CERTIFICATION

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

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

REPORT: SR 72/Talon Boulevard/Ibis Street Intersection Control Evaluation (ICE) - Stage 1

PROJECT: SR 72 Project Development and Environment (PD&E) Study

LOCATION: SR 72 from East of I-75 to Lorraine Road
Sarasota County, Florida

ROADWAY ID: 17070000

MILEPOST No: 5.708

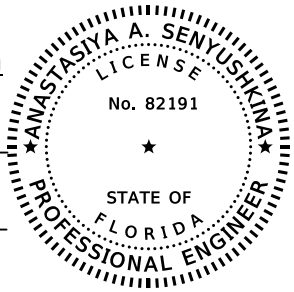
FPID No.: 444634-1-22-01

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

Engineer in Responsible Charge: Anastasiya A. Senyushkina

Professional Registration No.: 82191

Date: 12/7/2023



Anastasiya A Senyushkina
2023.12.07
16:06:42-05'00'

AIM Engineering & Surveying, Inc.

MEMORANDUM

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

Date:	December 7, 2023
To:	Steven Andrews, P.E. – FDOT District One DEMO Project Manager
From:	Greg Root/Anastasiya Senyushkina, P.E.
Subject:	SR 72 at Talon Boulevard/Ibis Street Intersection (Sarasota County) –- Stage 1+ Intersection Control Evaluation

INTRODUCTION/PROJECT BACKGROUND

This memorandum documents the Intersection Control Evaluation (ICE) conducted for the Talon Boulevard/Ibis Street intersection. This analysis was conducted in support of the SR 72 Project Development & Environment (PD&E) Study from east of I-75 to Lorraine Road in Sarasota County. The length of this study corridor is approximately 2.7 miles. This PD&E study is evaluating the costs and impacts of widening (i.e., four-laning) SR 72 from Hummingbird Avenue to Lorraine Road. This PD&E study is also looking to reduce the posted speeds/target speeds within the corridor. The PD&E study goals are to determine the location and conceptual design of the improvement(s) that satisfy the purpose and need for the project, while also minimizing the impacts to the natural and social environment and satisfying the requirements of the National Environmental Policy Act (NEPA). This memorandum documents the Stage 1 CAP-X and SPICE analyses, as well as the more detailed traffic operations analyses conducted using the SIDRA software.

EXISTING INTERSECTION CHARACTERISTICS

This intersection is a four-legged signalized intersection. The traffic signal was installed in mid-2022. Talon Boulevard is the north leg of this intersection and provides access to Red Hawk Reserve (a gated residential subdivision). Single family homes are located in both the northwest and northeast quadrants of the intersection. Ibis Street is the south leg of this intersection and extends south of Hawkins Road. This road provides access to single family homes on the east side, as well as Twin Lakes Park on the west side. This recreational complex includes facilities for baseball/softball, soccer and lacrosse, as well as a walking trail. The land in the southwest quadrant of the intersection is part of Twin Lakes Park. An aerial image depicting the Talon Boulevard/Ibis Street intersection is provided in **Figure 1**, which is included in **Appendix A.** The posted speed limit on SR 72 in the vicinity of this intersection is 45 miles per hour (mph). The posted speed limit on Ibis Street is 30 mph. SR 72 is a two-lane undivided roadway with 12-foot travel lanes and five-foot paved shoulders both west and east of Talon Boulevard/Ibis Street. There is a sidewalk on the north side of SR 72 and on both sides of Talon Boulevard. There is also a 10-foot path on the west side of Ibis Street. The context classification for the study corridor is C3R (Suburban Residential).

Crash data from Signal Four Analytics was provided by District One for the years 2017 through 2021. The crash data is included in **Appendix B**. The intersection has experienced 21 crashes over this five-year period, resulting in 21 injuries and no fatalities. The most prevalent crash types are angle crashes (16) and rear-end crashes (3). The angle crashes were associated with left-turn movements. There were no crashes involving bicyclists or pedestrians.

INTERSECTION CONTROL EVALUATION

The proposed typical section includes four 11-foot travel lanes (two in each direction), a 22-foot median and 12-foot shared use paths on both sides of the roadway. The FDOT-approved design speed and target speed for the proposed SR 72 typical section in this area is 35 mph. This speed is 10 mph lower than the existing posted speed limit. The following alternative intersection control strategies were initially analyzed for this intersection:

- Conventional Traffic Signal
- Signalized Restricted Crossing U-Turn (RCUT)
- Signalized Thru-Cut
- Median U-Turn (MUT)
- Partial MUT
- Bowtie
- Two-lane (SR 72) x one-lane (Talon Boulevard/Ibis Street) roundabout
- Two-lane x two-lane roundabout

The opening year (2030) and design year (2050) Average Annual Daily Traffic (AADT) volumes documented in the SR 72 Project Traffic Analysis Report are provided in **Appendix C** along with the 2050 a.m. and p.m. peak hour volumes documented in this same report. The results of the CAP-X and SPICE analyses are summarized in **Table 1**. The CAP-X and SPICE analysis summary sheets for this intersection are provided in **Appendix D**.

Table 1: Stage 1 ICE Analysis Summary - Talon Boulevard/Ibis Street Intersection

	2050 V/C Ratios		Life-Cycle Crashes		SSI Scores	
Intersection Type	AM Peak Hour	PM Peak Hour	Total	Fatal & Injury	Opening Year	Design Year
Conventional Signalized Intersection	0.63	0.69	163	57	97	91
Signalized RCUT	0.81	0.85	359	83	98	96
Signalized Thru-Cut	0.60	0.65	n/a	n/a	97	92
Median U-Turn	0.89	0.91	139	40	98	95
Partial MUT	**1.17**	**1.13**	n/a	n/a	n/a	n/a
Bowtie	**1.05**	**1.08**	n/a	n/a	97	92
Roundabout (2EW x 1NS)	**1.58**	**1.59**	n/a	n/a	n/a	n/a
Roundabout (2EW x 2NS)	**1.56**	**1.54**	235	44	99	97

Lowest number of crashes of all alternatives analyzed

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

The conventional signalized intersection, signalized RCUT, signalized thru-cut, MUT, and PMUT alternatives would not provide positive speed control. Based on the second lowest number of fatal and injury crashes estimated to occur with the two-lane by two-lane roundabout alternative, the current construction of the Proctor Road/Dove Avenue roundabout to the east, the FDOT-approved

target speed of 35 mph for SR 72 west of Proctor Road/Dove Avenue, and the highest SSI score; the two-lane by two-lane roundabout alternative was advanced for more detailed traffic analysis.

Design year (2050) peak hour SIDRA analyses were subsequently conducted to determine the optimal geometry for the roundabout and the results are summarized in **Table 2.** With one exception, all of the intersection approaches are projected to operate under capacity during both peak hours. The westbound approach is projected to operate with a v/c ratio equal to 1.12 in the a.m. peak hour. Additional interim year SIDRA analyses were conducted and it was determined the capacity of the westbound approach would be exceeded in the year 2048. The design year SIDRA analysis summary sheets are provided in **Appendix E**.

Table 2: Design Year (2050) Peak Hour Operational Analysis Summary - Talon Boulevard/Ibis Street Roundabout

AM Peak Hour

Intersection Approach	V/C Ratio [1]	Avg. Delay	LOS
Northbound	0.92	47.3	E
Southbound	0.19	20.9	C
Westbound	**1.12**	100.3	F
Eastbound	0.70	12.7	B
Overall	1.12	48.6	E

PM Peak Hour

Intersection Approach	V/C Ratio [1]	Avg. Delay	LOS
Northbound	0.92	52.0	F
Southbound	0.14	13.6	B
Westbound	0.75	24.0	C
Eastbound	0.81	16.9	C
Overall	0.92	26.5	D

[1] *Highest volume-to-capacity ratio of any approach movements*

An initial geometric improvement concept was developed for this alternative and is provided in **Appendix F**. This roundabout alternative requires some additional right-of-way in the northwest and northeast quadrants of the intersection but does not result in any residential or business relocations.

