

SJMR PUD

Transportation Impact Analysis



Prepared for:
Neal Communities
5800 Lakewood Ranch Boulevard
Sarasota, Florida 34240

Prepared by:
Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, Florida 34240

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SJMR Property Transportation Impact Analysis

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Professional Engineer's Certification

I hereby certify that I am a Licensed Professional Engineer in the State of Florida practicing with Stantec Consulting Services Inc. and that I have supervised the preparation of and approve the evaluations, findings, opinions, conclusions, and technical advice hereby reported for:

PROJECT: SJMR PUD
Transportation Impact Analysis
215810708

LOCATION: East of the Jacaranda Boulevard Extension between Border Road and Laurel Road in Venice, Florida

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Prepared by:



Matthew R. Crim, P.E., PTOE
Transportation Engineer
Florida Licensed Engineer No. 68297

Date

Introduction

The purpose of this study is to determine the transportation impacts of the proposed SJMR PUD located east of the Jacaranda Boulevard Extension between Border Road and Laurel Road in Venice, Florida. The proposed development is shown in Figure 1.

The property is currently vacant. The petitioner proposes to construct a total of 539 dwelling units: 370 single-family detached dwelling units and 169 single-family attached dwelling units (paired villas). The development will utilize two new connections, one to Laurel Road and one to Border Road. The build-out year for the development is 2024. Prior to undertaking the study, a methodology statement was submitted to the City of Venice on October 3, 2017. A copy of the proposed methodology is attached in Appendix A. The unit mix and number of units used in the analysis differ slightly from what was assumed in the methodology, but result in essentially the same trip generation.

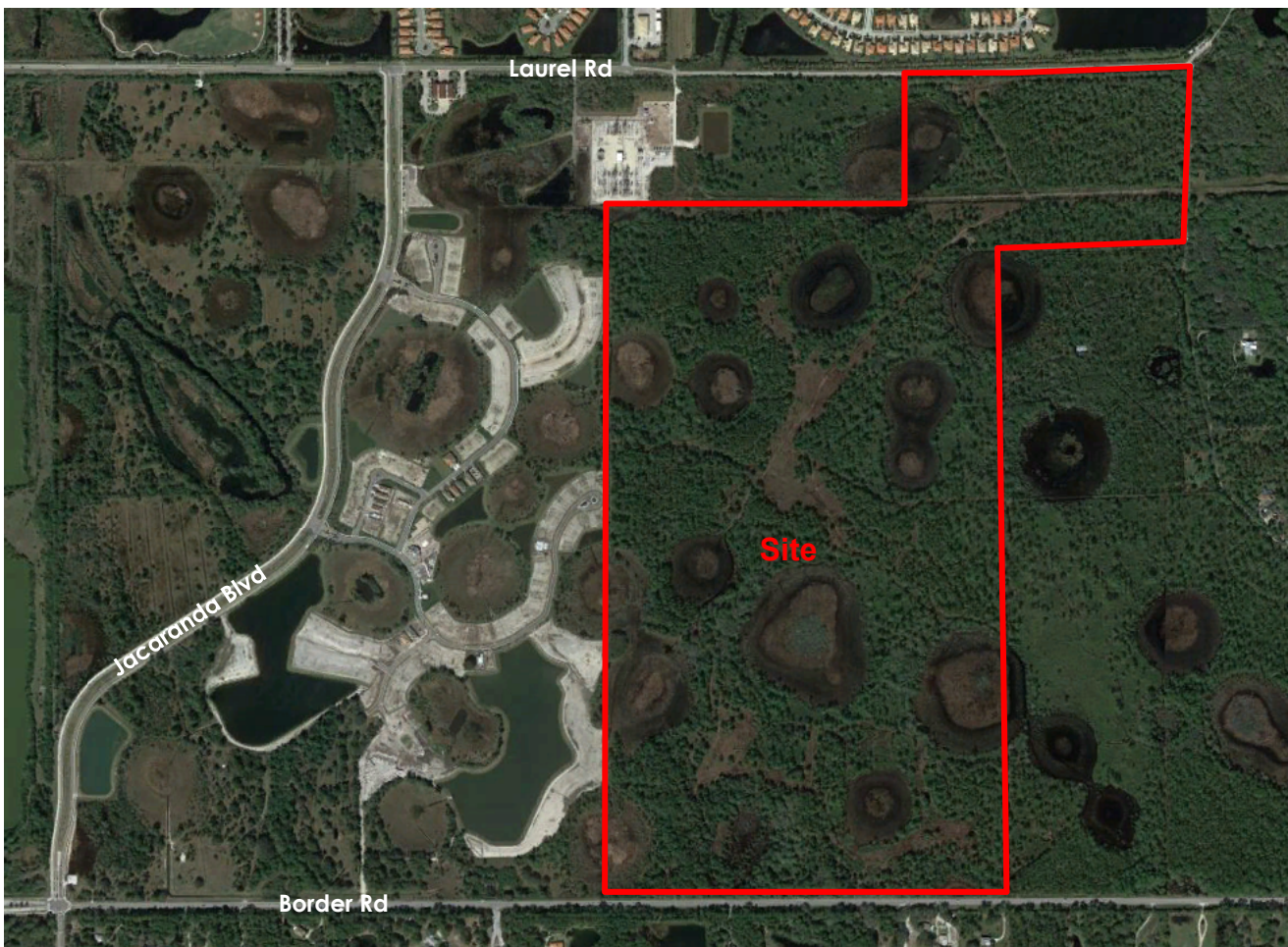


Figure 1: Project Location

Trip Generation

Traffic volumes generated by the project were estimated using the Institute of Transportation Engineers (ITE), Trip Generation Manual – the 9th Edition (2012). Land Use 210 Code (Single-Family Detached Housing) and Land Use Code 230 (Condominium/Townhouse) were used to estimate the PM peak-hour trip generation potential. The estimated external trips generated by the development are 433 PM peak-hour two-way trip ends (277 entering; 156 exiting). The trip generation results are summarized in Table 1.

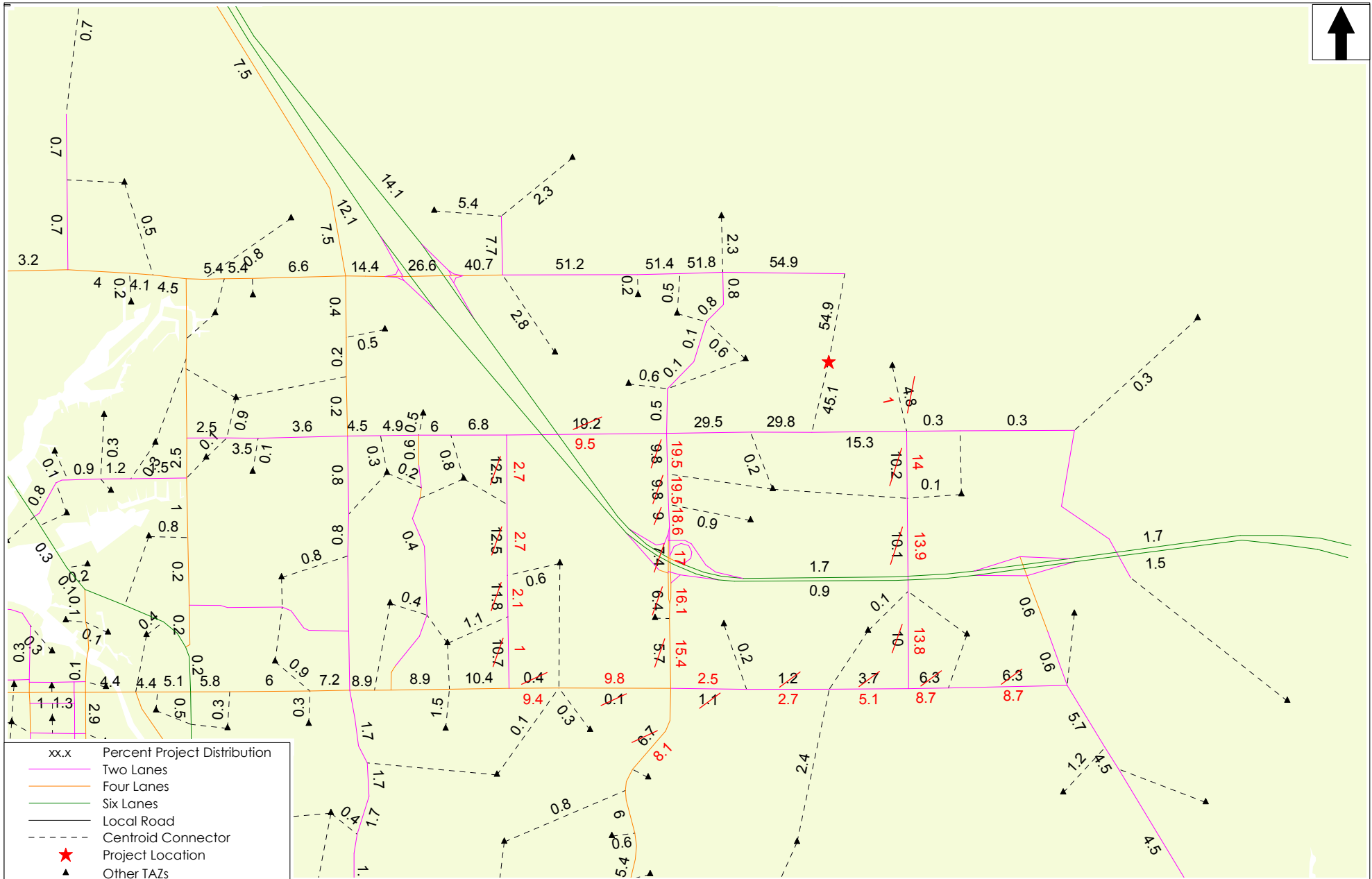
Table 1: PM Peak-Hour Trip Generation

ITE Land Use Category	Variable	Size	PM Peak Trip Rate/ Equation	PM Enter Split	PM Exit Split	PM Peak Total Trips		
						Total	Enter	Exit
Single-Family Detached Housing - 210	Per Unit	370	$\ln(T) = 0.90\ln(x) + 0.51$	63%	37%	341	215	126
Condominium/Townhouse - 230	Per Unit	169	$\ln(T) = 0.82\ln(x) + 0.32$	67%	33%	92	62	30
TOTAL						433	277	156

Project Traffic Distribution/Assignment

The traffic generated by the proposed project was distributed and assigned to the adjacent roadway network using the FDOT D1 Districtwide 2018 Existing plus Committed travel demand model with 2040 socioeconomic data. Based on discussions with City staff, a manual adjustment to the travel demand model distribution was made to remove north-south project traffic assigned to Auburn Road and shift those trips onto Jacaranda Boulevard, a more likely north-south route. Additionally, the model assigns 4.8% of the project traffic to TAZ 4908, a primarily residential TAZ. The majority of that traffic was reassigned onto Jackson Road and Venice Avenue.

The project traffic distribution is shown in Figure 2. Once the distribution was determined, project traffic was assigned to all functionally classified roadways listed in Sarasota County's 2015 *Generalized Level of Service Analysis Table*. The project traffic assignment on functionally classified roadways is shown in Figure 3.



**Figure 2: Project Traffic Distribution
2018 Existing Plus Committed Network
Hurt Property**

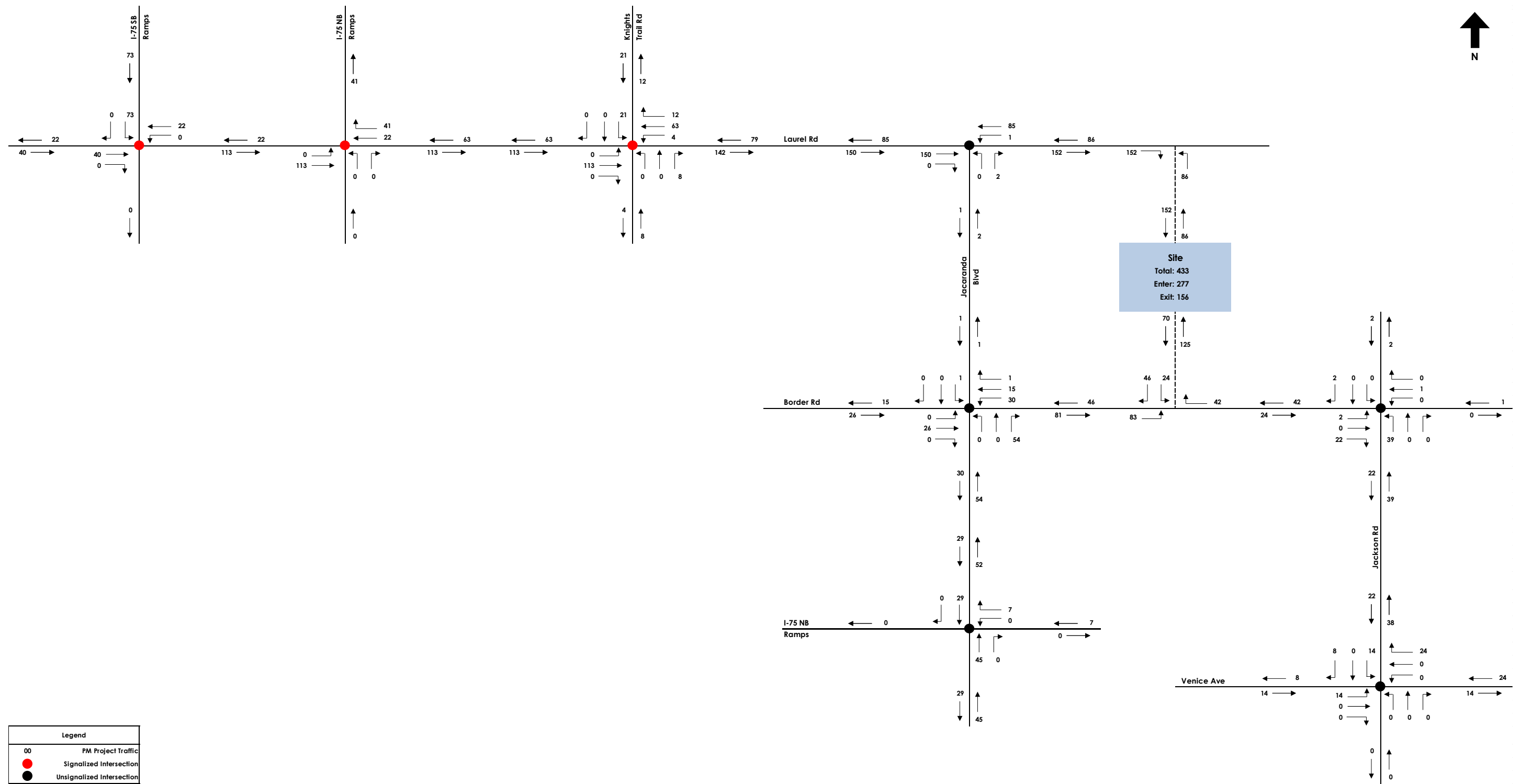


Figure 3: Project Traffic Assignment

Study Area

The study area consists of arterial and collector roads in which project traffic is expected to consume at least five percent of the peak-hour two-way level-of-service standard or any roadway segment to which the development has direct access or which the development accesses via local and private roads.

The results of the study area determination are provided in Table 2. Per the City of Venice's criteria, eight regulated roadway segments meet the significance threshold and were evaluated as part of this analysis.

Table 2: Study Area Determination

Road Name and Segment	Adopted LOS			Percent Project Traffic	New Project Traffic		Significant Impact? (>5%)	Direct Access?
	LOS Standard	Number of Lanes	Service Volume		Trips	% Impact		
Auburn Road								
Border Rd to Venice Ave	C	2	1,400	1.9%	8	0.6%	No	No
Border Road								
Auburn Rd to Jacaranda Blvd	C	2	1,220	9.5%	41	3.4%	No	No
Jacaranda Blvd to Site	C	2	1,400	29.7%	129	9.2%	Yes	Yes
Site to Jackson Rd	C	2	1,400	15.3%	66	4.7%	No	Yes
Jackson Rd to South Moon Dr.	C	2	1,300	0.3%	1	0.1%	No	No
Edmondson Road								
Capri Isles Blvd to Auburn Rd	C	2	1,120	6.4%	28	2.5%	No	No
I-75								
SR 681 to Laurel Rd	B	6	5,870	26.2%	113	1.9%	No	No
Laurel Rd to Jacaranda Blvd	B	6	5,870	0.0%	0	0.0%	No	No
Jacaranda Blvd to River Rd	B	6	5,870	2.6%	11	0.2%	No	No
Jacaranda Boulevard								
Laurel Rd to Border Rd	C	2	1,720	0.7%	3	0.2%	No	No
Border Rd to I-75 NB	C	2	1,620	19.1%	83	5.1%	Yes	No
I-75 NB to I-75 SB	C	4	2,540	17.0%	74	2.9%	No	No
Jackson Road								
Border Rd to Venice Ave	C	2	880	13.9%	60	6.8%	Yes	No
Venice Ave to Hughey Kimel Dr	C	2	880	0.0%	0	0.0%	No	No
Knights Trail								
Laurel Rd to Rustic Rd	C	2	1,720	7.7%	33	1.9%	No	No
Laurel Road								
Pinebrook Rd to I-75 SB	C	4	2,540	14.4%	62	2.4%	No	No
I-75 SB to I-75 NB	C	4	2,540	26.6%	135	5.3%	Yes	No
I-75 NB to Knights Trail Rd	C	4	2,540	40.7%	176	6.9%	Yes	No
Knights Trail Rd to Jacaranda Blvd	C	2	1,720	52.7%	228	13.3%	Yes	No
Jacaranda Blvd to Citadella Dr	C	2	1,720	54.9%	238	13.8%	Yes	Yes
Venice Ave								
Jacaranda Blvd to Jackson Rd	C	2	1,840	3.8%	16	0.9%	No	No
Jackson Rd to River Rd	C	2	880	8.7%	38	4.3%	No	No

In addition to the roadway segments evaluated in the study area, intersections of regulated roadways within the study area as well as the two site access connections were evaluated. The eight regulated roadway intersections that were studied are listed below.

- I-75 SB Ramps/Laurel Rd
- I-75 NB Ramps/Laurel Rd
- Knights Trail Rd/Laurel Rd
- Jacaranda Blvd/Laurel Rd
- Jacaranda Blvd/Border Rd
- Jacaranda Blvd/I-75 NB Ramps
- Jackson Rd/Border Rd
- Jackson Rd/Venice Ave

2017 Existing Traffic Conditions

Vehicle turning movement counts were conducted at the study area intersections on Thursday September 21, 2017. The turning movement counts were taken during the PM peak period (4:00 PM to 6:00 PM) to quantify existing PM peak-hour conditions. The turning movement counts then were adjusted by Sarasota County's seasonal adjustment factor of 1.134 for the month of September. The existing PM peak-hour peak-season traffic volumes are shown in Figure 4. The peak-season factors, turning movement counts, and signal timing information are attached in Appendix B.

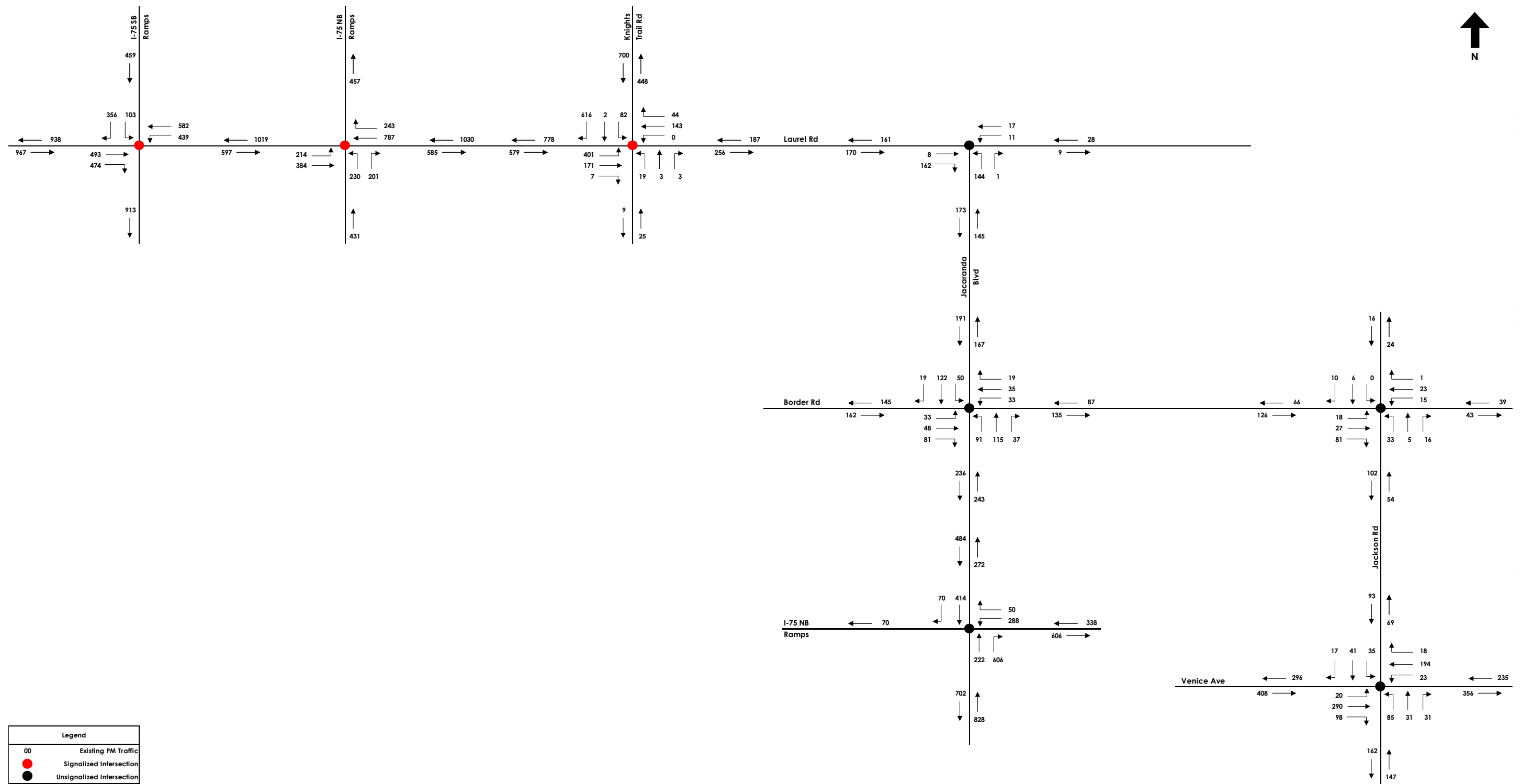


Figure 4: Existing PM Peak-Hour Peak-Season Traffic

ROADWAY ANALYSIS

Roadway segmentation and maximum service volumes were taken from Sarasota County's 2015 *Generalized Level of Service Analysis Table*. Existing segment volumes were obtained from the peak-season volumes entering/exiting the intersections during the peak-hour. The results of the 2017 existing level-of-service analysis are summarized in Table 3 and indicate that all segments within the study area are operating at acceptable level-of-service standards.

Table 3: 2017 Existing Segment Conditions

Road Name and Segment	Adopted LOS			Existing Traffic	Exceeds LOS?
	LOS Standard	Number of Lanes	Service Volume		
Border Road					
Jacaranda Blvd to Site	C	2	1,400	222	No
Site to Jackson Rd	C	2	1,400	192	No
Jacaranda Boulevard					
Border Rd to I-75 NB	C	2	1,620	618	No
Jackson Road					
Border Rd to Venice Ave	C	2	880	159	No
Laurel Road					
I-75 SB to I-75 NB	C	4	2,540	1,616	No
I-75 NB to Knights Trail Rd	C	4	2,540	1,486	No
Knights Trail Rd to Jacaranda Blvd	C	2	1,720	387	No
Jacaranda Blvd to Citadella Dr	C	2	1,720	37	No

INTERSECTION ANALYSIS

The intersection analysis was performed using Trafficware's Synchro 9 Software (using HCM 2010 methodology). If the HCM 2010 methodology could not be applied at a signalized intersection, the HCM 2000 methodology was used. As part of the analysis, existing lane geometry was used at the study intersections. The City of Venice has adopted an overall intersection level-of-service standard of C for signalized intersections of county roads and an overall intersection level-of-service standard of D for signalized intersections of county and state roads or of two state roads. In addition to the overall delay, each intersection movement must have a v/c ratio less than 1.0. The results of the Synchro intersection analysis are summarized in Table 4 and indicate that all intersections currently operate at acceptable level-of-service standards.

Table 4: 2017 Existing Intersection Conditions

Intersection	Type	Overall Intersection LOS		Delay (sec/veh)	Max v/c Ratio	Approach LOS			
		Standard	Existing			EB	WB	NB	SB
I-75 SB Ramps & Laurel Rd	Signalized	C	C	21.4	0.92	C	A		D
I-75 NB Ramps & Laurel Rd	Signalized	C	B	11.7	0.69	A	B	D	
Knights Trail Rd & Laurel Rd	Signalized	C	B	12.1	0.48	A	D	D	A
Jacaranda Blvd & Laurel Rd	TWSC	C	n/a	10.4 ¹	0.19	-- ²	A ³	B	
Jacaranda Blvd & Border Rd	AWSC	C	B	10.9	0.37	B	A	B	B
Jacaranda Blvd & I-75 NB Ramps	TWSC	C	n/a	16.3 ¹	0.52		C	-- ²	-- ²
Jackson Rd & Border Rd	TWSC	C	n/a	10.0 ¹	0.08	A ³	A ³	B	A
Jackson Rd & Venice Ave	TWSC	C	n/a	23.1 ¹	0.44	A ³	A ³	C	C

1. Delay shown for the worst approach.

2. No left-turn movement for approach.

3. Left-turn movement level-of-service.

The intersection volume tables are provided in Appendix C. The 2017 existing Synchro intersection worksheets are provided in Appendix D and electronic versions of the files are attached on the accompanying DVD.

Scheduled Improvements

The current Sarasota County and City of Venice Capital Improvement Programs (CIPs) and the FDOT Five Year Work Program were reviewed to identify any improvements scheduled in the first three years to be included in the analysis. No improvements were identified in the study area.

In addition, improvements that will be completed with the vested projects were included for the future traffic conditions. Four improvements were identified:

- Add a second westbound left-turn lane along Laurel Road at the I-75 SB Ramps. (Triple Diamond Commerce Park mitigation)
- Widening of Laurel Road to 4-lanes along the site boundary. (The Bridges mitigation)
- Extend the eastbound left-turn lanes along Laurel Road at Knights Trail Road. (Portofino mitigation)
- Restripe the northbound approach at the Jacaranda Boulevard/Border Road intersection from a shared left-turn/through lane and exclusive right-turn lane to an exclusive left-turn lane and a shared through/right-turn lane. (VICA mitigation)

2024 Background Traffic Conditions

The background traffic conditions were analyzed for the build-out year of 2024. The background traffic conditions consist of the existing PM peak-hour peak-season traffic volumes, an annual background growth rate, and vested traffic volumes from approved projects.

- Annual Average Daily Traffic (AADT) volumes, obtained from the Sarasota County *Generalized Level of Service Tables* for roadway segments in the vicinity of the project, indicate a historic annual growth rate of 2.57% for the last five years and a negative growth rate for the last ten years. The historic growth rates are shown in Table 5. A two percent annual growth rate was used to forecast future background traffic.

Table 5: Historic Growth Rates

Road Name and Segment	2005 AADT	2010 AADT	2015 AADT	5-YR Growth Rate	10-YR Growth Rate
Border Road					
Auburn Rd to Jacaranda Blvd	--	2,406	2,349	-0.48%	--
Jacaranda Blvd to Jackson Rd	--	1,477	1,477	0.00%	--
Jackson Rd to South Moon Dr.	--	1,477	1,477	0.00%	--
Jacaranda Boulevard					
Border Rd to I-75	--	2,193	4,530	15.61%	--
I-75 to Executive/Commercial	28,634	23,655	23,113	-0.46%	-2.12%
Jackson Road					
Border Rd to Venice Ave	819	970	1,093	2.42%	2.93%
Laurel Road					
Pinebrook Rd to I-75	16,093	14,020	16,327	3.09%	0.14%
I-75 to Knights Trail Rd	26,137	11,403	15,334	6.10%	-5.19%
Knights Trail Rd to Citadella Dr	--	11,403	15,334	6.10%	--
Venice Ave					
Jacaranda Blvd to Jackson Rd	7,760	6,580	7,125	1.60%	-0.85%
Jackson Rd to River Rd	4,734	4,095	4,817	3.30%	0.17%
TOTAL	109,902	105,409	119,658	2.57%	-1.25%

- Vested traffic from Toscana Isles, the Bridges, Portofino, the Woods at Venice, and the Milano PUD were added as part of the background traffic. The applicable pages from the traffic studies showing the volumes at the study area intersections are attached in Appendix E.

The 2024 PM peak-hour background traffic volumes are shown in Figure 5 as well as in Appendix C.

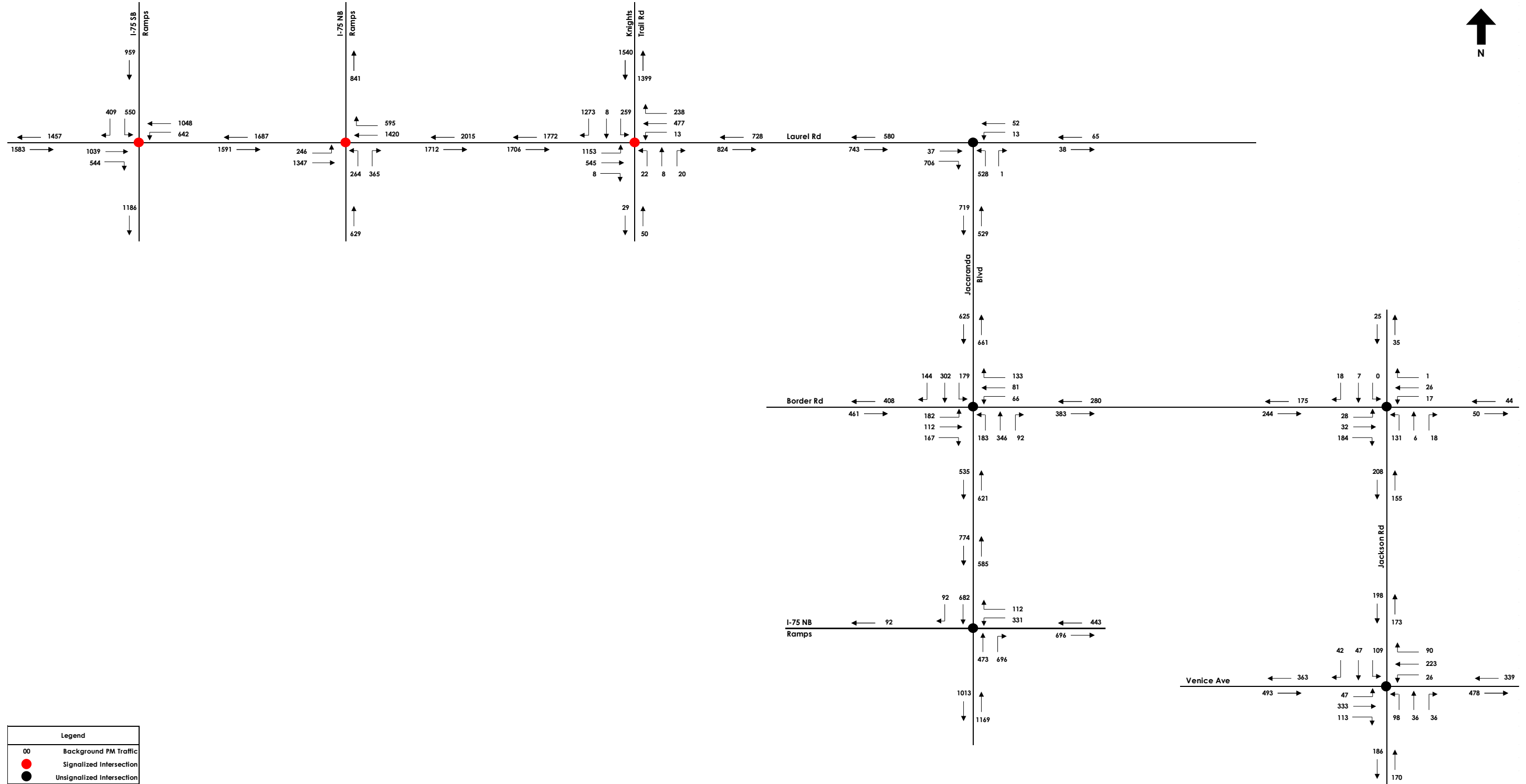


Figure 5: 2024 PM Peak-Hour Background Traffic

ROADWAY ANALYSIS

Roadway segmentation and maximum service volumes were again taken from Sarasota County's 2015 Generalized Level of Service Analysis Table. The results of the 2024 background traffic level-of-service analysis are summarized in Table 6 and indicate that all segments within the study area are anticipated to continue to operate at acceptable level-of-service standards except for Laurel Road from the I-75 SB Ramps to Knights Trail Road. The failure on Laurel Road is due to the large amount of background growth, the majority of which is vested traffic.

