					
Incr Delay (d2), s/veh	1.5	0.4	0.0	0.0	0.8	0.0	31.8	0.0	0.0					
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
%ile BackOfQ(50%),veh/In	3.1	0.1	0.0	0.0	3.1	0.0	20.2	0.0	0.0					
Unsig. Movement Delay, s/veh	•	•	0.0	0.0	0.1	0.0		0.0	0.0					
LnGrp Delay(d),s/veh	10.1	0.4	0.0	0.0	11.4	0.0	99.8	0.0	0.0					
LnGrp LOS	В	A	A	A	B	0.0	F	A	0.0					
Approach Vol, veh/h		1325	·····		1043	A		370	A		1.1.1.1	1		
Approach Delay, s/veh		2.5			11.4	<u>A</u>		99.8	n					
Approach LOS		2.0 A			В			55.6 F						
				000000 <b>1</b> 000	u			1					No. 1995	
Timer - Assigned Phs	<u>1</u> 51.0	<u>2</u> 80.7		48.3		<u>6</u> 131.7								
Phs Duration (G+Y+Rc), s														
Change Period (Y+Rc), s	* 7.2	6.9		6.5		6.9								
Max Green Setting (Gmax), s	* 44	72.1		43.5		123.1								
Max Q Clear Time (g_c+l1), s Green Ext Time (p_c), s	12.2 1.4	13.7 13.0		41.0 0.9		2.0 14.1								
Intersection Summary														
HCM 6th Ctrl Delav			19.0											
HCM 6th LOS			19.0 B											
		a mandri da sagange bart a stat a s	D	antanan daharan tahun 1	Televis Principal Control		alan dan di seren dan dan dan dan dan dan dan dan dan da						Landson (** - + *	-
Notes														

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

**Existing Conditions** Timing Plan: PM Peak Hour

# Lanes, Volumes, Timings 6: CR 475A & CR 484

Existing	Conditions
Timing Plan:	PM Peak Hour

	٦		$\mathbf{F}$	4	4	×	4	†	۲	1	ţ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	<b>†</b> 1>		ሻ	<b>†</b> ‡		ኘ	4		ኘ	4		
Traffic Volume (vph)	200	782	159	10	696	23	205	42	8	69	36	197	
Future Volume (vph)	200	782	159	10	696	23	205	42	8	69	36	197	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Heavy Vehicles (%)	9%	9%	9%	7%	7%	7%	4%	4%	4%	5%	5%	5%	
Adj. Flow (vph)	202	790	161	10	703	23	207	42	8	70	36	199	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	202	951	0	10	726	0	207	50	0	70	235	0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA		
Protected Phases	5	2		1	6		3	8		7	4		
Permitted Phases	2			6			8	2		4			
Detector Phase	5	2		1	6		3	8		7	4		
Switch Phase													
Minimum Initial (s)	6.0	15.0		6.0	15.0		6.0	10.0		6.0	10.0		
Minimum Split (s)	13.8	21.9		13.6	21.9		13.1	16.9		13.2	16.9		
Total Split (s)	29.0	97.0		18.0	86.0		34.0	39.0		26.0	31.0		
Total Split (%)	16.1%	53.9%		10.0%	47.8%		18.9%	21.7%		14.4%	17.2%		
Yellow Time (s)	4.9	4.9		4.8	4.9		4.9	4.9		4.9	4.9		
All-Red Time (s)	2.9	2.0		2.8	2.0		2.2	2.0		2.1	2.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	7.8	6.9		7.6	6.9		7.1	6.9		7.0	6.9		
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes		
Recall Mode	None	C-Min		None	C-Min		None	None		None	None		
v/c Ratio	0.49	0.47		0.03	0.41		0.81	0.17		0.25	0.84		
Control Delay	28.0	29.2		16.4	29.2		78.4	55.1		49.9	59.4		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	28.0	29.2		16.4	29.2		78.4	55.1		49,9	59.4		
Queue Length 50th (ft)	126	322		4	263		206	46		64	129		
Queue Length 95th (ft)	158	313		16	413		258	82		97	226		
Internal Link Dist (ft)		1171			10343		200	554		•1	865		
Turn Bay Length (ft)	295			360			270			265			
Base Capacity (vph)	458	2018		348	1790		293	353		336	330		
Starvation Cap Reductn	.0	0		0	0		0	0		0	0		
Spillback Cap Reductn	0	õ		ŏ	ŏ		Ő	ŏ		ŏ	Ő		
Storage Cap Reductn	Ő	ŏ		ö	0		Ö	ŏ		ő	0		
Reduced v/c Ratio	0.44	0.47		0.03	0.41		0.71	0.14		0.21	0.71		

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180 Offset: 58 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80 Control Type: Actuated-Coordinated

Splits and Phases: 6: CR 475A & CR 484

<b>1</b> 01	▶ ⊅02 (R)	▼ Ø3	<b>↓</b> <sup>™</sup> Ø4
18 s 97 s	•   •		
Ø5 29 s	Ø6 (R) ■ 86 s	26 s	08 179 s

#### HCM 6th Signalized Intersection Summary /

Exis	ting	Conditi	ons
Timing	Plan:	PM Peak	Hour

	۶		$\mathbf{i}$	4	4	A.	4	Ť	1	1	Ļ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	<b>†</b> ‡		۲	<b>∱</b> î≽		٣	4		ኘ	ĥ		
Traffic Volume (veh/h)	200	782	159	10	696	23	205	42	8	69	36	197	
Future Volume (veh/h)	200	782	159	10	696	23	205	42	8	69	36	197	
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Vork Zone On Approach		No			No			No			No		
dj Sat Flow, veh/h/ln	1767	1767	1767	1796	1796	1796	1841	1841	1841	1826	1826	1826	
dj Flow Rate, veh/h	202	790	147	10	703	22	207	42	7	70	36	130	
eak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Percent Heavy Veh, %	9	9	9	7	7	7	4	4	4	5	5	5	
Cap, veh/h	446	1692	315	374	1833	57	256	284	47	271	40	144	
Arrive On Green	0.14	1.00	1.00	0.01	0.54	0.54	0.11	0.18	0.18	0.05	0.12	0.12	
Sat Flow, veh/h	1682	2825	526	1711	3378	106	1753	1538	256	1739	347	1253	
Grp Volume(v), veh/h	202	469	468	10	355	370	207	0	49	70	0	166	
Grp Sat Flow(s), veh/h/ln	1682	1678	1672	1711	1706	1777	1753	Ō	1795	1739	Ō	1600	
Serve(g_s), s	10.0	0.0	0.0	0.5	21.6	21.7	18.3	0.0	4.1	6.3	0.0	18.4	
Cycle Q Clear(g_c), s	10.0	0.0	0.0	0.5	21.6	21.7	18.3	0.0	4.1	6.3	0.0	18.4	
Prop In Lane	1.00	0.0	0.31	1.00	2110	0.06	1.00	0.0	0.14	1.00	•.•	0.78	
ane Grp Cap(c), veh/h	446	1005	1002	374	926	964	256	0	331	271	0	184	
//C Ratio(X)	0.45	0.47	0.47	0.03	0.38	0.38	0.81	0.00	0.15	0.26	0.00	0.90	
vail Cap(c_a), veh/h	529	1005	1002	450	926	964	317	0.00	331	376	0.00	214	
ICM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Jpstream Filter(I)	0.88	0.88	0.88	0.71	0.71	0.71	1.00	0.00	1.00	1.00	0.00	1.00	
Iniform Delay (d), s/veh	15.6	0.00	0.00	17.9	23.8	23.8	60.2	0.0	61.5	66.1	0.00	78.6	
	0.6	1.4	0.0 1.4	0.0	23.8	0.8	11.9	0.0	01.5	0.5	0.0	33.1	
ncr Delay (d2), s/veh				0.0		0.0	0.0	0.0	0.2	0.0	0.0	0.0	
hitial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0				1.9	2.9	0.0	9.4	
Gle BackOfQ(50%),veh/in	3.4	0.4	0.4	0.2	8.9	9.2	9.1	0.0	1.9	2.9	0.0	5.4	
Insig. Movement Delay, s/veh	40.0			47.0		04.0	70.4	0.0	64 7	66 G	0.0	111.8	
.nGrp Delay(d),s/veh	16.3	1.4	1.4	17.9	24.6	24.6	72.1	0.0	61.7	66.6			
nGrp LOS	B	<u>A</u>	A	B	C	<u> </u>	<u> </u>	A	E	<u> </u>	A	F	
pproach Vol, veh/h		1139			735			256			236		
pproach Delay, s/veh		4.0			24.5			70.1			98.4		
pproach LOS		Α			C			Ε			۴		
imer - Assigned Phs	1	2	3	4	5	6	7	8					
hs Duration (G+Y+Rc), s	10.0	114.7	27.7	27.6	20.1	104.6	15.2	40.1					
Change Period (Y+Rc), s	* 7.6	6.9	* 7.1	6.9	7.8	6.9	7.0	6.9					
fax Green Setting (Gmax), s	* 10	90.1	* 27	24.1	21.2	79.1	19.0	32.1					
fax Q Clear Time (g_c+l1), s	2.5	2.0	20.3	20.4	12.0	23.7	8.3	6.1					
Green Ext Time (p_c), s	0.0	15.2	0.3	0.3	0.4	8.6	0.1	0.2					
tersection Summary													
ICM 6th Ctrl Delay			27.0										
ICM 6th LOS			27.0 C										
					ng sub-kababababababababababababababababababa					e pocieta secul	an en		
otes													
1.1 · · · · · · · · · · · · · · · · · ·													

Notes User approved ignoring U-Turning movement.

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings

1	7	·:	CR	47	'5	&	С	R	4	84	

Existing Conditions Timing Plan: PM Peak Hour

Lane Group Lane Configurations	EBL		-	•		~	7		1		•		
•		EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
	ሻ	<b>†</b> †	1	٢	<b>↑</b> ĵ→		٢	Þ		ኘ	4		
Traffic Volume (vph)	85	706	69	58	569	69	77	109	69	64	129	52	
Future Volume (vph)	85	706	69	58	569	69	77	109	69	64	129	52	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	7%	7%	7%	2%	2%	2%	
Adj. Flow (vph)	89	735	72	60	593	72	80	114	72	67	134	54	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	89	735	72	60	665	0	80	186	0	67	188	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA		
Protected Phases	1	6		5	2		7	4		3	8		
Permitted Phases	6		6	2			4			8			
Detector Phase	1	6	6	5	2		7	4		3	8		
Switch Phase													
Minimum Initial (s)	8.0	17.0	17.0	8.0	17.0		8.0	8.0		8.0	8.0		
Minimum Split (s)	17.6	24.7	24.7	16.5	24.7		18.0	16.2		18.0	16.2		
Total Split (s)	34.6	52.7	52.7	28.5	52.7		35.0	33.2		35.0	33.2		
Total Split (%)	22.3%	33.9%	33.9%	18.3%	33.9%		22.5%	21.4%		22.5%	21.4%		
Yellow Time (s)	5.5	5.7	5.7	5.5	5.7		5.5	5.5		5.5	5.5		
All-Red Time (s)	4.1	2.0	2.0	3.0	2.0		4.5	2.7		4.5	2.7		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	9.6	7.7	7.7	8.5	7.7		10.0	8.2		10.0	8.2		
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes		
Recall Mode	None	Min	Min	None	Min		None	None		None	None		
//c Ratio	0.30	0.62	0.11	0.19	0.70		0.26	0.60		0.21	0.60		
Control Delay	19.9	32.1	0.4	18.1	35.7		25.9	43.5		25.4	45.5		
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	19.9	32.1	0.4	18.1	35.7		25.9	43.5		25.4	45.5		
Queue Length 50th (ft)	31	211	0	20	188		32	95		27	100		
Queue Length 95th (ft)	70	330	0	50	300		77	194		67	203		
nternal Link Dist (ft)		10343			1733			1031			1659		
Turn Bay Length (ft)	144		94	144			144			144			
Base Capacity (vph)	550	1918	928	518	1697		558	483		595	508		
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0		
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0		
Storage Cap Reductn	0	0	0	0	0		0	0		0	0		
Reduced v/c Ratio	0.16	0.38	0.08	0.12	0.39		0.14	0.39		0.11	0.37		

Cycle Length: 155.5 Actuated Cycle Length: 94.1 Natural Cycle: 80 Control Type: Actuated-Uncoordinated

1. 1. 1

#### Splits and Phases: 7: CR 475 & CR 484 **t** \_ @2 ¶ø₄ • ø1 ₩ø3 52.0 3,2 5 1.1 **1** Ø7 35 ≤ **↓** Ø8 **√**øs ----**b**\_06 32.

#### HCM 6th Signalized Intersection Summary 7: CR 475 & CR 484

D-	-145	

Existing	Conditions
Timing Plan:	PM Peak Hour

EBL	040000 <u>0000000000000000000000000000000</u>					•		•			
-	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ሻ	<b>†</b> †	1	ሻ	<b>1</b> 4		٢	1		ሻ	4	
85	706	69	58	569	69	77	109	69	64	129	52
85	706	69	58	569	69	77	109	69	64	129	52
0	0	0	0	0	0	0	0	0	0	0	0
1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	No			No			No			No	
1781	1781	1781	1811	1811	1811	1796	1796	1796	1870	1870	1870
89	735	46	60	593	67	80	114	0	67	134	0
0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
8	8	8	6	6	6	7	7	7	2	2	2
322	960	428	321	885	100	270	191		287	188	
		0.28		0.28	0.28	0.08	0.11	0.00	0.08	0.10	0.00
								0	1781	1870	0
											0
											Ō
								-			0.0
											0.0
	10.0			10.4			4.0			0.0	0.00
	060			180			101	0.00		188	0.00
								1 00			1.00
											0.00
											0.0
											0.0
											0.0
											0.0
1.0	5.7	0.6	0.6	5.0	5.1	1.2	2.1	0.0	1.0	2.0	0.0
								• •	00.0	<b>00 7</b>	<u>^</u>
								0.0			0.0
В		C	8		C	<u> </u>			<u> </u>		· · · ·
								А			Α
	С			С			C C			D	
1	2	3	4	5	6	7	8				
16.5	30.3	16.2	16.6	16.5	30.3	16.6	16.2	1 C	1 . 1 7	N 19 N 19	a na san an taon
* 9.6	7.7	10.0	* 8.2	8.5	7.7	10.0	* 8.2				
				20.0	45.0	25.0					
					17.8	5.2	7.5				
0.2	3.6	0.2	0.4	0.1	4.8	0.1	0.5				
		27.8									
		C									
	85 0 1.00 1.00 1781 89 0.96 8 322 0.09 1697 2.8 2.8 1.00 322 0.28 708 1.00 1.00 18.0 0.5 0.0 1.00 18.4 B 16.5 * 9.6 * 25 4.8	85         706           0         0           1.00         1.00           1.00         1.00           1.00         1.00           1781         1781           89         735           0.96         0.98           322         960           0.09         0.28           1697         3385           89         735           1697         1692           2.8         15.8           1.00         322           960         0.28           0.28         0.77           708         1913           1.00         1.00           1.00         1.00           1.00         1.00           1.00         1.00           1.00         1.00           1.00         1.00           1.00         1.00           1.00         5.7           18.4         27.4           B         C           16.5         30.3           * 9.6         7.7           * 25         45.0           4.8         15.4	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	85         706         69         58         569           0         0         0         0         0           1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00           1781         1781         1781         1811         1811           89         735         46         60         593           0.96         0.96         0.96         0.96         0.96           322         960         428         321         885           0.09         0.28         0.28         0.10         0.28           1697         3385         1510         1725         3117           89         735         46         60         327           1697         1692         1510         1725         1721           2.8         15.8         1.8         1.8         13.4           2.8         15.8         1.8         1.8         13.4           1.00         1.00         1.00         1.00         1.00           322         960         428         321         489           0.28	85         706         69         58         569         69           0         0         0         0         0         0         0           1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00           No         No         No         No         No           1781         1781         1781         1811         1811         1811           89         735         46         60         593         67           0.96         0.96         0.96         0.96         0.96         0.96           0.09         0.28         0.28         0.10         0.28         0.28           1697         3385         1510         1725         1721         1748           2.8         15.8         1.8         1.8         13.4         13.4           1.00         1.00         1.00         0.20         22         960         428         321         489         496           0.28         0.77	85         706         69         58         569         69         77           0         0         0         0         0         0         0         0           1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.01         1.00         1.00         1.00         1.00         1.00         1.00           No         No         No         No         No         No         No         No           1781         1781         1811         1811         1811         1811         1811         1811         1796           89         735         46         60         327         333         80           1697         1692         1510         1725         1721         1748         1711           2.8         15.8         1.8         1.8         13.4         3.4         3.2           1.00         1.00         1.00         0.00	85         706         69         58         569         69         77         109           0         0         0         0         0         0         0         0         0           1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         0.96	85         706         69         58         569         69         77         109         69           0         0         0         0         0         0         0         0         0         0           1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           1.01         1.00         1.00         1.00         1.00         1.00         1.00           1.00         1.00         1.00         1.00         1.00         1.00         1.00           0.05         0.96         0.96         0.96         0.96         0.96         0.96         0.96           322         960         428         321         885         100         270         191           0.09         0.28         0.28         0.17         75         1721         1748         1711         1796         0           2.8         15.8         1.8         1.8         1.3         13	85       706       69       58       569       69       77       109       69       64         0	85       706       69       58       569       69       77       109       69       64       129         0

Notes
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings 8: SW 29th Ave Rd & Marion Oaks Trail

Existing Conditions Timing Plan: PM Peak Hour

	٦	>	$\mathbf{F}$	€	◄	×	1	1	1	5	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		\$			4			¢‡>			\$		
Traffic Volume (vph)	3	Ō	43	0	ò	0	60	11	0	0	13	0	
Future Volume (vph)	3	0	43	0	0	0	60	11	0	0	13	0	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	
Heavy Vehicles (%)	9%	9%	9%	2%	2%	2%	2%	2%	2%	8%	8%	8%	
Adj. Flow (vph)	4	0	53	0	0	0	74	14	0	0	16	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	57	0	0	0	0	0	88	0	0	16	0	
Sign Control		Stop			Stop			Free			Free		

Control Type: Unsignalized

#### HCM 6th TWSC 8: SW 29th Ave Rd & Marion Oaks Trail

6.5												
0.0												
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
	\$			4			4			\$		
3	0	43	0	0	0	60	11	0	0	13	0	
3	0	43	0	0	0	60	11	0	0	13	0	
0	0	0	0	0	0	0	0	0	0	0	0	
Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
-	-	None	-		None	-	-	None	<u>.</u>	-	None	
-	-	-	-	-	-	-	-	-	-	-	-	
-	0	-	-	0	-	-	0	-	-	0		
-		-	-		-	-		-	-		-	
81	81	81	81	81	81	81	81	81	81	81	81	
		-										
-1	ý		J	ÿ	Ŭ	1-1	1- <b>1</b>	J	5		v	
Minor2			Minor1			Major1			Major2			
178	178	16	205	178	14	16	0	0	14	0	0	
		-			-	-	-	-		-	-	
		-			-	-	-	-	-	-		
		6.29			6.22	4.12	-	-	4.18	-	-	
		-			-		-	-	-	-	-	
		-			-	-	_	-	-	-	-	
		3 381				2 218	-	-	2 272	-		
							-	-		-		
				-				-		-	-	
		-			_	-		_		-		
024	101		0/1	002			-	_		_		
7/1	670	1043	680	682	1066	1602	_		1566		_	
						1002	-	-	1000	-		
					-	-	-	-	-	•	•	
					-	-	-	-	-	-	-	
(0)	011	-	922	002	-	•	*	-	-	-	-	
EB			WB			NB			SB			
	neolup#rer#388				*********************		noosestatestatesta		0			<u>29 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1</u>
A			Ă			•						
	NRI	NRT	NBR	FBI n1	WBI n1	SBI	SBT	SBR				
						1000	-	-				
						- 0	-	-				
							-	-				
	А 0.1	А	-	0.2	A	A 0	-	-				
	3 3 0 Stop - - 81 9 4 <u>Minor2</u> 178 16 162 7.19 6.19 3.581 769 986 824 741 741 940 785 <u>EB</u> 8.8	4+         3         0           3         0         0           Stop         Stop         Stop           -         -         -           -         0         -           -         0         -           -         0         81         81           9         9         4         0           Minor2		4+           3         0         43         0           3         0         43         0           0         0         0         0         0           Stop         Stop         Stop         Stop         Stop           -         -         -         -         -           -         0         -         -         -           -         0         -         -         -           -         0         -         -         -           -         0         -         -         -           -         0         -         -         -           -         0         -         -         -           -         0         -         -         -           -         0         -         -         -           -         0         53         0         -           -         162         162         -         43           7.19         6.59         6.29         7.12         6.12         3.581           3.581         4.081         3.381         3.518         769         703         104	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4 $4$ $0$ $0$ 3         0         43         0         0         0           3         0         43         0         0         0           3         0         43         0         0         0           0         0         0         0         0         0           -         None         -         -         None           -         -         -         -         -         None           -         0         -         -         0         -         -           -         0         -         -         0         -         -         0         -           -         0         -         -         0         -         -         0         -           -         0         -         -         0         -         -         0         -           -         0         -         -         0         -         -         0         -           -         1612         153         0         0         0         0         0         0         0         0         0<	4 $4$ $0$ $0$ $60$ 3         0         43         0         0         0         60           3         0         43         0         0         0         60           0         0         0         0         0         0         0         0           -         -         -         -         -         None         -         -           -         0         -         -         0         -         -         -           -         0         -         -         0         -         -         -           0         -         -         0         -         -         -         -         -           0         -         -         0         -	4         4         4         6           3         0         43         0         0         0         60         11           3         0         43         0         0         0         60         11           3         0         43         0         0         0         60         11           0         0         0         0         0         0         0         0         0           Stop         Stop         Stop         Stop         Stop         Stop         Free         Free           -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -	4 $4$ $6$ $4$ 3         0         43         0         0         0         60         11         0           3         0         43         0         0         0         60         11         0           3         0         43         0         0         0         60         11         0           0         0         0         0         0         0         0         0         0         0           -         None         -         -         None         -         None         -         None           -         0         - <t< td=""><td>4 <math>4</math> <math>4</math> <math>4</math>           3         0         43         0         0         0         60         11         0         0           3         0         43         0         0         0         60         11         0         0           3         0         43         0         0         0         60         11         0         0           0         0         0         0         0         0         0         0         0         0           -         -         -         -         -         -         -         None         -</td><td>4         4         4         4         4         4         4         4           3         0         43         0         0         0         60         11         0         0         13           3         0         43         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         14         0         0         16         16         16         16         16         16         16         16         16</td><td>4 <math>4</math> <math>4</math> <math>4</math> <math>4</math> <math>4</math>           3         0         43         0         0         0         0         0         13         0           3         0         43         0</td></t<>	4 $4$ $4$ $4$ 3         0         43         0         0         0         60         11         0         0           3         0         43         0         0         0         60         11         0         0           3         0         43         0         0         0         60         11         0         0           0         0         0         0         0         0         0         0         0         0           -         -         -         -         -         -         -         None         -	4         4         4         4         4         4         4         4           3         0         43         0         0         0         60         11         0         0         13           3         0         43         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         -         -         0         14         0         0         16         16         16         16         16         16         16         16         16	4 $4$ $4$ $4$ $4$ $4$ 3         0         43         0         0         0         0         0         13         0           3         0         43         0

Existing Conditions Timing Plan: PM Peak Hour

#### D-148

# **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

## F7: PM Peak Hour Future Year Background Traffic Conditions (2027)

# Lanes, Volumes, Timings 1: Marion Oaks Blvd & CR 484

**Background Conditions** Timing Plan: PM Peak Hour

	-+	$\mathbf{F}$	Ŧ	<b>4</b>	1	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>≜</b> †}		ሻሻ	<u>†</u> †	٢	11	
Traffic Volume (vph)	1247	227	655	1487	151	497	
Future Volume (vph)	1247	227	655	1487	151	497	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	6%	6%	4%	4%	4%	4%	
Adj. Flow (vph)	1299	236	682	1549	157	518	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1535	0	682	1549	157	518	
Turn Type	NA		Prot	NA	Prot	pm+ov	
Protected Phases	6		5	2	4	. 5	
Permitted Phases						4	
Detector Phase	6		5	2	4	5	
Switch Phase							
Minimum Initial (s)	15.0		10.0	15.0	10.0	10.0	
Minimum Split (s)	21.8		16.8	21.8	18.5	16.8	
Total Split (s)	87.0		53.0	140.0	40.0	53.0	
Total Split (%)	48.3%		29.4%	77.8%	22.2%	29.4%	
Yellow Time (s)	4.8		4.8	4.8	4.8	4.8	
All-Red Time (s)	2.0		2.0	2.0	3.7	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8		6.8	6.8	8.5	6.8	
Lead/Lag	Lag		Lead			Lead	
Lead-Lag Optimize?	Yes		Yes			Yes	
Recall Mode	Min		None	Min	None	None	
v/c Ratio	0.92		0.85	0.57	0.73	0.45	
Control Delay	47.8		69.8	8.4	88.6	32.0	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	47.8		69.8	8.4	88.6	32.0	
Queue Length 50th (ft)	778		356	301	163	205	
Queue Length 95th (ft)	#1115		459	437	256	259	
Internal Link Dist (ft)	1332			3183	1673		
Turn Bay Length (ft)			360		114		
Base Capacity (vph)	1670		969	2880	340	1289	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	Ő		Ō	Ō	0	0	
Storage Cap Reductn	Ó		0	0	0	0	
Reduced v/c Ratio	0.92		0.70	0.54	0.46	0.40	

Intersection Summary Cycle Length: 180 Actuated Cycle Length: 161.4

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 1: Marion Oaks Blvd & CR 484

Ø2		<b>1</b> 04
140 s		40 s
<b>1</b> 05	<b>→</b> Ø6	
53 s	875	

### D-149

#### HCM 6th Signalized Intersection Summary 1: Marion Oaks Blvd & CR 484

Background Conditions	

D-150

Timing Plan: PM Peak Hour

		$\mathbf{F}$	¥		4	1	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>۴</b> ħ		ኻኻ	<b>†</b> †	۲	11	
Traffic Volume (veh/h)	1247	227	655	1487	151	497	
Future Volume (veh/h)	1247	227	655	1487	151	497	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1811	1811	1841	1841	1841	1841	
Adj Flow Rate, veh/h	1299	0	682	1549	157	518	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	6	6	4	4	4	4	
Cap, veh/h	1506		773	2503	299	1092	
Arrive On Green	0.44	0.00	0.23	0.72	0.17	0.17	
Sat Flow, veh/h	3622	0	3401	3589	1753	2745	
Grp Volume(v), veh/h	1299	0	682	1549	157	518	
Grp Sat Flow(s),veh/h/ln	1721	Ő	1700	1749	1753	1373	
Q Serve(g_s), s	45.8	0.0	26.0	30.4	11.0	18.8	
Cycle Q Clear(g_c), s	45.8	0.0	26.0	30.4	11.0	18.8	
Prop in Lane	10.0	0.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1506	0.00	773	2503	299	1092	
V/C Ratio(X)	0.86		0.88	0.62	0.53	0.47	
Avail Cap(c_a), veh/h	2054		1169	3467	411	1268	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	34.1	0.0	50.2	9.8	50.8	30.0	
Incr Delay (d2), s/veh	3.0	0.0	5.5	0.3	1.4	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	18.8	0.0	11.7	10.8	5.0	15.5	
Unsig. Movement Delay, s/veh	.0.0	0.0	11.1	10.0	0.0	10.0	
LnGrp Delay(d),s/veh	37.1	0.0	55.7	10.0	52.2	30.4	
LnGrp LOS	D	0.0	E	B	D	C	
Approach Vol, veh/h	1299	A		2231	675	· · · ·	
Approach Delay, s/veh	37.1			24.0	35.4		
Approach LOS	D			C	D		
Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		103.0		31.4	37.3	65.6	이 가지 방법을 하는 것은 것을 할 수 있는 것 같은 것 같은 것이 있는 것 같은
Change Period (Y+Rc), s		6.8		* 8.5	6.8	6.8	
Max Green Setting (Gmax), s		133.2		* 32	46.2	80.2	
Max Q Clear Time (g_c+l1), s		32.4		20.8	28.0	47.8	
Green Ext Time (p_c), s		21.9		2.1	2.5	11.0	
Intersection Summary							
HCM 6th Ctrl Delay			29.9				······································
HCM 6th LOS			С				
Notes							

Notes
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

### Lanes, Volumes, Timings

2: CR 484 & SW 29t	h Áve Ro								Timing Plan: PM Peak Hour
	1	۶	-+	F	◄	×.	1	4	
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR	
Lane Configurations		ሻ	<b>^</b>		<b>↑</b> ₽		¥		
Traffic Volume (vph)	1	29	1763	2	1609	58	0	71	
Future Volume (vph)	1	29	1763	2	1609	58	0	71	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	7%	7%	
Adj. Flow (vph)	1	30	1836	2	1676	60	0	74	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	31	1836	0	1738	0	74	0	
Sign Control			Free		Free		Stop		

Intersection Summary Control Type: Unsignalized

### D-151

**Background Conditions** 

#### HCM 6th TWSC 2: CR 484 & SW 29th Ave Rd

KHA

January 2023

ntersection nt Delay, s/veh	0.6					na odstater og det som			
en e									
Novement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR	
ane Configurations		٦	11	-	<b>↑</b> ₽		Y		
raffic Vol, veh/h	1	29	1763	2	1609	58	0	71	
Future Vol, veh/h	1	29	1763	2	1609	58	0	71	
Conflicting Peds, #hr	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	None	
Storage Length	-	144	-	-	-	-	0	-	
/eh in Median Storage, #	-	-	0	-	0	-	1	-	
Grade, %	-	•	0	-	0	-	0	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	7	7	7	4	4	4	7	7	
Mvmt Flow	1	30	1836	2	1676	60	0	74	
			where the state of t	Contraction of the local				ani esse Mercile Bergelsen dar	
Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	1736	1736	0	1836	-	0	2690	868	
Stage 1	-	-	-	-	-	-	1710	-	
Stage 2	-	-	-	-	-	-	980	-	
Critical Hdwy	6.54	4.24	-	6.48	-	-	6.94	7.04	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.94	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.94	-	
Follow-up Hdwy	2.57	2.27	-	2.54	-	-	3.57	3.37	
ot Cap-1 Maneuver	104	338	-	93	-	-	16	286	
Stage 1	-	-	-	-	-	-	125	-	
Stage 2	-	-	-	-	-	-	313	-	
Platoon blocked, %			-		-	-			
Nov Cap-1 Maneuver	304	304	-	93	-	-	4	286	
Nov Cap-2 Maneuver	-		-	-	-	-	43	-	
Stage 1	-	-	-	_	-	-	112	-	
Stage 2	-	-	-	-	-	-	78	-	
		ksisisisisisisisisisi			Service and the service of the				
pproach	EB			WB			SB		
ICM Control Delay, s	0.3			0.1			21.9		
ICM LOS							С		
/inor Lane/Major Mvmt		EBL	EBT	WBT	WBR	SBLn1			
Capacity (veh/h)		304	•	-	-	286			
ICM Lane V/C Ratio		0.103	-		-	0.259			
ICM Control Delay (s)		18.2	-	-	-	21.9			
ICM Lane LOS		10.2 C	-	_	_	21.3 C			

# D-152

**Background Conditions** Timing Plan: PM Peak Hour

#### Lanes, Volumes, Timings

3: SW 20th Ave Rd & CR 484

**Background Conditions** Timing Plan: PM Peak Hour

	٦		$\mathbf{\hat{z}}$	¥	◄	×.	1	1	1	1	Ļ	-	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	<b>≜</b> †₽		۲	<b>††</b>	۴		ፋፑ		ሻ	1	۲	
Traffic Volume (vph)	75	1797	67	270	2273	209	96	23	317	448	46	72	
Future Volume (vph)	75	1797	67	270	2273	209	96	23	317	448	46	72	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	11%	11%	11%	13%	13%	13%	
Adj. Flow (vph)	81	1932	72	290	2444	225	103	25	341	482	49	77	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	81	2004	0	290	2444	225	0	469	0	482	49	77	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	Perm	
Protected Phases	1	6		5	2			4			8		
Permitted Phases	6			2		2	4			8		8	
Detector Phase	1	6		5	2	2	4	4		8	8	8	
Switch Phase													
Minimum Initial (s)	10.0	15.0		10.0	15.0	15.0	10.0	10.0		10.0	10.0	10.0	
Minimum Split (s)	17.0	21.9		17.3	21.9	21.9	16.6	16.6		16.6	16.6	16.6	
Total Split (s)	25.0	121.0		25.0	121.0	121.0	34.0	34.0		34.0	34.0	34.0	
Total Split (%)	13.9%	67.2%		13.9%	67.2%	67.2%	18.9%	18.9%		18.9%	18.9%	18.9%	
Yellow Time (s)	4.8	4.9		4.8	4.9	4.9	4.0	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.2	2.0		2.5	2.0	2.0	2.6	2.6		2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0	6.9		7.3	6.9	6.9		6.6		6.6	6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes							
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None	
v/c Ratio	0.53	0.93		1.38	1.05	0.21		0.94dr		11.21	0.19	0.27	
Control Delay	48.0	38.7		219.2	46.0	4.9		70.4		4645.2	68.9	14.7	
Queue Delay	0.0	0.0		0.0	12.0	0.0		0.0		0.0	0.0	0.0	
Total Delay	48.0	38.7		219.2	58.0	4.9		70.4		4645.2	68.9	14.7	
Queue Length 50th (ft)	44	1071		~408	~1633	42		198		~1090	51	0	
Queue Length 95th (ft)	103	1206		m#408	m#1667	m42		#304		#1332	97	54	
Internal Link Dist (ft)		3132			1240			650			1393		
Turn Bay Length (ft)	114			170		144				114			
Base Capacity (vph)	210	2149		210	2318	1059		518		43	255	282	
Starvation Cap Reductn	.0	0		0	62	0		0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0		0	0	0	
Storage Cap Reductn	0	0		0	0	0		0		0	0	0	
Reduced v/c Ratio	0.39	0.93		1.38	1.08	0.21	1971 (1991 (1992 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997 (1997	0.91		11.21	0.19	0.27	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180 Offset: 77 (43%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

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.

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 3: SW 20th Ave Rd & CR 484

_▲ Ø1	Ø2 (R)	¶ø4
25 s	1215	34 c
<b>√</b> øs	→Ø6 (R)	ØS
25 s	1215	346

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

Background Conditions
Timing Plan: PM Peak Hour

D-154

Lane Configurations Traffic Volume (veh/h) Future Volume (veh/h) Initial Q (Qb), veh Ped-Bike Adj(A_pbT) 1 Parking Bus, Adj 1 Nork Zone On Approach Adj Sat Flow, veh/h Peak Hour Factor 0 Percent Heavy Veh, % Cap, veh/h 17 Grp Volume(v), veh/h 17 Grp Volume(v), veh/h 17 Grp Sat Flow(s),veh/h/in 17 Q Serve(g_s), s Cycle Q Clear(g_c), s Prop In Lane 1 Ane Grp Cap(c), veh/h 1 //C Ratio(X) 0 Avail Cap(c_a), veh/h 2	.00 .00 1.0 N 811 181 81 193 .93 0.9	7       67         7       67         7       67         0       0         1.00       1.00         0       1.00         0       1.00         0       0.03         6       6         9       76         4       0.84         0       120         5       1026         1       1789	WBL 2700 0 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.	WBT           ↑↑           2273           2273           0           1.00           No           1841           2444           0.93           4           2376           0.90           3497	WBR 7 209 0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 4 1060 0.90	NBL 96 96 1.00 1.00 1.00 1737 103 0.93 11 164 0.15	NBT 4 ♣ 23 23 0 1.00 No 1737 25 0.93 11 31	NBR 317 317 0 1.00 1.00 1.00 1737 144 0.93 11 204	SBL           *           448           448           0           1.00	SBT	SBR 72 72 0 1.00 1.00 1.00 1707 77 0.93 13	
Traffic Volume (veh/h)         Future Volume (veh/h)         Initial Q (Qb), veh         Ped-Bike Adj(A_pbT)       1         Parking Bus, Adj       1         Mork Zone On Approach       Adj Sat Flow, veh/h/ln       18         Adj Sat Flow, veh/h/In       18         Peak Hour Factor       0         Peacet Heavy Veh, %       2         Cap, veh/h       17         Grp Volume(v), veh/h       17         Grp Sat Flow(s),veh/h/In       17         Q Serve(g_s), s       2         Cycle Q Clear(g_c), s       3         Prop In Lane       1         Artio(X)       0         Avail Cap(c_a), veh/h       1	75 179 75 179 0 00 1.0 N01 181 81 193 93 0.9 6 34 214 07 0.8 25 339 81 97 25 172 3.9 64.	7         67           7         67           0         0           1.00         0           0         1.00           0         1.00           0         1.00           0         0.03           6         6           9         76           4         0.84           0         120           5         1026           1         1789	270 270 0 1.00 1.00 1.00 1.00 1.00 1.00 0.93 4 266 0.13 1753 290	2273 2273 0 1.00 No 1841 2444 0.93 4 2376 0.90	209 209 0 1.00 1.00 1841 225 0.93 4 1060	96 0 1.00 1.00 1737 103 0.93 11 164	23 23 0 1.00 No 1737 25 0.93 11	317 0 1.00 1.00 1737 144 0.93 11	448 448 0 1.00 1.00 1707 482 0.93 13	46 46 0 1.00 No 1707 49 0.93 13	72 72 0 1.00 1.00 1707 77 0.93 13	
Future Volume (veh/h)           Initial Q (Qb), veh           Ped-Bike Adj(A_pbT)         1           Parking Bus, Adj         1           Mork Zone On Approach         A           Adj Sat Flow, veh/h/ln         18           Adj Sat Flow, veh/h/ln         18           Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         17           Grp Volume(v), veh/h         17           Grp Sat Flow(s),veh/h/ln         17           Q Serve(g_s), s         5           Cycle Q Clear(g_c), s         5           Prop In Lane         1           //C Ratio(X)         0           Avail Cap(c_a), veh/h         1	75 179 0 .00 .00 1.0 811 181 81 193 93 0.9 6	7         67           0         0           1.00         1.00           0         1.00           0         1.00           0         0           1         1811           2         69           3         0.93           6         6           9         76           4         0.84           0         120           5         1026           1         1789	270 0 1.00 1841 290 0.93 4 266 0.13 1753 290	2273 0 1.00 No 1841 2444 0.93 4 2376 0.90	209 0 1.00 1.00 1841 225 0.93 4 1060	96 0 1.00 1.00 1737 103 0.93 11 164	23 0 1.00 No 1737 25 0.93 11	317 0 1.00 1.00 1737 144 0.93 11	448 0 1.00 1.00 1707 482 0.93 13	46 0 1.00 No 1707 49 0.93 13	72 0 1.00 1.00 1707 77 0.93 13	
nitial Q (Qb), veh           Ped-Bike Adj(A_pbT)         1           Parking Bus, Adj         1           Nork Zone On Approach         1           Adj Sat Flow, veh/h/In         18           Adj Flow Rate, veh/h         1           Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         17           Arrive On Green         0           Sat Flow, veh/h         17           Grp Volume(v), veh/h         17           Grp Sat Flow(s),veh/h/In         17           Q Serve(g_s), s         2           Cycle Q Clear(g_c), s         2           Prop In Lane         1           //C Ratio(X)         0           Avail Cap(c_a), veh/h         1	0 00 1.00 1.0 N 1.1 1.1 1.1 1.1 1.1 1.1 1.1	0 0 1.00 0 1.00 0 1 1811 2 69 3 0.93 6 6 6 6 9 76 4 0.84 0 120 5 1026 1 1789	0 1.00 1.00 1841 290 0.93 4 266 0.13 1753 290	0 1.00 No 1841 2444 0.93 4 2376 0.90	0 1.00 1.00 1841 225 0.93 4 1060	0 1.00 1.00 1737 103 0.93 11 164	0 1.00 No 1737 25 0.93 11	0 1.00 1.00 1737 144 0.93 11	0 1.00 1.00 1707 482 0.93 13	0 1.00 No 1707 49 0.93 13	0 1.00 1.00 1707 77 0.93 13	
Ped-Bike Adj(A_pbT)         1           Parking Bus, Adj         1           Parking Bus, Adj         1           Nork Zone On Approach         1           Adj Sat Flow, veh/h/In         18           Adj Sat Flow, veh/h         1           Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         17           Strip Volume(v), veh/h         17           Srp Volume(v), veh/h         17           Spr Sat Flow(s),veh/h/in         17           Sycle Q Clear(g_c), s         2           Yopo In Lane         1           .ane Grp Cap(c), veh/h         1           .ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           Avail Cap(c_a), veh/h         2	00 1.00 1.0 1.0 1.0 N 1.1 1.81 193 93 0.9 6 34 214 07 0.8 25 339 81 97 25 172 3.9 64.	1.00 1.00 1.00 1.00 1.00 1.00 0.03 1.00 0.03 1.00 0.03 1.00 0.03 1.00 0.03 1.00 0.93 1.00	1.00 1.00 1841 290 0.93 4 266 0.13 1753 290	1.00 No 1841 2444 0.93 4 2376 0.90	1.00 1.00 1841 225 0.93 4 1060	1.00 1.00 1737 103 0.93 11 164	1.00 No 1737 25 0.93 11	1.00 1.00 1737 144 0.93 11	1.00 1.00 1707 482 0.93 13	1.00 No 1707 49 0.93 13	1.00 1.00 1707 77 0.93 13	
Parking Bus, Adj         1           Work Zone On Approach         1           Adj Sat Flow, veh/h/In         18           Adj Flow Rate, veh/h         1           Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         1           Arrive On Green         0           Sat Flow, veh/h         17           Grp Volume(v), veh/h         17           Grp Volume(v), veh/h         17           Q Serve(g_s), s         2           Cycle Q Clear(g_c), s         2           Prop In Lane         1           .ane Grp Cap(c), veh/h         1           .ane Grp Cap(c), veh/h         1           .ane Grp Cap(c), veh/h         2           .ane Grp Cap(c), veh/h         2           .ane Grp Cap(c), veh/h         2           .ane Grp Cap(c), veh/h         2	.00         1.0           N         N           111         181           81         193           93         0.9           6         34           214         07         0.8           25         339           81         97           25         172           3.9         64.	0 1.00 0 1.01 1 1811 2 69 3 0.93 6 6 9 76 4 0.84 0 120 5 1026 1 1789	1.00 1841 290 0.93 4 266 0.13 1753 290	No 1841 2444 0.93 4 2376 0.90	1.00 1841 225 0.93 4 1060	1.00 1737 103 0.93 11 164	No 1737 25 0.93 11	1.00 1737 144 0.93 11	1.00 1707 482 0.93 13	No 1707 49 0.93 13	1.00 1707 77 0.93 13	
Nork Zone On Approach           Adj Sat Flow, veh/h/ln         18           Adj Flow Rate, veh/h         18           Peak Hour Factor         0           Percent Heavy Veh, %         2ap, veh/h           Zap, veh/h         17           Sat Flow, veh/h         17           Grow, veh/h         17           Grp Volume(v), veh/h         17           Srp Volume(v), veh/h         17           Scrve(g_s), s         2           Cycle Q Clear(g_c), s         2           Crop In Lane         1           .ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           Avail Cap(c_a), veh/h         2	N 111 181 81 193 93 0.9 6 34 214 07 0.8 25 339 81 97 25 172 3.9 64.	0 1 1811 2 69 3 0.93 6 6 9 76 4 0.84 0 120 5 1026 1 1789	1841 290 0.93 4 266 0.13 1753 290	No 1841 2444 0.93 4 2376 0.90	1841 225 0.93 4 1060	1737 103 0.93 11 164	No 1737 25 0.93 11	1737 144 0.93 11	1707 482 0.93 13	No 1707 49 0.93 13	1707 77 0.93 13	
Adj Sat Flow, veh/h/ln         18           Adj Flow Rate, veh/h         1           Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         1           Arrive On Green         0           Sat Flow, veh/h         17           Grp Volume(v), veh/h         17           Srp Volume(v), veh/h         17           Scrue(g_s), s         2           Cycle Q Clear(g_c), s         2           Prop In Lane         1           .ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           Avail Cap(c_a), veh/h         2	811         181           81         193           93         0.9           6         34           214         07           07         0.8           25         339           81         97           25         172           3.9         64.	1         1811           2         69           3         0.93           6         6           9         76           4         0.84           0         120           5         1026           1         1789	290 0.93 4 266 0.13 1753 290	1841 2444 0.93 4 2376 0.90	225 0.93 4 1060	103 0.93 11 164	1737 25 0.93 11	144 0.93 11	482 0.93 13	1707 49 0.93 13	77 0.93 13	
Adj         Flow Rate, veh/h           Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         1           Arrive On Green         0           Sar Flow, veh/h         17           Grp Volume(v), veh/h         17           Grp Volume(v), veh/h         17           Scrue(g_s), s         2           Cycle Q Clear(g_c), s         2           Crop In Lane         1           .ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           vvail Cap(c_a), veh/h         2	81         193           93         0.9           6	2 69 3 0.93 6 6 9 76 4 0.84 0 120 5 1026 1 1789	290 0.93 4 266 0.13 1753 290	2444 0.93 4 2376 0.90	225 0.93 4 1060	103 0.93 11 164	25 0.93 11	144 0.93 11	482 0.93 13	49 0.93 13	77 0.93 13	
Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         1           Arrive On Green         0           Sar Flow, veh/h         17           Srp Volume(v), veh/h         17           Srp Volume(v), veh/h         17           Srp Volume(v), veh/h         17           Screve(g_s), s         2           Cycle Q Clear(g_c), s         2           Prop In Lane         1           Anne Grp Cap(c), veh/h         1           //C Ratio(X)         0           vail Cap(c_a), veh/h         2	93         0.9           6	3         0.93           6         6           9         76           4         0.84           0         120           5         1026           1         1789	0.93 4 266 0.13 1753 290	0.93 4 2376 0.90	0.93 4 1060	0.93 11 164	0.93 11	0.93 11	0.93 13	0.93 13	0.93 13	
Peak Hour Factor         0           Percent Heavy Veh, %         2           Cap, veh/h         1           Arrive On Green         0           Sar Flow, veh/h         17           Srp Volume(v), veh/h         17           Srp Volume(v), veh/h         17           Srp Volume(v), veh/h         17           Screve(g_s), s         2           Cycle Q Clear(g_c), s         2           Prop In Lane         1           Anne Grp Cap(c), veh/h         1           //C Ratio(X)         0           vail Cap(c_a), veh/h         2	6 34 214 07 0.8 25 339 81 97 25 172 3.9 64.	3         0.93           6         6           9         76           4         0.84           0         120           5         1026           1         1789	4 266 0.13 1753 290	0.93 4 2376 0.90	0.93 4 1060	0.93 11 164	0.93 11	0.93 11	13	13	0.93 13	
Percent Heavy Veh, %           Cap, veh/h         1           vrrive On Green         0           sat Flow, veh/h         17           Srp Volume(v), veh/h         17           Srp Sat Flow(s),veh/h/in         17           Syste Q(g_s), s         5           Cycle Q Clear(g_c), s         5           rop In Lane         1           ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           vvail Cap(c_a), veh/h         2	6 34 214 07 0.8 25 339 81 97 25 172 3.9 64.	6 6 9 76 4 0.84 0 120 5 1026 1 1789	4 266 0.13 1753 290	4 2376 0.90	4 1060	11 164	11	11	13	13	13	
Cap, veh/h         1           vrrive On Green         0           Strp Flow, veh/h         17           Strp Volume(v), veh/h         17           Strp Volume(v), veh/h/in         17           Strp Sat Flow(s),veh/h/in         17           Q Serve(g_s), s         5           Sycle Q Clear(g_c), s         5           Strop In Lane         1           ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           vvail Cap(c_a), veh/h         2	34         214           .07         0.8           .25         .339           .81         .97           .25         .172           .3.9         .64.	9 76 4 0.84 0 120 5 1026 1 1789	266 0.13 1753 290	2376 0.90	1060	164						
Nrrive On Green         0           Sat Flow, veh/h         17           Srp Volume(v), veh/h         17           Srp Sat Flow(s),veh/h/in         17           Q Serve(g_s), s         2           Cycle Q Clear(g_c), s         2           Prop In Lane         1           ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           vvail Cap(c_a), veh/h         2	07 0.8 25 339 81 97 25 172 3.9 64.	4 0.84 0 120 5 1026 1 1789	0.13 <u>1753</u> 290	0.90			ν,		96	260	220	
Sat Flow, veh/h         17           Grp Volume(v), veh/h         17           Grp Sat Flow(s),veh/h/in         17           Q Serve(g_s), s         17           Cycle Q Clear(g_c), s         17           Prop In Lane         1           Lane Grp Cap(c), veh/h         1           //C Ratio(X)         0           Avail Cap(c_a), veh/h         2	25 339 81 97 25 172 3.9 64.	0 <u>120</u> 5 1026 1 1789	1753 290		0.00	0.35	0.15	0.15	0.15	0.15	0.15	
Grp Volume(v), veh/h         17           Grp Sat Flow(s),veh/h/in         17           Q Serve(g_s), s         17           Cycle Q Clear(g_c), s         17           Prop In Lane         1           Lane Grp Cap(c), veh/h         1           V/C Ratio(X)         0           Avail Cap(c_a), veh/h         2	81 97 25 172 3.9 64.	5 1026 1 1789	290	0707	1560	843	205	1340	1110	1707	1447	
Srp Sat Flow(s),veh/h/in         17           Q Serve(g_s), s         2           Cycle Q Clear(g_c), s         2           Prop In Lane         1           Lane Grp Cap(c), veh/h         1           //C Ratio(X)         0           Avail Cap(c_a), veh/h         2	25 172 3.9 64.	1 1789		2444			0			49	77	···
2 Serve(g_s), s Cycle Q Clear(g_c), s Prop In Lane 1 .ane Grp Cap(c), veh/h 1 //C Ratio(X) 0 Avail Cap(c_a), veh/h 2	3.9 64.		4759	2444	225	128	-	144	482			
Cycle Q Clear(g_c), s         5           Prop In Lane         1           .ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           \varil Cap(c_a), veh/h         2			1753	1749	1560	1047	0	1340	1110	1707	1447	
Prop In Lane         1           .ane Grp Cap(c), veh/h         1           //C Ratio(X)         0           \varil Cap(c_a), veh/h         2	KM 64		17.7	122.3	3.1	17.9	0.0	18.4	9.0	4.5	8.6	
ane Grp Cap(c), veh/h 1 //C Ratio(X) 0 .vail Cap(c_a), veh/h 2			17.7	122.3	3.1	22.4	0.0	18.4	27.4	4.5	8.6	
//C Ratio(X) 0. vail Cap(c_a), veh/h 2	00	0.07	1.00		1.00	0.80		1.00	1.00		1.00	
vail Cap(c_a), veh/h 2	34 109		266	2376	1060	196	0	204	96	260	220	
	60 0.8		1.09	1.03	0.21	0.65	0.00	0.71	5.04	0.19	0.35	
ICM Platoon Ratio 1.	12 109	1 1134	266	2376	1060	196	0	204	96	260	220	
	.33 1.3	3 1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Jpstream Filter(I) 1.	.00 1.0	0 1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	1.00	1.00	
Jniform Delay (d), s/veh 5	2.1 10.	3 10.5	54.2	8.7	2.9	76.4	0.0	72.5	87.4	66.6	68.3	
ncr Delay (d2), s/veh	5.1 11.	2 11.8	46.5	15.0	0.0	10.3	0.0	13.2	1841.2	0.7	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	
	2.5 15.		14.8	10.6	0.9	6.3	0.0	7.1	53.4	2.0	3.3	
Insig. Movement Delay, s/veh		· ···-				•.•	•.•		••••		•.•	
	3.2 21.	5 22.3	100.7	23.7	3.0	86.6	0.0	85.7	1928.6	67.3	70.3	
nGrp LOS		C C	100.7 F	23.7 F	3.0 A	00.0 F	0.0 A	50.7 F	1320.0 F	57.5 E	70.5 E	
Approach Vol, veh/h	208			2959	Л		272	,		608	<u> </u>	
pproach Delay, s/veh	23.			29.7			86.1			1543.3		
pproach LOS	(		<u>с</u>	C			F			۰F		
imer - Assigned Phs	a sub-rate and the state of the state of the	2	4	5	6		8					
	5.8 129.		34.0	25.0	121.0		34.0					
<b>e</b> , <i>n</i>	*7 6.		6.6	7.3	6.9		6.6					
fax Green Setting (Gmax), s *	18 114.	1	27.4	17.7	114.1		27.4					
Max Q Clear Time (g_c+l1), s	5.9 124.	3	24.4	19.7	70.3		29.4					
Green Ext Time (p_c), s	0.2 0.	)	0.7	0.0	37.9		0.0					
ntersection Summary												
ICM 6th Ctrl Delay		185.5								<u>,</u>		
ICM 6th LOS		165.5 F										

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings

Lane Group

4: CR 484 & I-75 SB Off-Ramp

gs ff-Ram	р										-	d Conditions
۶	<b>→</b>	$\mathbf{F}$	4	<b></b>	×.	•	t	1	1	ţ	~	
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
0	<b>1117</b> 1996	421	<b>1</b> 139	<b>††</b> 2050	0	0	0	0	<b>"i</b> 380	4 0	712	

Lane oroup	and the second	L U I			1101	30012	3144	14171	14011	UUL		- wwi	
Lane Configurations		4111		٢	<b>*</b>					ሻ	र्भ	11	
Traffic Volume (vph)	0	1996	421	139	2050	0	0	0	0	380	0	712	
Future Volume (vph)	0	1996	421	139	2050	0	0	0	0	380	0	712	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	0%	0%	0%	7%	7%	7%	
Adj. Flow (vph)	0	2170	458	151	2228	0	0	Ó	0	413	0	774	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	0	2628	0	151	2228	0	0	0	0	206	207	774	
Turn Type		NA		Prot	NA					Split	NA	Prot	
Protected Phases		6		5	2					4	4	4	
Permitted Phases													
Detector Phase		6		5	2					4	4	4	
Switch Phase													
Minimum Initial (s)		18.0		7.0	18.0					7.0	7.0	7.0	
Minimum Split (s)		25.4		17.9	25.4					18.3	18.3	18.3	
Total Split (s)		93.0		27.0	120.0					60.0	60.0	60.0	
Total Split (%)		51.7%		15.0%	66.7%					33.3%	33.3%	33.3%	
Yellow Time (s)		5.4		5.4	5.4					4.1	4.1	4.1	
All-Red Time (s)		2.0		2.0	2.0					2.9	2.9	2.9	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0	
Total Lost Time (s)		7.4		7.4	7.4					7.0	7.0	7.0	
Lead/Lag		Lead		Lag									
Lead-Lag Optimize?		Yes		Yes									
Recall Mode		Min		Min	C-Min					None	None	None	
v/c Ratio		0.93		0.81	1.03					0.45	0.45	0.95	
Control Delay		47.0		78.7	60.6					55.6	55.7	77.1	
Queue Delay		2.1		0.0	29.8					0.0	0.0	0.5	
Total Delay		49.1		78.7	90.4					55.6	55.7	77.6	
Queue Length 50th (ft)		793		162	~795					209	210	470	
Queue Length 95th (ft)		m615		m214	#1575					301	303	#610	
Internal Link Dist (ft)		1240			424			1185			1125		
Turn Bay Length (ft)										325		475	
Base Capacity (vph)		2831		187	2170					471	471	832	
Starvation Cap Reductn		0		0	397					0	0	0	
Spillback Cap Reductn		112		0	296					0	0	5	
Storage Cap Reductn		0		0	0					0	0	0	
Reduced v/c Ratio		0.97		0.81	1.26					0.44	0.44	0.94	
Intersection Summary													

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180 Offset: 58 (32%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

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.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: CR 484 & I-75 SB Off-Ramp

← Ø2 (R)	Ş	\$₽@4
120 s		60 s
•Ø6	<b>√</b> Ø5	
93 s	27 s	

#### HCM 6th Signalized Intersection Summary 4: CR 484 & I-75 SB Off-Ramp

**Background Conditions** Timing Plan: PM Peak Hour

	۶	-+	$\mathbf{\hat{v}}$	4		×.	1	Ť	1	1	Ŧ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		tttp		٦	<b>^</b>					ኘ	र्भ	77	
Traffic Volume (veh/h)	0	1996	421	139	2050	0	0	0	0	380	0	712	
Future Volume (veh/h)	0	1996	421	139	2050	0	0	0	0	380	0	712	
nitial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Vork Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/In	0	1767	1767	1826	1826	0				1796	1796	1796	
Adj Flow Rate, veh/h	0	2170	0	151	2228	0				413	0	774	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92	
ercent Heavy Veh, %	0	9	9	5	5	0				7	7	7	
Cap, veh/h	0	2561	-	319	2240	Ö				938	Ó	835	
Arrive On Green	0.00	0.56	0.00	0.24	0.86	0.00				0.27	0.00	0.27	
Sat Flow, veh/h	0	6572	0	1739	3561	0				3421	0	3045	
Grp Volume(v), veh/h	0	2170	0	151	2228	0				413	0	774	<u>,, , , , , , , , , , , , , , , , , , ,</u>
Srp Sat Flow(s),veh/h/ln	ŏ	1519	Ő	1739	1735	ŏ				1711	ŏ	1522	
Q Serve(g_s), s	0.0	53.8	0.0	13.4	111.9	0.0				17.9	0.0	44.5	
Cycle Q Clear(g_c), s	0.0	53.8	0.0	13.4	111.9	0.0				17.9	0.0	44.5	
rop In Lane	0.00	33.0	0.00	1.00	111.9	0.00				1.00	0.0	1.00	
ane Grp Cap(c), veh/h	0.00	2561	0.00	319	2240	0.00				938	0	835	
//C Ratio(X)	0.00	0.85		0.47	0.99	0.00				0.44	0.00	0.93	
vail Cap(c_a), veh/h	0.00	2890		319	2240	0.00				1007	0.00	0.93 896	
ICM Platoon Ratio	1.00	1.33	1.33	1.33							1.00		
lpstream Filter(I)	0.00	0.09		0.40	1.33 0.40	1.00 0.00				1.00 1.00		1.00	
• • • • • • • • • • • • • • • • • • • •			0.00								0.00		
Iniform Delay (d), s/veh	0.0	34.7	0.0	60.6	12.4	0.0				53.9	0.0	63.6	
ncr Delay (d2), s/veh	0.0	0.2	0.0	0.6	10.8	0.0				0.3	0.0	14.8	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0	
/ile BackOfQ(50%),veh/In	0.0	17.8	0.0	5.7	21.2	0.0				7.8	0.0	35.1	
Insig. Movement Delay, s/veh						• •							
nGrp Delay(d),s/veh	0.0	34.9	0.0	61.3	23.2	0.0				54.2	0.0	78.4	
nGrp LOS	A	C		E	C	Α				D	A	E	
pproach Vol, veh/h		2170	A		2379						1187		
pproach Delay, s/veh		34.9			25.7						70.0		
pproach LOS		C			C						E		
imer - Assigned Phs		2		4	5	6							
hs Duration (G+Y+Rc), s		123.6	·	56.4	40.4	83.2			te traction	1.1	1.1.1	1.1.1.1.1.1	
hange Period (Y+Rc), s		7.4		7.0	7.4	7.4							
lax Green Setting (Gmax), s		112.6		53.0	19.6	85.6							
lax Q Clear Time (g_c+l1), s		113.9		46.5	15.4	55.8							
Green Ext Time (p_c), s		0.0		2.8	0.2	20.0							
ntersection Summary													
ICM 6th Ctrl Delay			38.3						A				
ICM 6th LOS			D										
			-										

Notes
User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement. Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings

5: I-75 NB Off-Ramp & CR 484

Background Conditions Timing Plan: PM Peak Hour

	٦		$\mathbf{F}$	¥	←	•	•	Ť	1	1	ŧ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	<u>ار ار ا</u>	<u>†</u> †			111	7	ሻ	र्भ	1				
Traffic Volume (vph)	459	1869	0	0	1650	285	510	Ō	270	0	0	0	
Future Volume (vph)	459	1869	0	0	1650	285	510	0	270	0	0	0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	9%	9%	9%	0%	0%	0%	
Adj. Flow (vph)	478	1947	0	0	1719	297	531	0	281	0	0	0	
Shared Lane Traffic (%)							50%						
Lane Group Flow (vph)	478	1947	0	0	1719	297	265	266	281	0	0	0	
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm				
Protected Phases	1	6			2		4	4					
Permitted Phases						2			4				
Detector Phase	1	6			2	2	4	4	4				
Switch Phase													
Minimum Initial (s)	7.0	20.0			20.0	20.0	7.0	7.0	7.0				
Minimum Split (s)	14.2	26.9			26.9	26.9	13.5	13.5	13.5				
Total Split (s)	51.0	130.0			79.0	79.0	50.0	50.0	50.0				
Total Split (%)	28.3%	72.2%			43.9%	43.9%	27.8%	27.8%	27.8%				
Yellow Time (s)	4.9	4.9			4.9	4.9	4.1	4.1	4.1				
All-Red Time (s)	2.3	2.0			2.0	2.0	2.4	2.4	2.4				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	7.2	6.9			6.9	6.9	6.5	6.5	6.5				
Lead/Lag	Lead				Lag	Lag							
Lead-Lag Optimize?	Yes				Yes	Yes							
Recall Mode	Max	C-Min			C-Min	C-Min	None	None	None				
v/c Ratio	0.55	0.82			0.87	0.44	0.79	0.79	0.76				
Control Delay	65.0	14.5			44.5	17.5	83.0	83.3	63.1				
Queue Delav	0.5	19.5			0.3	0.0	67.8	67.7	0.0				
Total Delay	65.5	34.0			44.7	17.5	150.8	151.0	63.1				
Queue Length 50th (ft)	204	1275			708	89	309	310	240				
Queue Length 95th (ft)	m243	1344			624	123	425	425	353				
Internal Link Dist (ft)		424			1171			1111			1102		
Turn Bay Length (ft)		767				144	320		320				
Base Capacity (vph)	876	2375			1978	679	380	380	408				
Starvation Cap Reductn	125	487			.0.0	0	0	0	0				
Spillback Cap Reductn	0	0			32	õ	235	235	Ő				
Storage Cap Reductn	Ő	Ő			0	ŏ	200	0	Ő				
Reduced v/c Ratio	0.64	1.03			0.88	0.44	1.83	1.83	0.69				

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 65 (36%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 5: I-75 NB Off-Ramp & CR 484