RECOMMENDED INTERSECTION CONTROL STRATEGY

The implementation of a two-lane roundabout is expected to provide positive speed control in this area and help to facilitate the 35 mph design speed/target speed associated with the proposed SR 72 typical section. Reduced vehicle speeds will provide additional safety benefits for the older driving population that travels within the study corridor. The roundabout is projected to have the highest SSI score and the second lowest number of fatal and injury crashes and is expected to provide adequate capacity on all intersection approaches during the a.m. peak hour until the year 2048. Adequate capacity is projected for all four approaches in the p.m. peak hour through the year 2050. The implementation of a roundabout at this location is consistent with the roundabouts that were recently constructed further east on SR 72 at the Proctor Road/Dove Avenue and Lorraine Road intersections. Consequently, the PD&E study recommends a two-lane roundabout for the Talon Boulevard/Ibis Street intersection. A Benefit/Cost analysis, required for federally funded projects, will be conducted for this intersection using updated information during the final design phase of the project.

Appendix A

Existing Intersection Aerial

Figure 1: Existing SR 72 / Talon Boulevard / Ibis Street Intersection

Appendix B

Historic Crash Data

LOCATION	CRASH_YEAR	ON_STREET_RO	STREET_ADDRESS_NU	FEET_FROM_I	DIRECTION_FF	FROM_INTERSECTION_OF	LIGHT_CONDITION	WEATHER_CONDITION	ROAD_SURFACE_	TYPE_OF_IMPACT	LOCATION	JUNCTION_FLA	S4_CRASH_TYPE	S4_CRASH_TYPE_SI	S4_CRASH_SEVERIT	S4_INJURY_COUNT	S4_BICYCLIST_COUNT	S4_PEDESTRIAN_COUNT
Ibis	2020	IBIS AVE	12	South	CLARK RD	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2021	IBIS AVE	0		SR72	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2021	CLARK RD	0		TALON BLVD	Dawn	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2021	IBIS AVE	0		CLARK RD	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	Injury	1	0	0
Ibis	2017	SR-72 (CLARK RD)	0		IBIS ST	Dusk	Clear	Dry	Angle	On Roadway	Non-Junction	Left Leaving	Left Turn	Injury	4	0	0
Ibis	2017	SR72 (CLARK RD.)	0		IBIS ST	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2017	SR 72	0		IBIS ST	Dark - Not Lighted	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2017	CLARK RD	0		IBIS ST	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Entering	Left Turn	No Injury	0	0	0
Ibis	2017	SR72 (CLARK RD.)	0		IBIS ST.	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	Injury	3	0	0
Ibis	2018	SR-72(CLARK RD)	0		IBIS ST	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2018	IBIS AVE	0		CLARK RD	Daylight	Clear	Dry	Front to Rear	On Roadway	Intersection	Rear End	Rear End	No Injury	0	0	0
Ibis	2019	STATE ROAD 72 (CLARK ROAD)	49	East	TALON BLVD	Daylight	Clear	Dry	Front to Rear	On Roadway	Intersection-Re	Rear End	Rear End	Injury	5	0	0
Ibis	2019	SR 72 (CLARK RD)	0		IBIS ST	Dark - Lighted	Cloudy	Wet	Angle	On Roadway	Intersection	Left Leaving	Left Turn	Serious Injury	3	0	0
Ibis	2020	SR 72 (CLARK ROAD)	0		IBIS STREET	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2021	SR 72 (CLARK RD)	0		IBIS STREET	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2018	IBIS AVE	230	South	CLARK RD	Daylight	Rain	Wet	Front to Rear	On Roadway	Non-Junction	Rear End	Rear End	Injury	4	0	0
Ibis	2018	CLARK RD	0		IBIS AVE	Daylight	Cloudy	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2019	CLARK RD	10	West	IBIS AVE	Daylight	Clear	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2019	IBIS AVE	0		CLARK RD	Daylight	Cloudy	Dry	Angle	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	0	0	0
Ibis	2020	IBIS AVE	28	South	CLARK RD	Dark - Not Lighted	Clear	Dry	Angle	On Roadway	Intersection-Re	Right Angle/ Front to Side	Angle	Injury	1	0	0
e Ibis	2020	CLARK RD	35	East	IBIS AVE	Dark - Not Lighted	Clear	Dry		On Roadway	Through Roadw	Single Vehicle/ Hit Animal	Other	No Injury	0	0	0
															21		

Appendix C

Opening Year and Design Year Traffic Volumes

FIGURE 3-3: OPENING YEAR (2030) AADT VOLUMES - NO-BUILD ALTERNATIVE

FIGURE 3-2: DESIGN YEAR (2050) AADT VOLUMES - BUILD ALTERNATIVE

FIGURE 3-7: DESIGN YEAR (2050) AM PEAK HOUR VOLUMES - BUILD ALTERNATIVE

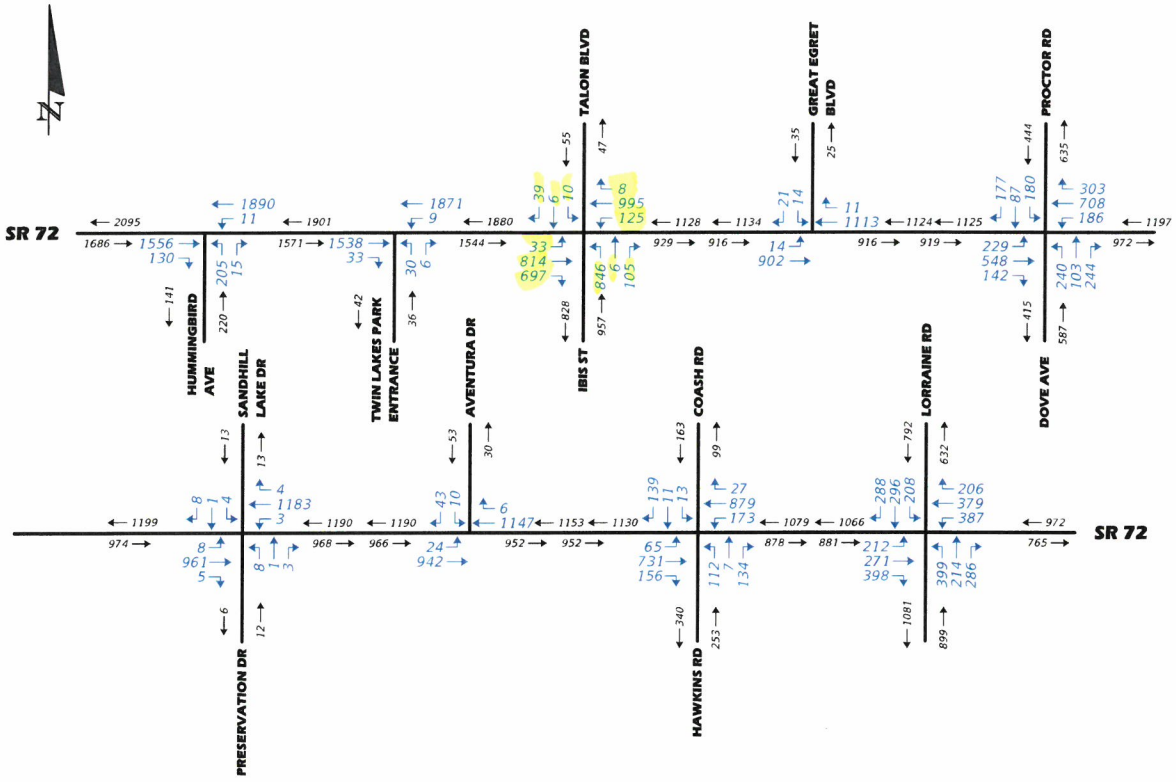
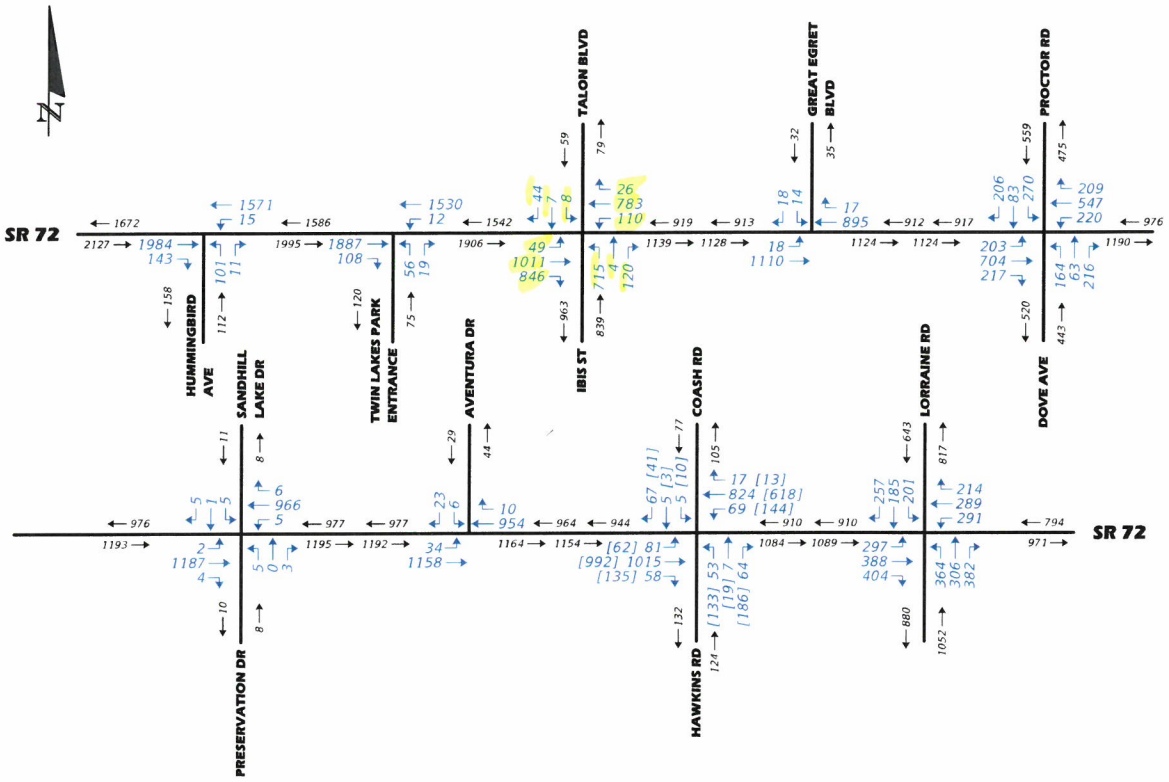