Table 6: 2024 Background Traffic Segment Conditions

Road Name and Segment	Adopted LOS			Existing Traffic	Bkgd Growth	Vested Traffic ¹						2024 Bkgd Traffic	Exceeds LOS?
	LOS Standard	Number of Lanes	Service Volume			Toscana Isles	The Bridges	Porto fino	Woods at Venice	Milano PUD (VICA East of Jacaranda)	Milano PUD (Laurel Lakes West of Jacaranda)		
Border Road													
Jacaranda Blvd to Site	C	2	1,400	222	33	0	31	138	190	12	37	663	No
Site to Jackson Rd	C	2	1,400	192	29	0	0	138	61	0	0	420	No
Jacaranda Boulevard													
Border Rd to I-75 NB	C	2	1,620	618	92	0	143	133	39	60	174	1,259	No
Jackson Road													
Border Rd to Venice Ave	C	2	880	159	24	0	0	127	57	0	0	367	No
Laurel Road													
I-75 SB to I-75 NB	C	4	2,540	1,616	240	477	171	470	0	86	219	3,279	Yes
I-75 NB to Knights Trail Rd	C	4	2,540	1,486	221	593	231	670	0	119	283	3,603	Yes
Knights Trail Rd to Jacaranda Blvd	C	2	1,720	387	58	152	122	259	0	131	331	1,440	No
Jacaranda Blvd to Citadella Dr	C	2	1,720	37	6	25	0	35	0	0	0	103	No

1. Volumes obtained from individual movements at the intersections; see Appendix C for additional detail.

INTERSECTION ANALYSIS

The intersection analysis was again performed using Trafficware's Synchro 9 Software. The 2024 background traffic analysis used the same geometry as the existing conditions, except for the identified vested project improvements. Signal timing adjustments were also made along the Laurel Road corridor in conjunction with the geometric improvements.

The results of the Synchro intersection analysis are summarized in Table 7 and indicate that the I-75 SB Ramps/Laurel Road, Jacaranda Boulevard/Laurel Road, and Jacaranda Boulevard/Border Road intersections are anticipated to operate at unacceptable level-of-service standards and have v/c ratios greater than 1.0. The other five intersections are anticipated to operate at acceptable level-of-service standards.

Table 7: 2024 Background Traffic Intersection Conditions

Intersection	Type	Overall Intersection LOS		Delay (sec/veh)	Max v/c Ratio	Approach LOS			
		Standard	Bkgd			EB	WB	NB	SB
I-75 SB Ramps & Laurel Rd	Signalized	C	F	124.0	2.20	F	A		F
I-75 NB Ramps & Laurel Rd	Signalized	C	E	55.3	1.23	A	F	D	
Knights Trail Rd & Laurel Rd	Signalized	C	E	64.4	1.30	F	D	D	B
Jacaranda Blvd & Laurel Rd	TWSC	C	n/a	120.3 ¹	1.16	-- ²	A ³	F	
Jacaranda Blvd & Border Rd	AWSC	C	F	138.4	1.54	F	E	F	F
Jacaranda Blvd & I-75 NB Ramps	TWSC	C	n/a	41.5 ¹	0.88		E	-- ²	-- ²
Jackson Rd & Border Rd	TWSC	C	n/a	12.8 ¹	0.28	A ³	A ³	B	A
Jackson Rd & Venice Ave	TWSC	C	n/a	59.1 ¹	0.81	A ³	A ³	F	F

1. Delay shown for the worst approach.
2. No left-turn movement for approach.
3. Left-turn movement level-of-service.

The intersection volume tables are provided in Appendix C. The 2024 background traffic Synchro intersection worksheets are provided in Appendix F, and electronic versions of the files are attached on the accompanying DVD.

IMPROVED BACKGROUND TRAFFIC ANALYSIS

The large amount of background traffic creates arterial deficiencies on Laurel Road between the I-75 SB Ramps and Knights Trail Road and intersection deficiencies at three of the study area intersections causing them to operate at an unacceptable level-of-service with v/c ratios greater than 1.0. The failures on Laurel Road and at the three study area intersections are preexisting conditions and not caused by the addition of this project's traffic.

Chapter 2011-139, Laws of Florida; and Chapter 163.3180 of the Florida Statutes as amended by HB 319, exempt developers from contributing proportionate-share monies to correct preexisting transportation deficiencies. Because the identified failures are preexisting conditions and not caused by the addition of this project's traffic, improvements to correct the deficiencies can be considered in place. The improvements needed to correct the preexisting deficiencies are:

I-75 SB Ramps/Laurel Road Intersection

- Increase the cycle length from 80 second to 110 seconds.
- Add a second southbound left-turn lane to accommodate the projected 550 vehicles.

I-75 NB Ramps/Laurel Road Intersection

- Increase the cycle length from 80 second to 110 seconds.

Knights Trail Road/Laurel Road Intersection

- Increase the cycle length from 80 second to 110 seconds.

Jacaranda Boulevard/Laurel Road Intersection

- Add an eastbound right-turn lane to accommodate the projected 706 vehicles.

Jacaranda Boulevard/Border Road Intersection

- Signalize and restripe the southbound approach from a shared left-turn/through lane and exclusive right-turn lane to an exclusive left-turn lane and a shared through/right-turn lane so that left-turn traffic will not block through traffic on green.

The improvements to the intersections are anticipated to allow the arterial segment of Laurel Road to operate at acceptable level-of-service standards without widening Laurel Road from four to six lanes. Table 8 shows results of the detailed Synchro arterial analysis by direction accounting for the improvements to the intersection and Table 9 shows the results of the improved intersection analysis for the background traffic conditions. The tables demonstrate that the identified improvements will correct the preexisting deficiencies and allow the arterial and intersections to operate at acceptable level-of-service standards.

Table 8: Improved 2024 Background Traffic Arterial Conditions

Arterial	Direction	Adopted LOS	Number of Lanes / Direction	Arterial Speed (mph)	Arterial LOS
Laurel Road					
I-75 SB to I-75 NB	EB	C	2	32.6	B
	WB		2	31.1	B
I-75 NB to Knights Trail Rd	EB	C	2	29.8	B
	WB		2	23.3	C

Table 9: Improved 2024 Background Traffic Intersection Conditions

Intersection	Type	Overall Intersection LOS		Delay (sec/veh)	Max v/c Ratio	Approach LOS			
		Standard	Bkgd Imp			EB	WB	NB	SB
I-75 SB Ramps & Laurel Rd	Signalized	C	C	28.4	0.89	D	A		D
I-75 NB Ramps & Laurel Rd	Signalized	C	B	16.1	0.81	A	C	D	
Knights Trail Rd & Laurel Rd	Signalized	C	C	29.3	0.95	C	E	D	B
Jacaranda Blvd & Laurel Rd	TWSC	C	n/a	17.9 ¹	0.69	-- ²	A ³	C	
Jacaranda Blvd & Border Rd	Signalized	C	B	18.8	0.78	C	B	B	B

1. Delay shown for the worst approach.

2. No left-turn movement for approach.

3. Left-turn movement level-of-service.

The intersection volume tables are provided in Appendix C. The 2024 improved background traffic Synchro arterial and intersection worksheets are provided in Appendix G and electronic versions of the files are attached on the accompanying DVD.

2024 Total Traffic Conditions

The total traffic conditions were analyzed for 2024. The total traffic conditions consist of the existing PM peak-hour peak-season traffic volumes, annual background growth, vested traffic from approved developments, and project traffic. The 2024 total traffic PM peak-hour peak-season total traffic volumes are shown in Figure 6.

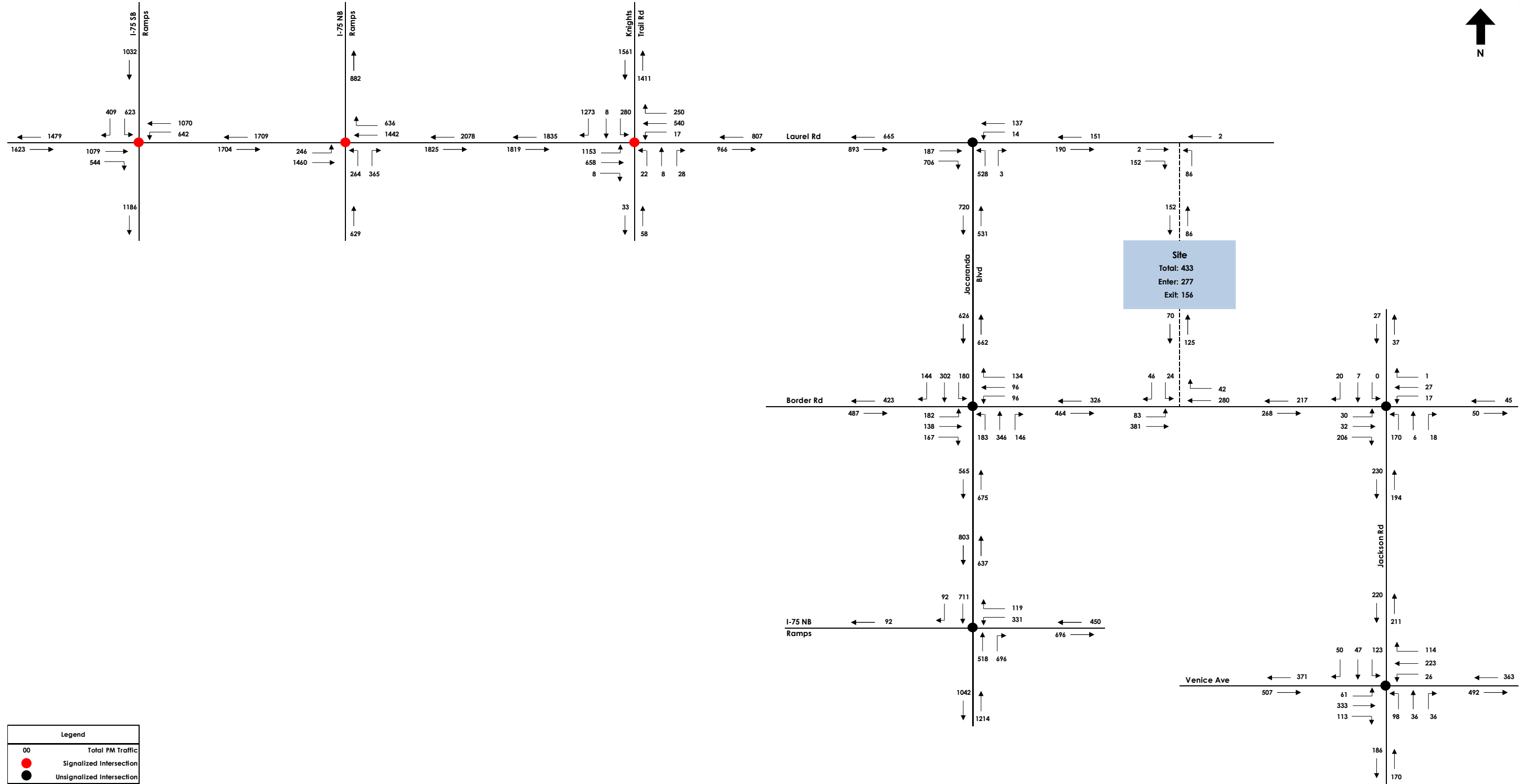


Figure 6: 2024 PM Peak-Hour Total Traffic

ROADWAY ANALYSIS

Roadway segmentation and maximum service volumes were again taken from Sarasota County's 2015 Generalized Level of Service Analysis Table. The results of the 2024 total traffic level-of-service analysis are summarized in Table 10 and indicate that all segments in the study area will operate at acceptable level-of-service standards with the exception of Laurel Road from the I-75 SB Ramps to Knights Trail Road. Because Laurel Road exceeds its generalized adopted level-of-service standard (as identified in the background traffic conditions), a detailed analysis of the arterial was performed using the Synchro Software. Based on the detailed Synchro analysis, both segments will operate at acceptable level-of-service standards. The 2024 traffic conditions Synchro analysis is attached in Appendix H. No roadway improvements are required in conjunction with this project.

Table 10: 2024 Total Traffic Segment Conditions

Road Name and Segment	Adopted LOS			Bkgd Traffic	Project Traffic	2024 Total Traffic	Exceeds LOS?
	LOS Standard	Number of Lanes	Service Volume				
Border Road							
Jacaranda Blvd to Site	C	2	1,400	663	129	792	No
Site to Jackson Rd	C	2	1,400	420	66	486	No
Jacaranda Boulevard							
Border Rd to I-75 NB	C	2	1,620	1,259	83	1,342	No
Jackson Road							
Border Rd to Venice Ave	C	2	880	367	60	427	No
Laurel Road							
I-75 SB to I-75 NB	C	4	2,540	3,279	135	3,414	Yes ¹
I-75 NB to Knights Trail Rd	C	4	2,540	3,603	176	3,779	Yes ²
Knights Trail Rd to Jacaranda Blvd	C	2	1,720	1,440	228	1,668	No
Jacaranda Blvd to Citadella Dr	C	2	1,720	103	238	341	No

1. The Synchro analysis indicates that the arterial is operating at level-of-service B with an average travel speed of 32.2 mph for the eastbound direction and operating at level-of-service B with an average travel speed of 30.5 mph for the westbound direction.

2. The Synchro analysis indicates that the arterial is operating at level-of-service B with an average travel speed of 29.3 mph for the eastbound direction and operating at level-of-service C with an average travel speed of 23.1 mph for the westbound direction.

INTERSECTION ANALYSIS

The intersection analysis was again performed using Trafficware's Synchro 9 Software. The 2024 total traffic intersection analysis used the same geometry as the improved background traffic analysis. The geometric improvements identified at the three study area intersections needed to correct the background traffic deficiencies were assumed to be in place. The results of the Synchro intersection analysis are summarized in Table 11 and indicate all intersections are anticipated to continue to operate at acceptable level-of-service standards with the addition of project traffic.

Table 11: 2024 Total Traffic Intersection Conditions

Intersection	Type	Overall Intersection LOS		Delay (sec/veh)	Max v/c Ratio	Approach LOS			
		Standard	Total			EB	WB	NB	SB
I-75 SB Ramps & Laurel Rd	Signalized	C	C	30.3	0.91	D	B		D
I-75 NB Ramps & Laurel Rd	Signalized	C	B	15.6	0.83	A	C	D	
Knights Trail Rd & Laurel Rd	Signalized	C	C	33.3	0.98	C	E	D	C
Jacaranda Blvd & Laurel Rd	TWSC	C	n/a	56.9 ¹	0.98	-- ²	A ³	F	
Jacaranda Blvd & Border Rd	Signalized	C	C	21.8	0.85	C	B	C	C
Jacaranda Blvd & I-75 NB Ramps	TWSC	C	n/a	49.9 ¹	0.93		E	-- ²	-- ²
Jackson Rd & Border Rd	TWSC	C	n/a	14.2 ¹	0.37	A ³	A ³	B	A
Jackson Rd & Venice Ave	TWSC	C	n/a	93.2 ¹	0.96	A ³	A ³	F	F

1. Delay shown for the worst approach.

2. No left-turn movement for approach.

3. Left-turn movement level-of-service.

The intersection volume tables are provided in Appendix C. The 2024 total traffic Synchro intersection worksheets are provided in Appendix H and electronic versions of the files are attached on the accompanying DVD.

SITE ACCESS ANALYSIS

The site access analysis evaluated the need for right- and left-turn lanes at the site access points as well as the level-of-service for turn lanes into the site and the v/c ratio for the driveway approaches. The development will utilize two new connections, one to Laurel Road and one to Border Road. Figure 6 shows the project traffic at the proposed access points.

Driveway 1/Laurel Road Site Access Connection

Laurel Road dead-ends into the Venice Myakka River Park approximately 1,400 feet east of the proposed driveway connection. Of the 38 non-project traffic vehicles on Laurel Road east of Jacaranda Boulevard, it was assumed that 10% of that traffic travel east of Citadella Drive, all the way to the park. Because there are so few trips continuing past the project driveway, a right-turn lane is not needed.

It is not anticipated that any traffic will access the site from the east. There may be the occasional trip coming from the Venice Myakka River Park, but the infrequency of those left-turning trips in conjunction with the minimal through traffic will not warrant a westbound left-turn lane.

Driveway 2/Border Road Site Access Connection

The right-turn lane warrant was performed based on the FDOT *Driveway Information Guide*. The report identifies the threshold of right turns requiring an exclusive turn lane for speeds above and below 45 mph. The posted speed on Border Road is 45 mph. For speeds 45 mph or less, a maximum of 80 right turns per hour on two-lane roads is allowed. During the PM peak-hour it is estimated that 42 vehicles will make a westbound right from Border Road at Driveway 2. Given that there are less than 80 right-turning vehicles, the right-turn-lane warrant threshold volume is not satisfied at the site access point. A westbound right-turn lane does not need to be constructed in conjunction with this project.

The need for an eastbound left-turn lane at Driveway 2 was based on the M.D. Harmelink Study and the National Cooperative Highway Research Program (NCHRP) Report 279. The left-turn lane warrant analysis is summarized below:

	<u>Driveway 1</u>
Advancing Volume (Va) =	464 vph
Opposing Volume (Vo) =	326 vph
Left-turn Volume =	83 vph
Laurel Road Speed Limit =	45 mph
Percent Left Turns =	18% ≈ 20%

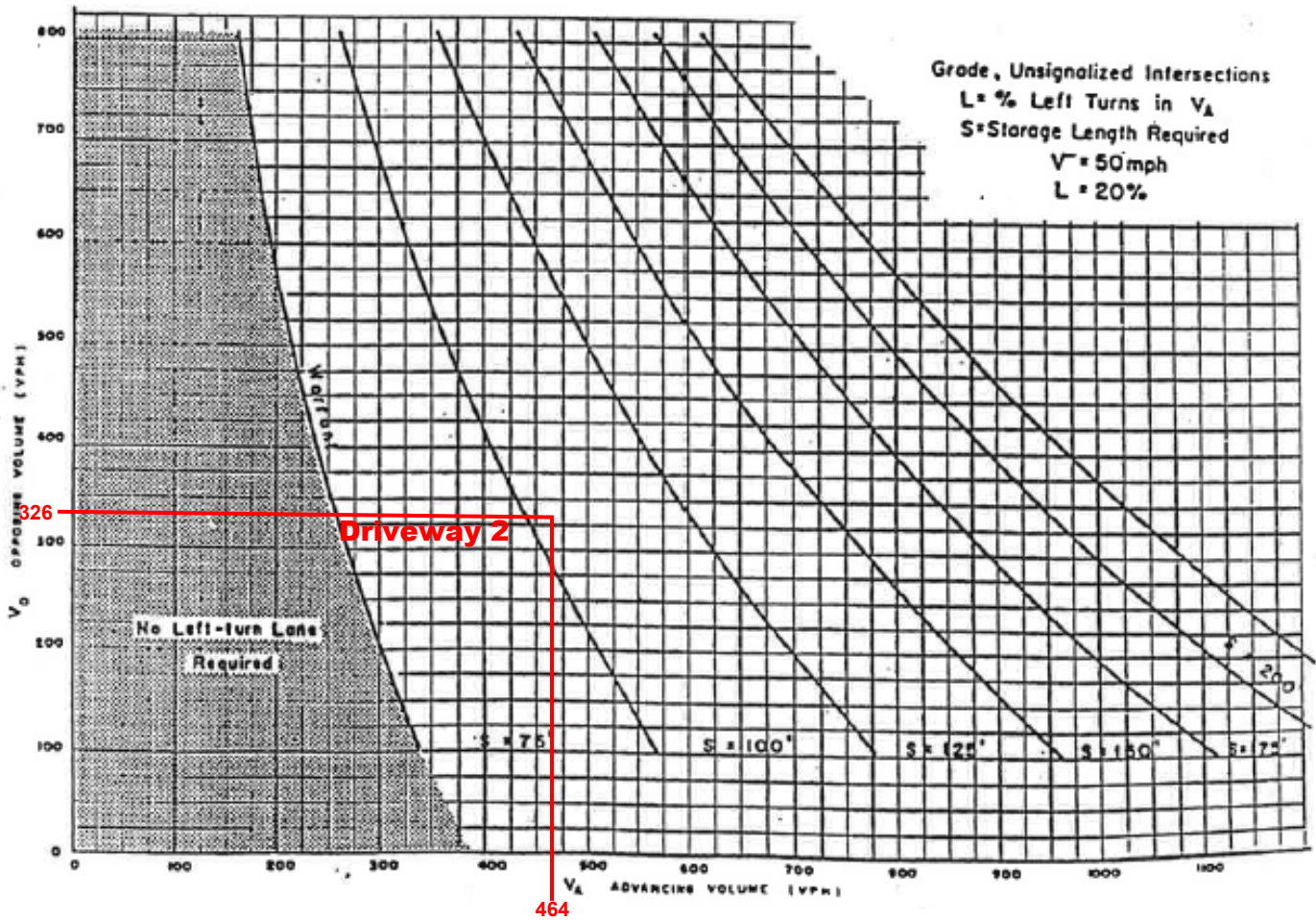


Figure 7: Driveway 2/Border Road Left-Turn Lane Warrant

Based on the trip generation and assignment, Driveway 2 warrants a left-turn lane. FDOT *Standard Index 301* specifies a deceleration length of 185 feet for a speed of 45 mph. The required unsignalized queue length for the left-turn lane was calculated using procedures outlined in the *AASHTO Green Book*. The *AASHTO Green Book* specifies that at a minimum, queue storage for at least two vehicles (50 feet) be provided. The 83 eastbound left-turning vehicles will require 75 feet of queue; therefore, the left-turn lane should be 260 feet (185 + 75). The queue length calculation is shown below:

Driveway 2 Eastbound Left-turn Lane Queue Length:

$$83 \frac{veh}{hr} \left(\frac{1 hr}{60 min} \right) \left(\frac{2 min}{25 ft} \right) \left(\frac{25 ft}{veh} \right) \approx 69 ft = 75 ft$$

Level-of-Service Analysis

A Synchro analysis was performed to ensure that the turn lanes into the site operate at acceptable level-of-service. The City of Venice has not adopted level-of-service standards for driveways. The driveway approaches were checked to ensure that the v/c ratio did not exceed 1.0. Table 12 demonstrates that the turn lanes into the site will operate at acceptable level-of-service standards and the driveway approaches will have v/c ratios less than 1.0.

Table 12: Site Access Level-of-Service Analysis

Intersection	Type	Delay (sec/veh)	Max v/c Ratio	Left Turn Queue (ft) ¹	Approach LOS			
					EB	WB	NB	SB
Driveway 1 & Laurel Rd	TWSC	9.4 ²	0.11	0	-- ³	A ⁴	A	
Driveway 2 & Border Rd	TWSC	14.5 ²	0.17	5	A ⁴	-- ³		B

1. Queue for the inbound left-turn movement to the site.
2. Delay shown for the worst site-related approach.
3. No left-turn movement for approach
4. Left-turn movement level-of-service.

The site access analysis Synchro intersection worksheets are provided in Appendix I and electronic versions of the files are attached on the accompanying DVD.

Conclusion

The SJMR Property consists of 539 single-family dwelling units and is estimated to generate 433 PM peak-hour trip ends (277 entering; 156 exiting). The analysis evaluated a build-out year of 2024. A transportation concurrency analysis and site access analysis were both performed for the project for the PM peak-hour.

All study area roadway segments and intersections are currently operating at acceptable level-of-service standards. Several deficiencies were identified in the study area for the background traffic conditions in 2024. Laurel Road between the I-75 SB Ramps and Knights Trail Road is anticipated to exceed the City of Venice's generalized adopted level-of-service standards. However, a detailed arterial analysis demonstrates that the improvements to the adjacent intersections alleviate the deficiency without widening the road from four to six lanes. In addition, the I-75 SB Ramps/Laurel Road, I-75 NB Ramps/Laurel Road, Knights Trail Road/Laurel Road, Jacaranda Boulevard/Laurel Road, and Jacaranda Boulevard/Border Road intersections were identified as having deficiencies. The improvements needed to correct the preexisting deficiencies at each intersection (as well as the arterial segment of Laurel Road between the I-75 SB Ramps and Knights Trail Road) are:

I-75 SB Ramps/Laurel Road Intersection

- Increase the cycle length from 80 second to 110 seconds.
- Add a second southbound left-turn lane to accommodate the projected 550 vehicles.

I-75 NB Ramps/Laurel Road Intersection

- Increase the cycle length from 80 second to 110 seconds.

Knights Trail Road/Laurel Road Intersection

- Increase the cycle length from 80 second to 110 seconds.

Jacaranda Boulevard/Laurel Road Intersection

- Add an eastbound right-turn lane

Jacaranda Boulevard/Border Road Intersection

- Signalize and restripe the southbound approach.

Because the failures identified above are preexisting conditions and not caused by the addition of this project's traffic, improvements to correct the deficiencies can be considered in place. Once the aforementioned improvements are made, all intersections will operate at acceptable level-of-service standards. The addition of project traffic does not create any additional deficiencies in the study area.

The site access analysis evaluated the two new driveway connections to Laurel Road and Border Road. The need for right- and left-turn lanes as well as the operating conditions of the driveway approaches was evaluated. The following site access improvements are required in

conjunctions with this project. All turn lanes should be constructed in accordance with the FDOT *Plans Preparation Manual* and *Standard Index 301*.

Driveway 1/Laurel Road

- none

Driveway 2/Border Road

- Construct a 260-foot eastbound left-turn lane

APPENDIX A

METHODOLOGY STATEMENT



Stantec Consulting Services Inc.
 6900 Professional Parkway East
 Sarasota FL 34240-8414
 Tel: (941) 907-6900
 Fax: (941) 907-6910

October 3, 2017

Jeff Shrum, AICP
 Community Development Director
 City of Venice
 401 W. Venice Avenue
 Venice, Florida 34285

Via email: jshrum@venicegov.com

**Reference: Hurf Property
 Transportation Methodology Statement**

Dear Mr. Shrum:

This letter serves to summarize the Transportation Methodology for the subject project for your approval. The proposed development is located east of the Jacaranda Boulevard Extension between Border Road and Laurel Road in Venice, Florida. The petitioner proposes to construct a maximum of 524 dwelling units; 381 single-family detached dwelling units and 143 single-family attached dwelling units. The development will have two access points, one to Laurel Road and one to Border Road. The build-out year for the development is 2024. The analysis is for transportation concurrency approval from the City of Venice. The following is a summary of the methodology:

Trip Generation

The transportation analysis will be based on the PM peak-hour. Traffic volumes generated by the proposed development will be estimated using the Institute of Transportation Engineers (ITE), *Trip Generation – the 9th Edition (2012)*. Land Use Code 210 (Single-Family Detached Housing) and Land Use Code 230 (Condominium/Townhouse) will be used to estimate the trip generation potential. No Internal Capture or Pass-by Capture trips will be used in the analysis. The PM peak-hour trip generation is summarized in Table 1.

Table 1: PM Peak-Hour Trip Generation

ITE Land Use Category	Variable	Size	PM Peak Trip Rate/ Equation	PM Enter Split	PM Exit Split	PM Peak Total Trips		
						Total	Enter	Exit
Single-Family Detached Housing - 210	Per Unit	381	$\ln(T) = 0.90\ln(x) + 0.51$	63%	37%	350	221	129
Condominium/Townhouse - 230	Per Unit	143	$\ln(T) = 0.82\ln(x) + 0.32$	67%	33%	81	54	27
TOTAL						431	275	156



October 3, 2017
Jeff Shrum, AICP
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**Reference: Hurt Property
Transportation Methodology Statement**

Trip Distribution

The FDOT D1 Districtwide 2018 Existing plus Committed travel demand model will be used to distribute project traffic from the site. Similar to the manual adjustments requested by the City of Venice during previous transportation methodologies, project traffic will be manually adjusted to remove north-south project traffic assigned to Auburn Road and shift those trips onto Jacaranda Boulevard, a more likely north-south route. Additionally, the model assigns 4.8% of the project traffic to TAZ 4908, a primarily residential TAZ. The majority of that traffic was reassigned onto Jackson Road and Venice Avenue. The distribution of project traffic from the site is shown in the attached Figure.

Study Area

The study area will consist of arterial and collector roads that:

- Project traffic equals or exceeds five percent of the adopted two-way peak-hour service volume, as specified by Sarasota County's 2015 Generalized Level of Service Table, for all applicable county and state roads.
- Any road segment to which the development has a direct access or which the development accesses via local and private roads.

It is anticipated that eight regulated roadway segments will exceed five percent of the adopted two-way peak-hour service volume or have direct access and will be included in the study area. A preliminary study area determination is shown in Table 2 and shown in the attached graphic.



**Reference: Hurt Property
 Transportation Methodology Statement**

Table 2: Study Area Determination

Road Name and Segment	Adopted LOS			Percent Project Traffic	New Project Traffic		Significant Impact? (>5%)	Direct Access?
	LOS Standard	Number of Lanes	Service Volume		Trips	% Impact		
Auburn Road								
Border Rd to Venice Ave	C	2	1,400	1.9%	8	0.6%	No	No
Border Road								
Auburn Rd to Jacaranda Blvd	C	2	1,220	9.5%	41	3.4%	No	No
Jacaranda Blvd to Site	C	2	1,400	29.7%	128	9.1%	Yes	Yes
Site to Jackson Rd	C	2	1,400	15.3%	66	4.7%	No	Yes
Jackson Rd to South Moon Dr.	C	2	1,300	0.3%	1	0.1%	No	No
Edmondson Road								
Capri Isles Blvd to Auburn Rd	C	2	1,120	6.4%	28	2.5%	No	No
I-75								
SR 681 to Laurel Rd	B	6	5,870	26.2%	113	1.9%	No	No
Laurel Rd to Jacaranda Blvd	B	6	5,870	0.0%	0	0.0%	No	No
Jacaranda Blvd to River Rd	B	6	5,870	2.6%	11	0.2%	No	No
Jacaranda Boulevard								
Laurel Rd to Border Rd	C	2	1,720	0.7%	3	0.2%	No	No
Border Rd to I-75 NB	C	2	1,620	19.1%	82	5.1%	Yes	No
I-75 NB to I-75 SB	C	4	2,540	17.0%	73	2.9%	No	No
Jackson Road								
Border Rd to Venice Ave	C	2	880	13.9%	60	6.8%	Yes	No
Venice Ave to Hughey Kimel Dr	C	2	880	0.0%	0	0.0%	No	No
Knights Trail								
Laurel Rd to Rustic Rd	C	2	1,720	7.7%	33	1.9%	No	No
Laurel Road								
Pinebrook Rd to I-75 SB	C	4	2,540	14.4%	62	2.4%	No	No
I-75 SB to I-75 NB	C	4	2,540	26.6%	134	5.3%	Yes	No
I-75 NB to Knights Trail Rd	C	4	2,540	40.7%	175	6.9%	Yes	No
Knights Trail Rd to Jacaranda Blvd	C	2	1,720	51.5%	222	12.9%	Yes	No
Jacaranda Blvd to Citadella Dr	C	2	1,720	54.9%	237	13.8%	Yes	Yes
Venice Ave								
Jacaranda to Jackson	C	2	1,840	2.8%	12	0.7%	No	No
Jackson to River Rd	C	2	880	8.7%	38	4.3%	No	No

In addition, intersections at the termini of study area roadway segments as well as the project access points will be evaluated. The eight off-site intersections that will be studied are listed below. The study area roadway segments and intersections are shown in the attached graphic.