J _ Ø1	Ø2 (R)	<b>√</b> <sub>Ø4</sub>
51s	79 S	50- <u>s</u>

# HCM 6th Signalized Intersection Summary 5: I-75 NB Off-Ramp & CR 484

**Background Conditions** Timing Plan: PM Peak Hour

Lane Configurations <b>b</b> , <b>b</b> , <b>c</b> , <b>c</b> , <b>b</b> , <b>c</b>		۶		$\mathbf{F}$	4	◄	×.	•	1	1	5	Ļ	1	
Traffic Volume (veh/h) 459 1869 0 0 1650 285 510 0 270 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Traffic Volume (veh/h) 459 1869 0 0 1650 285 510 0 270 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Lane Configurations	ኘካ	<b>†</b> †			***	7	7	र्स	1				
Initial Q(20), veh       0	Traffic Volume (veh/h)			0	0						0	0	0	
Pad-Bitk Adj(I_abT) 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Future Volume (veh/h)	459	1869	0	0	1650	285	510	0	270	0	0	0	
Parking Bis, Adj Work Zone On Approach No Work Zone On Approach No Work Zone On Approach No No No No No No No No No No	Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0				
Work Zone On Ápproach         No         No         No         No         No           Adg Sat Flow, veln/h/ln         1781         1761         0         0         1226         1826         1767         1767         1767           Adg Sat Flow, veln/h         1781         1781         1781         0         0         1719         0         531         0         0           Peak Hour Factor         0.96         0.96         0.96         0.96         0.96         0.96         0.96         0.96           Percent Heary Velh, %         8         8         0         0         5149         0.00         0.018         0.00         0.00           Sat Flow, veln/h         3291         3474         0         0         1719         0         531         0         0         0           Sar Flow, veln/h         3291         3477         0         0         1662         1547         1682         1497           Sp Volume(V, veln/h         476         62.9         0.0         0.00         166         0.0         27.5         0.0         0.0           Sp Volume(V, veln/h         801         2511         0         0         2285         618	Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00				
Work Zone On Ápproach         No         No         No         No         No           Adg Sat Flow, veln/h/ln         1781         1761         0         0         1226         1826         1767         1767         1767           Adg Sat Flow, veln/h         1781         1781         1781         0         0         1719         0         531         0         0           Peak Hour Factor         0.96         0.96         0.96         0.96         0.96         0.96         0.96         0.96           Percent Heary Velh, %         8         8         0         0         5149         0.00         0.018         0.00         0.00           Sat Flow, veln/h         3291         3474         0         0         1719         0         531         0         0         0           Sar Flow, veln/h         3291         3477         0         0         1662         1547         1682         1497           Sp Volume(V, veln/h         476         62.9         0.0         0.00         166         0.0         27.5         0.0         0.0           Sp Volume(V, veln/h         801         2511         0         0         2285         618	Parking Bus, Adi	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Add Sat Flow, yeh/h/n       1781       0       0       1719       0       531       0       0       0       1781       0       0       1719       0       531       0<			No						No					
Adj Fav Rafe, velvh       478       1947       0       0       1719       0       531       0       0         Peak Hour Factor       0.96 </td <td></td> <td>1781</td> <td>1781</td> <td>0</td> <td>0</td> <td>1826</td> <td>1826</td> <td>1767</td> <td>1767</td> <td>1767</td> <td></td> <td></td> <td></td> <td></td>		1781	1781	0	0	1826	1826	1767	1767	1767				
Peak Hour Factor 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96														
Parcent Heavy Veh, % 8 8 8 0 0 0 5 5 9 9 9 9 Cap, veh/h 801 2511 0 0 2285 618 0 Star Flow, veh/h 3291 3474 0 0 5149 1547 3365 0 1497 3rp Volume(v), veh/h 478 1947 0 0 1719 0 531 0 0 Srg Sat Flow(s), veh/h/h 478 1947 0 0 166 0.0 27.5 0.0 0.0 Yopice QClang_c, s 23.1 62.9 0.0 0.0 166 0.0 27.5 0.0 0.0 Prop In Lane 1 0 0.00 0.00 0.00 1.00 1.00 1.00 Prop In Lane 1 0 0.00 0.00 0.00 1.00 1.00 1.00 Prop In Lane 1 0 0.00 0.00 0.00 1.00 1.00 1.00 Prop In Lane 1 0 0.00 0.00 0.00 1.00 1.00 1.00 Prop In Lane 1 0 0.00 0.00 0.00 1.00 1.00 1.00 Prop In Lane 1 0 0.00 0.00 0.00 1.00 1.00 1.00 Prop In Lane 1 0 0.00 0.00 0.00 0.00 0.00 1 0 0 1.00 1.00 1.00 1 0 0 0.00 0.00 0.00 1 0 0 0.00 0.00 1 0 0 0.00 0.00 1 0 0 0 0 0 0.00 1 0 0 0 0 0 0 0 0.00 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0														
Cap, vel/h         801         2511         0         0         2285         618         0           Anrive On Green         0.24         0.74         0.00         0.00         0.13         0.00         0.00           Anrive On Green         0.24         0.74         0.00         0.01         1547         0.00         0.01           3rp Volume(v), velv/h         478         1947         0         0         1719         0         531         0         0           3rp Volume(v), velv/h         478         1947         0         0         1719         0         531         0         0           Species(s), s         23.1         62.9         0.0         0.01         16.6         0.02         27.5         0.0         0.0           Species(s), s         23.1         62.9         0.00         0.00         1.00         1.00         1.00         1.00           Species(s), s         23.1         62.9         0.00         0.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1														
Arrive On Green       0.24       0.74       0.00       0.92       0.00       0.18       0.00       0.00         Sat Flow, verl/h       3291       3474       0       0       5149       1547       3365       0       1497         Stry Volume(V), verl/h       1478       1947       0       0       1719       0       531       0       0         Spread Flow(S), verl/h/ln       1646       1692       0       1666       0.0       27.5       0.0       0.0         Spread Flow(S), verl/h       801       2511       0       0.00       1.00       1.00       1.00         orce Gap(c), verl/h       801       2511       0       0       2285       618       0       0       0.00         Vicit Ratio(X)       0.60       0.78       0.00       0.00       1.00       1.00       1.00       1.00         Vicit Ratio(X)       0.60       0.78       0.00			-		-		•		-	•				
Sat Flow, veh/h         3291         3474         0         0         5149         1547         3365         0         1497           3rp Volume(v), veh/h         478         1947         0         0         1719         0         531         0         0           3rp Volume(v), veh/h         1666         162         1647         1682         0         1497           2 Serve(g_s), s         23.1         62.9         0.0         0.0         16.6         0.0         27.5         0.0         0.0           Orop In Lane         1.00         0.00         0.00         1.00         1.00         1.00         1.00           araG Grp Cap(c), veh/h         801         2511         0         0         2285         618         0           v//C Ratic(X)         0.60         0.78         0.00         0.05         1.00         1.00         1.00         1.00           Jpstream Filter(I)         0.33         0.30         0.00         0.59         0.00         1.00         1.00         1.00           Jpstream Filter(I)         0.33         0.30         0.00         0.0         1.00         0.00         0.00         1.00         0.00							0.00		-	0.00				
Grp Volume(v), veh/h       478       1947       0       0       1719       0       531       0       0         Grp Sat Flow(s), veh/h/h       1646       1692       0       0       1662       1547       1682       0       1497         Sperv(g, s), s       23.1       62.9       0.0       0.6       0.0       27.5       0.0       0.0         Area Grp Cap(c), veh/h       801       2511       0       0.2285       618       0         Area Grp Cap(c), veh/h       801       2511       0       0       2285       618       0         V/C Ratio(X)       0.60       0.78       0.00       0.00       1.00       1.00       1.00         V/C Ratio(X)       0.60       0.78       0.00       0.00       1.00       1.00       1.00         V/C Ratio(X)       0.60       0.78       0.00       0.00       1.00       1.00       1.00         V/R Ration Ratio       1.00       1.00       1.00       1.00       1.00       1.00       1.00         Jinform Delay (d), siveh       6.3       14.1       0.0       0.4       7.0       7.2       0.0       0.0         Jinform Delay (d), siveh       0.														
Grip Sat Flow(s),veh/h/ln       1646       1692       0       0       1662       1547       1682       0       1497         2 Serve(g_s), s       23.1       62.9       0.0       0.0       16.6       0.0       27.5       0.0       0.0         Prop In Lane       1.00       0.00       0.00       1.00       1.00       1.00         Area Grp Cap(c), veh/h       801       2511       0       0       2285       618       0         V/C Ratio(X)       0.60       0.78       0.00       0.00       1.00       1.00       1.00         Avail Cap(c_a), veh/h       801       2511       0       0       2285       813       0         -CCM Platoon Ratio       1.00       1.00       1.00       2.00       1.00       1.00       1.00         Jpstream Filter(I)       0.33       0.30       0.00       0.59       0.00       1.00       0.00         Jniform Delay (d), s/veh       60.3       14.1       0.0       0.4       4.7       0.0       0.0       0.0       0.0         Jnifig Delay(d)(s/veh/h       9.7       21.7       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0 </td <td></td>														
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $							-							
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $					-				-					
Prop In Lane       1.00       0.00       0.00       1.00       1.00       1.00         ane Grp Cap(c), veh/h       801       2511       0       0       2285       618       0         V/C Ratic(X)       0.60       0.78       0.00       0.075       0.86       0.00         Avail Cap(c_a), veh/h       801       2511       0       0       2285       813       0         Hatoon Ratio       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00         Jpstream Filter(I)       0.33       0.33       0.00       0.00       4.7       0.0       71.2       0.0       0.0         Inform Delay (d), s/veh       1.1       0.8       0.0       0.4       4.0       9.6       0.0       0.0         Inform Delay (d), s/veh       1.1       0.8       0.0       0.0       0.0       0.0       0.0       0.0         Jpstgream Filter(I)       0.33       0.30       0.0       0.0       0.0       0.0       0.0       0.0       0.0         Inform Delay (d2), s/veh       1.1       0.8       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       <														
ane Grp Cap(c), veh/h       801       2511       0       0       2285       618       0         //C Ratio(X)       0.60       0.78       0.00       0.075       0.86       0.00         Vial Cap(c_a), veh/h       801       2511       0       0       2285       813       0         CM Platoon Ratio       1.00       1.00       1.00       1.00       1.00       1.00       1.00         Jpstream Filter(I)       0.33       0.33       0.00       0.00       0.59       0.00       1.00       0.00         Inform Delay (d), s/veh       60.3       14.1       0.0       0.0       71.2       0.0       0.0         Initial Q Delay(d3), s/veh       0.0       0.0       0.0       0.0       0.0       0.0       0.0         Jnsig. Movement Delay, s/veh       0.0       0.0       0.0       0.0       0.0       0.0       0.0         Jnsig. Movement Delay, s/veh       6.1       14.9       0.0       0.0       6.1       80.8       0.0       0.0         Jnsig. Movement Delay, s/veh       6.1       80.8       0.0       0.0       0.0       sayproach LOS       C       A       F       A       A       F       A<			02.5			10.0			0.0					
//C Ratio(X)       0.60       0.78       0.00       0.075       0.86       0.00         Vail Cap(c_a), veh/h       801       2511       0       0       2285       813       0         HCM Platoon Ratio       1.00       1.00       1.00       1.00       2.00       2.00       1.00       1.00       1.00         Jpstream Filter(I)       0.33       0.33       0.00       0.00       4.7       0.0       71.2       0.0       0.00         Jniform Delay (d), s/veh       60.3       14.1       0.0       0.0       1.4       0.0       9.6       0.0       0.0         Jilde DackOd(50%), veh/n       9.7       21.7       0.0       0.0       0.0       0.0       0.0       0.0       0.0         Jusg. Movement Delay, s/veh       61.4       14.9       0.0       0.0       6.1       0.0       80.8       0.0       0.0         Jnsig. Movement Delay, s/veh       24.1       6.1       80.8       0.0       0.0         Japproach LOS       E       B       A       A       F       A         Max Green Setting (Gmax), s       *44       72.1       43.5       123.1       4       6       9 <th< td=""><td></td><td></td><td>2511</td><td></td><td></td><td>2285</td><td>1.00</td><td></td><td>٥</td><td>1.00</td><td></td><td></td><td></td><td></td></th<>			2511			2285	1.00		٥	1.00				
Avail Cap(c_a), veh/h       801       2511       0       0       2285       813       0         HCM Platon Ratio       1.00       1.00       1.00       1.00       2.00       2.00       1.00       1.00       1.00         Jpstream Filter(I)       0.33       0.33       0.00       0.00       0.59       0.00       1.00       0.00       0.00         Inform Delay (d), s/veh       60.3       1.4.1       0.0       0.4.7       0.0       7.12       0.0       0.0         Inform Delay (d), s/veh       1.1       0.8       0.0       0.1       4.00       9.6       0.0       0.0         Insig. Movement Delay, s/veh       0.0       0.0       0.0       0.0       0.0       0.0       0.0         Insig. Movement Delay, s/veh       61.4       14.9       0.0       0.0       6.1       0.0       80.8       0.0       0.0         Insig. Movement Delay, s/veh       24.1       6.1       80.8       0.0<					-									
HCM Platoon Ratio       1.00       1.00       1.00       1.00       2.00       2.00       1.00       1.00       1.00         Upstram Filter(I)       0.33       0.33       0.00       0.00       0.59       0.00       1.00       1.00       0.00       0.00         Uniform Delay (d), s/veh       60.3       14.1       0.0       0.0       4.7       0.0       71.2       0.0       0.0         Initial Q Delay(d3), s/veh       0.0       0	• •													
Upstream Filter(I) 0.33 0.33 0.00 0.00 0.59 0.00 1.00 0.00 0.00 0.00 0.00 0.00 0.0	11 - 1				-		2.00		-	1.00				
Juniform Delay (d), s/veh         60.3         14.1         0.0         0.0         4.7         0.0         71.2         0.0         0.0           Incr Delay (d2), s/veh         1.1         0.8         0.0         0.0         1.4         0.0         9.6         0.0         0.0           Initial Q Delay(d3), s/veh         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0           Jusig, Movement Delay, s/veh         9.7         21.7         0.0         0.0         2.5         0.0         12.7         0.0         0.0           Jusig, Movement Delay, s/veh         1.1         4.4         9.0         0.0         6.1         0.0         80.8         0.0         0.0           Jnsig, Movement Delay, s/veh         61.4         14.9         0.0         0.0         6.1         0.0         80.8         0.0         0.0														
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
Initial Q Delay(d3), s/veh       0.0	, , , ,,													
Wale BackOfQ(50%), veh/ln       9.7       21.7       0.0       0.0       2.5       0.0       12.7       0.0       0.0         Unsig. Movement Delay, s/veh       61.4       14.9       0.0       0.0       6.1       0.0       80.8       0.0       0.0         LnGrp Delay(d), s/veh       61.4       14.9       0.0       0.0       6.1       0.0       80.8       0.0       0.0         LnGrp LOS       E       B       A       A       F       A         Approach Vol, veh/h       2425       1719       A       531       A         Approach LOS       C       A       F       A         Approach LOS       C       A       F         Timer - Assigned Phs       1       2       4       6         Timer - Assigned Phs       1       2       4       6         Phs Duration (G+Y+Rc), s       51.0       89.4       39.6       140.4       4         Change Period (Y+Rc), s       *7.2       6.9       6.5       6.9       4         Max Q Clear Time (p_c.), s       2.5       2.5       27.6       3.5       38.0       1         Green Ext Time (p_c.), s       2.5       2.5														
Unsig. Movement Delay, s/veh       61.4       14.9       0.0       0.0       6.1       0.0       80.8       0.0       0.0         InGrp Delay(d),s/veh       61.4       14.9       0.0       0.0       6.1       0.0       80.8       0.0       0.0         InGrp LOS       E       B       A       A       F       A         Approach Vol, veh/h       2425       1719       A       531       A         Approach Delay, s/veh       24.1       6.1       80.8         Approach LOS       C       A       F         C       A       F         Phs Duration (G+Y+Rc), s       51.0       89.4       39.6       140.4         Change Period (Y+Rc), s       51.0       89.4       39.6       140.4         Change Period (Y+Rc), s       *7.2       6.9       6.5       6.9         Max Green Setting (Gmax), s       *44       72.1       43.5       123.1         Vax Q Clear Time (p_c), s       2.5       27.6       3.5       38.0         Intersection Summary       23.9       23.9       23.9       23.9         HCM 6th LOS       C       C       23.9       14.0       14.0														
LnGrp Delay(d),s/veh         61.4         14.9         0.0         0.0         6.1         0.0         80.8         0.0         0.0           LnGrp LOS         E         B         A         A         A         F         A           Approach Vol, veh/h         2425         1719         A         531         A           Approach Delay, s/veh         24.1         6.1         80.8         A         A         F         A           Approach LOS         C         A         F         A         F         A         A           Approach LOS         C         A         F         A         B         B         A         A         F           Imer - Assigned Phs         1         2         4         6         E         B         A         B		9.1	21.7	0.0	0.0	2.0	0.0	12.1	0.0	0.0				
E         B         A         A         F         A           Approach Vol, veh/h         2425         1719         A         531         A           Approach Delay, s/veh         24.1         6.1         80.8         A         A         F           Approach LOS         C         A         F         F         F         F         F           Timer - Assigned Phs         1         2         4         6         F         F           Phs Duration (G+Y+Rc), s         51.0         89.4         39.6         140.4         F         F           Change Period (Y+Rc), s         *7.2         6.9         6.5         6.9         Max Green Setting (Gmax), s         *44         72.1         43.5         123.1           Max Q Clear Time (g_c+11), s         25.1         18.6         29.5         64.9         Sreen Ext Time (p_c), s         2.5         27.6         3.5         38.0         State of the setting (for the setting (p_c, s), s)         2.5         27.6         3.5         38.0         State of the setting (p_c, s)         2.5         23.9           rtcM 6th Ctrl Delay         23.9         C         C         C         State of the setting (p_c, s)         State of the setting (p_c, s) <t< td=""><td></td><td>64 A</td><td>44.0</td><td>0.0</td><td>0.0</td><td>6.4</td><td>0.0</td><td>00.0</td><td>0.0</td><td>0.0</td><td></td><td></td><td></td><td></td></t<>		64 A	44.0	0.0	0.0	6.4	0.0	00.0	0.0	0.0				
Approach Vol, veh/h         2425         1719         A         531         A           Approach Delay, s/veh         24.1         6.1         80.8         A         F           Approach LOS         C         A         F         F         F           Finner - Assigned Phs         1         2         4         6         6           Phs Duration (G+Y+Rc), s         51.0         89.4         39.6         140.4         6           Change Period (Y+Rc), s         *7.2         6.9         6.5         6.9         Max G celear Time (gc+11), s         25.1         18.6         29.5         64.9         39.6         140.4         531         4         72.1         43.5         123.1         Max Q Clear Time (gc+11), s         25.1         18.6         29.5         64.9         39.6         35.3         38.0         140.4         1							0.0			0.0				
Approach Delay, s/veh         24.1         6.1         80.8           Approach LOS         C         A         F           Timer - Assigned Phs         1         2         4         6           Phs Duration (G+Y+Rc), s         51.0         89.4         39.6         140.4           Change Period (Y+Rc), s         *7.2         6.9         6.5         6.9           Wax Green Setting (Gmax), s         * 44         72.1         43.5         123.1           Max Q Clear Time (g_c+11), s         25.1         18.6         29.5         64.9           Green Ext Time (p_c), s         2.5         27.6         3.5         38.0           Intersection Summary         23.9         C         44.0         23.9           CM 6th LOS         C         C         23.9         C		<u> </u>		<u>A</u>	<u> </u>			F	the second s					
Approach LOS         C         A         F           Timer - Assigned Phs         1         2         4         6           Phs Duration (G+Y+Rc), s         51.0         89.4         39.6         140.4           Change Period (Y+Rc), s         *7.2         6.9         6.5         6.9           Max Green Setting (Gmax), s         *44         72.1         43.5         123.1           Wax Q Clear Time (g_c+11), s         25.1         18.6         29.5         64.9           Green Ext Time (p_c), s         2.5         27.6         3.5         38.0           Intersection Summary							A			A				
Time - Assigned Phs     1     2     4     6       Phs Duration (G+Y+Rc), s     51.0     89.4     39.6     140.4       Change Period (Y+Rc), s     *7.2     6.9     6.5     6.9       Max Green Setting (Gmax), s     *44     72.1     43.5     123.1       Max Q Clear Time (g_c+l1), s     25.1     18.6     29.5     64.9       Green Ext Time (p_c), s     2.5     27.6     3.5     38.0       Intersection Summary     40.4     40.4     40.4       HCM 6th Ctrl Delay     23.9     40.4       HCM 6th LOS     C     C														
Phs Duration (G+Y+Rc), s         51.0         89.4         39.6         140.4           Change Period (Y+Rc), s         * 7.2         6.9         6.5         6.9           Max Green Setting (Gmax), s         * 44         72.1         43.5         123.1           Max Q Clear Time (g_c+I1), s         25.1         18.6         29.5         64.9           Green Ext Time (p_c), s         2.5         27.6         3.5         38.0           Intersection Summary	••					A			F					
Change Period (Y+Rc), s       * 7.2       6.9       6.5       6.9         Max Green Setting (Gmax), s       * 44       72.1       43.5       123.1         Max Q Clear Time (g_c+I1), s       25.1       18.6       29.5       64.9         Green Ext Time (p_c), s       2.5       27.6       3.5       38.0         Intersection Summary		1			deceloration contractory									
Vlax Green Setting (Gmax), s         * 44         72.1         43.5         123.1           Vlax Q Clear Time (g_c+I1), s         25.1         18.6         29.5         64.9           Green Ext Time (p_c), s         2.5         27.6         3.5         38.0           Intersection Summary           ICM 6th Ctrl Delay         23.9           ICM 6th LOS         C	Phs Duration (G+Y+Rc), s		89.4											
Vlax Q Clear Time (g_c+l1), s         25.1         18.6         29.5         64.9           Green Ext Time (p_c), s         2.5         27.6         3.5         38.0           Intersection Summary	Change Period (Y+Rc), s	* 7.2	6.9				6.9							
Green Ext Time (p_c), s         2.5         27.6         3.5         38.0           Intersection Summary	• • •													
ntersection Summary -ICM 6th Ctrl Delay 23.9 -ICM 6th LOS C														
HCM 6th Ctrl Delay 23.9 HCM 6th LOS C	Green Ext Time (p_c), s	2.5	27.6		3.5		38.0							
HCM 6th LOS C	ntersection Summary													
HCM 6th LOS C	HCM 6th Ctrl Delay			23.9										
Votas	•													
	Notes													

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings

#### 6: CR 475A & CR 484

Background	Conditions
Timing Plan	: PM Peak Hour

Lane GroupEBLLane Configurations\$7Traffic Volume (vph)301Puture Volume (vph)301Puture Volume (vph)301Peak Hour Factor0.99Heavy Vehicles (%)8%Adj. Flow (vph)304Shared Lane Traffic (%)Lane Group Flow (vph)Lane Group Flow (vph)304Turn TypeProtProtected Phases5Permitted Phases5Switch Phase5Switch Phase5Minimum Initial (s)6.0Minimum Split (s)17.5Total Split (%)16.1%Yellow Time (s)2.9Lost Time Adjust (s)0.0Total Lost Time (s)7.8Lead/LagDetimize?YesRecall ModeVic Ratio0.80Control Delay104.4Queue Length 50th (ft)193	EBT 1514 1514 1514 1529 1752 NA 2 2 15.0 21.9 97.0 53.9%	EBR 221 221 0.99 8% 223 0	WBL 11 11 0.99 7% 11 11 pm+pt 1 6 1 6.0 17.5 18.0	WBT 1226 1226 1228 1238 1238 1265 NA 6 6 15.0 21.9	WBR 27 27 0.99 7% 27 0	NBL           11           261           261           261           264           264           264           264           3           3	NBT	NBR 9 0.99 4% 9 0	SBL           %           80           80           80           81           81           pm+pt           7           4           7	SBT 42 42 0.99 5% 42 42 NA 4 4	SBR 276 276 0.99 5% 279 279 279 Perm 4 4	
Traffic Volume (vph)       301         Future Volume (vph)       301         Peak Hour Factor       0.99         Heavy Vehicles (%)       8%         Adj. Flow (vph)       304         Shared Lane Traffic (%)       Lane Group Flow (vph)         Lane Group Flow (vph)       304         Turn Type       Prot         Protected Phases       5         Permitted Phases       5         Detector Phase       5         Switch Phase       6.0         Minimum Initial (s)       6.0         Minimum Split (s)       17.5         Total Split (%)       16.1%         Yellow Time (s)       2.9         Lost Time (s)       2.9         Lost Time (s)       7.8         Lead/Lag       Lead         Lead/Lag       Lead         Lead/Lag       0.0         Control Delay       104.4         Queue Delay       0.0         Total Delay       104.4	1514 1514 0.99 8% 1529 1752 NA 2 2 15.0 21.9 97.0	221 0.99 8% 223	11 11 0.99 7% 11 11 pm+pt 1 6 1	1226 1226 0.99 7% 1238 1265 NA 6 6 15.0	27 0.99 7% 27	261 261 0.99 4% 264 264 Prot 3 3	49 49 0.99 4% 49 58 NA 8	9 0.99 4% 9	80 80 0.99 5% 81 81 pm+pt 7 4	42 42 0.99 5% 42 42 NA 4	276 276 0.99 5% 279 279 279 Perm 4	
Future Volume (vph)         301           Peak Hour Factor         0.99           Heavy Vehicles (%)         8%           Adj. Flow (vph)         304           Shared Lane Traffic (%)         Lane Group Flow (vph)         304           Lane Group Flow (vph)         304           Turn Type         Prot           Protected Phases         5           Permitted Phases         5           Detector Phase         5           Switch Phase         5           Minimum Initial (s)         6.0           Minimum Split (s)         17.5           Total Split (%)         16.1%           Yellow Time (s)         2.9           Lost Time (s)         2.9           Lost Time (s)         7.8           Lead/Lag         Lead           Lead-Lag Optimize?         Yes           Recall Mode         None           v/c Ratio         0.80           Control Delay         104.4           Queue Delay         0.0           Total Delay         104.4	1514 0.99 8% 1529 1752 NA 2 2 15.0 21.9 97.0	221 0.99 8% 223	11 0.99 7% 11 11 pm+pt 1 6 1 6.0 17.5	1226 0.99 7% 1238 1265 NA 6 6 15.0	27 0.99 7% 27	261 0.99 4% 264 264 Prot 3	49 0.99 4% 49 58 NA 8	9 0.99 4% 9	80 0.99 5% 81 pm+pt 7 4	42 0.99 5% 42 42 NA 4	276 0.99 5% 279 279 Perm 4	
Peak Hour Factor         0.99           Heavy Vehicles (%)         8%           Adj. Flow (vph)         304           Shared Lane Traffic (%)         Lane Group Flow (vph)           Lane Group Flow (vph)         304           Turn Type         Prot           Protected Phases         5           Detector Phase         5           Switch Phase         Minimum Initial (s)           Minimum Split (s)         17.5           Total Split (s)         29.0           Total Split (s)         29.0           Total Split (s)         2.9           Lost Time (s)         4.9           All-Red Time (s)         2.9           Lost Time Adjust (s)         0.0           Total Lost Time (s)         7.8           Lead-Lag         Detimize?         Yes           Recall Mode         None           v/c Ratio         0.80           Control Delay         104.4           Queue Delay         0.0           Total Delay         104.4	0.99 8% 1529 1752 NA 2 2 15.0 21.9 97.0	0.99 8% 223	0.99 7% 11 11 pm+pt 1 6 1 6.0 17.5	0.99 7% 1238 1265 NA 6 6 15.0	0.99 7% 27	0.99 4% 264 264 Prot 3 3	0.99 4% 49 58 NA 8	0.99 4% 9	0.99 5% 81 pm+pt 7 4	0.99 5% 42 42 NA 4	0.99 5% 279 279 Perm 4	
Heavy Vehicles (%)8%Adj. Flow (vph)304Shared Lane Traffic (%)	8% 1529 1752 NA 2 2 15.0 21.9 97.0	8% 223	7% 11 pm+pt 1 6 1 6.0 17.5	7% 1238 1265 NA 6 6 15.0	7% 27	4% 264 264 Prot 3 3	4% 49 58 NA 8	4% 9	5% 81 81 pm+pt 7 4	5% 42 42 NA 4	5% 279 279 Perm 4	
Adj. Flow (vph)304Shared Lane Traffic (%)Lane Group Flow (vph)304Turn TypeProtProtected Phases5Permitted Phases5Detector Phase5Switch Phase6.0Minimum Initial (s)6.0Minimum Split (s)17.5Total Split (s)29.0Total Split (%)16.1%Yellow Time (s)4.9All-Red Time (s)2.9Lost Time Adjust (s)0.0Total Lost Time (s)7.8Lead/LagLeadLead/LagLeadControl Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	1529 1752 NA 2 2 15.0 21.9 97.0	223	11 pm+pt 1 6 1 6.0 17.5	1238 1265 NA 6 6 15.0	27	264 264 Prot 3 3	49 58 NA 8	9	81 81 pm+pt 7 4	42 42 NA 4	279 279 Perm 4	
Shared Lane Traffic (%)         Lane Group Flow (vph)       304         Turn Type       Prot         Protected Phases       5         Permitted Phases       5         Detector Phase       5         Switch Phase       6.0         Minimum Initial (s)       6.0         Minimum Initial (s)       17.5         Total Split (s)       17.5         Total Split (s)       29.0         Total Split (%)       16.1%         Yellow Time (s)       4.9         All-Red Time (s)       2.9         Lost Time Adjust (s)       0.0         Total Lost Time (s)       7.8         Lead/Lag       Lead         Lead/Lag       Lead         Lead/Lag       None         //c Ratio       0.80         Control Delay       104.4         Queue Delay       0.0         Total Delay       104.4         Queue Length 50th (ft)       193	1752 NA 2 15.0 21.9 97.0		11 pm+pt 1 6 1 6.0 17.5	1265 NA 6 15.0		264 Prot 3	58 NA 8		81 pm+pt 7 4	42 NA 4	279 Perm 4	
Lane Group Flow (vph)         304           Turn Type         Prot           Protected Phases         5           Permitted Phases         5           Detector Phase         5           Switch Phase         6.0           Minimum Initial (s)         6.0           Minimum Split (s)         17.5           Total Split (s)         29.0           Total Split (%)         16.1%           Yellow Time (s)         4.9           All-Red Time (s)         2.9           Lost Time Adjust (s)         0.0           Total Lost Time (s)         7.8           Lead/Lag         Lead           Lead/Lag         Lead           Lead/Lag         0.0           Total Lost Time (s)         0.80           Control Delay         104.4           Queue Delay         0.0           Total Delay         104.4           Queue Length 50th (ft)         193	NA 2 2 15.0 21.9 97.0	0	pm+pt 1 6 1 6.0 17.5	NA 6 6 15.0	0	Prot 3 3	NA 8	0	pm+pt 7 4	NA 4	Perm 4	
Turn TypeProtProtected Phases5Permitted Phases5Detector Phase5Switch Phase6.0Minimum Initial (s)6.0Minimum Split (s)17.5Total Split (s)29.0Total Split (%)16.1%Yellow Time (s)4.9All-Red Time (s)2.9Lost Time Adjust (s)0.0Total Lost Time (s)7.8Lead/LagLeadLead/LagLeadControl Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	NA 2 2 15.0 21.9 97.0	0	pm+pt 1 6 1 6.0 17.5	NA 6 6 15.0	0	Prot 3 3	NA 8	0	pm+pt 7 4	NA 4	Perm 4	
Turn TypeProtProtected Phases5Permitted Phases5Detector Phase5Switch Phase6.0Minimum Initial (s)6.0Minimum Split (s)17.5Total Split (s)29.0Total Split (%)16.1%Yellow Time (s)4.9All-Red Time (s)2.9Lost Time Adjust (s)0.0Total Lost Time (s)7.8Lead/LagLeadLead/Lag Optimize?YesRecall ModeNone//c Ratio0.80Control Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	2 2 15.0 21.9 97.0		1 6 1 6.0 17.5	6 6 15.0		3	8		7 4	4	4	
Permitted Phases Detector Phase 5 Switch Phase 5 Vilnimum Initial (s) 6.0 Vilnimum Split (s) 17.5 Total Split (%) 16.1% Yellow Time (s) 2.9 Lost Time (s) 2.9 Lost Time Adjust (s) 0.0 Total Lost Time (s) 7.8 Lead/Lag Lead Lead-Lag Optimize? Yes Recall Mode None V/c Ratio 0.80 Control Delay 104.4 Queue Delay 0.0 Total Delay 104.4 Queue Length 50th (ft) 193	2 15.0 21.9 97.0		1 6.0 17.5	6 15.0		3			4			
Detector Phase5Switch PhaseMinimum Initial (s)6.0Minimum Split (s)17.5Total Split (s)29.0Total Split (%)16.1%Yellow Time (s)4.9All-Red Time (s)2.9Lost Time Adjust (s)0.0Total Lost Time (s)7.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNonev/c Ratio0.80Control Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	15.0 21.9 97.0		1 6.0 17.5	15.0		-	8			4		
Switch PhaseMinimum Initial (s)6.0Minimum Split (s)17.5Total Split (s)29.0Total Split (%)16.1%Yellow Time (s)4.9All-Red Time (s)2.9Lost Time Adjust (s)0.0Total Lost Time (s)7.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNonev/c Ratio0.80Control Delay104.4Queue Delay104.4Queue Length 50th (ft)193	15.0 21.9 97.0		6.0 17.5	15.0		-	8		7	4		
Minimum Initial (s)         6.0           Minimum Split (s)         17.5           Total Split (s)         29.0           Total Split (%)         16.1%           Yellow Time (s)         4.9           All-Red Time (s)         2.9           Lost Time Adjust (s)         0.0           Total Lost Time (s)         7.8           Lead/Lag         Lead           Lead-Lag Optimize?         Yes           Recall Mode         None           v/c Ratio         0.80           Control Delay         104.4           Queue Delay         104.4           Queue Length 50th (ft)         193	21.9 97.0		17.5			<b>C</b> O						
Minimum Split (s)         17.5           Total Split (s)         29.0           Total Split (%)         16.1%           Yellow Time (s)         4.9           All-Red Time (s)         2.9           Lost Time Adjust (s)         0.0           Total Lost Time (s)         7.8           Lead/Lag         Lead           Lead-Lag Optimize?         Yes           Recall Mode         None           v/c Ratio         0.80           Control Delay         104.4           Queue Delay         104.4           Queue Length 50th (ft)         193	21.9 97.0		17.5			~ ^						
Total Split (s)         29.0           Total Split (%)         16.1%           Yellow Time (s)         4.9           All-Red Time (s)         2.9           Lost Time Adjust (s)         0.0           Total Lost Time (s)         7.8           Lead/Lag         Lead           Lead/Lag Optimize?         Yes           Recall Mode         None           //c Ratio         0.80           Control Delay         104.4           Queue Delay         104.4           Queue Length 50th (ft)         193	97.0			21.9		6.0	10.0		6.0	10.0	10.0	
Total Split (%)         16.1%           Yellow Time (s)         4.9           All-Red Time (s)         2.9           .ost Time Adjust (s)         0.0           Total Lost Time (s)         7.8           .ead/Lag         Lead           .ead/Lag         Ves           Recall Mode         None           //c Ratio         0.80           Control Delay         104.4           Queue Delay         104.4           Queue Length 50th (ft)         193			18.0	£ 1.V		17.5	16.9		17.5	16.9	16.9	
Yellow Time (s)         4.9           All-Red Time (s)         2.9           Lost Time Adjust (s)         0.0           Fotal Lost Time (s)         7.8           Lead/Lag         Lead           Lead/Lag         Ves           Recall Mode         None           //c Ratio         0.80           Control Delay         104.4           Queue Delay         0.0           Fotal Delay         104.4           Queue Length 50th (ft)         193	53.9%			86.0		34.0	39.0		26.0	31.0	31.0	
All-Red Time (s)     2.9       Lost Time Adjust (s)     0.0       Fotal Lost Time (s)     7.8       Lead/Lag     Lead       Lead/Lag     Ves       Recall Mode     None       //c Ratio     0.80       Control Delay     104.4       Queue Delay     0.4       Queue Length 50th (ft)     193			10.0%	47.8%		18.9%	21.7%		14.4%	17.2%	17.2%	
Lost Time Adjust (s)0.0Total Lost Time (s)7.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNonev/c Ratio0.80Control Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	4.9		4.8	4.9		4.9	4.9		4.9	4.9	4,9	
Total Lost Time (s)7.8Lead/LagLeadLead-Lag Optimize?YesRecall ModeNonev/c Ratio0.80Control Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	2.0		2.8	2.0		2.2	2.0		2.1	2.0	2.0	
LeadLeadLagOptimize?YesRecall ModeNonev/c Ratio0.80Control Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Lead-LagOptimize?YesRecall ModeNonev/c Ratio0.80Control Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	6.9		7.6	6.9		7.1	6.9		7.0	6.9	6.9	
Recall Mode     None       v/c Ratio     0.80       Control Delay     104.4       Queue Delay     0.0       Total Delay     104.4       Queue Length 50th (ft)     193	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag	
v/c Ratio 0.80 Control Delay 104.4 Queue Delay 0.0 Total Delay 104.4 Queue Length 50th (ft) 193	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes	
Control Delay104.4Queue Delay0.0Total Delay104.4Queue Length 50th (ft)193	C-Min		None	C-Min		None	None		None	None	None	
Queue Delay 0.0 Total Delay 104.4 Queue Length 50th (ft) 193	0.82		0.09	0.72		0.73	0.25		0.30	0.25	0.86	
Queue Delay 0.0 Total Delay 104.4 Queue Length 50th (ft) 193	18.1		15.9	37.8		89.4	65.1		55.5	76.6	46.3	
Queue Length 50th (ft) 193	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
	18.1		15.9	37.8		89.4	65.1		55.5	76.6	46.3	
	258		4	593		158	58		78	47	93	
Queue Length 95th (ft) m238	#1273		15	804		206	101		115	87	203	
nternal Link Dist (ft)	1171			10343			554			865		
Furn Bay Length (ft) 295			360			270			114	,	114	
Base Capacity (vph) 398	2141		159	1759		503	328		311	247	384	
Starvation Cap Reductn 0			0	0		0	0		0	0	0	
Spillback Cap Reductn 0	0		Ō	Ō		0	Ō		0	Ō	Ō	
Storage Cap Reductn 0	0 0		Ō	Ō		Ő	Ő		0	Ō	Ő	
Reduced v/c Ratio 0.76			0.07	0.72		0.52	0.18		0.26	0.17	0.73	

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180

Offset: 58 (32%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 6: CR 475A & CR 484

<b>1</b> 01		🖉 🔨 Ø3	° <b>↓</b> ∞- <sub>Ø4</sub>
18 5	97 s	345	31s
▶ <sub>Ø5</sub>	. Ø6 (R)		Ťøs ·
29 s	. 186 s	<b>2</b> 55	39 s

# HCM 6th Signalized Intersection Summary 6: CR 475A & CR 484

**Background Conditions** Timing Plan: PM Peak Hour

	۶		$\mathbf{F}$	4	♣	×.	1	Ť	1	1	Ļ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<b>†</b> î>		۲	<b>†</b> ‡		ሻሻ	Ą		ኘ	1	7	
Traffic Volume (veh/h)	301	1514	221	11	1226	27	261	49	9	80	42	276	
Future Volume (veh/h)	301	1514	221	11	1226	27	261	49	9	80	42	276	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Nork Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/in	1781	1781	1781	1796	1796	1796	1841	1841	1841	1826	1826	1826	
Adj Flow Rate, veh/h	304	1529	204	11	1238	26	264	49	8	81	42	183	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Percent Heavy Veh, %	8	8	8	7	7	7	4	4	4	5	5	5	
Cap, veh/h	339	1827	240	203	1770	37	311	262	43	297	235	199	
Arrive On Green	0.21	1.00	1.00	0.01	0.52	0.52	0.09	0.17	0.17	0.05	0.13	0.13	
Sat Flow, veh/h	3291	3007	396	1711	3418	72	3401	1543	252	1739	1826	1547	
Grp Volume(v), veh/h	304	851	882	11	618	646	264	0	57	81	42	183	
Srp Sat Flow(s),veh/h/ln	1646	1692	1710	1711	1706	1783	1700	Ő	1795	1739	1826	1547	
2 Serve(g_s), s	16.2	0.0	0.0	0.5	49.3	49.3	13.8	0.0	4.9	7.2	3.7	21.0	
Cycle Q Clear(g_c), s	16.2	0.0	0.0	0.5	49.3	49.3	13.8	0.0	4.9	7.2	3.7	21.0	
Prop In Lane	1.00	0.0	0.23	1.00	10.0	0.04	1.00	0.0	0.14	1.00	•	1.00	
ane Grp Cap(c), veh/h	339	1029	1039	203	884	923	311	0	304	297	235	199	
//C Ratio(X)	0.90	0.83	0.85	0.05	0.70	0.70	0.85	0.00	0.19	0.27	0.18	0.92	
vail Cap(c_a), veh/h	388	1029	1039	278	884	923	508	0.00	320	392	244	207	
ICM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Jpstream Filter(I)	0.48	0.48	0.48	0.31	0.31	0.31	1.00	0.00	1.00	1.00	1.00	1.00	
Jniform Delay (d), s/veh	70.6	0.0	0.0	19.8	32.8	32.8	80.6	0.0	64.1	63.6	70.0	77.5	
ncr Delay (d2), s/veh	11.8	3.8	4.4	0.0	1.5	1.4	7.3	0.0	0.3	0.5	0.4	40.3	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	
%ile BackOfQ(50%),veh/in	6.9	1.1	1.3	0.2	20.2	21.2	6.4	0.0	2.3	3.3	1.8	10.7	
Jnsig. Movement Delay, s/veh	0.5	1.1	1.5	0.2	20.2	21.2	0.4	0.0	2.0	0.0	1.0	10.7	
nGrp Delay(d),s/veh	82.3	3.8	4.4	19.9	34.3	34.2	87.9	0.0	64.4	64.1	70.3	117.8	
InGrp LOS	02.5 F	3.0 A	4.4 A	19.9 B	04.0 C	54.2 C	67.5 F	0.0 A	64.4 E	E	70.0 E	F	
	Г	2037	^	0	1275	<u> </u>	· ·	321	<u>L</u>	<u> </u>	306		
pproach Vol, veh/h		15.8			34.1			83.7			97.1		
Approach Delay, s/veh		15.6 B			34.1 C			63.7 F			97.1 F		
pproach LOS			in the feature of the state of	rne henristeris bet String to					11- Second Hard Hard		F		and the second
imer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	10.1	116.3	23.5	30.0	26.3	100.1	16.2	37.4					
Change Period (Y+Rc), s	* 7.6	6.9	* 7.1	6.9	7.8	6.9	7.0	6.9					
lax Green Setting (Gmax), s	* 10	90.1	* 27	24.1	21.2	79.1	19.0	32.1					
fax Q Clear Time (g_c+l1), s	2.5	2.0	15.8	23.0	18.2	51.3	9.2	6.9					
Green Ext Time (p_c), s	0.0	51.0	0.7	0.1	0.3	15.0	0.1	0.2					
ntersection Summary													
ICM 6th Ctrl Delay			33.6										
HCM 6th LOS			C										
			-										
lotes													

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings 7: CR 475 & CR 484

**Background Conditions** Timing Plan: PM Peak Hour

	٦	->	$\mathbf{\hat{z}}$	¥	◄	×	-	†	*	1	¥	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ň	<u>†</u> †	7	ሻ	<b>≜</b> †}		۲	4Î		ሻ	ĥ		
Traffic Volume (vph)	117	1364	113	67	1036	80	114	126	80	74	150	73	
Future Volume (vph)	117	1364	113	67	1036	80	114	126	80	74	150	73	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	7%	7%	7%	6%	6%	6%	7%	7%	7%	2%	2%	2%	
Adj. Flow (vph)	122	1421	118	70	1079	83	119	131	83	77	156	76	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	122	1421	118	70	1162	0	119	214	0	77	232	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA		
Protected Phases		6		5	2		7	4		3	8		
Permitted Phases	6		6	2			4			8			
Detector Phase	1	6	6	5	2		7	4		3	8		
Switch Phase													
Minimum Initial (s)	8.0	17.0	17.0	8.0	17.0		8.0	8.0		8.0	8.0		
Minimum Split (s)	17.6	24.7	24.7	16.5	24.7		18.0	16.2		18.0	16.2		
Total Split (s)	34.6	52.7	52.7	28.5	52.7		35.0	33.2		35.0	33.2		
Total Split (%)	22.3%	33.9%	33.9%	18.3%	33.9%		22.5%	21.4%		22.5%	21.4%		
Yellow Time (s)	5.5	5.7	5.7	5.5	5.7		5.5	5.5		5.5	5.5		
All-Red Time (s)	4.1	2.0	2.0	3.0	2.0		4.5	2.7		4.5	2.7		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	9.6	7.7	7.7	8.5	7.7		10.0	8.2		10.0	8.2		
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes		
Recall Mode	None	Min	Min	None	Min		None	None		None	None		
v/c Ratio	0.60	1.00	0.16	0.40	0.95		0.42	0.58		0.25	0.77		
Control Delay	36.9	62.6	1.6	26.6	56.0		35.4	49.5		32.3	65.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	36.9	62.6	1.6	26.6	56.0		35.4	49.5		32.3	65.9		
Queue Length 50th (ft)	52	~676	0	28	476		68	148		43	170		
Queue Length 95th (ft)	124	#924	13	64	#747		123	251		84	284		
Internal Link Dist (ft)		10343			1733			1031			1659		
Turn Bay Length (ft)	144		94	144			144			144			
Base Capacity (vph)	381	1459	746	327	1222		417	389		491	366		
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0		
Spillback Cap Reductn	Ō	Ō	0	Ő	0		0	0		0	0		
Storage Cap Reductn	Ō	0	Ő	Ō	Ő		Ō	Ō		0	0		
Reduced v/c Ratio	0.32	0.97	0.16	0.21	0.95		0.29	0.55		0.16	0.63		
Intersection Summary													

Intersection Summary Cycle Length: 155.5

Actuated Cycle Length: 125.1

Natural Cycle: 110 Control Type: Actuated-Uncoordinated

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:	7: CR	475 8	CR 484

	δ1 <b>σ</b> 2	03	ot ∎ Ø4
34.6 s	52.7 <b>s</b>	35 s	33.2 9
<b>√</b> ₀	Ø5 <b>→</b> Ø6	<b>1</b> Ø7	ØS
26.5 5	52.7s	39 s	133.2 s

#### HCM 6th Signalized Intersection Summary 7: CR 475 & CR 484

Background Conditions
Timing Plan: PM Peak Hour

	۶	>	$\mathbf{F}$	4	4	×.	1	1	1	1	Ļ	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	<u>†</u> †	7	ሻ	<b>†</b> ‡		ሻ	ĥ		۲	4		
Traffic Volume (veh/h)	117	1364	113	67	1036	80	114	126	80	74	150	73	
Future Volume (veh/h)	117	1364	113	67	1036	80	114	126	80	74	150	73	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Nork Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/in	1796	1796	1796	1811	1811	1811	1796	1796	1796	1870	1870	1870	
Adj Flow Rate, veh/h	122	1421	74	70	1079	77	119	131	0	77	156	0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	7	7	7	6	6	6	7	7	7	2	2	2	
Cap, veh/h	248	1433	639	198	1341	96	231	211		247	196		
Arrive On Green	0.07	0.42	0.42	0.07	0.41	0.41	0.08	0.12	0.00	0.07	0.10	0.00	
Sat Flow, veh/h	1711	3413	1522	1725	3257	232	1711	1796	0	1781	1870	0	
Grp Volume(v), veh/h	122	1421	74	70	570	586	119	131	0	77	156	0	
Grp Sat Flow(s),veh/h/ln	1711	1706	1522	1725	1721	1769	1711	1796	õ	1781	1870	Ŏ	
Q Serve(g_s), s	4.2	44.3	3.2	2.3	31.2	31.2	6.5	7.4	0.0	4.0	8.7	0.0	
Cycle Q Clear(g_c), s	4.2	44.3	3.2	2.3	31.2	31.2	6.5	7.4	0.0	4.0	8.7	0.0	
Prop In Lane	1.00		1.00	1.00	01.2	0.13	1.00		0.00	1.00	0.7	0.00	
ane Grp Cap(c), veh/h	248	1433	639	198	708	728	231	211	0.00	247	196	0.00	
V/C Ratio(X)	0.49	0.99	0.12	0.35	0.80	0.80	0.52	0.62		0.31	0.79		
Avail Cap(c_a), veh/h	522	1433	639	391	723	743	494	419		543	436		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	21.5	30.9	18.9	23.8	27.7	27.7	38.7	45.0	0.00	38.6	46.8	0.00	
Incr Delay (d2), s/veh	1.5	21.7	0.1	1.1	6.5	6.4	1.8	3.0	0.0	0.9	7.1	0.0	
initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.9	0.0	0.0	
%ile BackOfQ(50%),veh/in	1.6	20.5	1.0	0.9	12.8	13.1	2.7	3.3	0.0	1.7	4.2	0.0	
Jnsig. Movement Delay, s/veh	1.0	20.5	1.0	0.9	12.0	19.1	2.1	3.3	0.0	4.7	4.2	0.0	
LnGrp Delay(d),s/veh	23.0	52.6	19.0	24.9	34.2	34.1	40.5	40.0	0.0	39.4	- 540	0.0	
InGrp LOS	23.0 C	52.0 D	19.0 B	24.9 C	34.Z C	34.1 C	40.5 D	48.0 D	0.0		54.0	0.0	
	<u> </u>		D	<u> </u>		<u> </u>	<u> </u>			<u>D</u>	D		
Approach Vol, veh/h		1617			1226			250	A		233	Α	
Approach Delay, s/veh		48.8			33.6			44.4			49.2		
Approach LOS	Antoine Science and Antoine	D	in the second concerning of the second	ini ini shinazari Angiresi	C	สมาร์การสาราช	· ·	D		NEX AND ADD TO DO	D	Herein auf der Statististen der Statististen der Statististen der Statististen der Statististen der Statististe	10 Million Martinese 2
imer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	17.4	51.8	17.2	20.8	16.5	52.7	18.5	19.4					
Change Period (Y+Rc), s	* 9.6	7.7	10.0	* 8.2	8.5	7.7	10.0	* 8.2					
Max Green Setting (Gmax), s	* 25	45.0	25.0	* 25	20.0	45.0	25.0	* 25					
Max Q Clear Time (g_c+l1), s	6.2	33.2	6.0	9.4	4.3	46.3	8.5	10.7					
Green Ext Time (p_c), s	0.3	5.1	0.2	0.4	0.1	0.0	0.2	0.5					
ntersection Summary													
			40.0										
HCM 6th Ctrl Delay HCM 6th LOS			42.9 D										

Notes
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings 8: SW 29th Ave Rd & Marion Oaks Trail

......

	٦		$\mathbf{F}$	€	◄	*	1	1	1	1	Ļ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		\$			4			4			4		
Traffic Volume (vph)	3	4	50	0	8	0	70	13	0	0	15	0	
Future Volume (vph)	3	4	50	0	8	0	70	13	0	0	15	0	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	
Heavy Vehicles (%)	8%	8%	8%	0%	0%	0%	2%	2%	2%	7%	7%	7%	
Adj. Flow (vph)	4	5	62	0	10	0	86	16	0	0	19	0	
Shared Lane Traffic (%)													
ane Group Flow (vph)	0	71	0	0	10	0	0	102	0	0	19	0	
Sign Control		Stop			Stop			Free			Free		

Control Type: Unsignalized

### D-163

Background Conditions Timing Plan: PM Peak Hour

#### HCM 6th TWSC 8: SW 29th Ave Rd & Marion Oaks Trail

Intersection													
Int Delay, s/veh	6.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			4			4			4		
Traffic Vol, veh/h	3	4	50	0	8	0	70	13	0	0	15	0	
Future Vol, veh/h	3	4	50	0	8	0	70	13	0	0	15	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	
Heavy Vehicles, %	8	8	8	0	0	0	2	2	2	7	7	7	
Mvmt Flow	4	5	62	0	10	0	86	16	0	0	19	0	
Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	212	207	19	241	207	16	19	0	0	16	0	0	
Stage 1	19	19	-	188	188	-	_	-	-	-	-	-	
Stage 2	193	188	-	53	19	-	-	-	-	-	-	-	
Critical Hdwy	7.18	6.58	6.28	7.1	6.5	6.2	4.12	-	-	4.17	-	-	
Critical Hdwy Stg 1	6.18	5.58	-	6.1	5.5	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.18	5.58	-	6.1	5.5	-	-	-	-	-	-		
Follow-up Hdwy	3.572	4.072	3.372	3.5	4	3.3	2.218	-		2.263	-	-	
Pot Cap-1 Maneuver	732	679	1042	717	693	1069	1597	-	-	1569	-	-	
Stage 1	985	868	-	818	748	-	-	-	-	-	-	-	
Stage 2	795	733	-	965	884	-	-	-	-	-	-	-	
Platoon blocked, %								-	-		-	-	
Mov Cap-1 Maneuver	694	642	1042	643	656	1069	1597	-	-	1569	-	-	
Mov Cap-2 Maneuver	694	642	-	643	656	-	-	-	-	-	-	<i>′</i> -	
Stage 1	932	868	-	774	708	-	-	-	-	-	-	-	
Stage 2	742	693	-	903	884	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	9			10.6		and the Article of States	6.2			0			
HCM LOS	Â			В									
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1597	-	-	974	656	1569	-	-				
HCM Lane V/C Ratio		0.054	-	-	0.072	0.015		-					
HCM Control Delay (s)		7.4	0	-	9	10.6	0	-	-				
HCM Lane LOS		7.4 A	Ă	-	Ă	. ю. о В	Ă	-	-				
HCM 95th %tile Q(veh)		0.2	-	-	0.2	0	0		-				

### D-164

Background Conditions Timing Plan: PM Peak Hour

D-165

# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

## F8: PM Peak Hour Future Year Background w/ Improvements Traffic Conditions (2027)

#### Lanes, Volumes, Timings 2: CR 484 & SW 29th Ave Rd

Background Conditions w/	Improvements
Timing	Plan: PM Peak Hour

	٦		<b>←</b>	•	1	~	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	٣	<b>†</b> †	<b>ተ</b> ኩ		٦	7	
Traffic Volume (vph)	30	1714	1611	58	49	22	
Future Volume (vph)	30	1714	1611	58	49	22	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	7%	7%	4%	4%	7%	7%	
Adj. Flow (vph)	31	1785	1678	- 60	51	23	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	31	1785	1738	0	51	23	
Turn Type	pm+pt	NA	NA		Prot	Perm	
Protected Phases	5	2	6		4		
Permitted Phases	2					4	
Detector Phase	5	2	6		4	4	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.8	22.5	22.5		22.5	22.5	
Total Split (s)	26.0	131.0	105.0		49.0	49.0	
Total Split (%)	14.4%	72.8%	58.3%		27.2%	27.2%	
Yellow Time (s)	4.8	4.8	4.8		3.7	3.7	
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8	6.8		5.7	5.7	
Lead/Lag	Lead		Lag				
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	None	None	None		None	None	
v/c Ratio	0.12	0.66	0.70		0.24	0.11	
Control Delay	3.8	6.5	12.9		46.7	19.6	
Queue Delay	0.0	0.0	0.0		0.0	0.0	
Total Delay	3.8	6.5	12.9		46.7	19.6	
Queue Length 50th (ft)	4	221	380		28	0	
Queue Length 95th (ft)	11	337	548		78	26	
Internal Link Dist (ft)		3183	3132		3021		
Turn Bay Length (ft)	144						
Base Capacity (vph)	549	3374	3288		962	870	
Starvation Cap Reductn	0	0	0		0	0	
Spillback Cap Reductn	Ő	Ő	Õ		Õ	Ő	
Storage Cap Reductn	. 0	õ	Ō		0	Ő	
Reduced v/c Ratio	0.06	0.53	0.53		0.05	0.03	

Cycle Length: 180 Actuated Cycle Length: 83.7 Natural Cycle: 90 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: CR 484 & SW 29th Ave Rd



#### HCM 6th Signalized Intersection Summary 2: CR 484 & SW 29th Ave Rd

Background Conditions w/	Improvements
Timing	Plan: PM Peak Hour

MovementEBLEBTLane Configurations $\uparrow$ $\uparrow$ Traffic Volume (veh/h)301714Future Volume (veh/h)301714Future Volume (veh/h)301714Initial Q (Qb), veh00Ped-Bike Adj(A_pbT)1.00Parking Bus, Adj1.001.00Work Zone On ApproachNoAdj Sat Flow, veh/h/In1796Adj Flow Rate, veh/h311785Peak Hour FactorPeak Hour Factor0.96Oge veh/h2372641Arrive On GreenArrive On Green0.033 Grp Volume(v), veh/h3117113503Grp Sat Flow, (s), veh/h/In17111706Q Serve(g_s), sQ Serve(g_s), s0.418.0Cycle Q Clear(g_c), s0.418.0Prop In Lane1.00Lane Grp Cap(c), veh/h2372641V/C Ratio(X)0.130.68Avail Cap(c_a), veh/h6365852HCM Platoon Ratio1.001.001.00Uniform Delay (d), s/veh8.63.9Incr Delay (d2), s/veh0.100.00%ile BackOfQ(50%), veh/ln0.10.11.9Unsig. Movement Delay, s/veh4.3Approach Delay, s/veh4.3Approach Delay, s/veh4.3Approach Delay, s/veh4.3Approach Delay, s/veh4.3Approach Delay, s/veh <th>WBT <b>†1</b>- 1611</th> <th></th> <th></th> <th></th> <th></th>	WBT <b>†1</b> - 1611				
Traffic Volume (veh/h)       30       1714         Future Volume (veh/h)       30       1714         Initial Q (Qb), veh       0       0         Ped-Bike Adj(A_pbT)       1.00       0         Parking Bus, Adj       1.00       1.00         Work Zone On Approach       No         Adj Sta Flow, veh/h/In       1796       1796         Adj Flow Rate, veh/h       31       1785         Peak Hour Factor       0.96       0.96         Percent Heavy Veh, %       7       7         Cap, veh/h       237       2641         Arrive On Green       0.03       0.77         Sat Flow, veh/h       31       1785         Grp Sat Flow(s),veh/h       11       1706         Q Serve(g_s), s       0.4       18.0         Cycle Q Clear(g_c), s       0.4       18.0         Cycle Q Clear(g_c), s       0.4       18.0         Cycle Q Clear(g_c), veh/h       237       2641         V/C Ratio(X)       0.13       0.68         Avail Cap(c_a), veh/h       100       1.00         Lane Grp Cap(c), veh/h       237       2641         V/C Ratio(X)       0.13       0.68         Avail Cap(c_a		WBR	SBL	SBR	
Traffic Volume (veh/h)       30       1714         Future Volume (veh/h)       30       1714         Initial Q (Qb), veh       0       0         Ped-Bike Adj(A_pbT)       1.00       0         Parking Bus, Adj       1.00       1.00         Work Zone On Approach       No         Adj Sat Flow, veh/h/ln       1796       1796         Adj Flow Rate, veh/h       31       1785         Peak Hour Factor       0.96       0.96         Percent Heavy Veh, %       7       7         Cap, veh/h       237       2641         Arrive On Green       0.03       0.77         Sat Flow, veh/h       11       1785         Grp Sat Flow(s), veh/h/ln       1711       1706         Q Serve(g_s), s       0.4       18.0         Cycle Q Clear(g_c), s       0.4       18.0         Cycle Q Clear(g_c), s       0.4       18.0         Prop In Lane       1.00       1.00         Lane Grp Cap(c), veh/h       237       2641         V/C Ratio(X)       0.13       0.68         Avail Cap(c_a), veh/h       636       5852         HCM Platoon Ratio       1.00       1.00         Unform Delay (			ኘ	7	
Future Volume (veh/h)         30         1714           Initial Q (Qb), veh         0         0           Ped-Bike Adj(A_pbT)         1.00         0           Parking Bus, Adj         1.00         1.00           Work Zone On Approach         No         Adj Sat Flow, veh/h/ln         1796           Adj Sat Flow, veh/h/ln         1796         1796         1795           Peak Hour Factor         0.96         0.96         Percent Heavy Veh, %         7         7           Cap, veh/h         237         2641         Arrive On Green         0.03         0.77           Sat Flow, veh/h         11         1785         Grp Sat Flow(s),veh/h/ln         1711         3503           Grp Volume(v), veh/h         11         1785         Grp Sat Flow(s),veh/h/ln         1711         1706           Q Serve(g_s), s         0.4         18.0         Cycle Q Clear(g_c), s         0.4         18.0           Prop In Lane         1.00         1.00         Lane Grp Cap(c), veh/h         237         2641           V/C Ratio(X)         0.13         0.68         Avail Cap(c_a), veh/h         636         5852           HCM Platoon Ratio         1.00         1.00         1.00         1.00		58	49	22	
Initial Q (Qb), veh         0         0           Ped-Bike Adj(A_pbT)         1.00           Parking Bus, Adj         1.00         1.00           Work Zone On Approach         No           Adj Sat Flow, veh/h/ln         1796         1796           Adj Flow Rate, veh/h         31         1785           Peak Hour Factor         0.96         0.96           Percent Heavy Veh, %         7         7           Cap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         31         1785           Grp Volume(v), veh/h         31         1785           Grp Sat Flow(s),veh/h/ln         1711         3503           Grp Volume(v), veh/h         31         1785           Grp Sat Flow(s),veh/h/ln         1711         1706           Q Serve(g_s), s         0.4         18.0           Prop In Lane         1.00         1.00           Lane Grp Cap(c), veh/h         237         2641           V/C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           HCM Platoon Ratio         1.00         1.00           Jnsig. Movem	1611	58	49	22	
Ped-Bike Adj(A_pbT)         1.00           Parking Bus, Adj         1.00         1.00           Parking Bus, Adj         1.00         1.00           Work Zone On Approach         No           Adj Sat Flow, veh/h/ln         1796         1796           Adj Flow Rate, veh/h         31         1785           Peak Hour Factor         0.96         0.96           Percent Heavy Veh, %         7         7           Zap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         31         1785           Grp Sat Flow(s),veh/h/In         1711         1706           Q Serve(g_s), s         0.4         18.0           Prop In Lane         1.00         1.00           Lane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           HCM Platoon Ratio         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q	0	0	0	0	
Parking Bus, Adj         1.00         1.00           Nork Zone On Approach         No           Adj Sat Flow, veh/h         1796         1796           Adj Sat Flow, veh/h         31         1785           Peak Hour Factor         0.96         0.96           Percent Heavy Veh, %         7         7           Cap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         11         3503           Grp Volume(v), veh/h         31         1785           Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         31         1785           Sat Flow, veh/h         11         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Prop In Lane         1.00         1.00           .ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           dCM Piatoon Ratio         1.00         1.00           Jnstig. Movement Delay, (d), s/veh         8.6         3.9		1.00	1.00	1.00	
Nork Zone On Approach         No           Adj Sat Flow, veh/h/ln         1796         1796           Adj Sat Flow, veh/h         1         1785           Peak Hour Factor         0.96         0.96           Pearcent Heavy Veh, %         7         7           Cap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         31         1785           Sarp Sat Flow(s), veh/h/ln         1711         3503           Grp Volume(v), veh/h         31         1785           Sarp Sat Flow(s), veh/h/ln         1711         3706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Orop In Lane         1.00         .           .ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           4CM Platoon Ratio         1.00         1.00           Jostifad Q Delay(d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln         1796         1796           Adj Flow Rate, veh/h         31         1785           Peak Hour Factor         0.96         0.96           Percent Heavy Veh, %         7         7           Cap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         31         1785           Sarp Sat Flow(s), veh/h/ln         1711         3503           Grp Volume(v), veh/h         31         1785           Sarp Sat Flow(s), veh/h/ln         1711         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Orop In Lane         1.00         .           .ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           4CM Platoon Ratio         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0	No		No		
Adj Flow Rate, veh/h         31         1785           Peak Hour Factor         0.96         0.96           Percent Heavy Veh, %         7         7           Cap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         31         1785           Srp Volume(v), veh/h         11         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           1CM Platoon Ratio         1.00         1.00           Jniform Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Yaegroach Vol, veh/h         8.8	1841	1841	1796	1796	
Deck         Hour Factor         0.96         0.96           Percent Heavy Veh, %         7         7           Cap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         11         1785           Srp Sat Flow(s), veh/h         11         1785           Srp Sat Flow(s), veh/h/In         1711         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Cycle Q Clear(g_c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Jnsig. Movement Delay, s/veh         4.3           Approach Vol, veh/h         1816           Approach Vol, veh/h         1816           Approach LOS         A           Air Green Settin	1678	60	51	23	
Percent Heavy Veh, %         7         7           Cap, veh/h         237         2641           Arrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         11         1785           Srp Sat Flow(s), veh/h/in         1711         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           Avail Cap(c_a), veh/h         636         5852           4CM Platoon Ratio         1.00         1.00           Jnform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Aregro Delay (d2), s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp Delay (d2), s/veh	0.96	0.96	0.96	0.96	
Cap, veh/h         237         2641           vrrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Srp Volume(v), veh/h         11         1785           Srp Sat Flow(s),veh/h/in         1711         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Orop In Lane         1.00         .           ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           vail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Jpstream Filter(I)         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.1         1.9           Jnsig. Movement Delay, s/veh         0.0         0.0           Grep LeDS         A         A           Approach Vol, veh/h         1816         4.3           Approach LOS         A         A           Imer - Assigned Phs         2         2.9           Change Period (Y+Rc), s         6.8         4.2	4	4	7	7	
Arrive On Green         0.03         0.77           Sat Flow, veh/h         1711         3503           Strp Volume(v), veh/h         31         1785           Strp Sat Flow(s), veh/h/ln         1711         1706           Q Serve(g_s), s         0.4         18.0           Orop In Lane         1.00	2232	80	91	81	
Sat Flow, veh/h         1711         3503           Grp Volume(v), veh/h         31         1785           Grp Sat Flow(s), veh/h/in         1711         1706           Q Serve(g_s), s         0.4         18.0           Q Serve(g_s), s         0.4         18.0           Prop In Lane         1.00         .           .ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           vwail Cap(c_a), veh/h         636         5852           HCM Platoon Ratio         1.00         1.00           Jpstream Filter(I)         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Jnsig. Movement Delay, s/veh         .1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp Delay, (J), s/veh         8.8         4.2           .nGrp DOS         A         A           Approach Vol, veh/h         1816           Approach LOS         A         A	0.65	0.65	0.05	0.05	
Srp Volume(v), veh/h         31         1785           Srp Sat Flow(s),veh/h/ln         1711         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Orop In Lane         1.00         1.00           .ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           wail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Jpstream Filter(I)         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Jnsig. Movement Delay, s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp LOS         A         A           Approach Vol, veh/h         1816           Approach LOS         A         A           Yers Duration (G+Y+RC), s         6.8           At Assigned Phs         2           Yers Duration (Y+Rc), s         6.8           At A Green Setting (Gmax), s	3537	123	1711	1522	
Srp Sat Flow(s),veh/h/in         1711         1706           Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Prop In Lane         1.00	849	889	51	23	-
Q Serve(g_s), s         0.4         18.0           Cycle Q Clear(g_c), s         0.4         18.0           Prop In Lane         1.00	1749	1819	1711	1522	
Cycle Q Clear(g_c), s         0.4         18.0           Prop In Lane         1.00           ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           xvail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Jpstream Filter(I)         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Jiel BackOfQ(50%), veh/ln         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           nGrp LOS         A         A           Approach Vol, veh/h         1816           Mproach LOS         A         3           Priner - Assigned Phs         2           Phys Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	24.0	24.4	2.1	1.1	
rop In Lane         1.00           ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           wail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Jpstream Filter(I)         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Jnsig. Movement Delay, s/veh         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           nGrp Delay, s/veh         4.3         A           vpproach Vol, veh/h         1816         4.3           vpproach LOS         A         A           Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	24.0	24.4	2.1	1.1	
ane Grp Cap(c), veh/h         237         2641           //C Ratio(X)         0.13         0.68           wail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Ipstream Filter(I)         1.00         1.00           Inform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Ale BackOfQ(50%), veh/ln         0.1         1.9           nsig. Movement Delay, s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           nGrp LOS         A         A           spproach LOS         A         A           imer - Assigned Phs         2           ths Duration (G+Y+Rc), s         62.9           change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	24.0	0.07	1.00	1.00	
//C Ratio(X)         0.13         0.68           vail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Ipstream Filter(I)         1.00         1.00           Inform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Ale BackOfQ(50%), veh/ln         0.1         1.9           nsig. Movement Delay, s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           ngrp cach Vol, veh/h         1816           npproach Delay, s/veh         4.3           nproach LOS         A           Imer - Assigned Phs         2           ths Duration (G+Y+Rc), s         62.9           change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	1133	1179	91	81	
vail Cap(c_a), veh/h         636         5852           ICM Platoon Ratio         1.00         1.00           Jpstream Filter(I)         1.00         1.00           Inform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Gle BackOfQ(50%), veh/ln         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           ngrp LOS         A         A           pproach Vol, veh/h         1816           pproach LOS         A         A           imer - Assigned Phs         2           ths Duration (G+Y+Rc), s         62.9           change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	0.75	0.75	0.56	0.28	
ICM Platoon Ratio         1.00         1.00           Jpstream Filter(I)         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Jisig. Movement Delay, s/veh         0.1         1.9           nGrp Delay(d3), s/veh         8.8         4.2           nGrp Delay(d), s/veh         8.8         4.2           ngrp cach Vol, veh/h         1816           Npproach Vol, veh/h         1816           Npproach LOS         A           Imer - Assigned Phs         2           Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	2371	2466	1023	910	
Jpstream Filter(I)         1.00         1.00           Jniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Jnsig. Movement Delay, s/veh         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp LOS         A         A           Approach Vol, veh/h         1816         1816           pproach Delay, s/veh         4.3         4.3           Approach LOS         A         A           Approach LOS         A         A           Approach LOS         A         A           Approach LOS         A         A           Assigned Phs         2         2           This Duration (G+Y+Rc), s         6.8         6.8           Ax Green Setting (Gmax), s         124.2         124.2	1.00	1.00	1.00	1.00	
Iniform Delay (d), s/veh         8.6         3.9           ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Gile BackOfQ(50%), veh/ln         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp LOS         A         A           Approach Vol, veh/h         1816         1816           .pproach Delay, s/veh         4.3         3           .pproach LOS         A         A           Timer - Assigned Phs         2         2           Phs Duration (G+Y+Rc), s         62.9         6.8           Max Green Setting (Gmax), s         124.2         124.2	1.00	1.00	1.00	1.00	
ncr Delay (d2), s/veh         0.2         0.3           nitial Q Delay(d3), s/veh         0.0         0.0           Kile BackOfQ(50%), veh/ln         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp Delay(d), s/veh         8.8         4.2           .nGrp LOS         A         A           Approach Vol, veh/h         1816           Approach LOS         A           ?imer - Assigned Phs         2           Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	8.7	8.8	33.4	32.9	
Initial Q Delay(d3),s/veh         0.0         0.0           Kale BackOfQ(50%),veh/ln         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           InGrp Delay(d),s/veh         8.8         4.2           InGrp LOS         A         A           Approach Vol, veh/h         1816           Approach Delay, s/veh         4.3           Approach LOS         A           Timer - Assigned Phs         2           Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	1.0	0.0 1.0	5.2	1.9	
Kile BackOfQ(50%),veh/ln         0.1         1.9           Jnsig. Movement Delay, s/veh         8.8         4.2           InGrp Delay(d),s/veh         8.8         4.2           InGrp LOS         A         A           Approach Vol, veh/h         1816           Approach Delay, s/veh         4.3           Approach LOS         A           "imer - Assigned Phs         2           Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2		0.0	5.2 0.0	0.0	
Jnsig. Movement Delay, s/veh       8.8       4.2         InGrp Delay(d),s/veh       8.8       4.2         InGrp LOS       A       A         Approach Vol, veh/h       1816         Approach Delay, s/veh       4.3         Approach LOS       A         Timer - Assigned Phs       2         Phs Duration (G+Y+Rc), s       62.9         Change Period (Y+Rc), s       6.8         Max Green Setting (Gmax), s       124.2	0.0		1.0	0.0	
InGrp Delay(d),s/veh         8.8         4.2           InGrp LOS         A         A           Approach Vol, veh/h         1816           Approach Delay, s/veh         4.3           Approach LOS         A           Timer - Assigned Phs         2           Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	6.1	6.4	1.0	0.0	
A         A           Approach Vol, veh/h         1816           Approach Delay, s/veh         4.3           Approach LOS         A           Timer - Assigned Phs         2           Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	0.7	0.0	20 7	24.0	
Approach Vol, veh/h       1816         Approach Delay, s/veh       4.3         Approach LOS       A         Timer - Assigned Phs       2         Phs Duration (G+Y+Rc), s       62.9         Change Period (Y+Rc), s       6.8         Max Green Setting (Gmax), s       124.2	9.7	9.8	38.7	34.8	
Approach Delay, s/veh     4.3       Approach LOS     A       Imer - Assigned Phs     2       Phs Duration (G+Y+Rc), s     62.9       Change Period (Y+Rc), s     6.8       Max Green Setting (Gmax), s     124.2	A	Α	D 74	C	
xpproach LOS     A       imer - Assigned Phs     2       ihs Duration (G+Y+Rc), s     62.9       Change Period (Y+Rc), s     6.8       Max Green Setting (Gmax), s     124.2	1738		74		
"imer - Assigned Phs     2       Phs Duration (G+Y+Rc), s     62.9       Change Period (Y+Rc), s     6.8       Max Green Setting (Gmax), s     124.2	9.8		37.5		
Phs Duration (G+Y+Rc), s         62.9           Change Period (Y+Rc), s         6.8           Max Green Setting (Gmax), s         124.2	A	terschilten-managemätere	D		
Change Period (Y+Rc), s6.8Max Green Setting (Gmax), s124.2		4	5	6	
Nax Green Setting (Gmax), s 124.2		9.6	9.1	53.7	
<b>U</b> ( )		* 5.7	6.8	6.8	
/ax()()ear lime (n.c+l1) s 20.0		* 43	19.2	98.2	
Green Ext Time ( $p_c$ ), s 25.3		4.1 0.2	2.4 0.0	26.4 20.5	
ntersection Summary					
ICM 6th Ctrl Delay	7.6				
ICM 6th LOS	7.0 A				
Notes	л	ana ana ana ang ang ang ang ang ang ang	ntalizza 61/2020/1264*******		