FIGURE 3-8: DESIGN YEAR (2050) PM PEAK HOUR VOLUMES - BUILD ALTERNATIVE



[2:45 - 3:45 PM]

Design year weekend (i.e., Saturday) peak hour volumes were also estimated for the Twin Lakes Park entrance/exit and the Talon Boulevard/Ibis Street intersection for the Build Alternative. The methodology used to estimate the 2050 weekend peak hour volumes for these two intersections consisted of the following steps:

- Step 1 – The 2022 weekday total peak hour entering volumes were calculated for both peak hours.
- Step 2 – The 2050 weekday total peak hour entering volumes were calculated for both peak hours.
- Step 3 – The overall growth in total peak hour weekday entering volumes was calculated for both peak hours and the average of these two values was calculated.
- Step 4 – The 2022 weekend peak hour intersection approach volumes were multiplied by the average overall growth in total peak hour weekday entering volumes calculated in Step 3. This yielded estimates of the 2050 weekend peak hour intersection approach volumes.
- Step 5 – The 2050 weekend peak hour intersection turning movement volumes were estimated by multiplying the 2050 weekend peak hour intersection approach volumes by the existing weekend peak hour turning movement percentages.

TALON BLVD/IBIS STREET INTERSECTION

DESIGN YEAR (2050) PEAK HOUR APPROACH TRUCK PERCENTAGES

AM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
33	0.00	814	0.08	697	0.04	1544	93	6.0%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
125	0.05	995	0.05	8	0.00	1128	56	5.0%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
846	0.02	6	0.00	105	0.09	957	26	2.8%
SB LT		SB TH		SB RT		SB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
10	0.00	6	0.00	39	0.03	55	1	2.1%
PM PEAK HOUR								
EB LT		EB TH		EB RT		EB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
49	0.00	1011	0.02	846	0.02	1906	37	1.9%
WB LT		WB TH		WB RT		WB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
110	0.00	783	0.02	26	0.02	919	16	1.8%
NB LT		NB TH		NB RT		NB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
715	0.02	4	0.00	120	0.00	839	14	1.7%
SB LT		SB TH		SB RT		SB APPROACH		
Vol.	Truck %	Vol.	Truck %	Vol.	Truck %	Vol.	Truck Vol.	Truck %
8	0.00	7	0.00	44	0.00	59	0	0.0%

Talon Boulevard/Ibis Street Intersection - AM Peak Hour Volumes

Mvmt	Year				
	2050	2030	2045	2047	2048
EB LT	33	24	31	32	32
EB TH	814	617	765	784	794
EB RT	697	320	603	640	659
WB LT	125	51	107	114	118
WB TH	995	649	909	943	960
WB RT	8	6	8	8	8
NB LT	846	335	718	769	795
NB TH	6	2	5	5	6
NB RT	105	38	88	95	98
SB LT	10	9	10	10	10
SB TH	6	3	5	6	6
SB RT	39	38	39	39	39

Appendix D

CAP-X and SPICE Analysis Summary Sheets

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Talon Boulevard/Ibis Street
Date:	Design Year (2050) AM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	33	814	697	6.00%	0.00%
Westbound	0	125	995	8	5.00%	0.00%
Southbound	0	10	6	39	2.10%	0.00%
Northbound	0	846	6	105	2.80%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

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

Number of Lanes for Interchanges

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

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									1067	0.63	0.63	5.05	4.71
Signalized Restricted Crossing U-Turn	E-W	1023	*0.57*	1455	0.81	1140	*0.63*	839	*0.47*			0.81	2.97	4.32
Median U-Turn	E-W					1158	*0.64*	995	*0.55*	1599	0.89	0.89	3.13	4.71
Signalized ThruCut	E-W									1042	0.60	0.60	3.88	4.66

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			
1NS X 2EW	*0.24*			*0.69*	*0.73*		1.58			1.00	1.01		1.58	4.89	4.62
2 X 2	*0.08*	*0.17*		1.00	1.01		1.56	0.18		*0.69*	*0.73*		1.56	4.60	4.54

Results for Interchanges

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

Capacity Analysis for Planning of Junctions

Detailed Report - Page 1 of 4

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road
Project Number:	FPID No. 444634-1-22-01
Location:	SR 72 at Talon Boulevard/Ibis Street
Date:	Design Year (2050) PM Peak Hour
Number of Intersection Legs:	4
Major Street Direction:	East-West

Traffic Volume Demand

	Volume (Veh/hr)				Percent (%)	
	U-Turn	Left	Thru	Right	Heavy Vehicles	Volume Growth
Eastbound	0	49	1011	846	1.90%	0.00%
Westbound	0	110	783	26	1.80%	0.00%
Southbound	0	8	7	44	0.00%	0.00%
Northbound	0	715	4	120	1.70%	0.00%
Adjustment Factor	0.80	0.95		0.85		
Suggested	**0.80**	**0.95**		**0.85**		

Truck to PCE Factor	**Suggested = 2.00**	2.00
FDOT Context Zone	**C3R-Suburban Residential**	
E-W / Crossing East-West Legs	**Low**	**Low**	**Low**
N-S / Crossing North-South Legs	**Low**	**Low**	**Low**
Critical Lane Volume Threshold — 2-phase signal	**Suggested = 1800**	**1800**
Critical Lane Volume Threshold — 3-phase signal	**Suggested = 1750**	**1750**
Critical Lane Volume Threshold — 4-phase signal	**Suggested = 1700**	**1700**

Capacity Analysis for Planning of Junctions

Detailed Report - Page 2 of 4

Number of Lanes for Non-roundabout Intersections

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

Number of Lanes for Interchanges

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

Capacity Analysis for Planning of Junctions

Detailed Report - Page 3 of 4

Results for Non-roundabout Intersections

TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
		CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C			
Traffic Signal	FULL									1167	0.69	0.69	5.05	4.71
Signalized Restricted Crossing U-Turn	E-W	1092	*0.61*	1524	0.85	924	*0.51*	990	*0.55*			0.85	2.97	4.32
Median U-Turn	E-W					953	*0.53*	1121	*0.62*	1645	0.91	0.91	3.13	4.71
Signalized ThruCut	E-W									1135	0.65	0.65	3.88	4.66

