

Revised Master Plan and Transportation Analysis - Submitted by Applicant

TRANSPORTATION ANALYSIS

The Trails at Rivard - Phase V

Prepared for:

Blackstock Engineering Unlimited, Inc.



Palm Traffic
Engineering + Planning

Transportation Analysis

The Trails at Rivard -Phase V

June 2021

Prepared for:
Blackstock Engineering Unlimited, Inc.

Prepared by:
Palm Traffic, LLC
400 North Tampa Street, 15th Floor
Tampa, FL 33602
Ph: (813) 296-2595

Project No. T21046

Vicki L. Castro, P.E.
P.E. No. 47128

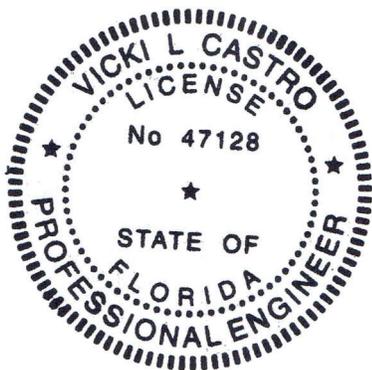


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INTRODUCTION

The purpose of this report is to provide the Transportation Analysis for the property located east of US 41 and north of Ayers Road in the Hernando County, as shown in Figure 1.

PROJECT DESCRIPTION

The site is currently vacant. However, this is Phase V of The Trails at Rivard subdivision. This Phase of the development is proposed to consist of up to 240 single family dwelling units. The access for the project is proposed to be via one (1) existing full access to US 41 aligning with Railpark Drive.

A conceptual site plan is included in the Appendix of this report.

ESTIMATED PROJECT TRAFFIC

The trip rates utilized in this report were obtained from the latest computerized version of “OTISS” which utilizes the Institute of Transportation Engineers’ (ITE) Trip Generation, 10th Edition, 2017, as its data base. Based on these trip rates, it is estimated that the project would generate approximately 2,327 daily trip ends, as shown in Table 1. The project would generate approximately 175 trip ends during the AM peak hour with 44 inbound and 131 outbound, as shown in Table 1. During the PM peak hour, the projects would generate approximately 235 trip ends with 148 inbound and 87 outbound, as shown in Table 1.

Figure 1. Project Location

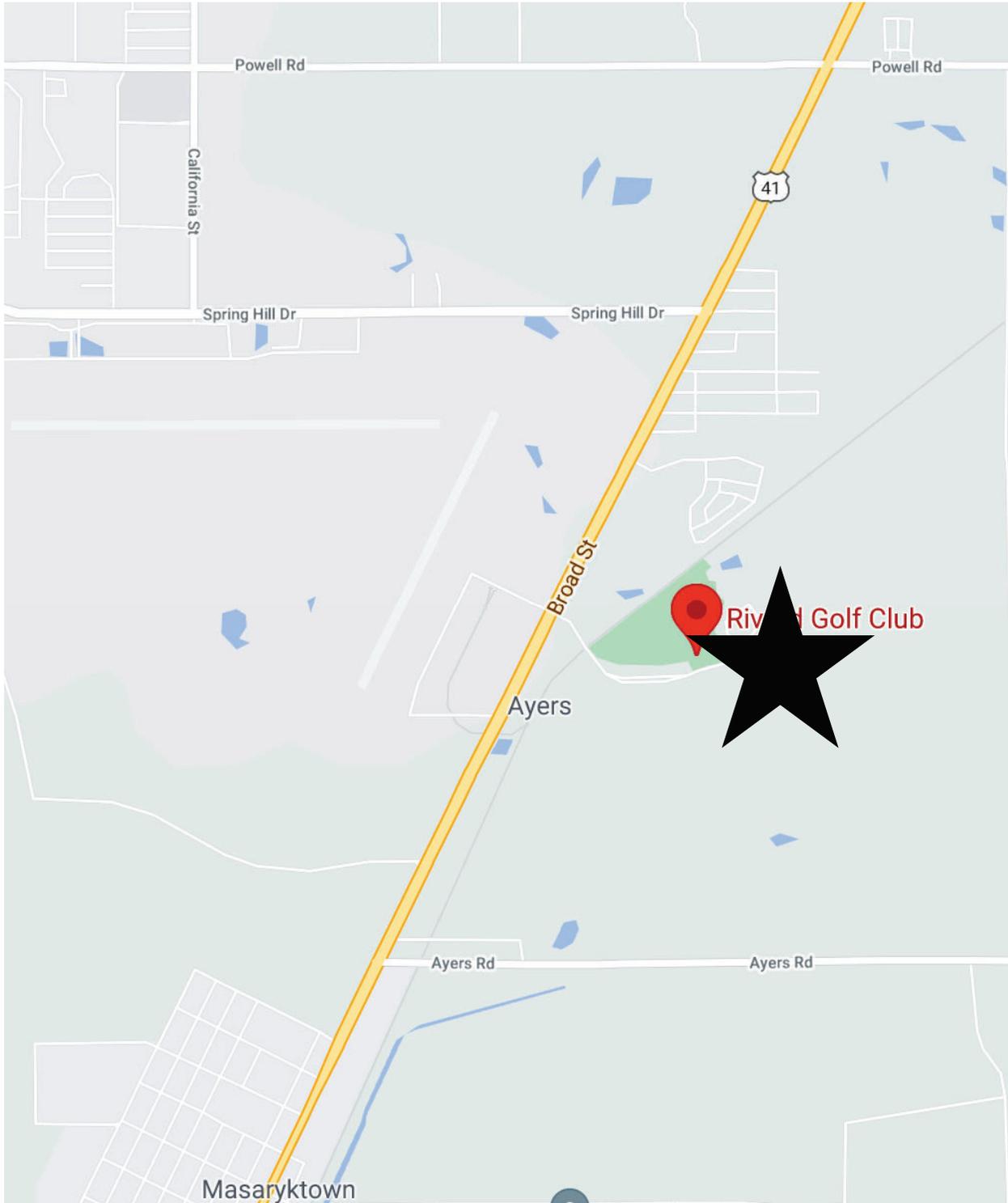


Table 1. Estimated Project Traffic

<u>Land Use</u>	<u>ITE LUC</u>	<u>Size</u>	<u>Daily Trip Ends (1)</u>	<u>AM Peak Hour Trip Ends (1)</u>			<u>PM Peak Hour Trip Ends (1)</u>		
				<u>In</u>	<u>Out</u>	<u>Total</u>	<u>In</u>	<u>Out</u>	<u>Total</u>
Single Family	210	240 DU's	2,327	44	131	175	148	87	235

(1) Source: ITE Trip Generation, 10th Edition, 2017.

ANALYSIS PERIOD

This analysis will include the AM and PM peak hours.

PROJECT TRIP DISTRIBUTION / ASSIGNMENT

The following distribution of the project traffic was based on the existing traffic patterns for the Trails at Rivard:

- 65% to and from the north (via US 41)
- 35% to and from the south (via US 41).

Table 2 shows the distribution of the AM and PM peak hour project trip ends. Figure 2 illustrates the project trip ends on the adjacent roadway network for the AM and PM peak hours.