1. I-75 SB/Laurel Rd
2. I-75 NB/Laurel Rd
3. Knights Trail/Laurel Rd
4. Jacaranda Blvd/Laurel Rd
5. Jacaranda Blvd/Border Rd
6. Jacaranda Blvd/I-75 NB
7. Jackson Rd/Border Rd
8. Jackson Rd/Venice Ave



**Reference: Hurt Property
Transportation Methodology Statement**

Scheduled/Planned Improvements

Improvements scheduled for construction in the current Sarasota County and City of Venice Capital Improvement Programs (CIPs) or the FDOT Five Year Work Program will be included in the analysis. Improvements scheduled in the first three years will be assumed to be in place for the future traffic conditions. In addition, any improvements that will be completed with the vested projects will be included for the future traffic conditions as well.

Existing and Future Traffic

1. Existing Traffic:

Will be based on PM peak-hour turning movement counts collected at the study area intersections. The intersection counts will be adjusted to peak-season conditions based upon Sarasota County's peak-season correction factors.

2. Future Traffic (Non Project):

Annual Average Daily Traffic (AADT) volumes obtained from the Sarasota County Generalized Level of Service Tables for roadway segments in the vicinity of the project indicates a historical annual growth rate of 2.57% for the last five years and a negative growth rate for the last ten years. The historical growth rate is shown in Table 3. It is proposed that a 2.0% annual growth rate be used to forecast future background traffic. In addition to the background growth, any vested traffic within the study area will be provided by the City of Venice. It is anticipated that the following project will be included as part of the background traffic:

- Toscana Isles
- The Bridges
- Portofino
- Woods of Venice
- Milano PUD
 - Villages of Milano (VICA)¹
 - Laurel Lakes²

¹ The 455 units (329 single-family detached dwelling units and 126 single-family attached dwelling units) which are platted or have construction plan approval east of the Jacaranda Boulevard Extension. 186 units have COs, the remaining 269 units will be used as vested.

² The 895 units (329 single-family detached dwelling units and 126 single-family attached dwelling units) west of the Jacaranda Boulevard Extension.



**Reference: Hurt Property
 Transportation Methodology Statement**

Table 3: Historical Growth Rates

Road Name and Segment	2005 AADT	2010 AADT	2015 AADT	5-YR Growth Rate	10-YR Growth Rate
Border Road					
Auburn Rd to Jacaranda Blvd	--	2,406	2,349	-0.48%	--
Jacaranda Blvd to Jackson Rd	--	1,477	1,477	0.00%	--
Jackson Rd to South Moon Dr.	--	1,477	1,477	0.00%	--
Jacaranda Boulevard					
Border Rd to I-75	--	2,193	4,530	15.61%	--
I-75 to Executive/Commercial	28,634	23,655	23,113	-0.46%	-2.12%
Jackson Road					
Border Rd to Venice Ave	819	970	1,093	2.42%	2.93%
Laurel Road					
Pinebrook Rd to I-75	16,093	14,020	16,327	3.09%	0.14%
I-75 to Knights Trail Rd	26,137	11,403	15,334	6.10%	-5.19%
Knights Trail Rd to Citadella Dr	--	11,403	15,334	6.10%	--
Venice Ave					
Jacaranda to Jackson	7,760	6,580	7,125	1.60%	-0.85%
Jackson to River Rd	4,734	4,095	4,817	3.30%	0.17%
TOTAL	109,902	105,409	119,658	2.57%	-1.25%

Analysis Scenarios

The analysis will be undertaken for the PM Peak-Hour, and will include the following scenarios:

1. Existing traffic will be evaluated within the established study area (2017 conditions).
2. Existing traffic plus Future traffic will be evaluated for 2024.
3. Existing traffic plus Future traffic plus Project traffic will be evaluated for 2024.

Proportionate Fair Share Analysis

Consistent with Chapter 2011-139, Laws of Florida and Chapter 163.3180 of the Florida Statutes, as amended by HB 319, a proportionate fair share calculation will be provided for only those transportation deficiencies created by project traffic. If transportation improvements are needed to maintain the adopted level of service standards for Scenario 2 (Existing plus Future traffic), the necessary improvements will be identified and will be considered in place for Scenario 3 (Existing plus Future plus Project traffic). The project's proportionate fair share will be calculated only for any needed transportation improvements greater than those improvements required to remedy any deficiencies identified in Scenario 2. If a deficiency is created by project traffic in Scenario 3, the proportionate fair share will be calculated based upon the PM peak-hour trip generation and the following formula:

$$\text{Proportionate Fair Share} = \sigma \left[\left(\frac{\text{Development Trips}_i}{\text{SV Increase}_i} \right) * \text{Cost}_i \right]$$



October 3, 2017
Jeff Shrum, AICP
Page 6 of 6

**Reference: Hurt Property
Transportation Methodology Statement**

Turn Lane Analysis

A review of the turn lane requirements at the site access connections will be performed. Right turn lane warrants will be based on the FDOT *Driveway Information Guide*. The left turn lane warrants will be based on the M.D. Harmelink Study and the National Cooperative Highway Research Program (NCHRP) Report 279. If turn lanes are required, design requirements in the FDOT *Design Standards Index No. 301* will be used.

Analysis Procedures

All analyses will be conducted in a manner consistent with the procedures and assumptions utilized by the City of Venice. Intersection capacity analysis for the study area intersections will be conducted using Synchro Version 9. The Synchro output will utilize the HCM 2010 reports. Roadway segment capacity analysis will be conducted using the Sarasota County adopted level of service volumes, the FDOT's Generalized Level of Service Volume Tables, ARTPLAN and/or Synchro. The findings of the study will be summarized in a signed and sealed report.

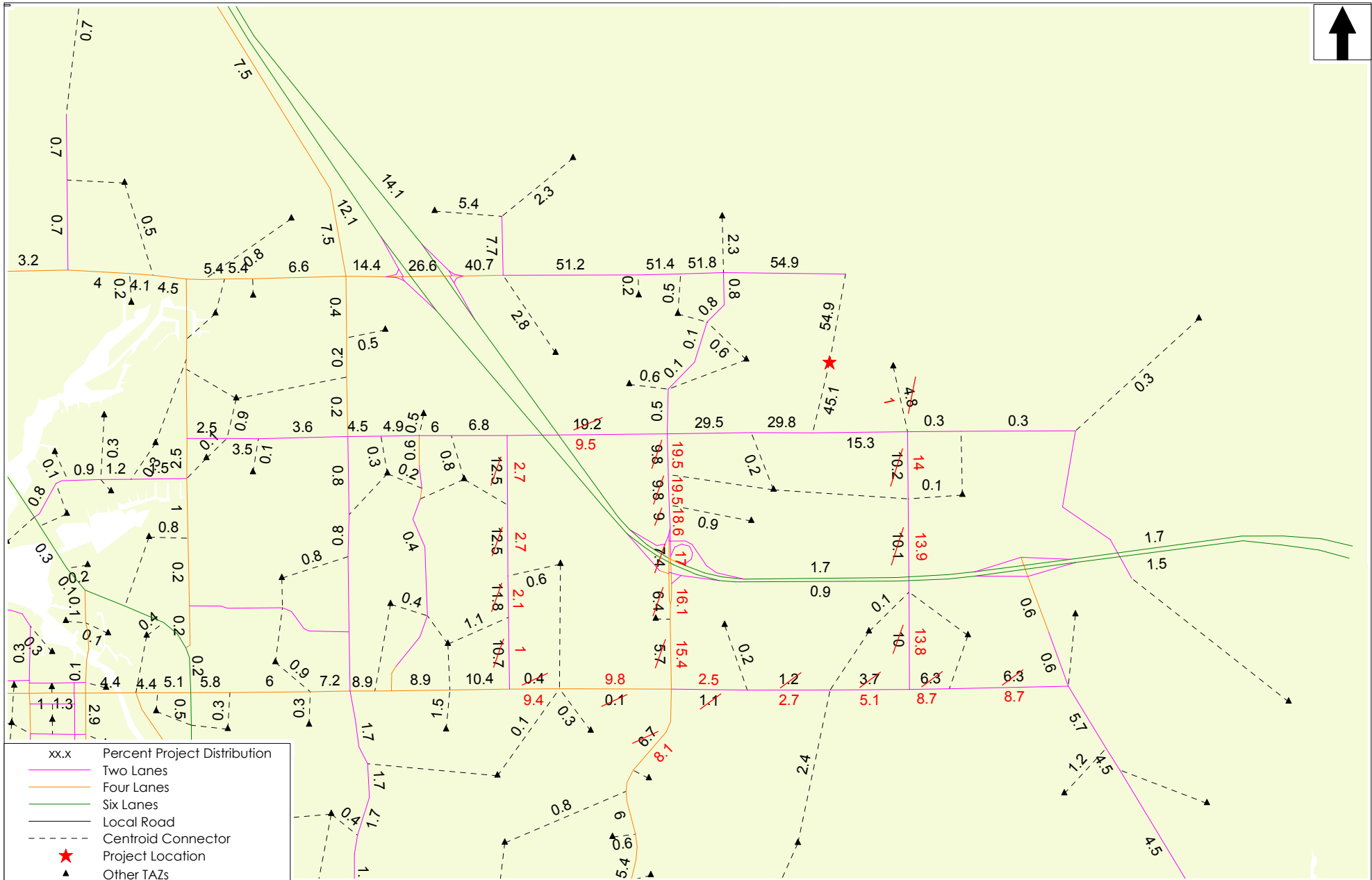
If the above methodology is acceptable, please send written confirmation so we can proceed with the study. Should you have any questions, please feel free to contact me.

Sincerely,

Stantec Consulting Services Inc.

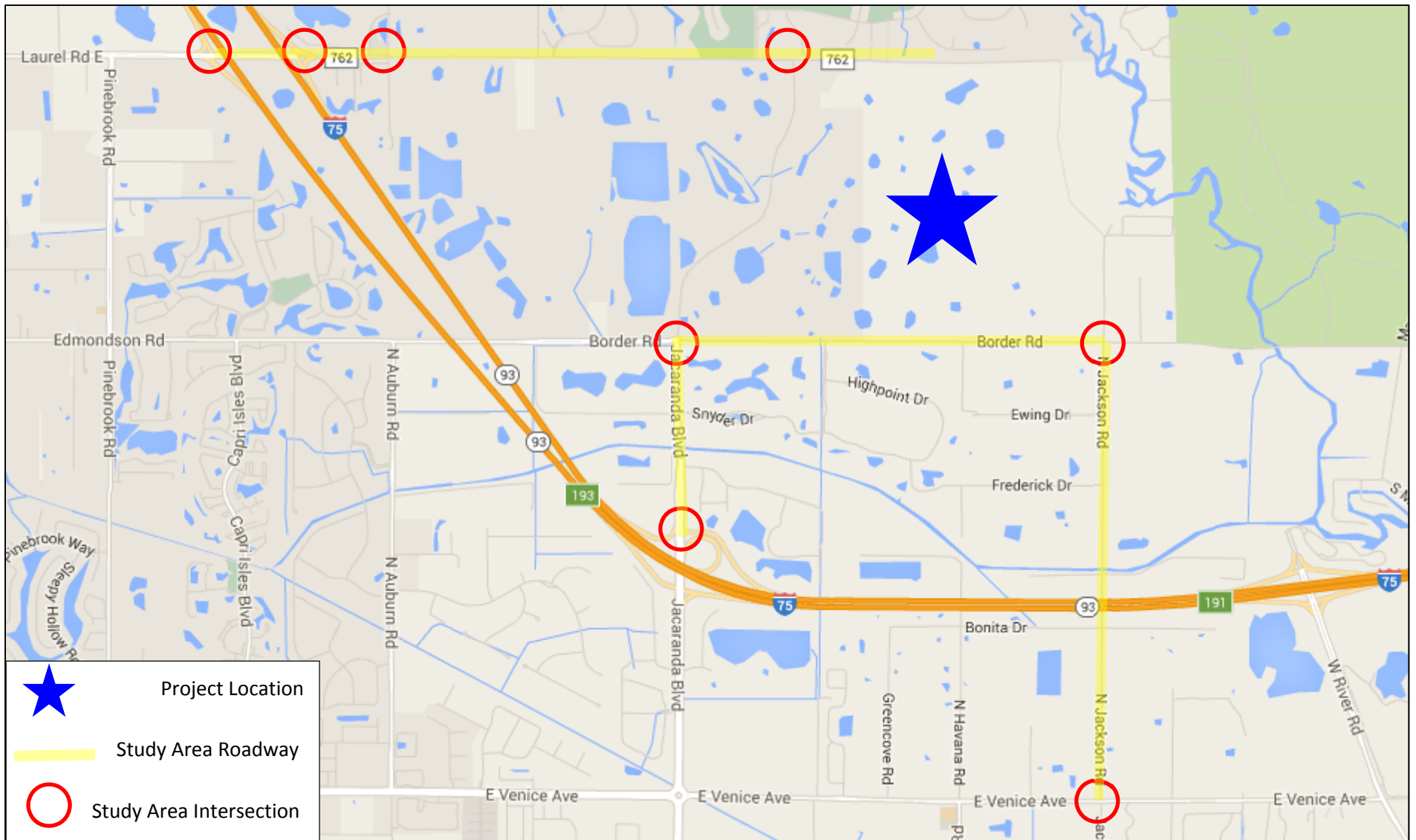
Matthew R. Crim, P.E., PTOE
Transportation Engineer
Ph: 832-523-9111
matt.crim@stantec.com

Attachments: Project Traffic Distribution
Study Area



- xx.x Percent Project Distribution
- Two Lanes
- Four Lanes
- Six Lanes
- Local Road
- - - Centroid Connector
- ★ Project Location
- ▲ Other TAZs

Project Traffic Distribution
2018 Existing Plus Committed Network
Hurt Property



STUDY AREA

APPENDIX B

SARASOTA COUNTY SEASONAL ADJUSTMENT FACTORS

TURNING MOVEMENT COUNTS

EXISTING SIGNAL TIMING

**FACTORS FOR ADJUSTING PEAK HOUR TRAFFIC VOLUMES
TO THE 100TH DESIGN HOURLY VOLUME,
BASED ON THE DAY OF THE WEEK AND THE MONTH
OF THE YEAR**

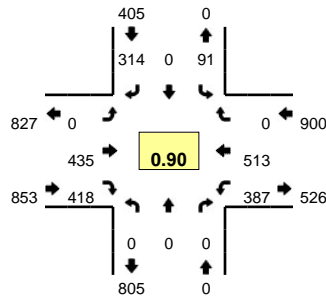
<u>Month</u>	<u>M, T, W, & Th</u>	<u>F</u>
January	1.034	0.938
February	1.004	0.936
March	1.025	0.937
April	1.057	0.948
May	1.104	0.991
June	1.138	1.028
July	1.160	1.033
August	1.141	1.032
September	1.134	1.000
October	1.080	0.989
November	1.061	0.974
December	1.017	0.963

These factors are multipliers.

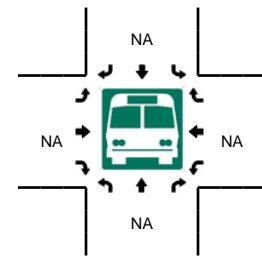
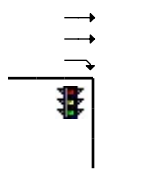
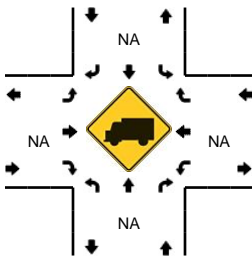
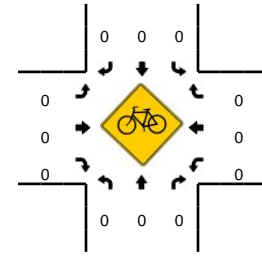
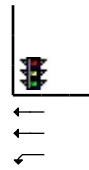
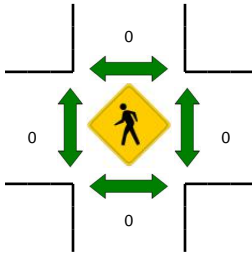
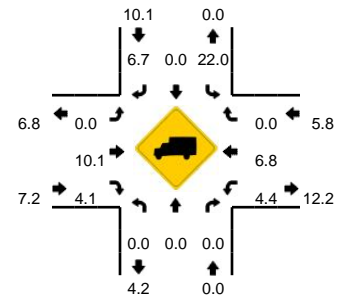
Source: Sarasota County Transportation Department
July, 1991

LOCATION: I-75 SB -- Laurel Rd
CITY/STATE: Nokomis, FL

QC JOB #: 14516501
DATE: Thu, Sep 21 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



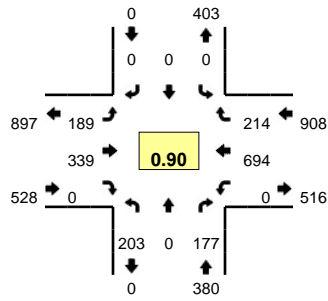
R* = RTOR

15-Min Count Period Beginning At	I-75 SB (Northbound)					I-75 SB (Southbound)					Laurel Rd (Eastbound)					Laurel Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	0	0	0	0	29	0	62	0	0	0	111	90	0	0	76	130	0	0	0	498	
4:15 PM	0	0	0	0	0	38	0	74	0	0	0	110	100	0	0	63	115	0	0	0	500	
4:30 PM	0	0	0	0	0	30	0	62	0	1	0	117	85	0	0	73	116	0	0	0	484	
4:45 PM	0	0	0	0	0	19	0	81	0	0	0	107	107	0	0	88	119	0	0	0	521	2003
5:00 PM	0	0	0	0	0	17	0	85	0	1	0	97	114	0	0	129	157	0	0	0	600	2105
5:15 PM	0	0	0	0	0	25	0	84	0	0	0	114	112	0	0	97	121	0	0	0	553	2158
5:30 PM	0	0	0	0	0	25	0	79	0	0	0	112	99	0	0	62	94	0	0	0	471	2145
5:45 PM	0	0	0	0	0	16	0	64	0	0	0	77	76	0	0	42	84	0	0	0	359	1983
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	0	0	0	0	68	0	340	0	4	0	388	456	0	0	516	628	0	0	0	2400	
Heavy Trucks	0	0	0			24	0	20			0	36	32			16	40	0			168	
Pedestrians																					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																					0	
Stopped Buses																					0	

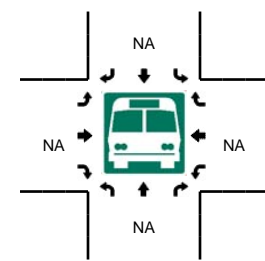
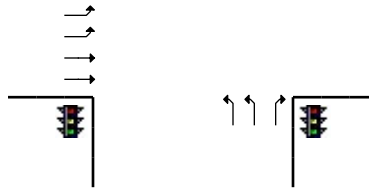
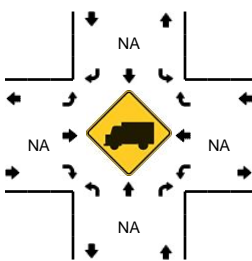
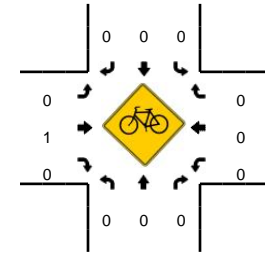
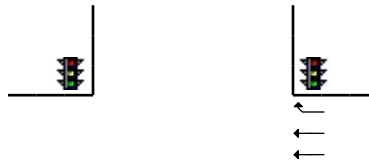
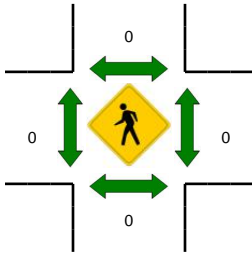
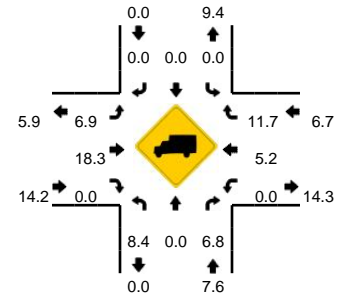
Comments:

LOCATION: I-75 NB -- Laurel Rd
CITY/STATE: Nokomis, FL

QC JOB #: 14516502
DATE: Thu, Sep 21 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



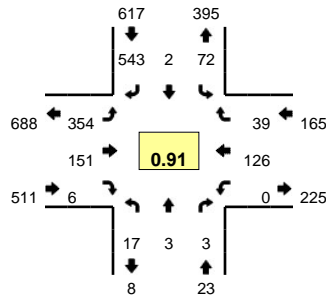
R* = RTOR

15-Min Count Period Beginning At	I-75 NB (Northbound)					I-75 NB (Southbound)					Laurel Rd (Eastbound)					Laurel Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	57	0	47	0	0	0	0	0	0	0	39	99	0	0	0	0	135	48	0	0	425	
4:15 PM	52	0	59	0	0	0	0	0	0	0	36	107	0	0	0	0	130	36	0	0	420	
4:30 PM	47	0	69	0	0	0	0	0	0	0	56	81	0	0	0	0	156	53	0	0	462	
4:45 PM	49	0	37	0	0	0	0	0	0	0	43	85	0	0	0	0	163	51	0	0	428	1735
5:00 PM	55	0	12	0	0	0	0	0	0	0	54	66	0	0	0	0	245	74	0	0	506	1816
5:15 PM	54	0	16	0	0	0	0	0	0	0	53	80	0	1	0	0	124	51	0	0	379	1775
5:30 PM	56	0	19	0	0	0	0	0	0	0	49	85	0	0	0	0	102	36	0	0	347	1660
5:45 PM	44	0	17	0	0	0	0	0	0	0	25	80	0	0	0	0	84	20	0	0	270	1502
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	220	0	48	0	0	0	0	0	0	0	216	264	0	0	0	0	980	296	0	0	2024	
Heavy Trucks	16	0	12			0	0	0			16	48	0			0	36	32			160	
Pedestrians			0			0					0					0					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																					0	
Stopped Buses																					0	

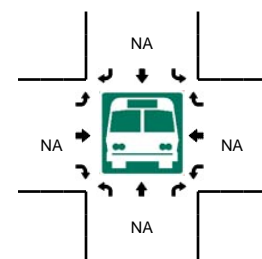
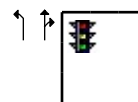
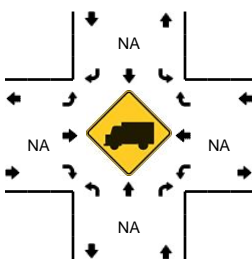
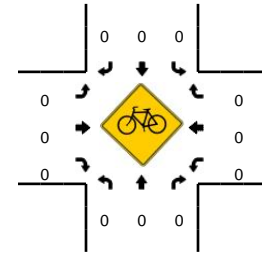
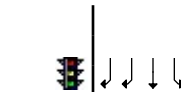
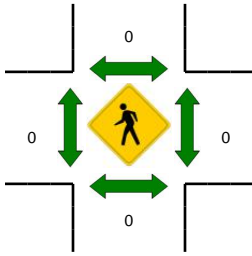
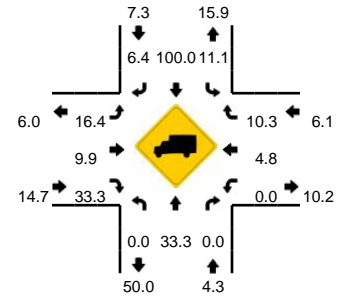
Comments:

LOCATION: Knights Trl -- Laurel Rd
CITY/STATE: Nokomis, FL

QC JOB #: 14516503
DATE: Thu, Sep 21 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



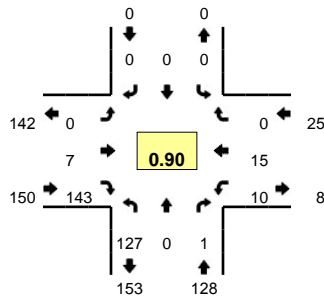
R* = RTOR

15-Min Count Period Beginning At	Knights Trl (Northbound)					Knights Trl (Southbound)					Laurel Rd (Eastbound)					Laurel Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	7	0	0	0	10	10	0	82	0	29	88	48	6	1	1	1	34	6	0	5	328	
4:15 PM	4	0	0	0	0	15	0	67	0	20	118	43	3	1	0	0	27	5	0	5	308	
4:30 PM	7	3	0	0	0	15	1	92	1	27	113	32	1	1	0	0	33	3	0	5	334	
4:45 PM	4	0	0	0	1	15	0	93	0	34	85	44	0	0	0	0	28	3	0	5	312	1282
5:00 PM	2	0	1	0	1	26	1	162	0	48	36	32	2	0	0	0	38	3	0	10	362	1316
5:15 PM	6	0	0	0	0	19	0	83	0	20	44	57	3	0	0	1	27	2	0	6	268	1276
5:30 PM	0	0	0	0	0	7	0	49	0	28	65	42	0	0	0	0	29	1	0	3	224	1166
5:45 PM	1	0	0	0	0	6	0	31	0	23	48	31	1	0	0	0	25	4	0	4	174	1028
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	8	0	4	0	4	104	4	648	0	192	144	128	8	0	0	0	152	12	0	40	1448	
Heavy Trucks	0	0	0			4	4	40			48	12	4			0	8	4			124	
Pedestrians	0					0					0					0					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																					0	
Stopped Buses																					0	

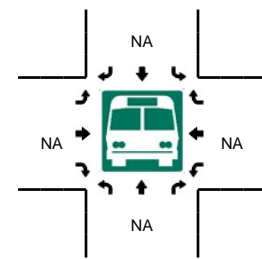
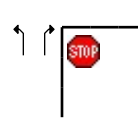
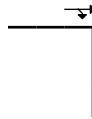
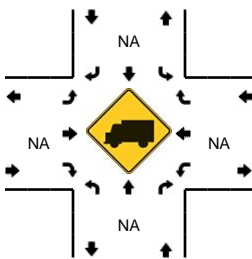
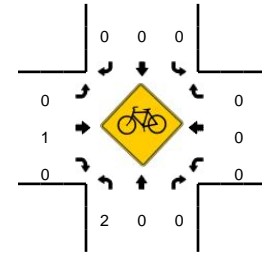
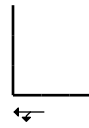
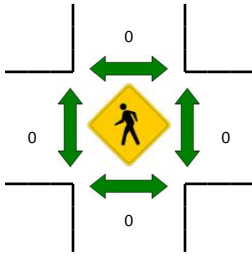
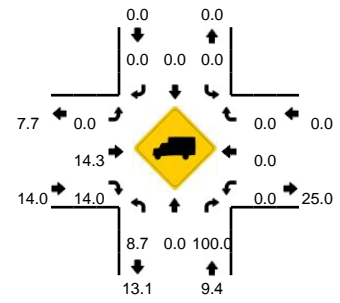
Comments:

LOCATION: Jacaranda Blvd -- Laurel Rd
CITY/STATE: Nokomis, FL

QC JOB #: 14516504
DATE: Thu, Sep 21 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



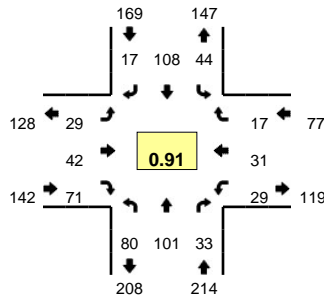
R* = RTOR

15-Min Count Period Beginning At	Jacaranda Blvd (Northbound)					Jacaranda Blvd (Southbound)					Laurel Rd (Eastbound)					Laurel Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	33	0	1	0	0	0	0	0	0	0	0	1	41	0	0	2	2	0	0	0	80	
4:15 PM	34	0	1	1	0	0	0	0	0	0	0	2	24	0	0	4	5	0	0	0	71	
4:30 PM	31	0	0	0	0	0	0	0	0	0	0	1	28	0	0	4	2	0	0	0	66	
4:45 PM	31	0	0	0	0	0	0	0	0	0	0	4	32	0	0	1	5	0	0	0	73	290
5:00 PM	33	0	1	0	0	0	0	0	0	0	0	0	43	0	0	1	6	0	0	0	84	294
5:15 PM	32	0	0	0	0	0	0	0	0	0	0	2	40	0	0	4	2	0	0	0	80	303
5:30 PM	22	0	0	0	0	0	0	0	0	0	0	0	31	0	0	7	2	0	0	0	62	299
5:45 PM	20	0	0	1	0	0	0	0	0	0	0	1	29	0	0	4	5	0	0	0	60	286
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
All Vehicles	132	0	4	0	0	0	0	0	0	0	0	0	172	0	0	4	24	0	0	0	336	
Heavy Trucks	20	0	4	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	48	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	
Railroad																						
Stopped Buses																						

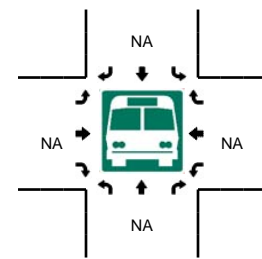
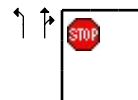
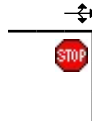
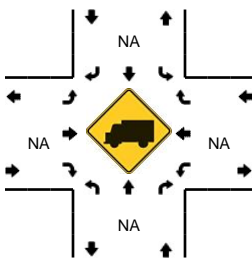
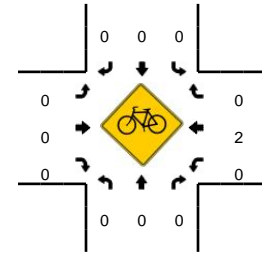
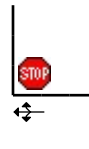
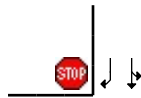
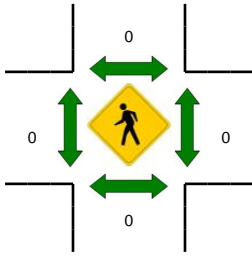
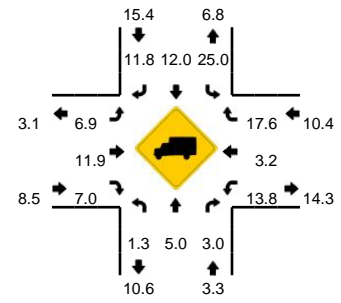
Comments:

LOCATION: Jacaranda Blvd -- Border Rd
CITY/STATE: Venice, FL

QC JOB #: 14516505
DATE: Thu, Sep 21 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