Capacity Analysis for Planning of Junctions

Detailed Report - Page 4 of 4

Results for Roundabouts

TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ped Accommodations	Bicycle Accommodations
	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3			
1NS X 2EW	*0.18*			0.80	0.85		1.59			*0.70*	*0.71*		1.59	4.89	4.62
2 X 2	*0.05*	*0.13*		*0.70*	*0.71*		1.54	0.24		0.80	0.85		1.54	4.60	4.54

Results for Interchanges

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

Florida Department of Transportation
Safety Performance for Intersection Control Evaluation Tool

Results

Summary of crash prediction results for each alternative

Project Information

Project Name:	SR 72 PD&E Study from East of I-75 to Lorraine Road	**Intersection Type**	At-Grade Intersection
Intersection:	Talon Boulevard/Ibis Street	**Opening Year**	2030
Agency:	FDOT District One	**Design Year**	2050
Project Reference:	FPID No.: 444634-1-22-01	**Facility Type**	On Urban and Suburban Arterial
City:	Sarasota County	**Number of Legs**	4-leg
State:	Florida	**1-Way/2-Way**	2-way Intersecting 2-way
Date:	9/11/2023	**# of Major Street Lanes (both directions)**	5 or fewer
Analyst:	AIM Engineering & Surveying, Inc.	**Major Street Approach Speed**	Less than 55 mph

Crash Prediction Summary

Control Strategy	Crash Type	Opening Year	Design Year	Total Project Life Cycle	Crash Prediction Rank	AADT Within SPF Prediction Range?	Source of Prediction	SSI Score: Opening Year	SSI Score: Design Year	SSI Score: Rank
Traffic Signal	Total	5.28	10.37	163.34	3	Yes	Calibrated SPF	97	91	6
	Fatal & Injury	1.80	3.64	56.60						
2-lane Roundabout	Total	7.81	14.66	234.92	2	No	Uncalibrated SPF	99	97	1
	Fatal & Injury	1.40	2.80	43.71						
Median U-Turn (MUT)	Total	4.49	8.81	138.84	1	N/A	CMF	98	95	3
	Fatal & Injury	1.26	2.55	39.62						
Signalized RCUT	Total	10.33	24.43	358.78	4	Yes	Uncalibrated SPF	98	96	2
	Fatal & Injury	2.24	5.89	83.36						
Signalized Thru-Cut	Total	No SPF	No SPF	No SPF	--	N/A	N/A	97	92	4
	Fatal & Injury	No SPF	No SPF	No SPF						
Bowtie	Total	No SPF	No SPF	No SPF	--	N/A	N/A	97	92	5
	Fatal & Injury	No SPF	No SPF	No SPF						
			--	--						
			--	--						

Appendix E

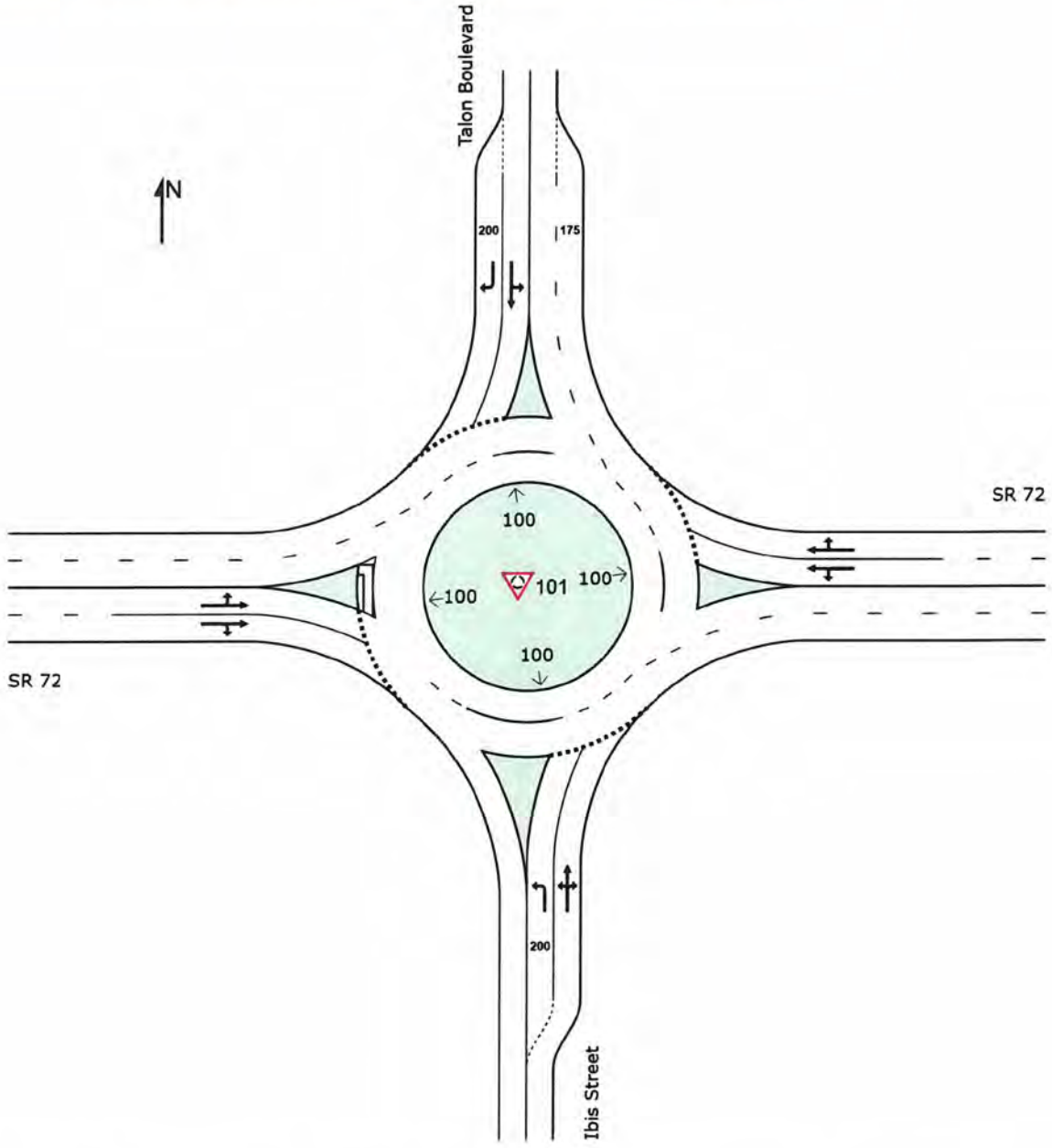
Design Year SIDRA Analysis Summary Sheets

SITE LAYOUT

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Design Year (2050) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

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



Organisation: AIM ENGINEERING AND SURVEYING | Licence: NETWORK / 1PC | Created: Monday, May 8, 2023 11:50:32 AM
Project: T:\PROJECTS\2 - DISTRICT 1\D1_SR 72_PD&E\Traffic\Roundabout Analysis\Design Year\Updated Analyses\Talon_Ibis_2050_Build Alt 2_AM Pk Hr_Rev_3_27_2023.sip9

MOVEMENT SUMMARY

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Ibis Street															
3	L2	All MCs	891	2.0	891	2.0	0.920	47.1	LOS E	11.6	296.8	0.96	1.53	2.91	19.9
8	T1	All MCs	6	0.0	6	0.0	0.920	46.8	LOS E	11.6	296.8	0.96	1.54	2.94	20.4
18	R2	All MCs	111	9.0	111	9.0	0.920	48.8	LOS E	11.6	296.8	0.96	1.54	2.94	20.2
Approach			1007	2.8	1007	2.8	0.920	47.3	LOS E	11.6	296.8	0.96	1.53	2.91	19.9
East: SR 72															
1	L2	All MCs	132	5.0	132	5.0	1.118	101.9	LOS F	29.2	759.1	1.00	2.57	6.20	13.7
6	T1	All MCs	1047	5.0	1047	5.0	1.118	100.1	LOS F	31.6	821.4	1.00	2.64	6.40	14.0
16	R2	All MCs	8	0.0	8	0.0	1.118	98.8	LOS F	31.6	821.4	1.00	2.70	6.54	14.1
Approach			1187	5.0	1187	5.0	1.118	100.3	LOS F	31.6	821.4	1.00	2.64	6.38	14.0
North: Talon Boulevard															
7	L2	All MCs	11	0.0	11	0.0	0.080	18.9	LOS C	0.2	5.9	0.85	0.85	0.85	26.7
4	T1	All MCs	6	0.0	6	0.0	0.080	18.9	LOS C	0.2	5.9	0.85	0.85	0.85	27.1
14	R2	All MCs	41	3.0	41	3.0	0.193	21.8	LOS C	0.5	12.6	0.85	0.85	0.87	26.7
Approach			58	2.1	58	2.1	0.193	20.9	LOS C	0.5	12.6	0.85	0.85	0.87	26.8
West: SR 72															
5	L2	All MCs	35	0.0	35	0.0	0.695	12.1	LOS B	6.3	165.9	0.62	0.31	0.62	29.8
2	T1	All MCs	857	8.0	857	8.0	0.695	12.9	LOS B	6.5	167.6	0.62	0.31	0.62	30.2
12	R2	All MCs	734	4.0	734	4.0	0.695	12.5	LOS B	6.5	167.6	0.62	0.31	0.62	30.1
Approach			1625	6.0	1625	6.0	0.695	12.7	LOS B	6.5	167.6	0.62	0.31	0.62	30.1
All Vehicles			3878	4.8	3878	4.8	1.118	48.6	LOS E	31.6	821.4	0.83	1.35	2.98	20.2

