Operational Analysis Report

Florida Department of Transportation

District One

SR 865 (San Carlos Boulevard)

From South of Estero Boulevard to CR 869 (Summerlin Road)

Lee County, Florida

Financial Project ID: 433726-1-22-01

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding (MOU) dated December 14, 2016 and executed by the Federal Highway Administration and FDOT.

December 2018

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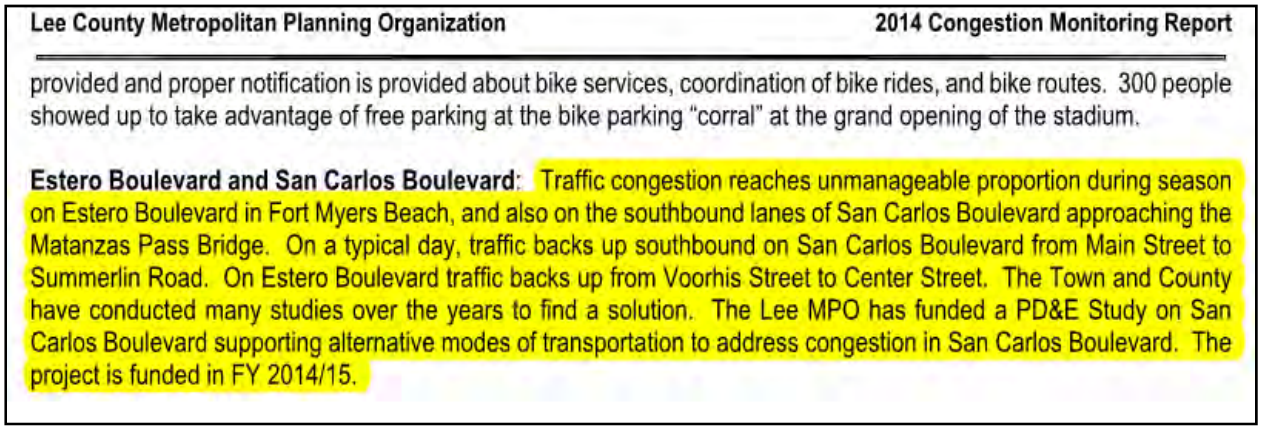
1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The State Road (SR) 865 (San Carlos Boulevard) study limits begin at Crescent Street, approximately 570 feet (ft) south of SR 865 milepost (M.P.) 0.000 and terminate to the north at M.P. 3.132, approximately the north side ramps for CR 865 (Summerlin Road) located in Lee County, Florida. SR 865 (San Carlos Boulevard) is an urban minor arterial that connects Lee County and the Town of Fort Myers, Florida to the barrier islands of San Carlos and Estero (Florida Department of Transportation (FDOT) Roadway Section Number 12004000). SR 865 serves as the primary evacuation route for approximately 9,000 permanent full-time residents within the area and is the only access to the area for approximately 11.5 miles to the next adjacent bridge to the south that could provide access to the area (Bonita Beach Road/County Road (CR) 865). The project location map is shown in **Figure 1-1**.

1.2 PROJECT BACKGROUND

The flow of traffic in the Town of Ft Myers Beach has been the subject of over thirty-three studies to handle vehicular and pedestrian traffic over the past twenty years; these projects were initiated by local agencies or municipalities. The FDOT was asked by the Lee County Metropolitan Planning Organization (MPO) to engage stakeholders and identify needs along the corridor including solutions for the significant back-ups that occur. During peak season, several bottlenecks contribute to significant backups both onto and off the beach. During these peaks, southbound backups can extend over two miles from Prescott Street/Buttonwood Drive (M.P. 0.900) to CR 869 eastbound ramps (M.P. 3.104). Northbound, the queue has been observed to be over 1.75 miles south of the Times Square pedestrian signal. These backups, or queues, are the resultant of several bottlenecks having a compound effect upon the progressive movement of traffic along SR 865. The Lee County Congestion Management Report states on Page 29:



Lee County Metropolitan Planning Organization 2014 Congestion Monitoring Report

provided and proper notification is provided about bike services, coordination of bike rides, and bike routes. 300 people showed up to take advantage of free parking at the bike parking "corral" at the grand opening of the stadium.