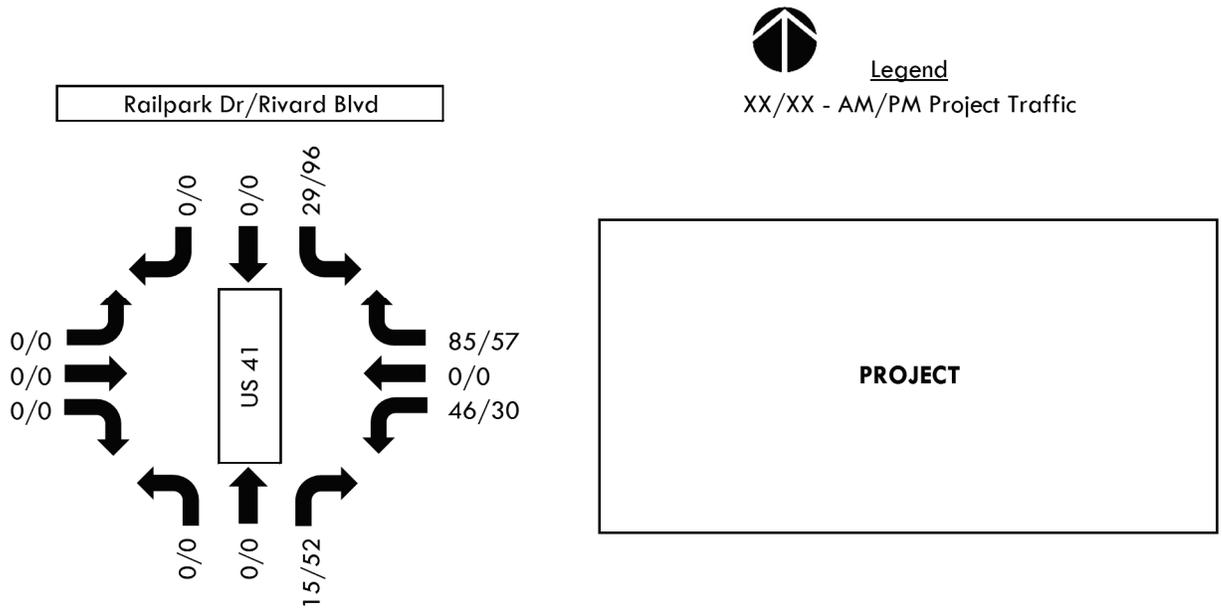
ADJACENT ROADWAYS

As stated previously, the site is located east of US 41 and north of Ayers Road. US 41 is a four (4) lane roadway in the vicinity of the project. According to FDOT and Hernando County Capital Improvement Programs, there are no programmed capacity improvements in the vicinity of the project.

Table 2. Estimated Peak Hour Project Traffic Distribution

<u>Time Period</u>	<u>North (65%)</u>		<u>South (35%)</u>		<u>Total</u>	
	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>
AM	29	85	15	46	44	131
PM	96	57	52	30	148	87

Figure 2. Peak Hour Project Traffic



PEAK SEASON TRAFFIC

The following methodology was utilized to estimate the background volumes within the study area:

1. PALM TRAFFIC obtained twelve hour (7 AM to 7 PM) turning movement counts at the following intersections:
 - US 41 and Railpark Drive/Rivard Boulevard.

Figure 3 illustrates the existing traffic.

2. The turning movement counts were adjusted to the peak season based on the FDOT 2020 Peak Season Adjustment Factors for Hernando County. Figure 4 illustrates the peak season traffic. Figure 5 illustrates the peak season plus project traffic.

Figure 3. Existing Traffic

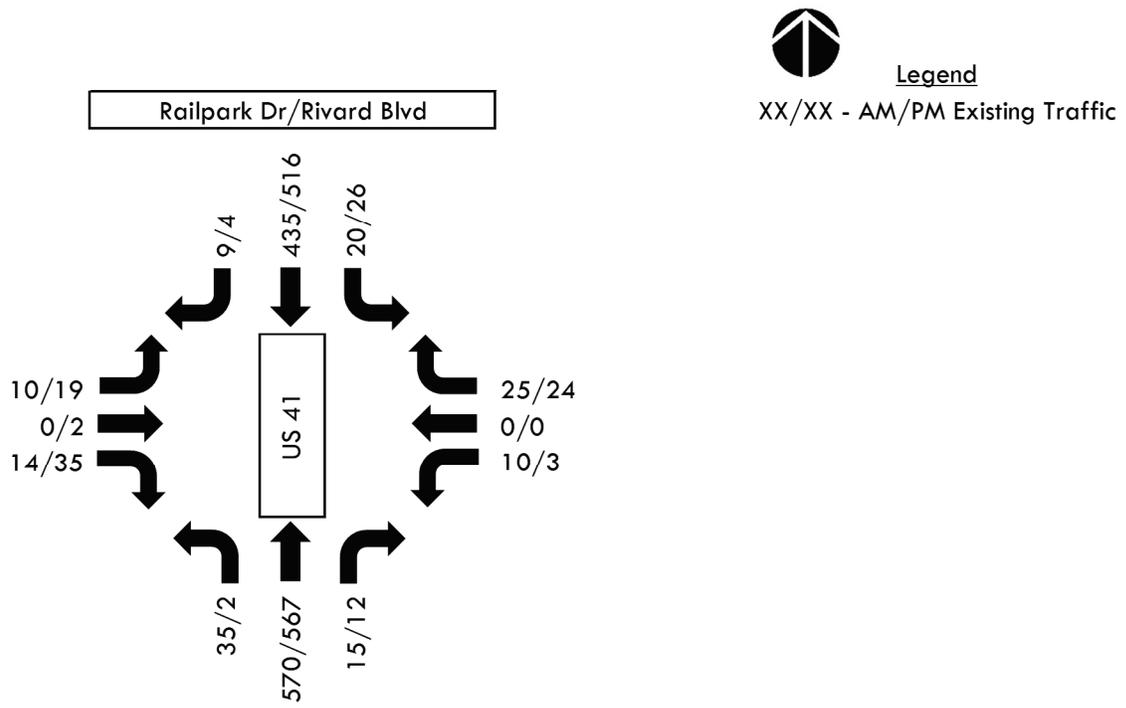


Figure 4. Peak Season Traffic

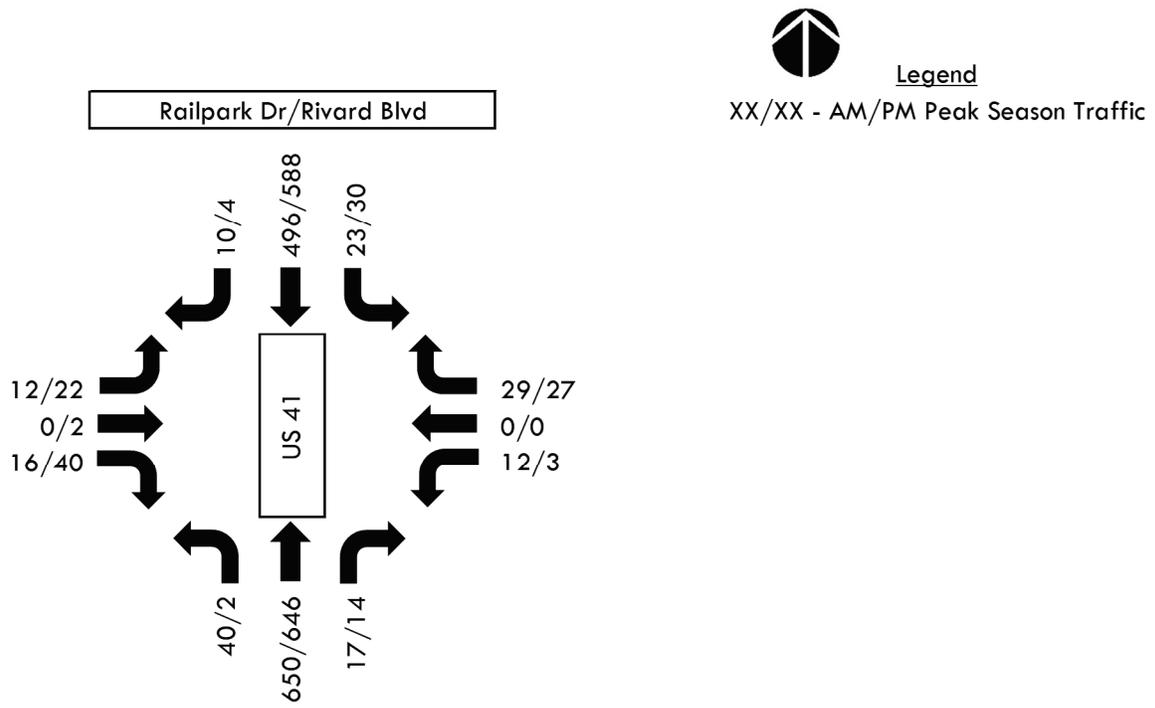
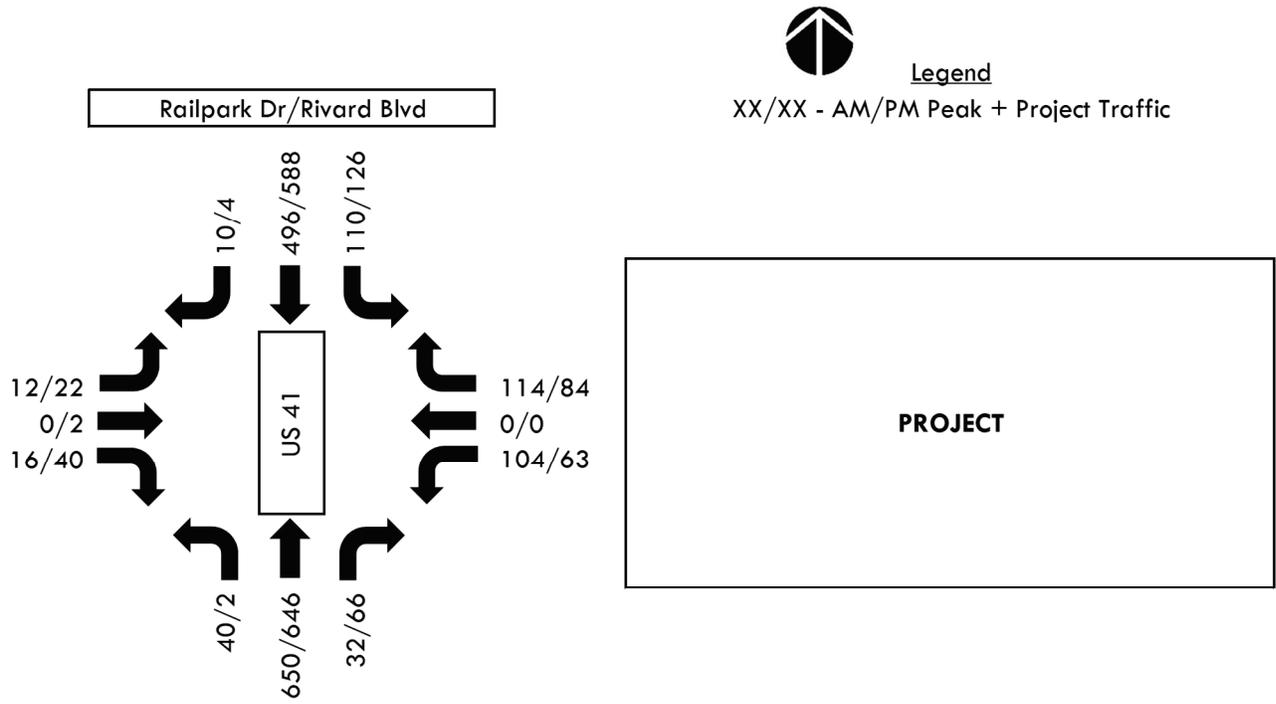