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

LANE SUMMARY

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Ibis Street															
Lane 1	485	2.0	485	2.0	528	0.920	100	48.3	LOS E	11.4	289.6	Short	200	0.0	NA
Lane 2[d]	522	3.5	522	3.5	567	0.920	100	46.3	LOS E	11.6	296.8	Full	1600	0.0	0.0
Approach	1007	2.8	1007	2.8		0.920		47.3	LOS E	11.6	296.8				
East: SR 72															
Lane 1	564	5.0	564	5.0	505	1.118	100	101.9	LOS F	29.2	759.1	Full	1600	0.0	0.0
Lane 2[d]	623	4.9	623	4.9	558	1.118	100	98.8	LOS F	31.6	821.4	Full	1600	0.0	0.0
Approach	1187	5.0	1187	5.0		1.118		100.3	LOS F	31.6	821.4				
North: Talon Boulevard															
Lane 1	17	0.0	17	0.0	211	0.080	100	18.9	LOS C	0.2	5.9	Full	1600	0.0	0.0
Lane 2[d]	41	3.0	41	3.0	213	0.193	100	21.8	LOS C	0.5	12.6	Short	200	0.0	NA
Approach	58	2.1	58	2.1		0.193		20.9	LOS C	0.5	12.6				
West: SR 72															
Lane 1	799	7.7	799	7.7	1148	0.695	100	12.8	LOS B	6.3	165.9	Full	1600	0.0	0.0
Lane 2[d]	827	4.4	827	4.4	1189	0.695	100	12.5	LOS B	6.5	167.6	Full	1600	0.0	0.0
Approach	1625	6.0	1625	6.0		0.695		12.7	LOS B	6.5	167.6				
All Vehicles	3878	4.8	3878	4.8		1.118		48.6	LOS E	31.6	821.4				

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

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Ibis Street

Mov. From S To Exit	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	485	-	-	485	2.0	528	0.920	100	17.3	2
Lane 2	405	6	111	522	3.5	567	0.920	100	NA	NA

Approach	891	6	111	1007	2.8		0.920			

East: SR 72

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	132	432	-	564	5.0	505	1.118	100	NA	NA
Lane 2	-	615	8	623	4.9	558	1.118	100	NA	NA
Approach	132	1047	8	1187	5.0		1.118			

North: Talon Boulevard

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	11	6	-	17	0.0	211	0.080	100	NA	NA
Lane 2	-	-	41	41	3.0	213	0.193	100	0.0	1
Approach	11	6	41	58	2.1		0.193			

West: SR 72

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	35	764	-	799	7.7	1148	0.695	100	NA	NA
Lane 2	-	93	734	827	4.4	1189	0.695	100	NA	NA
Approach	35	857	734	1625	6.0		0.695			

	Total	%HV	Deg.Satn (v/c)
All Vehicles	3878	4.8	1.118

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
North Exit: Talon Boulevard Merge Type: **Priority**												
Exit Short Lane	2	175	0.0	35	35	3.00	2.00	14	1766	0.008	2.0	2.1
Merge Lane	1	-	100.0	Merge Lane is not Opposed				35	1800	0.019	0.0	0.0

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Ibis Street				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: SR 72				
Lane 1	0.0	14.8	105.8	NA
Lane 2	0.0	16.4	105.8	NA
North: Talon Boulevard				

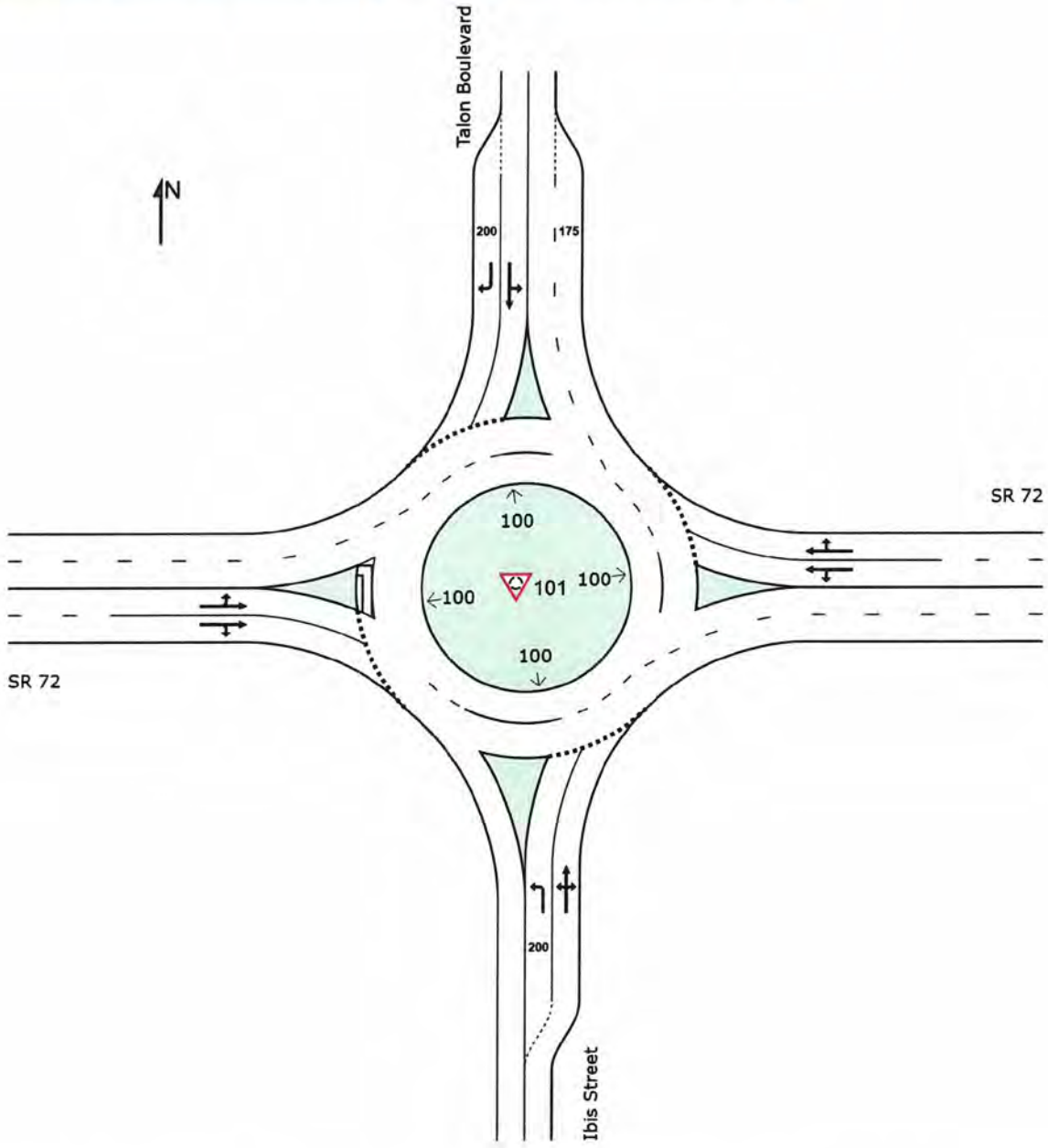
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: SR 72				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

SITE LAYOUT

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Design Year (2050) Build Alternative 2 - PM Peak Hour
Site Category: (None)
Roundabout