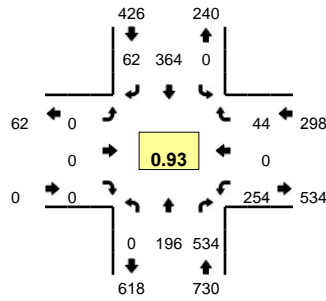
R* = RTOR

15-Min Count Period Beginning At	Jacaranda Blvd (Northbound)					Jacaranda Blvd (Southbound)					Border Rd (Eastbound)					Border Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	11	24	7	0	0	6	32	5	0	0	14	12	9	0	0	5	9	3	0	0	137	
4:15 PM	18	32	3	0	0	8	21	4	0	0	12	13	10	0	0	3	11	4	0	0	139	
4:30 PM	21	32	5	0	0	8	20	2	0	0	5	11	16	0	0	5	10	4	0	0	139	
4:45 PM	14	30	5	0	0	9	31	5	0	0	10	9	14	0	0	9	5	4	0	0	145	560
5:00 PM	34	19	11	0	0	11	28	4	0	0	5	13	18	0	0	10	5	7	0	0	165	588
5:15 PM	11	20	12	0	0	16	29	6	0	0	9	9	23	0	0	5	11	2	0	0	153	602
5:30 PM	13	15	5	0	0	11	20	3	0	0	3	9	17	0	0	6	2	3	0	0	107	570
5:45 PM	13	17	7	0	0	10	22	5	0	0	4	13	11	0	0	11	7	2	0	0	122	547
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
All Vehicles	136	76	44	0	0	44	112	16	0	0	20	52	72	0	0	40	20	28	0	0	660	
Heavy Trucks	0	4	0			12	12	0			4	0	8			12	0	0			52	
Pedestrians	0	0	0			0	0	0			0	0	0			0	0	0			0	
Bicycles	0	0	0			0	0	0			0	0	0			0	2	0			2	
Railroad																						
Stopped Buses																						

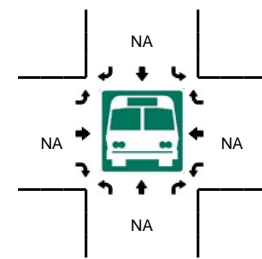
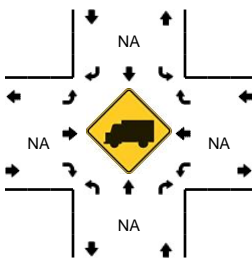
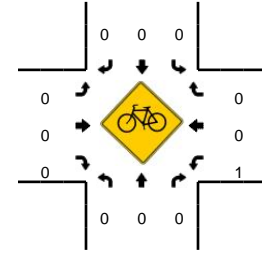
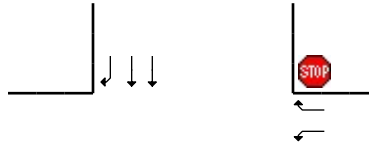
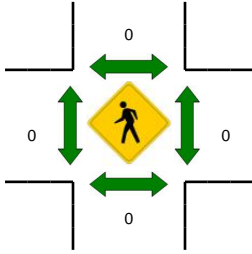
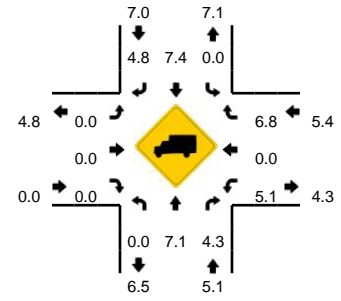
Comments:

LOCATION: Jacaranda Blvd -- I-75 NB
CITY/STATE: Sarasota, FL

QC JOB #: 14516508
DATE: Thu, Sep 21 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



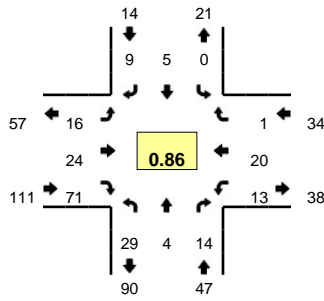
R* = RTOR

15-Min Count Period Beginning At	Jacaranda Blvd (Northbound)					Jacaranda Blvd (Southbound)					I-75 NB (Eastbound)					I-75 NB (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	0	52	140	1	0	0	84	20	0	0	0	0	0	0	0	53	0	13	0	0	363	
4:15 PM	0	56	117	0	0	0	71	8	0	0	0	0	0	0	0	53	0	12	0	0	317	
4:30 PM	0	50	135	0	0	0	82	17	0	0	0	0	0	0	0	52	0	18	0	0	354	
4:45 PM	0	52	118	0	0	0	88	14	0	0	0	0	0	0	0	68	0	7	0	0	347	1381
5:00 PM	0	48	145	0	0	0	107	16	0	0	0	0	0	0	0	62	0	14	0	0	392	1410
5:15 PM	0	46	136	0	0	0	87	15	0	0	0	0	0	0	0	72	0	5	0	0	361	1454
5:30 PM	0	33	122	1	0	0	69	15	0	0	0	0	0	0	0	66	0	5	0	0	311	1411
5:45 PM	0	44	100	1	0	0	49	9	0	0	0	0	0	0	0	69	0	6	0	0	278	1342
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	0	192	580	0	0	0	428	64	0	0	0	0	0	0	0	248	0	56	0	0	1568	
Heavy Trucks	0	20	16			0	36	4			0	0	0			16	0	4			96	
Pedestrians						0					0					0					0	
Bicycles	0	0	0			0	0	0			0	0	0			0	0	0			0	
Railroad																					0	
Stopped Buses																					0	

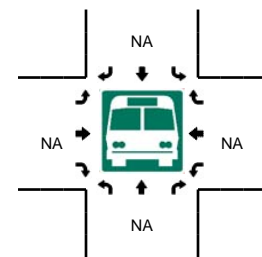
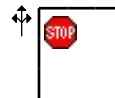
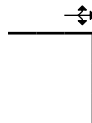
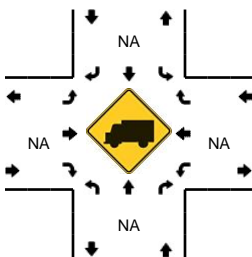
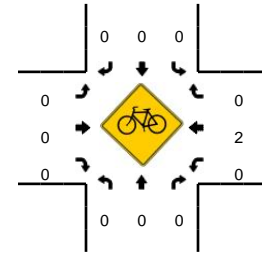
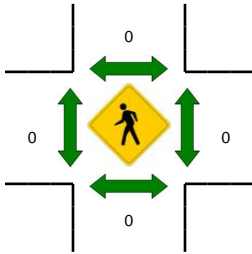
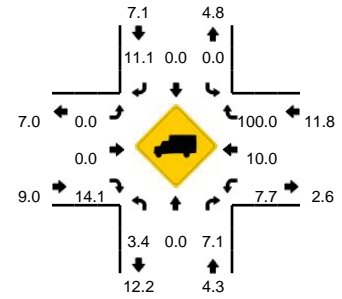
Comments:

LOCATION: Jackson Rd -- Border Rd
CITY/STATE: Venice, FL

QC JOB #: 14516506
DATE: Thu, Sep 21 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



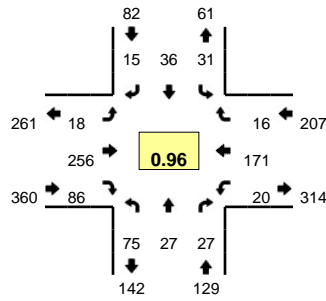
R* = RTOR

15-Min Count Period Beginning At	Jackson Rd (Northbound)					Jackson Rd (Southbound)					Border Rd (Eastbound)					Border Rd (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	5	3	3	0	0	0	0	0	0	0	2	4	15	0	0	0	7	0	0	0	39	
4:15 PM	16	1	1	0	0	0	2	2	0	0	3	6	15	0	0	1	8	1	0	0	56	
4:30 PM	8	0	4	0	0	0	0	2	0	0	0	6	14	0	0	5	3	0	0	0	42	
4:45 PM	10	2	3	1	0	0	1	2	0	0	5	4	9	0	0	4	8	0	0	0	49	186
5:00 PM	7	0	2	0	0	0	1	2	0	0	4	7	22	0	0	2	6	1	0	0	54	201
5:15 PM	5	0	7	0	0	0	1	3	0	0	6	8	21	0	0	5	4	0	0	0	60	205
5:30 PM	6	2	2	0	0	0	2	2	0	0	1	5	19	0	0	2	2	0	0	0	43	206
5:45 PM	5	1	6	0	0	0	0	5	0	0	4	7	12	0	0	2	6	0	0	0	48	205
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
All Vehicles	20	0	28	0	0	0	4	12	0	0	24	32	84	0	0	20	16	0	0	0	240	
Heavy Trucks	0	0	0			0	0	0			0	0	12			4	0	0			16	
Pedestrians	0					0					0					0					0	
Bicycles	0					0					0					0					0	
Railroad																						
Stopped Buses																						

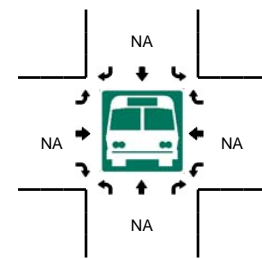
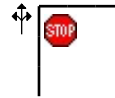
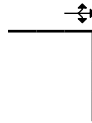
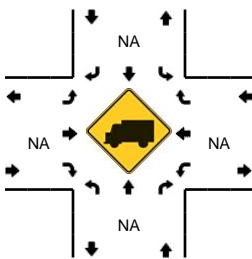
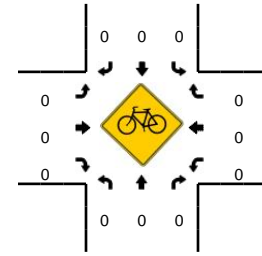
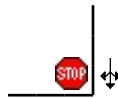
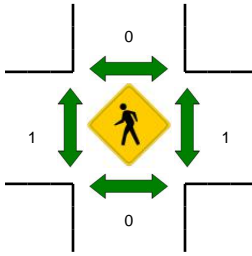
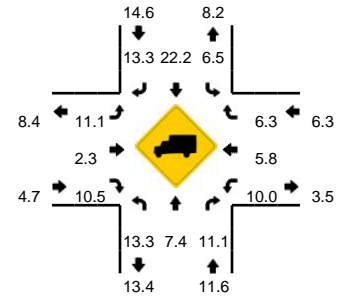
Comments:

LOCATION: Jackson Rd -- Venice Ave
CITY/STATE: Sarasota, FL

QC JOB #: 14516507
DATE: Thu, Sep 21 2017



Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



R* = RTOR

15-Min Count Period Beginning At	Jackson Rd (Northbound)					Jackson Rd (Southbound)					Venice Ave (Eastbound)					Venice Ave (Westbound)					Total	Hourly Totals
	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*	Left	Thru	Right	U	R*		
4:00 PM	17	7	3	0	0	10	7	2	0	0	6	58	13	0	0	4	27	6	0	0	160	
4:15 PM	16	10	9	0	0	8	8	7	0	0	1	53	23	0	0	9	41	4	0	0	189	
4:30 PM	22	5	8	0	0	8	12	1	0	0	4	77	20	0	0	4	37	4	0	0	202	
4:45 PM	14	6	5	0	0	8	6	3	0	0	5	66	22	0	0	2	46	4	0	0	187	738
5:00 PM	23	6	5	0	0	7	10	4	0	0	8	60	21	0	0	5	47	4	0	0	200	778
5:15 PM	16	2	4	0	0	7	3	4	0	0	8	54	7	0	0	2	24	0	0	0	131	720
5:30 PM	18	2	5	0	0	2	7	6	0	0	5	43	12	0	0	0	27	3	0	0	130	648
5:45 PM	11	3	2	0	0	4	1	5	0	0	6	38	12	0	0	1	31	5	0	0	119	580
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
All Vehicles	88	20	32	0	0	32	48	4	0	0	16	308	80	0	0	16	148	16	0	0	808	
Heavy Trucks	12	0	4			0	16	0			0	4	8			4	12	0			60	
Pedestrians	0					0					0					0					0	
Bicycles	0					0					0					0					0	
Railroad																						
Stopped Buses																						

Comments:

Intersection Name: Laurel Road & I-75 W SB Ramp(#5664)

Date: 11/30/2010

Interval	Phase (On/Off)							
	1	2	3	4	5	6	7	8
Memory	WBLT	EB		SB				
Ext Recall		On						
Max Recall								
Ped Recall								
CNA I		On						
CNA II								
FL Walk								
Soft Recall								
Walk Rest								
Cond Ped								
FWTPCL								
OLA-WBT to overlap with Phase 1 and Phase 2								
SOP Special, Min Recall on Ph.1 during coordination								
WBLT: Protected								

Interval	Phase Timings							
	1	2	3	4	5	6	7	8
Min Green	WBLT	EB		SB				
Passage	7	20		7				
Yellow	3	5		5				
Red	4.5	4.5		4				
Max I	1	1		2				
Max II	50	40		20				
Walk	50	25		25				
Ped Clear		2						
S/A								
TBR								
TTR								
Min Gap								
Max VI								
Max Ext								
Auto Max								
AMR								

Phases and Sequence Used								
Phases	1	2	3	4	5	6	7	8
Sequence	On	On		On				
Lead/Lag codes (only used if "8" was entered for sequence)								
Pairs	1 and 2	3 and 4	5 and 6	7 and 8				
Code								
Lead/lag Codes: 1=No Rev, 2=Always Rev, 3=Rev by C/S/O or Clock/Input								

Initialize / Flash				
	Initialize	Enter Flash	Exit Flash	Interval Codes:
Ring 1 Phase	2	1	2	1=Red
Ring 2 Phase	0	0	0	2=Yellow
Interval	3	1	3	3=Green
Power Up / Restart Timings				
Minimum Flash	0	(0-127 Seconds)		
1st All Red After Flash	0	(0-127 Seconds)		

FDOT - DISTRICT 1

Signal System Timing Report

System ID: 17075 A

Section: -

Arterial: **Laurel Rd**

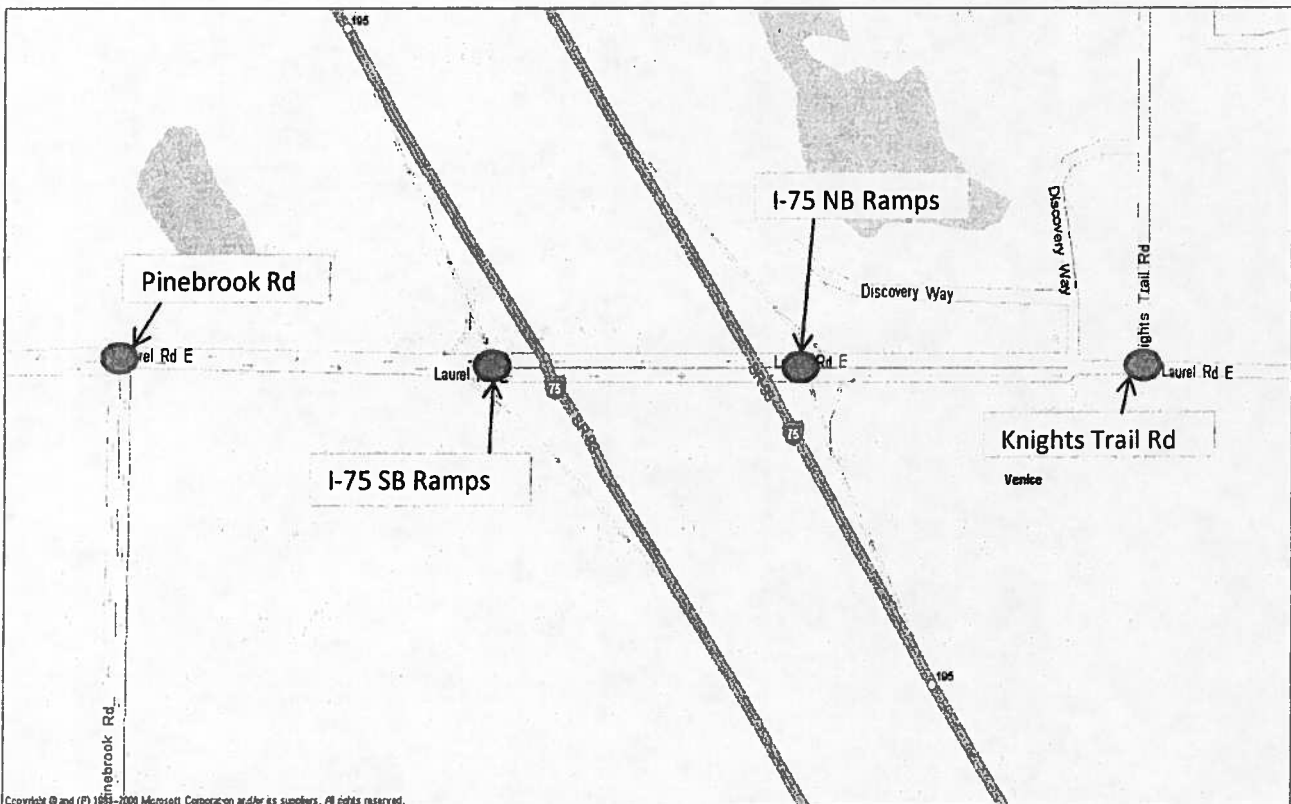
From: **Pinebrook Rd**

MP: -

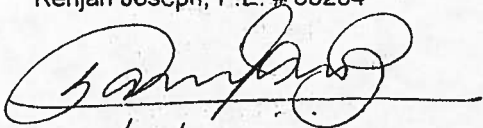
To: **Knights Trail Rd**

MP: -

County: **Sarasota**



ORIGINAL

Name		Date	Approved By: Renjan Joseph, P.E. # 68284  Date: 03/15/2010
Designed By:	RJ	03/2010	
Checked By:	ELH	3/2010	
Drawn By:	RJ	03/2010	
Checked By:	ELH	3/2010	

Time of Day Plan

Designed By: RS
 Date: 03/2010
 Checked By: ELH
 Date: 3/2010

System ID: *17075 A*
 Section: -
 From: *Pinebrook Rd*
 To: *Knights Trail Rd*

ALL SEASON PLAN

Day	Time	Pattern (C/S/O)	Cycle Length
Monday Thru Friday	0000 - 0700	-	FREE
	0700 - 0900	1-1-1	80
	0900 - 1300	2-1-1	75
	1300 - 1545	3-1-1	80
	1545 - 1625	4-1-1	100
	1625 - 1800	3-1-1	80
	1800 - 0000	-	FREE
Saturday & Sunday	0000 - 0000	-	FREE

Designed By:	<i>RS</i>
Date:	<i>03/2010</i>
Checked By:	<i>ELH</i>
Date:	<i>3/2010</i>

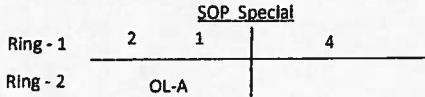
SOP: *Special*

Location Details	
Section: -	Mile Post: -
Major Street: <i>Laurel Rd</i>	Orientation: <i>E-W</i>
Minor Street: <i>I-75 SB Ramps</i>	Orientation: <i>N-S</i>
Sig ID: <i>970</i>	System ID: <i>17075 A</i>

Controller Timings (seconds)									
Movement # (Controller Phase Ø)	1	2	3	4	5	6	7	8	Notes
Direction	<i>WBL</i>	<i>EB</i>		<i>SB</i>					
Turn Type	<i>Protected</i>								
Min Green	<i>7</i>	<i>20</i>		<i>7</i>					See Note 3
Ext	<i>3.0</i>	<i>5.0</i>		<i>5.0</i>					
Yellow	<i>4.5</i>	<i>4.5</i>		<i>4.0</i>					Program Overlap A as WBT to overlap with phases 1 and 2
All Red	<i>1.0</i>	<i>1.0</i>		<i>2.0</i>					
Max I	<i>50</i>	<i>40</i>		<i>20</i>					
Max II	<i>50</i>	<i>25</i>		<i>25</i>					
Walk		<i>2</i>							
Flashing Don't Walk									
Detector Memory	<i>OFF</i>			<i>OFF</i>					
Det. Cross Switch.									
Recall		<i>MIN</i>							
CNA		<i>ON</i>							
Coord Phase		<i>YES</i>							
Service Plan 1 'Min Green'	<i>8</i>	<i>20</i>		<i>7</i>					See Note 4
Service Plan 2 'Min Green'	<i>10</i>	<i>20</i>		<i>7</i>					
Service Plan 3 'Min Green'	<i>25</i>	<i>20</i>		<i>7</i>					
Service Plan 4 'Min Green'	<i>30</i>	<i>20</i>		<i>7</i>					

Coordination Timings (seconds)											
Pattern	C-O-S	Cycle Length	Splits						Offset A	Offset B	
<i>1</i>	<i>1-1-1</i>	<i>80</i>	<i>16</i>	<i>41</i>		<i>23</i>			<i>12</i>	<i>12</i>	
<i>2</i>	<i>2-1-1</i>	<i>75</i>	<i>18</i>	<i>36</i>		<i>21</i>			<i>1</i>	<i>1</i>	
<i>3</i>	<i>3-1-1</i>	<i>80</i>	<i>33</i>	<i>29</i>		<i>18</i>			<i>77</i>	<i>77</i>	
<i>4</i>	<i>4-1-1</i>	<i>100</i>	<i>52</i>	<i>26</i>		<i>22</i>			<i>94</i>	<i>94</i>	

Offset Reference Point	
Offset A	<i>End of Main Street Green (phase 2)</i>
Offset B	<i>End of Main Street Walk (phase P2:CNA Offset)</i>



Notes:

- 1) Use Max II and CNA during coordination
- 2) Use Fixed Force Offs.
- 3) Use Service plan 1 'Min Green' for pattern 1, Service Plan 2 'Min Green' for pattern 2, Service Plan 3 'Min Green' for pattern 3 and Service plan 4 Min Green' for pattern 4.
- 4) "Min" recall phase 1 during coordination through Service Plans.
- 5) Use 4 second extension for phase 1 during pattern 4 using service plan.

Designed By: RS
 Date: 03/2010

Checked By: ELH
 Date: 3/2010

Major Street: Laurel Rd
 Minor Street: I-75 SB Ramps

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	Force Offs - CNA Inactive							
			1	2	3	4	5	6	7	8
			WBL	EB		SB				
1	1-1-1	80	16	0		39				
2	2-1-1	75	18	0		39				
3	3-1-1	80	33	0		51				
4	4-1-1	100	52	0		74				

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	Force Offs- CNA Active							
			1	2	3	4	5	6	7	8
			WBL	EB		SB				
1	1-1-1	80	16	0		39				
2	2-1-1	75	18	0		39				
3	3-1-1	80	33	0		51				
4	4-1-1	100	52	0		74				

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	End of Permissives							
			1	2	3	4	5	6	7	8
			WBL	EB		SB				
1	1-1-1	80	1	0		20				
2	2-1-1	75	1	0		21				
3	3-1-1	80	1	0		35				
4	4-1-1	100	1	0		40				

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	Start of Permissives							
			1	2	3	4	5	6	7	8
			WBL	EB		SB				
1	1-1-1	80	0	0		12				
2	2-1-1	75	0	0		14				
3	3-1-1	80	0	0		29				
4	4-1-1	100	0	0		34				

Intersection Name: Laurel Road & I-75 East (#5665)

Date: 11/30/2010

Interval	Phase (On/Off)							
	1	2	3	4	5	6	7	8
Memory	EBLT	WB		NB				
Ext Recall								
Max Recall		On						
Ped Recall								
CNA I		On						
CNA II								
FL Walk								
Soft Recall								
Walk Rest								
Cond Ped								
FWTPCL								
OLA: EBT to overlap with Phase 1 and Phase 2								
SOP Special, Min Recall on Phase 1 during Coordination								
EBLT: Protected								

Interval	Phase Timings							
	1	2	3	4	5	6	7	8
Min Green	EBLT	WB		NB				
Passage	7	20		7				
Yellow	3	5		4				
Red	4.5	4.5		4				
Max I	1	1		2				
Max II	30	40		35				
Walk	30	40		35				
Ped Clear		2						
S/A								
TBR								
TTR								
Min Gap								
Max VI								
Max Ext								
Auto Max								
AMR								

Phases and Sequence Used								
Phases	1	2	3	4	5	6	7	8
Sequence	On	On		On				
Lead/Lag codes (only used if "8" was entered for sequence)								
Pairs	1 and 2	3 and 4	5 and 6	7 and 8				
Code								
Lead/lag Codes: 1=No Rev, 2=Always Rev, 3=Rev by C/S/O or Clock/Input								

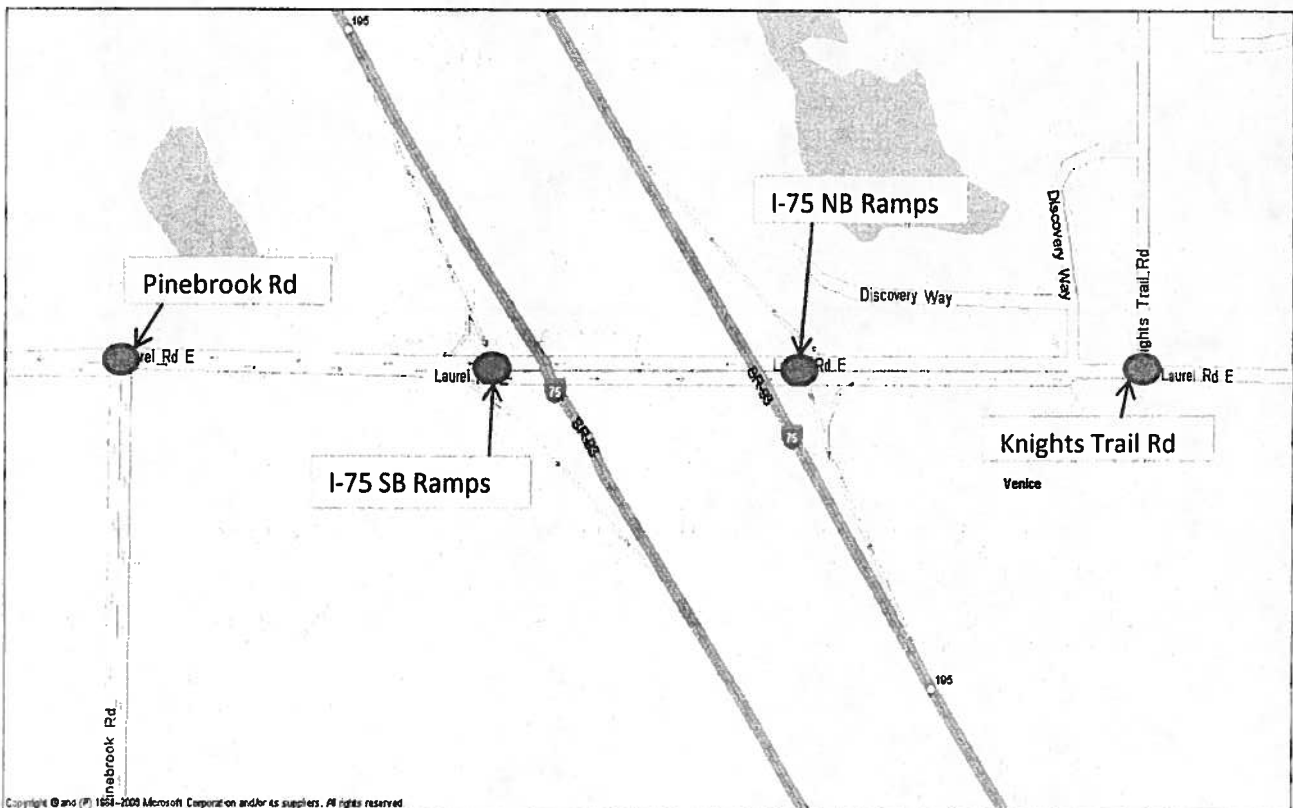
Initialize / Flash					
	Initialize	Enter Flash	Exit Flash	Interval Codes:	
Ring 1 Phase	2	1	2	1=Red	
Ring 2 Phase	0	0	0	2=Yellow	
Interval	3	1	3	3=Green	
Power Up / Restart Timings					
Minimum Flash	0	(0-127 Seconds)			
1st All Red After Flash	0	(0-127 Seconds)			

FDOT - DISTRICT 1
Signal System Timing Report

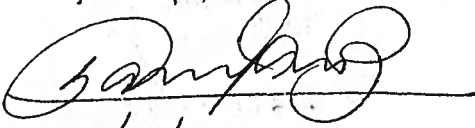
System ID: 17075 A

Section: -
 From: *Pinebrook Rd*
 To: *Knights Trail Rd*
 County: *Sarasota*

Arterial: *Laurel Rd*
 MP: -
 MP: -



ORIGINAL

Name		Date	Approved By: Renjan Joseph, P.E. # 68284  Date: 03/15/2010
Designed By:	<i>RJ</i>	<i>03/2010</i>	
Checked By:	<i>ELH</i>	<i>3/2010</i>	
Drawn By:	<i>RJ</i>	<i>03/2010</i>	
Checked By:	<i>ELH</i>	<i>3/2010</i>	

Time of Day Plan

Designed By: RS
Date: 03/2010
Checked By: ELH
Date: 3/2010

System ID: 17075 A
Section: -
From: *Pinebrook Rd*
To: *Knights Trail Rd*

ALL SEASON PLAN

Day	Time	Pattern (C/S/O)	Cycle Length
Monday Thru Friday	0000 - 0700	-	FREE
	0700 - 0900	1-1-1	80
	0900 - 1300	2-1-1	75
	1300 - 1545	3-1-1	80
	1545 - 1625	4-1-1	100
	1625 - 1800	3-1-1	80
	1800 - 0000	-	FREE
Saturday & Sunday	0000 - 0000	-	FREE

Designed By:	RS
Date:	03/2010
Checked By:	ELH
Date:	3/2010

SOP: Special

Location Details	
Section: -	Mile Post: -
Major Street: Laurel Rd	Orientation: E-W
Minor Street: I-75 NB Ramps	Orientation: N-S
Slg ID: 969	System ID: 17075 A

Controller Timings (seconds)											
Movement #	Phase (ø)	Controller	1	2	3	4	5	6	7	8	Notes
	Direction		EBL	WB		NB					
	Turn Type		Protected								
	Min Green		7	20		7					See Note 3
	Ext		3.0	5.0		4.0					
	Yellow		4.5	4.5		4.0					Program Overlap A as EBT to overlap with phases 1 and 2
	All Red		1.0	1.0		2.0					
	Max I		30	40		35					
	Max II		30	40		35					
	Walk			2							
	Flashing Don't Walk										
	Detector Memory		OFF			OFF					
	Det. Cross Switch.										
	Recall			MAX							
	CNA			ON							
	Coord Phase			YES							
	Service Plan 1 'Min Green'		20	15		7					See Note 4
	Service Plan 2 'Min Green'		15	20		7					
	Service Plan 3 'Min Green'		19	20		7					
	Service Plan 4 'Min Green'		20	20		7					

Coordination Timings (seconds)												
Pattern	C-O-S	Cycle Length	Splits								Offset A	Offset B
1	1-1-1	80	29	22		29					79	79
2	2-1-1	75	23	32		20					73	73
3	3-1-1	80	26	34		20					75	75
4	4-1-1	100	27	50		23					6	6

Offset Reference Point	
Offset A	End of Main Street Green (phase 2)
Offset B	End of Main Street Walk (phase P2:CNA Offset)

SOP Special		
Ring - 1	2	1
Ring - 2	OL-A	4

- Notes:
- 1) Use Max II and CNA during coordination
 - 2) Use Fixed Force Offs.
 - 3) Use Service plan 1 'Min Green' for pattern 1, Service Plan 2 'Min Green' for pattern 2, Service Plan 3 'Min Green' for pattern 3 and Service plan 4 Min Green' for pattern 4.
 - 4) "Min" recall phase 1 during coordination through Service Plans.