Estero Boulevard and San Carlos Boulevard: Traffic congestion reaches unmanageable proportion during season on Estero Boulevard in Fort Myers Beach, and also on the southbound lanes of San Carlos Boulevard approaching the Matanzas Pass Bridge. On a typical day, traffic backs up southbound on San Carlos Boulevard from Main Street to Summerlin Road. On Estero Boulevard traffic backs up from Voorhis Street to Center Street. The Town and County have conducted many studies over the years to find a solution. The Lee MPO has funded a PD&E Study on San Carlos Boulevard supporting alternative modes of transportation to address congestion in San Carlos Boulevard. The project is funded in FY 2014/15.

In addition to addressing the backups, the stakeholder conversations held in September of 2014 identified the following items to pursue:

- Addition of bike lanes,
- Bridge sidewalk gaps,
- Retain center turn lane,
- Install parking lot information system,
- Design road with two lanes in each direction,
- Build alternating peak direction lane (Estero Blvd. to Main St.),

- Installation of southbound toll booth,
- Add street lighting for pedestrians,
- Trolley Analysis,
    - Increase Trolley Service to less than 20-minute headways,
    - Complete dedicated trolley lane,
    - Mixed-Use Right-Turn Lane,
    - Remove dedicated trolley lane,
- Extension of the study area south of FDOT's right of way to include all the way to Estero Boulevard at Crescent Street.

Figure 1-1: Project Location Map

1.3 PURPOSE OF REPORT

This Operational Analysis Report (OAR) has been prepared to document the review of previous studies; summarize the traffic operations analysis conducted; identify needs; and develop feasible improvements for SR 865 (San Carlos Boulevard) from Crescent Street to CR 865 (Summerlin Road) located in Lee County, Florida. Preliminary engineering plans were developed to address operational deficiencies. Conceptual design plans for the improvements are provided in this report for the project, along with cost estimates and documentation of benefits of the project to provide for a more defined course of action that FDOT, Lee County, Town of Fort Myers Beach and surrounding communities can implement to improve traffic flow.

2 EXISTING CONDITIONS

2.1 ROADWAY

2.1.1 Functional and Context Classification

SR 865 is an urban minor arterial within the study limits. Its context classification is Urban General (C4) from the beginning of the study to Main Street and Suburban Commercial (C3C) from Main Street to the end of the study.

2.1.2 Access Management

SR 865 is Access Class 4 from the beginning of the study to Main Street and Access Class 7 from Main Street to the end of the study. Spacing requirements for each Access Class is shown in **Table 2-1**.

Table 2-1: Arterial Access Classifications & Standards from Rule 14-97

Access Class	Median Type	Connection Spacing (feet)		Median Opening Spacing (feet)		Signal Spacing (feet)
		>45 mph	≤45 mph	Directional	Full	
2	Restrictive with Service Roads	1320	660	1320	2640	2640
3	Restrictive	660	440	1320	2640	2640
4	Non-Restrictive	660	440			2640
5	Restrictive	440	245	660	2640 >45 mph 1320 ≤ 45 mph	
6	Non-Restrictive	440	245			1320
7	Both Median Types	125		330	660	1320

Notes:
"Restrictive" physically prevent vehicle crossing.
"Non-Restrictive" allow turns across at any point.

Source: 2018 FDOT Design Manual (FDM) Table 201.3.2

2.1.3 Posted Speed

The posted speed on SR 865 from the beginning of the study to approximately 350 feet north of Fifth Street is 25 mph. From north of Fifth Street to Main Street (over the Matanzas Pass Bridge) it increases to 35 mph. From Main Street to the end of the study, it is 45 mph.