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



MOVEMENT SUMMARY

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Ibis Street															
3	L2	All MCs	753	2.0	753	2.0	0.922	52.5	LOS F	9.9	251.6	0.96	1.46	2.75	19.1
8	T1	All MCs	4	0.0	4	0.0	0.922	51.2	LOS F	9.9	251.6	0.95	1.47	2.77	19.8
18	R2	All MCs	126	0.0	126	0.0	0.922	49.0	LOS E	9.9	251.6	0.95	1.47	2.77	19.7
Approach			883	1.7	883	1.7	0.922	52.0	LOS F	9.9	251.6	0.96	1.47	2.75	19.2
East: SR 72															
1	L2	All MCs	116	0.0	116	0.0	0.752	24.4	LOS C	6.4	162.6	0.87	1.08	1.70	25.5
6	T1	All MCs	824	2.0	824	2.0	0.752	23.9	LOS C	6.6	166.7	0.86	1.07	1.70	26.3
16	R2	All MCs	27	2.0	27	2.0	0.752	25.4	LOS D	6.6	166.7	0.86	1.07	1.70	26.5
Approach			967	1.8	967	1.8	0.752	24.0	LOS C	6.6	166.7	0.87	1.07	1.70	26.2
North: Talon Boulevard															
7	L2	All MCs	8	0.0	8	0.0	0.057	14.1	LOS B	0.2	4.4	0.80	0.80	0.80	28.4
4	T1	All MCs	7	0.0	7	0.0	0.057	14.1	LOS B	0.2	4.4	0.80	0.80	0.80	28.9
14	R2	All MCs	46	0.0	46	0.0	0.141	13.4	LOS B	0.4	11.1	0.79	0.79	0.79	29.8
Approach			62	0.0	62	0.0	0.141	13.6	LOS B	0.4	11.1	0.80	0.80	0.80	29.5
West: SR 72															
5	L2	All MCs	52	0.0	52	0.0	0.814	16.7	LOS C	15.8	402.0	0.84	0.50	0.99	28.3
2	T1	All MCs	1064	2.0	1064	2.0	0.814	16.9	LOS C	15.9	403.0	0.84	0.50	0.99	28.8
12	R2	All MCs	891	2.0	891	2.0	0.814	16.9	LOS C	15.9	403.0	0.84	0.50	0.99	28.4
Approach			2006	1.9	2006	1.9	0.814	16.9	LOS C	15.9	403.0	0.84	0.50	0.99	28.6
All Vehicles			3919	1.8	3919	1.8	0.922	26.5	LOS D	15.9	403.0	0.87	0.86	1.56	25.2

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

LANE SUMMARY

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Design Year (2050) Build Alternative 2 - PM Peak Hour
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Ibis Street															
Lane 1	411	2.0	411	2.0	446	0.922	100	54.4	LOS F	9.3	235.4	Short	200	0.0	NA
Lane 2[d]	472	1.4	472	1.4	512	0.922	100	49.8	LOS E	9.9	251.6	Full	1600	0.0	0.0
Approach	883	1.7	883	1.7		0.922		52.0	LOS F	9.9	251.6				
East: SR 72															
Lane 1	462	1.5	462	1.5	614	0.752	100	24.9	LOS C	6.4	162.6	Full	1600	0.0	0.0
Lane 2[d]	506	2.0	506	2.0	672	0.752	100	23.3	LOS C	6.6	166.7	Full	1600	0.0	0.0
Approach	967	1.8	967	1.8		0.752		24.0	LOS C	6.6	166.7				
North: Talon Boulevard															
Lane 1	16	0.0	16	0.0	276	0.057	100	14.1	LOS B	0.2	4.4	Full	1600	0.0	0.0
Lane 2[d]	46	0.0	46	0.0	328	0.141	100	13.4	LOS B	0.4	11.1	Short	200	0.0	NA
Approach	62	0.0	62	0.0		0.141		13.6	LOS B	0.4	11.1				
West: SR 72															
Lane 1[d]	1004	1.9	1004	1.9	1233	0.814	100	16.9	LOS C	15.8	402.0	Full	1600	0.0	0.0
Lane 2	1003	2.0	1003	2.0	1232	0.814	100	16.9	LOS C	15.9	403.0	Full	1600	0.0	0.0
Approach	2006	1.9	2006	1.9		0.814		16.9	LOS C	15.9	403.0				
All Vehicles	3919	1.8	3919	1.8		0.922		26.5	LOS D	15.9	403.0				

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

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Ibis Street

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	411	-	-	411	2.0	446	0.922	100	10.0	2
Lane 2	341	4	126	472	1.4	512	0.922	100	NA	NA

Approach	753	4	126	883	1.7		0.922			

East: SR 72

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	116	346	-	462	1.5	614	0.752	100	NA	NA
Lane 2	-	478	27	506	2.0	672	0.752	100	NA	NA
Approach	116	824	27	967	1.8		0.752			

North: Talon Boulevard

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	8	7	-	16	0.0	276	0.057	100	NA	NA
Lane 2	-	-	46	46	0.0	328	0.141	100	0.0	1
Approach	8	7	46	62	0.0		0.141			

West: SR 72

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	52	952	-	1004	1.9	1233	0.814	100	NA	NA
Lane 2	-	112	891	1003	2.0	1232	0.814	100	NA	NA
Approach	52	1064	891	2006	1.9		0.814			

	Total	%HV	Deg.Satn (v/c)
All Vehicles	3919	1.8	0.922

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
North Exit: Talon Boulevard Merge Type: **Priority**												
Exit Short Lane	2	175	0.0	52	52	3.05	2.03	32	1718	0.018	2.1	2.2
Merge Lane	1	-	100.0	Merge Lane is not Opposed				52	1800	0.029	0.0	0.0

Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Ibis Street				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: SR 72				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
North: Talon Boulevard				

Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: SR 72				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

MOVEMENT SUMMARY

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Interim Year (2048) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Ibis Street															
3	L2	All MCs	837	2.0	837	2.0	0.845	35.4	LOS E	8.3	213.9	0.91	1.30	2.25	22.1
8	T1	All MCs	6	0.0	6	0.0	0.845	35.4	LOS E	8.3	213.9	0.91	1.30	2.26	22.7
18	R2	All MCs	103	9.0	103	9.0	0.845	37.1	LOS E	8.3	213.9	0.91	1.30	2.26	22.5
Approach			946	2.7	946	2.7	0.845	35.6	LOS E	8.3	213.9	0.91	1.30	2.25	22.1
East: SR 72															
1	L2	All MCs	124	5.0	124	5.0	1.018	69.9	LOS F	19.2	499.7	1.00	2.00	4.24	17.0
6	T1	All MCs	1011	5.0	1011	5.0	1.018	68.1	LOS F	20.5	531.9	1.00	2.03	4.33	17.5
16	R2	All MCs	8	0.0	8	0.0	1.018	67.0	LOS F	20.5	531.9	1.00	2.06	4.39	17.6
Approach			1143	5.0	1143	5.0	1.018	68.3	LOS F	20.5	531.9	1.00	2.03	4.32	17.4
North: Talon Boulevard															
7	L2	All MCs	11	0.0	11	0.0	0.080	19.0	LOS C	0.2	6.0	0.86	0.86	0.86	26.7
4	T1	All MCs	6	0.0	6	0.0	0.080	19.0	LOS C	0.2	6.0	0.86	0.86	0.86	27.1
14	R2	All MCs	41	3.0	41	3.0	0.194	22.0	LOS C	0.5	12.7	0.85	0.86	0.88	26.7
Approach			58	2.1	58	2.1	0.194	21.1	LOS C	0.5	12.7	0.85	0.86	0.87	26.7
West: SR 72															
5	L2	All MCs	34	0.0	34	0.0	0.672	11.4	LOS B	5.7	151.2	0.60	0.30	0.60	30.1
2	T1	All MCs	836	8.0	836	8.0	0.672	12.2	LOS B	5.9	152.7	0.60	0.30	0.60	30.5
12	R2	All MCs	694	4.0	694	4.0	0.672	11.9	LOS B	5.9	152.7	0.60	0.30	0.60	30.3
Approach			1563	6.1	1563	6.1	0.672	12.1	LOS B	5.9	152.7	0.60	0.30	0.60	30.4
All Vehicles			3711	4.8	3711	4.8	1.018	35.5	LOS E	20.5	531.9	0.81	1.10	2.17	22.9