Figure 5. Peak Season Plus Project Traffic



INTERSECTION ANALYSIS

Intersection analysis was conducted for the AM and PM peak hour at the following intersection:

- US 41 and Rivard Boulevard/Railpark Drive

The analysis was based on SYNCHRO with the proposed project traffic. Table 3 summarizes the analysis for the intersections and is described in detail in the following paragraphs.

US 41 and Rivard Boulevard/Railpark Drive

This intersection is unsignalized with full access to US 41. Unsignalized intersection analysis indicates that all movements should operate with a v/c ratio less than 1.0 with the peak season plus project traffic during the AM and PM peak hours, as shown in Table 3.

Table 3. Estimated Intersection Volume to Capacity Ratio

<u>Intersection</u>	<u>Direction</u>	AM Peak Hour			PM Peak Hour		
		Peak Season + Project			Peak Season + Project		
		<u>Volume to Capacity</u>			<u>Volume to Capacity</u>		
		<u>Left</u>	<u>Through</u>	<u>Right</u>	<u>Left</u>	<u>Through</u>	<u>Right</u>
US 41 and Rivard Blvd / Rivard Blvd	EB	0.05	0.05	0.02	0.18	0.18	0.03
	WB	0.41	0.41	0.19	0.24	0.24	0.14
	NB	0.04	-	-	0.00	-	-
	SB	0.13	-	-	0.16	-	-

SIGNAL WARRANT ANALYSIS

A signal warrant analysis was performed in accordance with the MUTCD 2009 Edition. The following identifies the signal warrants that were reviewed.

Warrant 1 – Eight Hour Vehicular Volume

The Minimum Vehicular Volume, Condition A, is intended for applications where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

The Interruption of Continuous Traffic, Condition B, is intended for applications where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delays or conflicts in entering or crossing the major street.

The intersection of US 41 and Rivard Boulevard/Railpark Drive was evaluated under Conditions A and B and, since the speed on US 41 exceeds 40 miles per hour, the 70% threshold was utilized. The minor street volumes represent only the left turn volumes and do not include right turn volumes.

Based on the existing traffic plus the proposed project traffic, the intersection would not meet the minimum volume requirement for Warrant 1, Condition A, for any of the eight (8) hours of the day, and Warrant 1, Condition B would meet one (1) hour of the day as shown in Table 4.

Warrant 2 – Four Hour Vehicular Volume

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Again, based on the proposed development plan, the intersection would not meet the minimum volume requirements for Warrant 2, as shown in Table 5.

Warrant 3 – Peak Hour

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that, for a minimum one hour of an average day, the minor street traffic suffers undue delay when entering or crossing the major street.

As shown in Table 6, the peak minor street volume of 54 vehicles per hour does not exceed the 75 vehicles per hour threshold. Therefore, the intersection of US 41 and Rivard Boulevard/Railpark Drive would not meet the volume requirement of Warrant 3.

Table 4. Warrant 1 – Eight-Volume Vehicular Warrant

City: Brooksville Engineer: VLC
 County: Hernando Date: June 4, 2021
 Major Street: US 41 Lanes: 2 Critical Approach Speed: 55
 Minor Street: Rivard Boulevard/Railpark Drive Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? Yes No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? Yes No
 If Question 1 or 2 above is answered "Yes", then use "70%" volume level 70% 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
 Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied.

Applicable: Yes No
 Satisfied: Yes No

Condition A - Minimum Vehicular Volume

100% Satisfied: Yes No
 80% Satisfied: Yes No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets)				Eight Highest Hours									
					7 - 8 AM	8 - 9 AM	10 - 11 AM	11 - 12 PM	12 - 1 PM	1 - 2 PM	3 - 4 PM	5 - 6 PM		
	Approach Lanes	1	2 or more	Volume Level	100%	70%	100%	70%						
Both Approaches on Major Street	500 (400)	350	600 (480)	420	1,023	966	821	834	845	889	1,081	1,047		
Highest Approach on Minor Street	150 (120)	105	200 (160)	140	37	37	34	42	41	54	34	33		

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours. Condition is 80% satisfied if parenthetical volumes are met for eight hours.

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where the traffic volume is so heavy that traffic on the minor street suffers excessive delay.

Applicable: Yes No
 Excessive Delay: Yes No
 100% Satisfied: Yes No
 80% Satisfied: Yes No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets)				Eight Highest Hours							
					7 - 8 AM	8 - 9 AM	10 - 11 AM	11 - 12 PM	12 - 1 PM	1 - 2 PM	3 - 4 PM	5 - 6 PM
	Approach Lanes	1	2 or more	Volume Level	100%	70%	100%	70%				
Both Approaches on Major Street	750 (600)	525	900 (720)	630	1,023	966	821	834	845	889	1,081	1,047
Highest Approach on Minor Street	75 (60)	53	100 (80)	70	37	37	34	42	41	54	34	33

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours. Condition is 80% satisfied if parenthetical volumes are met for eight hours.

Table 5. Warrant 2 – Four-Hour Vehicular Warrant

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

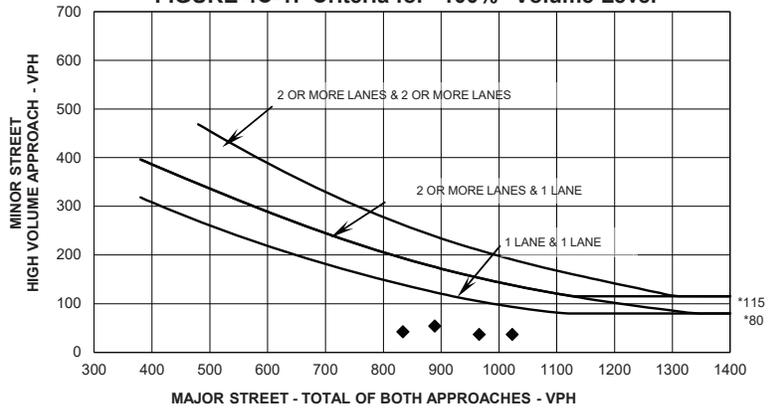
If all four points lie above the appropriate line, then the warrant is satisfied.