Designed By: RS
 Date: 03/2010

Checked By: ELH
 Date: 3/2010

Major Street: Laurel Rd
 Minor Street: I-75 NB Ramps

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	Force Offs - CNA inactive							
			1	2	3	4	5	6	7	8
			EBL	WB		NB				
1	1-1-1	80	29	0		58				
2	2-1-1	75	23	0		43				
3	3-1-1	80	26	0		46				
4	4-1-1	100	27	0		50				

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	Force Offs- CNA Active							
			1	2	3	4	5	6	7	8
			EBL	WB		NB				
1	1-1-1	80	29	0		58				
2	2-1-1	75	23	0		43				
3	3-1-1	80	26	0		46				
4	4-1-1	100	27	0		50				

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	End of Permissives							
			1	2	3	4	5	6	7	8
			EBL	WB		NB				
1	1-1-1	80	1	0		30				
2	2-1-1	75	1	0		25				
3	3-1-1	80	1	0		30				
4	4-1-1	100	1	0		30				

Coordination Timings (seconds) - Continued...										
Pattern	C-O-S	Cycle Length	Start of Permissives							
			1	2	3	4	5	6	7	8
			EBL	WB		NB				
1	1-1-1	80	0	0		24				
2	2-1-1	75	0	0		19				
3	3-1-1	80	0	0		23				
4	4-1-1	100	0	0		24				

FDOT - DISTRICT 1

Signal System Timing Report

System ID: 17075 A

Section: -

From: Pinebrooke Rd

To: Knights Trail Rd

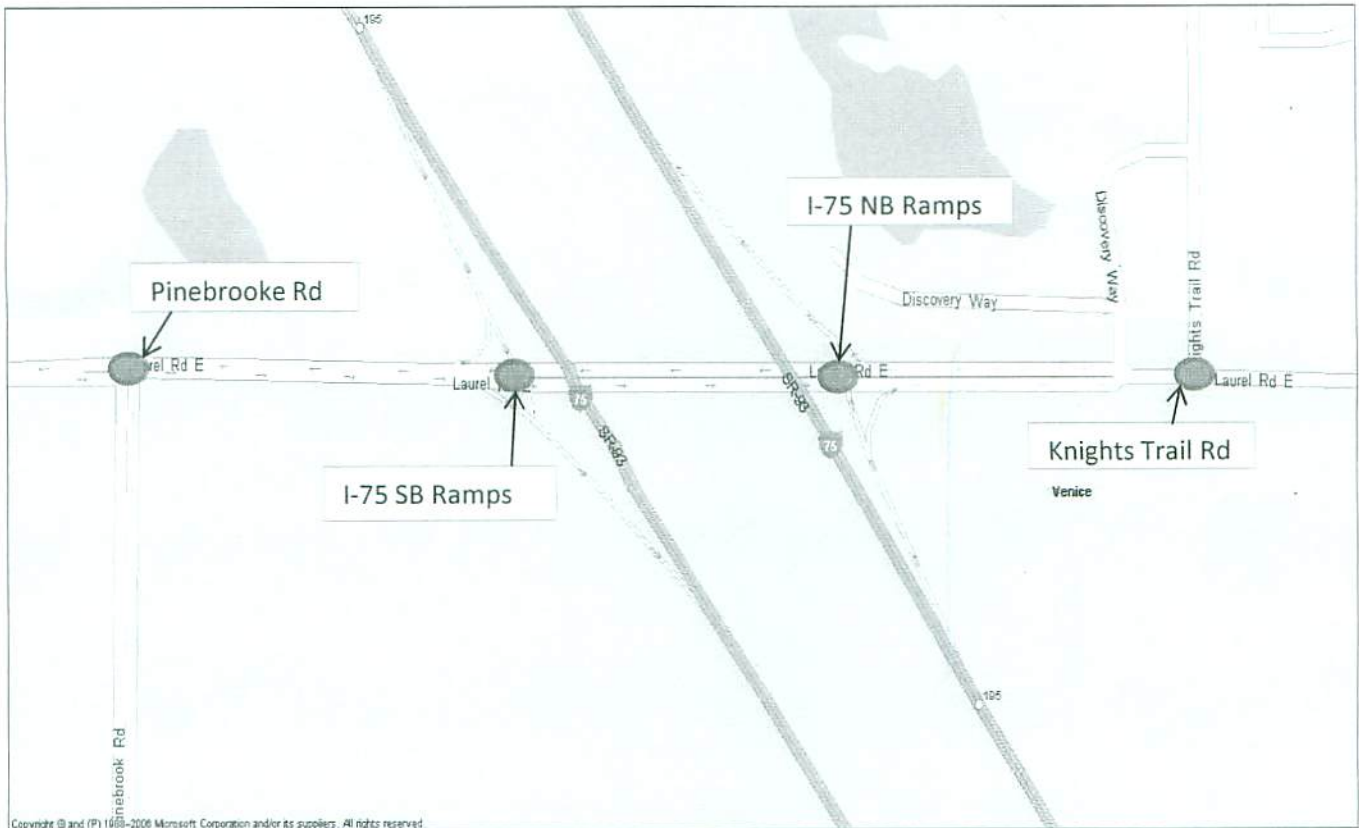
County: Sarasota

Arterial:

Laurel Rd


MP: -

MP: -



REVISION

See Attached Revision Dated: 03/2011

Name		Date	Approved By:
Designed By:	RJ	03/2011	Renjan Joseph, P.E. #68284 
Checked By:	JNB	06/2011	
Drawn By:	RJ	03/2011	
Checked By:	JNB	06/2011	
			Date: 06/22/2011

Signal System Timings

System ID: 17075 A

Section: -

From: *Pinebrook Rd*

MP: -

To: *Knights Trail Rd*

MP: -

Revisions		Date:	03/2011
Location	Page	Revision Description	
Knights Trail Rd	11 & 12	<i>Adjusted Splits and Offset for pattern 4-1-1.</i>	
Time Space Diagrams	17	<i>Adjusted the diagram to accommodate the above changes.</i>	

Designed By:	<i>RJ</i>
Date:	<i>03/2011</i>
Checked By:	<i>JNS</i>
Date:	<i>06/2011</i>

Time of Day Plan

Designed By:	RJ
Date:	03/2010
Checked By:	ELH
Date:	3/2010

System ID: 17075 A
 Section: -
 From: Pinebrook Rd
 To: Knights Trail Rd

ALL SEASON PLAN

Day	Time	Pattern (C/S/O)	Cycle Length
Monday Thru Friday	0000 - 0700	-	FREE
	0700 - 0900	1-1-1	80
	0900 - 1300	2-1-1	75
	1300 - 1545	3-1-1	80
	1545 - 1625	4-1-1	100
	1625 - 1800	3-1-1	80
	1800 - 0000	-	FREE
Saturday & Sunday	0000 - 0000	-	FREE

Designed By: RS
 Date: 03/2011

Checked By: JRS
 Date: 06/2014

Major Street: Laurel Rd
 Minor Street: Knights Trail Rd

Coordination Timings (seconds) - Continued...

Pattern	C-O-S	Cycle Length	Force Offs - CNA Inactive							
			1	2	3	4	5	6	7	8
			EBL	WB	NB	SB	WBL	EB		
1	1-1-1	80	63	0	13	29	42	0		
2	2-1-1	75	55	0	13	31	44	0		
3	3-1-1	80	59	0	13	31	44	0		
4	4-1-1	100	80	0	17	40	53	0		

Coordination Timings (seconds) - Continued...

Pattern	C-O-S	Cycle Length	Force Offs - CNA Active							
			1	2	3	4	5	6	7	8
			EBL	WB	NB	SB	WBL	EB		
1	1-1-1	80	-	-	-	-	-	-		
2	2-1-1	75	-	-	-	-	-	-		
3	3-1-1	80	-	-	-	-	-	-		
4	4-1-1	100	-	-	-	-	-	-		

Coordination Timings (seconds) - Continued...

Pattern	C-O-S	Cycle Length	End of Permissives							
			1	2	3	4	5	6	7	8
			EBL	WB	NB	SB	WBL	EB		
1	1-1-1	80	10	0	1	10	10	0		
2	2-1-1	75	10	0	1	10	10	0		
3	3-1-1	80	10	0	1	10	10	0		
4	4-1-1	100	10	0	1	10	10	0		

APPENDIX C

**EXISTING AND FUTURE
INTERSECTION VOLUMES**

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: I-75 SB Ramps & Laurel Road

Count Date: 09/21/17

P.M. Peak Time Period: 4:30 - 5:30 PM

Peak Hour Factor: 0.90

Existing Traffic	Laurel Rd			Laurel Rd						I-75 SB Ramp		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	0	435	418	387	513	0	0	0	0	91	0	314
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	0	493	474	439	582	0	0	0	0	103	0	356

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	0	493	474	439	582	0	0	0	0	103	0	356
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	0	73	70	65	87	0	0	0	0	15	0	53
Toscana Isles		193		15	114					154		
The Bridges		56		15	53					47		
Portofino		130		108	159					73		
Milano PUD (VICA East of Jacaranda)		24			14					48		
Milano PUD (Laurel Lakes West of Jacaranda)		70			39					110		
2024 Future Conditions	0	1039	544	642	1048	0	0	0	0	550	0	409

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	0	40	0	0	22	0	0	0	0	73	0	0
Total Project Traffic	0	40	0	0	22	0	0	0	0	73	0	0

Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	0	1039	544	642	1048	0	0	0	0	550	0	409
Project Traffic	0	40	0	0	22	0	0	0	0	73	0	0
2024 Total Conditions	0	1079	544	642	1070	0	0	0	0	623	0	409

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: I-75 NB Ramps & Laurel Road

Count Date: 09/21/17

P.M. Peak Time Period: 4:15 - 5:15 PM

Peak Hour Factor: 0.90

Existing Traffic	Laurel Rd			Laurel Rd			I-75 NB Ramp			SBL	SBT	SBR
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR			
Raw Turning Movement Counts	189	339	0	0	694	214	203	0	177	0	0	0
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	214	384	0	0	787	243	230	0	201	0	0	0

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	214	384	0	0	787	243	230	0	201	0	0	0
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	32	57	0	0	117	36	34	0	30	0	0	0
Toscana Isles		348			129	91			25			
The Bridges		103			68	44			16			
Portofino		203			266	89			88			
Milano PUD (VICA East of Jacaranda)		72			14	29			4			
Milano PUD (Laurel Lakes West of Jacaranda)		180			39	63			1			
2024 Future Conditions	246	1347	0	0	1420	595	264	0	365	0	0	0

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	0	113	0	0	22	41	0	0	0	0	0	0
Total Project Traffic	0	113	0	0	22	41	0	0	0	0	0	0

Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	246	1347	0	0	1420	595	264	0	365	0	0	0
Project Traffic	0	113	0	0	22	41	0	0	0	0	0	0
2024 Total Conditions	246	1460	0	0	1442	636	264	0	365	0	0	0

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: Knights Trail Road & Laurel Road

Count Date: 09/21/17

P.M. Peak Time Period: 4:15 - 5:15 PM

Peak Hour Factor: 0.91

Existing Traffic	Laurel Rd			Laurel Rd			Knights Trail Rd			Knights Trail Rd		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	354	151	6	0	126	39	17	3	3	72	2	543
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	401	171	7	0	143	44	19	3	3	82	2	616

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	401	171	7	0	143	44	19	3	3	82	2	616
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	60	25	1	0	21	7	3	0	0	12	0	92
Toscana Isles	374					160				93		219
The Bridges		119			112	6				6		
Portofino	318	-27		6	56	0		5	5	29	6	346
Milano PUD (VICA East of Jacaranda)		76			43	4			1	6		
Milano PUD (Laurel Lakes West of Jacaranda)		181		7	102	17			11	31		
2024 Future Conditions	1153	545	8	13	477	238	22	8	20	259	8	1273

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	0	113	0	4	63	12	0	0	8	21	0	0
Total Project Traffic	0	113	0	4	63	12	0	0	8	21	0	0

Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	1153	545	8	13	477	238	22	8	20	259	8	1273
Project Traffic	0	113	0	4	63	12	0	0	8	21	0	0
2024 Total Conditions	1153	658	8	17	540	250	22	8	28	280	8	1273

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: Jacaranda Boulevard & Laurel Road

Count Date: 09/21/17

P.M. Peak Time Period: 4:30 - 5:30 PM

Peak Hour Factor: 0.90

Existing Traffic	Laurel Rd			Laurel Rd			Jacaranda Blvd					
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	0	7	143	10	15	0	127	0	1	0	0	0
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	0	8	162	11	17	0	144	0	1	0	0	0

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	0	8	162	11	17	0	144	0	1	0	0	0
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	0	1	24	2	3	0	21	0	0	0	0	0
Toscana Isles		9	9		16		16					
Portofino		19	228		16		186					
Milano PUD (VICA East of Jacaranda)			84				48					
Milano PUD (Laurel Lakes West of Jacaranda)			199				113					
2024 Future Conditions	0	37	706	13	52	0	528	0	1	0	0	0

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	0	150	0	1	85	0	0	0	2	0	0	0
Total Project Traffic	0	150	0	1	85	0	0	0	2	0	0	0

Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	0	37	706	13	52	0	528	0	1	0	0	0
Project Traffic	0	150	0	1	85	0	0	0	2	0	0	0
2024 Total Conditions	0	187	706	14	137	0	528	0	3	0	0	0

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: Jacaranda Boulevard & Border Road

Count Date: 09/21/17

P.M. Peak Time Period: 4:30 - 5:30 PM

Peak Hour Factor: 0.91

Existing Traffic	Border Rd			Border Rd			Jacaranda Blvd			Jacaranda Blvd		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	29	42	71	29	31	17	80	101	33	44	108	17
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	33	48	81	33	35	19	91	115	37	50	122	19

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	33	48	81	33	35	19	91	115	37	50	122	19
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	5	7	12	5	5	3	14	17	6	7	18	3
The Bridges		15	74		16		78					
Portofino	62					62		62		76	76	76
The Woods at Venice		42		28	25	17			49	29		
Milano PUD (VICA East of Jacaranda)	23					8		39		4	22	13
Milano PUD (Laurel Lakes West of Jacaranda)	59					24		113		13	64	33
2024 Future Conditions	182	112	167	66	81	133	183	346	92	179	302	144

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	0	26	0	30	15	1	0	0	54	1	0	0
Total Project Traffic	0	26	0	30	15	1	0	0	54	1	0	0

Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	182	112	167	66	81	133	183	346	92	179	302	144
Project Traffic	0	26	0	30	15	1	0	0	54	1	0	0
2024 Total Conditions	182	138	167	96	96	134	183	346	146	180	302	144

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: Jacaranda Boulevard & I-75 NB Ramps

Count Date: 09/21/17

P.M. Peak Time Period: 4:30 - 5:30 PM

Peak Hour Factor: 0.93

Existing Traffic				I-75 NB Ramp			Jacaranda Blvd			Jacaranda Blvd		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	0	0	0	254	0	44	0	196	534	0	364	62
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	0	0	0	288	0	50	0	222	606	0	413	70

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	0	0	0	288	0	50	0	222	606	0	413	70
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	0	0	0	43	0	7	0	33	90	0	61	10
The Bridges						16		53			65	
Portofino								57			70	
Milano PUD (VICA East of Jacaranda)						7		30			17	4
Milano PUD (Laurel Lakes West of Jacaranda)						32		78			54	8
2024 Future Conditions	0	0	0	331	0	112	0	473	696	0	680	92

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	0	0	0	0	0	7	0	45	0	0	29	0
Total Project Traffic	0	0	0	0	0	7	0	45	0	0	29	0

Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	0	0	0	331	0	112	0	473	696	0	680	92
Project Traffic	0	0	0	0	0	7	0	45	0	0	29	0
2024 Total Conditions	0	0	0	331	0	119	0	518	696	0	709	92

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: Jackson Road & Border Road

Count Date: 09/21/17

P.M. Peak Time Period: 4:45 - 5:45 PM

Peak Hour Factor: 0.86

Existing Traffic	Border Rd			Border Rd			Jackson Rd			Jackson Rd		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	16	24	71	13	20	1	29	4	14	0	5	9
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	18	27	81	15	23	1	33	5	16	0	6	10

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	18	27	81	15	23	1	33	5	16	0	6	10
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	3	4	12	2	3	0	5	1	2	0	1	1
Portofino	6		70				57					5
The Woods at Venice	1	1	21		0		36					2
2024 Future Conditions	28	32	184	17	26	1	131	6	18	0	7	18

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	2	0	22	0	1	0	39	0	0	0	0	2
Total Project Traffic	2	0	22	0	1	0	39	0	0	0	0	2

Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	28	32	184	17	26	1	131	6	18	0	7	18
Project Traffic	2	0	22	0	1	0	39	0	0	0	0	2
2024 Total Conditions	30	32	206	17	27	1	170	6	18	0	7	20

TRAFFIC VOLUME AT STUDY INTERSECTIONS

Intersection: Jackson Road & Venice Avenue

Count Date: 09/21/17

P.M. Peak Time Period: 4:15 - 5:15 PM

Peak Hour Factor: 0.96

Existing Traffic	Venice Ave			Venice Ave			Jackson Rd			Jackson Rd		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	18	256	86	20	171	16	75	27	27	31	36	15
Peak Season Factor	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134	1.134
2017 Existing Conditions	20	290	98	23	194	18	85	31	31	35	41	17

Future Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Conditions	20	290	98	23	194	18	85	31	31	35	41	17
Years to Build-out	7	7	7	7	7	7	7	7	7	7	7	7
Annual Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Background Traffic Growth	3	43	15	3	29	3	13	5	5	5	6	3
Portofino	10					47				57		13
The Woods at Venice	14					22				12		9
2024 Future Conditions	47	333	113	26	223	90	98	36	36	109	47	42

Project Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Project Trips	14	0	0	0	0	24	0	0	0	14	0	8
Total Project Traffic	14	0	0	0	0	24	0	0	0	14	0	8













Total Traffic	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Traffic	47	333	113	26	223	90	98	36	36	109	47	42
Project Traffic	14	0	0	0	0	24	0	0	0	14	0	8
2024 Total Conditions	61	333	113	26	223	114	98	36	36	123	47	50

APPENDIX D

**2017 EXISTING TRAFFIC SYNCHRO
SUMMARY WORKSHEETS**



















HCM 2010 Signalized Intersection Summary
 1: I-75 SB Ramp & Laurel Rd

10/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑		↑↑
Traffic Volume (veh/h)	0	493	474	439	582	0	0	0	0	103	0	356
Future Volume (veh/h)	0	493	474	439	582	0	0	0	0	103	0	356
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1727	1827	1827	1776	0				1557	0	1776
Adj Flow Rate, veh/h	0	548	0	488	647	0				114	0	396
Adj No. of Lanes	0	2	1	1	2	0				1	0	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	10	4	4	7	0				22	0	7
Cap, veh/h	0	861	408	696	2425	0				241	0	432
Arrive On Green	0.00	0.26	0.00	0.80	1.00	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3368	1553	1740	3463	0				1483	0	2656
Grp Volume(v), veh/h	0	548	0	488	647	0				114	0	396
Grp Sat Flow(s),veh/h/ln	0	1641	1553	1740	1687	0				1483	0	1328
Q Serve(g_s), s	0.0	11.8	0.0	10.2	0.0	0.0				5.6	0.0	11.7
Cycle Q Clear(g_c), s	0.0	11.8	0.0	10.2	0.0	0.0				5.6	0.0	11.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	861	408	696	2425	0				241	0	432
V/C Ratio(X)	0.00	0.64	0.00	0.70	0.27	0.00				0.47	0.00	0.92
Avail Cap(c_a), veh/h	0	1005	476	696	2425	0				241	0	432
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.1	0.0	5.8	0.0	0.0				30.4	0.0	33.0
Incr Delay (d2), s/veh	0.0	3.6	0.0	3.0	0.1	0.0				1.4	0.0	24.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	9.7	0.0	8.3	0.0	0.0				4.3	0.0	9.7
LnGrp Delay(d),s/veh	0.0	29.7	0.0	8.8	0.1	0.0				31.8	0.0	57.3
LnGrp LOS		C		A	A					C		E
Approach Vol, veh/h		548			1135						510	
Approach Delay, s/veh		29.7			3.8						51.6	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.5	25.5		18.0		62.0						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	27.5	23.5		12.0		56.5						
Max Q Clear Time (g_c+I1), s	12.2	13.8		13.7		2.0						
Green Ext Time (p_c), s	5.9	2.3		0.0		8.3						
Intersection Summary												
HCM 2010 Ctrl Delay				21.4								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary
 2: I-75 NB Ramp & Laurel Rd































10/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	214	384	0	0	787	243	230	0	201	0	0	0
Future Volume (veh/h)	214	384	0	0	787	243	230	0	201	0	0	0
Number	1	6	16	5	2	12	7	4	14			
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			
Adj Sat Flow, veh/h/ln	1776	1610	0	0	1810	1696	1759	0	1776			
Adj Flow Rate, veh/h	238	427	0	0	874	0	256	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	7	18	0	0	5	12	8	0	7			
Cap, veh/h	1110	2336	0	0	1268	532	383	0	178			
Arrive On Green	0.68	1.00	0.00	0.00	0.74	0.00	0.12	0.00	0.00			
Sat Flow, veh/h	3281	3140	0	0	3529	1442	3250	0	1509			
Grp Volume(v), veh/h	238	427	0	0	874	0	256	0	0			
Grp Sat Flow(s),veh/h/ln	1640	1530	0	0	1719	1442	1625	0	1509			
Q Serve(g_s), s	2.2	0.0	0.0	0.0	10.9	0.0	6.0	0.0	0.0			
Cycle Q Clear(g_c), s	2.2	0.0	0.0	0.0	10.9	0.0	6.0	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	1110	2336	0	0	1268	532	383	0	178			
V/C Ratio(X)	0.21	0.18	0.00	0.00	0.69	0.00	0.67	0.00	0.00			
Avail Cap(c_a), veh/h	1110	2336	0	0	1268	532	609	0	283			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.84	0.84	0.00	0.00	0.95	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	8.9	0.0	0.0	0.0	8.1	0.0	33.8	0.0	0.0			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	2.9	0.0	2.0	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(95%),veh/ln	1.8	0.0	0.0	0.0	9.1	0.0	5.1	0.0	0.0			
LnGrp Delay(d),s/veh	9.0	0.0	0.0	0.0	11.0	0.0	35.8	0.0	0.0			
LnGrp LOS	A	A			B		D					
Approach Vol, veh/h		665			874			256				
Approach Delay, s/veh		3.2			11.0			35.8				
Approach LOS		A			B			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.6	34.0		14.4		65.6						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	20.5	28.5		14.0		54.5						
Max Q Clear Time (g_c+I1), s	4.2	12.9		8.0		2.0						
Green Ext Time (p_c), s	3.1	5.0		0.4		3.7						
Intersection Summary												
HCM 2010 Ctrl Delay				11.7								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

3: Knights Trail Rd & Laurel Rd

10/04/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 		 		 	 	 	 		 			
Traffic Volume (vph)	401	171	7	0	143	44	19	3	3	82	2	616	
Future Volume (vph)	401	171	7	0	143	44	19	3	3	82	2	616	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	5.0	5.0		5.0	5.0	5.0	
Lane Util. Factor	0.97	1.00	1.00		0.95	1.00	1.00	1.00		1.00	1.00	0.88	
Frt	1.00	1.00	0.85		1.00	0.85	1.00	0.93		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3019	1727	1214		3438	1468	1805	1509		1626	950	2682	
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3019	1727	1214		3438	1468	1805	1509		1626	950	2682	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	441	188	8	0	157	48	21	3	3	90	2	677	
RTOR Reduction (vph)	0	0	3	0	0	43	0	3	0	0	0	217	
Lane Group Flow (vph)	441	188	5	0	157	5	21	3	0	90	2	460	
Heavy Vehicles (%)	16%	10%	33%	0%	5%	10%	0%	33%	0%	11%	100%	6%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA		Split	NA	pt+ov	
Protected Phases	1	6		5	2		3	3		4	4	4	
Permitted Phases			6			2							
Actuated Green, G (s)	35.0	47.1	47.1		6.6	6.6	3.0	3.0		12.4	12.4	53.4	
Effective Green, g (s)	36.0	48.1	48.1		7.6	7.6	4.0	4.0		13.4	13.4	54.4	
Actuated g/C Ratio	0.45	0.60	0.60		0.09	0.09	0.05	0.05		0.17	0.17	0.68	
Clearance Time (s)	5.5	5.5	5.5		5.5	5.5	6.0	6.0		6.0	6.0		
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	1358	1038	729		326	139	90	75		272	159	1823	
v/s Ratio Prot	c0.15	0.11			c0.05		c0.01	0.00		c0.06	0.00	0.17	
v/s Ratio Perm			0.00			0.00							
v/c Ratio	0.32	0.18	0.01		0.48	0.03	0.23	0.04		0.33	0.01	0.25	
Uniform Delay, d1	14.2	7.1	6.4		34.3	32.9	36.5	36.2		29.3	27.8	4.9	
Progression Factor	0.57	0.64	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.4	0.0		5.0	0.4	1.3	0.2		0.7	0.0	0.1	
Delay (s)	8.7	5.0	6.4		39.4	33.3	37.9	36.4		30.1	27.8	5.0	
Level of Service	A	A	A		D	C	D	D		C	C	A	
Approach Delay (s)		7.6			37.9			37.5			8.0		
Approach LOS		A			D			D			A		
Intersection Summary													
HCM 2000 Control Delay			12.1		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.34										
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					19.0			
Intersection Capacity Utilization			47.8%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Intersection

Int Delay, s/veh 4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Vol, veh/h	8	162	11	17	144	1
Future Vol, veh/h	8	162	11	17	144	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	300	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	14	14	0	0	9	100
Mvmt Flow	9	180	12	19	160	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	189
Stage 1	-	-	99
Stage 2	-	-	43
Critical Hdwy	-	4.1	-
Critical Hdwy Stg 1	-	-	5.49
Critical Hdwy Stg 2	-	-	5.49
Follow-up Hdwy	-	2.2	-
Pot Cap-1 Maneuver	-	1397	-
Stage 1	-	-	908
Stage 2	-	-	962
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1397	-
Mov Cap-2 Maneuver	-	-	827
Stage 1	-	-	908
Stage 2	-	-	953

Approach	EB	WB	NB
HCM Control Delay, s	0	3	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	827	745	-	-	1397	-
HCM Lane V/C Ratio	0.193	0.001	-	-	0.009	-
HCM Control Delay (s)	10.4	9.8	-	-	7.6	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	↔
Traffic Vol, veh/h	0	33	48	81	0	33	35	19	0	91	115	37
Future Vol, veh/h	0	33	48	81	0	33	35	19	0	91	115	37
Peak Hour Factor	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	7	12	7	2	14	3	18	2	1	5	3
Mvmt Flow	0	36	53	89	0	36	38	21	0	100	126	41
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	1
HCM Control Delay	10.2	9.8	11.3
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	44%	0%	20%	38%	29%	0%
Vol Thru, %	56%	0%	30%	40%	71%	0%
Vol Right, %	0%	100%	50%	22%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	37	162	87	172	19
LT Vol	91	0	33	33	50	0
Through Vol	115	0	48	35	122	0
RT Vol	0	37	81	19	0	19
Lane Flow Rate	226	41	178	96	189	21
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.365	0.056	0.262	0.152	0.326	0.03
Departure Headway (Hd)	5.809	4.946	5.3	5.735	6.2	5.12
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	620	725	682	625	580	700
Service Time	3.535	2.672	3.3	3.771	3.926	2.846
HCM Lane V/C Ratio	0.365	0.057	0.261	0.154	0.326	0.03
HCM Control Delay	11.9	8	10.2	9.8	11.9	8
HCM Lane LOS	B	A	B	A	B	A
HCM 95th-tile Q	1.7	0.2	1	0.5	1.4	0.1

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↶	↷
Traffic Vol, veh/h	0	50	122	19
Future Vol, veh/h	0	50	122	19
Peak Hour Factor	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	25	12	12
Mvmt Flow	0	55	134	21
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.5
HCM LOS	B

HCM 2010 TWSC
8: Jacaranda Blvd & I-75 NB Ramp

10/04/2017

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘		↗		↕	↗		↕	↗
Traffic Vol, veh/h	0	0	0	288	0	50	0	222	606	0	413	70
Future Vol, veh/h	0	0	0	288	0	50	0	222	606	0	413	70
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	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	800	-	-	800	-	-	300
Veh in Median Storage, #	-	-	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	0	7	0	7	4	0	7	5
Mvmt Flow	0	0	0	310	0	54	0	239	652	0	444	75
Major/Minor				Minor1				Major1				Major2
Conflicting Flow All				461	-	119	-	0	-	-	-	0
Stage 1				239	-	-	-	-	-	-	-	-
Stage 2				222	-	-	-	-	-	-	-	-
Critical Hdwy				6.9	-	7.04	-	-	-	-	-	-
Critical Hdwy Stg 1				5.9	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.9	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.55	-	3.37	-	-	-	-	-	-
Pot Cap-1 Maneuver				522	0	894	0	-	0	0	-	0
Stage 1				769	0	-	0	-	0	0	-	0
Stage 2				785	0	-	0	-	0	0	-	0
Platoon blocked, %								-				
Mov Cap-1 Maneuver				522	0	894	-	-	-	-	-	-
Mov Cap-2 Maneuver				593	0	-	-	-	-	-	-	-
Stage 1				769	0	-	-	-	-	-	-	-
Stage 2				785	0	-	-	-	-	-	-	-
Approach				WB				NB				SB
HCM Control Delay, s				16.3				0				0
HCM LOS				C								
Minor Lane/Major Mvmt	NBTWBLn1WBLn2		SBT									
Capacity (veh/h)	-	593	894	-								
HCM Lane V/C Ratio	-	0.522	0.06	-								
HCM Control Delay (s)	-	17.5	9.3	-								
HCM Lane LOS	-	C	A	-								
HCM 95th %tile Q(veh)	-	3	0.2	-								

HCM 2010 TWSC
7: Jackson Rd & Border Rd

10/04/2017

Intersection

Int Delay, s/veh 4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	27	81	15	23	1	33	5	16	0	6	10
Future Vol, veh/h	18	27	81	15	23	1	33	5	16	0	6	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	14	8	10	100	3	0	7	0	0	11
Mvmt Flow	21	31	94	17	27	1	38	6	19	0	7	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	28	0	0	126	0	0	192	183	78	195	229	27
Stage 1	-	-	-	-	-	-	120	120	-	62	62	-
Stage 2	-	-	-	-	-	-	72	63	-	133	167	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.13	6.5	6.27	7.1	6.5	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.272	-	-	3.527	4	3.363	3.5	4	3.399
Pot Cap-1 Maneuver	1599	-	-	1424	-	-	766	715	969	769	674	1023
Stage 1	-	-	-	-	-	-	882	800	-	954	847	-
Stage 2	-	-	-	-	-	-	935	846	-	875	764	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1599	-	-	1424	-	-	736	697	969	735	657	1023
Mov Cap-2 Maneuver	-	-	-	-	-	-	736	697	-	735	657	-
Stage 1	-	-	-	-	-	-	870	789	-	941	837	-
Stage 2	-	-	-	-	-	-	906	836	-	840	753	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	2.9	10	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	788	1599	-	-	1424	-	-	846
HCM Lane V/C Ratio	0.08	0.013	-	-	0.012	-	-	0.022
HCM Control Delay (s)	10	7.3	0	-	7.6	0	-	9.4
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	290	98	23	194	18	85	31	31	35	41	17
Future Vol, veh/h	20	290	98	23	194	18	85	31	31	35	41	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	11	2	11	10	6	6	13	7	11	7	22	13
Mvmt Flow	21	302	102	24	202	19	89	32	32	36	43	18
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	221	0	0	404	0	0	685	664	353	686	705	211
Stage 1	-	-	-	-	-	-	395	395	-	259	259	-
Stage 2	-	-	-	-	-	-	290	269	-	427	446	-
Critical Hdwy	4.21	-	-	4.2	-	-	7.23	6.57	6.31	7.17	6.72	6.33
Critical Hdwy Stg 1	-	-	-	-	-	-	6.23	5.57	-	6.17	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.23	5.57	-	6.17	5.72	-
Follow-up Hdwy	2.299	-	-	2.29	-	-	3.617	4.063	3.399	3.563	4.198	3.417
Pot Cap-1 Maneuver	1297	-	-	1113	-	-	348	375	671	355	337	802
Stage 1	-	-	-	-	-	-	609	596	-	735	658	-
Stage 2	-	-	-	-	-	-	695	678	-	596	541	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1297	-	-	1113	-	-	295	358	671	304	322	802
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	358	-	304	322	-
Stage 1	-	-	-	-	-	-	596	583	-	720	642	-
Stage 2	-	-	-	-	-	-	619	661	-	525	530	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.8			23.1			19		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	349	1297	-	-	1113	-	-	353				
HCM Lane V/C Ratio	0.439	0.016	-	-	0.022	-	-	0.274				
HCM Control Delay (s)	23.1	7.8	0	-	8.3	0	-	19				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	2.2	0	-	-	0.1	-	-	1.1				