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

LANE SUMMARY

Site: 101 [Talon Blvd/Ibis Street (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Interim Year (2048) Build Alternative 2 - AM Peak Hour
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Ibis Street															
Lane 1	456	2.0	456	2.0	540	0.845	100	36.5	LOS E	8.3	210.7	Short	200	0.0	NA
Lane 2[d]	490	3.4	490	3.4	580	0.845	100	34.7	LOS D	8.3	213.9	Full	1600	0.0	0.0
Approach	946	2.7	946	2.7		0.845		35.6	LOS E	8.3	213.9				
East: SR 72															
Lane 1	544	5.0	544	5.0	534	1.018	100	69.9	LOS F	19.2	499.7	Full	1600	0.0	0.0
Lane 2[d]	599	4.9	599	4.9	589	1.018	100	66.9	LOS F	20.5	531.9	Full	1600	0.0	0.0
Approach	1143	5.0	1143	5.0		1.018		68.3	LOS F	20.5	531.9				
North: Talon Boulevard															
Lane 1	17	0.0	17	0.0	210	0.080	100	19.0	LOS C	0.2	6.0	Full	1600	0.0	0.0
Lane 2[d]	41	3.0	41	3.0	211	0.194	100	22.0	LOS C	0.5	12.7	Short	200	0.0	NA
Approach	58	2.1	58	2.1		0.194		21.1	LOS C	0.5	12.7				
West: SR 72															
Lane 1	768	7.6	768	7.6	1143	0.672	100	12.2	LOS B	5.7	151.2	Full	1600	0.0	0.0
Lane 2[d]	795	4.5	795	4.5	1183	0.672	100	11.9	LOS B	5.9	152.7	Full	1600	0.0	0.0
Approach	1563	6.1	1563	6.1		0.672		12.1	LOS B	5.9	152.7				
All Vehicles	3711	4.8	3711	4.8		1.018		35.5	LOS E	20.5	531.9				

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

d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)

South: Ibis Street

Mov. From S To Exit:	L2 W	T1 N	R2 E	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	456	-	-	456	2.0	540	0.845	100	6.6	2
Lane 2	381	6	103	490	3.4	580	0.845	100	NA	NA

Approach	837	6	103	946	2.7		0.845			

East: SR 72

Mov. From E To Exit:	L2 S	T1 W	R2 N	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	124	420	-	544	5.0	534	1.018	100	NA	NA
Lane 2	-	591	8	599	4.9	589	1.018	100	NA	NA
Approach	124	1011	8	1143	5.0		1.018			

North: Talon Boulevard

Mov. From N To Exit:	L2 E	T1 S	R2 W	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	11	6	-	17	0.0	210	0.080	100	NA	NA
Lane 2	-	-	41	41	3.0	211	0.194	100	0.0	1
Approach	11	6	41	58	2.1		0.194			

West: SR 72

Mov. From W To Exit:	L2 N	T1 E	R2 S	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	34	735	-	768	7.6	1143	0.672	100	NA	NA
Lane 2	-	101	694	795	4.5	1183	0.672	100	NA	NA
Approach	34	836	694	1563	6.1		0.672			

	Total	%HV	Deg.Satn (v/c)
All Vehicles	3711	4.8	1.018

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec
North Exit: Talon Boulevard Merge Type: **Priority**												
Exit Short Lane	2	175	0.0	34	34	3.00	2.00	15	1767	0.008	2.0	2.1
Merge Lane	1	-	100.0	Merge Lane is not Opposed				34	1800	0.019	0.0	0.0

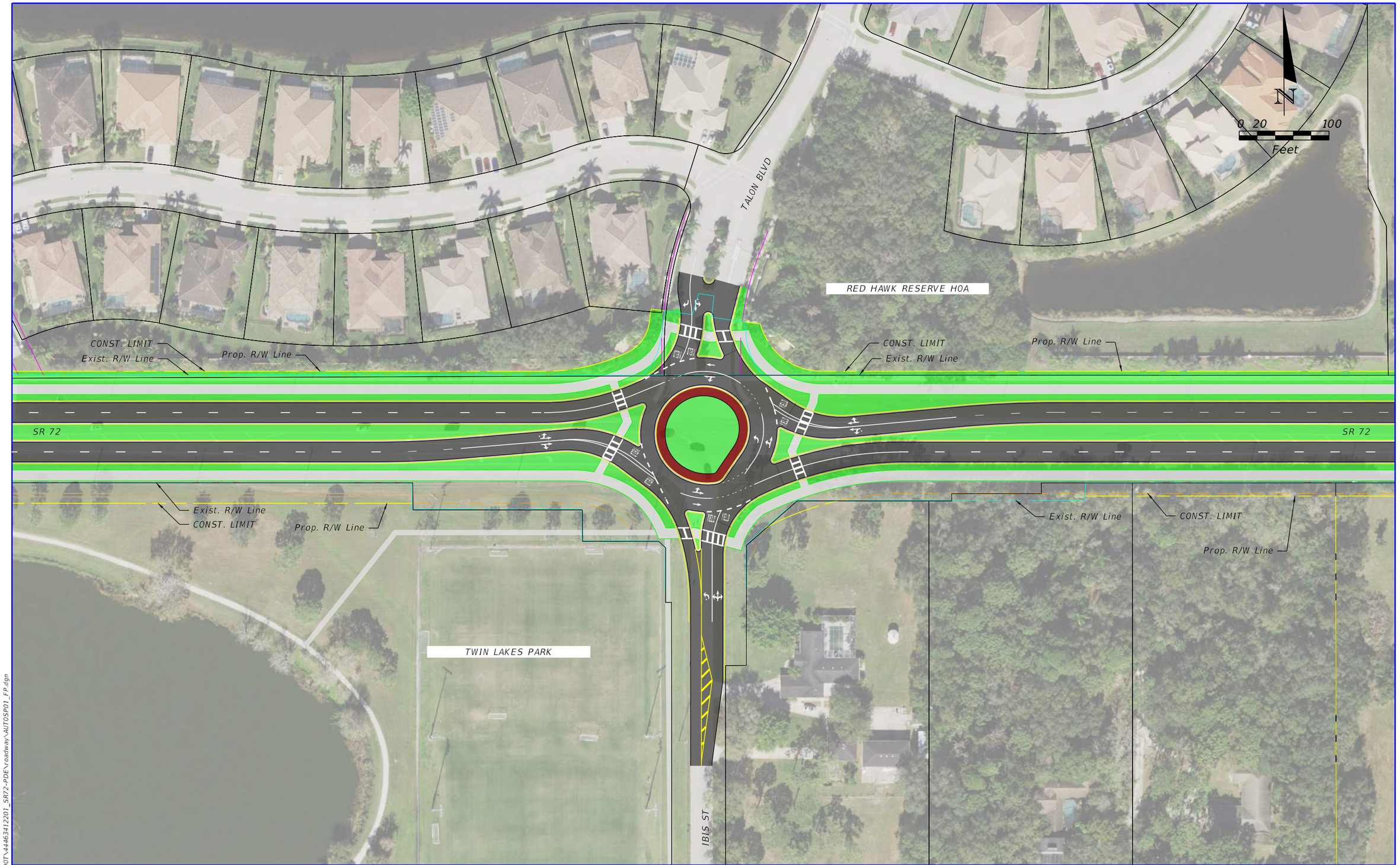
Variable Demand Analysis

	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: Ibis Street				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
East: SR 72				
Lane 1	0.0	2.5	16.6	NA
Lane 2	0.0	2.7	16.6	NA
North: Talon Boulevard				

Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0
West: SR 72				
Lane 1	0.0	0.0	0.0	0.0
Lane 2	0.0	0.0	0.0	0.0

Appendix F

Preliminary Roundabout Concept and Performance Checks



REVISIONS				DRAFT SEPTEMBER 7, 2023	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CONCEPT PLAN IBIS STREET INTERSECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					72	SARASOTA	444634-1		1