Applicable: Yes No
 Satisfied: Yes No

Plot four volume combinations on the applicable figure below.

Four Highest Hours	Volumes	
	Major Street	Minor Street
7-8 AM	1,023	37
8-9 AM	966	37
11-12 PM	834	42
1-2 PM	889	54

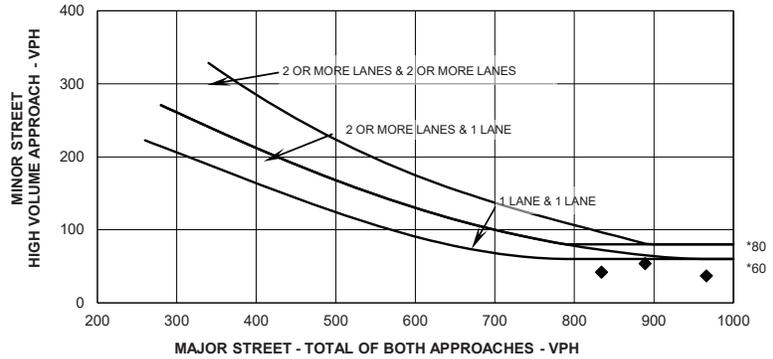
FIGURE 4C-1: Criteria for "100%" Volume Level



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

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

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



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

Table 6. Warrant 3 – Peak Hour Warrant

WARRANT 3 - PEAK HOUR

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

Applicable: Yes No
 Satisfied: Yes No

Unusual condition justifying use of warrant:

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

Peak Hour		
1-2 PM	889	54

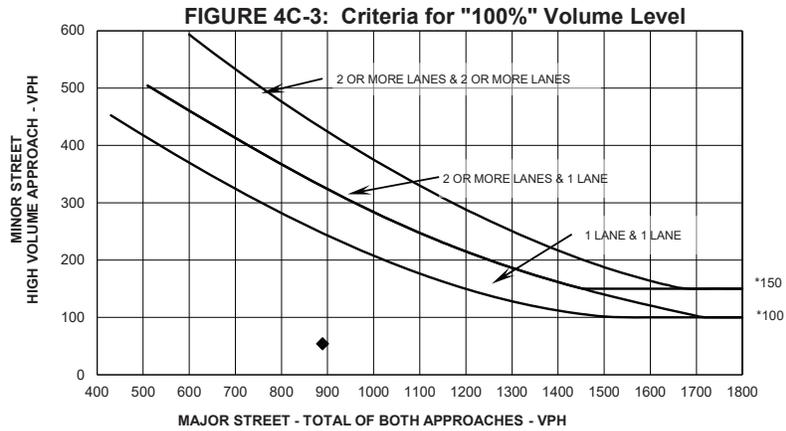
Criteria

1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

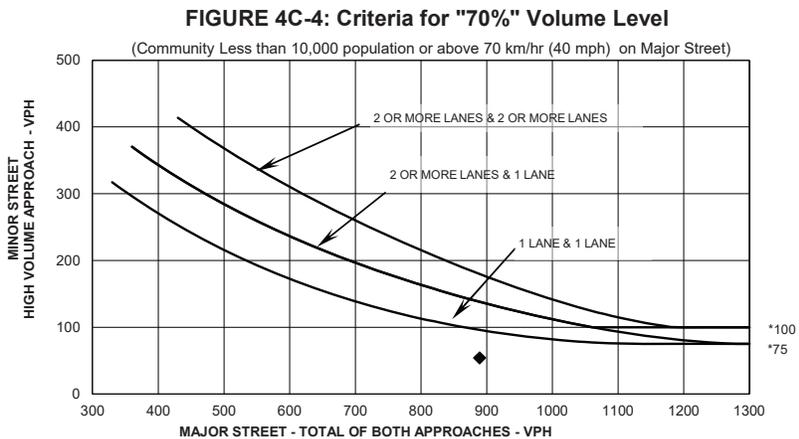
2. Volume on Minor Approach *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*		
Fulfilled?:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

3. Total Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		
Fulfilled?:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Plot volume combination on the applicable figure below.



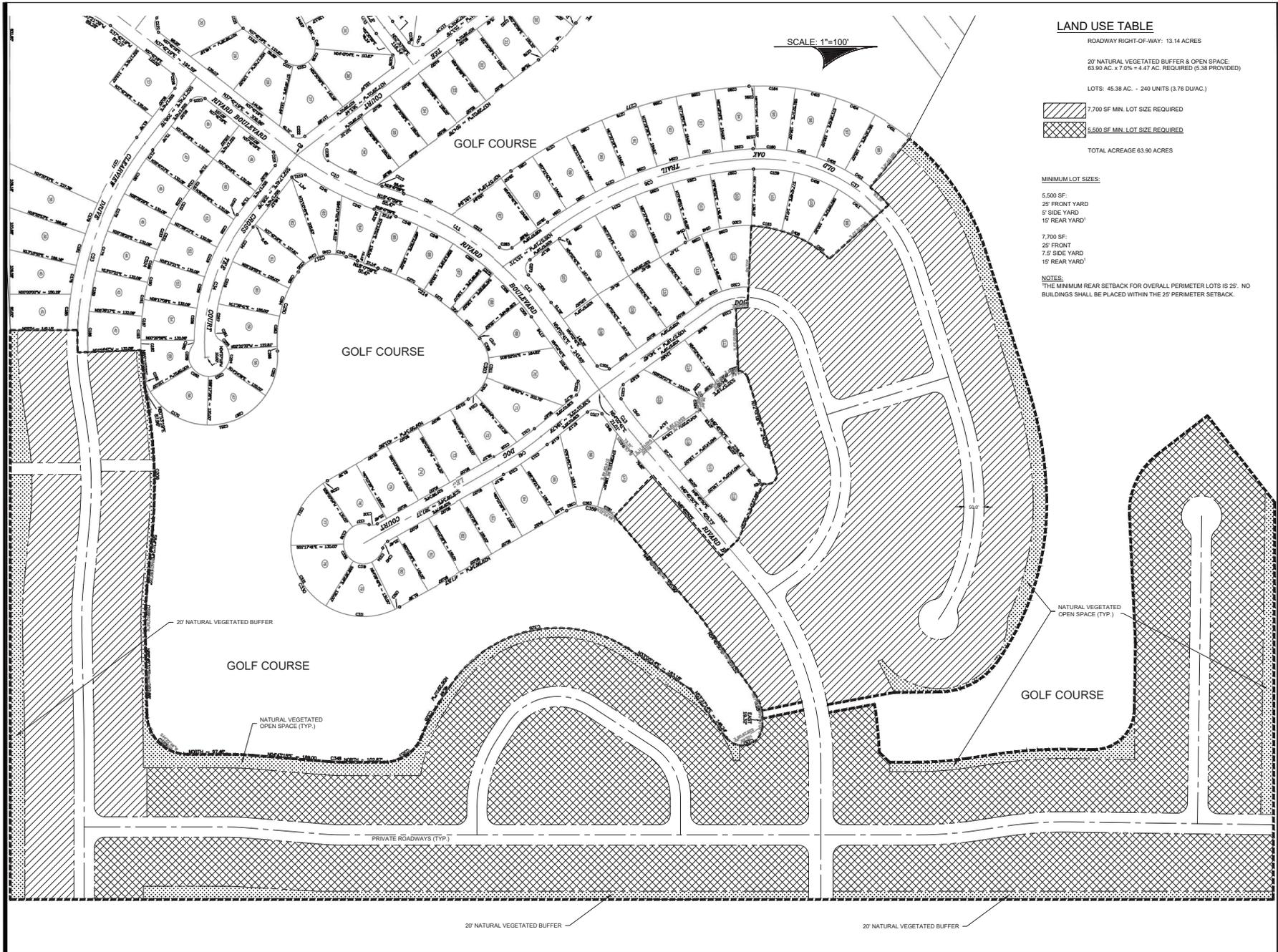
* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.