User approved volume balancing among the lanes for turning movement. User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

Background Conditions w/ Improvements Timing Plan: PM Peak Hour

Lane Group         EBL         EBT         EBR         WBL         WBT         WBR         NBR         NBR         SBL         SBT         SBR           Lane Configurations         ħ         ↑↑↑         ħ         ↑↑↑         ħ         ↑↑↑         ħ         ↑↑         ħ         ↑         ħ         ↑         ħ         ↑         ħ		٦		$\mathbf{F}$	4	◄	×.	4	1	1	1	¥	-	
Traffic Volume (vph)       75       1797       67       270       2273       209       96       23       317       448       46       72         Future Volume (vph)       75       1797       67       270       2273       209       96       23       317       448       466       72         Peak Hour Factor       0.93<	Lane Group	EBL	EBT	EBR		WBT	WBR	NBL	NBT	NBR		SBT	SBR	
Traffic Volume (vph)       75       1797       67       270       2273       209       96       23       317       448       466       72         Future Volume (vph)       75       1797       67       270       2273       209       96       23       317       448       466       72         Peak Hour Factor       0.93	Lane Configurations	٢	<b>†</b> †₽		ኘካ	<u>^</u>	T	ኘ	1	۲	ሻሻ	ţ,		
Peak Hour Factor         0.93	Traffic Volume (vph)			67			209			317			72	
Heavy Vehicles (%)       6%       6%       6%       4%       4%       4%       4%       11%       11%       11%       13%       13%       13%         Adj. Flow (vph)       81       1932       72       290       2444       225       103       25       341       482       49       77         Lane Group Flow (vph)       81       2004       0       290       2444       225       103       25       341       482       126       0         Turn Type       pm+pt       NA       Prot       NA       Perm       NA       N	Future Volume (vph)	75	1797	67	270	2273	209	96	23	317	448	46	72	
Adj. Flow (vph)       81       1932       72       290       2444       225       103       25       341       482       49       77         Shared Lane Traffic (%)       Lane Group Flow (vph)       81       2004       0       290       2444       225       103       25       341       482       49       77         Protected Phases       1       6       5       2       7       4       3       8         Permited Phases       6       2       4       3       8       8       8       8         Winimum Inital (s)       5.0       15.0       15.0       15.0       15.0       10.0       10.0       5.0       10.0         Minimum Inital (s)       5.0       15.0       15.0       15.0       10.0       10.0       5.0       10.0         Minimum Inital (s)       5.0       12.0       21.9       17.3       21.9       21.9       2.5       16.6       16.6       11.1       16.6         Total Split (%)       7.2.%       48.8%       13.4%       55.0%       55.0%       17.8%       17.8%       20.0%       24.1%         Lead Time (s)       2.2       2.0       2.5       2.0	Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Shared Lane Traffic (%)       Lane Group Flow (vph)       81       2004       0       290       2444       225       103       25       341       482       126       0         Turn Type       pm+pt       NA       Prot       NA       Perm       NA       Perm       Prot       NA       Permition       Prot       NA       Prot       NA       Prot       NA       Prot       NA       Prot       NA       Permition       Na       Prot       NA       Prot       NA       Prot	Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	11%	11%	11%	13%	13%	13%	
Lane Group Flow (vph)         81         2004         0         290         2444         225         103         25         341         482         126         0           Turn Type         pm-pt         NA         Prot         NA         Perm         Prot         NA         Perm<	Adj. Flow (vph)	81	1932	72	290	2444	225	103	25	341	482	49	77	
Turn Type         pm-pt         NA         Prot         NA         Perm         Prot         NA           Detector Phases         1         6         5         2         7         4         4         3         8           Minimum Split (s)         12.0         21.0         17.3         21.9         9.5         16.6         16.6         11.1         16.6         16.6         11.1         16.6         16.6         11.1         16.6         16.0         13.3         3	Shared Lane Traffic (%)													
Protected Phases         1         6         5         2         7         4         3         8           Permitted Phases         6         2         2         7         4         4         3         8           Detector Phase         1         6         5         2         2         7         4         4         3         8           Minimum Initial (s)         5.0         15.0         10.0         15.0         10.0         10.0         5.0         10.0         10.0         5.0         10.0         10.0         5.0         10.0         10.0         5.0         10.0 <t< td=""><td>Lane Group Flow (vph)</td><td>81</td><td>2004</td><td>0</td><td>290</td><td>2444</td><td>225</td><td>103</td><td>25</td><td>341</td><td>482</td><td>126</td><td>0</td><td></td></t<>	Lane Group Flow (vph)	81	2004	0	290	2444	225	103	25	341	482	126	0	
Protected Phases         1         6         5         2         7         4         3         8           Permitted Phases         6         2         2         7         4         4         3         8           Switch Phase         1         6         5         2         2         7         4         4         3         8           Minimum Split (s)         12.0         21.9         17.3         21.9         9.5         16.6         16.6         11.1         16.6           Total Split (s)         13.0         67.8         24.2         99.0         24.7         32.0         36.0         43.3           Total Split (s)         7.2%         48.8%         13.4%         55.0%         55.0%         13.7%         17.8%         17.8%         20.0%         24.1%           Yellow Time (s)         2.2         2.0         2.5         2.0         10.0         0.0         0.0         0.0         0.0         0.0         0.0         10.0         15.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6         6.6	Turn Type	pm+pt	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA		
Detector Phase         1         6         5         2         2         7         4         4         3         8           Switch Phase         Minimum Initial (s)         5.0         15.0         15.0         15.0         15.0         10.0         10.0         5.0         10.0           Minimum Split (s)         12.0         21.9         17.3         21.9         9.5         16.6         11.1         16.6           Total Split (s)         13.0         87.8         24.2         99.0         99.0         24.7         32.0         36.0         43.3           Total Split (s)         7.2%         48.8%         13.4%         55.0%         55.0%         13.7%         17.8%         17.8%         20.0%         24.1%           Yellow Time (s)         4.8         4.9         4.9         4.5         6.6         6.6         6.1         6.6           Lest Time (s)         7.0         6.9         7.3         6.9         4.5         6.6         6.6         6.1         6.6           Lead-Lag Optimize?         Yes	Protected Phases	·	6		5	2		7	4		- 3	8		
Detector Phase         1         6         5         2         2         7         4         4         3         8           Switch Phase         Minimum Initial (s)         5.0         15.0         10.0         15.0         5.0         10.0         10.0         5.0         10.0           Minimum Split (s)         12.0         21.9         17.3         21.9         21.9         9.5         16.6         16.6         11.1         16.6           Total Split (s)         13.0         87.8         24.2         99.0         99.0         24.7         32.0         36.0         43.3           Total Split (s)         13.0         87.8         24.2         99.0         99.0         24.7         32.0         36.0         43.3           Veltow Time (s)         48         4.9         4.8         4.9         4.9         3.5         4.0	Permitted Phases	6					2			4				
Minimum Initial (s)       5.0       15.0       10.0       15.0       15.0       10.0       10.0       5.0       10.0         Minimum Split (s)       12.0       21.9       17.3       21.9       21.9       9.5       16.6       16.6       11.1       16.6         Total Split (s)       13.0       87.8       24.2       99.0       99.0       24.7       32.0       36.0       43.3         Total Split (%)       7.2%       48.8%       13.4%       55.0%       55.0%       13.7%       17.8%       17.8%       20.0%       24.1%         Velow Time (s)       4.8       4.9       4.9       4.9       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       3.5       4.0       4.0       4.0       4.2       4.2       2.0       0.0       0.0       0.0       0.0 <td>Detector Phase</td> <td>1</td> <td>6</td> <td></td> <td>5</td> <td>2</td> <td></td> <td>7</td> <td>4</td> <td></td> <td>3</td> <td>8</td> <td></td> <td></td>	Detector Phase	1	6		5	2		7	4		3	8		
Minimum Split (s)       12.0       21.9       17.3       21.9       21.9       9.5       16.6       16.6       11.1       16.6         Total Split (s)       13.0       87.8       24.2       99.0       99.0       24.7       32.0       32.0       36.0       43.3         Total Split (%)       7.2%       48.8%       13.4%       55.0%       13.7%       17.8%       17.8%       20.0%       24.1%         Yellow Time (s)       4.8       4.9       4.8       4.9       3.5       4.0       4.0       3.5       4.0         All-Red Time (s)       2.2       2.0       2.5       2.0       2.0       1.0       2.6       2.6       2.6       2.6         Lest Time Adjust (s)       0.0 <td< td=""><td>Switch Phase</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Switch Phase													
Total Split (s)       13.0       87.8       24.2       99.0       99.0       24.7       32.0       32.0       36.0       43.3         Total Split (%)       7.2%       48.8%       13.4%       55.0%       55.0%       13.7%       17.8%       17.8%       20.0%       24.1%         Yellow Time (s)       4.8       4.9       4.8       4.9       4.9       3.5       4.0       4.0       3.5       4.0         All-Red Time (s)       2.2       2.0       2.5       2.0       1.0       2.6       2.6       2.6       2.6         Lost Time (s)       7.0       6.9       7.3       6.9       6.9       4.5       6.6       6.6       6.1       6.6         Lead/Lag       Lead       Lag       La	Minimum Initial (s)	5.0	15.0		10.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0		
Total Split (%)       7.2%       48.8%       13.4%       55.0%       55.0%       13.7%       17.8%       17.8%       20.0%       24.1%         Yellow Time (s)       4.8       4.9       4.8       4.9       3.5       4.0       4.0       3.5       4.0         All-Red Time (s)       2.2       2.0       2.5       2.0       2.0       1.0       2.6       2.	Minimum Split (s)	12.0	21.9		17.3	21.9	21.9	9.5	16.6	16.6				
Total Split (%)       7.2%       48.8%       13.4%       55.0%       55.0%       13.7%       17.8%       17.8%       20.0%       24.1%         Yellow Time (s)       4.8       4.9       4.8       4.9       3.5       4.0       4.0       3.5       4.0         All-Red Time (s)       2.2       2.0       2.5       2.0       2.0       1.0       2.6       1.0       1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       2.6       2.6       6.6       6.6       6.6       6.6       6.6       6.6       6.6       6.6       6.6       6.6       6.0       1.6       0.6       0.7       0.	Total Split (s)	13.0	87.8		24.2	99.0	99.0	24.7	32.0	32.0	36.0	43.3		
Yellow Time (s)       4.8       4.9       4.9       3.5       4.0       4.0       3.5       4.0         All-Red Time (s)       2.2       2.0       2.5       2.0       2.0       1.0       2.6	Total Split (%)	7.2%	48.8%		13.4%	55.0%	55.0%	13.7%	17.8%	17.8%	20.0%	24.1%		
All-Red Time (s)       2.2       2.0       2.5       2.0       2.0       1.0       2.6       2.6       2.6       2.6         Lost Time Adjust (s)       0.0			4.9				4.9							
Lost Time Adjust (s)0.00.00.00.00.00.00.00.00.00.00.0Total Lost Time (s)7.06.97.36.96.94.56.66.66.16.6Lead/LagLeadLagLagLagLagLagLagLagLagLagLead-Lag Optimize?YesYesYesYesYesYesYesYesYesYesRecall ModeNoneC-MinNoneC-MinNoneNoneNoneNoneNoneNonev/c Ratio0.790.910.910.960.260.710.110.970.950.34Control Delay79.553.080.546.714.7104.468.876.6102.343.8Queue Delay0.00.00.00.00.00.00.00.00.00.0Total Delay79.553.080.546.714.7104.468.876.6102.343.8Queue Length 50th (ft)47805180937781202621429486Queue Length 95th (ft)#157873m181m913m7819060#428#406160Internal Link Dist (ft)313212406501393139313931393139313931393Turn Bay Length (ft)114170144144114144144144 <td></td> <td>2.2</td> <td>2.0</td> <td></td> <td>2.5</td> <td>2.0</td> <td>2.0</td> <td></td> <td>2.6</td> <td></td> <td></td> <td></td> <td></td> <td></td>		2.2	2.0		2.5	2.0	2.0		2.6					
Total Lost Time (s)       7.0       6.9       7.3       6.9       6.9       4.5       6.6       6.6       6.1       6.6         Lead/Lag       Lead       Lag       Lead       Lag       Lag       Lag       Lag       Lag       Lag         Lead-Lag Optimize?       Yes       Y		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0				
Lead/Lag         Lead         Lag         Lag <thlag< th="">         Lag         <thlag< th=""> <thlag<< td=""><td>Total Lost Time (s)</td><td>7.0</td><td>6.9</td><td></td><td>7.3</td><td>6.9</td><td>6.9</td><td>4.5</td><td>6.6</td><td>6.6</td><td></td><td></td><td></td><td></td></thlag<<></thlag<></thlag<>	Total Lost Time (s)	7.0	6.9		7.3	6.9	6.9	4.5	6.6	6.6				
Lead-Lag Optimize?         Yes	Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Laq	Lead	Lag		
v/c Ratio       0.79       0.91       0.91       0.96       0.26       0.71       0.11       0.97       0.95       0.34         Control Delay       79.5       53.0       80.5       46.7       14.7       104.4       68.8       76.6       102.3       43.8         Queue Delay       0.0	Lead-Lag Optimize?	Yes			Yes			Yes						
v/c Ratio         0.79         0.91         0.91         0.96         0.26         0.71         0.11         0.97         0.95         0.34           Control Delay         79.5         53.0         80.5         46.7         14.7         104.4         68.8         76.6         102.3         43.8           Queue Delay         0.0 <td>Recall Mode</td> <td>None</td> <td>C-Min</td> <td></td> <td>None</td> <td>C-Min</td> <td>C-Min</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> <td></td> <td></td>	Recall Mode	None	C-Min		None	C-Min	C-Min	None	None	None	None	None		
Control Delay         79.5         53.0         80.5         46.7         14.7         104.4         68.8         76.6         102.3         43.8           Queue Delay         0.0	v/c Ratio	0.79	0.91		0.91	0.96	0.26	0.71	0.11	0.97				
Queue Delay         0.0 <th< td=""><td>Control Delay</td><td>79.5</td><td>53.0</td><td></td><td>80.5</td><td>46.7</td><td>14.7</td><td>104.4</td><td>68.8</td><td>76.6</td><td>102.3</td><td></td><td></td><td></td></th<>	Control Delay	79.5	53.0		80.5	46.7	14.7	104.4	68.8	76.6	102.3			
Total Delay       79.5       53.0       80.5       46.7       14.7       104.4       68.8       76.6       102.3       43.8         Queue Length 50th (it)       47       805       180       937       78       120       26       214       294       86         Queue Length 95th (it)       #157       873       m181       m913       m78       190       60       #428       #406       160         Internal Link Dist (ft)       3132       1240       650       1393       1393       190       600       #428       #406       160         Internal Link Dist (ft)       114       170       144       144       114       114       1393         Turn Bay Length (ft)       114       170       144       144       144       114       144       144       144       144       144       144       144       144       144       144       144       144       144       145       114       145	Queue Delay	0.0	0.0											
Queue Length 95th (ft)         #157         873         m181         m913         m78         190         60         #428         #406         160           Internal Link Dist (ft)         3132         1240         650         1393           Turn Bay Length (ft)         114         170         144         144         114           Base Capacity (vph)         102         2205         320         2556         858         182         241         355         514         369           Starvation Cap Reductn         0	Total Delay	79.5	53.0		80.5	46.7	14.7	104.4	68.8	76.6				
Queue Length 95th (ft)         #157         873         m181         m913         m78         190         60         #428         #406         160           Internal Link Dist (ft)         3132         1240         650         1393           Turn Bay Length (ft)         114         170         144         144         114           Base Capacity (vph)         102         2205         320         2556         858         182         241         355         514         369           Starvation Cap Reductn         0	Queue Length 50th (ft)	47	805		180	937	78	120	26	214	294	86		
Internal Link Dist (ft)         3132         1240         650         1393           Turn Bay Length (ft)         114         170         144         144         114           Base Capacity (vph)         102         2205         320         2556         858         182         241         355         514         369           Starvation Cap Reductn         0	Queue Length 95th (ft)	#157	873		m181	m913	m78	190	60	#428	#406			
Turn Bay Length (ft)         114         170         144         144         114           Base Capacity (vph)         102         2205         320         2556         858         182         241         355         514         369           Starvation Cap Reductn         0	,		3132			1240			650					
Base Capacity (vph)         102         2205         320         2556         858         182         241         355         514         369           Starvation Cap Reductn         0 <td>Turn Bay Length (ft)</td> <td>114</td> <td></td> <td></td> <td>170</td> <td></td> <td>144</td> <td>144</td> <td></td> <td></td> <td>114</td> <td></td> <td></td> <td></td>	Turn Bay Length (ft)	114			170		144	144			114			
Starvation Cap Reductn         0		102	2205			2556	858	182	241	355		369		
Spillback Cap Reductn         0	Starvation Cap Reductn													
Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0												-		
	• •	Ō			-	-	-			-		-		
									-	-		-		

Intersection Summary

Cycle Length: 180 Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow Natural Cycle: 130

Control Type: Actuated-Coordinated # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 20th Ave Rd & CR 484

▲ 01 ▲ 02 (0		ę	<b>b</b> Ø3		<b>1</b> ø4
13.6 99.5			36 s		32 s
<b>√</b> Ø5		Ş	<b>1</b> Ø7	<b>↓</b> Ø8	
24.25	87.8 s		24.7 s	43.3 s	

#### D-169

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

Background Conditions	; w/	Improvements
т	ming	Plan: PM Peak Hour

	۶		$\mathbf{F}$	4	4	×.	4	t	1	5	Ļ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	<u> ተተኑ</u>		ኻኻ	<u> </u>	1	ኘ	1	7	ኘካ	4		
Traffic Volume (veh/h)	75	1797	67	270	2273	209	96	23	317	448	46	72	
Future Volume (veh/h)	75	1797	67	270	2273	209	96	23	317	448	46	72	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1841	1841	1841	1737	1737	1737	1707	1707	1707	
Adj Flow Rate, veh/h	81	1932	69	290	2444	225	103	25	144	482	49	77	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	6	6	6	4	4	4	11	11	11	13	13	13	
Cap, veh/h	115	2368	84	319	2741	851	121	192	163	514	125	197	
Arrive On Green	0.04	0.64	0.64	0.12	0.73	0.73	0.07	0.11	0.11	0.16	0.21	0.21	
Sat Flow, veh/h	1725	4901	175	3401	5025	1560	1654	1737	1472	3155	598	940	
Grp Volume(v), veh/h	81	1298	703	290	2444	225	103	25	144	482	0	126	
Grp Sat Flow(s),veh/h/in	1725	1648	1780	1700	1675	1560	1654	1737	1472	1577	ŏ	1538	
Q Serve(g_s), s	4.3	53.2	53.5	15.2	68.1	8.8	11.1	2.3	17.4	27.2	0.0	12.7	
Cycle Q Clear(g_c), s	4.3	53.2	53.5	15.2	68.1	8.8	11.1	2.3	17.4	27.2	0.0	12.7	
Prop In Lane	1.00	00.2	0.10	1.00	00.1	1.00	1.00	2.0	1.00	1.00	0.0	0.61	
Lane Grp Cap(c), veh/h	115	1593	860	319	2741	851	121	192	163	514	0	322	
V/C Ratio(X)	0.70	0.82	0.82	0.91	0.89	0.26	0.85	0.13	0.89	0.94	0.00	0.39	
Avail Cap(c_a), veh/h	115	1593	860	319	2741	851	186	245	208	524	0.00	322	
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.72	0.72	0.72	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	39.3	26.1	26.2	78.0	20.6	12.4	82.5	72.3	78.9	74.4	0.0	61.3	
Incr Delay (d2), s/veh	14.0	3.4	6.3	4.0	0.5	0.1	20.2	0.6	34.4	24.5	0.0	1.7	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/in	2.2	18.7	20.9	6.6	20.9	3.0	5.4	1.1	8.2	12.8	0.0	5.2	
Unsig. Movement Delay, s/veh	2.2	10.7	20.9	0.0	20.9	3.0	5,4	1.1	0.2	12.0	0.0	5.2	
LnGrp Delay(d),s/veh	53.3	29.6	32.4	82.0	21.1	12.5	102.7	72.9	113.4	98.9	0.0	62.9	
LnGrp LOS	00.0 D	23.0 C	52.4 C	02.0 F	21.1 C	12.3 B	102.7 F	72.9 E	113.4 F	50.5 F	0.0 A	02.9 E	
Approach Vol, veh/h	<u> </u>	2082	<u> </u>		2959	D	F		F			<u> </u>	
· · · ·								272			608		
Approach Delay, s/veh		31.5			26.4			105.6			91.5		
Approach LOS		C			C			F			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	13.0	105.1	35.4	26.5	24.2	93.9	17.6	44.3					
Change Period (Y+Rc), s	*7	6.9	6.1	6.6	7.3	6.9	4.5	6.6					
Max Green Setting (Gmax), s	*6	92.1	29.9	25.4	16.9	80.9	20.2	36.7					
Max Q Clear Time (g_c+l1), s	6.3	70.1	29.2	19.4	17.2	55.5	13.1	14.7					
Green Ext Time (p_c), s	0.0	20.3	0.2	0.5	0.0	22.1	0.1	1.2					
Intersection Summary													
HCM 6th Ctrl Delay			38.5										
HCM 6th LOS			D										
Notes													
Least approved ignoring 11 Turning			7-07-07-07-07-07-07-07-07-07-07-07-07-07										

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

D-170

# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

## F9: PM Peak Hour Future Year Buildout Traffic Conditions (2027)

i

#### Lanes, Volumes, Timings 1: Marion Oaks Blvd & CR 484

Buildout Conditions Timing Plan: PM Peak Hour

		$\mathbf{r}$	1	◄	-	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>†</b> ĵ <sub>e</sub>		ኘኘ	<b>†</b> †	ሻ	77	
Traffic Volume (vph)	1269	227	714	1542	151	520	
Future Volume (vph)	1269	227	714	1542	151	520	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	6%	6%	4%	4%	4%	4%	
Adj. Flow (vph)	1322	236	744	1606	157	542	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1558	0	744	1606	157	542	
Turn Type	NA	•	Prot	NA	Prot	pm+ov	
Protected Phases	6		5	2	4	5	
Permitted Phases	÷		2	-	•	4	
Detector Phase	6		5	2	4	5	
Switch Phase	-		•	-	•	•	
Minimum Initial (s)	15.0		10.0	15.0	10.0	10.0	
Minimum Split (s)	21.8		16.8	21.8	18.5	16.8	
Total Split (s)	87.0		53.0	140.0	40.0	53.0	
Total Split (%)	48.3%		29.4%	77.8%	22.2%	29.4%	
Yellow Time (s)	4.8		4.8	4.8	4.8	4.8	
All-Red Time (s)	2.0		2.0	2.0	3.7	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8		6.8	6.8	8.5	6.8	
Lead/Lag	Lag		Lead		•.•	Lead	
Lead-Lag Optimize?	Yes		Yes			Yes	
Recall Mode	Min		None	Min	None	None	
v/c Ratio	0.95		0.87	0.59	0.74	0.46	
Control Delay	53.9		71.4	8.7	90.6	32.0	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	53.9		71.4	8.7	90.6	32.0	
Queue Length 50th (ft)	861		399	326	169	218	
Queue Length 95th (ft)	#1144		508	466	256	275	
Internal Link Dist (ft)	1332			3183	1673	2.0	
Turn Bay Length (ft)			360	0.00	114		
Base Capacity (vph)	1635		949	2820	333	1266	
Starvation Cap Reductn	0		0	0	0	0	
Spillback Cap Reductn	ŏ		Õ	õ	Õ	ŏ	
Storage Cap Reductn	ŏ		ŏ	õ	Ő	ŏ	
Reduced v/c Ratio	0.95		0.78	0.57	0.47	0.43	

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

#### Splits and Phases: 1: Marion Oaks Blvd & CR 484

<b>←</b> Ø2		<b>1</b> 04
140 5		40 s
₩ <u>05</u> 53 s	>>)36 187s	

Cycle Length: 180

Actuated Cycle Length: 164.6

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

# HCM 6th Signalized Intersection Summary 1: Marion Oaks Blvd & CR 484

Buildout	Conditions

D-172

Timing Plan: PM Peak Hour

Movement         EBT         EBR         WBL         NBL         NBR           Lane Configurations         1		-	7	4	<b>←</b>	1	*	
Lane Configurations $\begin{tabular}{lllllllllllllllllllllllllllllllllll$	Movement	EBT	EBR	WBL	WBT	NBI	NBR	
Traffic Volume (vehh)       1269       227       714       1542       151       520         Initial Q (Qb), veh       0       0       0       0       0       0         Pach Site Adj(A, pbr)       1.00       1.00       1.00       1.00       1.00       1.00         Yenking Bus, Adj       1.00       1.00       1.00       1.00       1.00       1.00         Work Zone On Approach       No       No       No       No       No       No         Yeak Hour Factor       0.96       0.96       0.96       0.96       0.96       0.96         Peak Hour Factor       0.96       0.96       0.96       0.96       0.96       0.96       0.96         Qesk Hour Factor       0.96       0.96       0.22       0.30       1134       Admire On Green       0.44       0.02       1.72       0.17         Sat Flow, vehh       3622       0       3401       3589       1753       3745         Gry Sut Flow(s), vehh In       1721       0       1700       1749       1753       1373         Q Sarve(g., s), s       516       0.0       312       343       12.0       21.2       12         Cycle O Clear(g.c), s <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Future Voluma (velm) initial Q (Qb) veh Pedike A(Qb, pet) Pedike A(Qb, pet) Pedike A(Qb, pet) 100 100 100 100 100 100 100 10			227					
Initial Q (Db), veh       0       0       0       0       0       0         Perklike A(d), pbT)       1.00       1.00       1.00       1.00       1.00       1.00         Parking Bus, Adj       1.00       1.00       1.00       1.00       1.00       1.00         Vior Zone On Approach       No       No       No       No       No         Vior Zone On Approach       No       1.00       1.00       1.00       1.00         Vior Zone On Approach       No       No       No       No       No         Vior Zone On Approach       No       6       0.66       0.96       0.96       0.96         Oge Netholin       1522       0       744       1606       157       542         Cap, veh/h       322       0       3401       3589       173       2745         Greg Volume(v), veh/h       322       0       3401       3589       173       373         Opserve(s, s), s       51.6       0.0       31.2       34.3       12.0       21.2         Opserve(s, s), s       51.6       0.0       31.2       34.3       12.0       21.2         Opserve(s, s), s       51.6       0.0								
Ped-Bike Adj(A, pbT)       1.00       1.00       1.00       1.00         Parking Bus, Adj       1.00       1.00       1.00       1.00       1.00         Adj Sat Flow, vehhni       1811       1841       1841       1841       1841         Adj Elw Rate, vehhni       1811       1841       1841       1841       1841         Peak Hour Factor       0.96       0.96       0.96       0.96       0.96         Percent Heavy Veh, %       6       6       4       4       4         Cap, vehhni       1502       823       2535       300       1134         Arrive On Green       0.44       0.00       2.4       0.72       0.17       0.17         Sat Flow, vehhni       1322       0       744       1606       157       542         Grp Volume(v), vehh       1322       0       744       1606       157       542         Grp Sat Flow, Vehhni       1322       0       744       1606       157       542         Grp Solume(v), vehh       1322       0       31.2       34.3       12.0       21.2         Projo Intane       0.00       1.00       1.00       1.00       1.00       1.00								
Parking Dus Agi       1.00       1.00       1.00       1.00       1.00       1.00         Work Zone On Approach       No       No       No       No       No         Adj Sat Flow, vehh/m       1322       0       744       1606       157       542         Percent Heavy Veh, %       6       6       4       4       4       4         Cap, veh/m       1502       823       2535       300       1134         Artive On Green       0.44       0.02       0.72       0.17       0.17         Sat Flow, veh/m       3622       0       3401       5589       1753       2745         Grp Volume(v), veh/m       3622       0       3401       1569       1753       274         Grp Sat Flow(s), veh/min       1721       0       1700       1749       1753       1373         Q Serveig, s), s       51.6       0.0       31.2       34.3       12.0       21.2         Cycle Q Clear(g, c), s       51.6       0.0       31.2       34.3       12.0       21.2         Propin Lane       0.00       1.00       1.00       1.00       1.00       1.00       1.00         Unform Daley (d)(), shveh			1.00		-	-	-	
Work Zone On Approach         No         No         No           Adj Sat Flow, vehrh/in         1811         1811         1841         1841         1841           Adj Flow Rate, vehrh         1322         0         744         1606         157         542           Peak Hour Factor         0.66         0.96         0.96         0.96         0.96         0.96           Percent Heavy Vehr, %         6         6         4         4         4           Cap, vehrh         1502         823         2535         300         1134           Arrive On Green         0.44         0.00         0.24         0.72         0.17         0.17           Sat Flow, vehrh         3622         0         3401         3589         1753         2745           Grey Volume(v), vehrh         1322         0         744         1606         157         542           Grp Sat Flow(sy vehrh/n         1322         0         743         1753         1373         0.2745           Qserve(g, s), s         51.6         0.0         31.2         34.3         12.0         21.2         0.746         1.00         1.00         1.00         1.00         1.00         1.00         1.		1.00			1.00			
Adj Sat Flow, veh/h/m       1811       1841       1841       1841         Adj Flow Rate, veh/h       1322       0       744       1606       157       542         Percent Heavy Veh, %       6       6       4       4       4       4         Cap, veh/h       1502       823       2535       300       1134         Arrive On Green       0.44       0.00       0.24       0.72       0.17       0.17         Sat Flow, veh/h       3622       0       3401       3569       1753       2745         Grp Sat Flow(s), veh/h       1722       0       744       1606       157       542         Op Sarve(a, s), s       51.6       0.0       31.2       34.3       12.0       21.2         Oystev(a, s), s       51.6       0.0       31.2       34.3       12.0       21.2         Op Sarva(a, s), s       51.6       0.0       31.2       34.3       12.0       21.2         Op Sarva(a, s), s       51.6       0.0       31.2       34.3       12.0       21.2         Op Clear(g, c), s       51.6       0.0       31.2       34.3       12.0       21.2         Op Salo(M)       0.88       0.9								
Adj       Flow Rate, veh/h       1322       0       744       1606       157       542         Peak Hour Factor       0.96       0.96       0.96       0.96       0.96       0.96         Peak Hour Factor       0.96       0.96       0.96       0.96       0.96       0.96         Cap, veh/h       1502       823       2535       300       1134         Arrive On Green       0.44       0.00       0.24       0.72       0.17       0.017         Sat Flow, veh/h       1322       0       744       1606       157       542         Grp Volume(v), veh/h       1322       0       744       1606       157       542         Grp Sat Flow, Syehh/lin       1721       0       1700       1733       12.0       21.2         Cycle Q Clear(g.c), s       51.6       0.0       31.2       34.3       12.0       21.2         Cycle Q Clear(g.c), veh/h       1502       823       2535       300       1134         ViC Ratio(X)       0.88       0.90       0.63       0.52       0.48       0.44         ViC Ratio(X)       0.88       0.3       1.4       0.3       1.4       0.3       1.4       0.3<			1811	1841			1841	
Peak Hour Factor 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96	· ·							
Percent Heavy Veh, %     6     6     4     4     4       Cap, veh/h     1502     823     2535     300     1134       Arrive On Green     0.44     0.00     0.24     0.72     0.17     0.17       Sat Flow, veh/h     322     0     3401     3589     1753     2745       Grp Volume(v), veh/h     1322     0     744     1606     157     542       Grp Sat Flow(s), veh/h     1322     0     744     1606     157     542       Grp Sat Flow(s), veh/h     1322     0     744     1606     157     542       Oycle Q Clear(g, c), s     51.6     0.0     31.2     34.3     12.0     21.2       Prop In Lane     0.00     1.00     1.00     1.00     1.00       Lane Grp Cap(c), veh/h     1672     823     2535     300     1134       V/C Ratio(X)     0.88     0.90     0.63     0.52     0.48       Avail Cap(c, a), veh/h     1879     1070     3172     376     1253       HCM Platon Ratio     1.00     1.00     1.00     1.00     1.00       Upstream Filter(t)     1.00     0.0     0.0     0.0     1.00       Uniforn Delay (d), siveh     4.4 <t< td=""><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td></t<>			-					
Cap, veh/h       1502       623       2535       300       1134         Arrive On Green       0.44       0.00       0.24       0.72       0.17       0.17         Sar How, veh/h       3622       0       3401       3589       1753       2745         Grp bolume(v), veh/h       1322       0       744       1606       157       542         Grp bat Flow, (s), veh/h       1721       0       1700       1749       1733       1373         Q Serve(g., s), s       51.6       0.0       31.2       34.3       12.0       21.2         Prop In Lane       0.00       1.00       1.00       1.00       1.00       1.00         Lane Grp Cap(c), veh/h       1502       823       2535       300       1134         V/C Ratio(X)       0.88       0.90       0.63       0.52       0.46         Avail Cap(c, a), veh/h       1879       1070       3172       376       1253         HCM Platoon Ratio       1.0       1.00       1.00       1.00       1.00         Uniform Delay (d), s/veh       4.4       0.0       8.9       0.3       1.4       0.3         Initial Delay(d), s/veh       4.2       0.0								
Arrive On Green     0.44     0.00     0.24     0.72     0.17     0.17       Sat Flow, veh/h     3622     0     3401     3868     1753     2745       Grp Volume(v), veh/h     1322     0     744     1606     157     542       Grp Sat Flow(s), veh/h     1322     0     744     1606     157     542       Grp Sat Flow(s), veh/h     1322     0     744     1763     1373       Q Serve(g, s), s     51.6     0.0     31.2     34.3     12.0     21.2       Prop In Lane     0.00     1.00     1.00     1.00     1.00       Lare Grp Cap(c), veh/h     1879     1070     3172     376     1253       V/C Ratic(X)     0.88     0.90     0.63     0.52     0.48       Avail Cap(c, a), veh/h     1879     1070     3172     376     1253       HGM Platoon Ratio     1.00     1.00     1.00     1.00     1.00     1.00       Upstream Filter(f)     1.00     1.00     1.00     1.00     1.00     1.00       Uniform Delay (d), siveh     37.9     0.0     54.0     10.3     55.4     31.5       Incr Delay (d), siveh     4.4     0.0     8.9     0.3     1.4     0.3<			v					
Sat Flow, veh/h         3622         0         3401         3589         1753         2745           Grp Volume(v), veh/h         1322         0         744         1006         157         542           Grp Sat Flow(s), veh/h/h         1721         0         1700         1749         1753         1373           Q Serve(g, s), s         51.6         0.0         31.2         34.3         12.0         21.2           Cycle C Clear(g, c), s         51.6         0.0         31.2         34.3         12.0         21.2           Cycle C Clear(g, c), veh/h         1502         823         2535         300         1134           V/C Ratic(X)         0.88         0.90         0.63         0.52         0.48           Avail Cap(c, a), veh/h         1879         1070         3172         376         1253           HCM Platoon Ratio         1.00         1.00         1.00         1.00         1.00         1.00           Uniform Delay (d), siveh         4.4         0.0         8.9         0.3         1.4         0.3           Indira O Delay (d), siveh         4.4         0.0         8.9         0.3         1.4         0.3           May Bobbbbbbb         D <td></td> <td></td> <td>0.00</td> <td></td> <td></td> <td></td> <td></td> <td></td>			0.00					
Grp Volume(v), veh/h       1322       0       744       1606       157       542         Grp Sat Flow(s), veh/h/in       1721       0       1700       1749       1753       1373         Og Serve(g. s), s       51.6       0.0       31.2       34.3       12.0       21.2         Cycle Q Clear(g. c), s       51.6       0.0       31.2       34.3       12.0       21.2         Prop In Lane       0.00       1.00       1.00       1.00       1.00         Lane Grp Cap(c), veh/h       1502       823       2535       300       1134         V/C Ratio(X)       0.88       0.90       0.63       0.52       0.48         Avail Cap(c. a), veh/h       1879       1070       3172       376       1253         HCM Platoon Ratio       1.00       1.00       1.00       1.00       1.00       1.00         Upstream Filter(f)       1.00       0.00       1.00       1.00       1.00       1.00         Uniform Delay (d), siveh       37.9       0.0       54.4       31.3       1.6       1.6         Inder Delay(d), siveh       1.28       0.0       14.1       11.5       5.5       17.6       1.6         Uns								
Grp Sat Flow(s),veh/h/ln       1721       0       1700       1749       1753       1373         Q Serve(g_s), s       51.6       0.0       31.2       34.3       12.0       21.2         Prop In Lane       0.00       1.00       1.00       1.00       1.00         Lane Grp Cap(c), veh/h       1502       823       2535       300       1134         V/C Ratio(X)       0.88       0.90       0.63       0.52       0.48         Avail Cap(c_a), veh/h       1879       1070       3172       376       1253         HCM Platon Ratio       1.00       1.00       1.00       1.00       1.00       1.00         Uniform Delay (d), s/veh       37.9       0.0       54.0       10.3       55.4       31.5         Incr Delay (d2), s/veh       4.4       0.0       8.9       0.3       1.4       0.3         Wile BackOtO(s/0/wel/h)       21.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp Delay(d1), s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp Delay(				*******				
Q Serve(g_s), s       51.6       0.0       31.2       34.3       12.0       21.2         Cycle Q Clear(g_c), s       51.6       0.0       31.2       34.3       12.0       21.2         Pyp In Lane       0.00       1.00       1.00       1.00       1.00         Lane Grp Cap(c), veh/h       1502       823       2535       300       1134         V/C Ratio(X)       0.88       0.90       0.63       0.52       0.48         Avail Cap(c_a), veh/h       1879       1070       3172       376       1253         HOM Platoon Ratio       1.00       1.00       1.00       1.00       1.00         Uniform Delay (d), s/veh       37.9       0.54.0       10.3       55.4       31.5         Incr Delay (d), s/veh       4.4       0.0       8.9       0.3       1.4       0.3         Initial Delay(d), s/veh       0.0       0.0       0.0       0.0       0.0       0.0         Unsig. Movement Delay, s/veh       2.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp LOS       D       E								
Cycle Q Člear(g_c), s         51.6         0.0         31.2         34.3         12.0         21.2           Prop In Lane         0.00         1.00         1.00         1.00         1.00           Lane Grp Cap(c), veh/h         1502         823         2535         300         1134           V/C Ratio(X)         0.88         0.90         0.63         0.52         0.48           Avail Cap(c_a), veh/h         1879         1070         3172         376         1253           HCM Platoon Ratio         1.00         1.00         1.00         1.00         1.00         1.00           Upstream Filter(I)         1.00         0.00         1.00         1.00         1.00         1.00           Upstream Filter(I)         0.00         0.00         0.0			-					
Prop In Lane     0.00     1.00     1.00     1.00       Lane Grp Cap(c), vel/h     1502     823     2535     300     1134       V/C Ratio(X)     0.88     0.90     0.63     0.52     0.48       Avail Cap(c_a), vel/h     1879     1070     3172     376     1253       HCM Platoon Ratio     1.00     1.00     1.00     1.00     1.00       Upstream Filter(I)     1.00     0.00     1.00     1.00     1.00       Uniform Delay (d), s/veh     4.4     0.0     8.9     0.3     1.4     0.3       Initial Q Delay(d3), s/veh     4.4     0.0     8.9     0.3     1.4     0.3       Viel Back/Ot(S05%), veh/n     21.8     0.0     1.4     11.5     5.5     17.6       Unsig. Movement Delay, s/veh     21.8     0.0     1.4     11.5     5.5     17.6       Unsig. Movement Delay, s/veh     42.2     2.0.0     62.9     10.6     56.9     31.8       LnGrp Delay(d1), s/veh     42.2     2.7.1     37.5     37.5     37.5       Approach Dolay, s/veh     42.2     2.7.1     37.5     37.5       Approach Vol, veh/h     132.2     *32     45.2     80.2       Max Q Clear Time (g.c, 11), s     66.3 <td>10-11</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10-11							
Lane Grp Cap(c), veh/h         1502         823         2535         300         1134           VIC Ratio(X)         0.88         0.90         0.63         0.52         0.48           Avail Cap(c_a), veh/h         1879         1070         3172         376         1253           HCM Platon Ratio         1.00         1.00         1.00         1.00         1.00         1.00           Upstream Filter(I)         1.00         0.00         1.00         1.00         1.00         1.00           Uniform Delay (d), siveh         37.9         0.0         54.0         10.3         55.4         31.5           Incr Delay (d2), siveh         4.4         0.0         8.9         0.3         1.4         0.3           Initial Q Delay(d3), siveh         0.0         0.0         0.0         0.0         1.00           Unsign Movement Delay, siveh         21.8         0.0         14.1         11.5         5.5         17.6           Unsign Movement Delay, siveh         42.2         0.0         62.9         10.6         56.9         31.8           LnGrp Delay (d), siveh         42.2         27.1         37.5         37.5         37.5           Approach LOS         D         C </td <td></td> <td>0110</td> <td></td> <td></td> <td>34.3</td> <td></td> <td></td> <td></td>		0110			34.3			
V/C Ratio(X)       0.88       0.90       0.63       0.52       0.48         Avail Cap(c_a), veh/h       1879       1070       3172       376       1253         HCM Platoon Ratio       1.00       1.00       1.00       1.00       1.00       1.00         Upstream Filter(i)       1.00       0.00       1.00       1.00       1.00       1.00         Uniform Delay (d), s/veh       37.9       0.0       54.0       10.3       55.4       31.5         Incr Delay (d2), s/veh       4.4       0.0       8.9       0.3       1.4       0.3         Wile BackOfQ(50%), veh/ln       21.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp Delay(d), s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp Delay, S/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp Delay, s/veh       42.2       2.7       137.5       5       70.9         Approach Delay, s/veh       42.2       2.7       137.5       5       6         Phs Duration		4000	0.00		0505			
Avail Cap(c_a), veh/h       1879       1070       3172       376       1253         HCM Platoon Ratio       1.00       1.00       1.00       1.00       1.00       1.00         Upstream Filter(i)       1.00       0.00       1.00       1.00       1.00       1.00         Uniform Delay (d), s/veh       37.9       0.0       54.0       10.3       55.4       31.5         Inct Delay (d2), s/veh       4.4       0.0       8.9       0.3       1.4       0.3         Initial Q Delay(d3), s/veh       0.0       0.0       0.0       0.0       0.0       0.0         Wisig. Movement Delay, s/veh       1.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp Delay, (s/veh 42.2       2.0       62.9       10.6       56.9       31.8         Approach Delay, s/veh       42.2       2.7.1       37.5       37.5         Approach Delay, s/veh       42.2       27.1       37.5         Approach LOS       D       C       D         Timer - Assigned Phs       2       4       5         Max Green Sett								
HCM Platoon Ratio       1.00       1.00       1.00       1.00       1.00       1.00         Upstream Filter(I)       1.00       0.00       1.00       1.00       1.00       1.00         Uniform Delay (d), s/veh       37.9       0.0       54.0       10.3       55.4       31.5         Incr Delay (d2), s/veh       4.4       0.0       8.9       0.3       1.4       0.3         Initial Q Delay(d3), s/veh       0.0       0.0       0.0       0.0       0.0       0.0       0.0         Wite BackOfQ(50%), veh/In       21.8       0.0       14.1       11.5       5.5       17.6         Unsign Movement Delay, s/veh       LnGrp Delay(d), s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp DS       D       E       B       E       C       C         Approach Vol, veh/In       1322       A       2350       699       699         Approach LOS       D       C       D       C       D       C       D         Yerpoach LOS       D       C       D       C       D       D       C       D         Kas Green Setting (Gmax), s       113.3       33.6       4								
Upstream Filter(I)       1.00       0.00       1.00       1.00       1.00       1.00         Uniform Delay (d), s/veh       37.9       0.0       54.0       10.3       55.4       31.5         Incr Delay (d2), s/veh       4.4       0.0       8.9       0.3       1.4       0.3         Initial Q Delay(d3), s/veh       0.0       0.0       0.0       0.0       0.0       0.0         Wile BackOfQ (50%), veh/In       21.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       2.0       62.9       10.6       56.9       31.8       1.6         LnGrp Delay(d), s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp LOS       D       E       B       E       C         Approach Vol, veh/h       1322       A       2350       699         Approach LOS       D       C       D       Timer - Assigned Phs       2       4       5       6         Phs Duration (G+Y+RC), s       113.3       33.6       42.3       70.9       70.9       70.9         Change Period (Y+RC), s       6.8       *8.5       6.8       6.8       6.8       6.8 <td></td> <td></td> <td>4.00</td> <td></td> <td></td> <td></td> <td></td> <td></td>			4.00					
Uniform Delay (d), s/veh $37.9$ $0.0$ $54.0$ $10.3$ $55.4$ $31.5$ Incr Delay (d2), s/veh $4.4$ $0.0$ $8.9$ $0.3$ $1.4$ $0.3$ Initial Q Delay(d3), s/veh $0.0$ $0.0$ $0.0$ $0.0$ $0.0$ Wale BackOfQ(50%), veh/ln $21.8$ $0.0$ $14.1$ $11.5$ $5.5$ $17.6$ Unsig. Movement Delay, s/veh $42.2$ $0.0$ $62.9$ $10.6$ $56.9$ $31.8$ LnGrp Delay(d), s/veh /h $1322$ A $2350$ $6699$ Approach Vol, veh/h $1322$ A $2350$ $6699$ Approach LOS       D       C       D       D       C         Timer - Assigned Phs       2       4       5       6         Phs Duration (G+Y+RC), s       113.3 $33.6$ $42.3$ $70.9$ Change Period (Y+RC), s $133.2$ * $32.2$ $33.2$ $53.6$ Green Setting (Gmax), s $133.2$ * $32.4$ $80.2$ $80.2$ Max Q Clear Time (p_c), s $19.6$ $1.9$ $2.4$ $10.5$ </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
$ \begin{array}{llllllllllllllllllllllllllllllllllll$								
Initial Q Delay(d3), s/veh       0.0       0.0       0.0       0.0       0.0         %ile BackOfQ(50%), veh/ln       21.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       21.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp DOS       D       E       B       E       C         Approach Vol, veh/h       1322       A       2350       699         Approach Delay, s/veh       42.2       27.1       37.5         Approach LOS       D       C       D         Timer - Assigned Phs       2       4       5       6         Phs Duration (G+Y+Rc), s       113.3       33.6       42.3       70.9         Change Period (Y+Rc), s       133.2       *32       46.2       80.2         Max Green Setting (Gmax), s       133.2       *32       53.6         Green Ext Time (p_c), s       19.6       1.9       2.4       10.5         Intersection Summary       1       2       4       10.5         Intersection Summary       C       C								
%ile BackOfQ(50%),veh/ln       21.8       0.0       14.1       11.5       5.5       17.6         Unsig. Movement Delay, s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp DOS       D       E       B       E       C         Approach Vol, veh/h       1322       A       2350       699         Approach Delay, s/veh       42.2       27.1       37.5         Approach LOS       D       C       D         Timer - Assigned Phs       2       4       5         Phs Duration (G+Y+RC), s       113.3       33.6       42.3       70.9         Change Period (Y+RC), s       133.2       *32       46.2       80.2         Max Q Clear Time (g_c+I1), s       36.3       23.2       33.2       53.6         Green Ext Time (p_c), s       19.6       1.9       2.4       10.5         Intersection Summary       33.4       KC       KC       KC								
Unsig. Movement Delay, s/veh         LnGrp Delay(d), s/veh       42.2       0.0       62.9       10.6       56.9       31.8         LnGrp LOS       D       E       B       E       C         Approach Vol, veh/h       1322       A       2350       699         Approach Delay, s/veh       42.2       27.1       37.5         Approach LOS       D       C       D         Timer - Assigned Phs       2       4       5       6         Phs Duration (G+Y+Rc), s       113.3       33.6       42.3       70.9         Change Period (Y+Rc), s       113.3       33.6       42.3       70.9         Change Period (Y+Rc), s       133.2       * 32       46.2       80.2         Max Q Clear Time (g_c+11), s       36.3       23.2       33.2       53.6         Green Ext Time (p_c), s       19.6       1.9       2.4       10.5         Intersection Summary       33.4       K       K       K       K         HCM 6th LOS       C       C       C       K       K       K								
LnGrp Delay(d),s/veh     42.2     0.0     62.9     10.6     56.9     31.8       LnGrp LOS     D     E     B     E     C       Approach Vol, veh/h     1322     A     2350     699       Approach Delay, s/veh     42.2     27.1     37.5       Approach LOS     D     C     D       Timer - Assigned Phs     2     4     5     6       Phs Duration (G+Y+Rc), s     113.3     33.6     42.3     70.9       Change Period (Y+Rc), s     6.8     * 8.5     6.8     6.8       Max Green Setting (Gmax), s     133.2     * 32     46.2     80.2       Max Q Clear Time (g_c+I1), s     36.3     23.2     53.6       Green Ext Time (p_c), s     19.6     1.9     2.4     10.5       Intersection Summary     HCM 6th Ctrl Delay     33.4       HCM 6th LOS     C		21.8	0.0	14.1	11.5	5.5	17.6	
LnGrp LOS         D         E         B         E         C           Approach Vol, veh/h         1322         A         2350         699           Approach Delay, s/veh         42.2         27.1         37.5           Approach LOS         D         C         D           Timer - Assigned Phs         2         4         5         6           Phs Duration (G+Y+Rc), s         113.3         33.6         42.3         70.9           Change Period (Y+Rc), s         6.8         * 8.5         6.8         6.8           Max Green Setting (Gmax), s         133.2         * 32         46.2         80.2           Max Q Clear Time (g_c+I1), s         36.3         23.2         53.6         Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary         33.4         HCM 6th Ctri Delay         33.4         4CM 6th LOS         C								
Approach Vol, veh/h       1322       A       2350       699         Approach Delay, s/veh       42.2       27.1       37.5         Approach LOS       D       C       D         Timer - Assigned Phs       2       4       5       6         Phs Duration (G+Y+Rc), s       113.3       33.6       42.3       70.9         Change Period (Y+Rc), s       6.8       * 8.5       6.8       6.8         Max Green Setting (Gmax), s       133.2       * 32       46.2       80.2         Max Q Clear Time (g_c+11), s       36.3       23.2       53.6       Green Ext Time (p_c), s       19.6       1.9       2.4       10.5         Intersection Summary       40.05       C       33.4       40.5       6       6			0.0					
Approach Delay, s/veh         42.2         27.1         37.5           Approach LOS         D         C         D           Timer - Assigned Phs         2         4         5         6           Phs Duration (G+Y+Rc), s         113.3         33.6         42.3         70.9           Change Period (Y+Rc), s         6.8         * 8.5         6.8         6.8           Max Green Setting (Gmax), s         133.2         * 32         46.2         80.2           Max Q Clear Time (g_c+l1), s         36.3         23.2         53.6         Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary         33.4         HCM 6th Ctri Delay         33.4         K <td< td=""><td></td><td></td><td></td><td>E</td><td></td><td></td><td><u> </u></td><td></td></td<>				E			<u> </u>	
Approach LOS         D         C         D           Timer - Assigned Phs         2         4         5         6           Phs Duration (G+Y+Rc), s         113.3         33.6         42.3         70.9           Change Period (Y+Rc), s         6.8         * 8.5         6.8         6.8           Max Green Setting (Gmax), s         133.2         * 32         46.2         80.2           Max Q Clear Time (g_c+l1), s         36.3         23.2         53.6         Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary         HCM 6th Ctri Delay         33.4           HCM 6th LOS         C         C         C         C			Α					
Z         4         5         6           Phs Duration (G+Y+Rc), s         113.3         33.6         42.3         70.9           Change Period (Y+Rc), s         6.8         *8.5         6.8         6.8           Max Green Setting (Gmax), s         133.2         *32         46.2         80.2           Max Q Clear Time (g_c+11), s         36.3         23.2         53.6         Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary         Intersection Summary           HCM 6th Ctrl Delay         33.4         C         C								
Phs Duration (G+Y+Rc), s       113.3       33.6       42.3       70.9         Change Period (Y+Rc), s       6.8       * 8.5       6.8       6.8         Max Green Setting (Gmax), s       133.2       * 32       46.2       80.2         Max Q Clear Time (g_c+11), s       36.3       23.2       33.2       53.6         Green Ext Time (p_c), s       19.6       1.9       2.4       10.5         Intersection Summary       33.4       HCM 6th Ctrl Delay       33.4         HCM 6th LOS       C       C       C	Approach LOS	D			С	D		
Phs Duration (G+Y+Rc), s       113.3       33.6       42.3       70.9         Change Period (Y+Rc), s       6.8       * 8.5       6.8       6.8         Max Green Setting (Gmax), s       133.2       * 32       46.2       80.2         Max Q Clear Time (g_c+l1), s       36.3       23.2       33.2       53.6         Green Ext Time (p_c), s       19.6       1.9       2.4       10.5         Intersection Summary       33.4       HCM 6th Ctrl Delay       33.4         HCM 6th LOS       C       C       C	Timer - Assigned Phs		2		4	5	6	
Change Period (Y+Rc), s         6.8         * 8.5         6.8         6.8           Max Green Setting (Gmax), s         133.2         * 32         46.2         80.2           Max Q Clear Time (g_c+I1), s         36.3         23.2         33.2         53.6           Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary           HCM 6th Ctrl Delay         33.4           HCM 6th LOS         C         C			113.3		33.6	42.3	70.9	alan sanalan menerakan kenerakan kenerakan kenerakan kana dari dan menerikan kenerakan kenerikan di Sanggaran.
Max Green Setting (Gmax), s         133.2         * 32         46.2         80.2           Max Q Clear Time (g_c+11), s         36.3         23.2         33.2         53.6           Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary           HCM 6th Ctrl Delay         33.4           HCM 6th LOS         C								
Max Q Clear Time (g_c+l1), s         36.3         23.2         33.2         53.6           Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary         HCM 6th Ctrl Delay           HCM 6th LOS         C								
Green Ext Time (p_c), s         19.6         1.9         2.4         10.5           Intersection Summary           HCM 6th Ctrl Delay         33.4           HCM 6th LOS         C	• • • •							
HCM 6th Ctrl Delay 33.4 HCM 6th LOS C								
HCM 6th Ctrl Delay 33.4 HCM 6th LOS C	Intersection Summary							
HCM 6th LOS C				33.4				
	Notes	ieninienskalasjer Swarmi	inistian nineristaan 4		al a faith an a she a she a she	internieru inspissiogramister		

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

# Lanes, Volumes, Timings 2: CR 484 & SW 29th Ave Rd

**Buildout Conditions** Timing Plan: PM Peak Hour

	۶		<b>←</b>	×.	5	1	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	٣	<b>^</b>	<b>4</b> 1>		ሻ	7	
Traffic Volume (vph)	62	1727	1670	79	158	77	
Future Volume (vph)	62	1727	1670	79	158	77	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	7%	7%	4%	4%	2%	2%	
Adj. Flow (vph)	65	1799	1740	82	165	80	
Shared Lane Traffic (%)	00	1100	1740	02	100	00	
Lane Group Flow (vph)	65	1799	1822	0	165	80	
Turn Type	pm+pt	NA	NA	v	Prot	Perm	
Protected Phases	рил-рс 5	2	6		4	I CHH	
Permitted Phases	2	2	U		4	4	
Detector Phase	5	2	6		4	4	
Switch Phase	5	2	0		4	4	
	5.0	5.0	5.0		5.0	5.0	
Minimum Initial (s)					5.0 22.5		
Minimum Split (s)	11.8	22.5	22.5			22.5	
Total Split (s)	26.0	131.0	105.0		49.0	49.0	
Total Split (%)	14.4%	72.8%	58.3%		27.2%	27.2%	
Yellow Time (s)	4.8	4.8	4.8		3.7	3.7	
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8	6.8		5.7	5.7	
Lead/Lag	Lead		Lag				
Lead-Lag Optimize?	Yes		Yes				
Recall Mode	None	None	None		None	None	
v/c Ratio	0.35	0.72	0.82		0.62	0.26	
Control Delay	14.3	10.7	22.2		64.9	13.5	
Queue Delay	0.0	0.0	0.0		0.0	0.0	
Total Delay	14.3	10.7	22.2		64.9	13.5	
Queue Length 50th (ft)	12	354	576		132	0	
Queue Length 95th (ft)	48	548	867		239	49	
Internal Link Dist (ft)		3183	3132		3021		
Turn Bay Length (ft)	144						
Base Capacity (vph)	325	3110	2707		645	627	
Starvation Cap Reductn	0	0	0		0	0	
Spillback Cap Reductn	0	0	0		0	0	
Storage Cap Reductn	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.58	0.67		0.26	0.13	
Intersection Summary							
Cycle Length: 180							
Actuated Cycle Length: 125.3							
Natural Cycle: 90							
Control Type: Actuated-Uncoor	dinated						
Splits and Phases: 2: CR 484	4 & SW 29	th Ave Rd					
→ø2							
1315							49.5
Ø5 G	06						
25 s 105 s							

# HCM 6th Signalized Intersection Summary 2: CR 484 & SW 29th Ave Rd

<b>Buildout Conditions</b>	
Timing Plan: PM Peak Hour	

	٠	-+	4	×.	1	4	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	٢	<u>†</u> †	41		Ŋ	1	
Traffic Volume (veh/h)	62	1727	1670	79	158	77	
Future Volume (veh/h)	62	1727	1670	79	158	77	
nitial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Nork Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1796	1796	1841	1841	1870	1870	
Adj Flow Rate, veh/h	65	1799	1740	82	165	80	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	7	7	4	4	2	2	
Cap, veh/h	211	2562	2166	101	211	188	
Arrive On Green	0.04	0.75	0.64	0.64	0.12	0.12	
Sat Flow, veh/h	1711	3503	3493	159	1781	1585	
Grp Volume(v), veh/h	65	1799	889	933	165	80	
Grp Sat Flow(s),veh/h/ln	1711	1706	1749	1812	1781	1585	
Q Serve(g_s), s	1.1	26.6	36.0	36.8	8.6	4.5	
Cycle Q Clear(g_c), s	1.1	26.6	36.0	36.8	8.6	4.5	
Prop In Lane	1.00	2010		0.09	1.00	1.00	
ane Grp Cap(c), veh/h	211	2562	1113	1154	211	188	
//C Ratio(X)	0.31	0.70	0.80	0.81	0.78	0.43	
Avail Cap(c_a), veh/h	481	4432	1795	1860	806	718	
CM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Jpstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Jniform Delay (d), s/veh	15.2	6.3	12.8	13.0	41.0	39.1	
ncr Delay (d2), s/veh	0.8	0.4	1.4	1.4	6.2	1.5	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/in	0.7	5.9	11.4	12.2	4.1	4.1	
Jnsig. Movement Delay, s/veh	•	0.0					
.nGrp Delay(d),s/veh	16.0	6.6	14.2	14.4	47.2	40.7	
InGrp LOS	В	A	В	В	D	D	
Approach Vol, veh/h		1864	1822		245		
Approach Delay, s/veh		7.0	14.3		45.0		
Approach LOS		A	В		D		
"imer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		78.6		17.0	10.9	67.7	
Change Period (Y+Rc), s		6.8		* 5.7	6.8	6.8	
Max Green Setting (Gmax), s		124.2		* 43	19.2	98.2	
Max Q Clear Time (g_c+l1), s		28.6		10.6	3.1	38.8	
Green Ext Time (p_c), s		25.6		0.7	0.1	22.1	
ntersection Summary							
ICM 6th Ctrl Delay			12.7				
HCM 6th LOS			В				
Notes		na lanaa fa					
Lloor energy of yourse helphoing	amona th	no lance fe	r tumina r	novomont			

User approved volume balancing among the lanes for turning movement. User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

	٦		<b>→</b> <i>≠</i>	- 4	×.	1	Ť	1	1	Ļ	1	
Lane Group	EBL	EBT	EBR WB	L WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	<b>†</b> †‡	ሻ	ካ ተተተ	7	ኘ	1	7	ሻሻ	4Î		
Traffic Volume (vph)	88	1906	67 27		312	96	23	317	631	46	131	
Future Volume (vph)	88	1906	67 27	0 2294	312	96	23	317	631	46	131	
Peak Hour Factor	0.93	0.93	0.93 0.9	3 0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	6%	6%	6% 6	6%	6%	11%	11%	11%	18%	18%	18%	
Adj. Flow (vph)	95	2049	72 29	0 2467	335	103	25	341	678	49	141	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	2121	0 29	0 2467	335	103	25	341	678	190	0	
Turn Type	pm+pt	NA	Pro		Perm	Prot	NA	Perm	Prot	NA		
Protected Phases	1	6		5 2		7	4		3	8		
Permitted Phases	6	2		-	2	•	-	4	-	-		
Detector Phase	1	6		52	2	7	4	4	3	8		
Switch Phase	•	2		-	-	•	-		-	-		
Minimum Initial (s)	5.0	15.0	10.	0 15.0	15.0	5.0	10.0	10.0	5.0	10.0		
Minimum Split (s)	12.0	21.9	17.		21.9	9.5	16.6	16.6	11.1	16.6		
Total Split (s)	13.0	88.0	23.		98.0	22.0	22.0	22.0	47.0	47.0		
Total Split (%)	7.2%	48.9%	12.8		54.4%	12.2%	12.2%	12.2%	26.1%	26.1%		
Yellow Time (s)	4.8	4.9	4.		4.9	3.5	4.0	4.0	3.5	4.0		
All-Red Time (s)	2.2	2.0	2.		2.0	1.0	2.6	2.6	2.6	2.6		
Lost Time Adjust (s)	0.0	0.0	0.		0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	7.0	6.9	7.		6.9	4.5	6.6	6.6	6.1	6.6		
Lead/Lag	Lead	Lag	Lea		Lag	Lead	Lag	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Ye		Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Min	Non		C-Min	None	None	None	None	None		
v/c Ratio	0.99	0.97	1.0		0.40	0.75	0.17	1.20	1.01	0.48		
Control Delay	126.1	60.5	114.		18.7	111.0	79.5	148.7	103.7	40.5		
Queue Delay	0.0	0.0	0.		0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	126.1	60.5	114.		18.7	111.0	79.5	148.7	103.7	40.5		
Queue Length 50th (ft)	65	886	~18		159	120	28	~288	~421	120		
Queue Length 95th (ft)	#201	#973	m#26		m182	#196	64	#505	#561	210		
Internal Link Dist (ft)	# <b>L</b> V1	3132	111720	1240		#150	650	11000	1001	1393		
Turn Bay Length (ft)	114	UIUL	17		144	144	000		114	1000		
Base Capacity (vph)	96	2195	28		834	158	146	284	674	395		
Starvation Cap Reductn	90	2195		0 0	0.54	0	140	204	0/4	0		
Spillback Cap Reductn	0	Ő		0 0	0	0	ŏ	ő	ő	0		
Storage Cap Reductn	0	Ő		0 0	ŏ	ŏ	ő	Ő	Ő	ŏ		
Reduced v/c Ratio	0.99	0.97	1.0		0.40	0.65	0.17	1.20	1.01	0.48		

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

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.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 20th Ave Rd & CR 484