APPENDIX E

VESTED TRAFFIC VOLUMES

Toscana Isles

TABLE F-2

Toscana Isles

Phase 2 Scenario: 1,000 Single Family Dwelling Unit, 638 Multi-Family Dwelling Units, Retail = 110,000 Square Feet

April 11, 2011

PROPOSED PM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		GROSS VOLUMES			INTERNAL CAPTURE		PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS		
Land Use	ITE Edition	ITE Code	Scale	ITE Units	Percent		In	Out	Total	Percent	IC Trips	Percent	PB Trips	In	Out	Total
					In	Out										
Single-Family Detached Housing	8	210	1,000	du	63%	37%	526	309	835	3.5%	29	0.0%	0	611	294	805
Residential Condominium / Townhouse	8	230	628	du	67%	33%	182	89	271	11.1%	30	0.0%	0	163	78	241
Specialty Retail Center	8	814	110	ksf	44%	56%	125	160	285	21.1%	60	29.0%	66	70	89	159
Total:							833	558	1,391		119		66	744	461	1,205

103 Single-Family C.O. = 68 40 108

108/1,391 = 7.5%; reduced Toscana Isles traffic by 7.5%

A-36

TABLE 1

TOSCANA ISLES
Phase 1, Add 342 Renaissance Trips, including Bridges Project, Add New N/S Roadway
1,107 Single Family Dwelling Units

PM Peak Roadway Link Analysis

Revised July 18, 2011

Roadway	Number of Lanes	LOS Standard	Service Volume (1)	2009 Traffic Volumes (1)	Reserved Traffic From Other Projects					2020 Total Background Traffic	Project		2020 Total		Project Traffic % Service Vol.	Is Project Traffic Signif.?	Roadway LOS OK?	
					Laurel Med. Center	Bridges	CVS	Renaissance: 892 Trips	Venice Hotel		Traffic %	Traffic	Traffic	% Service Vol.				
Laurel Road																		
US 41 to Mission Valley	4LD	C	3,000	1,584	63	0	0	36	0	1,740	11.5%	105	1,845	61.8%	3.6%	No	N/A	
Mission Valley to Albee Farm Road	4LD	C	3,180	1,492	90	0	0	80	0	1,744	12.8%	117	1,861	58.5%	3.7%	No	N/A	
Albee Farm Road to Pinebrook Road	4LD	C	3,180	1,787	108	79	0	138	0	2,208	34.3%	314	2,522	79.3%	9.6%	Yes	Yes	
Pinebrook Road to I-75	4LD	C	2,540	1,515	212	109	49	241	0	2,208	36.3%	332	2,540	100.0%	13.1%	Yes	Yes	
I-75 to Knights Trail Road	4LD	C	2,540	718	53	231	64	321	38	1,442	70.0%	641	2,083	82.0%	28.2%	Yes	Yes	
East of Knights Trail Road	4LD	C	2,540	218	26	243	67	36	21	822	30.0%	275	897	35.3%	10.8%	Yes	Yes	
I-75																		
Jacaranda Road to Laurel Road	6LF	B	5,970	5,882	79	30	0	45	0	6,328	4.7%	43	6,371	108.5%	0.7%	No	N/A	
Laurel Road to SR 881	6LF	B	5,970	5,882	79	91	0	71	0	6,416	28.0%	285	6,690	111.9%	4.4%	No	N/A	
Albee Farm Road																		
Laurel Road to Edmonson Road	4LD	C	3,180	899	26	0	0	27	0	1,001	23.3%	213	1,214	38.2%	6.7%	Yes	Yes	
Pinebrook Road																		
Laurel Road to Edmonson Road	4LD	C	2,420	788	185	30	25	49	0	1,120	3.1%	28	1,148	47.4%	1.2%	No	N/A	
Knights Trail Road																		
Laurel Road north to Technology Drive/South Project Dwy	2LU	C	1,720	629	16	12	0	89	4	781	100.0%	915	1,696	98.6%	53.2%	Yes	Yes	
Technology Drive/South Project Dwy to North Project Dwy	2LU	C	1,720	629	16	12	0	89	4	781	33.3%	305	1,086	63.1%	17.7%	Yes	Yes	

NOTES:

1 :Source: Fruitville Initiative Comprehensive Plan, Amended Traffic Analysis, October 2010, Post Buckley Schuh & Jernigan, pages I-26 through I-29. Knight's Trail Road and Laurel Road west and east of Knight's Trail Road based on actual 2010 traffic counts.

File Name = C:\Users\Public\vision\liverpool\102210\Final_041811\Scenario BAAdd 342 Trips to Renaissance_Final_071111\FINAL TABLE 1_Add 342 to Renaissance_SF = 1,107_Roadway Network
Print Date = July 18, 2011
Print Time = 7:16 PM

Table D-2

TOSCANA ISLES: Phase 1 = 1,107 single Family dwelling Units

Laurel Road & Knight's Trail Road: Intersection Traffic Analysis

Intersection: Laurel Road & Knight's Trail Road (Counted December 1, 2010)

Analysis Date: July 11, 2011

Scenario: Scenario B: Renaissance = 892 Trips, Add Bridges Project, Add N/S Roadway

Peak Season Factor: 1.017

PHF: 0.838

2020 Growth Factor: 1.0500 (Assume 0.5% growth per year, 2010 to 2020, simple growth rate)

PM Peak Period (4:30 PM - 5:30 PM)														
Movement	2010		Reserved Trips From Other Developments					2020 Total Background	Toscana Isles			Total Traffic 2020		
	Raw Counts	Exist Counts, Pk Season	Laurel Road Med.	Bridges	CVS	Renaissance: 892 Trips	Venice Hotel		% Inbound	% Outbound	Inbound		Outbound	Total
Southbound: Trucks = 6.37%														
Left	11	11	0	6	0	22	0	40	0.00%	30.00%	0	101	101	141
Through	2	2	0	0	0	0	2	4	0.00%	0.00%	0	0	0	4
Right	179	182	9	0	0	0	0	200	0.00%	47.00%	0	159	169	359
RTOR	162	165	0	0	0	0	0	173	0.00%	23.00%	0	78	78	251
Total =	354	360	9	6	0	22	2	417			0	338	338	754
Westbound: Trucks = 3.96%														
Left	0	0	0	0	1	0	11	12	0.00%	0.00%	0	0	0	12
Through	73	74	22	113	0	122	0	335	0.00%	0.00%	0	0	0	335
Right	1	1	0	6	0	0	0	7	1.00%	0.00%	6	0	6	13
RTOR	2	2	0	0	0	2	0	4	29.00%	0.00%	167	0	167	171
Total =	76	77	22	119	1	124	11	358			173	0	173	531
Northbound: Trucks = 0.00%														
Left	11	11	0	0	34	0	18	64	0.00%	0.00%	0	0	0	64
Through	1	1	0	0	0	0	2	3	0.00%	0.00%	0	0	0	3
Right	1	1	0	0	1	0	10	12	0.00%	0.00%	0	0	0	12
RTOR	0	0	0	0	0	0	0	0	0.00%	0.00%	0	0	0	0
Total =	13	13	0	0	35	0	30	79			0	0	0	79
Eastbound: Trucks = 6.30%														
Left	134	136	9	0	0	0	0	152	70.00%	0.00%	404	0	404	556
Through	127	129	21	118	0	0	0	274	0.00%	0.00%	0	0	0	274
Right	2	2	0	0	31	199	20	252	0.00%	0.00%	0	0	0	252
RTOR	1	1	0	0	0	0	0	1	0.00%	0.00%	0	0	0	1
Total =	264	268	30	118	31	199	20	679			404	0	404	1,083
TOTAL =	707	718	61	243	67	345	63	1,532	100.00%	100.00%	577	338	915	2,447

The Bridges

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Laurel Road & I-75 West Ramps (SB)

TRAFFIC CONTROL: Signalized
COUNT DATE: April 22, 2009
TIME PERIOD: 4:00 p.m. - 5:00 p.m.
PEAK HOUR FACTOR: 0.85

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts		435	226	321	452					86		314
Peak-Season Correction Factor		1.057	1.057	1.057	1.057					1.057		1.057
2009 PEAK-SEASON VOLUMES		460	239	339	478					91		332

"NON-PROJECT TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Venetian G&R Club		78		14	45					30		
Triple Diamond Plaza		34		104	126					12		
Renaissance		295		59	267					70		
Laurel Road Medical Center		175	105		66							40
Venice Hotel				9						10		
CVS		21		5	25					4		
Shoppes of Laurel		2		4	4					2		
Laurel-to-Border Diversion		-87		-87	-87							
TOTAL VESTED TRAFFIC		518	105	108	446					128		40

Years To Buildout (2015)		6	6	6	6					6		6
Yearly Growth Rate		1.0%	1.0%	1.0%	1.0%					1.0%		1.0%
BACKGROUND TRAFFIC GROWTH		28	15	21	29					6		20

2015 NON-PROJECT TRAFFIC		1,006	359	468	953					225		392
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"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
The Bridges	New		56		15	53					47		
TOTAL PROJECT TRAFFIC			56	0	15	53					47		0

"TOTAL TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2015 TOTAL TRAFFIC		1,062	359	483	1,006					272		392

Buildout Percentage: 85% 972 341 461 927 245 383

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Laurel Road & I-75 East Ramps (NB)

TRAFFIC CONTROL: Signalized
COUNT DATE: April 22, 2009
TIME PERIOD: 4:00 p.m. - 5:00 p.m.
PEAK HOUR FACTOR: 0.79

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	202	325		1	578	135	195		167			
Peak-Season Correction Factor	1.057	1.057		1.057	1.057	1.057	1.057		1.057			
2009 PEAK-SEASON VOLUMES	214	344		1	611	143	206		177			

"NON-PROJECT TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Venetian G&R Club		108			59	17			24			
Triple Diamond Plaza		45			229	45			28			
Renaissance		365			326	64			66			
Laurel Road Medical Center	105	70			28		40					
Venice Hotel		10			9	9			10			
CVS		25			30	4			5			
Shoppes of Laurel		5			8	4			2			
Laurel-to-Border Diversion		-87			-174				-87			
TOTAL VESTED TRAFFIC	105	541		0	513	143	40		48			
Years To Buildout (2015)	6	6		6	6	6	6		6			
Yearly Growth Rate	1.0%	1.0%		1.0%	1.0%	1.0%	1.0%		1.0%			
BACKGROUND TRAFFIC GROWTH	13	21		0	38	9	13		11			
2015 NON-PROJECT TRAFFIC	332	906		1	1,162	295	259		236			

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
The Bridges	New		103			68	44			16			
TOTAL PROJECT TRAFFIC		0	103		0	68	44	0		16			

"TOTAL TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2015 TOTAL TRAFFIC	332	1,009		1	1,230	339	259		252			

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Laurel Road & Knights Trail Road

TRAFFIC CONTROL: Two-way STOP
COUNT DATE: October 28, 2008
TIME PERIOD: 4:00 p.m. - 5:00 p.m.
PEAK HOUR FACTOR: 0.81

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts	199	102	12	0	91	8	24	2	1	9	1	352
Peak-Season Correction Factor	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080
2008 PEAK-SEASON VOLUMES	215	110	13	0	98	9	26	2	1	10	1	380

"NON-PROJECT TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Venetian G&R Club		133			76	10				18		
Triple Diamond Plaza	73					5				18		274
Renaissance	108	323			292							98
Laurel Road Medical Center	21	35	14		13		5					8
Venice Hotel			20	11			18	2	10		2	
CVS	-7	21	17		30	2	17	5		10	4	-13
Shoppes of Laurel	18	-11			7					23		
Laurel-to-Border Diversion	-87	-87			-87	87				87		-87
TOTAL VESTED TRAFFIC	126	414	51	11	331	104	40	7	10	156	6	280
Years To Buildout (2015)	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
BACKGROUND TRAFFIC GROWTH	16	8	1	0	7	1	2	0	0	1	0	27
2015 NON-PROJECT TRAFFIC	357	532	65	11	436	114	68	9	11	167	7	687

"PROJECT TRAFFIC"													
LAND USE	TYPE	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
The Bridges	New		119			112	6				6		
TOTAL PROJECT TRAFFIC		0	119	0	0	112	6	0	0	0	6	0	0

"TOTAL TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2015 TOTAL TRAFFIC	357	651	65	11	548	120	68	9	11	173	7	687

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Jacaranda Boulevard & I-75 North Ramps (NB)

TRAFFIC CONTROL: Two-way STOP
COUNT DATE: February 5, 2009
TIME PERIOD: 4:30 p.m. - 5:30 p.m.
PEAK HOUR FACTOR: 0.95

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movement Counts				237		32	5	147	557		220	57
Peak-Season Correction Factor				1.004		1.004	1.004	1.004	1.004		1.004	1.004
2009 PEAK-SEASON VOLUMES				238		32	5	148	559		221	57

"NON-PROJECT TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Venetian G&R Club												
Triple Diamond Plaza												
Renaissance								9	14		9	
Laurel Road Medical Center												
SCIBC				42				52	67		76	
Laurel-to-Border Diversion						87					87	
TOTAL VESTED TRAFFIC				42		87	0	61	81		172	0

Years To Buildout (2015)				6		6	6	6	6		6	6
Yearly Growth Rate				1.0%		1.0%	1.0%	1.0%	1.0%		1.0%	1.0%
BACKGROUND TRAFFIC GROWTH				15		2	0	9	34		14	4
2015 NON-PROJECT TRAFFIC				295		121	5	218	674		407	61

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
The Bridges	New						16		53			65	
TOTAL PROJECT TRAFFIC					0		16	0	53	0		65	0

"TOTAL TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2015 TOTAL TRAFFIC				295		137	5	271	674		472	61

Portofino

TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Laurel Road & I-75 Southbound Ramps

COUNT DATE: June 20, 2013

TIME PERIOD: 4:30 p.m. - 5:30 p.m.

PEAK HOUR FACTOR: 0.75

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements		275	252	342	377					50		273
Peak Season Correction Factor	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
EXISTING CONDITIONS		303	277	376	415					55		300

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector		-21		-41	-16					5		-5

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles		209		16	123					167		
The Bridges		56		15	53					47		
TOTAL "VESTED" TRAFFIC		265	0	31	176					214		0

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH		42	39	53	58					8		42

GROWTH METHOD USED: "VESTED TRAFFIC"		265	0	31	176					214		0
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TOTAL NON-PROJECT TRAFFIC		547	277	366	575					274		295
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Pass-By Distribution	Entering											
Net New Distribution	Entering		25.0%								14.0%		
	Exiting				17.0%	25.0%							

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Project Trips	Pass - By											
	Net New		130		108	159					73		
TOTAL PROJECT TRAFFIC			130	0	108	159					73		0

TOTAL TRAFFIC		677	277	474	734					347		295
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TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Laurel Road & I-75 Northbound Ramps

COUNT DATE: June 20, 2013

TIME PERIOD: 4:30 p.m. - 5:30 p.m.

PEAK HOUR FACTOR: 0.75

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements	141	188			584	202	125		57			
Peak Season Correction Factor	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
EXISTING CONDITIONS	155	207			642	222	138		63			

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector	-3	-13			-57	3			-11			

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles		376			139	98			27			
The Bridges		103			68	44			16			
TOTAL "VESTED" TRAFFIC	0	479			207	142	0		43			

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH	22	29			90	31	19		9			

GROWTH METHOD USED: "VESTED TRAFFIC"	0	479			207	142	0		43			
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TOTAL NON-PROJECT TRAFFIC	152	673			792	367	138		95			
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Pass-By Distribution	Entering											
Net New Distribution	Entering		39.0%							17.0%			
	Exiting					42.0%	14.0%						

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Project Trips	Pass - By											
	Net New		203			266	89			88			
TOTAL PROJECT TRAFFIC		0	203			266	89	0		88			

TOTAL TRAFFIC	152	876			1,058	456	138		183			
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TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Laurel Road & Knights Trail/ Haul Road

COUNT DATE: June 20, 2013

TIME PERIOD: 4:15 p.m. - 5:15 p.m.

PEAK HOUR FACTOR: 0.68

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements	137	97	17	2	97	13	27	0	1	15	2	469
Peak Season Correction Factor	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
EXISTING CONDITIONS	151	107	19	2	107	14	30	0	1	17	2	516

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector	-23	-1			-11	20				43		-43

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles	403					173				102		237
The Bridges		119			112	6				6		
TOTAL "VESTED" TRAFFIC	403	119	0	0	112	179	0	0	0	108	0	237

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH	21	15	3	0	15	2	4	0	0	2	0	72

GROWTH METHOD USED: "VESTED TRAFFIC"	403	119	0	0	112	179	0	0	0	108	0	237
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TOTAL NON-PROJECT TRAFFIC	531	225	19	2	208	213	30	0	1	168	2	710
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
Pass-By Distribution	Entering	41.0%	-41.0%										
	Exiting										2.0%		59.0%
Net New Distribution	Entering	47.0%	9.0%						1.0%	1.0%			
	Exiting				1.0%	9.0%					4.0%	1.0%	36.0%

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
Project Trips	Pass - By	74	-74								4		117
	Net New	244	47		6	56			5	5	25	6	229
TOTAL PROJECT TRAFFIC		318	-27	0	6	56	0	0	5	5	29	6	346

TOTAL TRAFFIC	849	198	19	8	264	213	30	5	6	197	8	1,056
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TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Laurel Road & Jacaranda Boulevard Extension

COUNT DATE: June 20, 2013

TIME PERIOD:

PEAK HOUR FACTOR: 0.95

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements		113			112							
Peak Season Correction Factor	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
EXISTING CONDITIONS		124			123							

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector		-6	48	14	-14		23		9			

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles		0			98							
The Bridges		15			16							
TOTAL "VESTED" TRAFFIC		15			114							

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH		17			17							

GROWTH METHOD USED: "VESTED TRAFFIC"		15			114							
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TOTAL NON-PROJECT TRAFFIC		133	48	14	223		23		9			
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Pass-By												
Distribution	Entering												
	Exiting												
Net New	Entering					3.0%		36.0%					
	Exiting		3.0%	36.0%									

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Project												
Trips	Pass - By												
	Net New		19	228		16		186					
TOTAL PROJECT TRAFFIC			19	228	0	16		186		0			

TOTAL TRAFFIC		152	276	14	239		209		9			
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TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Jacaranda Boulevard & Border Road

COUNT DATE: June 20, 2013

TIME PERIOD: 4:30 p.m. - 5:30 p.m.

PEAK HOUR FACTOR: 0.97

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements		37	54	21	27		66		25		5	
Peak Season Correction Factor	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
EXISTING CONDITIONS		41	59	23	30		73		28		6	

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector	3	-6	-15		-5	5	-16	24		11	39	12

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles			17				10					
The Bridges		15	74		16		78					
TOTAL "VESTED" TRAFFIC		15	91	0	16		88		0		0	

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH		6	8	3	4		10		4		1	

GROWTH METHOD USED: "VESTED TRAFFIC"		15	91	0	16		88		0		0	
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TOTAL NON-PROJECT TRAFFIC	3	50	135	23	41	5	145	24	28	11	45	12
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Pass-By Distribution	Entering											
Net New Distribution	Entering	12.0%					12.0%		12.0%				
	Exiting										12.0%	12.0%	12.0%

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Project Trips	Pass - By											
	Net New	62					62		62		76	76	76
TOTAL PROJECT TRAFFIC		62	0	0	0	0	62	0	62	0	76	76	76

TOTAL TRAFFIC	65	50	135	23	41	67	145	86	28	87	121	88
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TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Jacaranda Boulevard & I-75 Northbound Ramps

COUNT DATE: January 18, 2013

TIME PERIOD: 4:45 p.m. - 5:45 p.m.

PEAK HOUR FACTOR: 0.91

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements				208		21		102	479		222	66
Peak Season Correction Factor	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
EXISTING CONDITIONS				198		20		97	455		211	63

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector						11		-2			35	

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles												
The Bridges						16		53			65	
TOTAL "VESTED" TRAFFIC				0		16		53	0		65	0

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH				28		3		14	64		30	9

GROWTH METHOD USED: "BACKGROUND TRAFFIC"				28		3		14	64		30	9
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TOTAL NON-PROJECT TRAFFIC				226		34		109	519		276	72
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Pass-By												
Distribution	Entering												
	Exiting												
Net New	Entering								11.0%				
	Exiting											11.0%	

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Project												
Trips	Pass - By												
	Net New								57			70	
TOTAL PROJECT TRAFFIC					0		0		57	0		70	0

TOTAL TRAFFIC				226		34		166	519		346	72
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TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Border Road & Jackson Road

COUNT DATE: June 20, 2013

TIME PERIOD: 4:45 p.m. - 5:45 p.m.

PEAK HOUR FACTOR: 0.68

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements	8	22	25	8	27	0	14	3	11	0	3	3
Peak Season Correction Factor	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
EXISTING CONDITIONS	9	24	28	9	30	0	15	3	12	0	3	3

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector												

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles												
The Bridges	3		12				12					3
TOTAL "VESTED" TRAFFIC	3	0	12	0	0	0	12	0	0	0	0	3

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH	1	3	4	1	4	0	2	0	2	0	0	0

GROWTH METHOD USED: "VESTED TRAFFIC"	3	0	12	0	0	0	12	0	0	0	0	3
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TOTAL NON-PROJECT TRAFFIC	12	24	40	9	30	0	27	3	12	0	3	6
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Pass-By Distribution	Entering											
Net New Distribution	Entering							11.0%					1.0%
	Exiting	1.0%		11.0%									

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Project Trips	Pass - By											
	Net New	6		70				57					5
TOTAL PROJECT TRAFFIC		6	0	70	0	0	0	57	0	0	0	0	5

TOTAL TRAFFIC	18	24	110	9	30	0	84	3	12	0	3	11
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TRAFFIC VOLUMES AT STUDY INTERSECTION

INTERSECTION: Venice Avenue & Jackson Road

COUNT DATE: June 20, 2013

TIME PERIOD: 5:00 p.m. - 6:00 p.m.

PEAK HOUR FACTOR: 0.96

"EXISTING TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Raw Turning Movements	24	191	6	5	116	17	8	3	17	22	3	19
Peak Season Correction Factor	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
EXISTING CONDITIONS	26	210	7	6	128	19	9	3	19	24	3	21

"BACKGROUND DIVERTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Diverted Traffic from North-South Connector												

"VESTED TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Plaza Venezia												
Toscana Isles												
The Bridges	3					9				9		3
TOTAL "VESTED" TRAFFIC	3	0	0	0	0	9	0	0	0	9	0	3

-or-

"BACKGROUND TRAFFIC"	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Years To Buildout	7	7	7	7	7	7	7	7	7	7	7	7
Yearly Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
BACKGROUND TRAFFIC GROWTH	4	29	1	1	18	3	1	0	3	3	0	3

GROWTH METHOD USED: "BACKGROUND TRAFFIC"	4	29	1	1	18	3	1	0	3	3	0	3
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TOTAL NON-PROJECT TRAFFIC	30	239	8	7	146	22	10	3	22	27	3	24
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"PROJECT DISTRIBUTION"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Pass-By Distribution	Entering											
Net New Distribution	Entering	2.0%					9.0%						
	Exiting									9.0%		2.0%	

"PROJECT TRAFFIC"		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LAND USE	TYPE												
	Project Trips	Pass - By											
	Net New	10					47				57		13
TOTAL PROJECT TRAFFIC		10	0	0	0	0	47	0	0	0	57	0	13

TOTAL TRAFFIC	40	239	8	7	146	69	10	3	22	84	3	37
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The Woods of Venice

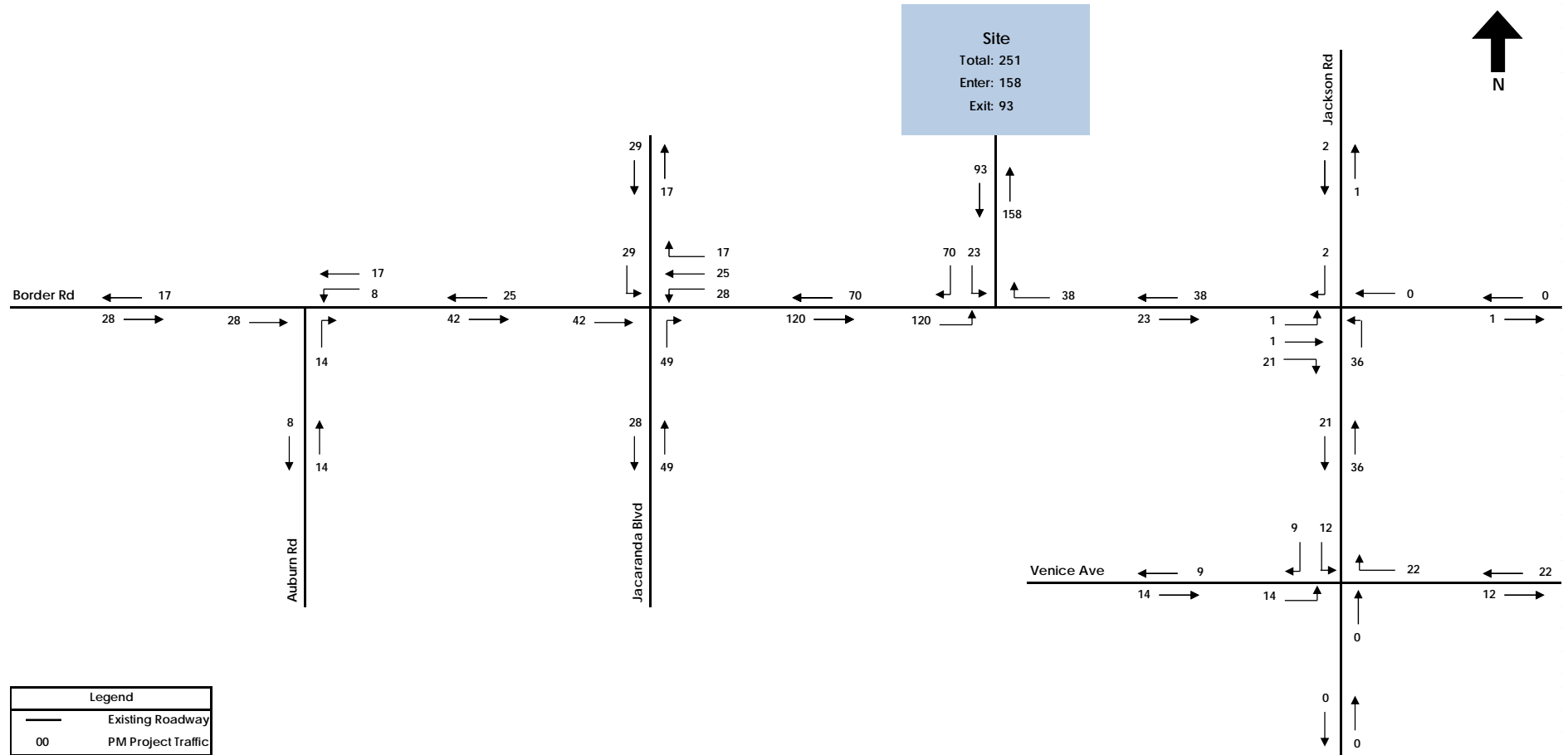
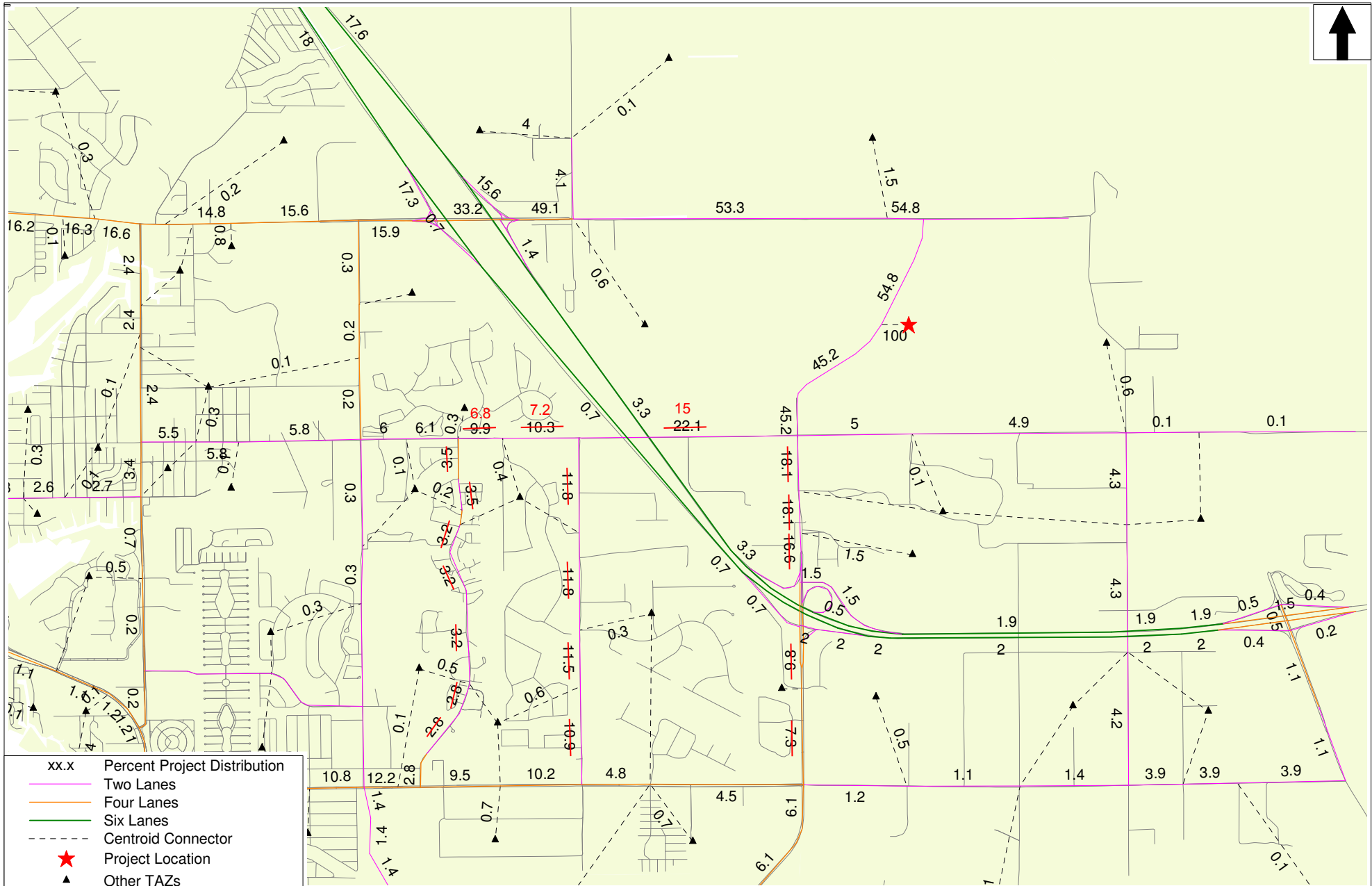