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REVISIONS				DRAFT SEPTEMBER 7, 2023	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CONTROL VEHICLE EXHIBIT IBIS STREET INTERSECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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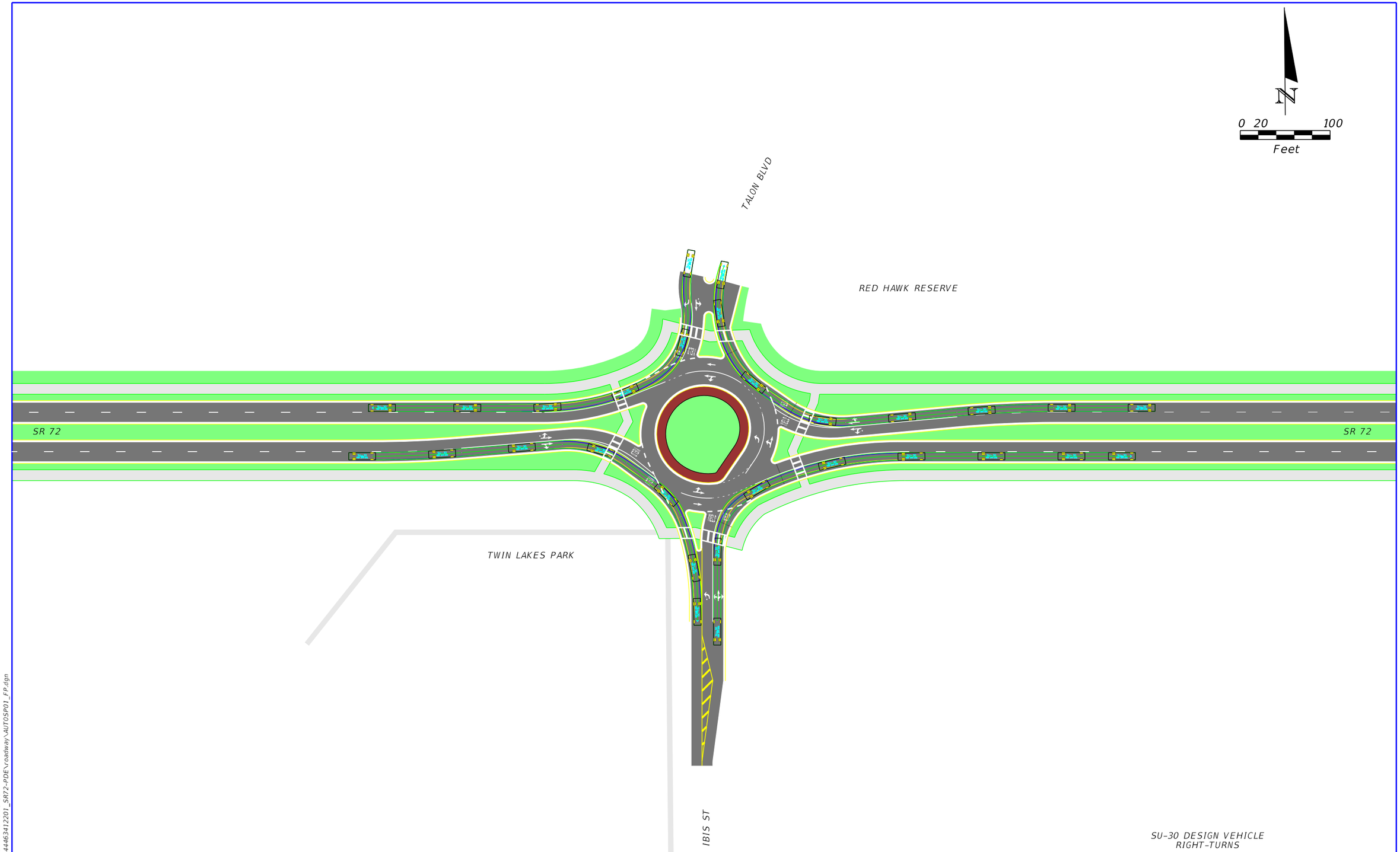

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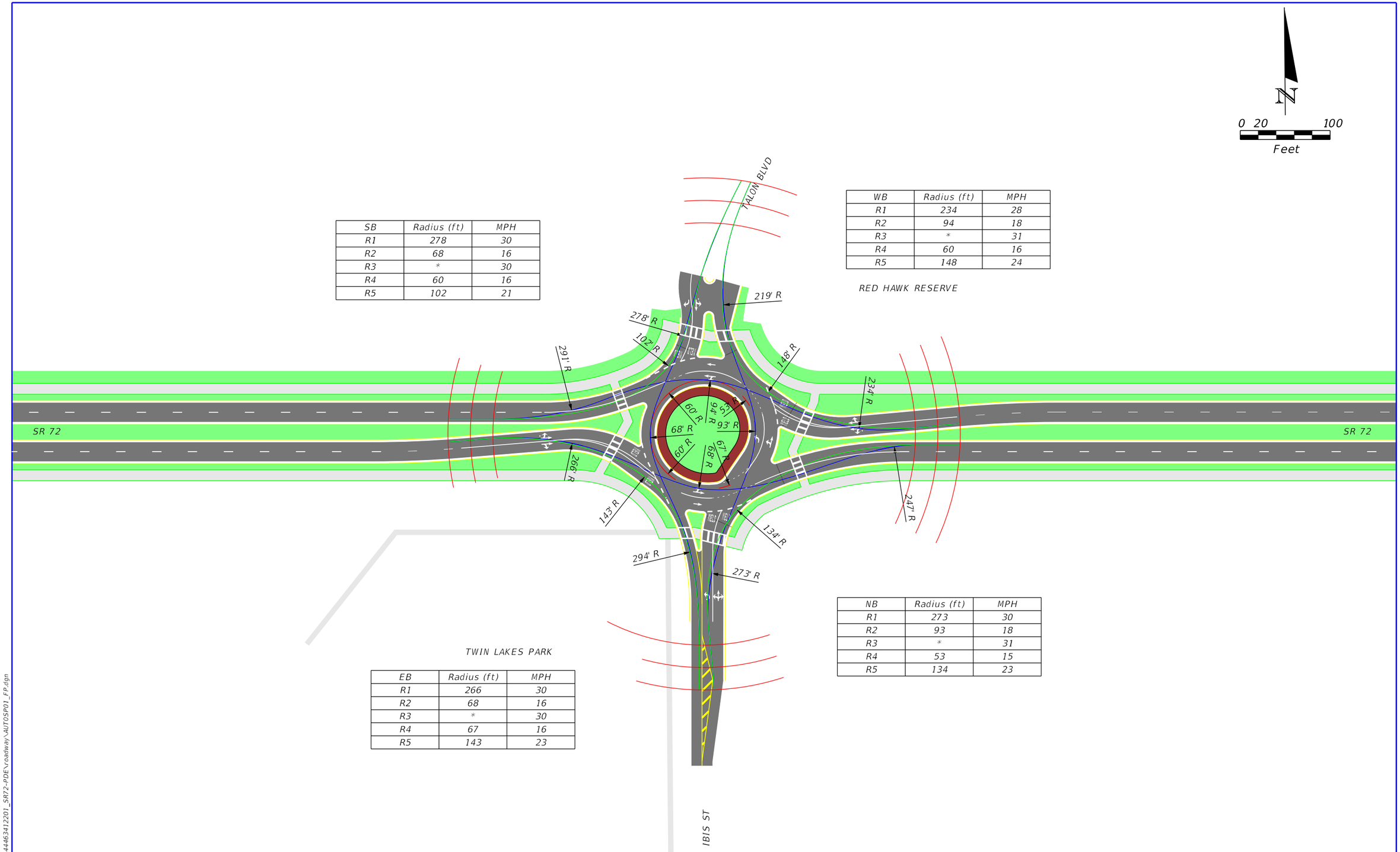

SB	Radius (ft)	MPH
R1	278	30
R2	68	16
R3	*	30
R4	60	16
R5	102	21

WB	Radius (ft)	MPH
R1	234	28
R2	94	18
R3	*	31
R4	60	16
R5	148	24

RED HAWK RESERVE

NB	Radius (ft)	MPH
R1	273	30
R2	93	18
R3	*	31
R4	53	15
R5	134	23

TWIN LAKES PARK

EB	Radius (ft)	MPH
R1	266	30
R2	68	16
R3	*	30
R4	67	16
R5	143	23

9/11/2023 10:47:15 AM Eric.Benson
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRAFT
SEPTEMBER 7, 2023

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
72	SARASOTA	444634-1

FASTEST PATH EXHIBIT
IBIS STREET INTERSECTION

SHEET NO. 1A