	(R)		104
135 985	ý.	474	
<b>∮</b> Ø5 235	→06 (R) 88 s	223	<b>▼</b> Ø8 47-5

**Buildout Conditions** 

Timing Plan: PM Peak Hour

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

<b>Buildout Conditions</b>	
Timing Plan: PM Peak Hour	

Movement         EBL           Lane Configurations         *           Traffic Volume (veh/h)         88           Initial Q (Qb), veh         0           Ped-Bike Adj(A_pbT)         1.00           Parking Bus, Adj         1.00           Work Zone On Approach         Adj Sat Flow, veh/h/in         1811           Adj Sat Flow, veh/h/in         1811           Adj Flow Rate, veh/h         95           Peak Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         725           Grp Volume(v), veh/h         95           Grp Sat Flow(s),veh/h/In         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Uniform Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         58.9 <td< th=""><th>EBT 1906 1906 0 1.00 No 1811 2049 0.93 6 2213 0.60 4912 1373 1648</th><th>EBR 67 67 0 1.00 1.00 1.00 1811 69 0.93 6 74 0.60 165</th><th>WBL 77 270 270 0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.93 6 292</th><th>WBT <b>1</b>00 1.00 1811 2467 0.93 5</th><th>WBR 312 312 0 1.00 1.00 1811 335</th><th>NBL 96 96 0 1.00 1.00 1.00</th><th>NBT 23 23 0 1.00 No 1737</th><th>NBR 317 317 0 1.00 1.00</th><th>SBL 631 631 0 1.00 1.00</th><th>SBT ♣ 46 46 0 1.00 No</th><th>SBR 131 131 0 1.00 1.00</th></td<>	EBT 1906 1906 0 1.00 No 1811 2049 0.93 6 2213 0.60 4912 1373 1648	EBR 67 67 0 1.00 1.00 1.00 1811 69 0.93 6 74 0.60 165	WBL 77 270 270 0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.93 6 292	WBT <b>1</b> 00 1.00 1811 2467 0.93 5	WBR 312 312 0 1.00 1.00 1811 335	NBL 96 96 0 1.00 1.00 1.00	NBT 23 23 0 1.00 No 1737	NBR 317 317 0 1.00 1.00	SBL 631 631 0 1.00 1.00	SBT ♣ 46 46 0 1.00 No	SBR 131 131 0 1.00 1.00
Traffic Volume (veh/h)         88           Future Volume (veh/h)         88           Future Volume (veh/h)         88           Initial Q (Qb), veh         0           Ped-Bike Adj(A_pbT)         1.00           Parking Bus, Adj         1.00           Work Zone On Approach         Adj Sat Flow, veh/h/in           Adj Sat Flow, veh/h/in         1811           Adj Flow Rate, veh/h         95           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s),veh/h/in         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Pop In Lane         1.00           Lane Grp Cap(c), veh/h         99           //C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d2), s/veh         58.9           nor Delay (d2), s/veh         58.9	1906 1906 0 1.00 No 1811 2049 0.93 6 2213 0.60 4912 1373 1648	67 0 1.00 1811 69 0.93 6 74 0.60	270 270 0 1.00 1.00 1811 290 0.93 6	2294 2294 0 1.00 No 1811 2467 0.93	312 312 0 1.00 1.00 1.00	96 96 0 1.00 1.00	23 23 0 1.00 No	317 317 0 1.00 1.00	631 631 0 1.00	46 46 0 1.00	131 0 1.00
Future Volume (veh/h)         88           nitial Q (Qb), veh         0           Parking Bus, Adj         1.00           Parking Bus, Adj         1.00           Vork Zone On Approach         1.00           Vork Zone On Approach         1.00           Vork Zone On Approach         95           Vork Zone On Approach         93           Vereat Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           wrive On Green         0.04           Sat Flow, veh/h         95           Spr Sat Flow(s), veh/h         95           O Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Cycle Q Clear(g_c), s         5.5           Cycle Q Clear(g_c), veh/h         99           I//C Ratio(X)         0.95           wail Cap(c_a), veh/h         99           ICM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Iniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           Nitial Q Delay(d3), s/veh         0.0	1906 0 1.00 No 1811 2049 0.93 6 2213 0.60 4912 1373 1648	67 0 1.00 1811 69 0.93 6 74 0.60	270 270 0 1.00 1.00 1811 290 0.93 6	2294 2294 0 1.00 No 1811 2467 0.93	312 0 1.00 1.00 1811 335	96 0 1.00 1.00 1737	23 0 1.00 No	317 0 1.00 1.00	631 631 0 1.00	46 0 1.00	131 0 1.00
nitial Q (Qb), veh         0           Ped-Bike Adj(A_pbT)         1.00           Parking Bus, Adj         1.00           Vork Zone On Approach         95           Valid Sat Flow, veh/h         95           Peak Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Gr Volume(v), veh/h         95           O Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Oyle Q Clear(g_c), s         5.5           Prop In Lane         1.00           .ane Grp Cap(c), veh/h         99           //C Ratio(X)         0.95           Volume(V), veh/h         95           Prop In Lane         1.00           .ane Grp Cap(c), veh/h         99           //C Ratio(X)         0.95           Volum Edution         1.33           Jpstream Filter(I)         0.64      <	0 1.00 No 1811 2049 0.93 6 2213 0.60 4912 1373 1648	0 1.00 1.00 1811 69 0.93 6 74 0.60	0 1.00 1.00 1811 290 0.93 6	0 1.00 No 1811 2467 0.93	0 1.00 1.00 1811 335	0 1.00 1.00 1737	0 1.00 No	0 1.00 1.00	0 1.00	0 1.00	0 1.00
Ped-Bike Adj(A_pbT)         1.00           Parking Bus, Adj         1.00           Parking Bus, Adj         1.00           Nork Zone On Approach         1.00           Adj Sat Flow, veh/hlin         1811           Adj Sat Flow, veh/hlin         1811           Adj Flow Rate, veh/h         95           Peak Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         95           Srp Volume(v), veh/h         95           Srp Volume(v), veh/h         95           Or Stat Flow(s),veh/h/ln         1725           Sar Flow(s),veh/h/ln         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Por In Lane         1.00           .ane Grp Cap(c), veh/h         99           //C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           nitial Q Delay(d3), s/veh	1.00 No 1811 2049 0.93 6 2213 0.60 4912 1373 1648	1.00 1.00 1811 69 0.93 6 74 0.60	1.00 1.00 1811 290 0.93 6	1.00 No 1811 2467 0.93	1.00 1.00 1811 335	1.00 1.00 1737	1.00 No	1.00 1.00	1.00	1.00	1.00
Parking Bus, Adj         1.00           Work Zone On Approach         Adj Sat Flow, veh/h/in         1811           Adj Sat Flow, veh/h/in         1811         Adj Flow Rate, veh/h         95           Peak Hour Factor         0.93         99           Percent Heavy Veh, %         6         6           Cap, veh/h         99         94           Arrive On Green         0.04         55           Srp Volume(v), veh/h         725         55           Orgp Sat Flow, (s), veh/h/in         1725         35           Srp Volume(v), veh/h         95         5,5           Cycle Q Clear(g_c), s         5.5         5           Cycle Q Clear(g_c), s         5.5         5           Porp In Lane         1.00         .ane Grp Cap(c), veh/h         99           J/C Ratio(X)         0.95         4         94           Avail Cap(c_a), veh/h         99         9         1-6M Platoon Ratio         1.33           Jpstream Filter(I)         0.64         Jniform Delay (d2), s/veh         43.4           ncr Delay (d2), s/veh         58.9         9         1.31	No 1811 2049 0.93 6 2213 0.60 4912 1373 1648	1.00 1811 69 0.93 6 74 0.60	1.00 1811 290 0.93 6	No 1811 2467 0.93	1.00 1811 335	1.00 1737	No	1.00			
Work Zone On Approach           Adj Sat Flow, veh/h/in         1811           Adj Sat Flow, veh/h/in         1811           Adj Sat Flow, veh/h/in         1811           Adj Flow Rate, veh/h         95           Peak Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s),veh/h/In         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Jniform Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         58.9	No 1811 2049 0.93 6 2213 0.60 4912 1373 1648	1811 69 0.93 6 74 0.60	1811 290 0.93 6	No 1811 2467 0.93	1811 335	1737	No		1.00		1.00
Adj Sat Flow, veh/h/in         1811           Adj Sat Flow, veh/h/in         1811           Adj Flow Rate, veh/h         95           Peak Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s),veh/h/in         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d2), s/veh         58.9           initial Q Delay(d3), s/veh         58.9	1811 2049 0.93 6 2213 0.60 4912 1373 1648	69 0.93 6 74 0.60	290 0.93 6	1811 2467 0.93	335					No	
Adj Flow Rate, veh/h         95           Peak Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s), veh/h(In         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Porp In Lane         1.00           Lane Grp Cap(c), veh/h         99           //C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d2), s/veh         58.9           nor Delay (d2), s/veh         58.9	2049 0.93 6 2213 0.60 4912 1373 1648	69 0.93 6 74 0.60	290 0.93 6	2467 0.93	335		1737				
Peak Hour Factor         0.93           Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s),veh/h/ln         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Pop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d), s/veh         58.9           nor Delay (d2), s/veh         58.9	0.93 6 2213 0.60 4912 1373 1648	0.93 6 74 0.60	0.93 6	0.93		400		1737	1633	1633	1633
Percent Heavy Veh, %         6           Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s), veh/h/in         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           _ane Grp Cap(c), veh/h         99           //C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           nitial Q Delay(d3), s/veh         0.0	6 2213 0.60 4912 1373 1648	6 74 0.60	6			103	25	144	678	49	141
Cap, veh/h         99           Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s), veh/h/in         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           initial Q Delay(d3), s/veh         0.0	2213 0.60 4912 1373 1648	74 0.60		c	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Arrive On Green         0.04           Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s), veh/h/In         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0	0.60 4912 1373 1648	0.60	292	6	6	11	11	11	18	18	18
Sat Flow, veh/h         1725           Grp Volume(v), veh/h         95           Grp Sat Flow(s), veh/h/ln         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           initial Q Delay(d3), s/veh         0.0	4912 1373 1648			2502	777	120	149	126	686	93	266
Grp Volume(v), veh/h         95           Grp Sat Flow(s),veh/h/ln         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0	1373 1648	165	0.12	0.67	0.67	0.07	0.09	0.09	0.23	0.25	0.25
Grp Sat Flow(s),veh/h/ln         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(II)         0.64           Uniform Delay (d), s/veh         43.4           Incr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0	1648		3346	4944	1535	1654	1737	1472	3018	372	1069
Grp Sat Flow(s),veh/h/ln         1725           Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0	1648	745	290	2467	335	103	25	144	678	0	190
Q Serve(g_s), s         5.5           Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Uniform Delay (d), s/veh         43.4           Incr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0		1781	1673	1648	1535	1654	1737	1472	1509	0	1441
Cycle Q Clear(g_c), s         5.5           Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0	67.4	67.9	15.6	87.3	18.1	11.1	2.4	15.4	40.3	0.0	20.5
Prop In Lane         1.00           Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Jniform Delay (d), s/veh         58.9           Inct Delay (d2), s/veh         58.9	67.4	67.9	15.6	87.3	18.1	11.1	2.4	15.4	40.3	0.0	20.5
Lane Grp Cap(c), veh/h         99           V/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Uniform Delay (d), s/veh         43.4           Incr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0		0.09	1.00		1.00	1.00		1.00	1.00		0.74
v/C Ratio(X)         0.95           Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Upstream Filter(I)         0.64           Uniform Delay (d), s/veh         43.4           Incr Delay (d2), s/veh         58.9           Initial Q Delay(d3), s/veh         0.0	1485	803	292	2502	777	120	149	126	686	0	359
Avail Cap(c_a), veh/h         99           HCM Platoon Ratio         1.33           Jpstream Filter(I)         0.64           Jniform Delay (d), s/veh         43.4           Incr Delay (d2), s/veh         58.9           Initial Q Delay(d3),s/veh         0.0	0.92	0.93	0.99	0.99	0.43	0.86	0.17	1.14	0.99	0.00	0.53
HCM Platoon Ratio       1.33         Upstream Filter(I)       0.64         Uniform Delay (d), s/veh       43.4         Incr Delay (d2), s/veh       58.9         Initial Q Delay(d3),s/veh       0.0	1485	803	292	2502	777	161	149	126	686	0	359
Jpstream Filter(I)     0.64       Jniform Delay (d), s/veh     43.4       ncr Delay (d2), s/veh     58.9       nitial Q Delay(d3),s/veh     0.0	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Jniform Delay (d), s/veh         43.4           ncr Delay (d2), s/veh         58.9           initial Q Delay(d3), s/veh         0.0	0.64	0.64	0.47	0.47	0.47	1.00	1.00	1.00	1.00	0.00	1.00
ncr Delay (d2), s/veh 58.9 nitial Q Delay(d3),s/veh 0.0	33.3	33.4	79.5	28.8	17.5	82.5	76.4	82.3	69.3	0.0	58.5
nitial Q Delay(d3),s/veh 0.0	7.8	13.1	34.4	9.5	0.8	27.4	1.1	123.9	31.5	0.0	2.8
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	25.1	28.6	7.9	30.6	6.1	5.7	1.1	10.2	18.6	0.0	7.9
Jnsig, Movement Delay, s/veh											
LnGrp Delay(d),s/veh 102.3	41.1	46.6	113.9	38.3	18.3	109.9	77.5	206.2	100.8	0.0	61.2
LnGrp LOS F	D	D	F	D	В	F	E	F	F	A	E
Approach Vol, veh/h	2213			3092			272			868	
Approach Delay, s/veh	45.6			43.2			157.9			92.1	
Approach LOS	D			D			F			F	
Filmer - Assigned Phs 1	2	3	4	5	6	7	. 8				
Phs Duration (G+Y+Rc), s 13.0	98.0	47.0	22.0	23.0	88.0	17.6	51.4				
Change Period (Y+Rc), s * 7	6.9	6.1	6.6	7.3	6.9	4.5	6.6				
Max Green Setting (Gmax), s * 6	91.1	40.9	15.4	15.7	81.1	17.5	40.4				
Max Q Clear Time (g_c+l1), s 7.5	89.3	42.3	17.4	17.6	69.9	13.1	22.5				
Green Ext Time (p_c), s 0.0	1.8	0.0	0.0	0.0	10.5	0.1	1.8				
ntersection Summary											
ICM 6th Ctrl Delay		55.4									
HCM 6th LOS		E									
Votes											

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings

#### 4: I-75 SB Off-Ramp & CR 484

Buildout Conditions Timing Plan: PM Peak Hour

	۶		$\mathbf{F}$	∢	<b>←</b>	×	1	†	1	1	ţ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		tttp		ሻ	***					ኘ	କ	77	
Traffic Volume (vph)	0	2216	494	139	2134	0	0	0	0	380	0	753	
Future Volume (vph)	0	2216	494	139	2134	0	0	0	0	380	0	753	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	0%	0%	0%	8%	8%	8%	
Adj. Flow (vph)	0	2409	537	151	2320	0	0	0	0	413	0	818	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	0	2946	0	151	2320	0	0	0	0	206	207	818	
Turn Type		NA		Prot	NA					Split	NA	Prot	
Protected Phases		6		5	2					4	4	4	
Permitted Phases													
Detector Phase		6		5	2					4	4	4	
Switch Phase													
Minimum Initial (s)		18.0		7.0	18.0					7.0	7.0	7.0	
Minimum Split (s)		25.4		17.9	25.4					18.3	18.3	18.3	
Total Split (s)		93.0		27.0	120.0					60.0	60.0	60.0	
Total Split (%)		51.7%		15.0%	66.7%					33.3%	33.3%	33.3%	
Yellow Time (s)		5.4		5.4	5.4					4.1	4.1	4.1	
All-Red Time (s)		2.0		2.0	2.0					2.9	2.9	2.9	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0	
Total Lost Time (s)		7.4		7.4	7.4					7.0	7.0	7.0	
Lead/Lag		Lead		Lag									
Lead-Lag Optimize?		Yes		Yes									
Recall Mode		Min		Min	C-Min					None	None	None	
v/c Ratio		1.06		0.85	0.76					0.43	0.44	0.98	
Control Delay		64.5		84.2	19.3					54.7	54.7	82.4	
Queue Delay		15.8		0.0	2.2					0.0	0.0	0.0	
Total Delay		80.2		84.2	21.5					54.7	54.7	82.4	
Queue Length 50th (ft)		~1102		164	356					209	210	514	
Queue Length 95th (ft)	,	m#1091		m206	444					302	303	#676	
Internal Link Dist (ft)		1240			424			1185			1125		
Turn Bay Length (ft)										325		475	
Base Capacity (vph)		2771		185	3060					474	474	836	
Starvation Cap Reductn		0		0	571					0	0	000	
Spillback Cap Reductn		146		Ő	0					ŏ	Õ	ŏ	
Storage Cap Reductn		0		Ő	ŏ					ŏ	ŏ	ŏ	
Reduced v/c Ratio		1.12		0.82	0.93					0.43	0.44	0.98	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 58 (32%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

~ 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.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: I-75 SB Off-Ramp & CR 484

	·	<b>\$</b> ▶ <sub>Ø4</sub>
120 s		60 s
	<b>\$</b> 05	
934	27 s	

# HCM 6th Signalized Intersection Summary 4: I-75 SB Off-Ramp & CR 484

**Buildout Conditions** Timing Plan: PM Peak Hour

	۶		$\mathbf{F}$	4	<b>4</b>	×.	1	Ť	1	4	Ļ	-	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4111		۲	<b>†</b> ††					ኘ	ŧ	77	
Traffic Volume (veh/h)	0	2216	494	139	2134	0	0	0	0	380	0	753	
Future Volume (veh/h)	0	2216	494	139	2134	0	0	0	0	380	0	753	
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Nork Zone On Approach		No			No						No		
\dj Sat Flow, veh/h/ln	0	1752	1752	1811	1811	0				1781	1781	1781	
Adj Flow Rate, veh/h	0	2409	0	151	2320	0				413	0	818	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92	
Percent Heavy Veh, %	0	10	10	6	6	0				8	8	8	
Cap, veh/h	0	2718		245	3135	0				971	0	864	
Arrive On Green	0.00	0.60	0.00	0.19	0.84	0.00				0.29	0.00	0.29	
Sat Flow, veh/h	0	6517	0	1725	5107	0				3393	0	3019	
Grp Volume(v), veh/h	0	2409	0	151	2320	0				413	0	818	
Grp Sat Flow(s),veh/h/ln	0	1507	0	1725	1648	0				1697	0	1510	
Serve(g_s), s	0.0	61.5	0.0	14.5	35.2	0.0				17.8	0.0	47.8	
Cycle Q Clear(g_c), s	0.0	61.5	0.0	14.5	35.2	0.0				17.8	0.0	47.8	
Prop In Lane	0.00		0.00	1.00		0.00				1.00		1.00	
ane Grp Cap(c), veh/h	0	2718		245	3135	0				971	0	864	
//C Ratio(X)	0.00	0.89		0.62	0.74	0.00				0.43	0.00	0.95	
vail Cap(c_a), veh/h	0	2866		245	3135	0				999	0	889	
ICM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00	
Jpstream Filter(I)	0.00	0.09	0.00	0.34	0.34	0.00				1.00	0.00	1.00	
Jniform Delay (d), s/veh	0.0	32.1	0.0	68.5	7.9	0.0				52.2	0.0	62.9	
ncr Delay (d2), s/veh	0.0	0.3	0.0	1.9	0.6	0.0				0.3	0.0	18.4	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0	
%ile BackOfQ(50%),veh/In	0.0	19.7	0.0	6.2	6.5	0.0				7.7	0.0	37.2	
Jnsig. Movement Delay, s/veh													
nGrp Delay(d),s/veh	0.0	32.4	0.0	70.4	8.5	0.0				52.5	0.0	81.3	
nGrp LOS	А	С		E	А	А				D	Α	F	
pproach Vol, veh/h		2409	A		2471						1231		
Approach Delay, s/veh		32.4			12.3						71.7		
Approach LOS		С			В						Е		
imer - Assigned Phs		2		4	5	6							
hs Duration (G+Y+Rc), s		121.5	the second second second second	58.5	32.9	88.6							
Change Period (Y+Rc), s		7.4		7.0	7.4	7.4							
Aax Green Setting (Gmax), s		112.6		53.0	19.6	85.6							
/ax Q Clear Time (g_c+l1), s		37.2		49.8	16.5	63.5							
Green Ext Time (p_c), s		37.5		1.7	0.2	17.7							
ntersection Summary													
HCM 6th Ctrl Delay			32.2										
HCM 6th LOS			С										
Votes													

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement. Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

# Lanes, Volumes, Timings 5: I-75 NB Off-Ramp & CR 484

Buildout	Conditions
Timing Plan:	PM Peak Hour

	٦	->	$\mathbf{r}$	4	←	×	•	t	1	1	Ļ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<b>†</b> †			***	1	ኘ	÷	1				
Traffic Volume (vph)	547	2001	0	0	1702	285	542	0	270	0	0	0	
Future Volume (vph)	547	2001	0	0	1702	285	542	0	270	0	0	0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	11%	11%	11%	0%	0%	0%	
Adj. Flow (vph)	570	2084	0	0	1773	297	565	0	281	0	0	0	
Shared Lane Traffic (%)							50%						
Lane Group Flow (vph)	570	2084	0	0	1773	297	282	283	281	0	0	0	
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm				
Protected Phases	1	6			2		4	4					
Permitted Phases						2			4				
Detector Phase	1	6			2	2	4	4	4				
Switch Phase													
Minimum Initial (s)	7.0	20.0			20.0	20.0	7.0	7.0	7.0				
Minimum Split (s)	14.2	26.9			26.9	26.9	13.5	13.5	13.5				
Total Split (s)	51.0	130.0			79.0	79.0	50.0	50.0	50.0				
Total Split (%)	28.3%	72.2%			43.9%	43.9%	27.8%	27.8%	27.8%				
Yellow Time (s)	4.9	4.9			4.9	4.9	4.1	4.1	4.1				
All-Red Time (s)	2.3	2.0			2.0	2.0	2.4	2.4	2.4				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	7.2	6.9			6.9	6.9	6.5	6.5	6.5				
Lead/Lag	Lead				Lag	Lag							
Lead-Lag Optimize?	Yes				Yes	Yes							
Recall Mode	Max	C-Min			C-Min	C-Min	None	None	None				
v/c Ratio	0.68	0.89			0.90	0.44	0.82	0.83	0.75				
Control Delay	70.4	16.6			45.0	17.4	85.8	86.1	61.8				
Queue Delay	1.0	46.1			0.0	0.0	0.5	0.6	0.0				
Total Delay	71.4	62.7			45.0	17.4	86.4	86.7	61.8				
Queue Length 50th (ft)	272	1370			741	78	329	330	237				
Queue Length 95th (ft)	m262	m1309			672	123	455	457	355				
Internal Link Dist (ft)	1114.74	424			1171			1111			1102		
Turn Bay Length (ft)						144	320		320				
Base Capacity (vph)	843	2329			1978	677	373	373	402				
Starvation Cap Reductn	98	482			0	0	0	0	0				
Spillback Cap Reductn	0	0			ŏ	õ	9	9	ŏ				
Storage Cap Reductn	0	0			Ő	ő	ő	Ő	Ő				
Reduced v/c Ratio	0.77	1.13			0.90	0.44	0.77	0.78	0.70				

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 65 (36%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 5: I-75 NB Off-Ramp & CR 484

▶ <sub>Ø1</sub>	Ø2 (R)		<b>★</b> Ø4
519	79.5		50 s
•Ø6 (R)		Ţ.	
130 s			

#### HCM 6th Signalized Intersection Summary 5: I-75 NB Off-Ramp & CR 484

Page 10

5: I-75 NB Off-Ramp 8	4 CR 4	34										Timing Pla	an: PM F	eak Ho
	٦		$\mathbf{r}$	Ŧ	<b>4</b>	×.	1	Ť	1	5	ŧ	-		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
ane Configurations	ሻሻ	<b>†</b> †			***	7	۲	<del>ب</del>	1					
raffic Volume (veh/h)	547	2001	0	0	1702	285	542	Ó	270	0	0	0		
Future Volume (veh/h)	547	2001	0	0	1702	285	542	0	270	0	0	0		
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0					
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00					
arking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Vork Zone On Approach		No			No			No						
dj Sat Flow, veh/h/in	1767	1767	0	0	1826	1826	1737	1737	1737					
di Flow Rate, veh/h	570	2084	Ó	Ō	1773	0	565	0	0					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96					
Percent Heavy Veh, %	9	9	0	0	5	5	11	11	11					
Cap, veh/h	794	2449	õ	õ	2225	v	648	0						
Arrive On Green	0.24	0.73	0.00	0.00	0.89	0.00	0.20	0.00	0.00					
Sat Flow, veh/h	3264	3445	0.00	0.00	5149	1547	3309	0.00	1472					
Grp Volume(v), veh/h	570	2084	0	0										
Srp Sat Flow(s), veh/h/ln			-		1773	0	565	0	0					
	1632	1678	0	0	1662	1547	1654	0	1472					
) Serve(g_s), s	28.8	79.7	0.0	0.0	23.8	0.0	29.8	0.0	0.0					
cycle Q Clear(g_c), s	28.8	79.7	0.0	0.0	23.8	0.0	29.8	0.0	0.0					
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00					
ane Grp Cap(c), veh/h	794	2449	0	0	2225		648	0						
//C Ratio(X)	0.72	0.85	0.00	0.00	0.80		0.87	0.00						
vail Cap(c_a), veh/h	794	2449	0	0	2225		800	0						
ICM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00					
Jpstream Filter(I)	0.09	0.09	0.00	0.00	0.55	0.00	1.00	0.00	0.00					
Jniform Delay (d), s/veh	62.4	17.3	0.0	0.0	6.6	0.0	70.2	0.0	0.0					
ncr Delay (d2), s/veh	0.5	0.4	0.0	0.0	1.7	0.0	10.9	0.0	0.0					
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Gle BackOfQ(50%),veh/In	11.9	27.5	0.0	0.0	3.3	0.0	13.6	0.0	0.0					
Insig. Movement Delay, s/veh														
nGrp Delay(d),s/veh	62.9	17.7	0.0	0.0	8.3	0.0	81.1	0.0	0.0					
nGrp LOS	E	В	А	А	A		F	A						
pproach Vol, veh/h		2654			1773	A		565	A	· · · · · · · · · · · · · · · · · · ·			1.1.1	1.1
pproach Delay, s/veh		27.4			8.3			81.1						
pproach LOS		C			A A			F						
imer - Assigned Phs	1	2		4		6								
hs Duration (G+Y+Rc), s	51.0	87.3		41.7		138.3								
Change Period (Y+Rc), s	* 7.2	6.9		6.5		6.9								
lax Green Setting (Gmax), s	* 44	72.1		43.5		123.1								
fax Q Clear Time (g_c+l1), s	30.8	25.8		31.8		81.7								
Green Ext Time (p_c), s	2.7	26.8		3.4		32.3								
tersection Summary														
ICM 6th Ctrl Delay			26.7		and the second second for									
ICM 6th LOS			C											
lotes			-											
oles														

User approved volume balancing among the lanes for turning movement. User approved ignoring U-Turning movement.

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

**Buildout Conditions** Timing Plan: PM Peak Hour

Lanes, Volumes, Timings 6: CR 475A & CR 484

Buildout Conditions Timing Plan: PM Peak Hour

	٦		$\mathbf{r}$	4	<b>4</b>	×.	•	1	r	1	ŧ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<b>^</b>		۲	<b>1</b> 4		ኘካ	¢ĵ		ሻ	<b>↑</b>	1	
Traffic Volume (vph)	317	1627	225	11	1271	27	263	49	9	80	42	282	
Future Volume (vph)	317	1627	225	11	1271	27	263	49	9	80	42	282	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Heavy Vehicles (%)	8%	8%	8%	7%	7%	7%	4%	4%	4%	5%	5%	5%	
Adj. Flow (vph)	320	1643	227	11	1284	27	266	49	9	81	42	285	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	320	1870	0	11	1311	0	266	58	0	81	42	285	
Turn Type	Prot	NA		pm+pt	NA		Prot	NA		pm+pt	NA	Perm	
Protected Phases	5	2		1	6		3	8		7	4		
Permitted Phases				6	•		-	-		4		4	
Detector Phase	5	2		1	6		3	8		7	4	4	
Switch Phase					-		•	•					
Minimum Initial (s)	6.0	15.0		6.0	15.0		6.0	10.0		6.0	10.0	10.0	
Vinimum Split (s)	17.5	21.9		17.5	21.9		17.5	16.9		17.5	16.9	16.9	
Total Split (s)	29.0	97.0		18.0	86.0		34.0	39.0		26.0	31.0	31.0	
Total Split (%)	16.1%	53.9%		10.0%	47.8%		18.9%	21.7%		14.4%	17.2%	17.2%	
fellow Time (s)	4.9	4.9		4.8	4.9		4.9	4.9		4.9	4.9	4.9	
All-Red Time (s)	2.9	2.0		2.8	2.0		2.2	2.0		2.1	2.0	2.0	
ost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Fotal Lost Time (s)	7.8	6.9		7.6	6.9		7.1	6.9		7.0	6.9	6.9	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag	
_ead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None	
//c Ratio	0.81	0.88		0.11	0.76		0.73	0.25		0.30	0.24	0.86	
Control Delay	103.2	19.7		17.3	40.2		89.5	64.4		55.0	75.9	48.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Total Delay	103.2	19.7		17.3	40.2		89.5	64.4		55.0	75.9	48.0	
Queue Length 50th (ft)	205	276		4	645		159	58		33.0 77	47	101	
Queue Length 95th (ft)	m220	#1422		15	851		207	101		115	87	212	
nternal Link Dist (ft)	111220	1171		13	10343		201	554		115	865	212	
furn Bay Length (ft)	295	11/1		360	10343		270	554		114	000	114	
Base Capacity (vph)	406	2132		300 137	1732		503	328		314	247	384	
Starvation Cap Reductn	400	2132		0	0		503	326 0		0	247	364 0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	0	
Reduced v/c Ratio	0.79	0.88		0 0.08	0.76		0.53	0.18		0.26	0.17	0.74	
	0.79	0.00		0.08	0.70		0.53	0.10		0.20	0.17	0.74	

Intersection Summary Cycle Length: 180

Actuated Cycle Length: 180

Offset: 58 (32%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 6: CR 475A & CR 484

<b>√</b> Ø1	→D2 (R)	<b>Ø</b> 3	↓ <sub>Ø4</sub>
	197 s	345	<b>1</b> 2319 <b>1</b> 23
29.6	26 s	88	1 20 1 39 s

#### HCM 6th Signalized Intersection Summary 6: CR 475A & CR 484

**Buildout Conditions** Timing Plan: PM Peak Hour

	٦		$\mathbf{F}$	4	◄	×	1	Ť	1	1	ŧ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	<b>≜</b> †⊳		٦	<b>≜</b> †⊅		ሻሻ	4		٢	Ť	1	
Fraffic Volume (veh/h)	317	1627	225	11	1271	27	263	49	9	80	42	282	
Future Volume (veh/h)	317	1627	225	11	1271	27	263	49	9	80	42	282	
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Vork Zone On Approach		No			No			No			No		
dj Sat Flow, veh/h/ln	1781	1781	1781	1796	1796	1796	1841	1841	1841	1826	1826	1826	
dj Flow Rate, veh/h	320	1643	208	11	1284	26	266	49	8	81	42	189	
Peak Hour Factor	. 0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
ercent Heavy Veh, %	8	8	8	7	7	7	4	4	4	5	5	5	
Cap, veh/h	353	1828	227	186	1742	35	313	268	44	302	241	204	
Arrive On Green	0.21	1.00	1.00	0.01	0.51	0.51	0.09	0.17	0.17	0.05	0.13	0.13	
Sat Flow, veh/h	3291	3029	377	1711	3421	69	3401	1543	252	1739	1826	1547	
Grp Volume(v), veh/h	320	905	946	11	640	670	266	0	57	81	42	189	
Grp Sat Flow(s),veh/h/In	1646	1692	1714	1711	1706	1784	1700	0	1795	1739	1826	1547	
Serve(g_s), s	17.1	0.0	0.0	0.6	53.0	53.1	13.9	0.0	4.9	7.2	3.7	21.7	
cycle Q Clear(g_c), s	17.1	0.0	0.0	0.6	53.0	53.1	13.9	0.0	4.9	7.2	3.7	21.7	
rop In Lane	1.00		0.22	1.00		0.04	1.00		0.14	1.00		1.00	
ane Grp Cap(c), veh/h	353	1021	1034	186	869	908	313	0	312	302	241	204	
//C Ratio(X)	0.91	0.89	0.91	0.06	0.74	0.74	0.85	0.00	0.18	0.27	0.17	0.92	
vail Cap(c_a), veh/h	388	1021	1034	261	869	908	508	0	320	397	244	207	
ICM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Jpstream Filter(I)	0.36	0.36	0.36	0.37	0.37	0.37	1.00	0.00	1.00	1.00	1.00	1.00	
Iniform Delay (d), s/veh	69.8	0.0	0.0	20.6	34.7	34.7	80.5	0.0	63.4	63.0	69.4	77.2	
ncr Delay (d2), s/veh	10.3	4.5	5.8	0.0	2.1	2.0	7.5	0.0	0.3	0.5	0.3	41.8	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ale BackOfQ(50%),veh/In	6.9	1.3	1.7	0.2	22.0	23.0	6.5	0.0	2.3	3.3	1.8	11.1	
Insig. Movement Delay, s/veh	0.0			0.2	22.0	20.0	0.0	0.0		0.0			
nGrp Delay(d),s/veh	80.2	4.5	5.8	20.6	36.8	36.7	88.0	0.0	63.7	63.5	69.7	119.1	
nGrp LOS	F	A	A	C	D	00.7 D	F	A.	E	E	E	F	
pproach Vol, veh/h		2171			1321		1	323	<b>b</b> ai		312		
pproach Delay, s/veh		16.2			36.6			323 83.7			98.0		
pproach LOS		10.2 B			30.0 D			63.7 F			90.0 F		
	in a subscription of the subscription		u de maria de la compañía de la comp	neensa kaliikkaa daankaa daa			****		un de la construction de la constru		F		- Denvilled by July 21
imer - Assigned Phs	1	2	3	4	5	6	7	8					
hs Duration (G+Y+Rc), s	10.1	115.5	23.6	30.7	27.1	98.6	16.1	38.2					
hange Period (Y+Rc), s	* 7.6	6.9	* 7.1	6.9	7.8	6.9	7.0	6.9					
lax Green Setting (Gmax), s	* 10	90.1	* 27	24.1	21.2	79.1	19.0	32.1					
lax Q Clear Time (g_c+l1), s	2.6	2.0	15.9	23.7	19.1	55.1	9.2	6.9					
Green Ext Time (p_c), s	0.0	52.2	0.7	0.0	0.2	14.3	0.1	0.2					
tersection Summary													
ICM 6th Ctrl Delay			34.2										
ICM 6th LOS			С										
lotes													
169													

٠

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings 7: CR 475 & CR 484

**Buildout Conditions** Timing Plan: PM Peak Hour

	۶		$\mathbf{i}$	4	-	×.	1	t	1	1	¥	~	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ή	<u>†</u> †	1	٢	<b>†</b> ‡		ሻ	12		ኘ	ef 🗧		
Traffic Volume (vph)	117	1461	121	67	1075	80	117	126	80	74	150	73	
Future Volume (vph)	117	1461	121	67	1075	80	117	126	80	74	150	73	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	7%	7%	7%	6%	6%	6%	7%	7%	7%	2%	2%	2%	
Adj. Flow (vph)	122	1522	126	70	1120	83	122	131	83	77	156	76	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	122	1522	126	70	1203	0	122	214	0	77	232	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA		
Protected Phases	1	6		5	2		7	4		3	8		
Permitted Phases	6	•	6	2	-		4			8			
Detector Phase	1	6	6	5	2		7	4		3	8		
Switch Phase	-	•	•	•	-		•			•	•		
Minimum Initial (s)	8.0	17.0	17.0	8.0	17.0		8.0	8.0		8.0	8.0		
Minimum Split (s)	17.6	24.7	24.7	16.5	24.7		18.0	16.2		18.0	16.2		
Total Split (s)	34.6	64.0	64.0	28.5	57.9		29.0	34.0		29.0	34.0		
Total Split (%)	22.3%	41.2%	41.2%	18.3%	37.2%		18.6%	21.9%		18.6%	21.9%		
Yellow Time (s)	5.5	5.7	5.7	5.5	5.7		5.5	5.5		5.5	5.5		
All-Red Time (s)	4.1	2.0	2.0	3.0	2.0		4.5	2.7		4.5	2.7		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	9.6	7.7	7.7	8.5	7.7		10.0	8.2		10.0	8.2		
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes		
Recall Mode	None	Min	Min	None	Min		None	None		None	None		
v/c Ratio	0.61	1.01	0.16	0.42	0.91		0.47	0.69		0.28	0.80		
Control Delay	39.8	63.9	1.9	29.0	50.8		40.0	59.2		35.8	71.6		
Queue Delay	0.0	03.9	0.0	29.0	0.0		40.0	0.0		0.0	0.0		
Total Delay	39.8	63.9	1.9	29.0	50.8		40.0	59.2		35.8	71.6		
Queue Length 50th (ft)	39.8 56	~775	1.9	29.0	50.8 515		40.0	59.2 160		35.6 47	184		
Queue Length 95th (ft)	131	#1045	17	20 70	#796		133	263		89	298		
Internal Link Dist (ft)	101	10343	17	10	1733		100	1031		03	1659		
Turn Bay Length (ft)	144	10343	94	144	1755		144	1031		144	1059		
Base Capacity (vph)	361	1505	94 765	307	1317		335	359		387	356		
Starvation Cap Reductn	0	1505	765	307	0		335 0	359 0		367	300		
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0		
Storage Cap Reductin	0	0	0	0	0		0	0		0	0		
Reduced v/c Ratio	0.34	1.01	0.16	0.23			0.36	0.60		0.20	0.65		
	0.34	1.01	0.10	0.23	0.91		0.30	0.00		0.20	0.03		

#### Intersection Summary

Cycle Length: 155.5

Actuated Cycle Length: 133.3 Natural Cycle: 120

Control Type: Actuated-Uncoordinated

~ 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: 7: CR 475 & CR 484

<u>→</u> <sub>Ø1</sub>	<b>←</b> † Ø2	Ø3	₫ Ø4
34.6 s	57.9 <b>.</b> s	29 s	34 s
🖌 Ø5	26	<b>1</b> 07	▼ <sup>b</sup> øs <sup>`</sup>
28.5s 64s		29 s	34 s

#### HCM 6th Signalized Intersection Summary 7: CR 475 & CR 484

**Buildout Conditions** Timing Plan: PM Peak Hour

	۶		$\mathbf{F}$	4	◄	*	•	1	1	5	Ļ	4	
Novement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
ane Configurations	٦	<b>††</b>	۲	٢	<b>≜</b> †⊳		ኘ	Þ		۲	ţ,		
raffic Volume (veh/h)	117	1461	121	67	1075	80	117	126	80	74	150	73	
uture Volume (veh/h)	117	1461	121	67	1075	80	117	126	80	74	150	73	
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
ed-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
arking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Vork Zone On Approach		No			No			No			No		
dj Sat Flow, veh/h/ln	1796	1796	1796	1811	1811	1811	1796	1796	1796	1870	1870	1870	
di Flow Rate, veh/h	122	1522	83	70	1120	77	122	131	0	77	156	0	
eak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
ercent Heavy Veh, %	7	7	7	6	6	6	7	7	7	2	2	2	
ap, veh/h	250	1586	707	185	1492	102	221	217		234	192		
rrive On Green	0.07	0.46	0.46	0.07	0.46	0.46	0.08	0.12	0.00	0.06	0.10	0.00	
at Flow, veh/h	1711	3413	1522	1725	3267	224	1711	1796	0	1781	1870	0	
rp Volume(v), veh/h	122	1522	83	70	590	607	122	131	0	77	156	0	
rp Sat Flow(s), veh/h/in	1711	1706	1522	1725	1721	1771	1711	1796	0	1781	1870	Ő	
Serve(g s), s	4.4	51.7	3.7	2.4	34.0	34.1	7.5	8.3	0.0	4.5	9.8	0.0	
vcle Q Clear(g_c), s	4.4	51.7	3.7	2.4	34.0	34.1	7.5	8.3	0.0	4.5	9.8	0.0	
rop in Lane	1.00	J1.7	1.00	1.00	34.0	0.13	1.00	0.5	0.00	1.00	5.0	0.00	
ane Grp Cap(c), veh/h	250	1586	707	185	786	808	221	217	0.00	234	192	0.00	
1 1 1 1 1	0.49	0.96	0.12	0.38	0.75	0.75	0.55	0.60		0.33	0.81		
/C Ratio(X)	494			358			356	386		0.33 407	402		
vail Cap(c_a), veh/h		1601	714		786	808	300 1.00		1 00	1.00	402	1.00	
CM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00				
pstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	
niform Delay (d), s/veh	21.4	31.0	18.2	26.4	27.0	27.0	43.7	50.1	0.0	44.0	52.7	0.0	
ncr Delay (d2), s/veh	1.5	14.1	0.1	1.3	4.1	4.0	2.2	2.7	0.0	1.0	8.0	0.0	
iitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ale BackOfQ(50%),veh/In	1.7	22.1	1.2	0.9	13.5	13.9	3.2	3.7	0.0	2.0	4.8	0.0	
nsig. Movement Delay, s/veh													
nGrp Delay(d),s/veh	22.9	45.1	18.3	27.7	31.0	30.9	45.8	52.8	0.0	45.0	60.8	0.0	
nGrp LOS	<u> </u>	D	B	<u> </u>	C	<u> </u>	D	D		D	<u> </u>		
pproach Vol, veh/h		1727			1267			253	А		233	Α	
pproach Delay, s/veh		42.3			30.8			49.4			55.5		
pproach LOS		D			С			D			E		
mer - Assigned Phs	1	2	3	4	5	6	7	8					
hs Duration (G+Y+Rc), s	17.5	62.5	17.4	22.7	16.5	63.5	19.5	20.5					
hange Period (Y+Rc), s	* 9.6	7.7	10.0	* 8.2	8.5	7.7	10.0	* 8.2					
lax Green Setting (Gmax), s	* 25	50.2	19.0	* 26	20.0	56.3	19.0	* 26					
lax Q Clear Time (g_c+l1), s	6.4	36.1	6.5	10.3	4.4	53.7	9.5	11.8					
ireen Ext Time (p_c), s	0.3	5.9	0.1	0.4	0.1	2.0	0.2	0.5					
Itersection Summary													
CM 6th Ctrl Delay			39.5										
iom our our belay													
ICM 6th LOS			D										

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

#### Lanes, Volumes, Timings 8: SW 29th Ave Rd & Marion Oaks Trail

Buildout Conditions Timing Plan: PM Peak Hour

	۶		$\mathbf{F}$	∢	◄	۰.	1	1	1	5	÷.	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			4		٦	ef 🕴			4	
Traffic Volume (vph)	3	27	50	164	67	0	70	13	53	0	15	0
Future Volume (vph)	3	27	50	164	67	0	70	13	53	0	15	0
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	6%	6%	6%	0%	0%	0%	1%	1%	1%	7%	7%	7%
Adj. Flow (vph)	4	33	62	202	83	0	86	16	65	0	19	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	285	0	86	81	0	0	19	0
Sign Control		Stop			Stop			Free			Free	
-		•										
Intersection Summary												

Control Type: Unsignalized

#### HCM 6th TWSC 8: SW 29th Ave Rd & Marion Oaks Trail

D-186

Buildout Conditions Timing Plan: PM Peak Hour

int Delay, s/veh	11.2												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
ane Configurations		\$			4		۲	ţ,			4		
Traffic Vol, veh/h	3	27	50	164	67	0	70	13	53	0	15	0	
Future Vol, veh/h	3	27	50	164	67	0	70	13	53	0	15	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-		None	-	_	None	•	-	None	
Storage Length	-	-	-	-	-	-	0	_	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0		-	0	-	-	0	-	
Grade, %		Ō	-	-	Õ	-	-	õ	-	-	Ő	-	
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	
Heavy Vehicles, %	6	6	6	0	0	0	1	1	1	7	7	7	
Nymt Flow	4	33	62	202	83	ŏ	86	16	65	Ó	19	Ó	
	-	00	02	202	00	v	00	10	00	0	10	v	
Major/Minor	Minor2			Minor1			Major1	-		Major2			
Conflicting Flow All	281	272	19	288	240	49	19	0	0	81	0	0	
Stage 1	19	19	-	221	221	-	-	-	-	-	-	-	
Stage 2	262	253	-	67	19	-	-	-	-	-	-	-	
Critical Hdwy	7.16	6.56	6.26	7.1	6.5	6.2	4.11	-	-	4.17	-	-	
Critical Hdwy Stg 1	6.16	5.56	-	6.1	5.5	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.16	5.56	-	6.1	5.5	-	-	-	-	-	-	-	
Follow-up Hdwy	3.554	4.054	3.354	3.5	4	3.3	2.209	-	-	2,263	-		
Pot Cap-1 Maneuver	663	628	1048	668	665	1025	1604	-	_	1486	-	_	
Stage 1	990	872		786	724	1020	-	-	-		-	-	
Stage 2	734	690	-	948	884	_	-	-	_	-	-	-	
Platoon blocked, %	104	000	-	0-0	004	-		-	-	-	-	-	
Nov Cap-1 Maneuver	572	594	1048	577	629	1025	1604	-		1486	-	-	
Nov Cap-1 Maneuver	572	594	1040	577	629	1025	1004	-	-	1400	•	-	
Stage 1	937	594 872	-	744	685	-	-	-	-	-	-	-	
Stage 2	937 611	653	-	744 858	884	-	•	-	-	-	-	-	
oldye z	011	003	-	000	004	-	-	-	-	-	-	-	
oproach	EB			WB			NB			SB			
ICM Control Delay, s	10			16.6			3.8			0			
ICM LOS	B			C			0.0						
/linor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)		1604	-	-	813	591	1486	-	-				
ICM Lane V/C Ratio		0.054	-	-	0.121	0.483	-	-	-				
ICM Control Delay (s)		7.4	-	-	10	16.6	0	-	-				
ICM Lane LOS		Α	-	-	В	С	А	-	-				
ICM 95th %tile Q(veh)		0.2	-	_	0.4	2.6	0	-	-				

D-187

## Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

## F10: PM Peak Hour Future Year Buildout w/ Improvements Traffic Conditions (2027)

#### Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

Buildout Conditions w/ Improvements Timing Plan: PM Peak Hour

	٦	-	¥ ,	< 1	- 4		1	1	1	ŧ	1	
Lane Group	EBL	EBT		BL W			. NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	<b>*††</b>	1	ነካ ተ	M i	r 1	i 🕈	۲	ካካ	4Î		
Traffic Volume (vph)	88	1906			94 31	2 96	23	317	631	46	131	
Future Volume (vph)	88	1906	67 2	70 22	94 31	2 96	23	317	631	46	131	
Peak Hour Factor	0.93	0.93	0.93 0	93 0	93 0.9	3 0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	6%	6%	6%	5%	5% 6°	% 11%	11%	11%	18%	18%	18%	
Adj. Flow (vph)	95	2049	72 2	90 24	67 33	5 103	25	341	678	49	141	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	2121	0 2	90 24	67 33	5 103	25	341	678	190	0	
Turn Type	pm+pt	NA	F	rot	VA Perr	n Pro	t NA	pm+ov	Prot	NA		
Protected Phases		6		5	2	7	4	. 5	3	8		
Permitted Phases	6					2		4				
Detector Phase	1	6		5		27	4	5	3	8		
Switch Phase												
Minimum Initial (s)	5.0	15.0	1	0.0 1	5.0 15.	0 5.0	10.0	10.0	5.0	10.0		
Minimum Split (s)	12.0	21.9			1.9 21.			17.3	11.1	16.6		
Total Split (s)	13.0	88.0			3.0 98.			23.0	47.0	47.0		
Total Split (%)	7.2%	48.9%	12.					12.8%	26.1%	26.1%		
Yellow Time (s)	4.8	4.9			4.9 4.			4.8	3.5	4.0		
All-Red Time (s)	2.2	2.0			2.0 2.			2.5	2.6	2.6		
Lost Time Adjust (s)	0.0	0.0			0.0 0.			0.0	0.0	0.0		
Total Lost Time (s)	7.0	6.9			5.9 <u>6</u> .			7.3	6.1	6.6		
Lead/Lag	Lead	Lag			ag La			Lead	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes			es Ye	•	v	Yes	Yes	Yes		
Recall Mode	None	C-Min	No					None	None	None		
v/c Ratio	0.64	0.94			94 0.3			0.94	1.01	0.63		
Control Delay	57.2	54.5			2.1 16.			84.4	103.7	50.2		
Queue Delay	0.0	0.0			0.0 0.			0.0	0.0	0.0		
Total Delay	57.2	54.5			2.1 16.			84.4	103.7	50.2		
Queue Length 50th (ft)	61	886			93 15			295	~421	126		
Queue Length 95th (ft)	#173	#973	m#2					#486	#561	214		
Internal Link Dist (ft)	#113	3132	111172		40	0 17210	650	<del>71</del> 00	1001	1393		
Turn Bay Length (ft)	114	0102		70	-40	4 144			114	1000		
Base Capacity (vph)	148	2267			34 88			362	674	378		
Starvation Cap Reductn	0	2207	•	43 20 0		4 143 0 0		0	0,4	0		
Spillback Cap Reductn	0	0		0	-	0 0	-	0	0	0		
Storage Cap Reductn	0	0		0	-	0 0	-	0	0	0		
Reduced v/c Ratio	0.64	0.94	0		94 0.3			0.94	1.01	0.50		

#### Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated ~ 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.

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 3: SW 20th Ave Rd & CR 484

	? (R)	· .	<b>b</b> Ø3	÷	<b>1</b> Ø4
13 98 s			475		22.5
<b>€</b> røs		<b>9</b>	<b>N</b> Ø7	<b>▼</b> Ø8	
23 5	68.6		22.5	47 s	

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

Buildout Conditions w/ Improvements Timing Plan: PM Peak Hour

	۶	->	$\mathbf{F}$	4	<b>4</b>	×.	1	t	1	1	¥	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	٢	<b>†</b> †î>		ኻኻ	<u> </u>	7	۲	<b>†</b>	۴	ካካ	¢Î		
Traffic Volume (veh/h)	88	1906	67	270	2294	312	96	23	317	631	46	131	
Future Volume (veh/h)	88	1906	67	270	2294	312	96	23	317	631	46	131	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adi(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1811	1811	1811	1811	1811	1811	1737	1737	1737	1633	1633	1633	
Adj Flow Rate, veh/h	95	2049	69	290	2467	335	103	25	144	678	49	141	
Peak Hour Factor	0.93	0.93	0.93	0,93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	6	6	6	6	6	6	11	11	11	18	18	18	
Cap, veh/h	99	2213	74	292	2502	777	120	149	254	686	89	257	
Arrive On Green	0.04	0.60	0.60	0.12	0.67	0.67	0.07	0.09	0.09	0.23	0.24	0.24	
Sat Flow, veh/h	1725	4912	165	3346	4944	1535	1654	1737	1472	3018	372	1069	
Grp Volume(v), veh/h	95	1373	745	290	2467	335	103	25	144	678	0	190	
Grp Sat Flow(s),veh/h/in	1725	1648	1781	1673	1648	1535	1654	1737	1472	1509	ŏ	1441	
Q Serve(g_s), s	5.5	67.4	67.9	15.6	87.3	18.1	11.1	2.4	15.4	40.3	0.0	20.8	
Cycle Q Clear(g_c), s	5.5	67.4	67.9	15.6	87.3	18.1	11.1	2.4	15.4	40.3	0.0	20.8	
Prop In Lane	1.00	••••	0.09	1.00	0.10	1.00	1.00		1.00	1.00		0.74	
Lane Grp Cap(c), veh/h	99	1485	803	292	2502	777	120	149	254	686	0	346	
V/C Ratio(X)	0.95	0.92	0.93	0.99	0.99	0.43	0.86	0.17	0.57	0.99	0.00	0.55	
Avail Cap(c_a), veh/h	99	1485	803	292	2502	777	146	149	254	686	0	346	
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.64	0.64	0.64	0.47	0.47	0.47	1.00	1.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	43.4	33.3	33.4	79.5	28.8	17.5	82.6	76.4	68.3	69.3	0.0	59.8	
Incr Delay (d2), s/veh	58.9	7.8	13.1	34.4	9.5	0.8	32.3	1.1	4.8	31.5	0.0	3.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/in	3.8	25.1	28.6	7.9	30.6	6.1	5.8	1.1	6.5	18.6	0.0	8.0	
Unsig. Movement Delay, s/veh												•••	
LnGrp Delay(d),s/veh	102.3	41.1	46.6	113.9	38.3	18.3	114.9	77.5	73.1	100.8	0.0	63.1	
LnGrp LOS	F	D	D	F	D	В	F	E	E	F	A	E	
Approach Vol, veh/h		2213			3092			272		·····	868		
Approach Delay, s/veh		45.6			43.2			89.3			92.5		
Approach LOS		D			D			F			F		
	1	2	3	4	- 5	6	7	8 ·			•		
Timer - Assigned Phs Phs Duration (G+Y+Rc), s	13.0	98.0	47.0	22.0	23.0	88.0	19.2	49.8					
Change Period (Y+Rc), s	*7	50.0 6.9	6.1	6.6	7.3	6.9	6.1	49.0 6.6					
Max Green Setting (Gmax), s	*6	91.1	40.9	15.4	15.7	81.1	15.9	40.4					
Max Q Clear Time (g_c+l1), s	7.5	89.3	40.9	17.4	17.6	69.9	13.9	22.8					
Green Ext Time (p_c), s	0.0	1.8	42.3	0.0	0.0	10.5	0.1	1.8					
Intersection Summary													
HCM 6th Ctrl Delay			52.6										<u></u>
HCM 6th LOS			52.0 D										
Notes													
		manus superiors of the	- an or the state of the state of the		and the second second second								

User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

D-190

## Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

## APPENDIX G: PROJECT DRIVEWAYS TURN LANE WARRANTS

## **Chapter 6: Turn Lanes and U-Turns**

#### 6.1 Overview

For driveways, medians and median openings, the placement and design of turn lanes and U-turns are critical to avoid potential traffic safety issues. For example, a median opening placed across a left-turn lane at an intersection could create conditions leading to a vehicular crash (See <u>Figure 16</u> or <u>Figure 17</u>). The locating of these roadway openings is discussed in greater detail in <u>Locating</u> <u>Roadway Openings</u>. This chapter will instead focus on where to locate and design turn lanes and U-turns and how they relate to driveways, medians and median openings.

#### 6.2 Exclusive Right-Turn Lanes

Exclusive right-turn lanes are useful where a combination of high roadway speeds, and high rightturn volumes into a driveway are expected. Congestion on the roadway may also be a good reason to use an exclusive right-turn lane. If properly built, they remove the turning vehicle from the through lanes, thereby decreasing the operational and safety impact of right turning vehicles on the through traffic.

Previous requirements in Standard Index 301 were removed and placed into <u>FDM 212 –</u> <u>Intersections</u>. There is no specific guidance on warrants for right-turn lanes based on number of turns in and out of unsignalized driveways, but the guidelines in this chapter were developed to assist in the decision-making process. *FDM 212* does contain the standards needed to design right-turn lanes.

#### 6.2.1 When to Consider Exclusive Right-Turn Lanes

Here are some additional situations when adding an exclusive right-turn lane may be required:

- Facilities having a high volume of buses, trucks or trailers (2 or 3 per hour)
- Poor internal site design of a driveway facility causing potential backups in the through lanes
- Heavier than normal peak flows on the main roadway
- Very high operating speeds (such as 55 mph or above) and in rural locations where turns are not expected by through drivers
- Highways with curves or hills where sight distance is impacted
- Gated entrances
- Crash experience, especially rear end collisions
- Intersections or driveways just after signalized intersections where acceleration or driver expectancy would make a separate right-turn lane desirable
- Severe skewed angle of intersection requiring right-turn vehicle to slow greatly

When Not to Consider Exclusive Right-Turn Lanes

- Dense or built-out corridors with limited space
- Right-turn lane that would negatively impact pedestrians or bicyclists
- Vehicular movements from driveways or median openings that cross the right-turn lane resulting in multiple threat crashes
- Context classifications C2T, C4, C5, or C6

When Exclusive Right-Turn Lanes are Beneficial

There are instances when adding an exclusive right-turn lane for unsignalized driveways are beneficial to traffic operations and safety. <u>*Table 27*</u> provides some guidance for this situation based on the speed limit of the roadway and how many right turns occur per hour. Locations where the Auto and Truck Modal Emphasis is "High" may be appropriate for consideration of Exclusive Right Turn Lanes.

Table 27 - Recommended Guidelines for Exclusive Right-Turn Lanes to Unsignalized Driveway<sup>10</sup>

Roadway Posted Speed Limit	Number of Right Turns Per Hour
45 mph or less	80 – 125 <sup>1</sup>
Over 45 mph	35 – 55²
Note: A posted speed limit of 45 mph may be used with these thresholds if th peak right turn demand. Note on traffic projections: Projecting turning volumes is, at best, a knowledg turns are close to meeting the guidelines. In that case, consider requiring the	eable estimate. Keep this in mind especially if the projections of right
<sup>1</sup> The lower threshold of 80 right-turn vehicles per hour would be most used i direction on the major roadway) or two-lane roads where lateral movement is would be most appropriate on lower volume roadways, multilane highways, 0	for higher volume (greater than 600 vehicles per hour, per lane in one s restricted. The 125 right-turn vehicles per hour upper threshold

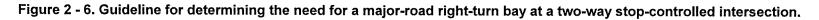
Source: NCHRP Report 420 (Impacts of Access Management Techniques)

These recommendations are primarily based on the research done in <u>NCHRP Report 420</u>, Impacts of Access Management Techniques, Chapter 4 – Unsignalized Access Spacing (Technique 1B), and <u>Use of Speed Differential as a Measure to Evaluate the Need for Right-Turn Deceleration Lane at Unsignalized Intersections.</u>

In the *NCHRP Report 420*, the observed high-speed roads, 30 to 40 right-turn vehicles per hour caused evasive maneuvers on 5 - 10 percent of the following through vehicles. For lower speed roadways, 80 to 110 right-turn vehicles caused 15 - 20 percent of the following through vehicles to make evasive maneuvers. The choice of acceptable percentages of through vehicles impacted is a decision based on reasonable expectations of the different roadways.

In this study, by modeling speed differentials, a better understanding of the impacts of through volume and driveway radius was discovered.

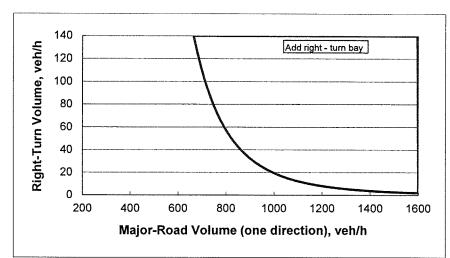
<sup>&</sup>lt;sup>10</sup> May not be appropriate for signalized locations where signal phasing plays an important role in determining the need for right turn lanes.



INI	DI.	iT.
IIN	۲ι	"

Roadway geometry:	2-lane roadw ay 🔫
Variable	Value
Major-road speed, mph:	30
Major-road volume (one direction), veh/h:	231
Right-turn volume, veh/h:	187

Value
22786



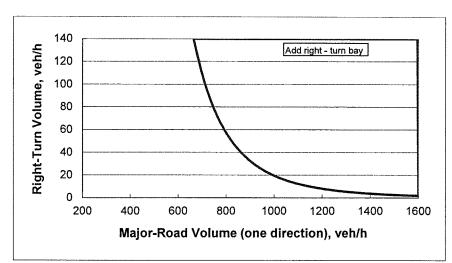
#### PM Peak Hour, Buildout - SW 29th Ave Rd at Marion Oaks Trail

#### Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadw ay 👻
Variable	Value
Major-road speed, mph:	30
Major-road volume (one direction), veh/h:	136
Right-turn volume, veh/h:	53

Value
292678



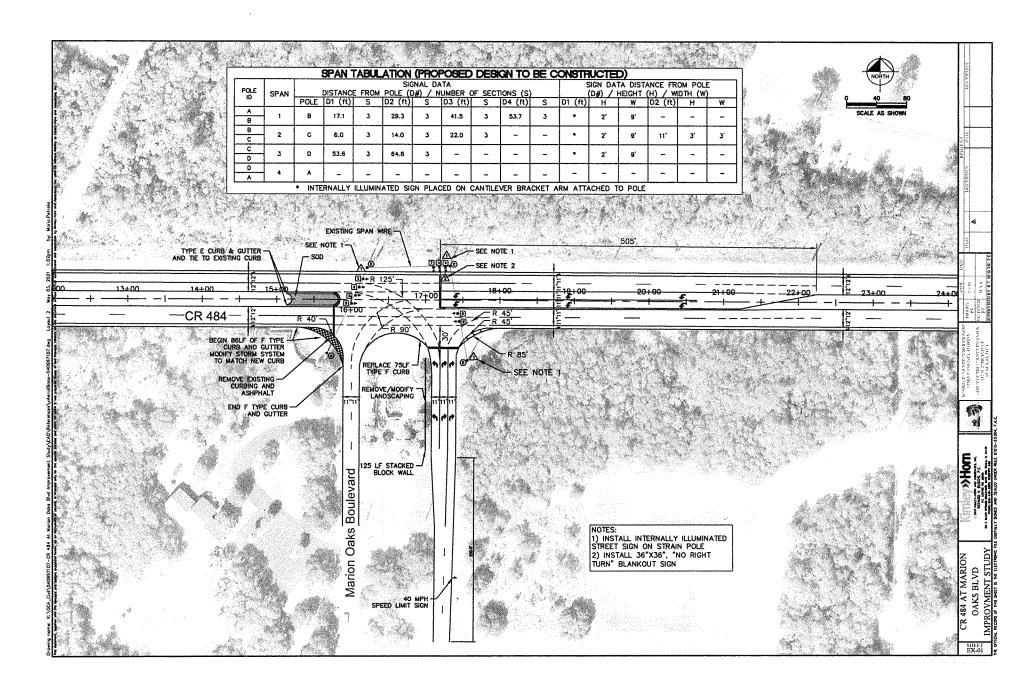
You created this PDF from an application that is not licensed to print to novaPDF printer (http://www.novapdf.com)

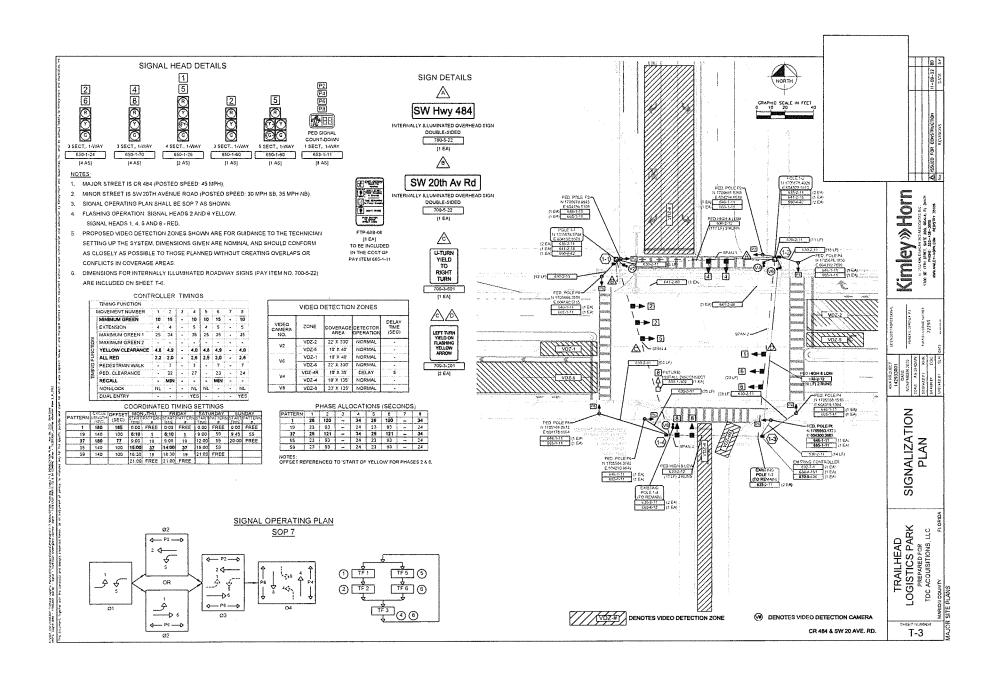
D-195

## Kimley »Horn

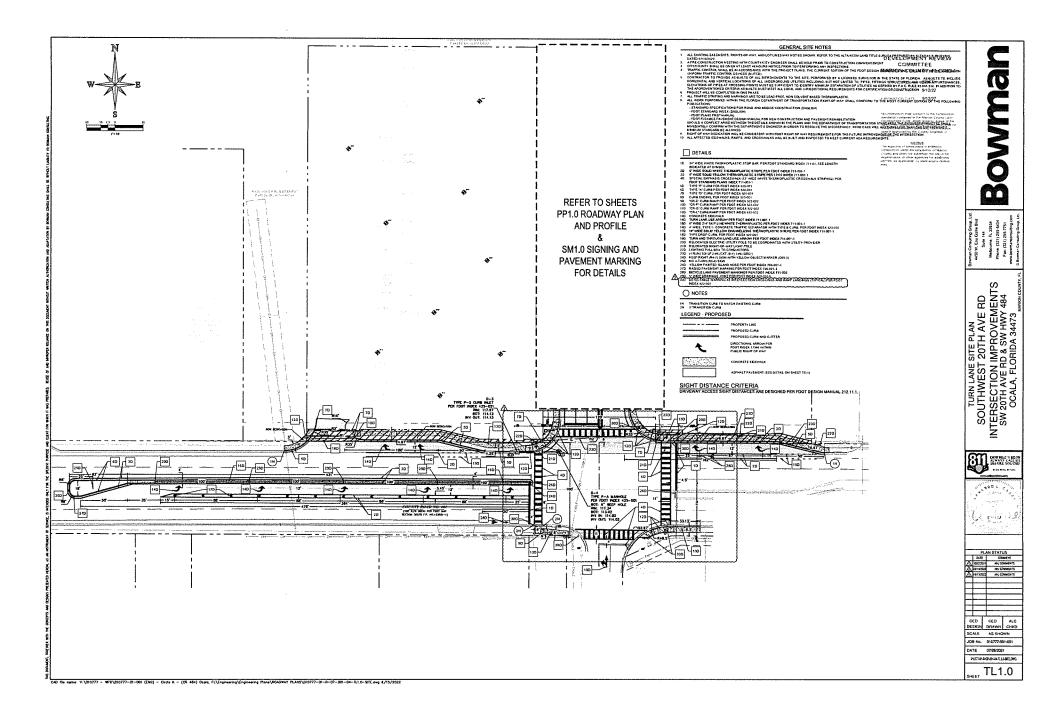
Traffic Impact Analysis Trailhead Logistics Park North

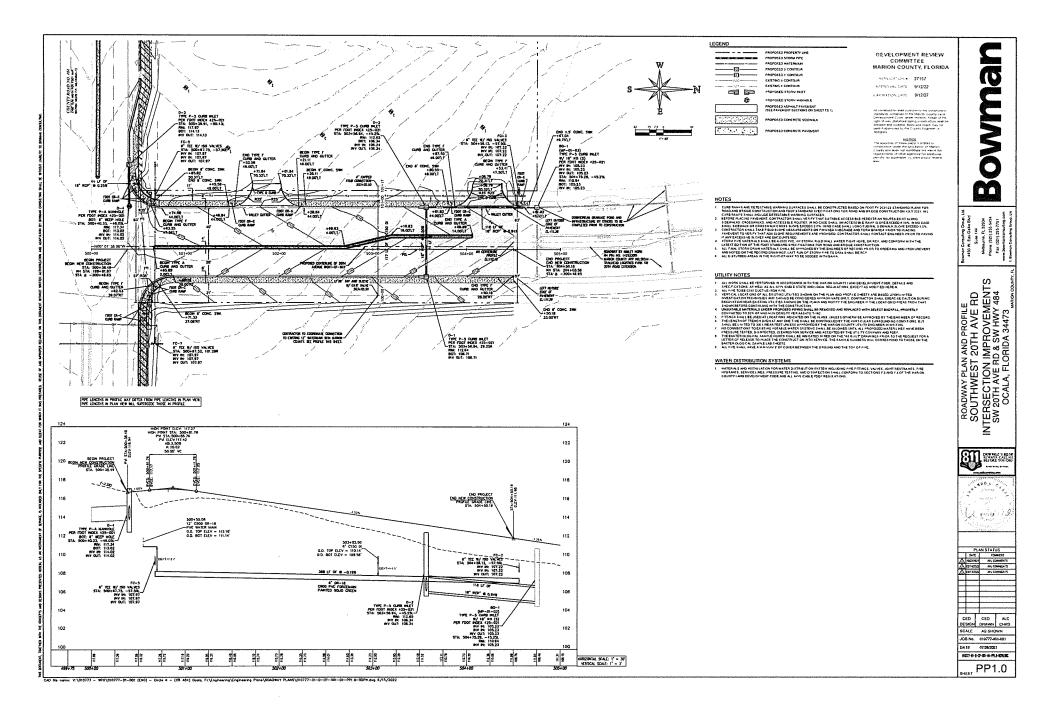
## APPENDIX H: BACKGROUND IMPROVEMENTS EXCERPTS











# Table 3Summary of Estimated 2040 Road Operating Conditions

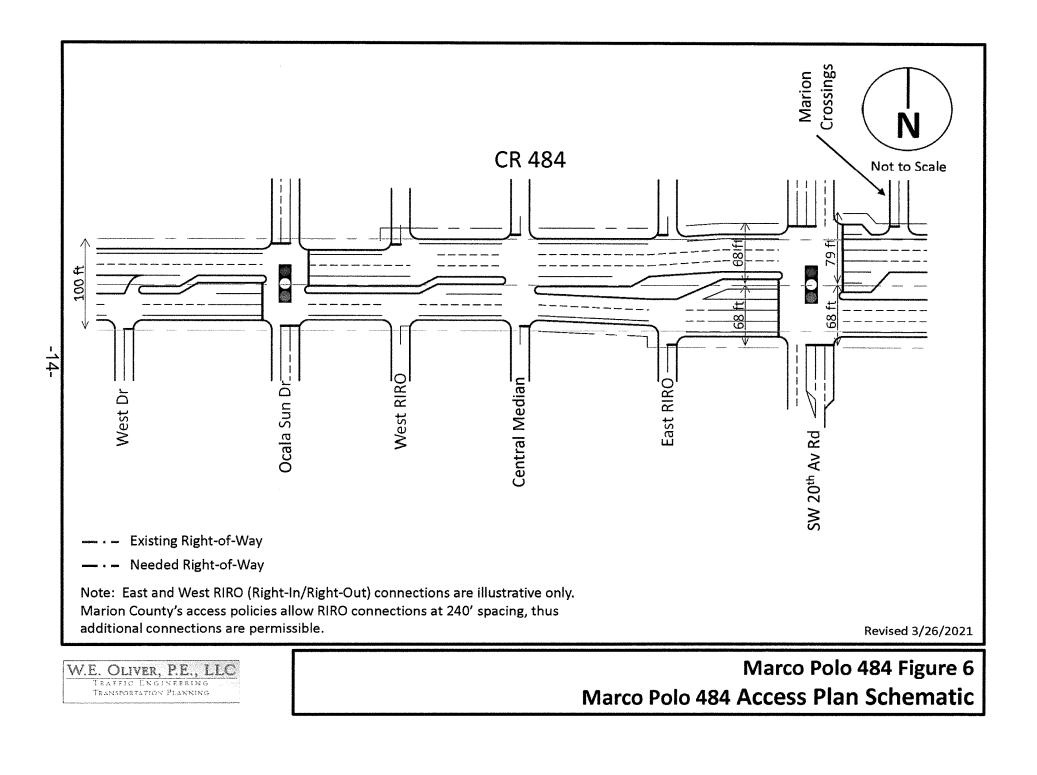
Intersection	Move-	No. of		A.M. P	eak Hour			P.M. P	eak Hour		Recommende
Control Type	ment	Lanes	Volume	Delay	v:c Ratio	LOS	Volume	Delay	v:c Ratio	LOS	Lane Length <sup>1</sup>
@ West Drive	WL	1	52	26.8	0.25	D	40	14.5	0.10	В	235
Unsignalized	NR	1	39	28.8	0.21	D	47	17.6	0.15	С	
@ Ocala Sun Drive	EL	1	123	11.2	0.38	В	109	27.2	0.60	С	385
Signalized	E T/R	2	2,076	36.5	0.94	D	1,420	43.6	0.87	D	
	WL	1	164	61.4	0.72	E	103	23.6	0.20	С	460
	W T/R	2	1,384	2.0	0.58	А	2,322	24.7	1.00	С	
	NL	1	61	72.1	0.55	E	123	187.8	1.12	F <sup>2</sup>	385
	N T/R	1	80	59.7	0.46	E	140	68.2	0.69	E	
	SL	1	126	138.1	0.98	F	116	211.1	1.17	F	385
	S T/R	1	101	63.6	0.58	E	123	63.9	0.63	E	
@ Central Median	EL	1	58	36.2	0.35	E	50	165.9	0.81	F	285
Unsignalized	WL	1	146	55.1	0.72	F	114	19.2	0.32	с	310
	NR	1	53	31.6	0.29	D	40	18.8	0.14	С	
	SR	1	55	22.9	0.22	С	53	49.3	0.41 E		
@ SW 20th Av Rd	EL	1	75	77.8	0.80	E	48	37.7	0.16	D	335
Signalized	E T/R	3	2,192	46.8	0.99	D	1,646	32.1	0.93	С	
	WL	2	562	77.0	0.98	E	434	30.5	0.54	С	510
	WT	3	1,692	1.0	0.62	А	2,386	92.1	1.17	F	
	WR	1	200	0.6	0.24	Α	127	2.7	0.20	A	285
	NL	1	114	54.4	0.40	D	144	54.6	0.50	D	410
	NT	1	41	63.3	0.33	E	26	62.0	0.21	E	
	NR	1	276	56.6	0.75	E	395	31.4	0.84	С	285
	SL	2	381	100.1	0.98	F	420	76.3	0.90	E	435
	S T/R	1	72	67.9	0.61	E	85	58.0	0.42	E	
@ Marion Crossing Unsignalized	SR	1	32	41.0	0.25	E	40	112.2	0.59	F	

Notes:

1. In feet, taper + deceleration + queue, assuming 45 mph design speed, and minimum queue length of 50 ft. Unsignalized 95%-ile queues from Synchro reports, signalized 95%-ile queues from supplemental worksheet in Appendix E.