Figure 3: Project Traffic Assignment

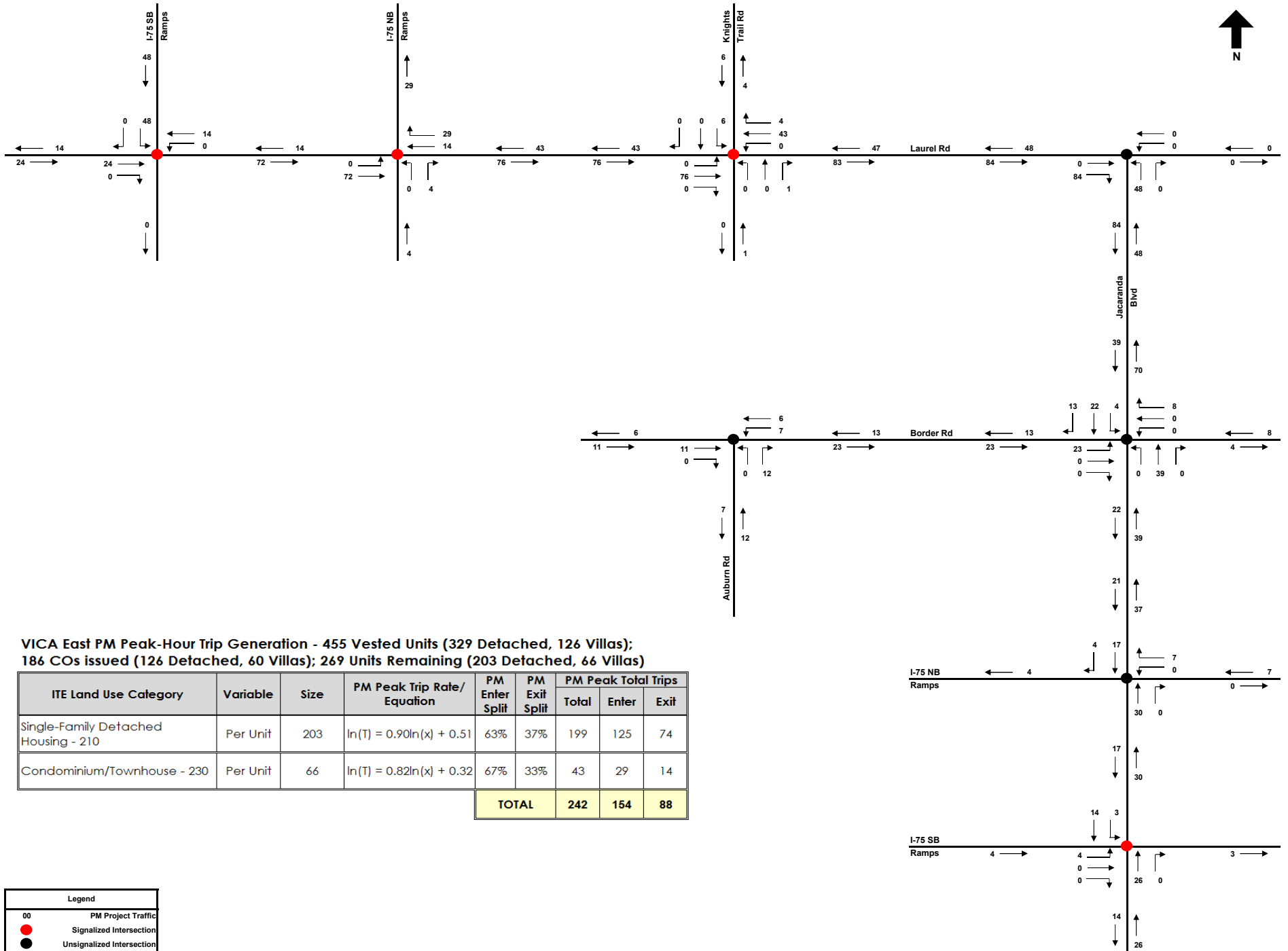
Milano PUD

Villages of Milano (VICA) - East of the Jacaranda Blvd Extension



- xx.x Percent Project Distribution
- Two Lanes
- Four Lanes
- Six Lanes
- Centroid Connector
- Project Location
- Other TAZs

Project Traffic Distribution
2014 Existing Plus Committed Network
Vica



VICA East PM Peak-Hour Trip Generation - 455 Vested Units (329 Detached, 126 Villas);
 186 COs issued (126 Detached, 60 Villas); 269 Units Remaining (203 Detached, 66 Villas)

ITE Land Use Category	Variable	Size	PM Peak Trip Rate/ Equation	PM Enter Split	PM Exit Split	PM Peak Total Trips		
						Total	Enter	Exit
Single-Family Detached Housing - 210	Per Unit	203	$\ln(T) = 0.90\ln(x) + 0.51$	63%	37%	199	125	74
Condominium/Townhouse - 230	Per Unit	66	$\ln(T) = 0.82\ln(x) + 0.32$	67%	33%	43	29	14
TOTAL						242	154	88

Legend	
00	PM Project Traffic
●	Signalized Intersection
●	Unsignalized Intersection

Lot ID	Address	CO Date	Lot ID	Address	CO Date
VM Amenities	218 Acerno Drive	8/12/16	VM33-091	213 Carlino Drive	10/14/16
VM30-133	312 Acerno Drive	5/25/16	VM33-092	209 Carlino Drive	10/24/16
VM40-095	245 Acerno Drive	5/25/16	VM33-087	229 Carlino Drive	11/28/16
VM40-116	244 Acerno Drive	5/25/16	VM40-030	315 Carlino Drive	1/11/17
VM40-115	240 Acerno Drive	5/25/16	VM40-003	343 Carlino Drive	1/11/17
VM30-132	308 Acerno Drive	5/25/16	VM40-025	318 Carlino Drive	1/26/17
VM30-129	296 Acerno Drive	6/15/16	VM40-024	322 Carlino Drive	1/26/17
VM30-128	292 Acerno Drive	6/15/16	VM40-001	351 Carlino Drive	1/27/17
VM40-096	241 Acerno Drive	6/21/16	VM40-002	347 Carlino Drive	1/27/17
VM30-135	320 Acerno Drive	6/24/16	VM40-029	319 Carlino Drive	2/2/17
VM30-131	304 Acerno Drive	6/24/16	VM40-007	327 Carlino Drive	2/14/17
VM30-130	300 Acerno Drive	6/29/16	VM40-032	307 Carlino Drive	2/14/17
VM30-134	316 Acerno Drive	7/1/16	VM40-033	303 Carlino Drive	3/1/17
VM30-126	284 Acerno Drive	7/15/16	VM40-006	331 Carlino Drive	3/7/17
VM30-127	288 Acerno Drive	7/15/16	VM40-031	311 Carlino Drive	3/7/17
VM30-125	280 Acerno Drive	7/25/16	VM40-004	339 Carlino Drive	4/5/17
VM30-124	276 Acerno Drive	7/27/16	VM40-027	310 Carlino Drive	4/5/17
VM30-122	268 Acerno Drive	8/12/16	VM40-035	295 Carlino Drive	4/19/17
VM40-114	236 Acerno Drive	8/16/16	VM40-034	299 Carlino Drive	5/15/17
VM40-113	232 Acerno Drive	8/18/16	VM40-028	323 Carlino Drive	5/22/17
VM40-111	224 Acerno Drive	8/26/16	VM40-036	291 Carlino Drive	6/8/17
VM30-123	272 Acerno Drive	9/2/16	VM40-005	335 Carlino Drive	6/16/17
VM30-137	328 Acerno Drive	9/13/16	VM30-061M	243 Carlino Drive	6/8/17
VM30-136	324 Acerno Drive	9/13/16	VM40-047S	252 Carlino Drive	6/8/17
VM40-112	228 Acerno Drive	9/16/16	VM30-060M	247 Carlino Drive	6/8/17
VM40-097	237 Acerno Drive	9/16/16	VM40-048M	248 Carlino Drive	6/8/17
VM30-152	325 Acerno Drive	9/23/16	VM33-049M	244 Carlino Drive	6/8/17
VM30-153	321 Acerno Drive	9/23/16	VM33-050M	240 Carlino Drive	6/8/17
VM40-118	252 Acerno Drive	9/29/16	VM40-038	283 Carlino Drive	7/7/17
VM40-117	248 Acerno Drive	10/7/16	VM40-037	287 Carlino Drive	7/18/17
VM30-139	336 Acerno Drive	10/10/16	VM40-040	275 Carlino Drive	7/24/17
VM30-138	332 Acerno Drive	10/11/16	VM40-026	314 Carlino Drive	8/22/17
VM30-154	317 Acerno Drive	10/24/16	VM30-461	212 Casalino Drive	8/29/17
VM30-142	348 Acerno Drive	10/24/16	VM30-457	228 Casalino Drive	9/6/17
VM30-143	352 Acerno Drive	10/24/16	VM30-462	208 Casalino Drive	9/7/17
VM40-098	233 Acerno Drive	10/31/16	VM30-464	200 Casalino Drive	9/19/17
VM40-094	249 Acerno Drive	10/31/16	VM30-463	204 Casalino Drive	9/21/17
VM30-148	341 Acerno Drive	10/31/16	VM30-456	232 Casalino Drive	9/25/17
VM30-155	313 Acerno Drive	11/3/16	VM40-109	323 Cassano Drive	5/2/16
VM30-149	337 Acerno Drive	11/3/16	VM40-108	319 Cassano Drive	6/10/16
VM30-141	344 Acerno Drive	11/14/16	VM40-102	312 Cassano Drive	6/22/16
VM30-140	340 Acerno Drive	11/14/16	VM40-101	316 Cassano Drive	7/27/16
VM30-150	333 Acerno Drive	11/28/16	VM40-107	315 Cassano Drive	9/16/16
VM30-151	329 Acerno Drive	11/28/16	VM40-100	320 Cassano Drive	11/1/16
VM30-145	360 Acerno Drive	12/6/16	VM40-106	311 Cassano Drive	11/10/16
VM30-144	356 Acerno Drive	12/6/16	VM40-099	324 Cassano Drive	11/21/16
VM40-119	256 Acerno Drive	12/13/16	VM40-103	308 Cassano Drive	12/5/16
VM40-120	260 Acerno Drive	12/13/16	VM40-104	304 Cassano Drive	12/16/16

Lot ID	Address	CO Date	Lot ID	Address	CO Date
VM30-146	364 Acerno Drive	12/20/16	VM40-110	327 Cassano Drive	12/16/16
VM30-147	368 Acerno Drive	12/21/16	VM40-105	300 Cassano Drive	12/21/16
VM40-121	264 Acerno Drive	12/21/16	VM33-338	280 Cassano Drive	3/24/17
VM30-011	221 Alento Court	1/11/17	VM33-341	292 Cassano Drive	3/24/17
VM30-014	236 Alento Court	1/11/17	VM33-339	284 Cassano Drive	3/27/17
VM30-010	217 Alento Court	1/11/17	VM33-340	288 Cassano Drive	3/27/17
VM30-015	232 Alento Court	1/11/17	VM33-208	283 Cassano Drive	4/5/17
VM30-012	225 Alento Court	2/14/17	VM33-342	296 Cassano Drive	4/5/17
VM30-013	229 Alento Court	2/14/17	VM33-337	276 Cassano Drive	4/14/17
VM30-016	228 Alento Court	3/7/17	VM33-205	295 Cassano Drive	4/14/17
VM30-017F	224 Alento Court	3/7/17	VM33-203	303 Cassano Drive	4/19/17
VM30-020	212 Alento Court	4/19/17	VM33-216	251 Cassano Drive	4/24/17
VM30-018	220 Alento Court	4/28/17	VM33-212	267 Cassano Drive	4/27/17
VM30-008	209 Alento Court	6/19/17	VM33-332	256 Cassano Drive	5/12/17
VM30-021	208 Alento Court	7/7/17	VM33-207	287 Cassano Drive	5/12/17
VM30-022	204 Alento Court	8/2/17	VM33-330	248 Cassano Drive	5/15/17
VM30-023	200 Alento Court	8/2/17	VM33-213	263 Cassano Drive	5/18/17
VM30-009	213 Alento Court	8/9/17	VM33-210	275 Cassano Drive	5/18/17
VM30-019	216 Alento Court	9/20/17	VM33-204	299 Cassano Drive	5/18/17
VM33-83	216 Alfero Way	2/24/16	VM33-215	255 Cassano Drive	5/18/17
VM33-085	224 Alfero Way	3/17/16	VM33-331	252 Cassano Drive	5/25/17
VM33-084	220 Alfero Way	4/5/16	VM33-333	260 Cassano Drive	6/8/17
VM33-064	265 Alfero Way	4/29/16	VM33-336	272 Cassano Drive	6/13/17
VM33-082	212 Alfero Way	5/4/16	VM33-335	268 Cassano Drive	6/30/17
VM33-072	233 Alfero Way	6/9/16	VM33-202	307 Cassano Drive	7/3/17
VM33-070	241 Alfero Way	7/1/16	VM33-334	264 Cassano Drive	7/3/17
VM33-069	245 Alfero Way	8/3/16	VM33-211	271 Cassano Drive	7/25/17
VM33-065	261 Alfero Way	8/26/16	VM33-329	244 Cassano Drive	8/9/17
VM33-074	225 Alfero Way	9/2/16	VM33-214	259 Cassano Drive	8/9/17
VM33-086	228 Alfero Way	9/2/16	VM33-206	291 Cassano Drive	8/11/17
VM33-068	249 Alfero Way	9/13/16	VM33-209	279 Cassano Drive	8/28/17
VM33-073	229 Alfero Way	9/29/16	VM40-192	236 Rosolina Court	6/9/17
VM33-071	237 Alfero Way	10/11/16	VM40-183	201 Rosolina Court	6/16/17
VM33-081	208 Alfero Way	10/14/16	VM40-198	212 Rosolina Court	7/5/17
VM33-067	253 Alfero Way	10/27/16	VM40-193	232 Rosolina Court	7/18/17
VM33-080	204 Alfero Way	11/14/16	VM40-199	208 Rosolina Court	7/18/17
VM33-066	257 Alfero Way	11/28/16	VM40-195	224 Rosolina Court	7/31/17
VM33-076	217 Alfero Way	11/29/16	VM40-194	228 Rosolina Court	8/4/17
VM33-078	209 Alfero Way	12/5/16	VM40-197	216 Rosolina Court	8/4/17
VM33-079	205 Alfero Way	12/12/16	VM40-196	220 Rosolina Court	8/11/17
VM33-075	221 Alfero Way	12/16/16	VM40-191	233 Rosolina Court	8/11/17
VM33-077	213 Alfero Way	12/20/16	VM40-185	209 Rosolina Court	8/16/17
VM33-088	225 Carlino Drive	5/10/16	VM40-184	205 Rosolina Court	8/21/17
VM33-089	221 Carlino Drive	5/26/16	VM40-200	204 Rosolina Court	9/1/17
VM33-093	205 Carlino Drive	7/11/16	VM40-190	229 Rosolina Court	9/15/17
VM33-090	217 Carlino Drive	9/22/16			

Milano PUD
Laurel Lakes - West of the Jacaranda Blvd Extension

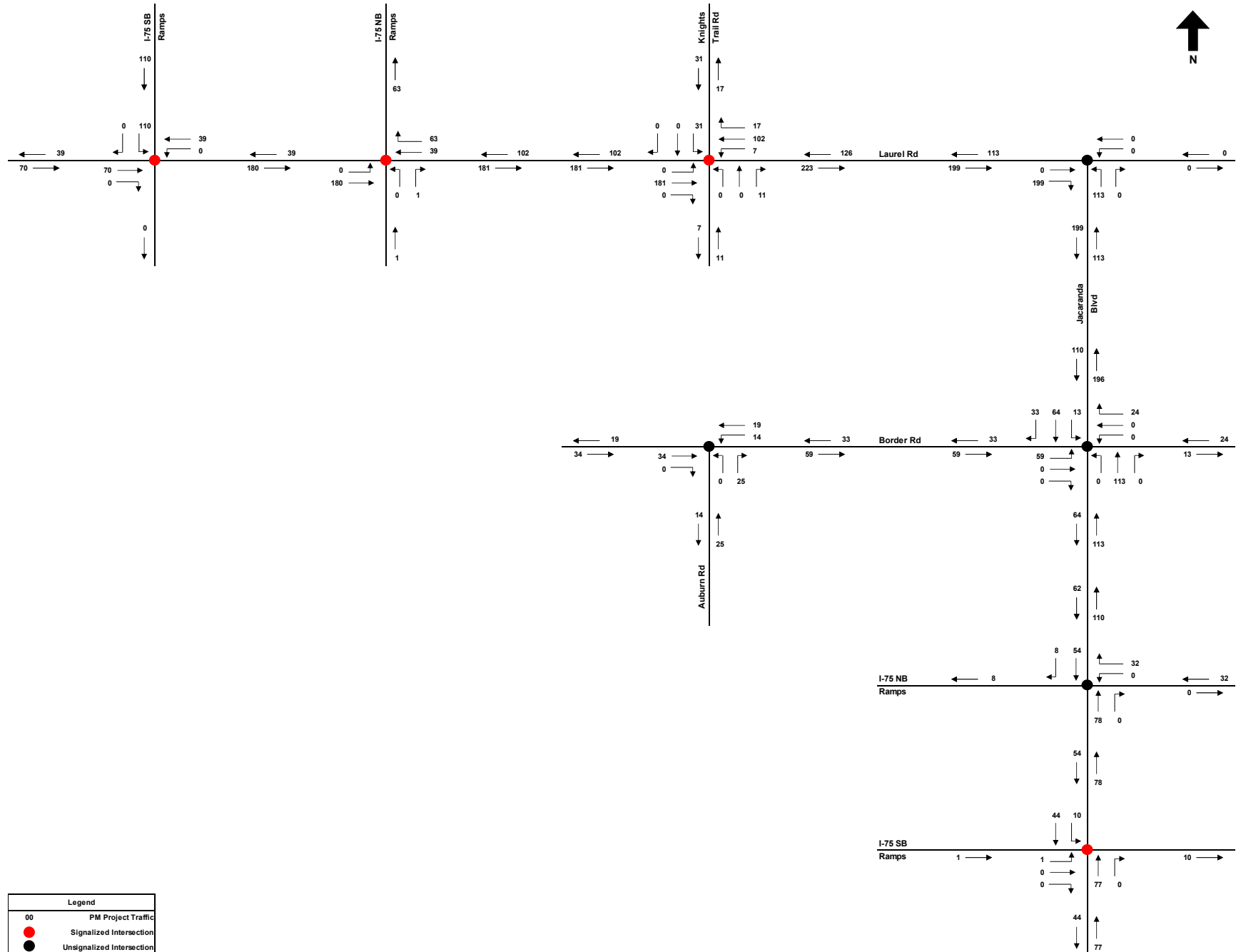














Figure 3: Project Traffic Assignment

APPENDIX F

**2024 BACKGROUND TRAFFIC SYNCHRO
SUMMARY WORKSHEETS**

HCM 2010 Signalized Intersection Summary
 1: I-75 SB Ramp & Laurel Rd

11/02/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖↗	↑↑					↘		↖↗
Traffic Volume (veh/h)	0	1039	544	642	1048	0	0	0	0	550	0	409
Future Volume (veh/h)	0	1039	544	642	1048	0	0	0	0	550	0	409
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1792	1827	1845	1810	0				1792	0	1792
Adj Flow Rate, veh/h	0	1154	0	713	1164	0				611	0	454
Adj No. of Lanes	0	2	1	2	2	0				1	0	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	6	4	3	5	0				6	0	6
Cap, veh/h	0	1043	476	1214	2471	0				277	0	436
Arrive On Green	0.00	0.31	0.00	0.71	1.00	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3495	1553	3408	3529	0				1707	0	2682
Grp Volume(v), veh/h	0	1154	0	713	1164	0				611	0	454
Grp Sat Flow(s),veh/h/ln	0	1703	1553	1704	1719	0				1707	0	1341
Q Serve(g_s), s	0.0	24.5	0.0	8.3	0.0	0.0				13.0	0.0	13.0
Cycle Q Clear(g_c), s	0.0	24.5	0.0	8.3	0.0	0.0				13.0	0.0	13.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1043	476	1214	2471	0				277	0	436
V/C Ratio(X)	0.00	1.11	0.00	0.59	0.47	0.00				2.20	0.00	1.04
Avail Cap(c_a), veh/h	0	1043	476	1214	2471	0				277	0	436
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.37	0.37	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.7	0.0	8.6	0.0	0.0				33.5	0.0	33.5
Incr Delay (d2), s/veh	0.0	61.8	0.0	0.3	0.1	0.0				552.8	0.0	54.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	36.7	0.0	5.8	0.0	0.0				87.6	0.0	14.5
LnGrp Delay(d),s/veh	0.0	89.6	0.0	8.9	0.1	0.0				586.3	0.0	87.9
LnGrp LOS		F		A	A					F		F
Approach Vol, veh/h		1154			1877						1065	
Approach Delay, s/veh		89.6			3.4						373.8	
Approach LOS		F			A						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	33.0	29.0		18.0		62.0						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	27.5	23.5		12.0		56.5						
Max Q Clear Time (g_c+I1), s	10.3	26.5		15.0		2.0						
Green Ext Time (p_c), s	11.0	0.0		0.0		19.3						
Intersection Summary												
HCM 2010 Ctrl Delay			124.0									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary
 2: I-75 NB Ramp & Laurel Rd




























11/02/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	1347	0	0	1420	595	264	0	365	0	0	0
Future Volume (veh/h)	246	1347	0	0	1420	595	264	0	365	0	0	0
Number	1	6	16	5	2	12	7	4	14			
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			
Adj Sat Flow, veh/h/ln	1792	1776	0	0	1827	1792	1776	0	1810			
Adj Flow Rate, veh/h	273	1497	0	0	1578	0	293	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	6	7	0	0	4	6	7	0	5			
Cap, veh/h	1086	2540	0	0	1280	562	421	0	198			
Arrive On Green	0.66	1.00	0.00	0.00	0.74	0.00	0.13	0.00	0.00			
Sat Flow, veh/h	3312	3463	0	0	3563	1524	3281	0	1538			
Grp Volume(v), veh/h	273	1497	0	0	1578	0	293	0	0			
Grp Sat Flow(s),veh/h/ln	1656	1687	0	0	1736	1524	1640	0	1538			
Q Serve(g_s), s	2.7	0.0	0.0	0.0	29.5	0.0	6.8	0.0	0.0			
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.0	29.5	0.0	6.8	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	1086	2540	0	0	1280	562	421	0	198			
V/C Ratio(X)	0.25	0.59	0.00	0.00	1.23	0.00	0.70	0.00	0.00			
Avail Cap(c_a), veh/h	1086	2540	0	0	1280	562	615	0	288			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.56	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	9.7	0.0	0.0	0.0	10.5	0.0	33.4	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	108.8	0.0	2.1	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(95%),veh/ln	1.8	0.0	0.0	0.0	58.5	0.0	5.8	0.0	0.0			
LnGrp Delay(d),s/veh	9.7	0.0	0.0	0.0	119.3	0.0	35.4	0.0	0.0			
LnGrp LOS	A	A			F		D					
Approach Vol, veh/h		1770			1578			293				
Approach Delay, s/veh		1.5			119.3			35.4				
Approach LOS		A			F			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	30.7	34.0		15.3		64.7						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	20.5	28.5		14.0		54.5						
Max Q Clear Time (g_c+I1), s	4.7	31.5		8.8		2.0						
Green Ext Time (p_c), s	10.0	0.0		0.5		18.0						
Intersection Summary												
HCM 2010 Ctrl Delay				55.3								
HCM 2010 LOS				E								

HCM Signalized Intersection Capacity Analysis

3: Knights Trail Rd & Laurel Rd

11/02/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 			 	 		 					
Traffic Volume (vph)	1153	545	8	13	477	238	22	8	20	259	8	1273	
Future Volume (vph)	1153	545	8	13	477	238	22	8	20	259	8	1273	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	5.0	5.0		5.0	5.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	0.88	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3273	3419		1770	3505	1568	1805	1609		1719	1496	2733	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3273	3419		1770	3505	1568	1805	1609		1719	1496	2733	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	1267	599	9	14	524	262	24	9	22	285	9	1399	
RTOR Reduction (vph)	0	1	0	0	0	218	0	21	0	0	0	197	
Lane Group Flow (vph)	1267	607	0	14	524	44	24	10	0	285	9	1202	
Heavy Vehicles (%)	7%	5%	29%	2%	3%	3%	0%	14%	2%	5%	27%	4%	
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	pt+ov	
Protected Phases	1	6		5	2		3	3		4	4	4	
Permitted Phases						2							
Actuated Green, G (s)	22.9	33.9		1.5	12.5	12.5	4.2	4.2		17.4	17.4	46.3	
Effective Green, g (s)	23.9	34.9		2.5	13.5	13.5	5.2	5.2		18.4	18.4	47.3	
Actuated g/C Ratio	0.30	0.44		0.03	0.17	0.17	0.07	0.07		0.23	0.23	0.59	
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	6.0	6.0		6.0	6.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	977	1491		55	591	264	117	104		395	344	1615	
v/s Ratio Prot	c0.39	0.18		0.01	c0.15		c0.01	0.01		0.17	0.01	c0.44	
v/s Ratio Perm						0.03							
v/c Ratio	1.30	0.41		0.25	0.89	0.17	0.21	0.10		0.72	0.03	0.74	
Uniform Delay, d1	28.1	15.5		37.8	32.5	28.4	35.4	35.2		28.4	23.9	11.9	
Progression Factor	0.86	1.06		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	140.1	0.7		2.4	17.7	1.4	0.9	0.4		6.4	0.0	1.9	
Delay (s)	164.3	17.1		40.3	50.2	29.8	36.3	35.6		34.8	23.9	13.8	
Level of Service	F	B		D	D	C	D	D		C	C	B	
Approach Delay (s)		116.6			43.3			35.9			17.4		
Approach LOS		F			D			D			B		
Intersection Summary													
HCM 2000 Control Delay			64.4									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.98										
Actuated Cycle Length (s)			80.0									Sum of lost time (s)	19.0
Intersection Capacity Utilization			78.8%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

Intersection

Int Delay, s/veh 47.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Vol, veh/h	37	706	13	52	528	1
Future Vol, veh/h	37	706	13	52	528	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	300	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	0	1	4	100
Mvmt Flow	41	784	14	58	587	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	826
Stage 1	-	-	433
Stage 2	-	-	87
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	813
Stage 1	-	-	650
Stage 2	-	-	931
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	813
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	650
Stage 2	-	-	914

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	120.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	504	459	-	-	813	-
HCM Lane V/C Ratio	1.164	0.002	-	-	0.018	-
HCM Control Delay (s)	120.5	12.9	-	-	9.5	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	20.9	0	-	-	0.1	-

Notes

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

Intersection

Intersection Delay, s/veh	138.4
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕			↕	↕	
Traffic Vol, veh/h	0	182	112	167	0	66	81	133	0	183	346	92
Future Vol, veh/h	0	182	112	167	0	66	81	133	0	183	346	92
Peak Hour Factor	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	3	6	4	2	8	2	4	2	2	3	2
Mvmt Flow	0	200	123	184	0	73	89	146	0	201	380	101
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	1
HCM Control Delay	165.6	49.4	117.1
HCM LOS	F	E	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	39%	24%	37%	0%
Vol Thru, %	0%	79%	24%	29%	63%	0%
Vol Right, %	0%	21%	36%	47%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	183	438	461	280	481	144
LT Vol	183	0	182	66	179	0
Through Vol	0	346	112	81	302	0
RT Vol	0	92	167	133	0	144
Lane Flow Rate	201	481	507	308	529	158
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.546	1.223	1.256	0.811	1.406	0.38
Departure Headway (Hd)	11.242	10.573	10.068	11.481	10.671	9.696
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	324	347	365	317	344	373
Service Time	8.942	8.273	8.068	9.481	8.371	7.396
HCM Lane V/C Ratio	0.62	1.386	1.389	0.972	1.538	0.424
HCM Control Delay	26.7	154.8	165.6	49.4	227.6	18.2
HCM Lane LOS	D	F	F	E	F	C
HCM 95th-tile Q	3.1	18.1	19.9	6.7	24.4	1.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↖	↗
Traffic Vol, veh/h	0	179	302	144
Future Vol, veh/h	0	179	302	144
Peak Hour Factor	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	8	6	3
Mvmt Flow	0	197	332	158
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	179.4
HCM LOS	F

HCM 2010 TWSC
8: Jacaranda Blvd & I-75 NB Ramp

10/04/2017

Intersection

Int Delay, s/veh 11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘		↗		↕	↗		↕	↗
Traffic Vol, veh/h	0	0	0	331	0	112	0	473	696	0	680	92
Future Vol, veh/h	0	0	0	331	0	112	0	473	696	0	680	92
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	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	800	-	-	800	-	-	300
Veh in Median Storage, #	-	-	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	0	4	0	4	4	0	5	4
Mvmt Flow	0	0	0	356	0	120	0	509	748	0	731	99

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	875	- 254	- - 0
Stage 1	509	- -	- - -
Stage 2	366	- -	- - -
Critical Hdwy	6.9	- 6.98	- - -
Critical Hdwy Stg 1	5.9	- -	- - -
Critical Hdwy Stg 2	5.9	- -	- - -
Follow-up Hdwy	3.55	- 3.34	- - -
Pot Cap-1 Maneuver	~ 283	0 739	0 - 0
Stage 1	560	0 -	0 - 0
Stage 2	663	0 -	0 - 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	~ 283	0 739	- - -
Mov Cap-2 Maneuver	405	0 -	- - -
Stage 1	560	0 -	- - -
Stage 2	663	0 -	- - -

Approach	WB	NB	SB
HCM Control Delay, s	41.5	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 405 739	-
HCM Lane V/C Ratio	- 0.879 0.163	-
HCM Control Delay (s)	- 51.9 10.8	-
HCM Lane LOS	- F B	-
HCM 95th %tile Q(veh)	- 8.9 0.6	-

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

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	32	184	17	26	1	131	6	18	0	7	18
Future Vol, veh/h	28	32	184	17	26	1	131	6	18	0	7	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	1	0	7	7	9	100	2	0	6	0	0	7
Mvmt Flow	33	37	214	20	30	1	152	7	21	0	8	21
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	31	0	0	251	0	0	294	280	144	293	386	31
Stage 1	-	-	-	-	-	-	209	209	-	70	70	-
Stage 2	-	-	-	-	-	-	85	71	-	223	316	-
Critical Hdwy	4.11	-	-	4.17	-	-	7.12	6.5	6.26	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.263	-	-	3.518	4	3.354	3.5	4	3.363
Pot Cap-1 Maneuver	1588	-	-	1286	-	-	658	632	893	663	551	1029
Stage 1	-	-	-	-	-	-	793	733	-	945	841	-
Stage 2	-	-	-	-	-	-	923	840	-	784	659	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1588	-	-	1286	-	-	617	606	893	622	529	1029
Mov Cap-2 Maneuver	-	-	-	-	-	-	617	606	-	622	529	-
Stage 1	-	-	-	-	-	-	773	715	-	921	828	-
Stage 2	-	-	-	-	-	-	881	827	-	739	643	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			3			12.8			9.6		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	640	1588	-	-	1286	-	-	814				
HCM Lane V/C Ratio	0.282	0.021	-	-	0.015	-	-	0.036				
HCM Control Delay (s)	12.8	7.3	0	-	7.8	0	-	9.6				
HCM Lane LOS	B	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0	-	-	0.1				