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

APPENDIX

APPENDIX
CONCEPTUAL SITE PLAN



SCALE: 1"=100'

LAND USE TABLE

ROADWAY RIGHT-OF-WAY: 13.14 ACRES
 20' NATURAL VEGETATED BUFFER & OPEN SPACE:
 63.90 AC. x 7.0% = 4.47 AC. REQUIRED (5.38 PROVIDED)
 LOTS: 45.38 AC. - 240 UNITS (3.76 DU/AC.)
 7,700 SF MIN. LOT SIZE REQUIRED
 5,500 SF MIN. LOT SIZE REQUIRED
 TOTAL ACREAGE 63.90 ACRES

MINIMUM LOT SIZES:

5,500 SF:
 25' FRONT YARD
 5' SIDE YARD
 15' REAR YARD'
 7,700 SF:
 25' FRONT
 7.5' SIDE YARD
 15' REAR YARD'

NOTES:

THE MINIMUM REAR SETBACK FOR OVERALL PERIMETER LOTS IS 25'. NO BUILDINGS SHALL BE PLACED WITHIN THE 25' PERIMETER SETBACK.

BE→U
 BLACKSTOCK ENGINEERING UNLIMITED, INC.
 1648 W. Snow Ave
 Suite 174
 Tampa, FL 33606
 www.BlackstockERIG.com
 Certificate of Auth: 32207

THE TRAILS AT RIVARD
 PHASE V
 HERNANDO COUNTY, FLORIDA

MASTER PLAN

PROJECT: 1601175.00
 DATE: 03/02/2021

No.	Date	Revision	Description

BOCC ACTION:

On July 16, 2019, the Board of County Commissioners voted 4-0 to adopt Resolution 2019-184, approving the petitioner's request to revise a Master Plan on property zoned CPDP/Combined Planned Development Project, with deviations, and with the following unmodified performance conditions:

1. The petitioner must obtain all permits from Hernando County and other applicable agencies and meet all applicable land development regulations, for either construction or use of the property, and complete all applicable development review processes.
2. A preliminary floral and fauna (plant and wildlife) survey shall be conducted to determine if any listed species are present. If listed species are present, the petitioner would be required to comply with all applicable Fish and Wildlife Conservation Commission (FWC) regulations.
3. The development of common areas and landscape plans must comply with the Florida-Friendly Landscaping™ principles.
4. At the time of preliminary plat, the developer will be required to update the Master Drainage Plan for the development, including providing any joint use documents with properties outside the current phase. Locations for any proposed drainage facilities should also be provided.
5. All lots, excluding the rear setback area, and roads shall be elevated at or above the regulatory 100-year flood elevation in accordance with the requirements of the Squirrel Prairie basin study and the adopted regulatory floodplain maps. All future development plans shall show the regulatory floodplain consistent with these documents.
6. The petitioner shall ensure that the post-development volumes and rate of drainage flow shall not exceed the volume and rate of pre-development for a 100-year storm event.
7. The petitioner shall design storage structures to the 100-year storm event.
8. A traffic analysis is required at the time of conditional plat, to include a traffic signal warrant study. The developer will be responsible for the cost of the traffic signal if warranted, the amount of which will be escrowed prior to final plat approval.
9. The petitioner shall provide a stub-out to the south.
10. The roads within the subdivision shall be private.

11. The petitioner shall grant an Avigation Easement to Hernando County for airport operations.
12. The developer shall provide new property owners with written program materials and owners shall be encouraged to utilize the Florida-Friendly Landscaping™ program best management practices.
13. The petitioner shall preserve the minimum seven percent (7%) natural vegetation as required by the County's LDRs. If approved, the petitioner must provide a minimum of natural vegetation. The required natural vegetation may be included as part of the required open space.
14. The property must apply for and receive a Finding of School Capacity from the School District prior to the approval of the conditional plat or the functional equivalent. The County will only issue a certificate of concurrency for schools upon the School District's written determination that adequate school capacity will be in place or under actual construction within three (3) years after the issuance of subdivision approval or site plan approval (or functional equivalent) for each level of school without mitigation, or with the execution of a legally binding proportionate share mitigation agreement between the applicant, the School District and the County.
15. The petitioner shall submit a fire protection plan with the Conditional Plat in accordance with Hernando County LDRs.
16. The total number of units is limited to 240.
17. The minimum lot sizes are 7,700 ft² and 5,500 ft².
18. There shall be an appropriate transition of lot sizes from the existing Trails of Rivard Phase 1 to the currently proposed Phase 2, with Lot sizes along Rivard Boulevard to the golf-court crossing, along Old Oak Trail, Brassey Drive, Dog Leg Court, and Clearview Drive to its intersection with Pine Lake Drive shall be a minimum of 7,700 ft². This lot size applies to homes constructed on either side of each of these roadways. Lot sizes along Pine Lake Drive and Wind Tree Court shall be a minimum of 5,500 ft².
19. Minimum Building Setbacks are as Follows:
 - a. 5,500 ft² Lots:
 - Front: 25'
 - Side: 5' (Reduction from 10')
 - Rear: 15'
 - b. 7,700 ft² Lots:
 - Front: 25'
 - Side: 7.5' (Reduction from 10')
 - Rear: 15'

20. Minimum Perimeter Setback shall be 25'. No buildings shall be located within this setback.
21. There shall be a twenty-foot (20') natural vegetated buffer along the south and east boundaries where the proposed development is adjacent to existing subdivisions.
22. The petitioner shall provide a revised plan in compliance with all the performance conditions within 30 calendar days of BOCC approval. Failure to submit the revised plan will result in no further development permits being issued.

Revision	
No.	Description

APPENDIX
TRIP GENERATION

PERIOD SETTING

Analysis Name :	Daily	No :	
Project Name :	The Trails at Rivard	City:	
Date:	5/20/2021	Zip/Postal Code:	
State/Province:		Client Name:	
Country:		Edition:	Trip Gen Manual, 10th Ed
Analyst's Name:			

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing (General Urban/Suburban)	Dwelling Units	240	Weekday	Best Fit (LOG) Ln(T) = 0.92Ln(X) +2.71	1164 50%	1163 50%	2327

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	1164	0 %	1163

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	2327	0	0	2327

ITE DEVIATION DETAILS

Weekday

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 210 - Single-Family Detached Housing (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	1164
Total Exiting	1163
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	1164
Total Exiting Non-Pass-by Trips	1163

PERIOD SETTING

Analysis Name :	AM Peak Hour	No :	
Project Name :	The Trails at Rivard	City:	
Date:	5/20/2021	Zip/Postal Code:	
State/Province:		Client Name:	
Country:		Edition:	Trip Gen Manual, 10th Ed
Analyst's Name:			

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing (General Urban/Suburban)	Dwelling Units	240	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LIN) T = 0.71 (X)+4.8	44 25%	131 75%	175

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	44	0 %	131

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	175	0	0	175

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 210 - Single-Family Detached Housing (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	44
Total Exiting	131
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	44
Total Exiting Non-Pass-by Trips	131

PERIOD SETTING

Analysis Name :	PM Peak Hour	No :	
Project Name :	The Trails at Rivard	City:	
Date:	5/20/2021	Zip/Postal Code:	
State/Province:		Client Name:	
Country:		Edition:	Trip Gen Manual, 10th Ed
Analyst's Name:			

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
210 - Single-Family Detached Housing (General Urban/Suburban)	Dwelling Units	240	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) $\ln(T) = 0.96\ln(X) + 0.2$	148 63%	87 37%	235

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
210 - Single-Family Detached Housing	0 %	148	0 %	87

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
210 - Single-Family Detached Housing	235	0	0	235

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 210 - Single-Family Detached Housing (General Urban/Suburban)
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	148
Total Exiting	87
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	0
Total Exiting Internal Capture Reduction	0
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	148
Total Exiting Non-Pass-by Trips	87