2.1.4 Typical Sections

SR 865 is a 2-lane undivided roadway with sidewalks on both sides from the southern study limit to Fifth Street. From Fifth Street to Main Street (across the Matanzas Pass Bridge), SR 865 has a three-lane section. The existing bridge, **Figure 2-1,** has one 11' southbound through lane, one 12' southbound transit lane, one 11' northbound lane, and a 5'-10" sidewalk and 6-foot bicycle lane on the northbound direction of travel. Southbound SR 865 has no provisions for pedestrians and bicyclists must share the southbound transit lane. Between Main Street and the northern study limits, SR 865 widens to a 5-lane undivided roadway with a two-way continuous left turn lane **Figure 2-2**. The 5-lane section includes a 12' and 14' travel lane in each direction, 14' two-

way left turn lane, and 8’ sidewalks on each side of the roadway. An exception to this typical occurs at Hurricane Pass Bridge where there is no sidewalk on the southbound side.

Figure 2-1: Matanzas Pass Bridge

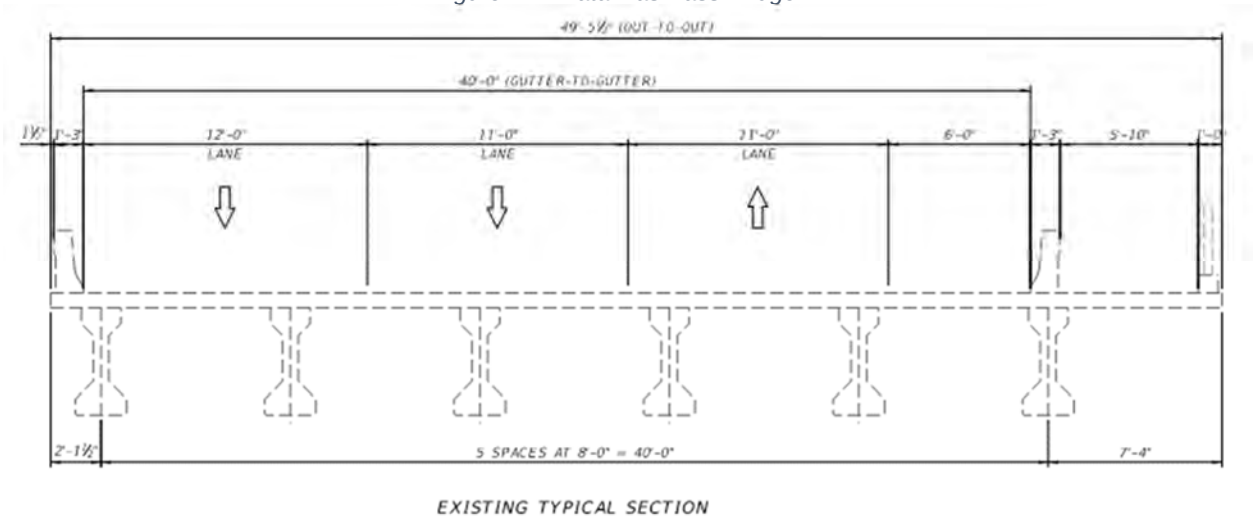
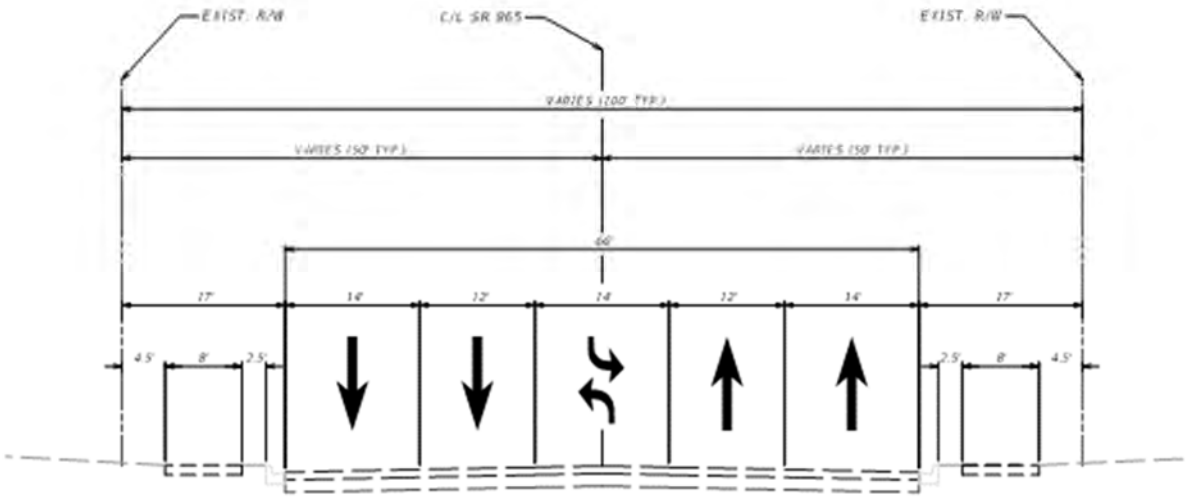