2. See Appendix worksheets for improved LOS with third westbound through lane.

## D-201



# Table 3Summary of Estimated 2040 Road Operating Conditions

Intersection	Move-	No. of		A.M. P	eak Hour			P.M. P	eak Hour		Recommende
Control Type	, ment	Lanes	Volume	Delay	v:c Ratio	LOS	Volume	Delay	v:c Ratio	LOS	Lane Length <sup>1</sup>
@ West Drive	WL	1	52	26.8	0.25	D	40	14.5	0.10	В	235
Unsignalized	NR	1	39	28.8	0.21	D	47	17.6	0.15	С	
@ Ocala Sun Drive	EL	1	123	11.2	0.38	В	109	27.2	0.60	С	385
Signalized	E T/R	2	2,076	36.5	0.94	D	1,420	43.6	0.87	D	
	WL	1	164	61.4	0.72	E	103	23.6	0.20	С	460
	W T/R	2	1,384	2.0	0.58	A	2,322	24.7	1.00	С	
	NL	1	61	72.1	0.55	E	123	187.8	1.12	F <sup>2</sup>	385
	N T/R	1	80	59.7	0.46	E	140	68.2	0.69	E	
	SL	1	126	138.1	0.98	F	116	211.1	1.17	F	385
	S T/R	1	101	63.6	0.58	E	123	63.9	0.63	E	
@ Central Median	EL	1	58	36.2	0.35	E	50	165.9	0.81	F	285
Unsignalized	WL	1	146	55.1	0.72	F	114	19.2	0.32	С	310
	NR	1	53	31.6	0.29	D	40	18.8	0.14	С	
	SR	1	55	22.9	0.22	С	53	49.3	0.41	41 E	
@ SW 20th Av Rd	EL	1	75	77.8	0.80	E	48	37.7	0.16	D	335
Signalized	E T/R	3	2,192	46.8	0.99	D	1,646	32.1	0.93	С	
	WL	2	562	77.0	0.98	E	434	30.5	0.54	С	510
	WT	3	1,692	1.0	0.62	А	2,386	92.1	1.17	F	
	WR	1	200	0.6	0.24	Α	127	2.7	0.20	A	285
	NL	1	114	54.4	0.40	D	144	54.6	0.50	D	410
	NT	1	41	63.3	0.33	E	26	62.0	0.21	E	
	NR	1	276	56.6	0.75	E	395	31.4	0.84	С	285
	SL	2	381	100.1	0.98	F	420	76.3	0.90	E	435
	S T/R	1	72	67.9	0.61	E	85	58.0	0.42	E	
<i>@</i> Marion Crossing Unsignalized	SR	1	32	41.0	0.25	E	40	112.2	0.59	F	

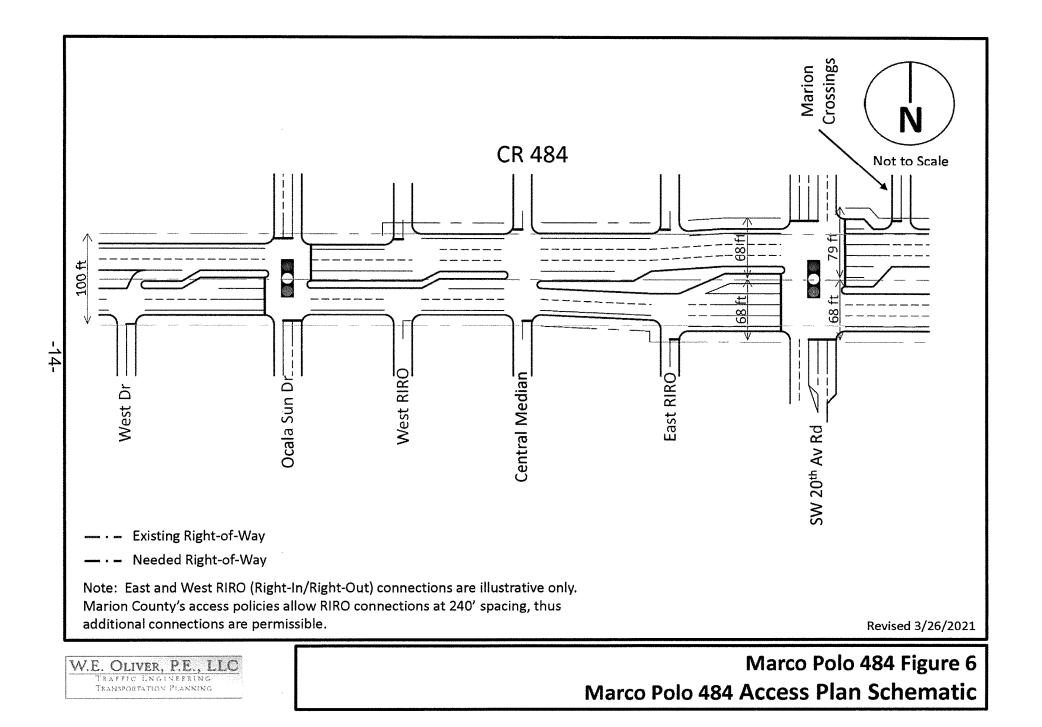
Notes:

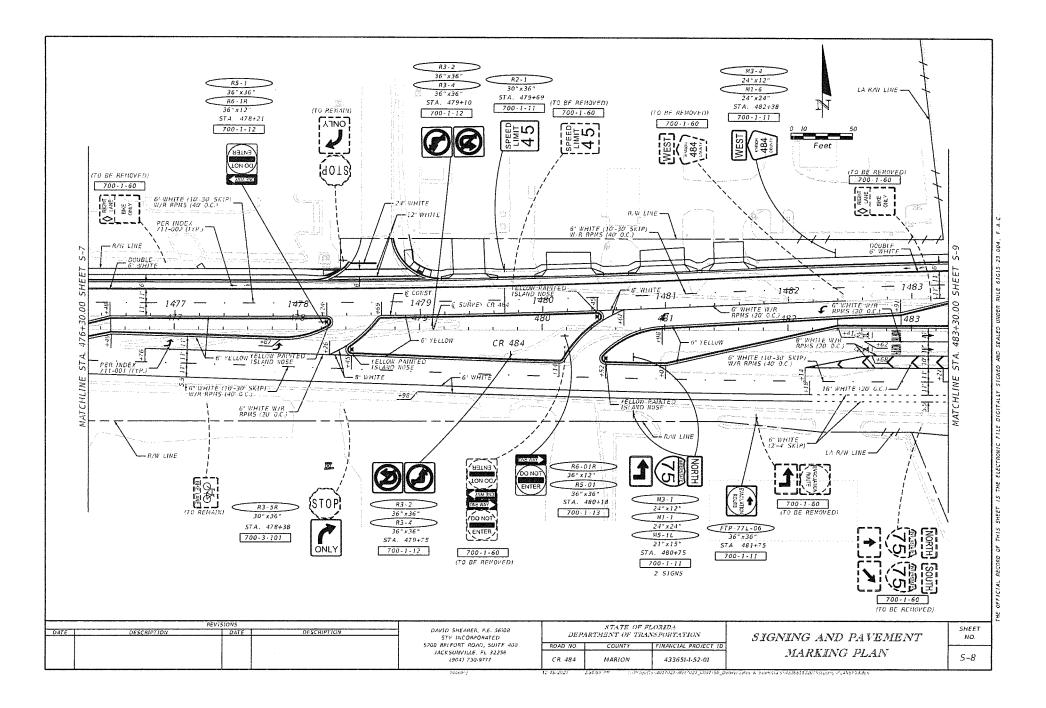
1. In feet, taper + deceleration + queue, assuming 45 mph design speed, and minimum queue length of 50 ft. Unsignalized 95%-ile queues from Synchro reports, signalized 95%-ile queues from supplemental worksheet in Appendix E.

2. See Appendix worksheets for improved LOS with third westbound through lane.

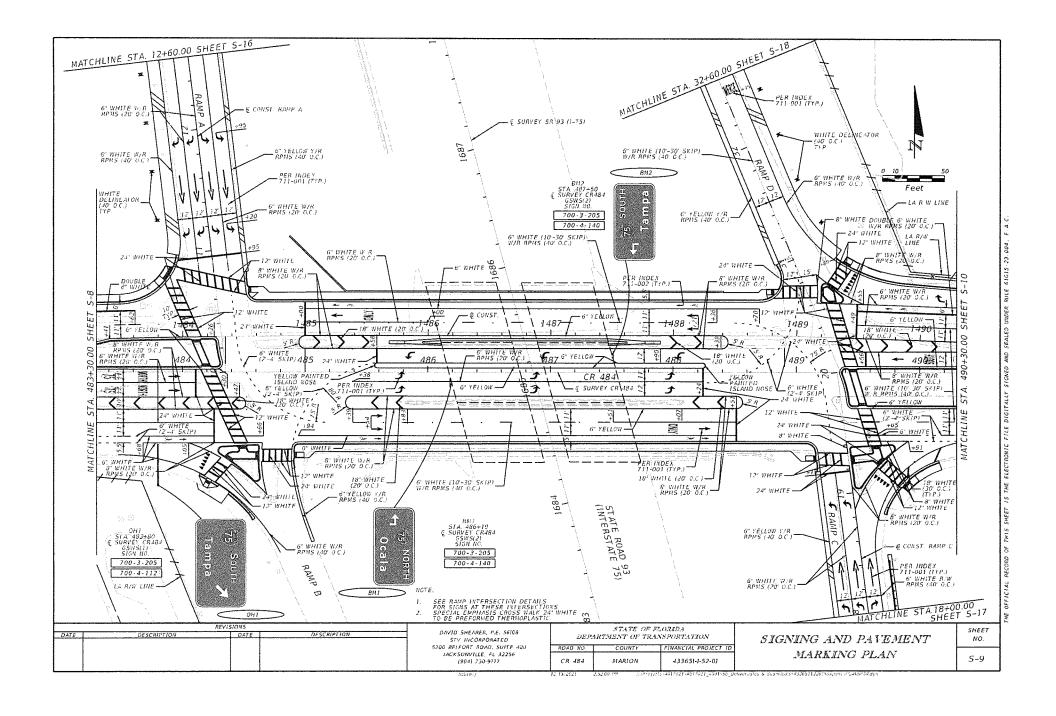


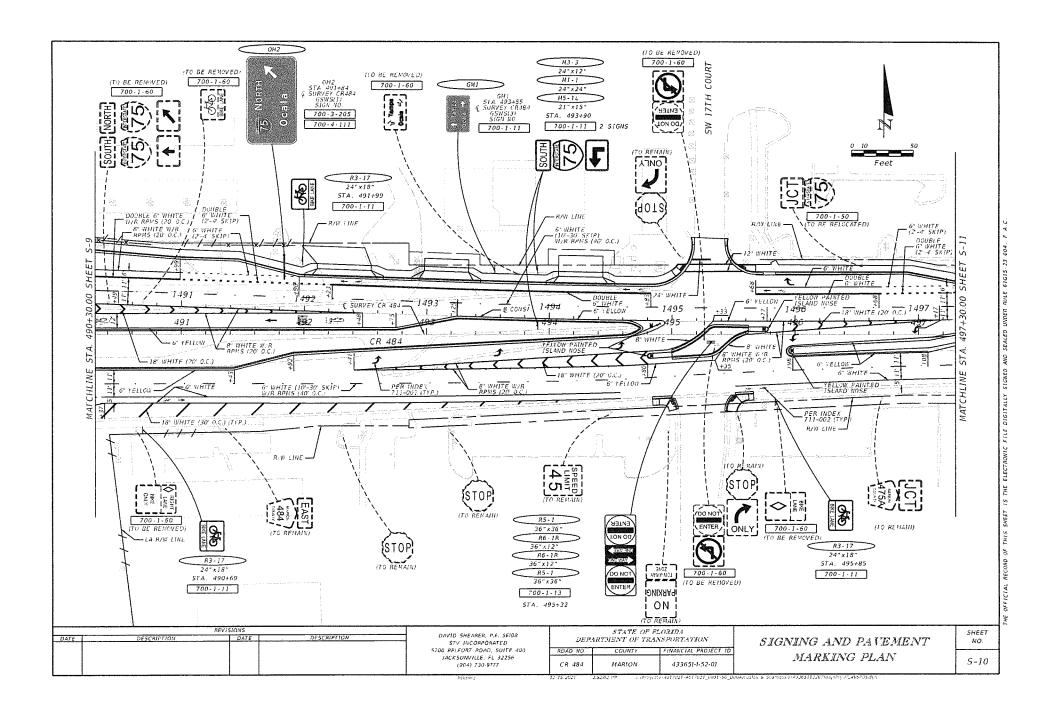
### D-203

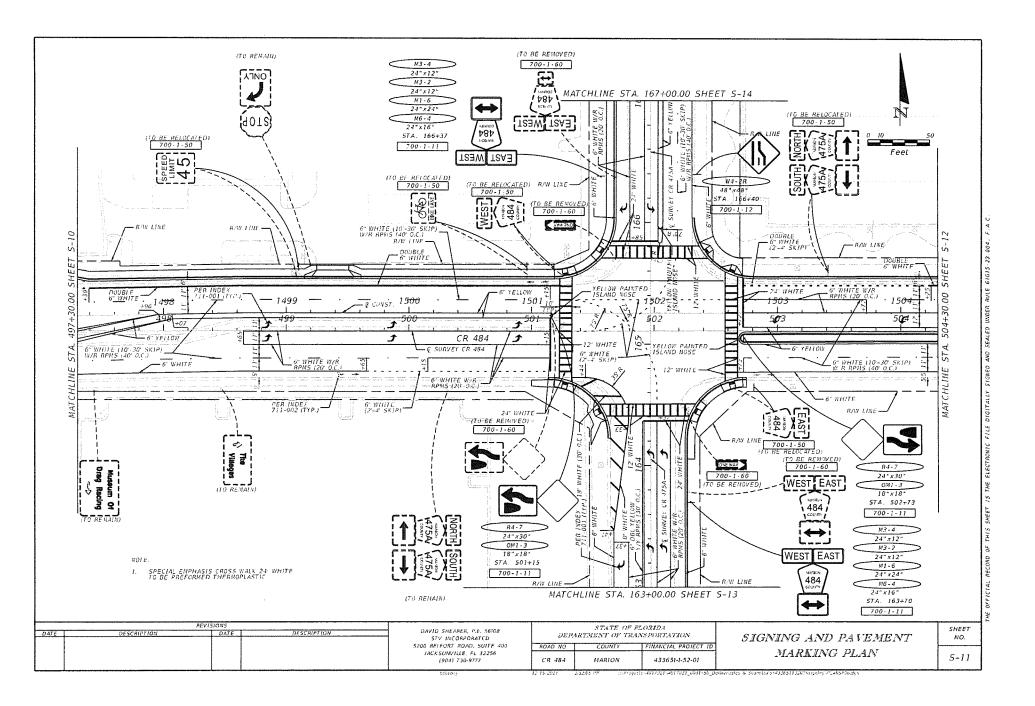


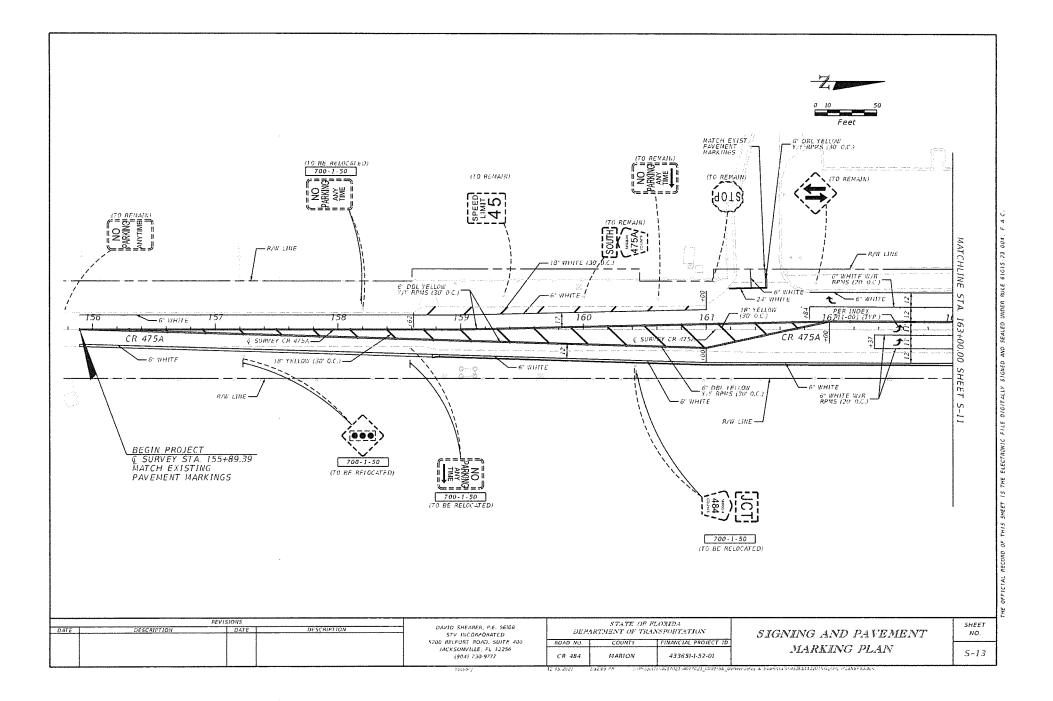


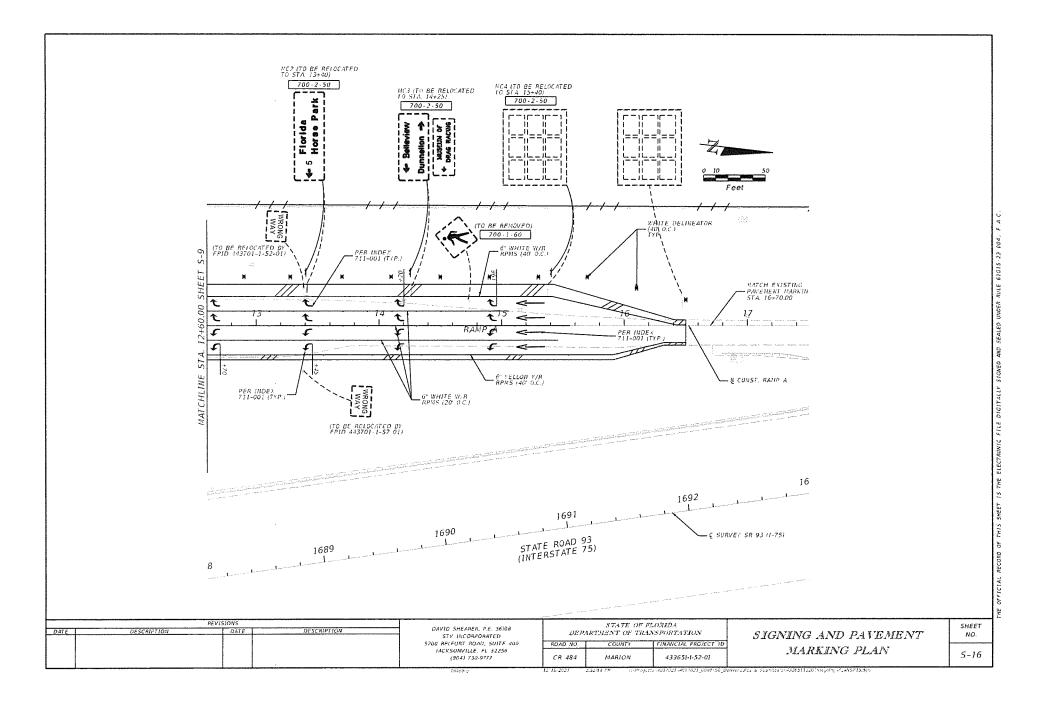
### D-205



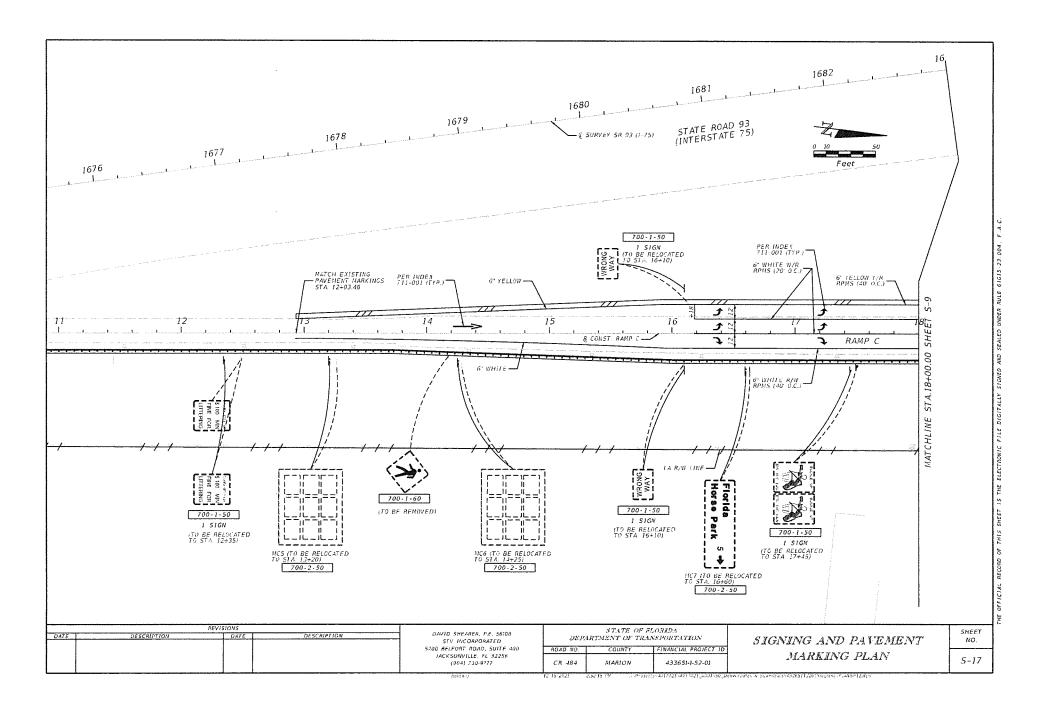








### D-210



D-211

## **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

## APPENDIX I: SW 29<sup>TH</sup> AVE RD AT CR 484 SIGNAL WARRANT ANALYSIS

Major Street:       CR 484       La         Minor Street:       SW 29th Ave Rd       La         Volume Level Criteria       1. Is the critical speed of major street traffic > 70 km/h (40 mph) ?       2. Is the intersection in a built-up area of isolated community of <10,00 If Question 1 or 2 above is answered "Yes", then use "70%" volume level the three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.         WARRANT 3 - PEAK HOUR       If all three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.         Unusual condition justifying use of warrant:       N/A         N/A       FIGURE 4C-3:         Peak Hour Volumes       3,862         AM Peak Hour - 12:00 AM       196         Major Street       3,862         Minor Street       196	ngineer: Date: Ines: Ines: 00 popul vel	App App Satisfies a 2 of LANES & 2 of	Ja Critica licable atisfied able figu	: : Volun NES	y 23, proad	202: ch Sr Yes Yes Yes Yes		45 No No No No
Major Street:       CR 484       La         Minor Street:       SW 29th Ave Rd       La         Volume Level Criteria       1. Is the critical speed of major street traffic > 70 km/h (40 mph) ?       2. Is the intersection in a built-up area of isolated community of <10,00         If Question 1 or 2 above is answered "Yes", then use "70%" volume level Criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.       Plot volume combination justifying use of warrant:         N/A       N/A       FIGURE 4C-3:         WARRANT 3 - PEAK HOUR       FIGURE 4C-3:       FIGURE 4C-3:         Unusual condition justifying use of warrant:       N/A       Plot volume combination function gets and the corresponding delay or volume in boxes provided.         Peak Hour Volumes       3.862       Minor Street       3.862         Minor Street       1.96       Major Street - 106       Major Street - 106         Najor Street       1.96       Major Street - 106       Major Street - 106         Approach Lanes       1       2       Note: 150 vph applies as the lower threshold of the store of threshold of threshold of threshold of threshold of the store o	00 popul vel	2 1 Ilation? App Si he applic a for "1	Critica Critica licable atisfied able figu 00%'' \	anuary al App : : : : Volun	y 23, proad proa	202: ch Sr Yes Yes Yes Yes		No No 100% No
Major Street:       CR 484       La         Minor Street:       SW 29th Ave Rd       La         Volume Level Criteria       1. Is the critical speed of major street traffic > 70 km/h (40 mph) ?       2. Is the intersection in a built-up area of isolated community of <10,00         If Question 1 or 2 above is answered "Yes", then use "70%" volume level Criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.       Plot volume combination justifying use of warrant:         N/A       N/A       FIGURE 4C-3:         Ware condition justifying use of warrant:       N/A       Figure 4C-3:         N/A       Figure 4C-3:       Figure 4C-3:         Minor Street       3,862       1, 2         Minor Street       1,96       1, 2	00 popul vel	2 1 Ilation? App Si he applic a for "1	Critica Critica licable atisfied able figu 00%'' \	: : : Volum	■ 1 ■ 7 ■ 7 //ow. ne L	res res res res res res		No No 100% No
Minor Street:       SW 29th Ave Rd       La         Volume Level Criteria       1. Is the critical speed of major street traffic > 70 km/h (40 mph) ?       2. Is the intersection in a built-up area of isolated community of <10,00	00 popul vel	1 Ilation? App St he applic a for "1	licable atisfied able figu 00%'' \ R MORE LA	: : Volun NES	■ ) ■ 7 ////////////////////////////////////	Yes Yes Yes Yes		No No 100% No
Volume Level Criteria         1. Is the critical speed of major street traffic > 70 km/h (40 mph) ?         2. Is the intersection in a built-up area of isolated community of <10,00	00 popul vel	App Si he applic a for "1 LANES & 2 OI	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	■ 7 ■ 7 //ow. =	Yes 70% Yes Yes evel		No 100% No
<ul> <li>1. Is the critical speed of major street traffic &gt; 70 km/h (40 mph) ?</li> <li>2. Is the intersection in a built-up area of isolated community of &lt;10,00 If Question 1 or 2 above is answered "Yes", then use "70%" volume let</li> <li>WARRANT 3 - PEAK HOUR</li> <li>If all three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.</li> <li>Unusual condition justifying use of warrant: <ul> <li>N/A</li> <li>Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.</li> <li>Peak Hour - 12:00 AM</li> <li>Major Street 3,862</li> <li>Minor Street 196</li> </ul> </li> <li>Delay on Minor Approach *(vehicle-hours)</li> <li>Approach Lanes 1 2</li> </ul>	vel ation on th Criteria	App Si he applic a for "1 LANES & 2 OI	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	■ 7 ■ 7 //ow. =	Yes 70% Yes Yes evel		No 100% No
<ul> <li>1. Is the critical speed of major street traffic &gt; 70 km/h (40 mph) ?</li> <li>2. Is the intersection in a built-up area of isolated community of &lt;10,00 If Question 1 or 2 above is answered "Yes", then use "70%" volume let</li> <li>WARRANT 3 - PEAK HOUR</li> <li>If all three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.</li> <li>Unusual condition justifying use of warrant: <ul> <li>N/A</li> <li>Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.</li> <li>Peak Hour - 12:00 AM</li> <li>Major Street 3,862</li> <li>Minor Street 196</li> </ul> </li> <li>Delay on Minor Approach *(vehicle-hours)</li> <li>Approach Lanes 1 2</li> </ul>	vel ation on th Criteria	App Si he applic a for "1 LANES & 2 OI	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	■ 7 ■ 7 //ow. =	Yes 70% Yes Yes evel		No 100% No
If Question 1 or 2 above is answered "Yes", then use "70%" volume let WARRANT 3 - PEAK HOUR If all three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed. 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 Volumes AM Peak Hour - 12:00 AM Major Street 3,862 Minor Street 196 Criteria Criteria 1. Delay on Minor Approach *(vehicle-hours) Approach Lanes 1 2	vel ation on th Criteria	App Si he applic a for "1 LANES & 2 OI	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	■ 7 ■ 1 /ow. ne L	70% Yes Yes		100% No
WARRANT 3 - PEAK HOUR         If all three criteria are fullfilled or the plotted point lies above the appropriate line then the warrant is satisfed.         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 Volumes         AM Peak Hour - 12:00 AM         Major Street       3,862         Minor Street       196         1. Delay on Minor Approach         '(vehicle-hours)         Approach Lanes       1	e, ation on th Criteria	Sa he applic. a for "1	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	ne L	Yes Yes		No
If all three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.  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 Volumes AM Peak Hour - 12:00 AM Major Street 3,862 Minor Street 196  Criteria  Criteria  Delay on Minor Approach (vehicle-hours)  Approach Lanes 1 2	ation on th Criteria	Sa he applic. a for "1	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	ne L	res evel		
If all three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.  Unusual condition justifying use of warrant: N/A  Record hour when criteria are fulfilled and the corresponding delay or volume n boxes provided.  Peak Hour Volumes AM Peak Hour - 12:00 AM Major Street 3,862 Minor Street 196  Criteria  Criteria  Delay on Minor Approach *(vehicle-hours)  Approach Lanes 1 2	ation on th Criteria	Sa he applic. a for "1	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	ne L	res evel		
If all three criteria are fulfilled or the plotted point lies above the appropriate line then the warrant is satisfed.  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 Volumes AM Peak Hour - 12:00 AM Major Street 3,862 Minor Street 196  Criteria  Criteria  Delay on Minor Approach (vehicle-hours)  Approach Lanes 1 2	ation on th Criteria	Sa he applic. a for "1	atisfied able figu 00%'' \ R MORE LAU	: Volun NES	ne L	res evel		No
then the warrant is satisfed.  Dusual condition justifying use of warrant: N/A  Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.  Peak Hour - 12:00 AM  Major Street 3,862 Minor Street 196  Criteria  Criteria  Delay on Minor Approach (vehicle-hours)  Approach Lanes 1 2	ation on th Criteria	a for "1	00%" \ R MORE LA		ne L			
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 Volumes Am Peak Hour - 12:00 AM Major Street 3,862 Minor Street 196 Criteria 1. Delay on Minor Approach *(vehicle-hours) Approach Lanes 1 2	Criteria	a for "1	00%" \ R MORE LA		ne L			
Issee of warrant:         N/A         Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.         Peak Hour Volumes         AM Peak Hour - 12:00 AM         Major Street       3,862         Minor Street       196         Criteria         1. Delay on Minor Approach         *(vehicle-hours)         Approach Lanes       1		LANES & 2 01	R MORE LA	NES	E			
N/A         Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.         Peak Hour Volumes         AM Peak Hour - 12:00 AM         Major Street       3,862         Minor Street       196         Criteria         1. Delay on Minor Approach         *(vehicle-hours)         Approach Lanes       1		LANES & 2 01	R MORE LA	NES	E			-
Record hour when criteria are fulfilled and the corresponding delay or volume n boxes provided. Peak Hour Volumes AM Peak Hour - 12:00 AM Major Street 3,862 Minor Street 196 Criteria 1. Delay on Minor Approach *(vehicle-hours) Approach Lanes 1 2	2 OR MORE L			& 1 LAN		LANE		
Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.         Peak Hour Volumes         AM Peak Hour - 12:00 AM         Major Street       3,862         Minor Street       196         Criteria         1. Delay on Minor Approach *(vehicle-hours)       400 500 600 700 800 900         MAJOR STREET - TOTAL OF         * Note:       150 vph applies as the lower threshold version		2 OR M0				LANE		-
Record hour when criteria are fulfilled and the corresponding delay or volume n boxes provided.       Image: Criteria         Peak Hour - 12:00 AM       Major Street       3,862         Minor Street       3,862         Minor Street       196         Criteria       0         1. Delay on Minor Approach *(vehicle-hours)       MAJOR STREET - TOTAL OF         * Note:       150 vph applies as the lower threshold version		2 OR M(				LANE		-
Peak Hour Volumes         AM Peak Hour - 12:00 AM         Major Street       3,862         Minor Street       196         Criteria       0         0       400       500       600       700       800       900         Major Street       196       100       0 <td< td=""><td></td><td></td><td><math>\downarrow</math></td><td>114</td><td>NE &amp; 1</td><td></td><td></td><td></td></td<>			$\downarrow$	114	NE & 1			
Peak Hour Volumes         AM Peak Hour - 12:00 AM         Major Street       3,862         Minor Street       196         Criteria       0         0       400       500       600       700       800       900         Major Street       196       100       0 <td< td=""><td><math>\square</math></td><td><math>\geq</math></td><td><math>\checkmark</math></td><td></td><td></td><td></td><td></td><td></td></td<>	$\square$	$\geq$	$\checkmark$					
Peak Hour Volumes         AM Peak Hour - 12:00 AM         Major Street       3,862         Minor Street       196         Criteria       0         1. Delay on Minor Approach       *(vehicle-hours)         Approach Lanes       1         2       * Note: 150 vph applies as the lower threshold were threshold wer	$\downarrow$		$\prec$					
Major Street     3,602       Minor Street     196       Criteria     0       Criteria     0       Major Street     196       Output     0       400     500     600     700     800     900       Major Street     1     2     * Note:     150 vph applies as the lower threshold with thresh	$\rightarrow$							
Major Street     3,602       Minor Street     196       Criteria     0       Criteria     0       Major Street     196       Output     0       400     500     600     700     800     900       Major Street     1     2     * Note:     150 vph applies as the lower threshold with thresh	1 1		A		/			-
Criteria     0       1. Delay on Minor Approach *(vehicle-hours)     0       Approach Lanes     1					/			•150 •100
Criteria     400 500 600 700 800 900       1. Delay on Minor Approach *(vehicle-hours)     MAJOR STREET - TOTAL OF       Approach Lanes     1     2								
1. Delay on Minor Approach *(vehicle-hours)     400 500 500 700 500 500 500 500 500 500 5								
*(vehicle-hours)         * Note: 150 vph applies as the lower threshold with the standard sector of the sector	1000 110			100 15	00 10	600 1	700 1	800
	BOTH API	PROACHE	S - VPH					
Dolay Critoria* 40 50 100 vph applies as the lower threshold y								
	volume thre	eshold for a	minor str	eet app	roach	with o	ne lane	•. 
Delay*         2.8           Fulfilled?:         Yes         ■ No         FIGURE 4C-4: C	riteria f	or "70%	" Volu	ıme L	.eve	1		
(Community Less	s than 10,00	00 populatio	on or abov	ve 70 kr	m/hr (4	40 mph	ı) on	
500								
2. Volume on Minor Approach	R MORE LANE	ES& 2 OR MO	RE LANES	I				
*(vehicles per hour)								
Approach Lanes 1 2	R MORE LAN	ES & 1 LANE	1					
Volume Criteria* 75 100 gr 4 300 Volume* 196 196	·							
Fulfilled?: ■ Yes □ No	114	ANE & 1 LANE	1 -			.		
2. Volume on Minor Approach *(vehicles per hour) Approach Lanes 1 2 Volume Criteria* 75 100 Volume* 196 196 Fulfilled?: ■ Yes □ No	$\mathbf{N}$					Γ,	K.	
	$^{*}$	$\downarrow$					*100	
3. Total Entering Volume 100 *(vehicles per hour)		$\square$					-75	
No. of Approaches 1 2 1 4								
	900 1000 1	1100 1200 1	300 1400	1500 1	600 1	700 18	00	
Volume* 4,058 MAJOR STREET - TOTA	L OF BOTH	APPROAC	IES - VPH	I				
Fulfilled?: ■ Yes		a minor stre	eet approa	ach with	i two c	or more		and

Source: Revised from NCHRP Report 457

K:\OCA\_Civil\142933003-Transwestem North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01 - TLPN TIA.xlsm]tumLaneLengths

## **Kimley Worn**

	TRAF		GN					- 61	1.1.1.1	ллг	<b>.</b>						
City: County:	N/A Marion		Engine									Kimle	(imley-Horn uary 23, 2023				
Major Street: Minor Street:	SW 2	CR 484 9th Ave F	٦d				Lane Lane		2	C	Critica	al App	oroa	ach Sp	beed:	45	
Volume Level Criteria 1. Is the critical spee 2. Is the intersection If Question 1 or 2 abo	in a built-up	area of is	olated	commu	inity o	of <10			Ilatior	ז?				Yes Yes 70%		No No 100%	
WARRANT 3 - PEAM If all three criteria are fu then the warrant is satis Unusual condition just	llfilled or the plo fed.	otted point	lies ab	Plot v	olume	coml	binati		he ap	Sati plicab	-	: ıre bei	D low.			No No	
Minor Street Criteria 1. Delay on Minor App	es AM 462 71	MINOR STREET MINOR STREET 000 000 000 000 000 000 001 MIGH VOLUME APPROACH - VPH 000 000 000 000 000 000 000 000 000					20	DR MORE	00 12		LANES	a 1 LAN		1 LANE			
2. Volume on Minor App *(vehicles per hou Approach Lanes 1 Volume Criteria* 75 Volume* 71	8	MOR STREET JME APPROACH - VPH	0 vph apj	olies as th olies as th	e lower e lower JRE 4	thresh thresh IC-4	old vol old vol : Cri Less th	ume for ume thre teria 1 ban 10,0 ORE LAN	a mino eshold for "7 00 pop	r street for a m 70%" ulation R MORE	approa inor stru Volu or abov	eet app.	roac _ev	h with oi	ne lane		
3. Total Entering Vol         *(vehicles per hou         No. of Approaches       3         Volume Criteria*       650         Volume*       3,533         Fulfilled?:       Yes	r) 4 800	* Note: 10		MAJ		EET - T thresh	OTAL ( old vol	OF BOTH ume for	a mino	DACHE: r street	s - VPH approa	ach with	n two	1700 18	e lanes	and	

Source: Revised from NCHRP Report 457

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\vds\[2023-01 - TLPN TIA.xlsm]turnLaneLengths

# Kimley »Horn

	TRA	FFIC S	IGNA			1NZ	SI	M	1 A F	٦Y						
City: County:									Kimley-Horn January 23, 2023							
Major Street: Minor Street:	SV	CR 484 / 29th Ave	Rd			Lane Lane	s: s:	2	C	Critica	l App	road	ch Sp	eed:	45	
Volume Level Criteria 1. Is the critical sp 2. Is the intersecti If Question 1 or 2 a	eed of major on in a built-u	p area of is	olated	commun	ity of <1			latior	1?			■ \ □ \ ■ 7			No No 100%	
NARRANT 3 - PE If all three criteria are then the warrant is sa Unusual condition ju	fullfilled or the atisfed.	plotted poin	t lies abc		propriate ume com		n on t		Sati	cable: sfied: <i>le figu</i>		•	res res		No No	
use of warran N/A Record hour when criteria and the corresponding de n boxes provided.	a are fulfilled	000 MINOR STREET 000 0000 STREET 000 0000 0000 br>0000 0000 0000 0000 0000 0000 0000		FIG	JRE 4C	<u> </u>		LANES 8	2 OR M	ORE LA	VES & 1 LANE					
Peak Hour Volu AM Peak Hour - 12: Major Street Minor Street Criteria		WINOU WINOU WINOU HICH 100							Z	$\langle   /  $					*150 *100	
1. Delay on Minor A *(vehicle-hour	s) 2 0 5.0 5.6	10	MA. 50 vph app		ET - TOTA	nold volu hold volu : Crit	orn AP Ime for Ime thre eria f	PROAG a minor shold f or "7	CHES street or a mi	approa	ich with eet appri	two c oach eve	or more with on	lanes i e lane.		
Volume Criteria* 7 Volume* Fulfilled?: ■ Yes 3. Total Entering V	our) 2 5 100 234 No Volume	HIGH VOLUME APPROACH -	400						ANE				*	•100		
*(vehicles per h       No. of Approaches     3       Volume Criteria*     65       Volume*     4,3       Fulfilled?:     Yes	<b>3</b> 4 <b>50</b> 800	* Note: 10	0 300 4 00 vph app		00 700 8 STREET - 1 ower thresh	TOTAL O	F ВОТН	APPRC	ACHES	S - VPH				0	and	

Source: Revised from NCHRP Report 457

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01 - TLPN TIA.xlsm]turnLaneLengths

## **Kimley Worn**

	ТРАГ	FICS				-		12	1	ЛДБ	v						
City: County:	N/A				**~1	117		ineer		Kimley-Horn January 23, 2023							
Major Street: Minor Street:	SW	CR 484 29th Ave	Rd				Lane Lane			C	Critica	l Appr	oach	Speed	45		
Volume Level Criteria 1. Is the critical spe 2. Is the intersectio If Question 1 or 2 a	eed of major s n in a built-up	area of i	solate	d com	munity	of <10			latior	ו?		[	∎ Yes ] Yes ∎ 70%	5 📕	No No 100%		
WARRANT 3 - PEA If all three criteria are then the warrant is sau Unusual condition ju	fullfilled or the p tisfed.	plotted poir	nt lies a		ne appro ot volum	-		on on t		Sati	cable: sfied: <i>le figu</i>	[	■ Yes ] Yes		No No		
use of warrant N/A Record hour when criteria and the corresponding del boxes provided. Peak Hour Volue PM Peak Hour - 12:0 Major Street Minor Street Criteria 1. Delay on Minor Ap *(vehicle-hours Approach Lanes 1 Delay Criteria* 4.0 Delay* Fulfilled?: □ Yes	are fulfilled ay or volume mes 00 AM 3,696 235 pproach 5) 2	* Note:	150 vph a	0 600 MAJOR S applies as	STREET - s the lowe s the lowe GURE	BOD S TOTAL r thresh 4C-4	200 100 10 OF BC old volu	R MORE	LANES &	2 OR MORE	e LANES	a 1 LANE 1 LA	E & 1 LAN E & 1 LAN 0 1600 woo or m bach with	Tron ore lanes	and		
3. Total Entering V *(vehicles per ho No. of Approaches 3 Volume Criteria* 65 Volume* 3,93	ur) 2 100 235 No No Dlume ur) 4 0 800	<ul> <li>MINOR STREET</li> <li>HIGH VOLUME APPROACH - VPH</li> </ul>				700 80 REET - T	2 OR MC	DRE LAN	ES & 2 0		0 1400	1500 16	00 1700	*100 •75	and		

Source: Revised from NCHRP Report 457

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01 - TLPN TIA.xlsm]tumLaneLengths

## Kimley »Horn

## **Kimley Worn**

Traffic Impact Analysis Trailhead Logistics Park North

## APPENDIX J: APPROVED TRAFFIC ANALYSIS METHODOLOGY CORRESPONDENCE



### Marion County Board of County Commissioners

Office of the County Engineer 412 SE 25th Ave. Ocala, FL 34471 Phone: 352-671-8686 Fax: 352-671-8687

December 12, 2022

KIMLEY-HORN AMBER GARTNER 101 E SVR SPRGS BLVD, SUT 400 OCALA, FL 34470

SUBJECT: **TRAFFIC METHODOLOGY APPROVAL LETTER** PROJECT NAME: TRAILHEAD LOGISTICS PARK NORTH PROJECT #2022090087 APPLICATION: #29192 PARCEL #41200-086-01

Dear Amber,

The Traffic Methodology dated November 30, 2022 for the above referenced project was approved by Marion County on December 12, 2022. Please submit the Traffic Study in accordance with this approved Methodology. The following comments are for your review. You need not reply to the comments, and if the comments have been previously completed, simply disregard.

DEPARTMENT: ENGIN - DEVELOPMENT REVIEW REVIEW ITEM: Provide one signed original after approval STATUS OF REVIEW: INFO REMARKS:

Feel free to contact the Office of the County Engineer at (352) 671-8686 or <u>DevelopmentReview@marionfl.org</u> should you have questions.

Sincerely,

Your Development Review Team Office of the County Engineer

**Empowering Marion for Success** 

marionfl.org

November 30, 2022

Mr. Christopher Zeigler Engineering Project Manager Marion County Office of the County Engineer 412 SE 25th Avenue Ocala, Florida 34471

#### RE: Trailhead Logistics Park North – Traffic Study Methodology; Marion County, Florida Kimley-Horn Project No. 142933003

Dear Mr. Zeigler:

This methodology document has been prepared for the forthcoming traffic study to support a PUD master plan for the proposed Trailhead Logistics Park North industrial site. The methodology contained herein has been developed consistent with the Ocala Marion County Traffic Impact Analysis (TIA) Guidelines. The project peak hour trip generation is estimated to be 100 or more trips, and therefore a "Traffic Study" is required. The methodology has been updated to reflect input from Maron County on the prior methodology submittals.

Tables, figures, and pertinent information are attached which detail the project's trip generation potential, trip distribution, proposed study area, and historic traffic trends. Following is a discussion related to the preliminary analyses and proposed methodology for the Traffic Study.

### PROJECT BACKGROUND

The project site is generally located in the northwest corner of CR 484 and I-75 in Marion County, Florida. The project site includes several platted lots within the Deltona Development that will be combined for the proposed industrial development. A majority of the project area has a future land use designation of Employment Center. A PUD zoning application and master plan is being filed to include approximately 3.6 million square feet of industrial warehouse uses within multiple buildings. A conceptual site plan is provided as an attachment.

The Trailhead Logistics Park South development is currently under construction, and is located south of the proposed Trailhead North site. The Trailhead Logistics Park South project includes the extension of SW 20<sup>th</sup> Avenue Road north to the property boundary between the two developments. A traffic study was approved in May 2021 for the Trailhead Logistics Park South site, and traffic from that study will be added to background traffic volumes as a vested development.

### PROJECT TRIP GENERATION

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition* was used to calculate trip generation potential for the development. ITE Land Use Code (LUC) 154 (High-Cube Transload and Short-Term Storage Warehouse) and ITE LUC 110 (General Light Industrial) were used to derive the trip generation potential. The development is proposed to have approximately 3.6 million square feet total within

Page 2

three separate buildings. Each individual building was assigned an ITE LUC based on information provided by the developer and reviewing ITE land use descriptions and building size.

The trip generation rates for the PM peak hour of generator were used for the PM peak hour calculations for ITE LUC 154 per methodology comments provided by Marion County. According to data from the ITE Trip Generation Manual, 11<sup>th</sup> Edition the peak hour of generator for ITE LUC 154 is from 3 PM to 4 PM. An excerpt detailing the hourly distribution of ITE LUC 154 is provided as an attachment.

Truck trip generation potential for ITE LUC 110 was derived using data from the ITE *Trip Generation Manual, 11<sup>th</sup> Edition*. The ITE Study "High-Cube Warehouse Vehicle Trip Generation Analysis" (published October 2016) was used to derive the truck trip generation potential for ITE LUC 154. Excerpts from these sources are provided as an attachment.

The trip generation calculations detailing the automobile and truck trip generation potential of the development are provided in the attached **Table 1**. The site is expected to generate 6,705 daily trips, 702 AM peak hour trips, and 657 PM peak hour trips (automobile and truck).

#### TRIP EQUIVALENCY MATRIX

A trip equivalency matrix will be developed for the project, which will allow for minor changes to land use types and intensities without increasing the PM peak hour external project trips generated by the development. The trip equivalency matrix will provide a methodology for conversion of land uses and intensities to result in an equal or lesser number of net new PM peak hour project trips than will be evaluated in the study. Any conversions of land uses will be consistent with allowable uses outlined within the PUD submittal.

#### **PROJECT TRIP DISTRIBUTION**

The traffic distribution for the site was developed based on Version 7.0 of the Central Florida Regional Planning Model (CFRPM), which is based on the Florida Standard Urban Transportation Model Structure (FSUTMS). The model output was refined based on the local transportation network, engineering judgment, and for consistency with the prior evaluations for the Trailhead Logistics South site. The FSUTMS model outputs with manual adjustments is included as an attachment.

The trip distribution was reviewed with Marion County staff on November 4<sup>th</sup>, 2022. The project trips were locally assigned to the access locations on Marion Oaks Trail, SW 29<sup>th</sup> Avenue Road, and SW 20<sup>th</sup> Avenue Road based on the building locations, internal site access and external trip distribution.

The CFRPM model distribution was used to estimate the distribution of automobile trips to and from the site. A separate distribution of truck traffic was developed based on the anticipated distribution to and from I-75. The existing traffic volumes on I-75 were utilized to estimate the cardinal distribution of truck traffic along this route.

The attached **Figure 1A** illustrates the automobile trip distribution and **Figure 1B** illustrates the truck trip distribution. **Figure 2** illustrates the automobile and truck trip distribution utilizing SW 29<sup>th</sup> Avenue Road and Marion Oaks Trail, which has been updated based on input from Marion County.

#### SITE ACCESS

Site access will be provided through the following:

kimley-horn.com 1700 SE 17th Street, Suite 200, Ocala, FL 34471

Page 3

- Connection to the south along SW 20<sup>th</sup> Avenue Road, which connects to CR 484 at a signalized intersection
- Connection as a new east leg of the intersection of SW 29<sup>th</sup> Avenue Road and Marion Oaks Trail

SW 20<sup>th</sup> Avenue Road is being constructed from the boundary of the Trailhead North development and Trailhead Logistics Park South site to the existing intersection of SW 20<sup>th</sup> Avenue Road and CR 484. The new roadway extension is being constructed by the Trailhead developer. The new roadway will be a combination of four-lane and two-lane roadway segments. A further extension of SW 20<sup>th</sup> Avenue Road north into the Trailhead North site is proposed as part of the site development. The roadway will continue west to connect to SW 29<sup>th</sup> Avenue Road at the intersection with Marion Oaks Trail.

SW 29<sup>th</sup> Avenue Road was previously contemplated to be four lanes with the Deltona development agreements. There is 100 feet of right-of-way and portions of the roadway are constructed with four lanes. The traffic study will evaluate the need for improvement along SW 29<sup>th</sup> Avenue Road to accommodate the site traffic, as well as necessary improvements at the intersection with CR 484.

#### PROJECT STUDY AREA

The trip generation potential of the proposed site warrants a Traffic Study according to the Ocala Marion County TIA Guidelines. The Ocala Marion County TIA Guidelines requires that the adjacent roadway segments, site access locations, and roadway segments with a 3% or greater impact plus one link beyond be included in the study.

Project traffic impact calculations were performed for the proposed project. The project impact was calculated as the average PM peak hour trip assignment from the development on each roadway segment divided by the segment's peak hour directional service volume. The roadway segment service volumes were obtained from the most recent Ocala Marion Transportation Planning Organization (TPO) Congestion Management Plan (CMP).

SW 29<sup>th</sup> Avenue Road is not a classified roadway segment within the CMP. The service volume for this roadway was derived using the 2020 FDOT Quality/Level of Service Handbook, FDOT Urban Area Boundary & Classification Map for Marion County and adopted LOS from the Marion County Comprehensive Plan.

The following roadway segments will be included in the study area and evaluated for PM peak hour traffic conditions:

- CR 484, from SW 105<sup>th</sup> Avenue to SR 200 (one segment beyond impact)
- CR 484, from SR 200 to SW 49<sup>th</sup> Avenue
- CR 484, from SW 49<sup>th</sup> Avenue to SW 45<sup>th</sup> Avenue
- CR 484, from SW 45th Avenue to Marion Oaks Boulevard
- CR 484, from Marion Oaks Boulevard to SW 20th Avenue Road
- CR 484, from SW 20th Avenue Road to I-75
- CR 484, from I-75 to CR 475A
- CR 484, from CR 475A to CR 475
- CR 484, from CR 475 to CR 467

- CR 484, from CR 467 to SE 132nd Street Road
- SW 29th Avenue Road, from CR 484 to Marion Oaks Trail
- SE 132<sup>nd</sup> Street Road, from CR 484 to US 301
- SE 132<sup>nd</sup> Street Road, from US 301 to US 441 (one segment beyond impact)
- Marion Oaks Trail, from CR 484 W to SW 49<sup>th</sup> Avenue (one segment beyond impact)
- Marion Oaks Trail, from Marion Oaks Course to CR 484E

In addition, the following intersections will be included in the study area and evaluated during the AM and/or PM peak hour:

- SW 29th Avenue Road & Marion Oaks Trail (unsignalized, AM and PM)
- CR 484 & Marion Oaks Boulevard (signalized, PM)
- CR 484 & SW 29<sup>th</sup> Avenue Road (unsignalized, AM and PM)
- CR 484 & SW 20<sup>th</sup> Avenue Road (signalized, AM and PM)
- CR 484 & I-75 Southbound Ramp (signalized, AM and PM)
- CR 484 & I-75 Northbound Ramp (signalized, AM and PM)
- CR 484 & CR 475A (signalized, PM)
- CR 484 & CR 475 (signalized, PM)

The AM peak hour analysis will be performed for the AM peak hour of adjacent street (7AM to 9AM). The PM peak hour analysis will be performed from 3PM to 4PM based on input from Marion County to evaluate the PM peak hour of generator for ITE LUC 154.

Figure 3 illustrates the proposed study area intersections and roadway segments. The attached Table 2 outlines the study area determination calculations and proposed service volumes for the forthcoming analysis.

#### COMMITTED TRANSPORTATION IMPROVEMENTS

There are planned improvements within the study area that will be included as background improvements in the forthcoming analysis.

FDOT has programmed improvements along CR 484 west of SW 20<sup>th</sup> Avenue Road to east of CR 475A that will improve local traffic operations. The improvements include access management restrictions, adding turn lanes, and extending turn lanes. Construction is funded for FY 2023-2024 (FPID 433651-1).

In addition, the Marion Oaks Boulevard at CR 484 intersection has planned improvements with construction funding from FDOT programmed for FY 2024 (FPID 449277-1).

CR 484 is listed within the Ocala Marion TPO Long Range Transportation Plan (LRTP) as needing widening to six lanes from SW 29<sup>th</sup> Avenue to SW 20<sup>th</sup> Avenue Road (project R26) and SW 20<sup>th</sup> Avenue Road to CR 475A (project R27). These improvements are not listed in the cost feasible plan, therefore no additional through lanes on CR 484 are planned at this time.

Page 4

D-221

Page 5

SW 49<sup>th</sup> Avenue is currently under construction as a new four-lane roadway from CR 484 to Marion Oaks Trail. Marion County has construction funds allocated for the widening of SW 49<sup>th</sup> Avenue to four lanes from Marion Oaks Trail to SW 95<sup>th</sup> Street in FY 2024-2025 (Project C13).

### FUTURE TRAFFIC VOLUME DEVELOPMENT

AM (7AM-9AM) and PM peak period (3PM-5PM) turning movement counts will be collected at the study area intersections. The turning movement counts will be collected when there are no lane closures resulting from the FDOT interchange improvement project (FPID 433651-1). The turning movement counts will also be collected while schools are in session.

The observed turning movement counts will be adjusted to peak season using the 2021 Peak Season Conversion Factors for Marion County published by FDOT. The approach and departure volumes from the traffic counts will be utilized to calculate the existing traffic volumes on roadway segments within the study area.

A buildout year of 2027 will be utilized for the future year analysis. A background growth rate will be applied to calculate future background traffic volumes, prior to addition of project traffic from the proposed site. Vested traffic will be provided by Marion County for the following developments which will be added as background traffic:

- Trailhead Logistics Park South
- Gas/Convenience Store at CR 484 & SW 20th Ave Rd
- Marco Polo PUD (South Side/Apartments Only)
- McGinley Property Phase 2

The background growth rate was derived using data from the most recent Ocala Marion TPO CMP and Ocala Marion TPO Traffic Counts and Trends Manual. Historical annual average daily traffic (AADT) and growth rate data on CR 484 near the project site were reviewed to identify historical traffic growth trends. An areawide average growth rate of 3.0% is proposed for the future traffic volume projections, in addition to the project traffic from the above listed vested developments. Excerpts from the Ocala Marion TPO CMP and Traffic Counts and Trends Manual, and areawide growth rate calculations are provided as attachments.

Project traffic from the proposed Trailhead North site will be added to the future background traffic volumes to estimate traffic volumes in 2027 after project buildout.

### FUTURE CONDITIONS ANALYSIS

The traffic study will identify transportation impacts and improvement needs within the study area. The analysis will be performed for the following conditions during the PM peak hour:

- 2022 existing conditions
- 2027 future background (without project)
- 2027 future buildout (with project)

The Synchro 11 software package will be utilized to evaluate the intersection operations. The observed peak hour factors (PHF), percent heavy vehicles (%HV) and right turn on red percentages (RTOR%) will be used for the analysis. The percent heavy vehicles will be reviewed and adjusted for project buildout

D-223

# **Kimley Worn**

Page 6

conditions based on the anticipated truck distribution from the site. All Synchro files will be provided to Marion County upon request.

Future roadway segment volumes will be compared to adopted service volumes using the FDOT Quality/Level of Service tables. The roadway evaluation will identify improvement needs to meet the adopted level of service standards for the future background traffic conditions, and any additional improvement needs that would be due to addition of project traffic from the Trailhead North site. The traffic study will identify proportionate share calculations to mitigate transportation improvements shown to be needed due to the addition of project traffic for the buildout timeframe. Per Florida Statutes, transportation improvements identified to be needed prior to addition of project traffic are not subject to proportionate share contribution from the proposed development.

An AM peak hour and PM peak hour signal warrant analysis will be performed for the intersection of SW 29<sup>th</sup> Avenue Road at CR 484 per the Signal Warrant 3 criteria within the Manual on Uniform Traffic Control Devices (MUTCD).

This methodology is being submitted for concurrence prior to Kimley-Horn conducting the traffic study. Please do not hesitate to call to discuss any questions or comments during your review.

Sincerely, KIMLEY-HORN

Amber L. Gartner, PE

Attachments: Conceptual Master Plan Project Trip Generation and Trip Distribution Project Significance and Study Area Historic Traffic Trends

K:\OCA\_Civil\142933003-Transwestern North\Traffic\methodology\doc\Lcz221108alg - Trailhead Logistics Park N Traffic Methodology.docx

D-224

# **Kimley Worn**

Trailhead Logistics Park North Traffic Study Methodology

### Attachments

kimley-horn com 1700 SE 17th Street, Suite 200, Ocala, FL 34471

352 438 3000

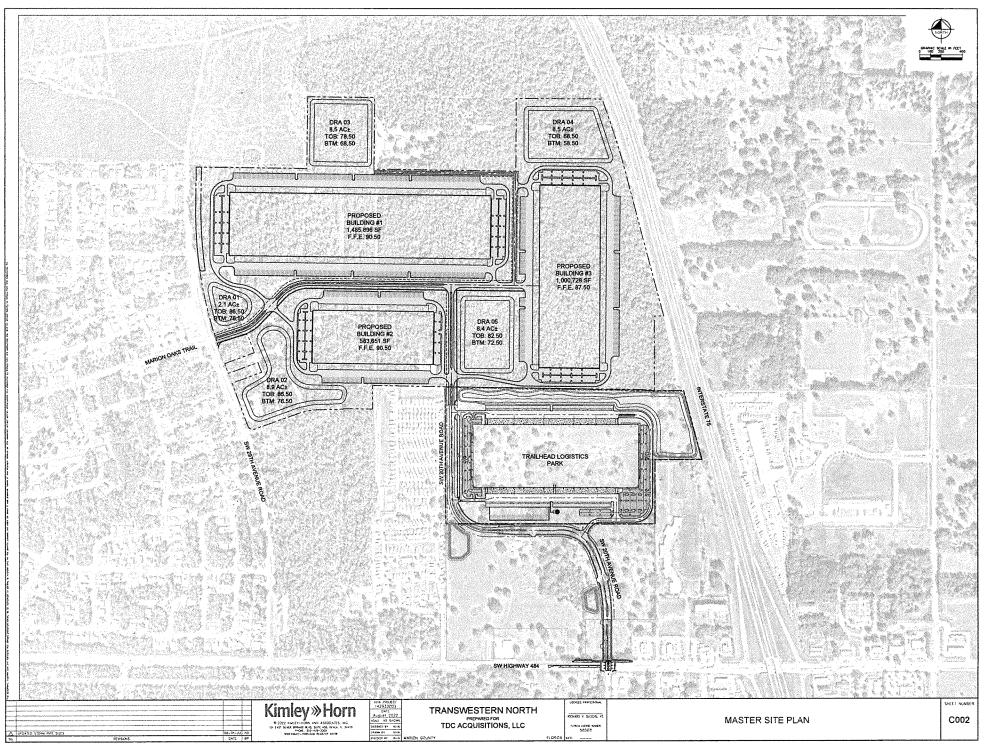
D-225

## **Kimley Worn**

Trailhead Logistics Park North Traffic Study Methodology

# **Conceptual Master Plan**

### D-226



D-227

### **Kimley Worn**

Trailhead Logistics Park North Traffic Study Methodology

# Project Trip Generation and Trip Distribution

#### **Table 1: Trip Generation**

Land Use		ntensity		Daily Trips	AM Pea	k Hour of A Street	djacent	PM Pea	k Hour of A Street	djacent
					Total	İn	Out	Total	In	Out
NW Building - ITE LUC 154 SW Building - ITE LUC 110 E Building - ITE LUC 154	1,742,000 684,000 1,174,000	Sq Ft GFA Sq Ft GFA Sq Ft GFA		2,439 2,622 1,644	139 469 94	107 413 72	32 56 22	296 161 200	101 23 68	195 138 132
			Subtotal	6,705	702	592	110	657	192	465
Percent Trucks ITE LUC 154 ITE LUC 110	Daily 32.2% 0.25 / 1000 SF GFA	AM 30.8% 0.01 / 1000 SF	PM 21.7% 0.01 / 1000 SF	1,315 171	72 7	55 4	17 3	108 7	37 4	71 3
Buildout Automobil	Buildout Automobile Driveway Trips						90	542	151	391
Buildout Truck D	Buildout Truck Driveway Trips						20	115	41	74

Note 1: Trip generation calculations were derived from the ITE Trip Generation Manual, 11th Edition.

Note 2: The truck percentages for ITE LUC 110 were determined using the truck generation per 1,000 sf published in the ITE Trip Generation Manual, 11th Edition. Note 3: The ITE study "High-Cube Warehouse Vehicle Trip Generation Analysis" (10/2016) study was used to determine the truck percentages for ITE LUC 154.