APPENDIX
TURNING MOVEMENT COUNTS

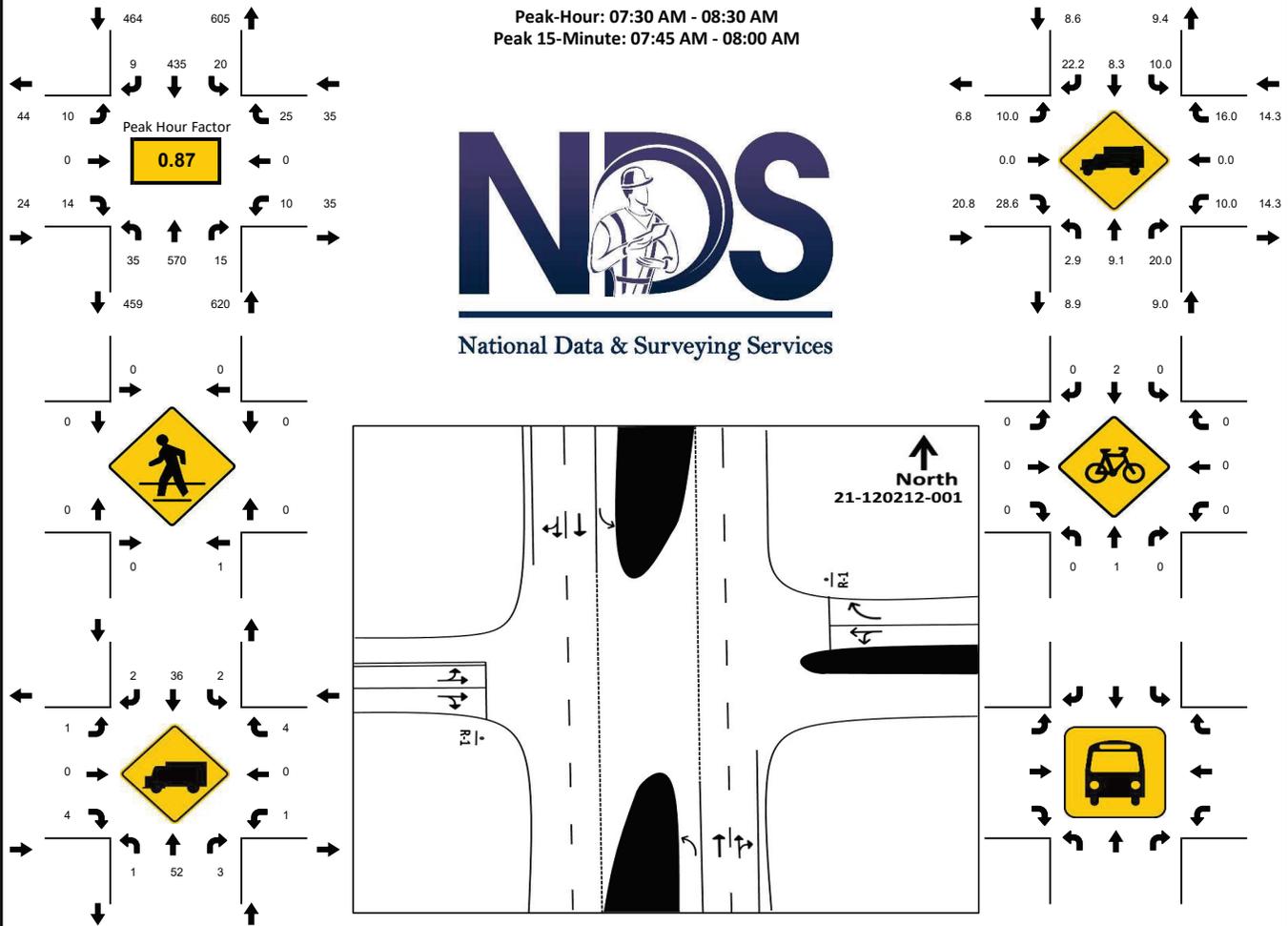
LOCATION: Broad St\SR 41 & Runway Dr\Railpark Dr
 CITY/STATE: Brooksville, FL

PROJECT ID: 21-120212-001
 DATE: Tue, May 25, 2021

Peak-Hour: 07:30 AM - 08:30 AM
 Peak 15-Minute: 07:45 AM - 08:00 AM



National Data & Surveying Services



15-Min Count Period Beginning At	Broad St\SR 41 Northbound					Broad St\SR 41 Southbound					Runway Dr\Railpark Dr Eastbound					Runway Dr\Railpark Dr Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
07:00 AM	6	118	2	0		2	91	2	0		0	0	1	0		1	0	5	0		228	1075
07:15 AM	8	108	3	0		3	95	2	0		0	0	2	0		3	0	3	1		228	1116
07:30 AM	9	146	2	0		2	114	4	0		2	0	3	0		3	0	6	0		291	1143
07:45 AM	11	160	5	0		5	122	3	0		3	0	7	0		3	0	9	0		328	1105
08:00 AM	11	145	2	0		6	92	0	0		2	0	4	0		2	0	5	0		269	1012
08:15 AM	4	119	6	0		7	107	2	0		3	0	0	0		2	0	5	0		255	959
08:30 AM	1	122	2	0		6	113	1	0		0	0	0	0		2	0	6	0		253	957
08:45 AM	2	122	5	0		7	81	2	1		2	0	2	0		4	0	7	0		235	915
09:00 AM	1	92	4	0		9	101	1	0		2	0	0	0		2	0	4	0		216	903
09:15 AM	1	117	2	0		7	113	3	0		1	0	1	0		1	0	7	0		253	687
09:30 AM	2	94	0	0		3	102	1	0		1	0	1	0		3	0	4	0		211	434
09:45 AM	1	104	2	0		4	101	5	0		2	0	2	0		1	0	1	0		223	223
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
All Vehicles	44	640	24	0		28	488	16	0		12	0	28	0		12	0	36	0		1328	
Heavy Trucks	4	56	4	0		4	60	4	0		4	0	12	0		4	0	8	0		160	
Pedestrians		4					0					0					0				4	
Bicycles	0	4	0	0		0	4	0	0		0	0	0	0		0	0	0	0		8	
Buses																						
Stopped Buses																						

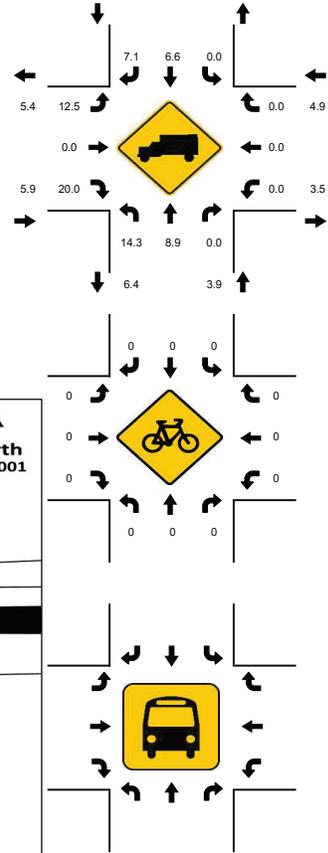
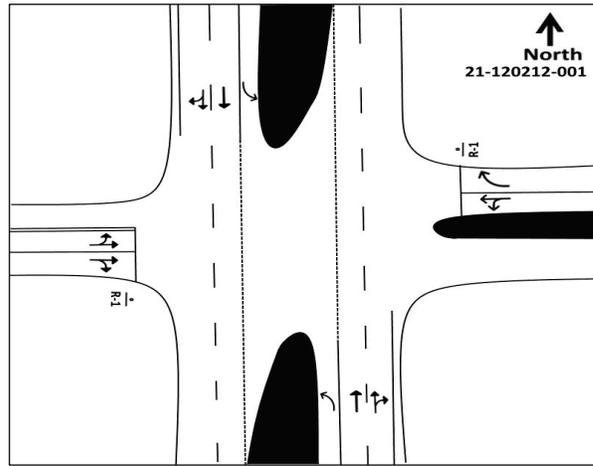
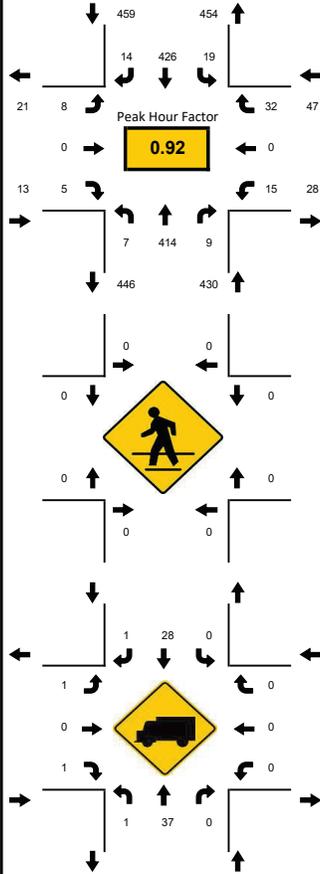
LOCATION: Broad St\SR 41 & Runway Dr\Railpark Dr
 CITY/STATE: Brooksville, FL