Figure 2-2: Existing Typical - Hurricane Pass Bridge to Summerlin Road



2.2 TRAFFIC

A review of the existing conditions within the study area was performed to determine peak periods of flow and directionality, confirm potential bottlenecks and their impacts to traffic flow, evaluate potential conceptual improvements to minimize bottlenecks and safety concerns, and recommend improvements. Data collection was completed through traffic counts and the conflation of existing databases. The collected data was then used to create existing conditions for the study area for

analysis. The Lee & Collier MPO Model was used to develop future year volumes. The microsimulation traffic analysis tool VISSIM was used to develop a model network to simulate traffic flow through the corridor. Finally, the measures of effectiveness (MOE) included delay, number of stops, stopped delay, total travel time, and total distance traveled. Section 3 below contains a full discussion of the existing and future traffic.

2.3 CRASH DATA

Crash data was downloaded from two sources to address high emphasis areas identified by the FDOT 2016 Highway Safety Plan and the Lee Countywide Bicycle & Pedestrian Safety Action Plan. The FDOT State Safety Office Geographic Information System (SSOGis) website provided cluster analysis data based on a 2007 to 2013 crash record database. The Signal Four Analytics crash data is for the period of 6/1/2010 to 6/31/2015 and was collected on 6/30/2015. The download date for the Signal Four Analytics data is important to note as this site is continually updated and may contain unreported data that was not available or uploaded at the time the data was collected such that subsequent inquiries may vary slightly. The Signal Four Analytics database was used instead of the FDOT database (Crash Analysis Reporting System or CARS) because of the more recent year reporting capability and geo-referencing ability of the data provided. A safety analysis was completed along the corridor to identify areas of concern, develop short- and long-term options for the corridor and formulate improvement strategies. The Safety Analysis Memo can be found in **Appendix A**. A summary of the findings follows.

The City of Fort Myers Beach ranks in the top 25 percent of cities of comparable size by population in 1) Fatalities & Injuries, 2) Impaired Drivers, 3) Bicycle Related, 4) Motorcycle Related and 5) Pedestrian Related crash categories. This is supported by the crash analysis findings on the SR 865 corridor. **Table 2-2** provides an overall summary of the five-year crash history (June 1, 2010 to June 30, 2015) for segments and intersection as well as the entire corridor. Segments or intersections with higher overall crash rates are flagged in yellow. **Table 2-3** provides an overall safety comparison (based on safety emphasis areas) for the Town of Fort Myers Beach, City of Fort Myers, and Lee County. Highlighted areas are the emphasis areas for which the Town of Fort Myers Beach are in the upper 25 percent range in the entire State of Florida. This overview would indicate that improvements that address these emphasis areas may be eligible for the use of State and Federal Safety Funds for potential projects addressing these emphasis groups.

Based on a review of crash locations, types, and emphasis areas, Crash Modifications Factors (CMFs) were selected to complete benefit/cost analyses to determine the viability of strategies that could be used to improve the corridor. The strategies with their corresponding benefit/cost ratio (ranked highest to lowest) are shown in **Table 2-4**: Benefit Cost Results for Safety Improvement Strategies. A strategy with a ratio higher than 1.0 should be considered to improve safety on the corridor.

2.4 LIGHTING

The SR 865 lighting system consists of single tubular upsweep arms and upsweep arms bolted onto existing electrical poles. The SR 865 lighting system is built out throughout the corridor.