#### General Light Industrial [ITE 110]

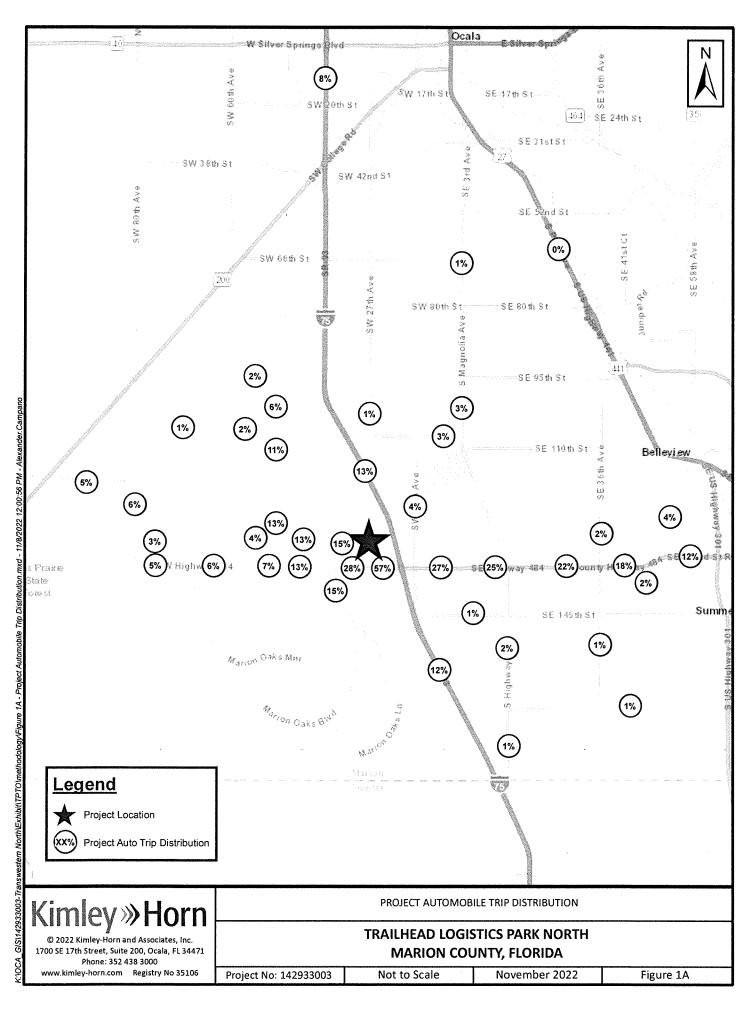
Daily AM Peak Hour of Adjacent Street PM Peak Hour of Adjacent Street  $T=3.76^{*}(X)+50.47; (X is 1000 Sq. Ft. GFA); \% trucks=0.25 / 1000 SF GFA (50\% in, 40\% out) = 0.68^{*}(X)+3.81; (X is 1000 Sq. Ft. GFA, 88\% in, 12\% out); \% trucks=0.01 / 1000 SF GFA (60\% in, 40\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); \% trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.72^{*}Ln(X)+0.38; (X is 1000 Sq. Ft. GFA, 14\% in, 86\% out); % trucks=0.01 / 1000 SF GFA (50\% in, 50\% out) = 0.50^{*}Ln(X)+0.$ 

#### High-Cube Transload and Short-Term Storage Warehouse [ITE 154]

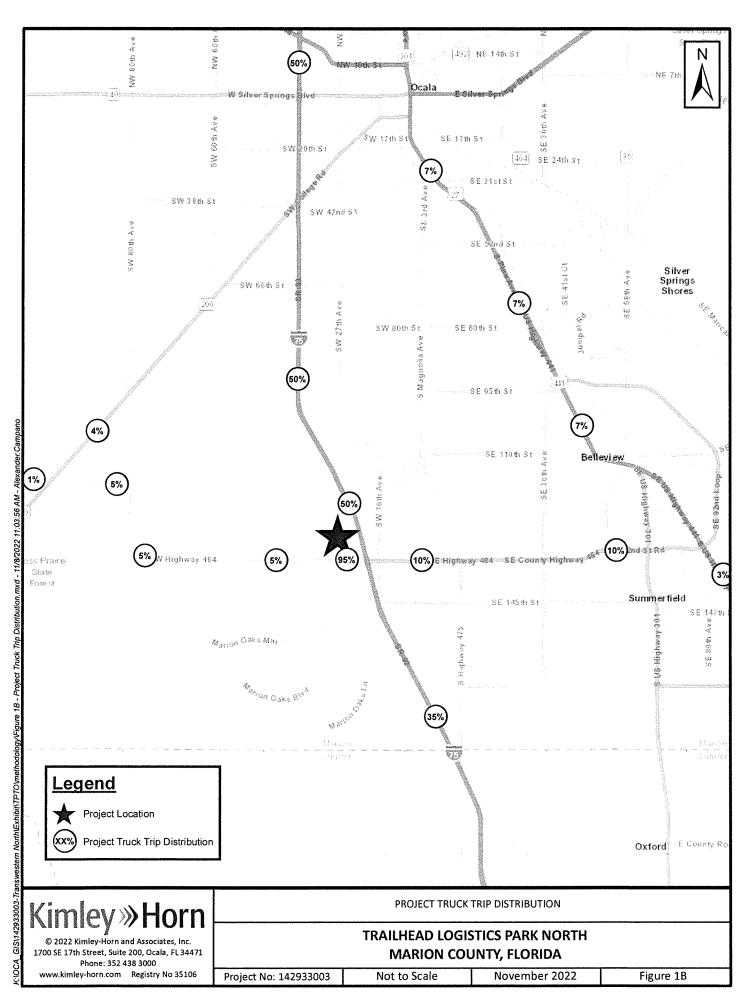
Daily AM Peak Hour of Adjacent Street PM Peak Hour of Generator T = 1.40\*(X); (X is 1000 Sq. Ft. GFA); % trucks = 32.2% T =0.08\*(X); (X is 1000 Sq. Ft. GFA, 77% in, 23% out); % trucks = 30.8% T = 0.17\*(X); (X is 1000 Sq. Ft. GFA, 34% in, 66% out); % trucks = 21.7%

2:\OC4\_Civil\142933003-Transwestern North\Traffic\methodology\vis\[2022-10 - TLPN.xlsm]TG\_ofGenerator

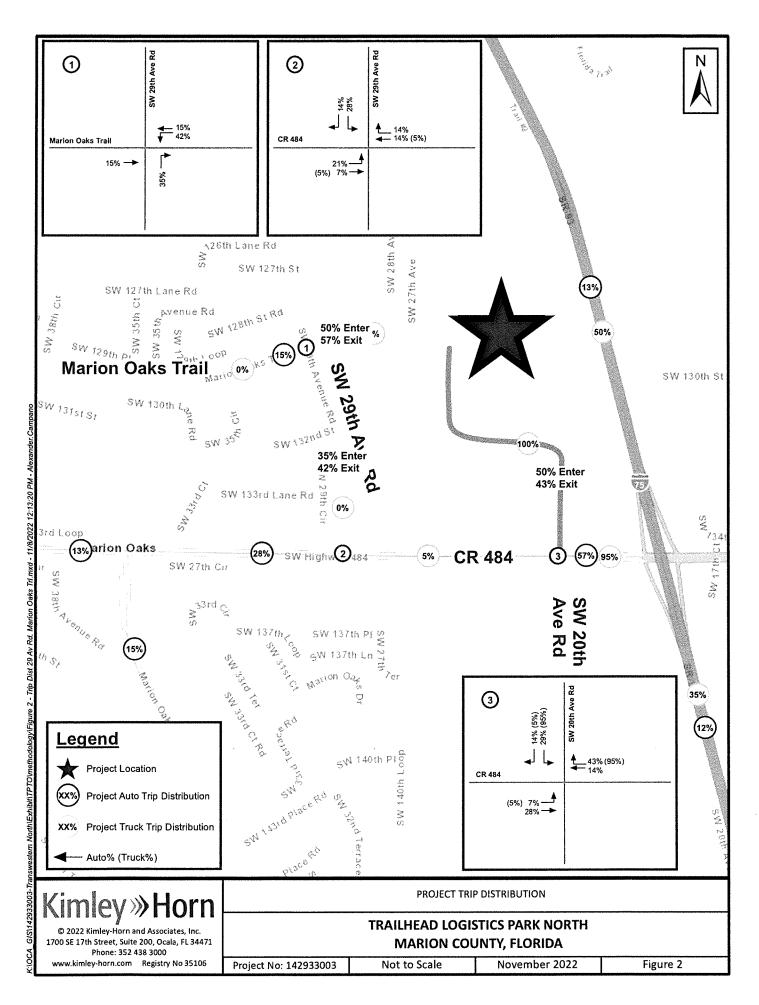
D-229

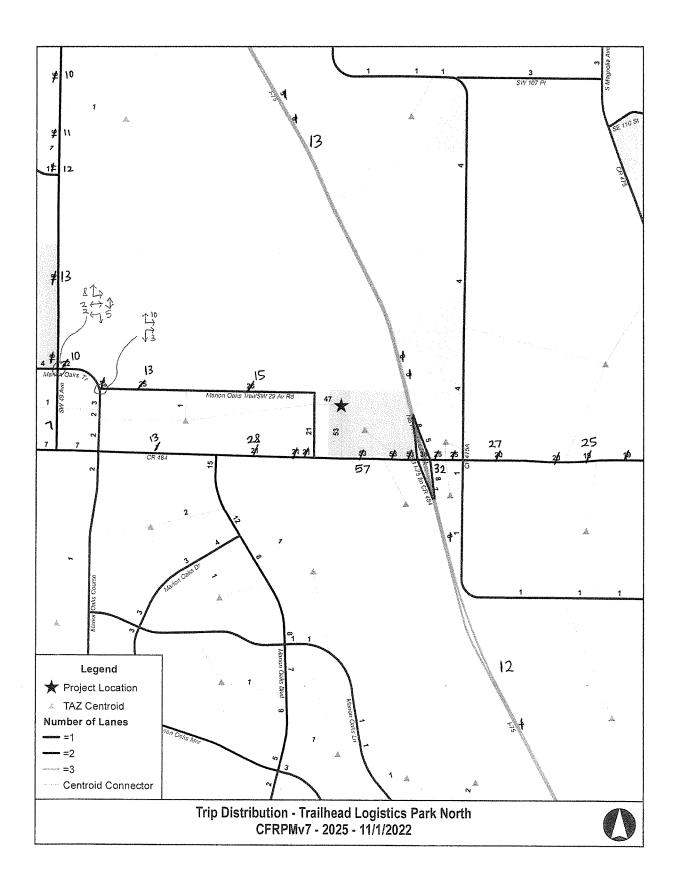


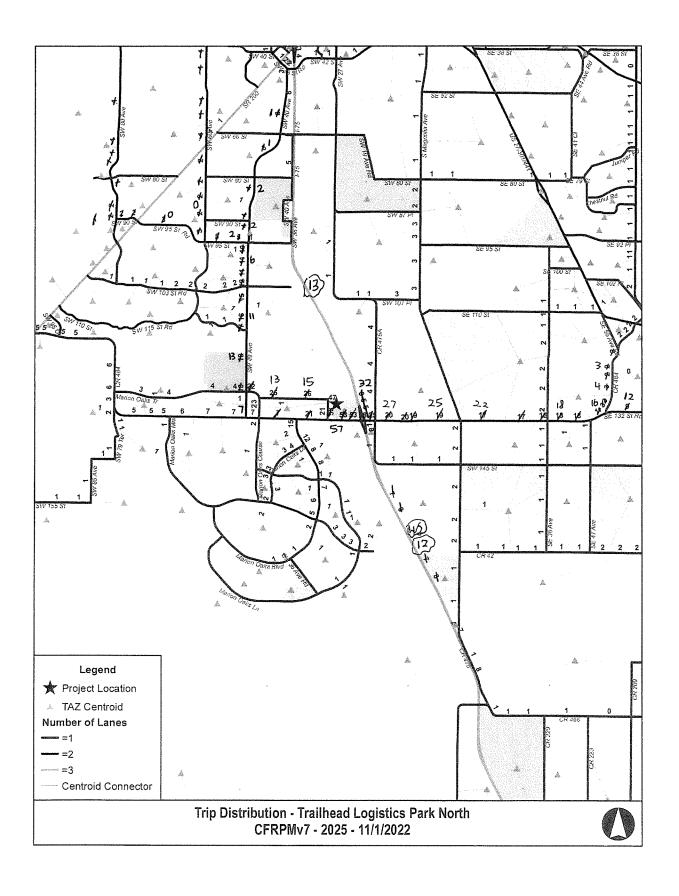
### D-230



D-231







Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use												
Sou	rce: ITE Trip Generat	<i>ion Manual</i> , 11th Edit	ion									
			***************************************									
Land Use Code		154										
Land Use	High-Cube Transl	oad and Short-Term S	torage Warehouse									
Setting	e	General Urban/Suburb	an									
Time Period		Weekday										
# Data Sites		3										
	%	of 24-Hour Vehicle Tr	ips									
Time	Total	Entering	Exiting									
12:00 - 1:00 AM	1.5%	1.0%	2.0%									
1:00 - 2:00 AM	1.4%	0.9%	2.0%									
2:00 - 3:00 AM 1.0% 0.8% 1.2												
3:00 - 4:00 AM	0.4%	0.4%	0.3%									
4:00 - 5:00 AM	2.3%	1.3%	3.2%									
5:00 - 6:00 AM	4.1%	3.1%	5.1%									
6:00 - 7:00 AM	6.2%	10.2%	2.1%									
7:00 - 8:00 AM	4.8%	7.3%	2.3%									
8:00 - 9:00 AM	3.9%	5.1%	2.8%									
9:00 - 10:00 AM	7.2%	11.8%	2.6%									
10:00 - 11:00 AM	6.2%	9.5%	2.9%									
11:00 - 12:00 PM	3.7%	3.8%	3.7%									
12:00 - 1:00 PM	6.0%	5.1%	6.9%									
1:00 - 2:00 PM	5.9%	5.9%	5.9%									
2:00 - 3:00 PM	5.2%	6.0%	4.3%									
3:00 - 4:00 PM	7.6%	5.3%	10.0%									
4:00 - 5:00 PM	4.7%	3.1%	6.3%									
5:00 - 6:00 PM	5.0%	2.2%	7.8%									
6:00 - 7:00 PM	5.7%	2.7%	8.8%									
7:00 - 8:00 PM	7.6%	5.8%	9.4%									
8:00 - 9:00 PM	5.6%	5.4%	5.8%									
9:00 - 10:00 PM	1.1%	0.6%	1.5%									
10:00 - 11:00 PM	1.3%	1.2%	1.4%									
11:00 - 12:00 AM	1.6%	1.3%	1.9%									

D-235

# **Kimley Worn**

Trailhead Logistics Park North Traffic Study Methodology

# Project Significance and Study Area

### D-236

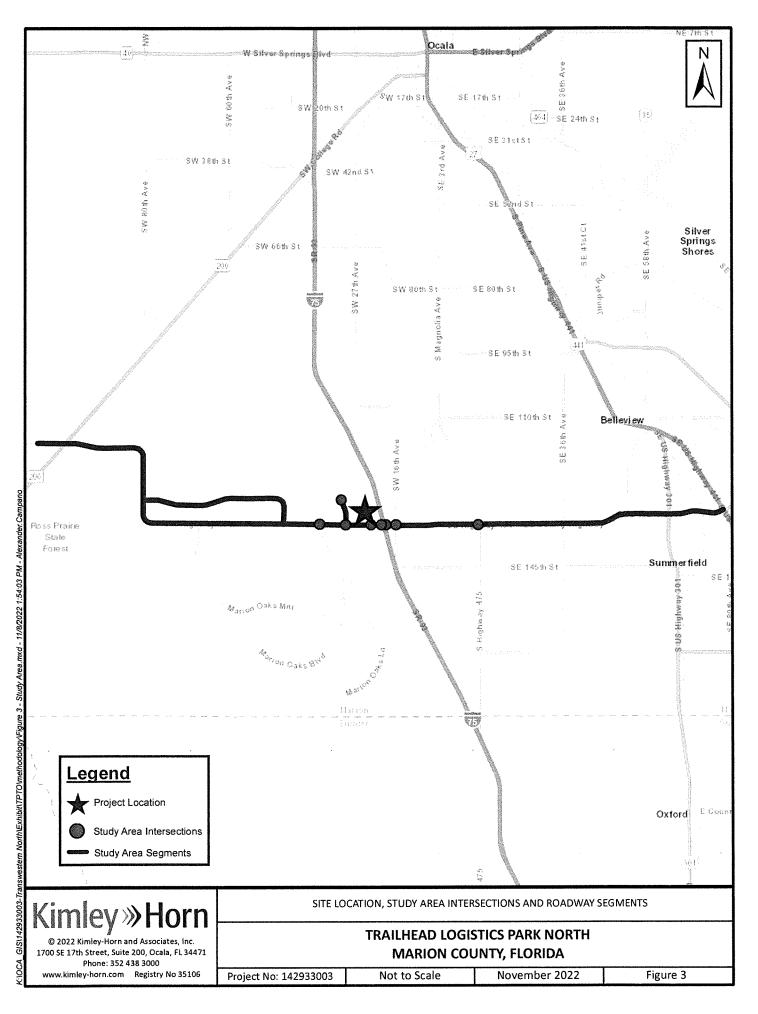


Table 2: Study Area Determination

					ROAD	WAY ATTRI	UTES 1				EXISTING DA	LY TRAFFIC CO	NUTIONS			PM	PEAK HOUR	SIGNIFICANC	E CALCULATIO	NS	I	
oadway		TPO CMP	FDOT			Al		Pk. Hr. Dir.	TPO Traffic	770.000				Auto %	Truck %	Project Tra	affic - Auto	Project Tra	ffic - Trucks	Project Peak Direction %	61	Include
From	То	Station		Area Type	Adopted LOS	Number of Lanes	Daily Service Volume	Service Volume	Counts Growth Rate	TPO CMP Growth Rate	2021 AADT 1	v/c	LOS	Assignment <sup>4</sup>	Assignment <sup>4</sup>	NB / EB	58 / W8	NB / EB	SB / WB	Impact <sup>5</sup>	Significant Impact? <sup>6</sup>	Study Are
R 484																					i	
SW 105 AV	SR 200	2010.0	NS-UA	Urban	Е	2	29,340	1.449	6.3%	3,36%	10,400	0.35	а	4.0%	1.0%	8	16	0	Ι,	1.13%	NO	YES
SR 200	5W 49 AV	2020.1	NS-SA-C1	Urban	E	2	12,744	634	16.4%	3.18%	9,000	0.71	č	6.0%	5.0%	9	23	2		4.28%	YES	YES
SW 49 AV	SW 45 AV	2020.1	NS-SA-C1	Urban	E	2	12,744	634	-	3.18%	9,000	0.71	c	7.0%	5.0%	11	27	,		4,90%	YES	YES
SW 45 AV	MARION OAKS BLVD	2030.0	NS-SA-C1	Urban	E	4	35,820	1,800	-	3.93%	35,100	0.98	D	13.0%	5.0%	20	51	2	4	3.03%	YES	YES
MARION OAKS BLVD	SW 20 AV RD	2030.0	NS-SA-C1	Urban	E	4	35.820	1.800	-	3.93%	35,100	0.98	р	28.0%	5.0%	42	109	2		6.29%	YES	YES
SW 20 AV RD	1-75 RAMP (W)	2030.0	NS-SA-C1	Urban	E	4	35.820	1.800	1.8%	3.93%	35,100	0.98	D	57.0%	95.0%	223	86	70	19	16.29%	YES	YES
1-75 RAMP (W)	1-75 RAMP (E)	2060.0	NS-SA-C1	Urban	D	6	53,910	2,718	-	3.93%	35,100	0.65	č	44.5%	52.5%	174	67	39	22	7.63%	YES	YES
1-75 RAMP (E)	CR 475A	2070.0	NS-SA-C1	Urban	D	4	35,820	1,800	4.3%	6.37%	36,200	1.01	F	32.0%	10.0%	125	48	,	-	7.36%	YES	YES
CR 475A	CR 475	2080.0	NS-SA-C1	Urban	D	4	35,820	1.800	1.8%	4.34%	27,900	0.78	c	26.0%	10.0%	102	39	,		5.06%	YES	YES
CR 475	CR 467	2090.0	NS-SA-C1	Urban	D	4	35,820	1,800	5.9%	4.57%	21,800	0.61	c	22.0%	10.0%	86	33	,		5.19%	YES	YES
CR 467	SE 132 ST RD	2110.0	NS-SA-CI	Urban	Ď		35,820	1,800	1.5%	6.56%	23,300	0,65	c	17.0%	10.0%	66	26	,		4,10%	YES	YES
SE 132 ST RD	US 441	2120.2	NS-UC	Urban	E	z	29,340	1,449	-1.0%	1.00%	Not Counted	- 0.03	-	2.7%	0.0%	10	4	0		0.72%	NO	NC
					-				1								l '	Ĩ	Ĭ			1 "
W 49th Avenue									1										1		i	1
MARION OAKS	SW 95 ST	6100.0	NS-SC-C1	Urban	Е	2	12,744	3,357	12.1%	1.00%	10,200	0.80	c	9.1%	0.0%	14	36	a		1.06%	NO	NC
SW 95 ST	SW 85 ST	6110.0	NS-UC	Urban	E	4	67,770	3,357	-	1.00%	10,200	0.15	8	2.0%	0.0%	3	ĩ	0	0	0.23%	NO	NO
				-			0,,,,,	5,557	1		10,200	0,15	Ū		0.070	-	ľ	5	1		i	
W 29th Avneue Road									1										1	1 1	i	
CR 484	MARION OAKS TRL	-	NS-SA-C2	Urban	ε	2	10,920	560	-	1.00%	2,200	0.20	с	42.0%	0.0%	164	164	0	0	29.33%	YES	YES
									1												i	
E 132nd Street Road								1	1												i	
CR 484	US 301	7165.0	NS-SA-C1	Urban	ε	4	35,820	1,800	5.0%	1.00%	11.600	0.32	c	13.0%	10.0%	51	20	7	4	3.24%	YES	YES
US 301	U\$ 441	7170.0	NS-SA-C1	Urban	E	4	35,820	1,800	8.4%	7.29%	12,700	0.35	c	12.0%	3.0%	47	18	2	1	2.73%	NO	YES
									]											1	I	
tarion Oaks Trail																					1	
CR 484 W	SW 49 AV	8150.0	NS-SA-C1	Urban	E	2	15,930	792	-	1.00%	1,800	0.11	c	3.5%	0.0%	5	14	e	0	1.73%	NO	YES
MARION OAKS CRSE	CR 484 E	8180.0	NS-SC-C1	Urban	E	2	15,930	792	- 1	1.00%	6,800	0.43	c	6.5%	0.0%	10	25	0	0	3.21%	YES	YES
																					i	
farion Oaks Blvd									1										1		1	1
CR 484	MARION OAKS MNR	8140.0 786.0	NS-SC-C1 NS-SC-C1	Urban Urban	E	4	35,820 15,930	1,800	3.3%	1.00%	14,800	0.41	C B	6.4%	0.0%	10	25	0	0	1.39%	NO	NO
MARION OAKS MNR	SE 67 AVE RD	786.0	NS/SC-CI	Orban	t	1	15,930	792	- 1	1.00%	15,100	0.95		1.5%	0.0%	2	6	0	0	0.74%	NO	NC NC
75								1	1					1					1		i	1
COUNTY LINE (S)	URBAN AREA BOUNDARY	2260.1	ST-UA	Rural	с	6	69.000	3,990	-1.6%	1.77%	83,900			12.0%	35,0%				1	1	NO	1
URBAN AREA BOUNDARY	CR 484	2260.1	ST-UA	Urban	D	6	113,600	5,780	-1.6%	1.77%	83,900	1.22	EC	12.0%	35.0%	18 16	47	14 14	26	1.83%	NO	NO
			ST-UA ST-UA		D	6		5,780											1	1.26%		NO
CR 484	SR 200 SR 40	2260.0 2290.0	ST-UA ST-UA	Urban Urban	D D	6	113,600 113,600	5,780	2.7%	2.81%	102,700	0.90	0	13.0%	50.0% 50.0%	51 31	20	37	21	1.52%	NO	
SR 200	3n.4U	2290.0	51-UA	urban	U		113,000	5,780	0.3%	3.82%	106,100	0.93		8,0%	50.0%	51	12	3/	21	1.18%	NO	
						{			1										1	1 1	1 .	1
R 475A	0W27.0V	Frene	ANT 114	114.4	-		16 300	501		2.634	C 400			1.00	0.000		1			1 I	1 10	1
CR 4758	SW 27 AV	5560.0	NS-UA	Urban	c	2	16,200	601	4.6%	2.62%	6,400	0.40	8	1.0%	0.0%	4	2	0	0	0.49%	NO	N
CR 4758	CR 484	1930.1	NS-SA-C1	Urban	£	2	12,744	634	3.5%	4.89%	7,600	0.60	c	2.0%	0.0%	8	3	0	0	1.23%	NO	NC

lotes:

Notes: I. The roadway attributes and AADT were obtained from the most recent Ocals Marion Transportation Planning Organization (TPO) Congestion Management Process (CMP) Database and Ocals Marion TPO 2022 Traffic Counts Report. For SW 29th Avenue Road the roadway attributes were derived using the 2020 FDDT Q/LOS Handbook, 2010 FDDT Functional Classification Map for Marino County, and the adopted level of service from the Marino County Comprehensive Plan (Transportation Planning Organization TBenent, Policy 2.1.2). 2. NS-SA-C1 monstate, isgnilized arterial, class 1: NS-UC = non-state, unique to class 1: NS-UA = non-state, unique alterial classification Management Process (CMP) Database and Ocals Marion TPO 2022 Traffic Counts Report. For SW 29th Avenue Road the roadway attributes were derived using the 2020 FDDT Q/LOS Handbook, 2010 FDDT Functional 2. NS-SA-C1 monstate, isgnilized arterial, class 1: NS-UA = non-state, unique alterial, NS-UA = non-state, unique alterial, and second arterial, NS-UA = non-state, unique alterial, and second arterial, and second ar

D-238

# **Kimley»Horn**

Trailhead Logistics Park North Traffic Study Methodology

# Historic Traffic Trends

#### Table 3: Growth Rate Calculations

Roadway TPO Traffic Count Location	2021 AADT 1	TPO Traffic Counts Growth Rate									
CR 484											
West of I-75	35,100	1.80%									
East of I-75	36,200	4.30%									
East of CR 475A	27,900	1.80%									
East of CR 475	21,800	5.90%									
East of CR 467	23,300	1.50%									
Weighted Average <sup>2</sup>		3.00%									
Notes: 1. AADTs and growth rates were derived from the latest Ocala/Marion County TPO Traffic Counts and Trends. 2. The average growth rate was weighted by the 2021 AADT.											

K:\OCA\_Civil\142933003-Transwestern North\Traffic\methodology\xls\[2022-09 - TLPN.xlsm]GR

Kimley »Horn

D-240
-------

Location	Source	Count Type	2017 CR 46	2018	2019	2020	2021	Ave Annual Growth Rate (%)
E of SE 141st	T		[	[				
Terrace Road	MC	3	4,400	4,600	4,700	4,900	4,800	2.2%
			CR 4	67				
S of SE 95th Street	МС	3	3,300	3,700	4,100	4,700	4,600	8.9%
N of CR 484	мс	3	4,300	4,500	4,700	5,400	6,000	8.8%
S of CR 484	МС	3	3,800	4,100	4,200	4,400	4,500	4.3%
			CR 4	75				
N of SE 52nd Street	MC	3	7,600	7,800	7,800	7,900	8,000	1.3%
N of CR 328	MC	3	6,700	6,700	6,500	6,600	7,200	1.9%
N of CR 312	МС	3	6,500	6,600	6,400	7,000	7,600	4.1%
N of CR 484	мс	3	4,900	5,300	5,300	5,500	5,500	3.0%
S of CR 484	МС	3	5,100	5,400	5,600	5,500	5,400	1.5%
S of CR 475A	МС	3	7,500	8,100	8,500	8,000	9,000	4.9%
			CR 47	'5A				
N of SW 66th Street	мс	3	12,000	12,500	12,400	12,200	13,600	3.3%
S of SW 66th Street	МС	3	9,300	9,800	9,500	7,200	10,300	5.3%
W of CR 475B	МС	3	5,700	5,700	6,100	6,800	6,800	4.6%
N of CR 484	MC	3	6,200	6,800	6,900	6,800	7,100	3.5%
S of CR 484	MC	3	5,700	6,200	6,200	5,700	5,800	0.6%
E of CR 475	MC	3	2,100	2,500	2,700	1,600	1,500	-5.0%
W of US 301/SR 35	MC	3	2,100	2,200	2,400	2,700	2,200	2.0%
		L	CR 47	7518				(
W of I-75	мс	3	3,400	3,300	3,700	2,600	11,000	75.6%
	1	L	CR 4	84	L			
E of US 41	мс	3	8,500	9,200	9,400	9,800	9,400	2.6%
W of SR 200	МС	3	8,900	9,400	9,700	11,300	11,300	6.3%
E of SR 200	МС	3	7,700	8,400	8,500	3,800	8,000	16.4%
W of I-75	МС	3	29,200	30,100	32,500	30,700	NC	1.8%
E of I-75	MC	3	27,500	30,000	32,000	31,100	NC	4.3%
E of CR 475A	МС	3	21,500	24,100	25,600	24,000	22,800	1.8%
E of CR 475	МС	3	18,300	20,400	20,800	18,500	22,400	5.9%
E of CR 467	мс	3	18,000	20,000	20,500	18,300	18,900	1.5%
W of US 441	МС	3	9,500	10,400	11,200	10,700	8,900	-1.0%

Location	Source	Count Type	2017	2018	2019	2020	2021	Ave Annual Growth Rate (%)
			SESISI				· · · •	
CR 464A to SE 36th Ave	OCA	3	7,900	NC	4,900	6,600	NC	N/A
W of SE 36th Ave	MC	3	5,900	5,400	6,000	6,400	5,400	-1.6%
	1	1	SE 52nd				1	
W of US 441	MC	3	3,000	3,200	3,100	3,000	3,100	0.9%
E of US 441	MC	3	6,000	6,200	6,100	6,700	5,500	-1.6%
	(		SE SOTH	Street		<b></b>	· · · · · · · · · · · · · · · · · · ·	
W of US 441	MC	3	4,900	5,200	5,000	4,800	6,200	6.9%
E of US 441	MC	3	4,300	4,400	4,400	4,300	5,900	9.3%
			SE 95th	Street				
W of US 441	MC	3	5,200	5,600	5,700	6,000	6,500	5.8%
			SE 110th	Street				
W of US 441	мс	3	5,400	5,600	5,800	5,600	6,500	5.0%
	1	SI	1.52nd St	reet Road	L	1		
E of CR 484	мс	3	11,300	12,000	11,400	11,200	13,500	5.0%
W of US 441	MC	3	9,900	10,500	11,000	10,000	13,200	8.4%
	1	1	SE 1008h	Avenue	I	I		1
S of CR 25	мс	3	4,600	5,300	5,400	5,100	4,700	0.9%
	1	SE 14	7/th Street	/147th Pl	ace	1		1
W of US 441	мс	3	4,000	4,300	4,400	5,500	4,800	5.5%
	<u> </u>		2 1.10ith Sti			<u>l                                     </u>	<u> </u>	I
E of Oak Rd	мс	3	2,600	2,800	2,900	3,300	3,200	5.5%
		1	2.1.1.4th St		L	I	,	1
W of CR 464C	мс	3	3,200	3,500	3,600	4,200	4,500	9.0%
	1		SE Oak					]
S of CR 464	мс	3	2,900	3,200	3,500	5,000	5,100	16.1%
5 01 01 404	inc		A4th Ave	L			0,200	
N of SE 52nd St	мс	3	7,200	7,300	7,500	7,600	8,100	3.0%
				nee Road	,,500	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0,100	
E of US 441	мс	3	5,800	7,100	7,200	7,000	9,900	15.6%
E 01 03 441				1	1,200	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	5,500	13.070
SE 110th St Rd and			SE 9200					1
East Highway 25	MC	3	NC	NC	NC	NC	8,100	N/A
		501	ith Magne	ilia Avenu	е —			
SE 3rd St to SE 8th Street	OCA	3	3,600	4,800	4,000	3,200	5,900	20.3%



#### Ocala Marion TPO CMP Databse - September 2021

1002102/002001				ri <b>n</b> folgendelarr		N																
		Red	19	10.00	Concernance of the			** (*			Selected systems			2015						and a start		
	(X4/A	16.04	URAN ARCARCITANS	1000101	541(402			141		24 (4) 24 (4)	Contraction (1)	and a second second								7	<u>Alexander</u>	
	(84754	SHOW MEANSCREAK	11:415	÷	COLLCON	INNESSESSES	10			MAN	 /\$5	tättan tv Nyrat tö	cydure "Galeb	citize f bit tech och karde in Offer CDP Notoria Touteay		1,500 1,500	- 937	e e	3 1-5k 7 12:5k	1,364	- 25 e - 26 e	
29%/ 1988		(84/5 V / 549	51,2539 51,254V		entretae VOLDETAE	en fa zense (d o zenst elegen i o	4/1	58		2:14	421	K42. 1/	: Chowly	Citizes 1 NOV for theorie the princip Citizes of NOV Statistical Exceedings	· · · · · · · · · · · · · · · · · · ·		2.14		24.53%		<u></u>	·····
19/9	12.475	N 1949	(5.94	-	OBJICIDE	nit (Marrish	1	64		17,544	411 611	intan n Kasun V	50989	CHERY LAND IN FROM BANKING		(14)8) 7,418)	0.0		1.025	4, 4% 7 HQ1	0.57	
2943		CERTSA TEXPORENT DR	CP (1) The reduced to A	+	Addition Addition	Interference into Interference into		01		14.13g 23.05	258 1,140	nara in Contrato da	Contract Contract	(Direct MP Not and Koyle av 1970 of MP Not and Koyle av	+ <u>}</u>	9.9% 10.9%	100 110	0	1.6%	129	0.14 (1.17	
1996 1	(8.59)	Y OF VERESTI DA	N# 510 ALS	1.1	f.A.13 P.(H	11444(1366)(#\$P1)	151			111.22	711	Tare II	CONTY	Citiz - I WE Skitzenik Stratikay	6	71.60	0.00	2	1.9.5	U./39	e i c	
2010		tar 140 AVI	SW 205 44	t-í-	ANTENNE ANTENNE	UNING TRACKING	/5.)			74,554 P\$,540	1401 140	Uniter 1-	COUNTY	Offers AP Network Instancy Other CMP Rehards Easthray	+	10 Kel Ki,490	0.45		1.000 3.36%	12,036	44) 6A)	
2009.1	(8.434	14 100	You at av	1	APTERIAL	INTERRUTTED	1 9,2	614	1.1	12 744	674	Urfexe U	COUNTY	Offen CHP Historia Russburg		1,000	an	<u>د</u>	1.18%	10,601	680	
2050		54743 AV 175 8.449 (W)	1.75 KANP (10)	+ :-	APTERIAL ARTERIAL	INTERPUTCO INTERPUTTO	1 55.6		1:	35,826	1,650	Unitare D Unitare D	COUNTY	Other CMP heliesch Robberg Other CMP Robert Robberg		11100	0.54	<u> </u>	1.97%	41,600	6.78	
2070	(R 494	135 FARF (()	(14)	4	ANTERIAL	MITERGIED	3 3.55	1,490		15.628	1,000	UMaan D	COURTN	Other CMP Network Readway	0	\$6,200	101	1	63375	41,100	1.74	
2010		CR 475A	(8.47) (8.467	+	AATERNA	INTERACTED	1 HR		+:-	15,820	1,805	Maham C Uthan C	COUNTY	Other CMP Hetson's Readway Other CMP Hetson's Readway		21,000	0.78 9.63		4.54%	11,500	674	
1120	(* @ł	(167	SU 112 ST RD		AASEAM		1 15,8	1,100	•	35,879	1,000	0 n(fi)	COUNTY	Diber (MP Belwark Roedway	a	11,360	941		6.34%	11,000	0.40	<u>د</u>
- 1547		SULTER SUMS NELLAN	TTE RAT NT WAT US A MAY	+	Egistend Entre for	mentioraria o astivacificia	7 21			19.61	140	sekas et Listan i	COUNTY COONT	Colori ( MY Refered, Royden y Critica ( MA Served), Royden y		Net counted Net counted	N.4.	N/4	1.00%	Not Leastly 3	N 3, 8/4	N/A N/A
	Croxel spheres	SEWADIA ANI	9.51.6		00087308 50030300	erikensin Nilkesensin	1.1.1			11727	N/6	Kithon U	LS294FF	(the eight by beauties are by	1	See,8	01	n	105.	7.020	6.1	6
110	1.1007.806.31 7.1007.826.31	9 (1.6) 9 (8.6)	9 38 44 11 12 64	1	COLE SM	00750900	7 02			11,352 54,241	10. Pa	194 94 94 196 44 10	CI-COLY CI-COLY	Offers (24P technical Asymptoty Others 130P Netty of Asymptoty	1	000 0040			1.95	11/80	645 615	
11:9	16.4118e.9	3.017	58.75.8V	1	Contra Tourcer	7019230107 8019230107	( 11)		2	11112	74	38-9 <sup>(1)</sup>	1763924 7 (5)(43)	Clines Methods to Antala	· · · · ·	3 (01) 4 (8 ft)	643	P	1144	19.40	<u>*a</u>	t.
	(4(4) +40.1	5.4. e5.14 35. 5639.456	ng nglating) Ng ng Ag		100100	INTERCEUTS	) (17 1 (17			44,747 	-11	unan D Unan D	0.840	Color ( NO Network Records) Color ( NO Network Guid and		. (44)	<u>ein</u> un	1	1005	11 430 7 20e	974 1916	
1279		14 р. М. 18.11	54 (5 1741)98 82 20	1	0000104	WITHER LET OF (ENDASTIC	1 12.2		- <u>``</u>	15,244		utters st	LEN 1928	Phone S NP Schutzk K salvag (Shen ( MP N Court Brochurg		5.6.0 15.000	7 8) 148		1.00%	R (14) 14(2)(9)	4.4	
1250		25.41 (25.41)	Foldere scar Foldere ich	1	ACTERNA ARTICHICA	ALM NYILD				13.542	54%. (168	Uthen e.	Mah	Chan ( M.) Polical, Darboye	5.	11 100	110	0	1,1876	13,936	\$17 074	0
1245.5		A BRISTI DHE EV 1455-1244 ANA DEADEART	188425543525547 17240	1	DELEVIST DELEVIST	HELENDA Emijadi	50 ct		1-1-1	812.5294 15.3.043	(va) (va)	Runal <u>1</u> Uritani i	91A31 51419	Në fa Sofre Late Në fa Sofre din	+	85,932 24160	322		100	*1.640 51.60	131	
	115	[7 4rd	10200		INTERSTATE	THE R AVEN	114.6	0 5.50	1	111,640	5 50	etilan I	Sort.	heli bircelare	r	15,00	110	0	2316	119.685	1.04	
15:45		Ang Ang) Ang Ang	58.63 55.14		INSTACLED Polytestact	ini pasit Reference	(15)		+ : - ]	1159	5.7x2	then I	NATE STAVE	No. Marcale No. excessor		105-1041	6.91 CH	R	345	472.8% a ba site		
3354	125	150	9017		BOURSTATS	TREE &T	1124	e <u>S</u> .Pr	1	11440	1, 1993	Upper 1	11472	Not bereast		1 200	in .		1.116	111.121		
21%1	10	NR 195 Ulban Aris Notificaci	UNRAGANYA NUSÓN'-AV		9912457.515 9912 • 13.513	fergenn feig wer				113.6% 63.0%	5.080 5.080	Ugun L.	5 AU	Not through		7/84 F180	1.0		85.9	111,810 G2,840	1.54	
2429		(#):x	CONTRACTOR (1)	1	ITELS \$ \$1415	Influen	1.10	1 1 1 1 1 1 1		41100	199	karat k	5.33	North Joll and Ling	· · · · · · · · · · · · · · · · · · ·	17,100	112		2194.	500 P.S.	1.01	
23653	50064 - \$100510650963144	N JEM NE KAV	M FAI N 78M		44357.60 2515490	PATE INSTRUCTOR	1 04	1.10		31.42A 17.431	1,514	Usun II Usun P	5.0707813 4.0%5879	Other Cities Sector of Second Age Distance Cities Sector & Prisedan		UNI 9 Igr	617		1965 1965	248	0.15	
244-5	+ 4 3 344 / sV POStat3 *0	16 28N	19.15.11		au ti kayı	REARING D				116.1	1949	12200 5	transfe	Consert folk Network Record was		11.138	1 0 51		1101	17.579	0 Ser	
(185		NW 15*1 Nr 1941	ar ya ti aƙ tas		ARTERLO ARTERIO	na i kteri nje na i okrasti ce	1 10			54.284 14.744	-14	1450m U	COUNT: ECONOM	United to Bit for every which we United CAM Protocols Resulting	1 .	5005 9.50	078		110+	5 500 8 (4)5	041	
in the second	18.29% / 26.19 PM 19.80	59.5/6	URANACIA PLONARY		ACSENA.	AND DESCRIPTION	182	1.467		29.744	1451	Urbas U	( ROMO X	(the) of the burn are keightly	· ·	53 SQL	P.4.		ar.	1180	240	
	Chines & Constitue Chines Addated to	Des ale Annie Décempery Ré-121-51	NE KO M	;	44 16626; 4 P 104(4)	CRAIN REACHEST	145		;	143.09	200	Pacel U Pacel C	ColONEX CONSTR	Otta - CMP Network Prophesy Otta - CMP Network Prophesy		10.545 5,640	<u>635</u> 679		7 N25	3,807	0.91 5 1)	ň
1813	DAUMINA/N	16 1 AS	NZ 11.7 NE COLINIARI AND AND AND AND AND AND AND AND AND AND		00023-01736 00023-01736	PELSENTON PELSENTON	/ 144			54.740 51.47%	7%	Ukan D Ukan D	Counte	CHUR (189 NATHOR FACTOR) 1995 (189 NATION FORTON)		# 100 5 car	0.8 6/1		1005	4366 1,8%		
1950 281e	NEWEWARK	NE DEALEMENT OF	CH 2004		Criticities 1	00168-016-	2 50	796		14.740		APro A	2.014975	Others & S.R. Avria on Koutway		tiel i exteri	815	NA	5.001	mal maked		4//-
		(* 2004 16 175	1/5-101 1/1 Ku	1.1.	1 2010-168 1 0518776.4	WEINBARD S	2 55.5 2 19.5			10.00	176	LABerti Li	COMT/ COMT/	offen CAR Seteral Austrey Offen Chill School Anderen	+	1 622	111		1.5%	100	345	<
2550	Ni Luz	440	N MARCHANING AN	1	Costis Ida	SHIT NOTION	387	2.876		18,752	1.6.00	(16)	( 01 H(04	Citra Li 24P Av Notel Tradagy	ſ	3,65	0 11		1525	110	6 Ey	3
0.02	N/49	(m.3)) A halo definist and	N345-26-20-27 16-427	+ +	442(2:44) 4/#1+8mi	2016030355 00144620175	· · · · · · · · · · · · · · · · · · ·			12,454 12,554	1870	Urijano P Father D	stati Stati	1899 New Internation Providences	p	21.000 21.498	0.54		1.075	22,535	0.07	
2529	N. 17 ( SI + D	12.24	38 7of 34		CO215/10/2	Levertreamenter	151	971	- <u>_</u>	14,134	999 2.000	¥10.41 1/	10,007	Others St. Metanik Rowlawy	5	<u>۸۴</u>	614		1605	845	êM	4
1990	196.492 54.657	10 242 16 176 -	MA 19 29 NA 25 Ar	++	ARTIFAL APTIEN	00100-2715 02188-9110	1 52,55 2 74,60	2,005		(9-69) 85 8633	2.000	1996/9 D	1472	Reb. Jem Nendles Fordrag Beh. Tem sterigte Fordrag	6. 5.	(1.0%) 20.201	6.54 8.52		1.916	11.2%	a 75 5 10	
	(9-45)	ip year	M 9-62		451751A,	METERALATION NETERALATION	1 1.4	10.8	1	10,800 59,400	1,000	Alland to	5.69	Mit- his stands hadees	0	35 973	0.42		1000	0.840	C41	
26.26		AR LEAN S R VIL	SE 10 NE 245-X		And Leice A frigilite how	CHARTERNAL (	1 **** tv t	674 674		19.250	1.500	Unun D Kasa U	1-2-MPX	L. Over LN By North Productory	9	1.50	4.01		10.45	2:507	114	
1.702		1.9.79% No.52231	201 /11-00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Anatolia cogectine	UNINTERED STD	18,1			191/0 191/5	~	Abral 11	/ CLINEX / OTHER	Chore 1.157 Settored Realizer, 12545 C107 Settored Produce	0	1,40 7et.ure448	015 N/4	N/A	1) (% 1 (6/R)	C 300 In Sidourfert	53	N/1
110		05294	16.25.65	1	144440108	N:404.9712	1 11		- ÷	1024	17	1246-00- C	175,819	(The CAR Arteria Satara	1	1,500	6.3	9	1.02	+-10)	0.41	
		telisa: Vea	16 N. K. M. A.N	1	675327774 A/10466	HALFANTLA BASERADETEN	1 2.2	618 1.5%		17.74 13.84	655	tikkan N teken B	OT CLEAR	Triber & Bell Authorite Strate up other C SCI Bed Auto Sciences	· • · · · · · · · · · · · · · · · · · ·	1340	974		1004	1,000	0.14	
(194)	15 / h h	16.420	1 56 78 51	1	UNREFT.24	PHERING C	1 122	596	1	110		( needs	1,9,201	other I MM Suffrage Rougies,	1	K 900	P.O.	ŀ	1.1975	• XN	a.r.s	
12.5		He (AR) He (15)	40 (15.5) No. 69 (15	+ ;	10(11)17/14 11(2)37/14/8	ACT ALL STORES	7 ts:		+	1179	436	V	C-1-MIX F2NMTY	Pritter of kill the best of survey of a state of the second state	+	440	0.44	n	1005	000	0.44	
1.799	60.33.45	N. (1)-	56.226		COMPT BOX	SCIEN-PILL	1 312	s/s.	1	51.1M	730	128-0	- GURTY	1. Other & MP. Neiken an Perstance		<u>A NEG</u>	15.54	· · · ·	1055	4,950	11.54	
18,0		05411 fethfauly se	(8.20%) M (2.0%)		Confering Confering	MULTER PALS	1 <u>1</u>			1022	576	UPAren D UPAren D	125.8674 270.9615	College in Mill Mark South Recording		1,500			1005	1.900	6.37	· ·
: #381	10 3 ST	W 142	NC 4 AV		- reactor	Overa Schutz 11 C	1	· · · · · · · · · · · · · · · · · · ·	- 7	13.217	176	iddae id	CUMMIT	138561 CASY Sectored Associating		7 750	1.92		1053	Rine	0-1 1-14	
23/30		E NE KAZ	NC TL AV		Contraction Contraction	991198593171 991188593171	2 102	1 53	- ÷	312M		Datas to	1,01 m3+ 4 05 m7+	Citer ( KS: School Roudous) Cone ( MP http://kihood.sa	1	1100	0.13		1000 1	1.6%	G1*	
1410	NF 25-3	1 ANA	10,550 16 (6.2)		0.0116C1028 61.10313538	ANTERPORTED ANTERPORTED	i 117	1 35	-	0.00	18	Indus U	COUNT	Office FAR for Local, Spalar ay Office FAR Service Fourthure	1	874	0.77	и р	175	19 100 UE 100	1.10	
100	N (53)	Re in a f	100	1.	CULTERIN	UNITER CONTRACTOR	1 1 15.5	No.		1.2.0		Utur pl	( CAMOR	Citizen a Net School Fund way	1	5.65	454		10%	/80	vli	
2960		NA 97 5T NE 1853	CR244 NF1112		connection 29 Januar	Constant-state	103		+-;	123/0		Faral Is Odina N	C 82629 Consity	OPart (Mr Art auto Romony) (Ohm Chill Profession Program	1 .	Leni Igan	1943 1944		1.9%, 1.9%	0.566	4.15	
1-the	N V.3.	He at st	10 75 ST		1577 F.M.	MATANJASTIC	1 124			12,744	574	115200 1	(00059	Littler CMP Articiph Prophersy	·	11 153	14.2	5	1.7876	11:69	210	
1941 3096		NE AN OF	NU 45 V. 191 524	++-	09327306	Setterprote-	4 12.1	440	-	17,264 93.85	. 1949 	SHOLD	COLINER	Color CLEP Probably Academy Color CLEP Instance Experies	e	3.6'Y A.7.80	0.27 3-45	*	109	11,890	**	
31.45	H al Av	14.55	CP 114		contene	Lease Language of	38,1	1 101	2	20(12) 12.044	30	F.C.at 21	100018	Pelan chill be book Knownag		805 1990	4.52	P	550.	644 1910 f	6.M (-1)	
1760	78-504 18-604	19 15-11:	10, 54 45 56 55	++-	0.00000	ATTRACTOR ALTERNISTIC	1	4.51	1	17,544	4/4 637	Uniger 11 Uniger 1	ALCON'S CALA	option Calif Generate Reading of Other Calif Methods and Readings		1 Ann	6,4		1/3%	K ~30	0.e.'	<u> </u>
1.00		NH 55	197,25 -322,2-2016-257	-	1.31151.07.0	199832555297312		1 115		79,940	1, H3	intera si Rend i	strate (islati)	others by Potence Regimery dates from Services Residency	+ - :	6,00 6,30	4.71		244	110	C IV 7 N	
2078 F 9787		INNER AN ARAGENERY NO 12531	86.255 1 48.16	12	CSRC04 CSRC04	UNIXEE 88-9-16-0 19-9-16-88-07-16-0	35.2			18.1.0	-194	49408 S	0,0160	Creat CMP Boterock (Look ing		1.80	111	*	1.018	1.160	947	<u>.</u>
1/Mc 3	1 st 1/4	95.MT	17 04/195/18 90		ACT28462 Act1/#23	NURSU-US MINESTER	i (4,1)	74		1014	<u></u>	Urban n Urban n	stals Mail	NOS MORE DECEMBER (Conducto 2019) - Sensie Marchael (Conductor)		11,932			1.675	0.96	4.5m	
	W 1/6	WARDER AL	KK PSta BE No 12	1	4813824	Get Koks Blains	453	/ M0	- <b>1</b>	12.150	×10	1.000 C	NACE	sen pourontar kouto q	· · · · ·	U (0)	0.14		1 1975	57.02	10.0	
1310	10.64	45 96.39 16.26	NEWER NEWS	+ + + + + + + + + + + + + + + + + + + +	34.11 KW	CHIEFFERSTED CONTRACTOR	35.7			1.80	100 K	Marsi II When U	STATE CONSIST	1946 - Joon releval inter Buedecin Office CIMP Sets with Printings	1	1 C X 1 7 MU	C-44- 6/7		1.00%	100	C 441	4 
104	S. 6-7	10 × 57	0.150		CONSTITUTE CONSTITUTE	est DRAWELLE	1	F 150	4	11,307	205	10000 9	C-963955	Cover (NP Ast some feasting)		11 10		6	1eets	12,600	-4.47	
1810 1568 S		i se en: I se en:	CR 2008 CR 2019	1.	20000-000 COLLEGE	UNDERGED + UNDERTENTION	2 113		1 1	11/1/	10	England 11	4 00/0073 F682/819	Carel - Mr. Bertucan Reading 1956-1740-06-06-06-06-06		6.50	0.54	0 h	1.4%	5.945 1930	0+2 4 01	<u>р</u>
12.73	MC 9557	We want what wat	19.200	1	recit/yea .	CHARACTER STORES	41/	464		21.0	4 <b>%</b>	tost v	(0.00	Of the set for the march in contrasts		1,20	0 62	<u>.</u>	1.23	1,1/6	011	
4/2003 4/2003	শ গণ্য গ্রাগাগ	CE Jack Distance and a biological of	SPRAN ACCONSISTER SPRAN	+;-	10016/974 (1906:558	CARD CARONIC C	29.3 17.1	1. 1.412 		13.120	1.4-9 949	todata te Karpi te	i Cashte CeleBill	Church Millertreck Kantaler Other (165 Getwork Kapdicor	<u></u>	1,000	0 B 6 M	r N	2.37%	ын	5.03	
	SECONSPIC. () F MI	N MALINGIA AS	(5793)		Constant Constants	Constraints and a second secon	· · · · · · · · · · · · · · · · · · ·			79, 197 31,710	1444	130.m 10 (Mari 9	ULOTONA CIRCEDCALS	Citize Chile Includes Food-org	1	1 (a) 1 1 (a)	0 %) 204		10%	4 1/2* 407	515 074	
:/12		94.P	N/15		COLORIDA -	MARKET PERC	1 10		1 1 1	9109	110	(1900) 9	10000000	Table 1 MP befor all Roleman		Not Landra	1/4	16'A	10-0	Autorened	8.8	Na
:/12 s2-0	NL 0419/841 NA 30/1	1949.7254	10.841	1	1 10 0 5 2	SPENDER POLICE					1											
2/32 	NA 30031 Nie 50035	14.141	THE MEAN PROFESSION		0004/109	Distance Restor Date	1. 217	441	-	2.120	18	ture la	000805	<ul> <li>- direct CMF Referent Frances</li> <li>- Other a field for the backware</li> </ul>		hel Londri	N/A	Þ/A Nis	1829	Maturet		A/A
5/12 52-0 524-3 94-3 94-3 94-3 94-3 94-3 94-3 94-3 9	HA STORE Net 2019 AN Elyst Silve Dis st	98.141 198:2567 (4.5)5	En ruen disf hit Carlos Carlos	, , ,	00017309 19536 2001-018	COMPANENTIAN COMPANENTIAN COMPANENTIAN COMPANENTIAN	21) 8) 9)	44.) (45) (55)		4.520 7.142 7.152		Ausol Li Specif U Ausol U	COLOGIA A 15 MBY COLOGIA	Aller (1997 Normali Kadaray Aller (1997 Normali Alabaray	0 	hoð Londeù hoð Londod 1,200	83 417	Nia 8	1.025	National Nationalist 1 KD	. N.4. 	5/4 5-14
2/32 42-0 2/4-3 4/6/7 134/ 134/ 134/ 134/ 134/	HA STORE Net 2019 AN Elyst Silve Dis st	14.141	the main relation. An essa	- /	(0037319) ise M	CANNELSON FOR THE	2,17	44) 695 895 197		9.175	186 445	turit U Read U	UPUNTA A 15 MDT	Bore De serves backag	4 4 4 4	had Landeri had Linderid	203	Nin R R	1.02%	Not Control Not Countrol		



#### Ocala Marion TPO CMP Databse - September 2021

							Land Land	1	and the start				T		N.	st. Assessment	Terretor		E	A CONTRACTOR	-
Astronomical State			10	1				a series of	13.0	$\mathbf{T} \rightarrow \mathbf{T}$					a services	a states i		and a state of the		13 - T	STATISTICS OF
6170.1	sa cé áv Se ós ev	W 50 W 160	NA 1955	1 4	ARTENIA	MICTAINTED				11 270	Liko	(41.55	500-01*	(Out 110 hot-out Toplay		12120	7.42	. 1 ort	15,277		30024402222
61.97	5% 65 AY	10000	104 (206 105 b)	1	AKITRA) ARITRA	#01235140120 #01235140120				15,8,0	1.8%	Urbus 0	Unreal (Sinta Creative	ration to the sector all the side of Cliffs of TMP Sector de Condexies	+	11400	- <u>35</u>		28.86 (3.60)	9.53	
6410	We de st	18 hig 175	115 W174	+ ;-	COLLEGE ONDERINE	Here Researched Referencement of	1 12	5 <u>578</u>		12/54	1.01 21H	tolon U Teles B	1 (174-38 4.8, 4) A 2 (340479)	Citizer unter bart sone Kongt voge Other Cable ber sone Romet voge	:	546		t 1545	6,200	814	
\$770 eV 923	-www.c.*Y	100 to 10 100 to 11	Sector	1	1751171.75	5.Stakeron				+,739	15!	Agel 0	r usymärt.	200-11 Million Retries Bushest		1 100 1 405	429 E SI	( (des v )(0))	1 528	251	ź
624.0	50.00	36.6-3	N-151	1.1	incui siccia	UNING AND AND AND AND AND AND AND AND AND AND	<u>13</u>	ez i pea		19 380	1.515	10455 10 10465 10	COUNTY	Cherry Chief Auto, 2 & Royte ay Others Mit Neb, 34 Kashiray		4,070 1,097	010	6 100% 5 1.00%	1200	011	÷
	5.4 20 AL	Sector Skipet	54/10 54/-032		Constant Constitute	WEIGHTAND	2 21	u 141		.2,714	6.74 [.340	(than U	1.04 MT 1	(Phot & ME Actions) Endething		56.00	2.75	· L009	1,62	6.5	
\$250 \$	THE PLAY	14.005	- x6,5454	1	course have	LAINTERROOM (	73			11 Marca	> 118	19530 D 19540 U	10000	Chines Chill for Society Frank way Witten Chill for Negative Frank way	1	11.09 8.60	8:5 0/3	4 1.%.M	1/ n0 eypx	5-0 432	
5/6/1	V4. P1 AV	598 1935. Sill 39 45	943 (4.0)	+	1000(104 1000(104	140901(85,4541)1 #519552710					(H) AN	Gipin y Burch is	100803	Diller Child Hotory & Australy Miles (1907 Antoria Revide a)		180	100 100	8 1495- 1 1.00%	1 490 1 492	8 to 1	
415) 5152	- 4 1]2 Sqc 94 1	CR4256 50.8234	19.425 NE250	,	0.0375109	10000000000000000000000000000000000000		c		0.05	17.9	saai u	Church	interest with business to a property	1.	1 i(+;	c.fa	5 10%	2,60	545 (15	
1.4.85	-97.95 M	16 de	Merchan.		70207134	WEETELS-TEO	<u>t</u> <u>t</u>	U. 1,846		1/429	1.019	9000 2 10000 0	A APPARTY A COUNTY	Charles Child Berlinsen Kapplorage Charles US-Websonk Resume ag	1	11,010	614	1 100N	4,196	4.0 9.4c	
5150	Const of Constant	587-057 CN 19-04	56.5.4/ 1705	+ :	+050180+ +0102304	INTERFLATIO UNINE CONTENTS	<u> </u>			13.40	160	Uthen U		Chain CAP Network Postway Other DAP Referred Standors		10,094	044	· · · · · · · · · · · · · · · · · · ·	(5.969		
#\$12	(8.40 Na looking adaptati	Switchpletonem kB Skitel	PERMIT AND AL		CSU(1)(4 CSU(1)(4	WARDARDONED WARDARDE	11	1412		22,944	L 144	1103m L.	> CONTR.	CONTENT AND A CALL AND	· · · · ·	1.57	011	8 1005	1500	(1.0 (1.0) (1.0)	a
1.1%	The Martines directory	st aus	5-07	1	5,51 (240)	2NISCICIENTIS:	1 14	20 270		10,433 15,459	1,528 115	HOM P Veten H	ONYOFICIALA	Golar CMP Set cash Academy (Physick Mr Antonio Secondary)		2,157	21	1 2015 6 9195	78.P (23)	225	
sizi0 Ni tri	(n)) (s))	CONNECTION (A)	7.P. 6648 References	+	ARTTRA	(Territ March 11) (metris March 11)		0 2313		47,000	5 F16 2 F10	Could II Read D	UAU MAR	nen - Rachment de Kradan. 1861 - Ann Sherdan Coalais		1	*1	4 1.055	n . 9-	+21 L	
619	1672	NR 0147 1521%	L R Z I SA		64)1896	estoreanty.	12	6 3,570		3110	1464	Ryg.24 P	(24) 1	All the Western Andrea	7	14.4% 14.3%	43	4 492. 1 492.	14/202	44	*
1413	18.77 19.21	NWEGA;	NC 102 N1 NH 34 Au		ART19141 ART7910-	INTERPORTA	4 XI			1-34 47.5%	1,000 1,000	tother D	540 500	NOT: Answirster Unit- An oder to Bally, Asses Information Assessment		12,550	\$ A5. 6 41	t 100	ia 240 Penjika	0.45	
4310 1580	1577	1(0) 8+3 - NS 48 4V	NN414.		Artited. artited	INTERLETED INTERNETED	. 7.	ດ ງາວມ	-	19,601	1.80	Udter 5		hiti. Non intention towaray		43,199	635	1474	(78.6)	4.85	
(478)	65.37	1/3	175 384 22 AV	+	N(TIKA)	BUTPEOPT	1 19 1 19	0 1,2%0		11.54	1.440 1.040	tidena di Indone di	S-A(f MA(S	hills - face relation bondering from - non-instantion ( contrary	9 11	Not Count	N'4 0.14	19/4 1960X 7 10/5	HAD COUNTED	564 9.53	- N/A
	14514 18521	WE'2: AL	Nov MARITAL Kiles 2-	4	AFTIRAL AFTIRAL	Ave accention Statesholder	1 101		4	12500 12600	2.0% 2.1%	Obus D	STAR VAR	105 An Interstein franker 205 - New Africa de Sa Jaco	<u> </u>	t à lego Visituati	00	5 1355 7 1385	25,507 12:541	0.63 0.75	
\$590.1		forenta instance	94	1	Sectors.	sigta kansaningi	1 84	n 200		13.626	1.000	0.200 0	MAR	2015 - New Strend Mr. Bakanar	р 19	24,192	0.51	¢ 194.	11,000	0.75 0.54	- <u>S</u>
6199 (3×23		GED N 1975	3 1031 75340	1 :	antina) Antina	CREATE RATION ( ) D				54705	1140	untus p sideum p	STAN SIAR	Mile Search Roders	5	10508 11109	6.M	r 10%	18 500 15 000	25	
1514		NUM COMPANIES	IN DEPARTURE	+	4111000	SAMPLE RADALD	45	e 1/10		45-554	1112	konil D		NIG Kent hits with Social and		13,7(4)	611	n	1/200		
0181	10.101	(A UK	CR238 CONTROLLING DRI	+	5421732 F431742	UST) 25(01(1) 1 NN(185(02)(7)	5 m	1 114		29.161 12.99	1,500 7,310	3004 L Aure 5	STATE STATE	hits factorial de Boudrag. 104, Bourrent de Boudrag.	1	18,402	- 15 - 15	5 1875 2 7875	26, 194 26, 306	9191 1742	÷
1.7%	0581 17541	TOONTY ISB (5	CRIMM Systematics	1	4077 ¥240 4782 ¥342	erti kasettett Petti recentite	2 0	1993		6 (/) & (/)	1450	Ushan P Valan D	NAR NAR	fairs they laterative francis sy	P	11,500	0.50	e 1 ; an.	/5 100	0.78	4
H-M	10.41	Set Missionin Ep	5.4.512 51.04		MALEAU PARTIES	16(11)9591(15	1 10	9 1,636		12.4-65	1-11	19534 5	940	1615 Not interstate towning 915 Not bilandels Anything	-	27,8%	0.40	e 2.03.	Janua JS.UD	0.092 0.11	
455) ev. 10	(sat)	Sector in the sector of the se	5-51255t VK-9015	1.	4717696	40(1-2021)0 95(1-3:25:0.6	1 1	<u>e / 2%</u>	+ -	4 ( 74) 3] 24)	2.89	Uthen D	. MAN	SAR - Bun Harnfold America Mr. Romanian Provider		1, 146	014	4 2.3tm	5100	<4.9	
	1954) 355 93	•#*#	skarh		CATTING	UNNICEGO	115	a   100	· · · ·	14,8,0	6,140	Utinya ki	51673	No Non Jahr S. N. 4 pastern		17,598		1. / 70%	11.946	1.7	-
4.001		\$14:307H1 \$55.80	1/6/224 A42.9 (FORE-4489	+	48578192 Ast18433	925 y 360 y 35 y 1 1 21 30 1 23 30 4 1 2 3	1 16.) 70.)	n 1,762		12450	1.59	tatup D	57575	Mits leans dentate dualizary bots literadouting brain as		9.55 U 199	48	<u>( ) // (</u>	(1448) 53,945	0.4i 9.17	÷
1944)." 44 W	ल्.्र) कृत्म	SINGLY MAR BURNELEY	59 16 33 1 6560 r184 (19	<u>}</u>	ARTIKOV ARTIKOV	izeminationti- semilariation		o #/n		15 7/0	970	Daat V	(j/V2)	SP R - Skin oth int ath Authors,		12.255	7.4	c > 19%	-1,900	0 15	
6/04	1(142)	CONSTRUCTS	63-07		Set (Nati	1021170299310	1	6 2.895		41,2%	2.150	Sed il Urban C	11AT	Sarth , Sacra Artisentada Karada, Sy Nikin - Sacra Artinest din Karada, ay		5,276 40,300	01. 01.	n 1.00% C 1.5%	1 400 ( 42 400		
510	10-402	56.11	9.18/71 9.48/71	1	Althour Afthour	INTERATION INTERACIONAL		e <u>( 1,005</u>		معرود : مانو ال	1260	Teken D	10.01	NY BOUDDAY BUILDING NEW STREET	······ · ·	Same	535 3'A	7. 1.01% 12/2 5.40%	1/ 5/0 Ind Located	0.01	1
6/912	5.1K	(215.	Drive.		ART(DIA)	W/[+H(TT)]	L 53	0 1,000	4	(9.60)	2.670	10247 2	STAR	lift the state states		18 340	. e 41	£ 5.68%	14:00	014	4
4293.1 +270	3530	N 90 19 653 16 04 N 90 19 653 16 04	1.6 (b) (5.64	+	48.556.00 48.04 (19.12	100017481,011,12 2643,001,021,02				fa (40) (+ N/40	104	inton Q ristan li	514") 5141(	Net - Net Alexing A Real ca.		17.299 1857 milliol	8.A	R 660%	Add noted	515 KA	*1
	15.411 15.411	CB 844 1/2 15945	ar tai se Na 19 M An	+	ARICHUS ARIES -	tedenietwolity (with Standarty	н <u>19</u>	0 1 1991		v7 819	1150	inter 51	1641	Here . These befores all mande an	ť	28 830	15.74	t 190	14,951	0/1	
1.415	15.441	n of thes	9.0.9	1 4	6.819,92%	1911/02/0711	1 10	e 100	<u>_</u>	10.90	2/18/ 1/40	Urgany Ur Tarbon E	SIAN SIAN	NPS Non-plentate Manhery Birks - New Markute Scalescy	- F	303+6 78365	¢.;; ¢.;;	1 3285 F 5205	11.567 56.7675	3 75	1
6857	STAIL	9799 9.63	SE V.N. SE LOUIS	4	44 31 N VS 49 13 13 100	AND SOCIED	e (ar			19.800 19.800	2.9447 2.9447	viskov p , šiman, p	State State	NDS Non-Azerbate Koofing NDS Non-Internation	0	77(6)	0.55	1. (35- 4. (395-	(6.4%) 91,5429	2.3	
10/021		9.32×9	18.475	1.	1/600	PHERMONE.	1 199	0.05 L 2.000		\$4,9692	J (64)	Chief D	MATI	ten Non Mersty Provide to	0	P.an	a 14	4 10/5	/4 hay	263	-
N4-10 N4-20	15,411	CR121 No.65	58.663 Galaport	<u></u>	ANTERNA ANTERNA	Section CR53 D INTERACT OF				in any	1.139 1.459	inten D Linten D	s'aik stait	NA MARKANA Rading NATION AND AND ADDRESS	6	11,94	8.54 6.54	0 19% 7 10%		205 296	v 2
	105 548 105 441	96 B-9 98 B	54.40 NW F31	- <u>-</u>	4010546	MILHORID	· · · · · · · · · · · · · · · · · · ·	·		92.650 11.000	15/9	<u></u>	52401 5240	Nefs - Nets inderstate plandway Nets - Nets Information Strapping		55 P.V.	1.11	0 1.925	40 5(+)	0.93	-li
49.51	in dit.	kwir 4	106/60231	4	20115 (14)	5910243/89105	2 174	0 1,610		446	1.12	Urfan U	statt	NPD Non-Edenstyle Prisideay		30,500	61. 091	0 100A 0 100A	0.101 11.67	6.20	0
	UNUI UNUI	Net Net N	1841 Net Inst		4075444 (20142446	984608111 2418039110		d 7.90a c 7.90a		10,800	100	Union n Velias ()	¥ A:r	Net - Not the back of the factory		N 170		1 1995	11 (cm 24 Vm	<u></u>	
5949s	15.01	NN 2015	NAV SY	1	A-11406 4-07779	WEEKKERTSTN WEEKKERTSTN	1 100			17,5,9	2.021	tintun D tutpun U	N50 913	Tells Novjakovškie Kradasy Sets Novjakovskih Navaza		2630	6.3 644	< 1.5 <sup>75</sup>	19.404	4.0	<u>`</u>
5.94	15 m	NR 1411	•2 \.L	1	2,4764(4)	16/162 61:4/91/2				19,810	2 (23)	topoy () Italian ()	State State	Nets Beneloffendele dawlines	6	15,249	04	( <u><u><u>x</u></u><u>Mb</u>) (<u>x</u><u>x</u>)</u>	1.5 file: 1.5 mm	. 651	<u>/</u>
77.63 749.43	(64)	1 41 575 1 824 77 51	May 1251 Any 1251	+	AATERAS +ATERIAS	identi Bhigʻish Terevi Brojeti G				- 27.939 - 40.555	<u>111</u>	9471 E 9451 H	V23	Nict. Revelopmentate Readers		73,595	P33	8 Laya 4 Laya	1,645	<u></u>	8
1016.5	295.683	M0.1775	(8.8)9	-	AZMINIA.	UNING ENDINGS		B	4	45.300	2215	5 Isni	144	HER. Autoliteration Residence Auto-Rest Hermitian Combury		11000 11/80	07 09	6 3 and	1649	441 457	
2001	15.4b1 35.472	0.02 -6.15	05-00 C# 75520	4	ayfakusi Aktiona	UNINTERACIAL UNITERACIAL	40,0		4	1/340 47.543	2,414	Popul II Horae P	544 544	Note: New Index State # Samples Note: From Index of the Provide to		)4 %/1 - 4 le0	612	6 3.22% P1.26%	11400	342	*
1 100		15 (510) 15 Mi	t#tja =veteoi	+ :	ARTING ARTING	IDENTIFICATED		2 2.585		42.510	<u>7.10</u> 7.210	8.4(2 11	MAN	Mits. Man makeri Jac Bakilara		10.934	459	6 140	f) g0s	£31	4
	0.01	MDER I	(8.52)	1	A&II to be	provid No.911 a	1	5 2.00		NLOS	23:50	4000) 10 6060 (1		terit ison being der blande og. Meit i den beinge der besche og.		10.095 10.094	975	6 (115) 8 1375	(124) \1,815	8.9	
596.1	25.86) 25.89)	68.3/0 Av7/04.0	• AIN F 3 CDIMENTING (M)	÷.	An i f Aufo An f E Aufo	1000013020015	<u></u>	5		\$1,215 87,246	1852	Ratal () Ranae ()	57418 1244	NTS has been been been as		*99 7,49	21.0	8 18 <sup>1</sup> 2	10,768	5.12	
1014	w Ale HOLD FL	17.615	84 15 1		10110108	10652656767	1	i		12/14	-6it	Zirikan in	(2004)14	12041 / SAT INCOME PORTING		1.500	hix	1 134	/ 196	515	
	w 491 i sang na w 391 i sang na	Mer 13 M M Dis	92.61 NE 1951	-	CONTRO- CONTRO-	electric contraction of the second se	<u> </u>	1 1.25		1: AL 15 1: P	114 774	When is Earst if	čenski r	COPER COM NOTING FACILITY CONSTENDED AND ADDRESS FACILITY		1.60 ( 1.50	04) 028	C 10%	5.65	9A) # (3	
356	en an	+ 52948 \1 125.461	940	+ :	(1903) (100) ACT #15	OCCUPICATION INTERACTION		<u> </u>		028		integr E untegr It	C Condept X	(the child former structure)	+	43.6	874	e	6.105 6.4-N	551	0
7165	¥ 113 ¥7.80	CR 484	104 101	1	ANTERNA	MTERPLATED	1 1 114	0 t #20)		3160	1,899	Janhaws D	COUNTY	Other Calif Robusts Reviewing Other Calif Retwork Supplement	1	11,600	012	( 1,00%	11708	. an	<u>с</u>
7170	SE LAS ST ND THEOREM ST	UN DOL (ANURALI) TO DAT	1541 (F4-1	4	ARTERINE UP416CTUP	HIERMOFFED	1 <u>NJ</u>	0 4,000		#5.820 25,546	1.317	Unbur E Lichas 14	COUNTY COUNTY	Stiter CMP Perhod Readeray		11,300	6,31 C 31	6 219% 8 194%	18/000 1.5ml	0.0	<u>с</u>
1745	Sec 17 19 Sec 44 11	156.200	WY I IS	1	104110 Fox	Innelskerius-	1 11	s 1 559		47.2.9	1,0/	045.41 B	CORTY	Star SIN Kelawa Fundura	<u> </u>	7,740	<u>*u</u>	6 1.07%	A,rbe	1.0	
per. Sette	ne skonsta Na star	Nr. Livau Ref. X5 Avt	for LENSER NOV 27 ANY		(0010305 1.0145	UNINT(190970) UNINT(190970)	14,0 21/			23,579 67 273	ne Vit	North Dig National II	106967 206607	Filter & ME Notech # Snathway Rither Thill Revised Reciding		Not Constant		NGA 1.09% NGA 1.69%	Not Countral Best Countral		944 945
5.0	98 13 5 F	56.753 	No.CM Wester		108.42	CENTER STREET IN D		0.00		N 2/2	100	Unius D	COMIN	atther CRAM Landowedk the wire as		ted (unit)	KA	1.50	Bill i vieted	54	N/6
	Note by Ax	Section 1	W PAL	1.1	- COLLEGAR	19990336027110 199903360360110	<u> </u>	6 9. <del>5</del> 7	1	1725	159	16554 () 14545 ()	CODATA CODATA	Alter (MC Instance) dawn yr	+	had Counted Not serviced	~ A	5/2 1/2 <sup>-</sup>	nd Courted Anti-sector	N-8 N/K	<u>***</u>
801.5 801.0	5/6 40.6V 3/8 45.52	102.40 AV	17548	+	5010358 50207308	010874804115 2018864102	4/2 1 15.8			41,2,75	1357	things the sectors the	LIDIONIN CONDUCT	Citta - CAR Indonesi Rundada Marti - CAR In Koark Practices		Roll Counters Both Counters		* 3 C10/5 # 4 1.585	Stat Country Takes control		N.1
5.950	-tig said an	ADIMAN	CR >2	· · ·	LOUIDN	mesochity		1 33	1	15334	525	Vition If	/ LANSTY	121011112PARALE briefalb	i i	1284	2.78	1 1.4%	1.59	975	
#140 =340	transfer dan ten. Man di Anton (n. 2	16 15 454	MARCH CAN LON	1:	Courting	ADD CALARDS		( (44)		1557		585.04 (1 595.34	()(pv+ 110017	Office CMP Refueld South of Office CMP hotocold Souther of	1	3,9991 34 (%)	00 010	c (.9%) i (.98%)	1990 15.547	6.0	
	MARION DAKS F.M.	CR HM	SW AT AV	1.1	ARTERIAL COLLECTOR	MILSBUTTO MILSBUTTO	1 155 1 152			33,250	אד. ופז	Urban d Urban d	COUNTY	Other Chill Refueld Adamsy Other Chill Instance Robbing		1,000		c toos c toos	1,900 7,100	412	<u>.</u>
	698218.84	90.01	condex) et-	>	- 1204 510	20071000			1	100		1964	110,7021	Other CMP Metwork Rowinsey	1	U	- 632	0 6 m	9	E10	0
	2,407(3.2) 549674-10	(115500)(37) (#34)	58.55 58.4142				11,7	2		117.0		ratus a Criter H	CONT CONT	Chier a National Konstant Chier S ARP Articipal Roberts av			2	0 4 Per-	a 2	2 MS 0504	<u>.</u>
	16-RE-96-D1571-07	LOOKSON (JOOR) MILLS	94740.50							61410		81.60m 4	118/92*	CONVERSION AND AND A REAL PROPERTY		9	4	9 C.H.	<u>ę</u>	C ++ 2	-
	Martheory in Marcheory in	Mikels (2001)2 Markels (2001)1	Since of Concellence Mean Statistics (192	<u>+ ;</u>			16.2			1525	<u> </u>	olan H Olan I	L CAUNTY COUNTY	Calvers MP Nutural Katalog Office CMC Intervents Katalog og				r <u>c.0%</u> u d.00%		000 1105	-11