PROJECT ID: 21-120212-001
 DATE: Tue, May 25, 2021

Peak-Hour: 01:00 PM - 02:00 PM
 Peak 15-Minute: 01:45 PM - 02:00 PM



National Data & Surveying Services



15-Min Count Period Beginning At	Broad St\SR 41 Northbound					Broad St\SR 41 Southbound					Runway Dr\Railpark Dr Eastbound					Runway Dr\Railpark Dr Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
10:00 AM	0	113	2	0		4	95	2	0		1	0	1	0		2	0	8	0		228	866
10:15 AM	3	96	0	0		1	90	3	0		3	0	1	0		0	0	5	0		202	865
10:30 AM	0	88	1	0		6	99	4	0		0	0	3	0		4	0	4	0		209	858
10:45 AM	0	109	1	1		4	94	4	1		2	0	2	0		1	0	8	0		227	862
11:00 AM	1	104	1	0		2	105	2	0		2	0	3	0		2	0	5	0		227	890
11:15 AM	1	91	3	1		5	80	3	0		1	1	2	0		3	0	4	0		195	913
11:30 AM	2	105	5	1		1	77	1	0		2	0	6	0		6	0	7	0		213	915
11:45 AM	3	120	3	0		6	109	2	0		3	0	2	0		3	0	4	0		255	916
12:00 PM	0	119	4	0		2	110	4	0		1	0	4	0		2	0	4	0		250	900
12:15 PM	3	89	4	0		3	87	1	1		1	0	1	0		2	0	5	0		197	882
12:30 PM	2	92	0	0		3	103	3	1		1	0	1	0		2	0	6	0		214	920
12:45 PM	0	100	3	0		2	105	4	0		6	0	4	0		5	0	10	0		239	930
01:00 PM	2	109	1	0		2	100	7	0		3	0	0	0		4	0	4	0		232	949
01:15 PM	0	104	2	0		7	110	2	0		2	0	0	0		3	0	5	0		235	717
01:30 PM	3	95	2	1		4	103	3	0		1	0	3	0		5	0	4	0		224	482
01:45 PM	0	106	4	1		6	113	2	0		2	0	2	0		3	0	19	0		258	258
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	12	436	16	4		28	452	28	0		12	0	12	0		20	0	76	0		1096	
Heavy Trucks	4	44	0	0		0	40	4	0		4	0	4	0		0	0	0	0		100	
Pedestrians	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	0		0	0	0	0		0	
Buses	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	
Stopped Buses	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	

APPENDIX

FDOT PEAK SEASON ADJUSTMENT FACTORS

2020 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 0800 HERNANDO COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.93 PSCF
* 1	01/01/2020 - 01/04/2020	0.95	1.02
* 2	01/05/2020 - 01/11/2020	0.92	0.99
* 3	01/12/2020 - 01/18/2020	0.90	0.97
* 4	01/19/2020 - 01/25/2020	0.89	0.96
* 5	01/26/2020 - 02/01/2020	0.88	0.95
* 6	02/02/2020 - 02/08/2020	0.87	0.94
* 7	02/09/2020 - 02/15/2020	0.86	0.92
* 8	02/16/2020 - 02/22/2020	0.89	0.96
* 9	02/23/2020 - 02/29/2020	0.92	0.99
*10	03/01/2020 - 03/07/2020	0.95	1.02
*11	03/08/2020 - 03/14/2020	0.98	1.05
*12	03/15/2020 - 03/21/2020	1.01	1.09
*13	03/22/2020 - 03/28/2020	1.12	1.20
14	03/29/2020 - 04/04/2020	1.23	1.32
15	04/05/2020 - 04/11/2020	1.33	1.43
16	04/12/2020 - 04/18/2020	1.44	1.55
17	04/19/2020 - 04/25/2020	1.35	1.45
18	04/26/2020 - 05/02/2020	1.26	1.35
19	05/03/2020 - 05/09/2020	1.17	1.26
20	05/10/2020 - 05/16/2020	1.08	1.16
21	05/17/2020 - 05/23/2020	1.07	1.15
22	05/24/2020 - 05/30/2020	1.06	1.14
23	05/31/2020 - 06/06/2020	1.05	1.13
24	06/07/2020 - 06/13/2020	1.03	1.11
25	06/14/2020 - 06/20/2020	1.02	1.10
26	06/21/2020 - 06/27/2020	1.03	1.11
27	06/28/2020 - 07/04/2020	1.04	1.12
28	07/05/2020 - 07/11/2020	1.04	1.12
29	07/12/2020 - 07/18/2020	1.05	1.13
30	07/19/2020 - 07/25/2020	1.04	1.12
31	07/26/2020 - 08/01/2020	1.04	1.12
32	08/02/2020 - 08/08/2020	1.03	1.11
33	08/09/2020 - 08/15/2020	1.02	1.10
34	08/16/2020 - 08/22/2020	1.02	1.10
35	08/23/2020 - 08/29/2020	1.01	1.09
36	08/30/2020 - 09/05/2020	1.00	1.08
37	09/06/2020 - 09/12/2020	0.99	1.06
38	09/13/2020 - 09/19/2020	0.99	1.06
39	09/20/2020 - 09/26/2020	0.98	1.05
40	09/27/2020 - 10/03/2020	0.96	1.03
41	10/04/2020 - 10/10/2020	0.95	1.02
42	10/11/2020 - 10/17/2020	0.94	1.01
43	10/18/2020 - 10/24/2020	0.95	1.02
44	10/25/2020 - 10/31/2020	0.95	1.02
45	11/01/2020 - 11/07/2020	0.95	1.02
46	11/08/2020 - 11/14/2020	0.96	1.03
47	11/15/2020 - 11/21/2020	0.96	1.03
48	11/22/2020 - 11/28/2020	0.96	1.03
49	11/29/2020 - 12/05/2020	0.96	1.03
50	12/06/2020 - 12/12/2020	0.95	1.02
51	12/13/2020 - 12/19/2020	0.95	1.02
52	12/20/2020 - 12/26/2020	0.92	0.99
53	12/27/2020 - 12/31/2020	0.90	0.97

* PEAK SEASON

27-FEB-2021 10:30:06

830UPD

7_0800_PKSEASON.TXT

APPENDIX
INTERSECTION ANALYSIS

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↗		↗	↕↗	
Traffic Vol, veh/h	12	0	16	104	0	114	40	650	32	110	496	10
Future Vol, veh/h	12	0	16	104	0	114	40	650	32	110	496	10
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									
Storage Length	-	-	200	-	-	250	250	-	-	250	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	0	17	109	0	120	42	684	34	116	522	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1186	1562	267	1278	1550	359	533	0	0	718	0	0
Stage 1	760	760	-	785	785	-	-	-	-	-	-	-
Stage 2	426	802	-	493	765	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	144	111	731	123	113	638	1031	-	-	879	-	-
Stage 1	364	413	-	352	402	-	-	-	-	-	-	-
Stage 2	577	395	-	526	410	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	102	92	731	~ 105	94	638	1031	-	-	879	-	-
Mov Cap-2 Maneuver	248	217	-	265	247	-	-	-	-	-	-	-
Stage 1	349	358	-	338	386	-	-	-	-	-	-	-
Stage 2	449	379	-	446	356	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.4		19.5		0.5		1.7	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1031	-	-	248	731	265	638	879	-	-
HCM Lane V/C Ratio	0.041	-	-	0.051	0.023	0.413	0.188	0.132	-	-
HCM Control Delay (s)	8.6	-	-	20.3	10	27.8	11.9	9.7	-	-
HCM Lane LOS	A	-	-	C	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	1.9	0.7	0.5	-	-