Table 2-2: SR 865 Crash Data Summary

Location	From	To	Crashes/Year (5 yrs)	Average AADT	Segment Length	Crash Rate	Highest Crash Type (%) (5 yrs)	Ped/Bike (5 yrs)	Fatal Crashes (5 yrs)	Injury Crashes (5 yrs)	Comment
San Carlos Boulevard (SR 865) - Summary	Estero Blvd	CR 869	45.0	24,100	3.1	1.650	Rear End (37%)	13	4	68	Entire Corridor
San Carlos Blvd (SR865)	at Estero Boulevard		1.2	17,000	0.1	1.934	Rear End (50%)	2	0	2	
San Carlos Blvd (SR865)	at 5th Street		1.0	7,400	0.2	1.851	Rear End (60%)	0	0	1	
San Carlos Blvd (SR865)	5th Street	Main Street	2.4	7,400	0.6	1.532	Rear End (58%)	1	0	3	
San Carlos Blvd (SR865)	at Main Street		5.4	12,900	0.2	5.734	Rear End (37%)	3	0	12	High Crash Rate
San Carlos Blvd (SR865)	Main Street	Prescott Road /Buttonwood Drive	1.0	22,700	0.3	0.483	Rear End (20%)	2	1	2	
San Carlos Blvd (SR865)	at Prescott Road /Buttonwood Drive		7.6	13,100	0.2	7.947	Rear End (45%)	1	1	10	High Crash Rate
San Carlos Blvd (SR865)	Prescott Road /Buttonwood Drive	Siesta Drive	4.6	25,500	0.9	0.537	Rear End (57%)	0	0	6	
San Carlos Blvd (SR865)	at Siesta Drive		1.6	17,800	0.2	1.642	Right Angle (38%)	0	0	4	
San Carlos Blvd (SR865)	at Isle of Palms Drive		1.4	17,500	0.2	1.461	Left Turn, Right Angle, Rear End, Sideswipe (14%)	2	1	3	
San Carlos Blvd (SR865)	Isle of Palms Drive	Broadway Ave	3.0	26,600	0.4	0.772	Rear End (40%)	1	0	4	
San Carlos Blvd (SR865)	at Broadway Avenue		1.0	18,000	0.2	1.015	Left Turn, Rear End, Sideswipe (20%)	0	0	1	
San Carlos Blvd (SR865)	at Bayside Boulevard		0.6	18,000	0.2	0.609	Sideswipe (67%)	0	0	0	
San Carlos Blvd (SR865)	at Pine Ridge Road		6.6	14,800	0.2	6.109	Rear End (42%)	0	0	8	High Crash Rate
San Carlos Blvd (SR865)	Pine Ridge Rd	Whitewater Court	0.8	21,700	0.3	0.337	Rear End (50%)	1	1	1	
San Carlos Blvd (SR865)	at Whitewater Court		2.2	12,100	0.2	2.491	Rear End (67%)	0	0	2	High Crash Rate
San Carlos Blvd (SR865)	at CR 869 (Summerlin Road)		4.6	15,375	0.2	4.098	Rear End (35%)	3	0	9	High Crash Rate

Table 2-3: Safety Comparison - Ranking of Highest 25% Per Category Per Location

Category	Fatalities & Injuries	Impaired	Bicycle Related	Motorcycle Related	Pedestrian Related	Speed Related	Occupant Projection	Aggressive Driving	Teen Drivers	Drivers 65+
Fort Myers Beach (1)	25	4	4	23	7	91	38	46	94	74
Fort Myers (2)	18	9	11	13	6	4	4	5	6	6
Lee County (3)	21	12	18	18	18	14	9	20	21	17

(1) Cities with populations 3,000 to 14,999

(2) Cities with populations 15,000 to 74,999

(3) Cities with populations > 200,000

(4) Highest 25% in Category for location (information from 2016 FDOT HSP)

Table 2-4: Benefit Cost Results for Safety Improvement Strategies

Strategy Evaluated	Benefit/Cost Ratio
Add Traffic Signals at Capers Boardwalk and Siesta Drive associated with reversible lane control	5.40
Roundabout at Prescott/Buttonwood	4.13
Operational Improvements for Signalized Intersections related to reversible lanes and TSP for busses	2.63
Multi-modal Improvements (includes minor bridge widening and estimate for reversible lanes) from 5th Street to CR 869	2.45
Roundabout at Main Street	1.76
Multi-modal Improvements (includes major bridge widening and estimate for reversible lanes) from 5th Street to Main Street	0.48
Roundabout at 5th Street	0.33

3 TRAFFIC

The *Project Traffic Report* (PTR) (July 2018), prepared under separate cover, documents existing conditions and the traffic analysis findings. The purpose of this section is to summarize the existing traffic volumes and characteristics; future traffic projections; the development of the VISSIM micro-simulation tool; and the level of service and operational analysis.