D-244

# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

# APPENDIX K: TRIP EQUIVELANCY MATRIX

			A. LAND USE	EQUIVALENCY	RATES	anarah manarah sa ka	alantifica cola de	in single and the second second	a Title - An Debala	en en en en en en en en en en en en en e	samo nataman di
		High-Cube					On managed al	Commercial			
						0	Commercial				
CHANGE TO		Transload and Short-Term		Deserve and		Commercial		Retail (ITE LUC		Cincile Foundha	Multi-family
	0			Research and			821 (40k-150k SF w/			Single-Family	
CHANGE	General Light	Storage	0	Development	D	820 (> 150k		SF w/o	Retail (ITE LUC		(Low-Rise)
	Industrial	Warehouse	General Office	Center	Business Park	SF))	supermarket))	supermarket))	822 (< 40k SF))		Apartments
FROM V	(1,000 SF)	(1,000 SF)	(1,000 SF)	(1,000 SF)	(1,000 SF)	(1,000 SF)	(1,000 SF)	(1,000 SF)	(1,000 SF)	(DU)	(DU)
General Light Industrial (1,000 SF)	-	1.3824	0.1632	0.2398	0.1926	0.0853	0.0434	0.0755	0.0540	0.4123	0.4608
High-Cube Transload and Short-Term Storage Warehouse (1,000 SF)	0.7234		0.1181	0.1735	0.1393	0.0617	0.0314	0.0546	0.0391	0.2982	0.3333
General Office (1,000 SF)	6.1277	8.4706	-	1.4694	1.1803	0.5229	0.2658	0.4624	0.3311	2.5263	2.8235
Research and Development Center (1,000 SF)	4.1702	5.7647	0,6806		0.8033	0.3558	0,1809	0.3147	0.2253	1.7193	1.9216
Business Park (1,000 SF)	5.1915	7.1765	0.8472	1.2449		0.4430	0.2252	0.3918	0.2805	2.1404	2.3922
Commercial Retail (ITE LUC 820 (> 150k SF)) (1,000 SF)	11.7191	16.2000	1.9125	2.8102	2.2574	1.9673	0.5083	0.8844	0.6332	4.8316	5.4000
Commercial Retail (ITE LUC 821 (40k-150k SF w/ supermarket))	23.0553	31.8706	3.7625	5.5286	4.4410		0.5748	1.7399	1.2458	9.5053 5.4632	10.6235 6.1059
Commercial Retail (ITE LUC 821 (40k-150k SF w/o supermarket))	13.2511	18.3176	2.1625	3.1776	2.5525	1.1307		-	0.7160		
Commercial Retail (ITE LUC 822 (< 40k SF))	18.5064	25,5824	3.0201	4.4378	3.5648	1.5792	0.8027	1.3966		7.6298	8.5275
Single-family Attached Housing (DU)	2.4255	3,3529	0.3958	0.5816	0.4672	0.2070	0.1052	0.1830	0.1311		1.1176
Multi-family (Low-Rise) Apartments (DU)	2.1702	3.0000	0.3542	0.5204		0.1852	0.0941	0.1638	0.1173	0.8947	
EXAMPLE 1: TRADE FROM GENERAL LIGHT INDUSTRIAL TO MULTI-	FALLS & LOUISING		B. EQUIV	ALENCY EXAMP	159						
Trade 100.000 SF of General Light Industrial for ? DU of N											
= (100 KSF) General Light Industrial x 0,4608 DU of Multi-		ig	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								
= 46.08 x (DU) Multi-Family Housing	ranny rivesing										
= 46 DU of Multi-Family Housing											
EXAMPLE 2: ADD GENERAL OFFICE FROM HIGH-CUBE TRANSLOAD	AND SHORT-TERM	<b>M STORAGE WARE</b>	HOUSE								
Add 30 KSF of Office from 7 (1,000) SF of High-Cube Tran		erm Storage Wareh	louse								
= (30 KSF) Office / 0.1181 (1,000 SF) of High Cube Wareho	suse										
= 254.022 x (1,000) SF High Cube Warehouse = Remove 254,022 SF of High Cube Transload and Short-	7. 01 - 14/	- <b>b</b>									
	Tenn Storage wan										
- receiver and the second of t			DRATION AND D	OCUMENTATION	COD COUNTAL END	VDATES	SEGNERAL STREET	eralte and to an the			
- remote server of orman ease transload and onor			ORMATION AND D	OCUMENTATION	FOR EQUIVALENC	Y RATES		en de constantiones de la constante de la constante de la constante de la constante de la constante de la const	Gross	% New	geogleffik gestalte s
		C. SOURCE INFO	ORMATION AND D	OCUMENTATION	N FOR EQUIVALENC	Y RATES	Ur	nits	Gross Trip Rate (1)	% New Trips (2)	Trips / Unit
		C. SOURCE INFO	DRMATION AND D	OCUMENTATION	FOR EQUIVALENC	CY RATES		nits (1,000 SF)		% New Trips [2] 100.00%	Trips / Unit 0,235
	Land General Light Ind	C. SOURCE INFO		OCUMENTATION	N FOR EQUIVALENC	CY RATES	1		Trip Rate [1] 0.235 0.170	Trips [2] 100.00% 100.00%	0.235
High-Cube Tran	Land General Light Ind sload and Short-To General Offic	C: SOURCE INF( Use lustrial (ITE 110) erm Storage Wareh ce (ITE 710)	ouse (ITE 154)	OCUMENTATION	N FOR EQUIVALENC	CY RATES	1 1 1	(1,000 SF) (1,000 SF) (1,000 SF)	Trip Rate [1] 0.235 0.170 1.440	Trips [2] 100.00% 100.00% 100.00%	0.235 0.170 1.440
High-Cube Tran	Land General Light Ind sload and Short-To General Offic parch and Develop	C: SOURCE INF( Use lustrial (ITE 110) erm Storage Wareh ce (ITE 710) ment Center (ITE 76	ouse (ITE 154)	OCUMENTATION	N FOR EQUIVALENC	SY RATES	1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF)	Trip Rate [1] 0.235 0.170 1.440 0.980	Trips [2] 100.00% 100.00% 100.00% 100.00%	0,235 0,170 1,440 0,980
High-Cube Tran Resc	Land General Light Ind sload and Short-To General Offic sarch and Develop Business Pa	C: SOURCE INF( Use Iustrial (ITE 110) erm Storage Wareh ce (ITE 710) ment Center (ITE 76 rk (ITE 770)	ouse (ITE 154) 50)	OCUMENTATION	N FOR EQUIVALENC	Y RATES	1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF)	Trip Rate [1] 0.235 0.170 1.440 0.980 1.220	Trips [2] 100.00% 100.00% 100.00% 100.00% 100.00%	0.235 0.170 1.440 0.980 1.220
High-Cube Tran Resc Com	Land General Light Ind sload and Short-Tu General Offic aarch and Develop Business Pa Business Pa	C SOURCE INF( Use Justrial (ITE 110) erm Storage Wareh ce (ITE 710) ment Center (ITE 74) rk (ITE 770) LUC 820 (> 150k S	ouse (ITE 154) 50) F))	OCUMENTATION	N FOR EQUIVALENC	Y RATES	1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF)	Trip Rate [1] 0.235 0.170 1.440 0.980 1.220 3.400	Trips [2] 100.00% 100.00% 100.00% 100.00% 100.00% 81.00%	0.235 0.170 1.440 0.980 1.220 2.754
High-Cube Tran Resc Com Commercial R	Land General Light Ind sload and Short-T General Offic parch and Develop Business Pa mercial Retail (ITE Letail (ITE LUC 821	C. SOURCE INF( Use Iustrial (ITE 110) erm Storage Wareh ce (ITE 710) ment Center (ITE 7( rrk (ITE 770) I. LUC 820 (> 150k S (40k-150k SF w/ su	ouse (ITE 154) 50) F)) permarket))	OCUMENTATION	V FOR EQUIVALENC	Y RATES	1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF)	Trip Rate [1] 0.235 0.170 1.440 0.980 1.220 3.400 9.030	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418
High-Cube Tran Resc Commercial R Commercial R	Land General Light Ind sload and Short-T General Offic arch and Develop Business Pa mercial Retail (ITE Letail (ITE LUC 821 etail (ITE LUC 821	C. SOURCEINF( Use lustrial (ITE 110) orm Storage Wareh co (ITE 710) ment Center (ITE 7( rk (ITE 770) LUC 820 (> 150k S (40k-150k SF w/s su	ouse (ITE 154) 50) F)) Ipermarket)) upermarket))	DOCUMENTATION	N FOR EQUIVALENC	DY RATES	1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF)	Trip Rate [1] 0.235 0.170 1.440 0.980 1.220 3.400 9.030 5.190	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 60.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114
High-Cube Tran High-Cube Tran Commercial R Commercial R Commercial R Commercial R Commercial R	Land General Light Ind sload and Short-Tr General Offi arch and Develop Business Pa mercial Retail (ITE Luc 821 etail (ITE LUC 821 mercial Retail (ITI	C. SOURCEINF Use Ustrial (ITE 110) arm Storage Wareh ce (ITE 710) ment Center (ITE 74 rk (ITE 770) LUC 820 (> 150k S (40k-150k SF w/ ssi (40k-150k SF w/ ssi E LUC 822 (< 40k Sf	ouse (ITE 154) 50) F)) permarket)) upermarket)) T))		N FOR EQUIVALENC	CY RATES	1 1 1 1 1 1 1 1 1 1 1 1 1	(1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF)	Trip Rate [1] 0,235 0,170 1,440 0,980 1,220 3,400 9,030 5,190 6,590	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 60.00% 66.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349
High-Cube Tran Resc Commercial R Commercial R Commercial R Commercial R Commercial R	Land General Light Ind Sload and Short-Tr General Offic Parch and Develop Business Pa Business Pa Busi	C. SOURCEINE Use Userial (ITE 110) arm Storage Wareh ce (ITE 710) ment Center (ITE 71 ment Center (ITE 70) LUC 820 (> 150k S F v/s u (40k-150k SF v/s u) E LUC 822 (< 40k Si d Housing (ITE 215	ouse (ITÉ 154) 50) F)) Ipermarket)) F)) F)) 5)		N FOR EQUIVALENC	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF)	Trip Rate [1] 0.235 0.170 1.440 0.980 1.220 3.400 9.030 5.190	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 60.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114
High-Cube Tran Resc Commercial R Commercial R Commercial R Commercial R Commercial R	Land General Light Ind Sload and Short-Tr General Offic Parch and Develop Business Pa Business Pa Busi	C. SOURCEINF Use Ustrial (ITE 110) arm Storage Wareh ce (ITE 710) ment Center (ITE 74 rk (ITE 770) LUC 820 (> 150k S (40k-150k SF w/ ssi (40k-150k SF w/ ssi E LUC 822 (< 40k Sf	ouse (ITE 154) 50) F)) upermarket)) upermarket)) F)) F)) T) 20)		N FOR EQUIVALENC	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran Resc Commercial R Commercial R Commercial R Commercial R Commercial R	Land General Light Ind Sload and Short-Tr General Offic Parch and Develop Business Pa Business Pa Busi	C. SOURCEINE Use Userial (ITE 110) arm Storage Wareh ce (ITE 710) ment Center (ITE 71 ment Center (ITE 70) LUC 820 (> 150k S F v/s u (40k-150k SF v/s u) E LUC 822 (< 40k Si d Housing (ITE 215	ouse (ITE 154) 50) F)) upermarket)) upermarket)) F)) F)) T) 20)	FOOTNOTES	NFOR EQUIVALENC	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran High-Cube Tran Resc Commercial R Commercial R Commercial R Commercial R Commercial R Commercial R (1): Trip Rate based upon ITE <i>Trip Generation, 11th Edition</i> , p.m. peak-hour trip generation rates	Land General Light Ind sload and Short-Tr General Offi parch and Develop Business Pa mercial Retail (ITE tetail (ITE LUC 821 mercial Retail (ITI gle-family Attache i-family (Low-Rise) as follows:	C. SOURCEINFC Use Instrial (ITE 110) arm Storage Wareh ce (ITE 710) ment Center (ITE 71) rk (ITE 770) LUC 820 (> 150k S (40k-150k SF w/s s) (40k-150k SF w/s) ce LUC 822 (< 40k S) d Housing (ITE 215) Apartments (ITE 2	ouse (ITE 154) 50) F)) upermarketi) D) D) 20) D)	FOOTNOTES		DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran High-Cube Tran Commercial R Commercial R C	Land General Light Ind Sload and Short-Tr General Offli arch and Develop Business Pa Immercial Retail (ITE LUC 821 tatil (ITE LUC 821 tamily (Low-Rise) Jgle-family Attache i-family (Low-Rise) as follows: Obtained using the	C. SOURCEINE Use Iustrial (ITE 110) orm Storage Warch ce (ITE 710) ment Center (ITE 77 re (ITE 770) I.UC 820 (> 150k S (40k-150k SF w/s su (40k-150k SF w/s su 40k-150k SF w/s su 40k-150k SF w/s su Apartments (ITE 21 Apartments (ITE 21 Trip Generation equal	ouse (ITE 154) 50) (permarket)) (permarket)) (permarket)) (permarket)) (permarket) (permarket))	IFOOTNOTES the approved trip gon	station for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran Resc Commercial R Commercial	Land General Light Ind sload and Short-Tr General Offi aarch and Develop Business Pa mercial Retail (ITE LUC 821 amercial Retail (ITE LUC 821 amercial Retail (ITI gle-family Attachce -family (Low-Rise) as follows: Obtained using the Obtained using the	CLSOURGEINE Use Iustrial (ITE 110) erm Storage Wareh ec (ITE 710) ment Center (ITE 77 rk (ITE 770) I LUC 820 (> 150k S (40k-150k SF w/s su E LUC 822 (< 40k Si d Housing (ITE 215 Apartments (ITE 2 Trip Generation equal	ouse (ITE 154) 50) F)) upermarketi)) () 20) 20) Ion for ITE LUC 110 and no for ITE LUC 154 and	IFOOTNOTES the approved trip gon	station for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran High-Cube Tran Commercial R Commercial R C	Land General Light ind sload and Short-Tr General Offi aarch and Develop Business Pa imercial Retail (ITE LUC 821 amercial Retail (ITE LUC 821 amercial Retail (ITI gle-family Attache etail (ITE LUC 821 as follows: Obtained using the Obtained using the Obtained using the	CLSOURGEINE Use Iustrial (ITE 110) erm Storage Wareh ce (ITE 710) ment Center (ITE 77) iustrial (ITE 770) iustrial (ITE 770) iustrial (ITE 770) iustrial (ITE 770) iustrial (ITE 770) iustrial (ITE 213) Apartments (ITE 2 Trip Generation equal Trip Generation rate for Trip Generation rate for Trip Generation rate for Ing Generation rate for Ing Generation rate for Ing Generation rate for Ing Generation rate for Ing Generation rate for Ing Generation rate for Ing Generation rate for Ing Generation rate for Ing Generation rate for	ouse (ITE 154) 50) F)) upermarket)) () () () () () () () () ()	IFOOTNOTES the approved trip gon	station for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran           Commercial R           Multi           High-Cube Transload and Short-Ferm Storage Warehouse           General Office           General Office           Research and Development Center           Business Park	Land General Light (nd Sload and Short-Ti General Offic arch and Develop Business Pa Immercial Retail (ITE LUC 821 etail (ITE LUC 821 etail (ITE L	Use Lustrial (ITE 110) erm Storage Wareh ce (ITE 710) ment Center (ITE 71 ment Center (ITE 71 rk (ITE 770) LUC 820 (> 150k SF w/so (40k-150k SF w/so (40k-150k SF w/so 140k-150k SF w/so 40k-150k SF w/so 140k-150k  ouse (ITE 154) 50) F)) permarket)) permarket)) F) 20) 20) Contron of ITE LUC 110 and for for ITE LUC 154 and for ITE LUC 154. TIE LUC 750.	. FOOTNOTES the approved trip gene	station for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570	
High-Cube Tran           Resc           Commercial R           General Light Industrial           High-Cube Transload and Short-Term Storage Warehouse           General Ciffice           Research and Development Center           Business Park           Commercial Real (TE LUC 20 (> 150k SF))	Land General Light ind sload and Short-Tr General Offic aarch and Develop Business Pa mercial Retail (ITE LUC 821 amercial Retail (ITE Costandu sung the Obtained using the Obtained using the Obtained using the Obtained using the Obtained using the	C. SOURCEINE Use Lustrial (ITE 110) erm Storage Wareh co (ITE 710) ment Center (ITE 77) LUC 820 (> 150k S (40k-150k SF w/s w) (40k-150k SF w/s w) Control (ITE 21) (40k-150k SF w/s w) Control (ITE 21) Apartments (ITE 2 Trip Generation rate (C Trip Generation	ouse (ITE 154) 50) F)) permarket)) () () 20) 20) 10 10 10 10 10 10 10 10 10 10	IFOOTNOTES the approved trip gen the approved trip gen 3F).	pration for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran           Commercial R           Commercial R           Commercial R           Commercial R           Commercial R           Resc           Sin           Multi           High-Cube Translow           Commercial R           Commercial R           Resc           Sin           Multi           High-Cube Transload and Short-Term Storage Warehouse           General Office           Resarch and Development Center           Business Park           Commercial Retail (TE LUC 120 (r 150k SF))           Commercial Retail (TE LUC 120 (r 150k SF))	Land General Light Ind Sload and Short-Ti General Offic arch and Develop Business Pa Immercial Retail (ITE LUC 821 etail (ITE LUC 821 etail (ITE LUC 821 etail (ITE LUC 821 etail (ITE LUC 821 gle-family Attache i-family (Low-Rise) as follows: Obtained using the Obtained using the Obtained using the Obtained using the Obtained using the Obtained using the	Use Lustrial (ITE 110) erm Slorage Wareh ce (ITE 710) ment Centor (ITE 71 ment Centor (ITE 71 rk (ITE 770) LUC 820 (> 150k SF w/ so (40k-150k SF w/ so (40k-150k SF w/ so (40k-150k SF w/ so 40k-150k SF w/ so 140 Housing (ITE 215) A partments (ITE 2 A partments (ITE 2 Trip Generation equation Trip Generation rate for Trip Generation rate for	ouse (ITE 154) 50) F)) (permarket)) (p) (p) (p) (p) (p) (p) (p) (	.FOOTNOTES the approved trip gen the approved trip gen the approved trip gen siF). K SF w/ supermarke()).	pration for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran         Resc         Commercial R         Commercial R         Commercial R         Commercial R         Commercial R         Commercial R         Resc         Commercial R         Commercial R         Resc         Commercial R         Commercial R         Resc         Commercial R         Resc         Commercial R         Resc         Commercial R	Land General Light (nd Sload and Short-T General Offic arch and Develop Business Pa mercial Retail (ITE LUC 821 etail (ITE LUC 821 etail (ITE LUC 821 etail (ITE LUC 821 etail (ITE LUC 821 gle-family Attache i-family (Low-Rise) obtained using the Obtained using the	Use Lustrial (ITE 110) arm Slorage Wareh ce (ITE 710) ment Center (ITE 710) ment Center (ITE 770) LUC 820 (> 150k SF w/ so (40k-150k SF w/	ouse (ITE 154)           50)           Fj)           ppermarketj)           upermarketj)           jj           20)           50 m for ITE LUC 110 and for for ITE LUC 710.           or ITE LUC 710.           or ITE LUC 710.           or ITE LUC 70.           or ITE LUC 70.           or ITE LUC 620 (> 150k G           or ITE LUC 621 (40k-150           or ITE LUC 622 (< 40k SI	FOOTNOTES the approved trip gene the approved trip gene the approved trip gene the second tri	pration for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran           Resc           Commercial R           Commercial R           Commercial R           Commercial R           It Trip Rate based upon ITE <i>Trip Generation, 11th Edition, p.m.</i> peak-hour trip generation rates           General Light Industrial           High-Cube Transload and Short-Term Storage Warehouse           General Office           Research and Development Center           Business Park           Commercial Retail (ITE LUC 22 (> 150k SF!))           Commercial Retail (ITE LUC 22 (< 40k SF))	Land General Light Ind sload and Short-T General Offic arch and Develop Business Pa Imercial Retail (17E tude 2000) Business Pa Imercial Retail (17E tude 2000) as follows: Obtained using the Obtained using the	Use Lustrial (ITE 110) erm Slorage Wareh con (ITE 710) ment Center (ITE 77) ment Center (ITE 77) LUC 820 (> 150k S (40k-150k SF w/s us) (40k-150k SF w/s us) d Housing (ITE 215 Apartments (ITE 215 Apartments (ITE 215 Trip Generation rate fo Trip Generation rate for Trip Generation rate for Generation rate f	ouse (ITE 154) 50) F)) permarket)) permarket)) )) 20) The second	FOOTNOTES the approved trip gene the approved trip gene the approved trip gene the second tri	pration for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran         Resc         Commercial R         Commercial R         Commercial R         Commercial R         Commercial R         Commercial R         Resc         Commercial R         Commercial R         Resc         Commercial R         Commercial R         Resc         Commercial R         Resc         Commercial R         Resc         Commercial R	Land General Light Ind sload and Short-T General Offic arch and Develop Business Pa Imercial Retail (17E tude 2000) Business Pa Imercial Retail (17E tude 2000) as follows: Obtained using the Obtained using the	Use Lustrial (ITE 110) arm Slorage Wareh ce (ITE 710) ment Center (ITE 710) ment Center (ITE 770) LUC 820 (> 150k SF w/ so (40k-150k SF w/	ouse (ITE 154) 50) F)) permarket)) permarket)) )) 20) The second	FOOTNOTES the approved trip gene the approved trip gene the approved trip gene the second tri	pration for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran           Resc           Commercial R           Commercial R           Commercial R           Commercial R           It Trip Rate based upon ITE <i>Trip Generation, 11th Edition, p.m.</i> peak-hour trip generation rates           General Light Industrial           High-Cube Transload and Short-Term Storage Warehouse           General Office           Research and Development Center           Business Park           Commercial Retail (ITE LUC 22 (> 150k SF!))           Commercial Retail (ITE LUC 22 (< 40k SF))	Land General Light Ind sload and Short-T General Offic sarch and Develop Business Pa mercial Retail (IT Etail (ITE LUC 821 teail (ITE LUC 821 etail (ITE LUC 821 nmercial Retail (IT gle-family Attache i-family (Low-Rise) as follows: Obtained using the Obtained using the	Use Use Ustaid (ITE 110) orm Slorage Wareh ce (ITE 710) ment Center (ITE 77) rk (ITE 770) LUC 820 (> 150k S (40k-150k SF w/s su (40k-150k SF w/s su	ouse (ITE 154) 50) F)) permarket)) permarket)) )) 20) The second	FOOTNOTES the approved trip gene the approved trip gene the approved trip gene the second tri	pration for the project.	DY RATES	1 1 1 1 1 1 1 1 1 1 1 1	(1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) (1,000 SF) OU	Trip Rate [1] 0,235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 6.550 0.570	Trips [2] 100.00% 100.00% 100.00% 100.00% 81.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570
High-Cube Tran           Commercial           Commercial R           Commercial R           Commercial R           Commercial R           Commercial R           Commercial R           Resc           Commercial R           Commercial R           Resc           Commercial R           Resc           Commercial R           Resc           Commercial R           Resc           Commercial R           Comme	Land General Light Ind Sload and Short-T General Offic arch and Develop Business Pa mercial Retail (ITE tetail (ITE LUC 821 tetail (ITE LUC 821 Inmercial Retail (ITE letail (ITE LUC 821 ingle-family Attache obtained using the Obtained using the	Use Lustrial (ITE 110) orm Slorage Wareh ce (ITE 710) ment Center (ITE 71 ment Center (ITE 77) LUC 820 (> 150k SF w/s (40k-150k SF w/s 40k-150k SF w/s to 20 (112) Apartments (ITE 2 Apartments (ITE 2 Trip Generation equal Trip Generation rate for Trip Generation rate for Generation rate for	ouse (ITE 154)           50)           F))           upermarket!)           upermarket!)           "])           30)           20)           20)           20)           20)           20)           10 m for ITE LUC 110 and for ITE LUC 710.           x1TE LUC 710.           x1TE LUC 710.           x1TE LUC 710.           x1TE LUC 720.           x1TE LUC 21 (40k-150           x1TE LUC 22 (40k S)           x1TE LUC 220.	FOOTNOTES the approved trip gen the approved trip gen iF). k SF w/ supermarket(). k SF w/o supermarket().	eration for the project.			(1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) DU DU	Trip Rate [1] 0.235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 0.570 0.570 0.510	Trips [2] 100.00% 100.00% 100.00% 100.00% 100.00% 60.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570 0.510
High-Cube Tran         Resc         Commercial R         Commercial R         Commercial R         Commercial R         Commercial R         Mult         Mult         Mult         Commercial R         Construction         Sir         Mult         Mult         Mult         Mult         Commercial R         Commercial Relation         Multif-tannity         Cow	Land General Light Ind Sload and Short-T General Offic arch and Develop Business Pa mercial Retail (ITE tetail (ITE LUC 821 tetail (ITE LUC 821 Inmercial Retail (ITE letail (ITE LUC 821 ingle-family Attache obtained using the Obtained using the	Use Lustrial (ITE 110) orm Slorage Wareh ce (ITE 710) ment Center (ITE 71 ment Center (ITE 77) LUC 820 (> 150k SF w/s (40k-150k SF w/s 40k-150k SF w/s to 20 (112) Apartments (ITE 2 Apartments (ITE 2 Trip Generation equal Trip Generation rate for Trip Generation rate for Generation rate for	ouse (ITE 154)           50)           F))           upermarket!)           upermarket!)           "])           30)           20)           20)           20)           20)           20)           10 m for ITE LUC 110 and for ITE LUC 710.           x1TE LUC 710.           x1TE LUC 710.           x1TE LUC 710.           x1TE LUC 720.           x1TE LUC 21 (40k-150           x1TE LUC 22 (40k S)           x1TE LUC 220.	FOOTNOTES the approved trip gen the approved trip gen iF). k SF w/ supermarket(). k SF w/o supermarket().	eration for the project.			(1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) (1.000 SF) DU DU	Trip Rate [1] 0.235 0.170 1.440 0.980 1.220 3.400 9.030 5.190 0.570 0.570 0.510	Trips [2] 100.00% 100.00% 100.00% 100.00% 100.00% 60.00% 60.00% 66.00% 100.00%	0.235 0.170 1.440 0.980 1.220 2.754 5.418 3.114 4.349 0.570 0.510

Kimley **»Horn** 

D-246

# Kimley »Horn

Traffic Impact Analysis Trailhead Logistics Park North

# APPENDIX L: INTERIM SW 20<sup>TH</sup> AVENUE ROAD AT CR 484 INTERSECTION ANALYSIS

W.E. Oliver, P.E., LLC Project No: Project Name/Task: P.O. Box 10367, Tampa, Florida 33679 Date/Analyst:\_ (813) 748-9188 www.weo-pe.com i A.H. Assignment: Assign Pass-by based on adjacent street traffic, near-side weighted @ 100%, far-side weighted @ 50%. Assign Primary tryps to/from I.75. Trip Gen = 186 In, 186 out A. H. Pass-by = 63% Pass-by Trips = 117 In /out Primary Trips = 69 In /out 47 94 + RI/RO 1112 **32** \_\_\_\_ ⊱وع \_\_\_\_ (TEP) 1-92 15 96 €-30  $\leftarrow \mathfrak{B}$ ×~~ 15 46 4-92 64 ----> 69 64 -> 37-> -> 64 Pass. by % = 739/(0.5\*1752+939) = 45.7% Pass. 1 y % (1 - 0.454)54.3% P.M. Assignment Trip Gen= 168 In, 168 Out P.H. Pass-by %= 34 % 66% Pass- by Trips = 111 In, 111 Out Premary Trips = 57 In, 57 out Gas/L.Sur 1.8 K2 4 6 t-36 个107 -86 ← 103 25 06 of Pas-by= (0.5×991+1740)=222

D-247

### TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION: AM COUNT DATE: PM COUNT DATE: AM PEAK HOUR FACTOR: PM PEAK HOUR FACTOR:		CR 484 & SW 20th Avenue, October 25, 2022 October 25, 2022 0.96 0.93				erim										
"AM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM Raw Turning Movements	0	0	1,623	23	13	20	859	0	0	13	0	76	0	0	0	0
Peak Season Correction 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	1.00	1.00	1.00	1.00
AM EXISTING CONDITIONS	0	0	1,623	23	13	20	859	0	0	13	0	76	0	0	0	0
"PM EXISTING TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	wвт	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM Raw Turning Movements	0	0	1,023	48	13	84	1,588	0	0	32	0	83	020	002	0	
Peak Season Correction 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	1.00	1.00	1.00	1.00
	1.00	1 1.00	1.00	1.00	1 1.00	1.00	1.00	1 1.00	1.00	1	1.00		1			1.00
PM EXISTING CONDITIONS	0	0	1,023	48	13	84	1,588	0	0	32	0	83	0	0	0	0
"AM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos	[	18						8						8		3
Trailhead Logistics Park South, Trucks		1						8						8		0
Marco Polo C-Store/Gas Station		64	37				92	30						96		15
VESTED TRAFFIC	0	83	37	0	0	0	92	46	0	0	0	0	0	112	0	18
	<b>.</b>												r	,		<b>,</b>
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
AM TRAFFIC GROWTH	0	0	259	4	2	3	137	0	0	2	0	12	0	0	0	0
AM BACKGROUND TRAFFIC			1 4 9 4 9	07	15	-	4 000	46	0		0	88	0	112	0	18
	0	83	1,919	27	15	23	1,088	40	0	15	0	40	<u> </u>	112		
"PM OPENING YEAR TRAFFIC"	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Trailhead Logistics Park South, Autos		29	ļ				L	73		L	ļ			139		55
Trailhead Logistics Park South, Trucks		1						23				ļ	ļ	60	ļ	3
Marco Polo C-Store/Gas Station	ļ	25	20	ļ			107	36	L		ļ			62		18
VESTED TRAFFIC	0	55	20	0	0	0	107	132	0	0	0	0	0	261	0	76
Verse Te Duildeut									-		<u> </u>	<u>ا</u> و		r.		
Years To Buildout	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Yearly Growth Rate PM TRAFFIC GROWTH	3.0%	3.0%	3.0%	3.0%	3,0%	3.0%	3.0%	3.0%	3.0% 0	3.0% 5	3.0% 0	3.0%	3.0%	3.0%	3.0%	3.0%
	0	0	163	8	2	13	253	<u> </u>		<u> </u>	L 0	13		L 0	L U	0
PM BACKGROUND TRAFFIC	0	55	1,206	56	15	97	1,948	132	0	37	0	96	0	261	0	76

### Lanes, Volumes, Timings

3: SW 20th Ave Rd & CR 484

Interim Buildout Conditions Timing Plan: AM Peak Hour

	٦		$\mathbf{i}$	4	←	×	4	t	1	4	ţ	1	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	<b>†</b> ‡		ሻ	<b>^</b>	7		đħ.		ሻ	ર્સ	7	
Traffic Volume (vph)	123	1944	27	38	1163	331	15	0	88	157	Ó	32	
Future Volume (vph)	123	1944	27	38	1163	331	15	0	88	157	0	32	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Heavy Vehicles (%)	4%	4%	4%	12%	12%	12%	31%	31%	31%	20%	20%	20%	
Adj. Flow (vph)	128	2025	28	40	1211	345	16	0	92	164	0	33	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	128	2053	0	40	1211	345	0	108	0	82	82	33	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm	
Protected Phases	1	6		5	2		.4	4		. 8	8		
Permitted Phases	6			2		2						8	
Detector Phase	1	6		5	2	2	4	4		8	8	8	
Switch Phase													
Minimum Initial (s)	10.0	15.0		10.0	15.0	15.0	5.0	5.0		10.0	10.0	10.0	
Minimum Split (s)	17.0	21.9		17.3	21.9	21.9	11.6	11.6		16.6	16.6	16.6	
Total Split (s)	17.0	122.0		18.0	123.0	123.0	18.0	18.0		36.4	36.4	36.4	
Total Split (%)	8.7%	62.8%		9.3%	63.3%	63.3%	9.3%	9.3%		18.7%	18.7%	18.7%	
Yellow Time (s)	4.8	4.9		4.8	4.9	4.9	4.0	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.2	2.0		2.5	2.0	2.0	2.6	2.6		2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0	6.9		7.3	6.9	6.9		6.6		6.6	6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes							
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None	
v/c Ratio	0.41	0.87		0.33	0.57	0.34		0.53		0.61	0.61	0.15	
Control Delay	11.0	30.8		25.9	19.9	8.4		27.7		102.5	102.5	1.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay	11.0	30.8		25.9	19.9	8.4		27.7		102.5	102.5	1.5	
Queue Length 50th (ft)	39	1070		12	411	85		6		108	108	0	
Queue Length 95th (ft)	74	#1418		52	573	172		43		172	172	0	
Internal Link Dist (ft)		3132			1240			650			1393		
Turn Bay Length (ft)	114			170		144				114			
Base Capacity (vph)	314	2368		126	2137	1013		232		219	219	289	
Starvation Cap Reductn	0	0		0	0	0		0		0	0	0	
Spillback Cap Reductn	Ó	0		0	0	0		0		0	0	0	
Storage Cap Reductn	0	Ō		Ó	Ō	0		0		0	0	0	
Reduced v/c Ratio	0.41	0.87		0.32	0.57	0.34		0.47		0.37	0.37	0.11	

Intersection Summary

Cycle Length: 194.4 Actuated Cycle Length: 194.4

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 3: SW 20th Ave Rd & CR 484

<b>→</b> <sub>Ø1</sub>	●	<b>√</b> Ø4	03
17.5	123 s	18 s	36.4s
<b>∮</b> Ø5	→D6 (R)		

### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

Interim	Buildout Conditions	
	Timing Plan: AM Peak Hour	

	۶	-+	$\mathbf{\hat{v}}$	¥	<b>←</b>	×.	1	Ť	1	5	¥	1	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	<b>†</b> ‡		٢	<u>††</u>	f		4 î de		ኘ	र्भ	۲	
Traffic Volume (veh/h)	123	1944	27	38	1163	331	15	0	88	157	0	32	
Future Volume (veh/h)	123	1944	27	38	1163	331	15	0	88	157	0	32	
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Nork Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/in	1841	1841	1841	1722	1722	1722	1441	1441	1441	1604	1604	1604	
Adj Flow Rate, veh/h	128	2025	28	40	1211	345	16	0	64	164	0	33	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	4	4	4	12	12	12	31	31	31	20	20	20	
Cap, veh/h	327	2419	33	200	2226	993	81	0	72	213	0	95	
Arrive On Green	0.07	0.91	0.91	0.06	0.90	0.90	0.06	0.00	0.06	0.07	0.00	0.07	
Sat Flow, veh/h	1753	3532	49	1640	3272	1459	1372	0	1221	3054	0	1359	
Grp Volume(v), veh/h	128	1000	1053	40	1211	345	16	0	64	164	0	33	
Grp Sat Flow(s), veh/h/ln	1753	1749	1832	1640	1636	1459	1372	Õ	1221	1527	Ō	1359	
Q Serve(g_s), s	4.1	41.4	42.2	1.3	13.4	6.4	2.2	0.0	10.1	10.2	0.0	4.5	
Cycle Q Clear(g_c), s	4.1	41.4	42.2	1.3	13.4	6.4	2.2	0.0	10.1	10.2	0.0	4.5	
Prop In Lane	1.00		0.03	1.00	1011	1.00	1.00	0.0	1.00	1.00		1.00	
ane Grp Cap(c), veh/h	327	1197	1254	200	2226	993	81	0	72	213	0	95	
//C Ratio(X)	0.39	0.84	0.84	0.20	0.54	0.35	0.20	0.00	0.89	0.77	0.00	0.35	
vail Cap(c_a), veh/h	327	1197	1254	215	2226	993	81	0	72	469	0	209	
CM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Jpstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00	
Jniform Delay (d), s/veh	8.1	4.6	4.6	12.8	3.6	3.2	86.9	0.0	90.7	88.7	0.0	86.0	
ncr Delay (d2), s/veh	1.1	7.0	6.8	0.1	0.1	0.1	2.5	0.0	73.2	11.8	0.0	4.6	
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
//ile BackOfQ(50%),veh/in	1.6	6.8	7.2	0.5	2.8	1.5	0.8	0.0	4.7	4.4	0.0	1.7	
Insig. Movement Delay, s/veh		0.0		0.0	2.0	1.0	0.0	0.0		1.1	0.0		
nGrp Delay(d),s/veh	9.2	11.5	11.5	12.9	3.7	3.3	89.5	0.0	163.9	100.5	0.0	90.7	
InGrp LOS	A	B	В	12.3 B	A	A A	55.5 F	A.	100.5 F	100.0 F	A A	F	
Approach Vol, veh/h	/	2181	<u>_</u>	<u>U</u>	1596	·····	·····	80	·····	·····	197		
Approach Vol, ven/11		11.4			3.8			149.0			98.9		
Approach LOS		B			J.0 A			149.0 F			50.5 F		
	an an an an an an an an an an an an an a					and the second					۲ درمانی		
imer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	17.0	138.9		18.0	16.1	139.7		20.1					
Change Period (Y+Rc), s	*7	6.9		6.6	7.3	6.9		6.6					
Max Green Setting (Gmax), s	* 10	116.1		11.4	10.7	115.1		29.8					
Aax Q Clear Time (g_c+l1), s	6.1 0.1	15.4 24.4		12.1 0.0	3.3 0.0	44.2 58.3		12.2 1.3					
Green Ext Time (p_c), s	V. I	<b>4.4</b>		U.U	0.0	JO.J		1.3					
ntersection Summary													
ICM 6th Ctrl Delay			15.4										
ICM 6th LOS			В										
lotes													
loss approved volume balancing					men Beler Brieffelde	29.0599639963050C9	00000000000000000000000000000000000000						

User approved volume balancing among the lanes for turning movement. User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

#### Lanes, Volumes, Timings 3: SW 20th Ave Rd & CR 484

Interim	Buildout	Conditions
	Timing Plan	PM Peak Hour

	٦	-+	$\mathbf{i}$	∢	<b>↓</b>	×.	4	1	۲	1	Ļ	4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	۴₽		ሻ	<b>†</b> †	۲		€î î>		ኘ	4	۲	
Traffic Volume (vph)	68	1315	56	112	1969	236	37	0	96	444	0	135	
Future Volume (vph)	68	1315	56	112	1969	236	37	0	96	444	0	135	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	30%	30%	30%	24%	24%	24%	
Adj. Flow (vph)	73	1414	60	120	2117	254	40	0	103	477	0	145	
Shared Lane Traffic (%)										50%			
Lane Group Flow (vph)	73	1474	0	120	2117	254	0	143	0	238	239	145	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA		Split	NA	Perm	
Protected Phases	1	6		5	2		4	4		8	8		
Permitted Phases	6			2		2						8	
Detector Phase	1	6		5	2	2	4	4		8	8	8	
Switch Phase													
Minimum Initial (s)	10.0	15.0		10.0	15.0	15.0	5.0	5.0		10.0	10.0	10.0	
Minimum Split (s)	17.0	21.9		17.3	21.9	21.9	11.6	11.6		16.6	16.6	16.6	
Total Split (s)	17.0	122.0		18.0	123.0	123.0	15.0	15.0		39.4	39.4	39.4	
Total Split (%)	8.7%	62.8%		9.3%	63.3%	63.3%	7.7%	7.7%		20.3%	20.3%	20.3%	
Yellow Time (s)	4.8	4.9		4.8	4.9	4.9	4.0	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.2	2.0		2.5	2.0	2.0	2.6	2.6		2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0	6.9		7.3	6.9	6.9		6.6		6.6	6.6	6.6	
Lead/Lag	Lead	Lag		Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes							
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None	
v/c Ratio	0.58	0.73		0.62	1.04	0.27		0.71		1.02	1.02	0.47	
Control Delay	54.2	30.9		27.8	69.4	11.9		47.7		139.1	139.9	25.7	
Queue Delay	0.0	0.0		0.0	16.5	0.0		0.0		0.0	0.0	0.0	
Total Delay	54.2	30.9		27.8	85.9	11.9		47.7		139.1	139.9	25.7	
Queue Length 50th (ft)	42	692		50	~1531	90		26		~337	~341	40	
Queue Length 95th (ft)	106	777		91	#1645	144		#71		#544	#546	121	
Internal Link Dist (ft)		3132			1240			650			1393		
Turn Bay Length (ft)	114			170		144				114			
Base Capacity (vph)	125	2029		196	2034	949		204		234	234	311	
Starvation Cap Reductn	0	0		0	77	0		0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0		0		0	0	0	
Storage Cap Reductn	0	0		0	0	0		0		0	0	0	
Reduced v/c Ratio	0.58	0.73		0.61	1.08	0.27		0.70		1.02	1.02	0.47	
Intersection Summary													

Intersection Summary Cycle Length: 194.4

Actuated Cycle Length: 194.4 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ 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: 3: SW 20th Ave Rd & CR 484

▶ <sub>01</sub>	● Ø2 (R)	<b>1</b> Ø4 <b>№</b> Ø8
175	234	15 s 39.4 s
<b>∮</b> Ø5	→ 06 (R) 122 s	

#### HCM 6th Signalized Intersection Summary 3: SW 20th Ave Rd & CR 484

Interim	Buildout	Conditions
	Timing Plan:	PM Peak Hour

ane Configurations       Y       4p       Y       Y       4p       Y       Y       4p       Y       Y       4p       Y <th></th> <th>۶</th> <th></th> <th><math>\mathbf{F}</math></th> <th>∢</th> <th>←</th> <th>*</th> <th>٩</th> <th>Ť</th> <th>1</th> <th>1</th> <th>Ļ</th> <th>-</th> <th></th>		۶		$\mathbf{F}$	∢	←	*	٩	Ť	1	1	Ļ	-	
Traffic Volume (veh/h)       68       1315       56       112       1969       236       37       0       96       444       0       135         ontial Q (Qb), veh       0<	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Tuture Volume (veh/h)         68         1315         56         112         1969         236         37         0         9         444         0         135           Parking LQ (Db), veh         0	ane Configurations	ή	<b>†</b> ‡		ሻ	<b>†</b> †	7	*****	đÞ.	*****	ኻ	र्स	1	
nitial Q (Qb) ven 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Fraffic Volume (veh/h)	68	1315	56	112	1969	236	37	0	96	444	Ő	135	
Parel-Bick ádj(A_DbT)       1.00 <t< td=""><td>Future Volume (veh/h)</td><td>68</td><td>1315</td><td>56</td><td>112</td><td>1969</td><td>236</td><td>37</td><td>0</td><td>96</td><td>444</td><td>0</td><td>135</td><td></td></t<>	Future Volume (veh/h)	68	1315	56	112	1969	236	37	0	96	444	0	135	
Parking Bus, Adj       1.00       1.0	Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Nov         No         No         No         No         No         No         No           kij Sat Flow, velnhin         1826         1826         1811         1811         1815         1455         1455         1544         1544         1544           kij Sat Flow, velnhin         73         1414         57         120         2117         254         40         0         4435         1544         1544         1544           veek Hour Factor         0.93	Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
vigi Sat Flow, veh/h1n       1826       1826       1811       1811       1811       1811       1811       1455       1455       1455       1455       1455       1455       1454       1544         vigi Flow Rate, veh/h       73       1414       57       120       2117       254       40       0       43       477       0       145         eak Hour Factor       033       0.93	Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
http://seak.new.ehuh       73       1414       57       120       2117       254       400       0       43       477       0       145         Peak.Hour Factor       0.93       1.00       1.00       1.00       1.00       1.00<	Nork Zone On Approach		No			No			No			No		
Pack Hour Factor       0.93       0.9	Adj Sat Flow, veh/h/ln	1826	1826	1826	1811	1811	1811	1455	1455	1455	1544	1544	1544	
Percent Heavy Veh, %       5       5       6       6       6       30       30       24       24       24         Sap, veh/h       134       2123       85       288       2157       962       60       0       53       497       0       221         invie On Green       0.07       0.83       0.083       0.04       0.00       0.04       0.01       0.00       0.04       0.01       0.00       0.04       0.01       0.00       0.04       0.01       0.00       0.04       0.01       0.00       0.07       0.03       4477       0       145       0       1309       397       1725       3411       1535       1386       0       123       1244       0       1309         3pr Valume(v), veh/h       739       1739       1725       1721       1535       1386       0       123       1477       0       145         S Gar (eg.), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Yopia Liange, s), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.	Adj Flow Rate, veh/h	73	1414	57	120	2117	254	40	0	43	477	0	145	
Sap, veh/h       134       2123       85       288       2157       962       60       0       53       497       0       221         rrive On Green       0.07       0.83       0.03       0.07       0.83       0.04       0.00       0.04       0.17       0.00       0.17         ar Flow, veh/h       1739       3399       137       1725       3441       1535       1386       0       433       477       0       145         3rp Volume(v), veh/h       73       720       751       120       2117       254       40       0       43       477       0       145         Specie(g.s), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Specie(g.s), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Specie(g.s), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Specie(g.s), s       2.8       30.5       30.7	Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Nrive On Green       0.07       0.83       0.083       0.07       0.83       0.083       0.04       0.00       0.04       0.17       0.00       0.17         Sat Flow, veh/h       1739       3399       137       1725       3441       1535       1386       0       1233       2942       0       1309         Sat Flow, (s), veh/h       173       720       751       120       211       125       1721       1535       1386       0       1233       2447       0       145         Sp Sat Flow(s), veh/h       1739       1735       1801       1725       1721       1535       1386       0       1233       1471       0       1309         Serve(g, s), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Yole Q Clear(g, c), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Yole Q Clear(g, c), set/h       134       1083       1125       295       2157       962       60       0.53       497       0       221      <	Percent Heavy Veh, %	5	5	5	6	6	6	30	30	30	24	24	24	
Sat Flow, veh/h       1739       3399       137       1725       3441       1535       1386       0       1233       2942       0       1309         3pr Volume(v), veh/h       73       720       751       120       2117       254       40       0       43       477       0       145         3pr Volume(v), veh/h       1735       1801       1725       1721       1535       1386       0       1233       1471       0       1309         2 Serve(g_,s), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Yope In Lane       1.00       0.08       1125       288       2157       962       60       0       53       497       0       221         UC Rato(X)       0.64       0.67       0.42       0.98       0.26       0.00       0.81       0.96       0.00       0.66         vail Cap(c_a), veh/h       136       133       1.33       1.33       1.33       1.33       1.01       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00	Cap, veh/h	134	2123	85	288	2157	962	60	0	53	497	0	221	
Sip Volume(v), veh/n       73       720       751       120       2117       254       40       0       43       477       0       145         Sip Sat Flow(s),veh/h/in       1739       1735       1801       1725       1721       1535       1386       0       1233       1471       0       1309         Spredg.,s)       2.8       30.5       30.7       4.7       1091       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Yop In Lane       1.00       0.08       10.0       1.00	Arrive On Green	0.07	0.83	0.83	0.07	0.83	0.83	0.04	0.00	0.04	0.17	0.00		
Sip Volume(v), veh/n       73       720       751       120       2117       254       40       0       43       477       0       145         Sip Sat Flow(s),veh/h/in       1739       1735       1801       1725       1721       1535       1386       0       1233       1471       0       1309         Spredg.,s)       2.8       30.5       30.7       4.7       1091       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Yop In Lane       1.00       0.08       10.0       1.00	Sat Flow, veh/h	1739	3399	137	1725	3441	1535	1386	0	1233	2942	0	1309	
Sax Flow(s),veh/h/ln       1739       1735       1801       1725       1721       1535       1386       0       1233       1471       0       1309         2 Serve(g, s), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Vpcle Q Clear(g, c), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Vpcle Q Clear(g, c), s       2.8       30.5       30.7       4.7       109.1       6.8       5.5       0.0       6.7       31.2       0.0       20.1         Vpcle Q Clear(g, c), s       134       1083       1125       288       2157       962       60       0       53       497       0       221         ICM Platon Ratio       1.33       1.33       1.33       1.33       1.33       1.33       1.00<	Grp Volume(v), veh/h	73	720	751	120	2117		40	0		477	0		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Grp Sat Flow(s),veh/h/In	1739	1735	1801	1725	1721	1535	1386	0	1233	1471	0	1309	
Prop In Lane       1.00       0.08       1.00 <td>Q Serve(g_s), s</td> <td></td> <td></td> <td>30.7</td> <td></td> <td></td> <td></td> <td>5.5</td> <td>0.0</td> <td></td> <td>31.2</td> <td>0.0</td> <td></td> <td></td>	Q Serve(g_s), s			30.7				5.5	0.0		31.2	0.0		
Prop In Lane       1.00       0.08       1.00 <td><b>12</b> = 71</td> <td></td>	<b>12</b> = 71													
ane Grp Cap(c), veh/h       134       1083       1125       288       2157       962       60       0       53       497       0       221         V/C Raio(X)       0.54       0.67       0.67       0.42       0.98       0.26       60       0       53       497       0       221         V/C Raio(X)       0.54       0.67       0.67       0.42       0.98       0.26       60       0       53       497       0       221         V/C Raio(X)       0.54       0.67       0.67       0.67       0.67       0.60       0.53       497       0       221         V/C Raio(X)       1.33       1.33       1.33       1.33       1.33       1.33       1.33       1.00 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>														
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	ane Grp Cap(c), veh/h	134	1083	1125	288	2157		60	0		497	0		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	//C Ratio(X)	0.54	0.67	0.67	0.42		0.26	0.67	0.00	0.81	0.96	0.00		
Jpstream Filter(1) 1.00 1.00 1.00 1.00 1.00 0.09 0.09 0.09	vail Cap(c_a), veh/h	136	1083	1125	295	2157	962	60	0	53	497	0	221	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	ICM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	
Incr Delay (d2), s/veh       5.6       3.2       3.1       0.1       2.9       0.1       31.7       0.0       63.8       30.5       0.0       9.2         initial Q Delay(d3), s/veh       0.0	Jpstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00	
Incr Delay (d2), s/veh       5.6       3.2       3.1       0.1       2.9       0.1       31.7       0.0       63.8       30.5       0.0       9.2         initial Q Delay(d3), s/veh       0.0	Jniform Delay (d), s/veh	46.9	8.8	8.8	14.4	15.1	6.6	91.4	0.0	92.0	79.9	0.0	75.3	
Kile BackOfQ(50%),veh/ln       2.4       8.1       8.4       1.8       25.5       2.0       2.5       0.0       3.1       14.0       0.0       7.4         Insig. Movement Delay, s/veh       52.5       12.0       11.9       14.5       18.0       6.6       123.2       0.0       155.7       110.5       0.0       84.5         InGrp Delay(d), s/veh       52.5       12.0       11.9       14.5       18.0       6.6       123.2       0.0       155.7       110.5       0.0       84.5         Ingrp LOS       D       B       B       B       B       A       F       A       F       F       A       F         opproach Vol, veh/h       1544       2491       83       622       622       622       622       622       622       623       623       624 <td>ncr Delay (d2), s/veh</td> <td>5.6</td> <td>3.2</td> <td>3.1</td> <td>0.1</td> <td>2.9</td> <td>0.1</td> <td>31.7</td> <td>0.0</td> <td>63.8</td> <td>30.5</td> <td>0.0</td> <td>9.2</td> <td></td>	ncr Delay (d2), s/veh	5.6	3.2	3.1	0.1	2.9	0.1	31.7	0.0	63.8	30.5	0.0	9.2	
Jnsig. Movement Delay, s/veh       nGrp Delay(d), s/veh       52.5       12.0       11.9       14.5       18.0       6.6       123.2       0.0       155.7       110.5       0.0       84.5         nGrp Delay(d), s/veh       52.5       12.0       11.9       14.5       18.0       6.6       123.2       0.0       155.7       110.5       0.0       84.5         ngrp LOS       D       B       B       B       B       A       F       A       F       F       A       F         opproach Vol, veh/h       1544       2491       83       622       622       622         opproach LOS       B       B       B       B       F       F       F       F         imer - Assigned Phs       1       2       4       5       6       8       8       7       6.9       6.6       7.3       128.1       39.4       32.8       32.8       32.8	nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	/ile BackOfQ(50%),veh/In	2.4	8.1	8.4	1.8	25.5	2.0	2.5	0.0	3.1	14.0	0.0	7.4	
nGrp LOS         D         B         B         B         B         B         A         F         A         F         F         A         F           Approach Vol, veh/h         1544         2491         83         622           Approach Delay, s/veh         13.9         16.7         140.0         104.4           Approach LOS         B         B         F         F         F           imer - Assigned Phs         1         2         4         5         6         8           ihs Duration (G+Y+Rc), s         16.8         128.5         15.0         17.3         128.1         39.4           change Period (Y+Rc), s         *7         6.9         6.6         7.3         6.9         6.6           Asx Green Setting (Gmax), s         *10         116.1         8.4         10.7         115.1         32.8           Asx Q Clear Time (g_c+I1), s         4.8         111.1         8.7         6.7         32.7         33.2           Green Ext Time (p_c), s         0.1         4.8         0.0         0.1         37.2         0.0           Itersection Summary         29.4         C         6         14.8         14.8         14.8         14.8 <td>Jnsig. Movement Delay, s/veh</td> <td></td>	Jnsig. Movement Delay, s/veh													
nGrp LOS         D         B         B         B         B         B         A         F         A         F         F         A         F           Approach Vol, veh/h         1544         2491         83         622           Approach Delay, s/veh         13.9         16.7         140.0         104.4           Approach LOS         B         B         F         F         F           imer - Assigned Phs         1         2         4         5         6         8           ihs Duration (G+Y+Rc), s         16.8         128.5         15.0         17.3         128.1         39.4           change Period (Y+Rc), s         *7         6.9         6.6         7.3         6.9         6.6           Asx Green Setting (Gmax), s         *10         116.1         8.4         10.7         115.1         32.8           Asx Q Clear Time (g_c+I1), s         4.8         111.1         8.7         6.7         32.7         33.2           Green Ext Time (p_c), s         0.1         4.8         0.0         0.1         37.2         0.0           Itersection Summary         29.4         C         6         14.8         14.8         14.8         14.8 <td>nGrp Delay(d),s/veh</td> <td>52.5</td> <td>12.0</td> <td>11.9</td> <td>14.5</td> <td>18.0</td> <td>6.6</td> <td>123.2</td> <td>0.0</td> <td>155.7</td> <td>110.5</td> <td>0.0</td> <td>84.5</td> <td></td>	nGrp Delay(d),s/veh	52.5	12.0	11.9	14.5	18.0	6.6	123.2	0.0	155.7	110.5	0.0	84.5	
Approach Delay, s/veh         13.9         16.7         140.0         104.4           Approach LOS         B         B         F         F           Imer - Assigned Phs         1         2         4         5         6         8           Imer - Assigned Phs         1         2         4         5         6         8           Imer - Assigned Phs         1         2         4         5         6         8           Imer - Assigned Phs         1         2         4         5         6         8           Image Period (Y+Rc), s         16.8         128.5         15.0         17.3         128.1         39.4           Shange Period (Y+Rc), s         *10         116.1         8.4         10.7         115.1         32.8           Aax Green Setting (Gmax), s         *10         116.1         8.4         10.7         13.2.8           Aax Q Clear Time (p_c), s         0.1         4.8         0.0         0.1         37.2         0.0           Intersection Summary         Image: Provide the Clear Setting (Setting the Clear Setting (Setting the Clear Setting the Clear Setting (Setting the Clear Setting the Clear Setting the Clear Setting (Setting the Clear Setting	nGrp LOS	D	В	В	В	В	А	F	А	F	F	А	F	
Approach Delay, s/veh         13.9         16.7         140.0         104.4           Approach LOS         B         B         F         F           Imer - Assigned Phs         1         2         4         5         6         8           Imer - Assigned Phs         1         2         4         5         6         8           Imer - Assigned Phs         1         2         4         5         6         8           Imer - Assigned Phs         1         2         4         5         6         8           Image Period (Y+Rc), s         16.8         128.5         15.0         17.3         128.1         39.4           Shange Period (Y+Rc), s         *10         116.1         8.4         10.7         115.1         32.8           Aax Green Setting (Gmax), s         *10         116.1         8.4         10.7         13.2.8           Aax Q Clear Time (p_c), s         0.1         4.8         0.0         0.1         37.2         0.0           Intersection Summary         Image: Provide the Clear Setting (Setting the Clear Setting (Setting the Clear Setting the Clear Setting (Setting the Clear Setting the Clear Setting the Clear Setting (Setting the Clear Setting	oproach Vol. veh/h		1544			2491						622		
B         B         F         F           Imer - Assigned Phs         1         2         4         5         6         8           Phs Duration (G+Y+Rc), s         16.8         128.5         15.0         17.3         128.1         39.4           Shange Period (Y+Rc), s         *7         6.9         6.6         7.3         6.9         6.6           Aax Green Setting (Gmax), s         *10         116.1         8.4         10.7         115.1         32.8           Aax Q Clear Time (g_c+I1), s         4.8         111.1         8.7         6.7         32.7         33.2           Green Setting Numary         0.0         0.1         37.2         0.0         0.0         0.1         37.2         0.0           Itersection Summary         29.4         C         29.4	· · · ·													
The Suration (G+Y+Rc), s       16.8       128.5       15.0       17.3       128.1       39.4         Change Period (Y+Rc), s       * 7       6.9       6.6       7.3       6.9       6.6         Aax Green Setting (Gmax), s       * 10       116.1       8.4       10.7       115.1       32.8         Aax Q Clear Time (g_c+I1), s       4.8       111.1       8.7       6.7       32.7       33.2         Green Ext Time (p_c), s       0.1       4.8       0.0       0.1       37.2       0.0         Itersection Summary       29.4       ICM 6th Ctrl Delay       29.4       C         ICM 6th LOS       C       C       ICM 6th LOS       C	pproach LOS													
The Suration (G+Y+Rc), s       16.8       128.5       15.0       17.3       128.1       39.4         Change Period (Y+Rc), s       * 7       6.9       6.6       7.3       6.9       6.6         Aax Green Setting (Gmax), s       * 10       116.1       8.4       10.7       115.1       32.8         Aax Q Clear Time (g_c+I1), s       4.8       111.1       8.7       6.7       32.7       33.2         Green Ext Time (p_c), s       0.1       4.8       0.0       0.1       37.2       0.0         Itersection Summary       Itersection Summary       Itersection Summary       Itersection Summary       Itersection Summary       Itersection Summary	imer - Assigned Phs	1	2		4	5	6		8					
Change Period (Y+Rc), s       * 7       6.9       6.6       7.3       6.9       6.6         Max Green Setting (Gmax), s       * 10       116.1       8.4       10.7       115.1       32.8         Max Q Clear Time (g_c+I1), s       4.8       111.1       8.7       6.7       32.7       33.2         Green Ext Time (p_c), s       0.1       4.8       0.0       0.1       37.2       0.0         Itersection Summary       ICM 6th Ctrl Delay       29.4         ICM 6th LOS       C		16.8												
Max Green Setting (Gmax), s         * 10         116.1         8.4         10.7         115.1         32.8           Max Q Clear Time (g_c+I1), s         4.8         111.1         8.7         6.7         32.7         33.2           Green Ext Time (p_c), s         0.1         4.8         0.0         0.1         37.2         0.0           Intersection Summary         ICM 6th Ctrl Delay         29.4         ICM 6th LOS         C	· ,	*7												
Max Q Clear Time (g_c+l1), s         4.8         111.1         8.7         6.7         32.7         33.2           Green Ext Time (p_c), s         0.1         4.8         0.0         0.1         37.2         0.0           Intersection Summary         ICM 6th Ctrl Delay         29.4         ICM 6th LOS         C		* 10												
Bit Peen Ext Time (p_c), s         0.1         4.8         0.0         0.1         37.2         0.0           Intersection Summary         ICM 6th Ctrl Delay         29.4         100 6th LOS         C         100 6th LOS         C         100 6th LOS         100 6th LOS														
ICM 6th Ctrl Delay 29.4 ICM 6th LOS C	Green Ext Time (p_c), s													
ICM 6th LOS C	ntersection Summary													
ICM 6th LOS C	ICM 6th Ctrl Delay			29.4										
niar.	ICM 6th LOS													
	lator													

User approved volume balancing among the lanes for turning movement. User approved ignoring U-Turning movement. \* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

TRAFFIC STUDY

## TRAILHEAD LOGISTICS PARK NORTH

MARION COUNTY, FLORIDA

Prepared for:

TRANSWESTERN DEVELOPMENT COMPANY

Prepared by:

KIMLEY-HORN AND ASSOCIATES, INC.