Intersection												
Int Delay, s/veh	17.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	47	333	113	26	223	90	98	36	36	109	47	42
Future Vol, veh/h	47	333	113	26	223	90	98	36	36	109	47	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	2	10	9	5	3	12	6	10	4	19	6
Mvmt Flow	49	347	118	27	232	94	102	38	38	114	49	44
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	326	0	0	465	0	0	884	884	406	874	896	279
Stage 1	-	-	-	-	-	-	504	504	-	333	333	-
Stage 2	-	-	-	-	-	-	380	380	-	541	563	-
Critical Hdwy	4.16	-	-	4.19	-	-	7.22	6.56	6.3	7.14	6.69	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.56	-	6.14	5.69	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.56	-	6.14	5.69	-
Follow-up Hdwy	2.254	-	-	2.281	-	-	3.608	4.054	3.39	3.536	4.171	3.354
Pot Cap-1 Maneuver	1211	-	-	1061	-	-	255	280	628	268	262	750
Stage 1	-	-	-	-	-	-	532	534	-	676	615	-
Stage 2	-	-	-	-	-	-	622	607	-	522	483	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1211	-	-	1061	-	-	190	256	628	209	240	750
Mov Cap-2 Maneuver	-	-	-	-	-	-	190	256	-	209	240	-
Stage 1	-	-	-	-	-	-	502	504	-	638	596	-
Stage 2	-	-	-	-	-	-	521	588	-	429	456	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.7			54.1			59.1		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	238	1211	-	-	1061	-	-	256				
HCM Lane V/C Ratio	0.744	0.04	-	-	0.026	-	-	0.806				
HCM Control Delay (s)	54.1	8.1	0	-	8.5	0	-	59.1				
HCM Lane LOS	F	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	5.2	0.1	-	-	0.1	-	-	6.2				

APPENDIX G

**2024 IMPROVED BACKGROUND TRAFFIC
SYNCHRO SUMMARY WORKSHEETS**

Arterial Level of Service: EB Laurel Rd













Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-75 SB Ramp	II	45	43.7	34.3	78.0	0.50	22.9	C
I-75 NB Ramp	II	45	29.3	3.4	32.7	0.30	32.6	B
Knights Trail Rd	II	45	31.3	8.1	39.4	0.33	29.8	B
Total	II		104.3	45.8	150.1	1.12	26.8	C

Arterial Level of Service: WB Laurel Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Knights Trail Rd	II	45	144.6	55.3	199.9	1.81	32.6	B
I-75 NB Ramp	II	45	31.3	19.1	50.4	0.33	23.3	C
I-75 SB Ramp	II	45	29.3	5.0	34.3	0.30	31.1	B
Total	II		205.2	79.4	284.6	2.43	30.7	B

HCM 2010 Signalized Intersection Summary
 1: I-75 SB Ramp & Laurel Rd

10/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1039	544	642	1048	0	0	0	0	550	0	409
Future Volume (veh/h)	0	1039	544	642	1048	0	0	0	0	550	0	409
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1792	1827	1845	1810	0				1792	0	1792
Adj Flow Rate, veh/h	0	1154	0	713	1164	0				611	0	454
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	6	4	3	5	0				6	0	6
Cap, veh/h	0	1293	590	937	2391	0				723	0	585
Arrive On Green	0.00	0.38	0.00	0.55	1.00	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	3495	1553	3408	3529	0				3312	0	2682
Grp Volume(v), veh/h	0	1154	0	713	1164	0				611	0	454
Grp Sat Flow(s),veh/h/ln	0	1703	1553	1704	1719	0				1656	0	1341
Q Serve(g_s), s	0.0	35.0	0.0	17.8	0.0	0.0				19.5	0.0	17.5
Cycle Q Clear(g_c), s	0.0	35.0	0.0	17.8	0.0	0.0				19.5	0.0	17.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1293	590	937	2391	0				723	0	585
V/C Ratio(X)	0.00	0.89	0.00	0.76	0.49	0.00				0.85	0.00	0.78
Avail Cap(c_a), veh/h	0	1378	628	937	2391	0				783	0	634
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.59	0.59	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	32.0	0.0	22.0	0.0	0.0				41.2	0.0	40.5
Incr Delay (d2), s/veh	0.0	9.6	0.0	2.4	0.1	0.0				8.0	0.0	5.6
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(95%),veh/ln	0.0	25.1	0.0	12.1	0.1	0.0				14.8	0.0	11.3
LnGrp Delay(d),s/veh	0.0	41.7	0.0	24.3	0.1	0.0				49.2	0.0	46.1
LnGrp LOS		D		C	A					D		D
Approach Vol, veh/h		1154			1877						1065	
Approach Delay, s/veh		41.7			9.3						47.9	
Approach LOS		D			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	34.7	46.3		29.0		81.0						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	24.5	43.5		25.0		73.5						
Max Q Clear Time (g_c+I1), s	19.8	37.0		21.5		2.0						
Green Ext Time (p_c), s	3.8	3.8		1.6		20.5						
Intersection Summary												
HCM 2010 Ctrl Delay				28.4								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary

2: I-75 NB Ramp & Laurel Rd



























11/02/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	1347	0	0	1420	595	264	0	365	0	0	0
Future Volume (veh/h)	246	1347	0	0	1420	595	264	0	365	0	0	0
Number	1	6	16	5	2	12	7	4	14			
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			
Adj Sat Flow, veh/h/ln	1792	1776	0	0	1827	1792	1776	0	1810			
Adj Flow Rate, veh/h	273	1497	0	0	1578	0	293	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	6	7	0	0	4	6	7	0	5			
Cap, veh/h	654	2690	0	0	1941	852	381	0	179			
Arrive On Green	0.39	1.00	0.00	0.00	0.56	0.00	0.12	0.00	0.00			
Sat Flow, veh/h	3312	3463	0	0	3563	1524	3281	0	1538			
Grp Volume(v), veh/h	273	1497	0	0	1578	0	293	0	0			
Grp Sat Flow(s),veh/h/ln	1656	1687	0	0	1736	1524	1640	0	1538			
Q Serve(g_s), s	6.6	0.0	0.0	0.0	40.4	0.0	9.5	0.0	0.0			
Cycle Q Clear(g_c), s	6.6	0.0	0.0	0.0	40.4	0.0	9.5	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	654	2690	0	0	1941	852	381	0	179			
V/C Ratio(X)	0.42	0.56	0.00	0.00	0.81	0.00	0.77	0.00	0.00			
Avail Cap(c_a), veh/h	654	2690	0	0	1941	852	447	0	210			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.47	0.47	0.00	0.00	0.59	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	28.7	0.0	0.0	0.0	19.6	0.0	47.2	0.0	0.0			
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	2.3	0.0	6.8	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(95%),veh/ln	4.9	0.1	0.0	0.0	25.5	0.0	8.2	0.0	0.0			
LnGrp Delay(d),s/veh	28.9	0.1	0.0	0.0	21.9	0.0	53.9	0.0	0.0			
LnGrp LOS	C	A			C		D					
Approach Vol, veh/h		1770			1578			293				
Approach Delay, s/veh		4.6			21.9			53.9				
Approach LOS		A			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.2	66.0		17.8		92.2						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	18.5	60.5		14.0		84.5						
Max Q Clear Time (g_c+I1), s	8.6	42.4		11.5		2.0						
Green Ext Time (p_c), s	7.0	10.6		0.2		19.4						
Intersection Summary												
HCM 2010 Ctrl Delay				16.1								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

3: Knights Trail Rd & Laurel Rd

11/02/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 							 
Traffic Volume (vph)	1153	545	8	13	477	238	22	8	20	259	8	1273
Future Volume (vph)	1153	545	8	13	477	238	22	8	20	259	8	1273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3273	3419		1770	3505	1568	1805	1609		1719	1496	2733
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3273	3419		1770	3505	1568	1805	1609		1719	1496	2733
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1267	599	9	14	524	262	24	9	22	285	9	1399
RTOR Reduction (vph)	0	1	0	0	0	220	0	21	0	0	0	122
Lane Group Flow (vph)	1267	607	0	14	524	42	24	10	0	285	9	1277
Heavy Vehicles (%)	7%	5%	29%	2%	3%	3%	0%	14%	2%	5%	27%	4%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	pt+ov
Protected Phases	1	6		5	2		3	3		4	4	4
Permitted Phases						2						
Actuated Green, G (s)	43.7	57.5		2.8	16.6	16.6	4.2	4.2		22.5	22.5	72.2
Effective Green, g (s)	44.7	58.5		3.8	17.6	17.6	5.2	5.2		23.5	23.5	73.2
Actuated g/C Ratio	0.41	0.53		0.03	0.16	0.16	0.05	0.05		0.21	0.21	0.67
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1330	1818		61	560	250	85	76		367	319	1818
v/s Ratio Prot	c0.39	0.18		0.01	c0.15		c0.01	0.01		0.17	0.01	c0.47
v/s Ratio Perm						0.03						
v/c Ratio	0.95	0.33		0.23	0.94	0.17	0.28	0.13		0.78	0.03	0.70
Uniform Delay, d1	31.6	14.7		51.7	45.6	39.9	50.6	50.2		40.8	34.2	11.6
Progression Factor	0.54	0.61		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.3	0.4		1.9	25.1	1.4	1.8	0.8		9.9	0.0	1.3
Delay (s)	31.3	9.4		53.6	70.7	41.3	52.4	51.0		50.7	34.3	12.8
Level of Service	C	A		D	E	D	D	D		D	C	B
Approach Delay (s)		24.2			60.8			51.6			19.3	
Approach LOS		C			E			D			B	
Intersection Summary												
HCM 2000 Control Delay			29.3	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			110.0	Sum of lost time (s)				19.0				
Intersection Capacity Utilization			78.8%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	↗
Traffic Vol, veh/h	37	706	13	52	528	1
Future Vol, veh/h	37	706	13	52	528	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	300	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	0	1	4	100
Mvmt Flow	41	784	14	58	587	1













Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	41	128
Stage 1	-	-	41
Stage 2	-	-	87
Critical Hdwy	-	4.1	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	-	2.2	3.536
Pot Cap-1 Maneuver	-	1581	862
Stage 1	-	-	976
Stage 2	-	-	931
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1581	854
Mov Cap-2 Maneuver	-	-	854
Stage 1	-	-	976
Stage 2	-	-	923

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	854	809	-	-	1581	-
HCM Lane V/C Ratio	0.687	0.001	-	-	0.009	-
HCM Control Delay (s)	17.9	9.5	-	-	7.3	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	5.6	0	-	-	0	-

HCM 2010 Signalized Intersection Summary
6: Jacaranda Blvd & Border Rd

10/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	182	112	167	66	81	133	183	346	92	179	302	144
Future Volume (veh/h)	182	112	167	66	81	133	183	346	92	179	302	144
Number	7	4	14	3	8	18	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1900	1825	1900	1900	1820	1900	1863	1848	1900	1759	1809	1900
Adj Flow Rate, veh/h	200	123	184	73	89	146	201	380	101	197	332	158
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	6	6	6	2	2	2	2	3	3	8	6	6
Cap, veh/h	287	155	204	174	212	280	312	616	164	318	507	241
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	515	392	517	250	537	710	903	1408	374	860	1160	552
Grp Volume(v), veh/h	507	0	0	308	0	0	201	0	481	197	0	490
Grp Sat Flow(s),veh/h/ln	1423	0	0	1498	0	0	903	0	1782	860	0	1712
Q Serve(g_s), s	11.3	0.0	0.0	0.0	0.0	0.0	12.6	0.0	12.4	13.6	0.0	13.4
Cycle Q Clear(g_c), s	19.8	0.0	0.0	8.5	0.0	0.0	26.0	0.0	12.4	26.0	0.0	13.4
Prop In Lane	0.39		0.36	0.24		0.47	1.00		0.21	1.00		0.32
Lane Grp Cap(c), veh/h	646	0	0	666	0	0	312	0	780	318	0	749
V/C Ratio(X)	0.78	0.00	0.00	0.46	0.00	0.00	0.64	0.00	0.62	0.62	0.00	0.65
Avail Cap(c_a), veh/h	659	0	0	679	0	0	312	0	780	318	0	749
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	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	0.0	13.4	0.0	0.0	23.7	0.0	12.9	22.9	0.0	13.2
Incr Delay (d2), s/veh	6.1	0.0	0.0	0.5	0.0	0.0	4.5	0.0	1.5	3.6	0.0	2.1
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(95%),veh/ln	13.7	0.0	0.0	6.9	0.0	0.0	6.5	0.0	10.5	6.3	0.0	10.9
LnGrp Delay(d),s/veh	22.8	0.0	0.0	13.9	0.0	0.0	28.2	0.0	14.4	26.5	0.0	15.2
LnGrp LOS	C			B			C		B	C		B
Approach Vol, veh/h		507			308			682				687
Approach Delay, s/veh		22.8			13.9			18.4				18.5
Approach LOS		C			B			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		28.4		31.0		28.4				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		25.0		23.0		25.0		23.0				
Max Q Clear Time (g_c+I1), s		28.0		21.8		28.0		10.5				
Green Ext Time (p_c), s		0.0		0.7		0.0		4.5				
Intersection Summary												
HCM 2010 Ctrl Delay				18.8								
HCM 2010 LOS				B								

APPENDIX H

**2024 TOTAL TRAFFIC SYNCHRO
SUMMARY WORKSHEETS**

Arterial Level of Service

10/04/2017

Arterial Level of Service: EB Laurel Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-75 SB Ramp	II	45	43.8	37.7	81.5	0.50	22.0	C
I-75 NB Ramp	II	45	29.3	3.8	33.1	0.30	32.2	B
Knights Trail Rd	II	45	31.3	8.8	40.1	0.33	29.3	B
Total	II		104.4	50.3	154.7	1.12	26.1	C

Arterial Level of Service: WB Laurel Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Knights Trail Rd	II	45	144.6	63.1	207.7	1.81	31.3	B
I-75 NB Ramp	II	45	31.3	19.5	50.8	0.33	23.1	C
I-75 SB Ramp	II	45	29.3	5.7	35.0	0.30	30.5	B
Total	II		205.2	88.3	293.5	2.43	29.8	B



















HCM 2010 Signalized Intersection Summary
 1: I-75 SB Ramp & Laurel Rd

10/04/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑↑		↑↑
Traffic Volume (veh/h)	0	1079	544	642	1070	0	0	0	0	623	0	409
Future Volume (veh/h)	0	1079	544	642	1070	0	0	0	0	623	0	409
Number	5	2	12	1	6	16				7	4	14
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
Adj Sat Flow, veh/h/ln	0	1792	1827	1845	1810	0				1792	0	1792
Adj Flow Rate, veh/h	0	1199	0	713	1189	0				692	0	454
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	6	4	3	5	0				6	0	6
Cap, veh/h	0	1321	603	857	2339	0				773	0	626
Arrive On Green	0.00	0.39	0.00	0.50	1.00	0.00				0.23	0.00	0.23
Sat Flow, veh/h	0	3495	1553	3408	3529	0				3312	0	2682
Grp Volume(v), veh/h	0	1199	0	713	1189	0				692	0	454
Grp Sat Flow(s),veh/h/ln	0	1703	1553	1704	1719	0				1656	0	1341
Q Serve(g_s), s	0.0	36.6	0.0	19.7	0.0	0.0				22.3	0.0	17.2
Cycle Q Clear(g_c), s	0.0	36.6	0.0	19.7	0.0	0.0				22.3	0.0	17.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1321	603	857	2339	0				773	0	626
V/C Ratio(X)	0.00	0.91	0.00	0.83	0.51	0.00				0.90	0.00	0.73
Avail Cap(c_a), veh/h	0	1378	628	857	2339	0				783	0	634
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.57	0.57	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	31.8	0.0	25.4	0.0	0.0				40.9	0.0	38.9
Incr Delay (d2), s/veh	0.0	10.6	0.0	4.3	0.1	0.0				12.8	0.0	4.1
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(95%),veh/ln	0.0	26.3	0.0	13.5	0.1	0.0				17.1	0.0	11.0
LnGrp Delay(d),s/veh	0.0	42.4	0.0	29.7	0.1	0.0				53.7	0.0	43.0
LnGrp LOS		D		C	A					D		D
Approach Vol, veh/h		1199			1902						1146	
Approach Delay, s/veh		42.4			11.2						49.4	
Approach LOS		D			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	32.1	47.2		30.7		79.3						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	24.5	43.5		25.0		73.5						
Max Q Clear Time (g_c+I1), s	21.7	38.6		24.3		2.0						
Green Ext Time (p_c), s	2.4	3.1		0.4		21.0						
Intersection Summary												
HCM 2010 Ctrl Delay				30.3								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary
 2: I-75 NB Ramp & Laurel Rd























10/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	1460	0	0	1442	636	264	0	365	0	0	0
Future Volume (veh/h)	246	1460	0	0	1442	636	264	0	365	0	0	0
Number	1	6	16	5	2	12	7	4	14			
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			
Adj Sat Flow, veh/h/ln	1792	1776	0	0	1827	1792	1776	0	1810			
Adj Flow Rate, veh/h	273	1622	0	0	1602	0	293	0	0			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	6	7	0	0	4	6	7	0	5			
Cap, veh/h	654	2690	0	0	1941	852	381	0	179			
Arrive On Green	0.39	1.00	0.00	0.00	0.56	0.00	0.12	0.00	0.00			
Sat Flow, veh/h	3312	3463	0	0	3563	1524	3281	0	1538			
Grp Volume(v), veh/h	273	1622	0	0	1602	0	293	0	0			
Grp Sat Flow(s),veh/h/ln	1656	1687	0	0	1736	1524	1640	0	1538			
Q Serve(g_s), s	6.6	0.0	0.0	0.0	41.6	0.0	9.5	0.0	0.0			
Cycle Q Clear(g_c), s	6.6	0.0	0.0	0.0	41.6	0.0	9.5	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	654	2690	0	0	1941	852	381	0	179			
V/C Ratio(X)	0.42	0.60	0.00	0.00	0.83	0.00	0.77	0.00	0.00			
Avail Cap(c_a), veh/h	654	2690	0	0	1941	852	447	0	210			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.36	0.36	0.00	0.00	0.51	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	28.7	0.0	0.0	0.0	19.9	0.0	47.2	0.0	0.0			
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	2.2	0.0	6.8	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(95%),veh/ln	4.7	0.1	0.0	0.0	25.7	0.0	8.2	0.0	0.0			
LnGrp Delay(d),s/veh	28.9	0.1	0.0	0.0	22.0	0.0	53.9	0.0	0.0			
LnGrp LOS	C	A			C		D					
Approach Vol, veh/h		1895			1602			293				
Approach Delay, s/veh		4.3			22.0			53.9				
Approach LOS		A			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.2	66.0		17.8		92.2						
Change Period (Y+Rc), s	5.5	5.5		6.0		5.5						
Max Green Setting (Gmax), s	18.5	60.5		14.0		84.5						
Max Q Clear Time (g_c+I1), s	8.6	43.6		11.5		2.0						
Green Ext Time (p_c), s	7.4	10.3		0.2		22.9						
Intersection Summary												
HCM 2010 Ctrl Delay				15.6								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

3: Knights Trail Rd & Laurel Rd

10/04/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	1153	658	8	17	540	250	22	8	28	280	8	1273	
Future Volume (vph)	1153	658	8	17	540	250	22	8	28	280	8	1273	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	5.0	5.0		5.0	5.0	5.0	
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	0.88	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.88		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3273	3422		1770	3505	1568	1805	1604		1719	1496	2733	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3273	3422		1770	3505	1568	1805	1604		1719	1496	2733	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	1267	723	9	19	593	275	24	9	31	308	9	1399	
RTOR Reduction (vph)	0	1	0	0	0	227	0	29	0	0	0	127	
Lane Group Flow (vph)	1267	731	0	19	593	48	24	11	0	308	9	1272	
Heavy Vehicles (%)	7%	5%	29%	2%	3%	3%	0%	14%	2%	5%	27%	4%	
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	pt+ov	
Protected Phases	1	6		5	2		3	3		4	4	4	
Permitted Phases						2							
Actuated Green, G (s)	42.5	58.0		2.8	18.3	18.3	5.6	5.6		20.6	20.6	69.1	
Effective Green, g (s)	43.5	59.0		3.8	19.3	19.3	6.6	6.6		21.6	21.6	70.1	
Actuated g/C Ratio	0.40	0.54		0.03	0.18	0.18	0.06	0.06		0.20	0.20	0.64	
Clearance Time (s)	5.5	5.5		5.5	5.5	5.5	6.0	6.0		6.0	6.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	1294	1835		61	614	275	108	96		337	293	1741	
v/s Ratio Prot	c0.39	0.21		0.01	c0.17		c0.01	0.01		c0.18	0.01	c0.47	
v/s Ratio Perm						0.03							
v/c Ratio	0.98	0.40		0.31	0.97	0.18	0.22	0.11		0.91	0.03	0.73	
Uniform Delay, d1	32.8	15.0		51.8	45.0	38.6	49.3	48.9		43.3	35.7	13.5	
Progression Factor	0.53	0.62		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	18.6	0.6		2.9	28.8	1.4	1.0	0.5		28.1	0.0	1.6	
Delay (s)	35.9	9.8		54.7	73.8	40.0	50.3	49.5		71.4	35.8	15.1	
Level of Service	D	A		D	E	D	D	D		E	D	B	
Approach Delay (s)		26.4			62.9			49.8			25.4		
Approach LOS		C			E			D			C		
Intersection Summary													
HCM 2000 Control Delay			33.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.91										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	19.0
Intersection Capacity Utilization			81.7%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

Intersection

Int Delay, s/veh 19.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	↗
Traffic Vol, veh/h	187	706	14	137	528	3
Future Vol, veh/h	187	706	14	137	528	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	300	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	5	0	1	4	33
Mvmt Flow	208	784	16	152	587	3













Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	208
Stage 1	-	-	208
Stage 2	-	-	183
Critical Hdwy	-	4.1	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	-	2.2	3.536
Pot Cap-1 Maneuver	-	1375	609
Stage 1	-	-	822
Stage 2	-	-	844
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1375	601
Mov Cap-2 Maneuver	-	-	601
Stage 1	-	-	822
Stage 2	-	-	833

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	56.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	601	760	-	-	1375	-
HCM Lane V/C Ratio	0.976	0.004	-	-	0.011	-
HCM Control Delay (s)	57.2	9.8	-	-	7.6	0
HCM Lane LOS	F	A	-	-	A	A
HCM 95th %tile Q(veh)	14	0	-	-	0	-

HCM 2010 Signalized Intersection Summary
6: Jacaranda Blvd & Border Rd

10/04/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (veh/h)	182	138	167	96	96	134	183	346	146	180	302	144
Future Volume (veh/h)	182	138	167	96	96	134	183	346	146	180	302	144
Number	7	4	14	3	8	18	1	6	16	5	2	12
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
Adj Sat Flow, veh/h/ln	1900	1824	1900	1900	1817	1900	1863	1850	1900	1759	1809	1900
Adj Flow Rate, veh/h	200	152	184	105	105	147	201	380	160	198	332	158
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	6	6	6	2	2	2	2	3	3	8	6	6
Cap, veh/h	269	173	188	199	200	225	306	536	226	268	503	239
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	467	434	471	303	499	562	903	1237	521	814	1160	552
Grp Volume(v), veh/h	536	0	0	357	0	0	201	0	540	198	0	490
Grp Sat Flow(s),veh/h/ln	1371	0	0	1364	0	0	903	0	1758	814	0	1712
Q Serve(g_s), s	11.3	0.0	0.0	0.0	0.0	0.0	12.4	0.0	15.1	10.9	0.0	13.6
Cycle Q Clear(g_c), s	23.1	0.0	0.0	11.8	0.0	0.0	26.0	0.0	15.1	26.0	0.0	13.6
Prop In Lane	0.37		0.34	0.29		0.41	1.00		0.30	1.00		0.32
Lane Grp Cap(c), veh/h	631	0	0	623	0	0	306	0	762	268	0	742
V/C Ratio(X)	0.85	0.00	0.00	0.57	0.00	0.00	0.66	0.00	0.71	0.74	0.00	0.66
Avail Cap(c_a), veh/h	631	0	0	623	0	0	306	0	762	268	0	742
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	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	0.0	14.0	0.0	0.0	24.3	0.0	13.9	25.9	0.0	13.5
Incr Delay (d2), s/veh	10.6	0.0	0.0	1.3	0.0	0.0	5.0	0.0	3.1	10.3	0.0	2.2
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(95%),veh/ln	15.8	0.0	0.0	8.5	0.0	0.0	6.7	0.0	12.4	7.2	0.0	11.1
LnGrp Delay(d),s/veh	28.4	0.0	0.0	15.3	0.0	0.0	29.3	0.0	17.0	36.2	0.0	15.7
LnGrp LOS	C			B			C		B	D		B
Approach Vol, veh/h		536			357			741			688	
Approach Delay, s/veh		28.4			15.3			20.3			21.6	
Approach LOS		C			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		29.0		31.0		29.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		25.0		23.0		25.0		23.0				
Max Q Clear Time (g_c+I1), s		28.0		25.1		28.0		13.8				
Green Ext Time (p_c), s		0.0		0.0		0.0		4.1				
Intersection Summary												
HCM 2010 Ctrl Delay				21.8								
HCM 2010 LOS				C								

HCM 2010 TWSC
8: Jacaranda Blvd & I-75 NB Ramp

10/04/2017

Intersection

Int Delay, s/veh 13.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘		↗		↕	↗		↕	↗
Traffic Vol, veh/h	0	0	0	331	0	119	0	518	696	0	709	92
Future Vol, veh/h	0	0	0	331	0	119	0	518	696	0	709	92
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	-	-	Free	-	-	Free
Storage Length	-	-	-	0	-	800	-	-	800	-	-	300
Veh in Median Storage, #	-	-	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	0	4	0	4	4	0	5	4
Mvmt Flow	0	0	0	356	0	128	0	557	748	0	762	99

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	938	- 278	- - 0
Stage 1	557	- -	- - -
Stage 2	381	- -	- - -
Critical Hdwy	6.9	- 6.98	- - -
Critical Hdwy Stg 1	5.9	- -	- - -
Critical Hdwy Stg 2	5.9	- -	- - -
Follow-up Hdwy	3.55	- 3.34	- - -
Pot Cap-1 Maneuver	~ 257	0 713	0 - 0
Stage 1	529	0 -	0 - 0
Stage 2	652	0 -	0 - 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	~ 257	0 713	- - -
Mov Cap-2 Maneuver	382	0 -	- - -
Stage 1	529	0 -	- - -
Stage 2	652	0 -	- - -

Approach	WB	NB	SB
HCM Control Delay, s	49.9	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBTWBLn1WBLn2	SBT
Capacity (veh/h)	- 382 713	-
HCM Lane V/C Ratio	- 0.932 0.179	-
HCM Control Delay (s)	- 63.8 11.2	-
HCM Lane LOS	- F B	-
HCM 95th %tile Q(veh)	- 10 0.7	-

Notes

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

HCM 2010 TWSC
7: Jackson Rd & Border Rd

10/04/2017

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	32	206	17	27	1	170	6	18	0	7	20
Future Vol, veh/h	30	32	206	17	27	1	170	6	18	0	7	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	1	0	7	7	9	100	2	0	6	0	0	7
Mvmt Flow	35	37	240	20	31	1	198	7	21	0	8	23
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	33	0	0	277	0	0	314	299	157	313	419	32
Stage 1	-	-	-	-	-	-	227	227	-	72	72	-
Stage 2	-	-	-	-	-	-	87	72	-	241	347	-
Critical Hdwy	4.11	-	-	4.17	-	-	7.12	6.5	6.26	7.1	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.263	-	-	3.518	4	3.354	3.5	4	3.363
Pot Cap-1 Maneuver	1585	-	-	1258	-	-	639	616	878	643	528	1028
Stage 1	-	-	-	-	-	-	776	720	-	943	839	-
Stage 2	-	-	-	-	-	-	921	839	-	767	638	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1585	-	-	1258	-	-	597	590	878	602	506	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	597	590	-	602	506	-
Stage 1	-	-	-	-	-	-	755	701	-	918	826	-
Stage 2	-	-	-	-	-	-	877	826	-	721	621	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			3			14.2			9.6		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	615	1585	-	-	1258	-	-	811				
HCM Lane V/C Ratio	0.367	0.022	-	-	0.016	-	-	0.039				
HCM Control Delay (s)	14.2	7.3	0	-	7.9	0	-	9.6				
HCM Lane LOS	B	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	1.7	0.1	-	-	0	-	-	0.1				

Intersection												
Int Delay, s/veh	26.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	61	333	113	26	223	114	98	36	36	123	47	50
Future Vol, veh/h	61	333	113	26	223	114	98	36	36	123	47	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	2	10	9	5	3	12	6	10	4	19	6
Mvmt Flow	64	347	118	27	232	119	102	38	38	128	49	52
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	351	0	0	465	0	0	929	938	406	916	938	292
Stage 1	-	-	-	-	-	-	533	533	-	346	346	-
Stage 2	-	-	-	-	-	-	396	405	-	570	592	-
Critical Hdwy	4.16	-	-	4.19	-	-	7.22	6.56	6.3	7.14	6.69	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.56	-	6.14	5.69	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.56	-	6.14	5.69	-
Follow-up Hdwy	2.254	-	-	2.281	-	-	3.608	4.054	3.39	3.536	4.171	3.354
Pot Cap-1 Maneuver	1186	-	-	1061	-	-	238	260	628	251	248	738
Stage 1	-	-	-	-	-	-	513	518	-	666	606	-
Stage 2	-	-	-	-	-	-	610	592	-	503	468	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1186	-	-	1061	-	-	170	233	628	191	222	738
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	233	-	191	222	-
Stage 1	-	-	-	-	-	-	475	480	-	617	587	-
Stage 2	-	-	-	-	-	-	503	573	-	404	433	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.6			69.4			93.2		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	216	1186	-	-	1061	-	-	238				
HCM Lane V/C Ratio	0.82	0.054	-	-	0.026	-	-	0.963				
HCM Control Delay (s)	69.4	8.2	0	-	8.5	0	-	93.2				
HCM Lane LOS	F	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	6.1	0.2	-	-	0.1	-	-	8.7				

APPENDIX I

**SITE ACCESS SYNCHRO
SUMMARY WORKSHEETS**

Intersection

Int Delay, s/veh 3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	2	152	0	2	86	0
Future Vol, veh/h	2	152	0	2	86	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	169	0	2	96	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	89
Stage 1	-	-	87
Stage 2	-	-	2
Critical Hdwy	-	4.12	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	1406	912
Stage 1	-	-	936
Stage 2	-	-	1021
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1406	912
Mov Cap-2 Maneuver	-	-	912
Stage 1	-	-	936
Stage 2	-	-	1021

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	912	-	-	1406	-
HCM Lane V/C Ratio	0.105	-	-	-	-
HCM Control Delay (s)	9.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖		↖	
Traffic Vol, veh/h	83	381	280	42	24	46
Future Vol, veh/h	83	381	280	42	24	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	210	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	6	2	2	2	2
Mvmt Flow	92	423	311	47	27	51

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	358	0	942
Stage 1	-	-	334
Stage 2	-	-	608
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1201	-	292
Stage 1	-	-	725
Stage 2	-	-	543
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1201	-	270
Mov Cap-2 Maneuver	-	-	270
Stage 1	-	-	725
Stage 2	-	-	501

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1201	-	-	-	455
HCM Lane V/C Ratio	0.077	-	-	-	0.171
HCM Control Delay (s)	8.2	-	-	-	14.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6