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

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↗		↗	↕↗	
Traffic Vol, veh/h	40	2	22	63	0	84	2	646	66	126	588	4
Future Vol, veh/h	40	2	22	63	0	84	2	646	66	126	588	4
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									
Storage Length	-	-	200	-	-	250	250	-	-	250	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	2	23	66	0	88	2	680	69	133	619	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1231	1640	312	1296	1608	375	623	0	0	749	0	0
Stage 1	887	887	-	719	719	-	-	-	-	-	-	-
Stage 2	344	753	-	577	889	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	134	99	684	120	104	623	954	-	-	856	-	-
Stage 1	305	360	-	386	431	-	-	-	-	-	-	-
Stage 2	645	416	-	469	360	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	101	83	684	101	88	623	954	-	-	856	-	-
Mov Cap-2 Maneuver	250	211	-	273	247	-	-	-	-	-	-	-
Stage 1	304	304	-	385	430	-	-	-	-	-	-	-
Stage 2	552	415	-	380	304	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.4	16.3	0	1.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	954	-	-	248	684	273	623	856	-	-
HCM Lane V/C Ratio	0.002	-	-	0.178	0.034	0.243	0.142	0.155	-	-
HCM Control Delay (s)	8.8	-	-	22.6	10.4	22.4	11.7	10	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.1	0.9	0.5	0.5	-	-

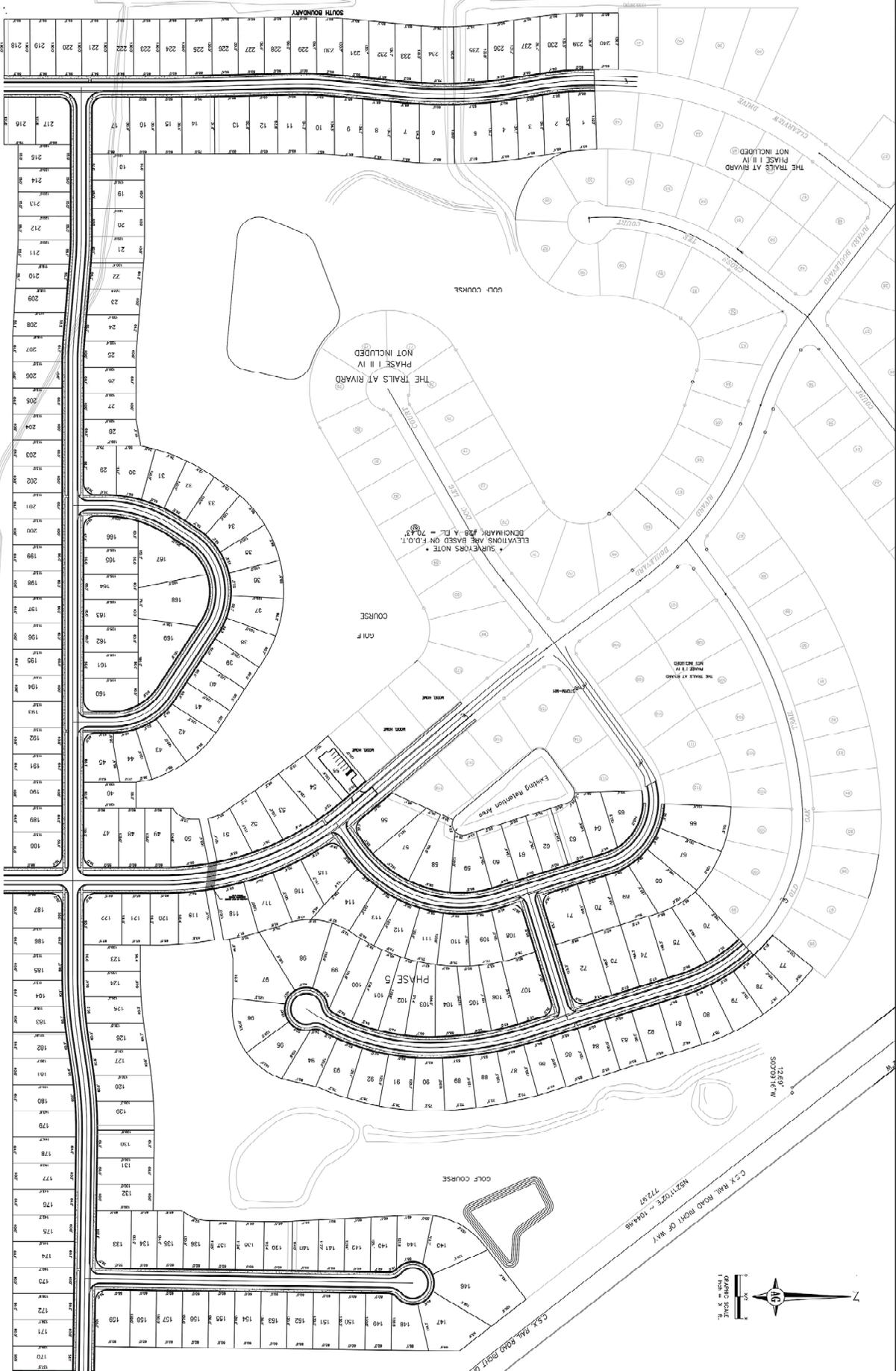
APPENDIX

SIGNAL WARRANT VOLUME WORKSHEET

Time	Existing Traffic (1)					Residential Hourly Distribution (2)		Residential			Existing + Unbuilt		NB/SB Through
	Eastbound		Westbound		NB/SB	In	Out	In	Out	WB Left	EB Left	WB Left	
	Left/Thru	Right	Left/Thru	Right									
7:00-8:00 AM	5	13	10	23	1023	32.43%	44.59%	57	78	27	5	37	1,023
8:00-9:00 AM	7	6	10	23	966	55.41%	44.59%	97	78	27	7	37	966
9:00-10:00 AM	6	4	7	16	870	41.89%	31.08%	73	54	19	6	26	870
10:00-11:00 AM	6	7	7	25	821	25.68%	43.24%	45	76	27	6	34	821
11:00-12:00 AM	9	13	14	20	834	36.49%	45.95%	64	80	28	9	42	834
12:00-1:00 PM	9	10	11	25	845	28.38%	48.65%	50	85	30	9	41	845
1:00-2:00 PM	8	5	15	32	889	37.84%	63.51%	66	111	39	8	54	889
2:00-3:00 PM	7	9	6	21	957	39.19%	36.49%	69	64	22	7	28	957
3:00-4:00 PM	14	13	11	17	1081	45.95%	37.84%	80	66	23	14	34	1,081
4:00-5:00 PM	9	32	3	17	1141	40.54%	27.03%	71	47	16	9	19	1,141
5:00-6:00 PM	24	26	3	19	1047	52.70%	29.73%	148	87	30	24	33	1,047
6:00-7:00 PM	4	3	5	21	785	48.65%	35.14%	85	61	21	4	26	785

(1) Based on turning movement count conducted by Palm Traffic at the intersection of US 41 and Runway Dr/Railpark Dr

(2) Based on hourly counts at Runway Drive



UNIMPROVED LOTS NOT RECORDED

UNIMPROVED LOTS NOT RECORDED

UNIMPROVED LOTS NOT RECORDED

UNIMPROVED LOTS NOT RECORDED

REVISIONS:	DATE
1	
2	
3	
4	
5	
6	
7	
8	
9	

DATE: 03-05-24
 PROJECT NO.: 240138
 DRAWING NO.: C-1

RIVARD SUBDIVISION
 COSTA HOMES, INC.
 6601 MEMORIAL HWY SUITE 231
 TAMPA, FLORIDA 33615
SITE PLAN

PAT MONTECKI, P.E.
 F.P.E. NO. 34694



ARCTURUS GROUP, LLC
 CIVIL ENGINEERS • LAND PLANNERS • CONSTRUCTION MANAGEMENT
 5927 MAIN STREET, NEW PORT RICHEY, FLORIDA 34892
 PHONE: (727) 844-8882
 info@arcturusgroup.com

CERTIFICATE OF AUTHORIZATION EB 30829