142933004 January 2023 © Kimley-Horn and Associates, Inc. 1700 SE 17th Street, Suite 200 Ocala, FL 34471 352 438 3000

# **Kimley Worn**

## EXECUTIVE SUMMARY

Traffic Impact Analysis Trailhead Logistics Park North

This Traffic Study has been prepared to support a Planned Unit Development (PUD) zoning application for a proposed industrial warehouse / distribution development generally located north of County Road (CR) 484, west of I-75, and east of SW 29<sup>th</sup> Avenue Road. This analysis has been performed in accordance with the City of Ocala/Marion County Traffic Impact Analysis (TIA) guidelines and the methodology, which was approved by Marion County.

The PUD proposes up to 3,600,000 square feet of industrial warehouse/distribution uses within three buildings. A conceptual site plan is included in the **Appendix**. For the purpose of this study, a single buildout year of 2027 was assumed.

Site access will be provided through the following:

- Connection to the south along SW 20<sup>th</sup> Avenue Road, which connects to CR 484 at a signalized intersection
- Connection as a new east leg of the intersection of SW 29<sup>th</sup> Avenue Road and Marion Oaks Trail

SW 20<sup>th</sup> Avenue Road is being constructed from the boundary of the Trailhead North development and Trailhead Logistics Park South site to the existing intersection of SW 20<sup>th</sup> Avenue Road and CR 484. The new roadway extension is being constructed by the Trailhead developer. The new roadway will be a combination of four-lane and two-lane roadway segments. A further extension of SW 20<sup>th</sup> Avenue Road north into the Trailhead North site is proposed as part of the site development. The roadway will continue west to connect to SW 29<sup>th</sup> Avenue Road at the intersection with Marion Oaks Trail.

Florida Department of Transportation (FDOT) has roadway improvements planned and funded for the segment of CR 484 from west of SW 20<sup>th</sup> Avenue Road to east of CR 475A (FPID 433651-1). Construction of these improvements is underway and expected to be complete by 2024, therefore the improvements were utilized when analyzing the roadway network for background traffic conditions. Improvements planned by Marion County at the intersection of Marion Oaks Boulevard and CR 484 (FPID 449277-1) were also included as background improvements prior to the addition of project traffic.

Additional roadway and intersection improvements were identified to be needed within the 2027 timeframe considering background traffic conditions (before the addition of project traffic). These improvements do not require proportionate share mitigation by the Project per Florida Statute. The following improvements were identified to be needed to provide acceptable level of service under future background traffic conditions:

- Widening of CR 484 from Marion Oaks Boulevard to CR 475A from 4 lanes to 6 lanes
- Signalization of the intersection of SW 29<sup>th</sup> Avenue Road at CR 484
- Constructing anticipated buildout geometry of the intersection of SW 20<sup>th</sup> Avenue Road at CR 484 per the prior Marco Polo PUD study

The following additional transportation improvements were found to be needed at project buildout to provide for acceptable level of service and traffic operations

- Lengthening of the westbound left-turn lane on CR 484 at Marion Oaks Boulevard by 120 feet
- Implementing a right-turn overlap for the northbound right-turn movement at the intersection of SW 20<sup>th</sup> Avenue Road and CR 484

Traffic Impact Analysis Trailhead Logistics Park North

Proportionate share mitigation is required for the improvements that are necessary in addition to those under future background traffic conditions to allow for acceptable traffic operations and level of service with the buildout traffic volumes.

SW 29<sup>th</sup> Avenue Road was previously contemplated to be four lanes with the Deltona development agreements. There is 100 feet of right-of-way and portions of the roadway are constructed with four lanes. The projected traffic volumes on SW 29<sup>th</sup> Avenue Road at project buildout do not require widening to four lanes to meet level of service standards; however, the developer has committed to constructing the widening. A traffic signal is shown to be needed at the intersection of SW 29<sup>th</sup> Avenue Road at CR 484 under future background traffic conditions. The developer has committed to constructing a traffic signal at this location, although no proportionate share mitigation is required per Florida Statute. The cost of the improvements to widen SW 29<sup>th</sup> Avenue Road and signalize the intersection with CR 484 will be in excess of the proportionate share requirements identified in this traffic study to mitigate for the traffic impacts of the development. The developer will enter into a Chapter 163 Concurrency Development Agreement and Impact Fee Reimbursement Agreement with Marion County to receive credit against the required proportionate share mitigation and transportation impact fees for the improvements to SW 29<sup>th</sup> Avenue Road.

An interim evaluation was performed for the intersection of SW 20<sup>th</sup> Avenue Road at CR 484 for the time period when the Trailhead Logistics Park North development will be fully built out, but considering that the Marco Polo PUD and Florida Crossroads Commerce Park may not be constructed, nor any associated future improvements at the intersection. The following interim improvements have been identified for the full buildout of the Trailhead Logistics Park North site prior to the full buildout improvements identified to support the Marco Polo PUD development:

- Restriping the north leg of the intersection to have a left-turn lane, shared through/left-turn lane, and right-turn lane
- Implementation of northbound/southbound split phasing and associated timing adjustments

The developer will enter into a Chapter 163 Concurrency Development Agreement with Marion County that will include a requirement to perform an operational study of the intersection with observed traffic volumes for specific development thresholds within the Trailhead Logistics Park North PUD. The findings of the study will be discussed with Marion County to identify if modifications to the north leg of the intersection and/or signal timing and phasing are required.

## D-256

# **Kimley Worn**

## CONTENTS

Traffic Impact Analysis Trailhead Logistics Park North

EXECUTIVE SUMMARY	i
INTRODUCTION	
PROJECT TRAFFIC	•
Trip Generation2	•
Trip Equivalency Matrix	}
Trip Distribution, Assignment, and Study Area	;
EXISTING CONDITIONS ANALYSIS	)
Existing Traffic Data and Volume Development	)
Existing Conditions Roadway Segment Analysis10	)
Existing Conditions Intersection Analysis12	
FUTURE TRAFFIC CONDITIONS	;
Committed Transportation Improvements13	}
Future Traffic Volume Development14	ļ
Future Background Roadway Segment Analysis17	,
Future Buildout Roadway Segment Analysis19	)
Future Background Conditions Intersection Analysis21	
Future Buildout Conditions Intersection Analysis	5
Interim SW 20 <sup>th</sup> Avenue Road at CR 484 Intersection Analysis	ŀ
Turn Lane Evaluation	;
SITE ACCESS ANALYSIS	,
SW 29 <sup>th</sup> Avenue Road at Marion Oaks Trail	,
SW 29 <sup>th</sup> Avenue Road at CR 484	}
SW 20 <sup>th</sup> Avenue Road at CR 484	}
PROPORTIONATE SHARE	)
CONCLUSION	)

### D-257

# **Kimley**»Horn

TABLES

Tr	affic Impa	ict An	alysis
Trailhead	Logistics	Park	North

Table 1 – Trip Generation	2
Table 2 – Study Area Intersections Percent Heavy Vehicles	10
Table 3 – Existing Conditions PM Peak Hour Roadway Segment Analysis	11
Table 4 – Existing Conditions Intersection Analysis Summary	12
Table 5 – Future Background Conditions PM Peak Hour Roadway Segment Analysis (2027)	18
Table 6 – Buildout Conditions PM Peak Hour Roadway Segment Analysis (2027)	20
Table 7 – Background Conditions Intersection Analysis (2027)	22
Table 8 – Background Conditions with Improvements Intersection Analysis (2027)	22
Table 9 – Buildout Conditions Intersection Analysis (2027)	24
Table 10 – Buildout Conditions with Improvements Intersection Analysis (2027)	24
Table 11 – Turn Lane Evaluation	26
Table 12 – Right-Turn Lane Analysis	27

## FIGURES

Figure 1 – Automobile Project Trip Distribution	. 5
Figure 2 – Truck Project Trip Distribution	.6
Figure 3 – Site Access Project Trip Distribution	7
Figure 4 – Study Area Roadway Network	8
Figure 5 – AM Peak Hour Buildout Total Traffic	15
Figure 6 – PM Peak Hour Buildout Total Traffic	16

## APPENDICES

Traffic Impact Analysis Trailhead Logistics Park North

APPENDIX A: Conceptual Site Development Plan

- APPENDIX B: Traffic Data
- APPENDIX C: Signal Timing Worksheets
- APPENDIX D: Vested Traffic Info
- APPENDIX E: Intersection Volume Development Worksheets

APPENDIX F: Synchro Output

- F1: AM Peak Hour Existing Traffic Conditions (2022)
- F2: AM Peak Hour Future Year Background Traffic Conditions (2027)
- F3: AM Peak Hour Future Year Background w/ Improvements Traffic Conditions (2027)
- F4: AM Peak Hour Future Year Buildout Traffic Conditions (2027)
- F5: AM Peak Hour Future Year Buildout w/ Improvements Traffic Conditions (2027)
- F6: PM Peak Hour Existing Traffic Conditions (2022)
- F7: PM Peak Hour Future Year Background Traffic Conditions (2027)
- F8: PM Peak Hour Future Year Background w/ Improvements Traffic Conditions (2027)
- F9: PM Peak Hour Future Year Buildout Traffic Conditions (2027)
- F10: PM Peak Hour Future Year Buildout w/ Improvements Traffic Conditions (2027)
- APPENDIX G: Project Driveways Turn Lane Warrants
- APPENDIX H: Background Improvements Excerpts
- APPENDIX I: SW 29th Ave Rd at CR 484 Signal Warrant Analysis
- APPENDIX J: Approved Traffic Analysis Methodology Correspondence
- APPENDIX K: Trip Equivelancy Matrix
- APPENDIX L: Interim SW 20th Avenue Road at CR 484 Intersection Analysis

### INTRODUCTION

Traffic Impact Analysis Trailhead Logistics Park North

Kimley-Horn has performed this traffic study for the proposed Trailhead Logistics Park North industrial facility. The project site is generally located north of the intersection of SW 20<sup>th</sup> Avenue Road and CR 484, west of I-75 in Marion County, Florida. The proposed industrial park will be built in a single phase with an expected 2027 buildout year.

This traffic study was performed assuming 3,600,000 square feet of industrial uses at full buildout. The study identifies transportation needs within the study area under existing conditions, future background conditions (before the addition of project traffic) and project buildout conditions (with project traffic). The analysis has been performed in accordance with the City of Ocala/Marion County Traffic Impact Analysis guidelines and the methodology, which was approved by Marion County. The approved methodology and methodology correspondence are included in the **Appendix**.

Access to the property is proposed via the existing signalized intersection on CR 484 at SW 20<sup>th</sup> Avenue Road and SW 29<sup>th</sup> Avenue Road at Marion Oaks Trail.

To accommodate the Trailhead Logistics Park South development, SW 20<sup>th</sup> Avenue Road is being constructed as a new roadway north of CR 484 by the Trailhead developer. The new roadway will be a combination of a four-lane roadway near CR 484, transitioning to a two-lane roadway at the north end of the Trailhead Logistics South site. The proposed roadway construction has been discussed with the Marion County Office of the County Engineer and construction plans were prepared concurrently with the site plans for the development.

The Trailhead Logistics Park North development will be responsible for extending SW 20<sup>th</sup> Avenue Road to the SW 29<sup>th</sup> Avenue Road at Marion Oaks Trail intersection. A conceptual site plan is included in the **Appendix**.

The following committed improvements were utilized for the analysis:

- CR 484 Interchange Improvements (from west of SW 20<sup>th</sup> Avenue Road to east of CR 475A)
- Marion Oaks Boulevard at CR 484 intersection improvements
- SW 20<sup>th</sup> Avenue Road at CR 484 improvements

These improvements are expected to be completed before full project buildout of the Trailhead Logistics Park North project and were utilized for the background traffic conditions study area analysis. Excerpts detailing the planned improvements are provided in the **Appendix**.

This study is based on data collected by Kimley-Horn and supplemented by information obtained from City of Ocala, Marion County, and the FDOT sources. The study observed the established procedures found in Institute of Transportation Engineers sources, FDOT sources, and the 2016 Highway Capacity Manual (HCM 2016 or HCM6).

Traffic Impact Analysis Trailhead Logistics Park North

## **Kimley Worn**

### PROJECT TRAFFIC

### TRIP GENERATION

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11<sup>th</sup> Edition* was used to calculate trip generation potential for the industrial development. ITE Land Use Codes (LUC) 154 (High-Cube Transload and Short-Term Storage Warehouse) and 110 (General Light industrial) were applied in the trip generation calculations. Per the approved methodology, the PM peak hour of generator for ITE LUC 154 was utilized for the trip generation calculations.

No pass-by or internal capture was assumed for the trip generation calculations. Truck traffic was approximated based on information from the ITE Trip Generation Manual (for ITE LUC 110) and the ITE study "High-Cube Warehouse Vehicle Trip Generation Analysis" (for ITE LUC 154). The trip generation calculations are provided in **Table 1**.

#### Table 1 – Trip Generation

Land Use	1	ntensity		Daily Trips	AM Pea	k Hour of A Street	djacent	PM Peak Hour of Adjacen Street				
					Total	In	Out	Total	In	Out		
NW Building - ITE LUC 154	1,742,000	Sq F	t GFA	2,439	139	107	32	296	101	195		
SW Building - ITE LUC 110	684,000	Sq F	t GFA	2,622	469	413	56	161	23	138		
E Building - ITE LUC 154	1,174,000	Sq F	t GFA	1,644	94	72	22	200	68	132		
			Subtotal	6,705	702	592	110	657	192	465		
Percent Trucks	Daily	AM	РМ									
ITE LUC 154	32.2%	30.8%	21.7%	1,315	72	55	17	108	37	71		
ITE LUC 110	0.25 / 1000 0.01 / 0.01 / SF GFA 1000 SF 1000 SF		171	7	4	3	7	4	3			
Buildout Automobil	l e Driveway Trip	)S		5,219	623	533	90	542	151	391		
Buildout Truck D	riveway Trips			1,486	79	59	20	115	41	74		

Note 2: The truck percentages for ITE LUC 110 were determined using the truck generation per 1,000 sf published in the ITE Trip Generation Manual, 11th Edition. Note 3: The ITE study "High-Cube Warehouse Vehicle Trip Generation Analysis" (10/2016) study was used to determine the truck percentages for ITE LUC 154.

#### <u>General Light Industrial [ITE 110]</u> Daily

AM Peak Hour of Adjacent Street T PM Peak Hour of Adjacent Street L

T = 3.76\*(X) + 50.47; (X is 1000 Sq. Ft. GFA);% trucks = 0.25 / 1000 SF GFA T = 0.68\*(X) + 3.81; (X is 1000 Sq. Ft. GFA, 88% in, 12% out);% trucks = 0.01 / 1000 SF GFA (60% in, 40% out)

t Street Ln(T) = 0.72\*Ln(X) + 0.38; (X is 1000 Sq. Ft. GFA, 14% in, 86% out);% trucks = 0.01 / 1000 SF GFA (50% in, 50% out)

#### High-Cube Transload and Short-Term Storage Warehouse [ITE 154]

Daily	T = 1.40 *(X); (X is 1000 Sq. Ft. GFA); % trucks = 32.2%
AM Peak Hour of Adjacent Street	T =0.08*(X); (X is 1000 Sq. Ft. GFA, 77% in, 23% out); % trucks = 30.8%
PM Peak Hour of Generator	T = 0.17 *(X); (X is 1000 Sq. Ft. GFA, 34% in, 66% out); % trucks = 21.7%

K:\OCA\_Civil: W2933003-Transwestern North\Traffic\TIA\2nd submitte\Leales\xis\/2023-01-TLPN TIA.xismjTG

Traffic Impact Analysis Trailhead Logistics Park North

### TRIP EQUIVALENCY MATRIX

A trip equivalency matrix has been developed for the project, which allows for minor changes to land use types and intensities without increasing the PM peak hour external project trips generated by the development. The uses included in the Trip Equivalency Matrix are those allowed by the PUD zoning per the Master Plan. The gross trip rate for each land use was obtained by using the trip generation rates and pass by percentages provided in the ITE *Trip Generation*, *11<sup>th</sup> Edition* and based on the trip generation calculations approved during the methodology review process. No internal capture was applied for the trip equivalency gross trip calculations, based on the pass-by capture rates published in the ITE *Trip Generation*, *11<sup>th</sup> Edition*, *11<sup>th</sup> Edition*, *11<sup>th</sup> Edition* for applicable land uses.

The trip equivalency matrix provides a methodology for conversion of land uses and intensities to result in an equal or lesser number of net new PM peak hour project trips. The trip equivalency matrix is provided in the **Appendix**.

### TRIP DISTRIBUTION, ASSIGNMENT, AND STUDY AREA

The project trip distribution for the site was developed based on Version 7.0 of the Central Florida Regional Planning Model (CFRPM), which is based on the Florida Standard Urban Transportation Model Structure (FSUTMS). The CFRPM model distribution was used to estimate the distribution of automobile trips to and from the site. Manual adjustments were made to the FSUTMS model output based on engineering judgment, understanding of the local transportation network, land uses, and discussions with Marion County. The distribution was approved during the methodology process.

A separate distribution of truck traffic was developed based on the anticipated distribution to and from I-75. The existing traffic volumes on I-75 were utilized to estimate the cardinal distribution of truck traffic along this route. **Figure 1** illustrates the project automobile trip distribution, **Figure 2** illustrates the project truck trip distribution, and **Figure 3** illustrates the site access project traffic assignment on Marion Oaks Trail and SW 20<sup>th</sup> Avenue.

Project traffic was assigned within the study area by applying the external trip distribution to the trip generation potential. The study area for the project included all roadway segments where project traffic consumes three percent (3%) or more of the subject segment's peak hour directional service capacity, plus one segment beyond, consistent with the approved methodology. The service volumes for evaluated roadways were obtained utilizing functional classification and level of service information published by the Ocala Marion Transportation Planning Organization (TPO) and FDOT.

The project significance calculations are provided within the methodology document located in the Appendix.

The following roadway segments are included within the study area, and were evaluated for PM peak hour traffic conditions as approved during the methodology process:

- CR 484, from SW 105th Avenue to SR 200 (one segment beyond impact)
- CR 484, from SR 200 to SE 132<sup>nd</sup> Street Road
- SW 29th Avenue Road, from CR 484 to Marion Oaks Trail
- SE 132nd Street Road, from CR 484 to US 301

### D-262

## **Kimley**»Horn

Traffic Impact Analysis Trailhead Logistics Park North

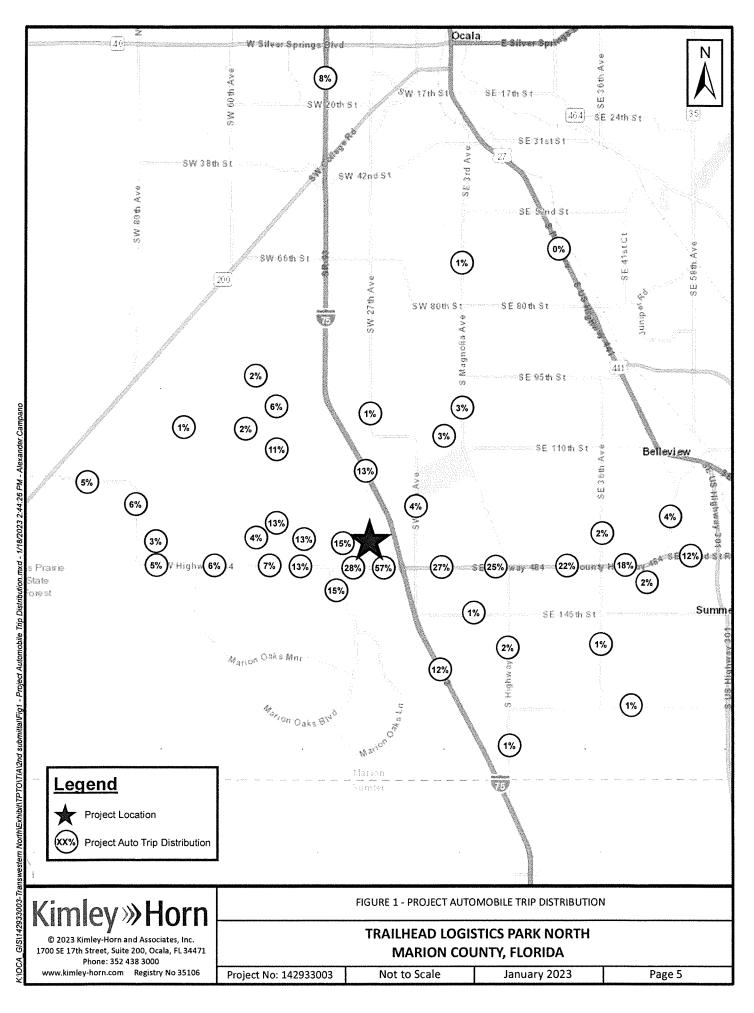
- SE 132nd Street Road, from US 301 to US 441 (one segment beyond impact)
- Marion Oaks Trail, from CR 484 W to SW 49th Avenue (one segment beyond impact)
- Marion Oaks Trail, from Marion Oaks Course to CR 484E

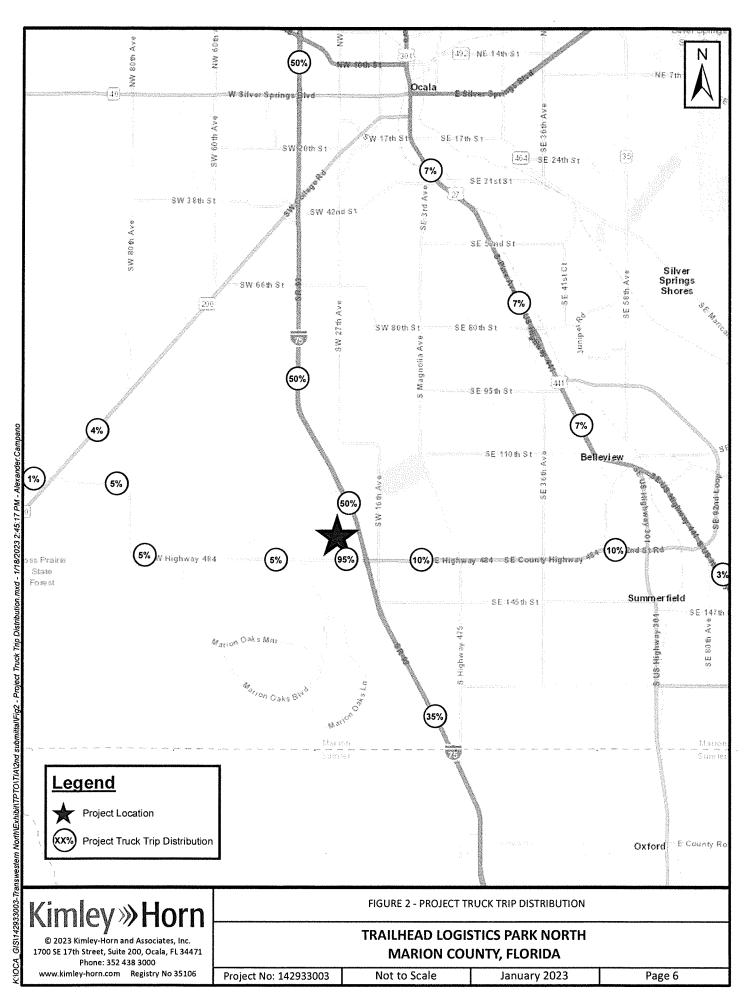
In addition to roadway segment analysis, the following intersections were evaluated for AM and/or PM peak hour traffic conditions, as approved during the methodology process:

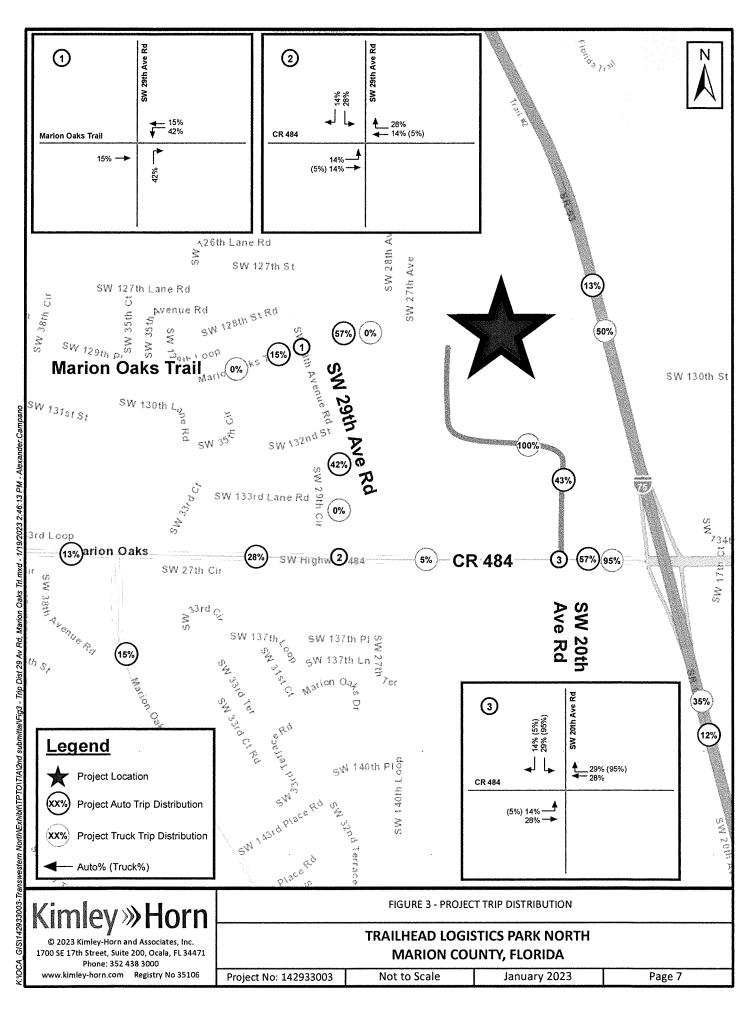
- CR 484 & Marion Oaks Boulevard (PM)
- CR 484 & SW 29th Avenue Road (AM and PM)
- CR 484 & SW 20th Avenue Road (AM and PM)
- CR 484 & I-75 Southbound Ramp (AM and PM)
- CR 484 & I-75 Northbound Ramp (AM and PM)
- CR 484 & CR 475A (PM)
- CR 484 & CR 475 (PM)
- SW 29th Avenue Road & Marion Oaks Trail (AM and PM)

Figure 4 illustrates the project study area utilized for the analysis.

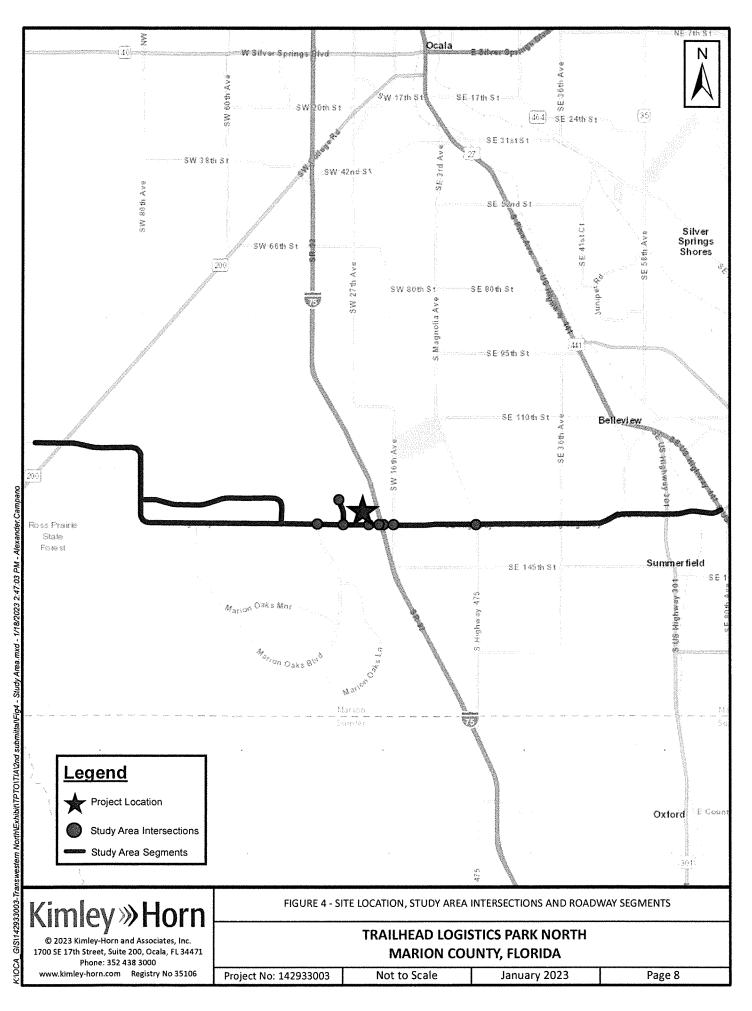
D-263







### D-266



Traffic Impact Analysis Trailhead Logistics Park North

## EXISTING CONDITIONS ANALYSIS

### EXISTING TRAFFIC DATA AND VOLUME DEVELOPMENT

Turning movement counts (TMCs) were collected at the study area intersections during the AM and PM peak periods. AM peak hour TMCs were collected during the peak hour of the adjacent street (7AM – 9AM) and PM peak hour TMCs were collected from 3PM-5PM (which coincides with the 3PM - 4PM peak hour of ITE LUC 154).

An existing year of 2022 was utilized for the analysis. The 2021 peak season factors from FDOT were used to adjust the observed traffic volumes to peak season volumes. The peak season conversion factor report is provided in the **Appendix**.

The PM peak hour peak season approach and departure volumes at the study area intersections were used for the PM peak hour roadway segment analysis for segments near the study area intersections. For roadway segments further from the study area intersections, the existing PM peak hour traffic volumes were derived using annual average daily traffic (AADT) from the Ocala Marion TPO Congestion Management Process (CMP) and applying a K-factor and D-factor published on the FDOT Traffic Online.

The observed right turn on red percentages (RTOR%) and peak hour factors (PHF) were used for the intersection analysis. The TMC heavy vehicle percentages (%HV) were compared to data available from FDOT Traffic Online, the more conservative of the two were used for the intersection analysis. **Table 2** summarizes the %HV for the study area intersections. The intersection volume development sheets located in the **Appendix** detail the volume development for the study area intersections.

Traffic Impact Analysis Trailhead Logistics Park North

#### Table 2 – Study Area Intersections Percent Heavy Vehicles

		E	B Approac	h	W	B Approa	:h	N	B Approac	h	SB Approach			
Intersection	Heavy Vehicle Source	Count Station	T <sub>24</sub> FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor <sup>2</sup>	Count Station	T <sub>24</sub> FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor <sup>2</sup>	Count Station	T24 FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor <sup>2</sup>	Count Station	T <sub>24</sub> FDOT Traffic Online <sup>1</sup>	Design Hour Truck Factor	
CR 484 & Marion Oaks Blvd	FDOT Traffic Online			**				368138	8.50%	4.25%	-			
	AM Turning Movement Counts <sup>3</sup>													
	PM Turning Movement Counts <sup>3</sup>		4.90%			3.40%			4.30%			-		
CR 484 & SW 29th Ave Rd	FDOT Traffic Online										-			
	AM Turning Movement Counts <sup>3</sup>		4.00%			10.00%			32.00%			2.00%		
	PM Turning Movement Counts <sup>3</sup>		7.10%			3.80%			2.00%			6.60%		
CR 484 & SW 20th Ave Rd	FDOT Traffic Online						-				-	-		
	AM Turning Movement Counts <sup>3</sup>		4.00%			10.00%			32.00%			-		
	PM Turning Movement Counts <sup>3</sup>		5.80%			3.30%			30.40%		l	-		
CR 484 & I-75 SB Ramps	FDOT Traffic Online	-									362002	8.50%	4.25%	
	AM Turning Movement Counts <sup>3</sup>		5%			14%			-			12%		
	PM Turning Movement Counts <sup>3</sup>		8%			5%			**			6%		
CR 484 & I-75 NB Ramps	FDOT Traffic Online						-	362000	9%	4.25%	-	-		
	AM Turning Movement Counts <sup>3</sup>		4.90%			10.90%			16.80%			-		
	PM Turning Movement Counts <sup>3</sup>		7.20%			5.20%			9.00%			-		
CR 484 & CR 475A	FDOT Traffic Online								-		368087	5.30%	2.65%	
	AM Turning Movement Counts <sup>3</sup>											-		
	PM Turning Movement Counts <sup>3</sup>		9.20%			7.40%			4.30%			5.30%		
CR 484 & CR 475	FDOT Traffic Online				367040	12.40%	6.20%		-		-	-		
	AM Turning Movement Counts <sup>3</sup>								-					
	PM Turning Movement Counts <sup>3</sup>		7.60%			5.20%			6.70%			2.40%		
ion Oaks Trail & SW 29th Ave	FDOT Traffic Online								-		-	-		
	AM Turning Movement Counts <sup>3</sup>		2.00%			2.00%			11.00%			2.00%		
	PM Turning Movement Counts <sup>3</sup>		8.70%			2.00%			2.00%			7.70%		

k\oca\_civil\142933003-transwestern north\traffic\1ia\2nd submittaficaics\xis\[2023-01-11pn tia.xism]%

¥26/2023

Notes:

1. T24 Factors derived from the FDOT Traffic Online Historical AADT reports.

2. Design hourly truck factor calculated based on the FDOT Traffic Forecasting Handbook ( $T_{24}$  / 2).

3. Turning Movement Counts were observed in the field during traffic data collection utilized for this TIA, a minimum of 2% was utilized for the Synchro analysis.

### EXISTING CONDITIONS ROADWAY SEGMENT ANALYSIS

Roadway segments within the study area were evaluated to determine the existing PM peak hour levels of service. The adopted service volumes were obtained from the latest Marion County Congestion Management Process (CMP) and the 2020 FDOT Quality/Level of Service Handbook. The roadway segment service volumes were approved during the methodology review process.

All the study area roadway segments are shown to operate within the adopted level of service standard under existing PM peak hour traffic conditions. **Table 3** illustrates the existing PM peak hour traffic volume and level of service for study area roadway segments.

Traffic Impact Analysis Trailhead Logistics Park North

Table 3 – Existing Conditions PM Peak Hour Roadway Segment Analysis

			<del>,</del>		ROAD	NAY ATTRI	EXISTING PEAK SEASON TRAFFIC CONDITIONS (2022)										
Roadway									TPO Traffic		PM Peak Hour <sup>3</sup>						
From	То	TPO CMP Station	FDOT Classification <sup>2</sup>	Area Type	Adopted LOS	Number of Lanes	Daily Service Volume	Pk. Hr. Dir. Service Volume	Counts Growth Rate	TPO CMP Growth Rate	NB/EB Volume	SB/WB Volume	NB/EB V/C	SB/WB V/C	NB/EB LOS	SB/WB LC	
CR 484																	
	SR 200	3010.0	ALC LUA			_	20.240	1.440	6.3%	3.36%	438	498	0.30	0.24			
SW 105 AV SR 200	SK 200 W OF SW 57 AV	2010.0 2020.1	NS-UA NS-UA	Urban Urban	E	2	29,340	1,449	6.3% 16.4%	3.36%	438 379	498	0.30	0.34	В	B	
			1		E	2	32,600	1,610		3.18%	379		0.24	0.27	B		
W OF SW 57 AV SW 49 AV	SW 49 AV MARION OAKS BLVD	2020.1 2030.0	NS-SA-C1 NS-SA-C1	Urban Urban	E	4	37,810 35,820	1,900 1,800		3.18%	379 819	431 952	0.20	0.23	C	C C	
		2030.0	NS-SA-CI NS-SA-C1	Urban Urban	F	4	35,820	1 1		3.93%	1,037		0.46	0.53	C	1 -	
MARION OAKS BLVD	SW 20 AV RD	1	1		-			1,800	 1.8%			1,191	0.58		C	C	
SW 20 AV RD	1-75	2030.0	NS-SA-C1	Urban	E	4	35,820	1,800		3.93%	1,148	1,730	1	0.96	C	D	
1-75	CR 475A	2070.0	NS-SA-C1	Urban	D	4	35,820	1,800	4.3%	6.37%	1,187	1,177	0.66	0.65	C		
CR 475A	CR 475	2080.0	NS-SA-C1	Urban	D	4	35,820	1,800	1.8%	4.34%	861	724	0.48	0.40	C	C	
CR 475 CR 467	CR 467	2090.0	NS-SA-C1 NS-SA-C1	Urban	D	4	35,820	1,800	5.9% 1.5%	4.57% 6.56%	1,044 905	918 796	0.58	0.51	C	C	
	SE 132 ST RD	2110.0	NS-SA-CI	Urban	D	4	35,820	1,800	1.5%	0.50%	905	/96	0.50	Ų.44	с	с	
5W 29th Avneue Road																	
CR 484	MARION OAKS TRL		NS-SA-C2	Urban	E	2	10,920	560		1.00%	73	59	0.13	0.10	с	с	
5E 132nd Street Road																	
CR 484	US 301	7165.0	NS-SA-C1	Urban	E	4	35,820	1,800	5.0%	1.00%	555	489	0.31	0.27	c	с	
US 301	US 441	7170.0	NS-SA-C1	Urban	E	4	35,820	1,800	8.4%	7.29%	608	535	0.34	0.30	c	с	
Marion Oaks Trail																	
CR 484 W	SW 49 AV	8150.0	NS-SA-C1	Urban	E	2	15,930	792		1.00%	113	85	0.14	0.11	c	c	
MARION OAKS CRSE	CR 484 E	8180.0	NS-SC-C1	Urban	Ε	2	15,930	792		1.00%	113	85	0.14	0.11	c	с	

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TTA\2nd submittal\calcs\xis\[2023-01 - TLPN TIA.xism]segEx

Notes:

1. The roadway attributes and AADT were obtained from the most recent Ocala Marion Transportation Planning Organization (TPO) Congestion Management Process (CMP) Database and Ocala Marion TPO 2022 Traffic Counts Report. For SW 29th Avenue Road the roadway attributes were derived using the 2020 FDOT Q/LOS Handbook, 2010 FDOT Functional Classification Map for Marion County, and the adopted level of service from the Marion County Comprehensive Plan (Transportation Element, Policy 2.1.2). 2. NS-SA-C1 = non-state, signalized arterial, class 1; SS-UC = non-state, unsignalized collector; SS-SC-C1 = non-state, signalized collector, class 1; ST-UA = state, unsignalized arterial; NS-UA = non-state, unsignalized arterial.

3. The existing traffic volumes were derived from the observed turning movement counts. The existing volumes for SW 132nd Street, Marion Oaks Trail, and CR 484 (west of SW 45th Avenue/east of CR 475) were derived using the Ocala Marion TPO CMP AADTs and K/D factors from FDOT Traffic Online (count stations 368136, 367039, 367040/367046).

V20/202

## **Kimley Wheeler Horn**

**Traffic Impact Analysis** Trailhead Logistics Park North

### **EXISTING CONDITIONS INTERSECTION ANALYSIS**

The operating conditions at the study area intersections were analyzed using the Synchro 11 software package, which implements the procedures of the latest Highway Capacity Manual (HCM 6). The existing lane geometry and signal timings (provided by Marion County) were utilized for the analysis.

All study area intersections operate with acceptable overall intersection level of service (LOS) and volume to capacity (V/C) ratios less than 1.0 under existing AM and PM peak hour traffic conditions, with the exception of the stop-controlled approach at the intersection of SW 29<sup>th</sup> Avenue Road at CR 484. The delay experienced for the side-street stop-controlled approach during the AM peak hour represents level of service F for a stop-controlled condition.

The Synchro 11 analysis output is provided in the Appendix. Table 4 provides a summary of the average delay, level of service, and V/C ratios during the AM peak hour and PM peak hour under existing traffic conditions.

	A	M Peak Ho	our	P	M Peak Ho	ur
Intersection	LOS	Delay (s)	Max V/C	LOS	Delay (s)	Max V/C
Marion Oaks Blvd & CR 484				В	14.9	0.85
SW 29th Ave Rd & CR 484	F	82.5	0.89	С	22.5	0.24
SW 20th Ave Rd & CR 484	A	9.3	0.82	А	5.4	0.56
I-75 SB Ramp & CR 484	D	44.6	0.83	С	32.8	0.86
I-75 NB Ramp & CR 484	С	22.5	0.88	В	19.1	0.95
CR 475A & CR 484				С	27.0	0.90
CR 475 & CR 484				С	27.8	0.77
SW 29th Ave Rd & Marion Oaks Trail	A/B	8.8/10.2	0.12	A/A	8.8/0.0	0.06

#### Table 4 – Existing Conditions Intersection Analysis Summary

Notes

1. For stop controlled intersections MOEs were reported for the stop controlled approach(es). For signalized intersections the LOS and delay were reported for the overall intersection.

K:\OCA\_Civil\142933003-Transwestern North\Traffic\TIA\2nd submittal\calcs\xls\[2023-01- TLPN TIA xlsm]intSum-Ex

1/23/23

Traffic Impact Analysis Trailhead Logistics Park North

### FUTURE TRAFFIC CONDITIONS

### COMMITTED TRANSPORTATION IMPROVEMENTS

There are planned improvements within the study area that have been included as background improvements in the future traffic conditions analysis.

FDOT has programmed improvements along CR 484 west of SW 20<sup>th</sup> Avenue Road to east of CR 475A that will improve local traffic operations. The improvements include access management restrictions, adding turn lanes, and extending turn lanes. Construction is funded for FY 2023-2024 (FPID 433651-1). The following improvements were included in the background evaluation per the FDOT plans:

CR 484 Interchange Improvements (from west of SW 20th Avenue Road to east of CR 475A)

- Construction of a second southbound right-turn lane on CR 484 at the I-75 SB Ramp
- Construction of a second eastbound left-turn lane on CR 484 at the I-75 NB Ramp
- Construction of a second northbound left-turn from the I-75 NB off-Ramp to CR 484
- Construction of a second eastbound left-turn lane on CR 484 at CR 475A
- Construction of a second northbound left-turn lane on CR 475A at CR 484
- Construction of a southbound right-turn lane on CR 475A at CR 484
- Signal timing adjustments

In addition, the Marion Oaks Boulevard at CR 484 intersection has planned improvements with construction funding from FDOT programmed for FY 2024 (FPID 449277-1). The following improvements were included in the background evaluation per the County plans:

#### Marion Oaks Boulevard at CR 484 intersection improvements

- Construction of dual westbound left-turn lanes
- Construction of dual northbound right-turn lanes
- Northbound right permitted/overlap phasing and signal timing adjustments

SW 20<sup>th</sup> Avenue Road is being extended north of CR 484 as part of the Trailhead Logistics South project. The improvements will be complete by end of 2023. The extension of SW 20<sup>th</sup> Avenue Road will include the following improvements at the intersection with CR 484:

#### SW 20th Avenue at CR 484 intersection improvements

- Construction of an eastbound left-turn lane
- Construction of a westbound right- turn lane
- Construction of a north leg of the intersection with a southbound left-turn lane, through lane, and right-turn lane
- Signal timing adjustments

Traffic Impact Analysis Trailhead Logistics Park North

The signal plans for the intersection of SW 20<sup>th</sup> Avenue Road and CR 484 are provided in the **Appendix**. The traffic study for the Marco Polo PUD included additional improvements at the intersection that would be needed for the projected traffic volumes at buildout of the Marco Polo PUD. Because the Marco Polo PUD is considered as a background/vested project per request of Marion County, the improvements identified in that study were included in the background conditions analysis of the intersection. The following buildout geometry was identified in the Marco Polo PUD study:

Buildout SW 20th Avenue at CR 484 intersection geometry

- One left, two through, and one eastbound through/right lane
- Two left, three through, and one westbound right turn lane
- One left, one through, and one northbound right turn lane
- Two left, and one southbound through/right lane

Additional excerpts detailing the background improvements are provided in the Appendix.

#### FUTURE TRAFFIC VOLUME DEVELOPMENT

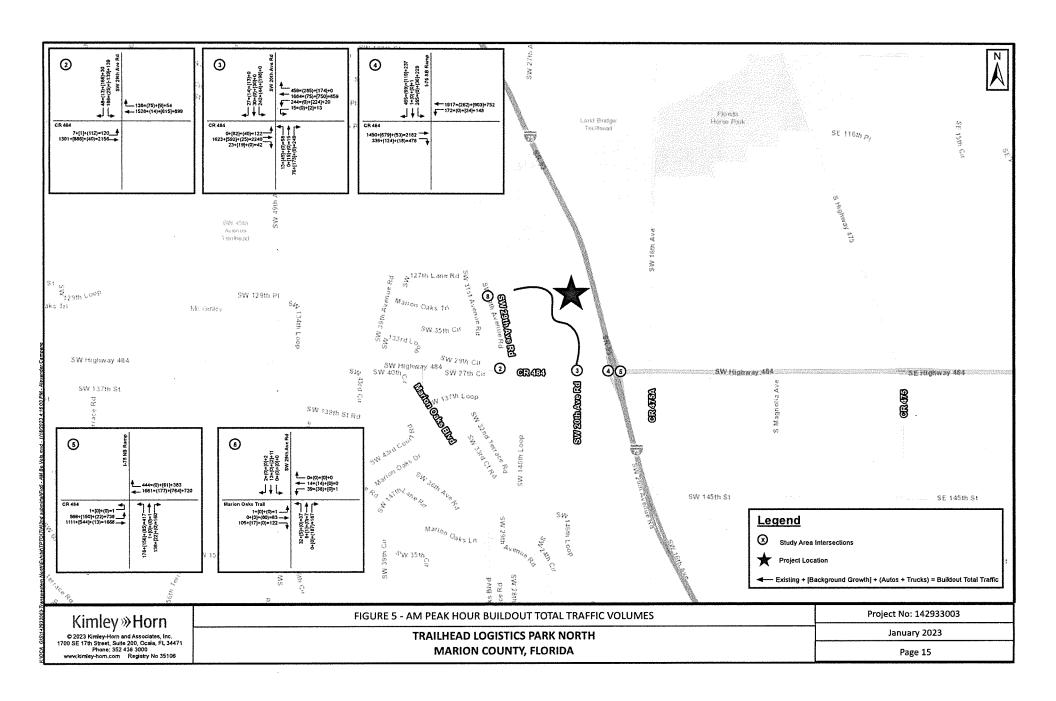
The future traffic volumes within the study area were calculated based on the approved methodology. Future background traffic volumes were calculated using existing peak season traffic volumes and an annual background growth rate applied to the buildout year. A 3.0% background annual growth rate was utilized for the future traffic volume projections. In addition to background growth the following vested developments were added as background traffic:

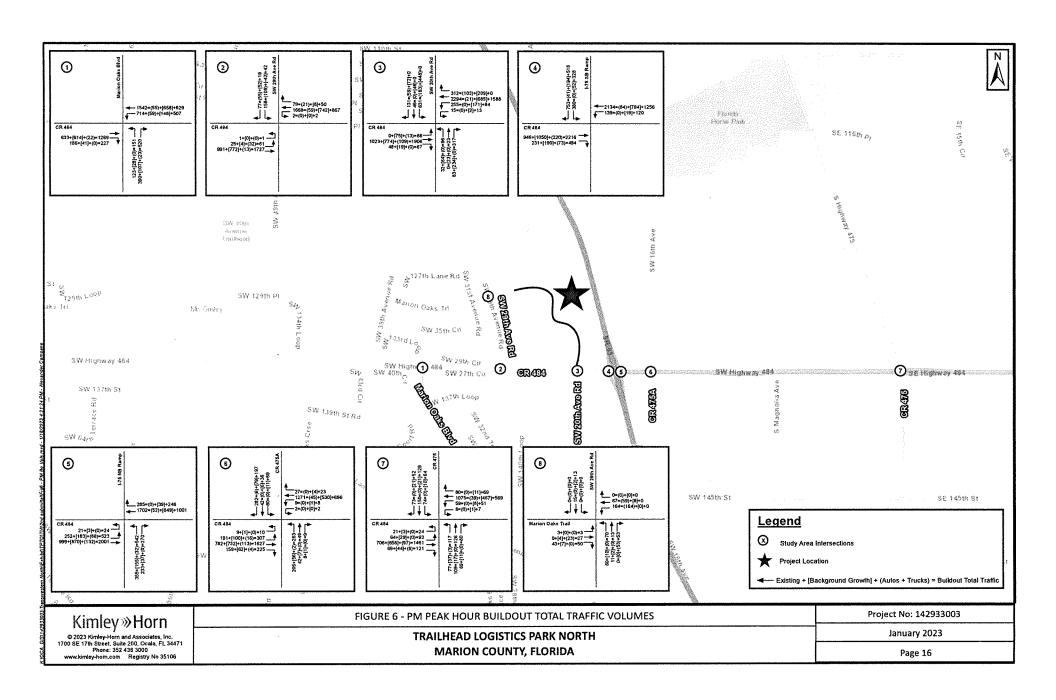
- Trailhead Logistics Park South
- Gas/Convenience Store at CR 484 & SW 20th Ave Rd (included within the Marco Polo PUD)
- Marco Polo PUD
- McGinley Property Phase 2

The total buildout traffic volumes were calculated as the sum of the background traffic volumes and project traffic. For the roadway segment analysis, the PM peak hour project traffic volumes were calculated as an average across the segment length. Project traffic was separated between automobile traffic and truck traffic. A separate trip distribution was applied to each.

Vested traffic excerpts and worksheets detailing the future conditions intersection volume development are contained in the **Appendix**. Buildout total traffic volumes at the study area intersections during the weekday AM and PM peak hours are illustrated in **Figure 5** and **Figure 6**.

### D-273





Traffic Impact Analysis Trailhead Logistics Park North

### FUTURE BACKGROUND ROADWAY SEGMENT ANALYSIS

The roadway segments within the study area were evaluated for level of service under future background traffic conditions (before the addition of project traffic) during the PM peak hour. The service volumes for roadways within the study area were obtained utilizing the most recent Ocala Marion TPO CMP and FDOT Quality/Level of Service Handbook per the approved methodology.

The following roadway segments were found to have V/C ratios greater than 1.0 with the addition of background traffic:

- CR 484, from Marion Oaks Boulevard to SW 20th Avenue Road (existing 4-lane roadway)
- CR 484, from SW 20th Avenue Road to I-75 (existing 4-lane roadway)
- CR 484, from I-75 to CR 475A (existing 4-lane roadway)

CR 484 is listed within the Ocala Marion TPO Long Range Transportation Plan (LRTP) as needing widening to six lanes from SW 29<sup>th</sup> Avenue to SW 20<sup>th</sup> Avenue Road (project R26) and SW 20<sup>th</sup> Avenue Road to CR 475A (project R27). These improvements are not listed in the cost feasible plan and do not have funding allocated in the current five-year Transportation Improvement Program (TIP). The traffic study performed for the Marco Polo PUD showed a need for CR 484 to be six lanes fronting the Marco Polo PUD.

Marion County has funding in the current five-year TIP for a planning study for widening of CR 484 to two lanes from Marion Oaks Pass to SR 200 (Project C5). No other phases have funding allocated in the five-year TIP.

The other roadway segments within the study area are shown to operate within the adopted service volume with 2027 PM peak hour background traffic conditions. The future background conditions roadway segment analyses are detailed in **Table 5**.

Traffic Impact Analysis Trailhead Logistics Park North

#### Table 5 - Future Background Conditions PM Peak Hour Roadway Segment Analysis (2027)

		ROAD	WAY ATTR		EXISTING PE TRAFFIC CC (20													
Roadway					PM Peal	k Hour <sup>2</sup>			<b></b>	r	PM Peak	Hour <sup>3</sup>	<del></del>	r	r	T		
From	To	Adopted LOS	Number of Lanes		NB/EB Volume	SB/WB Volume	NB/EB Volume	SB/WB Volume	Vested NB/EB	Vested SB/WB	Total NB/EB	Total SB/WB	NB/EB V/C	SB/WB V/C	NB/EB LOS	SB/WB LO		
CR 484						Į												
SW 105 AV	SR 200	E	2	1,449	438	498	504	573	25	29	529	602	0.37	0.42	c	c		
SR 200	W OF SW 57 AV	E	2	1,610	379	431	436	496	139	216	575	712	0.36	0.44	в	c c		
W OF SW 57 AV	SW 49 AV	E	4	1,900	379	431	436	496	691	633	1,127	1,129	0.59	0.59	c	l c		
SW 49 AV	MARION OAKS BLVD	E	4	1,800	819	952	942	1,095	524	534	1,466	1,629	0.81	0.91	c	c		
MARION OAKS BLVD	SW 20 AV RD	E	4	1,800	1,037	1,191	1,192	1,369	596	591	1,788	1,960	0.99	1.09	D	F		
SW 20 AV RD	1-75	E	4	1,800	1,148	1,730	1,320	1,989	1,166	752	2,486	2,741	1.38	1.52	F	F		
1-75	CR 475A	D	4	1,800	1,187	1,177	1,364	1,354	713	490	2,077	1,844	1.15	1.02	F	F		
CR 475A	CR 475	D	4	1,800	861	724	990	833	603	417	1,593	1,250	0.89	0.69	c	c		
CR 475	CR 467	D	4	1,800	1,044	918	1,201	1,056	482	330	1,683	1,386	0.94	0.77	с	c		
CR 467	SE 132 ST RD	D	4	1,800	905	796	1,041	915	386	264	1,427	1,179	0.79	0.66	c	c		
SW 29th Avneue Road			ľ	1 !	!				i	ĺ								
CR 484	MARION OAKS TRL	E	2	560	73	59	84	67	0	o	84	67	0.15	0.12	с	с		
SE 132nd Street Road										ĺ								
CR 484	US 301	E	4	1,800	555	489	638	562	294	202	932	764	0.52	0.42	с	c		
US 301	US 441	E	4	1,800	608	535	699	615	294	202	993	817	0.55	0.45	с	с		
Marion Oaks Trail	v									ĺ								
CR 484 W	SW 49 AV	E	2	792	113	85	130	98	1	2	131	100	0.17	0.13	с	c		
MARION OAKS CRSE	CR 484 E	E	2	792	113	85	130	98	51	8	181	106	0.23	0.13	с	c		

Notes:

1. The roadway attributes and AADT were obtained from the most recent Ocala Marion Transportation Planning Organization (TPO) Congestion Management Process (CMP) Database and Ocala Marion TPO 2022 Traffic Counts Report. For SW 29th Avenue Road the roadway attributes were derived using the 2020 FDOT Q/LOS Handbook, 2010 FDOT Functional Classification Map for Marion County, and the adopted level of service from the Marion County Comprehensive Plan (Transportation Element, Policy 2.1.2). 2. The existing traffic volumes were derived from the observed turning movement counts. The existing volumes for SW 132nd Street, Marion Oaks Trail, and CR 484 (west of SW 45th Avenue/east of CR 475) were derived using the Ocala Marion TPO CMP AADTs and K/D factors from FDOT Traffic Online (count stations 368136, 368136, 367039, 367040/367046).

3. Background volumes were derived by applying the study area growth rate to the existing volumes and adding vested traffic added.

Traffic Impact Analysis Trailhead Logistics Park North

### FUTURE BUILDOUT ROADWAY SEGMENT ANALYSIS

The roadway segments within the study area were evaluated for level of service under future buildout traffic conditions during the PM peak hour. The service volumes utilized for the analysis are the same as those utilized for the future background conditions analysis, with the addition of background improvements. The following improvements were identified to be necessary to provide for acceptable level of service with the future background traffic volumes during the PM peak hour:

- CR 484, from Marion Oaks Boulevard to SW 20th Avenue Road (existing 4-lane roadway)
- CR 484, from SW 20<sup>th</sup> Avenue Road to I-75 (existing 4-lane roadway)
- CR 484, from I-75 to CR 475A (existing 4-lane roadway)

Service volumes for the improved condition were obtained from the 2020 FDOT Quality/Level of Service Handbook and using the roadway attributes from the Ocala Marion TPO CMP. The roadway segments within the study area are shown to operate within the adopted service volume with PM peak hour buildout traffic volumes and assuming the improvements identified to be needed in the background conditions analysis. No additional roadway widenings were identified to be needed due to the addition of traffic from the proposed Trailhead Logistics Park North site.

The future buildout conditions roadway segment analyses are detailed in Table 6.

Traffic Impact Analysis Trailhead Logistics Park North

#### Table 6 – Buildout Conditions PM Peak Hour Roadway Segment Analysis (2027)

		1									*******		PM PEAK SEASON PM PEAK HOUR BUILDOUT TRAFFIC CONDITIONS (2027 w/ Beckground Improvements)												
			ROAD	WAY ATTR	BUTES 1	·····	PMI	EAK SEASO	N BACKGROU	ND TRAFFIC C	ONDITIONS (	2027}			PM PEAK	SEASON PM PEAK	OUT TRAFF	C CONDITION	IS (2027 w/	Background	Improveme	ntsj			
Roadway				Exis. Pk.	Improve	Improved			PM Pea	k Hour <sup>2</sup>			Projec	t Traffic - Au	10	Project	Traffic - True	ks	Project						
From	To	Adopted	Exist. Number of Lanes		d Number of Lanes	Pk, Hr, Dir. Service Volume	Total NB/EB	Total S8/W8	NR/FR V/C		NR/FR LOS	58 04/8 105	% Assignment <sup>5</sup>	NB / EB	EP / 1470	% Assignment <sup>3</sup>	NR / F0	** / 14/8	Peak Direction % impact <sup>6</sup>	Total NB/EB	Total SB/WB		-		SB/WB
			O' carrea		or castes	vondine			1				A ready makers	Na / Co	30/40	A CONTRACTOR	NO/ ED	34/48	7 ampact	718/25	38/W8	INB/EB Y/C	58/W8 V/C	NB/ES LOS	LOS
CR 484									1																
SW 105 AV	SR 200	E	2	1,449	2	1,449	529	602	0.37	0.42	c	c	4,0%	6	16	1.0%	0	1	1.13%	535	618	0.37	0.43	c	l c
SR 200	W OF SW 57 AV	E	2	1,610	2	1,610	575	712	0.36	0.44	c	c	5.5%	e l	22	5.0%	2	4	157%	565	737	0.36	0.46	c	c
W OF SW 57 AV	SW 49 AV	E	4	1,900	4	1,900	1,127	1,129	0.59	0.59	c	c	6.5%	10	25	5.0%	2	4	1.53%	1,139	1,158	0.60	0.61	c	c
SW 49 AV	MARION OAKS BLVD	E	4	1,600	4	1,800	1,466	1,629	0.81	0.91	¢	c	10.0%	15	39	5.0%	2	4	2.38%	1,483	1,672	0.82	0.93	c	c
MARION OAKS BLVD	SW 20 AV RD	E	4	1,600	6	2,869	1,788	1,960	0.62	0.68	c	c	28.0%	42	109	5.0%	2	4	6.29%	1,832	2,073	0.64	0.72	с	l c
SW 20 AV RD	H75	E	.4	1,600	6	2,869	2,486	2,741	0.87	0.96	¢	c	57.0%	223	86	95.0%	70	39	16.29%	2,779	2,866	0.970	0.999	c	D
1-75	CR 475A	P	4	1,600	6	2,869	2,077	1,844	0.72	0.64	c	c	32.0%	125	48	10.0%	7	4	7.36%	2,210	1,896	0,77	0.66	c	c
CR 475A CR 475	CR 475 CR 467	D	4	1,600	4	1,800	1,593	1,250	0.89	0.69	<u>د</u>	c	26.0%	102	39	10.0%	7	4	6.06%	1,702	1,293	0.95	0.72	c	C C
CR 475 CR 467	SE 132 ST RD	D		1,600	4	1,800	1,683 1,427	1,386 1,179	0.94	0.77	L C	c	22.0%	8G 66	33 26	10.0%	7	4	5.19%	1,776	1,423	0.99	0.79	D	1 C
CA 407	5C 132 51 MD		*	1,600	1	1,800	1,427	1,179	0.79	0.00	۲.	c	17.0%	66	<b>7</b> 0	10.0%	'	4	4.10%	1,501	1,209	0.83	0.67	c	۲ (
SW 29th Avneue Road																									
CR 484	MARION OAKS TRL	E	2	560	2	560	84	67	0.15	0.12	c	c	42.0%	164	164	0.0%	0	o	29.33%	248	231	0.44	0.41	с	c
SE 132nd Street Road																									
CR 484	US 301	E	4	1,800	4	1,800	932	764	0.52	0.42	l c	c	13.0%	51	20	10.0%	,	4	3,24%	990	788	0.55	0.44	c	c
US 301	US 441	E	4	1,600	4	1,800	993	817	0.55	0.45	c	c	12.0%	47	18	3.0%	2	1	2.73%	1,042	836	0.58	0,46	c	c
Marion Oaks Trail					1									l											
CR 484 W	SW 49 AV	E	2	792	2	792	131	100	0.17	0.13	l c	l c	3.5%	5	14	0.0%	0	0	1.73%	136	114	0.17	0.14	c	
MARION OAKS CRSE	CR 484 E	E	2	792	2	792	181	106	0.23	0.13	l c	c	6.5%	10	25	0.0%	ō	0	3.21%	191	131	0.24	0.17	ċ	12
					1																				
X /OCA_Covel 142933003-from sensiters North	(To St.) TAQ as submittely der (vir(20).	5 01 - 7, PH TA do	mbrofo		•				·	*******	4	•		•	• • • • •	• • • • • • •				h	<b></b>	<b>4</b>	•		man
Notes:																									

1. The existing roadway attributes and service volumes were obtained from the most recent Ocala Marion Transportation Planning Organization (TPO) Congestion Management Process (CMP) Database. For the improved condition, the roadway service volumes were derived using the 2020 FDOT Q/LOS Handbook. The improvements identified to be reeded under future background traffic conditions (prior to adding project traffic) were assumed for the buildout conditions analysis.

2. Background volumes were derived by applying the study area growth rate to the existing volumes with vested traffic added.

3. Project traffic was assigned based on the CFRPM output (with manual adjustments) In the approved methodology.

Traffic Impact Analysis Trailhead Logistics Park North

#### FUTURE BACKGROUND CONDITIONS INTERSECTION ANALYSIS

The intersections within the study area were evaluated to determine if improvements are needed to provide an acceptable level of service and intersection operations with future background traffic conditions prior to the addition of project traffic.

Existing signal timings (as obtained from the City of Ocala and Marion County), peak hour factors (as obtained from the traffic counts), and right-turn on red percentages (obtained as previously described in this report) were input into Synchro 11 for analysis. The existing observed percent heavy vehicle percentage was updated for the background conditions analysis to reflect the projected vehicle mix from the addition of background and vested traffic.

Either existing geometry or planned/programmed geometry was utilized based on the committed transportation projects outlined previously.

The intersection of SW 29<sup>th</sup> Avenue Road at CR 484 was evaluated as a directional median opening (all southbound movements are limited to right-turn only) based on input from Marion County on a planned short-term safety improvement. The observed and projected traffic movements at the intersection were reallocated based on the planned movement restriction at the intersection. Existing / projected southbound left-turn movements were allocated to the southbound right-turn movement and eastbound through movement, assuming these vehicles would make a u-turn at the median opening to the west of the intersection.

The background intersection analysis shows the following improvements are necessary to provide for acceptable level of service and operations with future background traffic volumes:

#### SW 29th Avenue Road at CR 484

• Signalization is warranted as a result of background traffic during the AM peak hour based on the FDOT Signal Warrant 3 volume thresholds and LOS F for southbound right-turn movement

#### SW 20th Avenue Road at CR 484

• Signal timing adjustments and assuming the improvements identified to be needed with the Marco Polo PUD buildout

An AM peak hour and PM peak hour signal warrant analysis was conducted for the intersection of SW 29<sup>th</sup> Avenue at CR 484 using the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition for peak hour volume Warrant 3 criteria. Based on the Signal Warrant 3 criteria, a traffic signal is warranted for the background AM peak hour traffic conditions. The peak hour signal warrant analysis outputs are provided in the **Appendix**.

The I-75 at CR 484 interchange is currently under construction. The improvements include dual southbound right turn lanes for the southbound ramp terminal and dual northbound left turn lanes for the northbound ramp terminal. The I-75 Southbound Ramp at CR 484 southbound right-turn movement operates at LOS F (and v/c < 1.0) during the background AM peak hour. The I-75 Northbound Ramp at CR 484 northbound left-turn movement operates at LOS F (and v/c < 1.0) during the background Section V/c < 1.0) during the background AM peak hour. The I-75 Northbound Ramp at CR 484 northbound left-turn movement operates at LOS F (and v/c < 1.0) during the AM and PM background scenarios.

No background improvements were applied to the intersection of CR 475A at CR 484. With future background traffic volumes, the intersection operates with all V/C ratios less than 1.0 and acceptable LOS for the overall intersection operations, but with LOS F for the eastbound left-turn, northbound left-turn, and