3.1 EXISTING TRAFFIC VOLUMES AND CHARACTERISTICS

3.1.1 AADT Development

The seasonal and axle adjustment factors from the FDOT's Florida Traffic Information 2014 database category 1202 with specific adjustments for "SR 865 & SR 867 to the beaches" were applied to traffic counts to calculate 2015 AADT volumes. For the months collected, the seasonal correction factor varied from 0.86 to 0.93 with application being identified for the week collected; the axle adjustment factor for the corridor was 1.00.

3.1.2 Traffic Data Collection

A detailed traffic count program was conducted, purposefully focused on identifying all traffic generators along the SR 865 corridor study area during the months of February through April of 2015. The count collection program consisted of:

- (67) 24-hour bi-directional volume counts,
- (4) 72-hour vehicle classification counts,
- (14) Peak hour turning movement counts,
    - 08:00 – 10:00
    - 15:00 – 17:00
- 4 days of corridor travel times
- (4) 8-days of intersection videos,
- 2 Telemetered traffic monitoring sites from Florida Traffic Information 2014,
- 1 Portable traffic monitoring site from Florida Traffic Information 2014, and
- 1 Portable traffic monitoring site from Florida Traffic Information 2013.

Counts were primarily collected during the weekdays of Tuesday, Wednesday, or Thursday, with exceptions for week-long bi-directional volume counts, during AM and PM peak periods for all intersections along the corridor. **Figure 3-1**: Study Area Count Collection Locations shows the location of the traffic counts.

Lee County's transit operating service, LeeTran, provided the TranSched Sched21 data for transit vehicle operations for fiscal year 2014. The database provides vehicular travel and boarding and alighting information along routes by time. The trip information was requested for validation and calibration of the micro-simulation model and to supplement corridor travel times over a year's time.

Figure 3-1: Study Area Count Collection Locations

3.1.3 Peak Season Factors

Telemetered traffic monitoring sites (TTMS) permanent stations collect hourly count information twenty-four hours a day, 365 days a year. The cosite 126008, south of Prescott St., has been in operation since 2009 and was used to develop diurnal curves of peak season traffic that represent the 95th percentile of vehicles per day. Diurnal curves demonstrated noticeable variations between days of the week, namely Monday through Thursday, Friday through Saturday, and Sunday. The southbound diurnal curve for Sunday exhibited volumes for the peak season below that of weekday and weekend volumes for Monday through Saturday and was thus dropped from further analysis. The peak season adjustment factors are in **Table 3-1**. **Figure 3-2** exhibits the seasonal nature of the corridor with a demonstration of southbound traffic corridor failure by month, day, and time of day.

Table 3-1: Peak Season Adjustment Factors by Day of Week

	AADT	Peak Season
Monday – Thursday	1.000	1.169
Friday – Saturday	1.000	1.226

3.1.4 Existing Traffic

The TTMS cosite's AADT was used as the control point and calculated AADT's were adjusted accordingly to create a coherent flow throughout the study area to develop the recommended AADT for the study area. The recommended AADT was multiplied by the peak season factors to develop the peak season vehicles per day (VPD) by day of the week; shown in **Table 3-2**.

The TTMS cosite's diurnal curves were used to develop time-of-day distribution of vehicular volumes by hour on the corridor. The hourly-based diurnal curves were used to create an origin-destination tool for integration into the VISSIM micro-simulation modeling tool. An example of a resulting hourly origin-destination matrix is presented in **Table 3-3**.

Figure 3-2: Directional LOS for SR 865 Southbound by Month, Day, and Time of Day

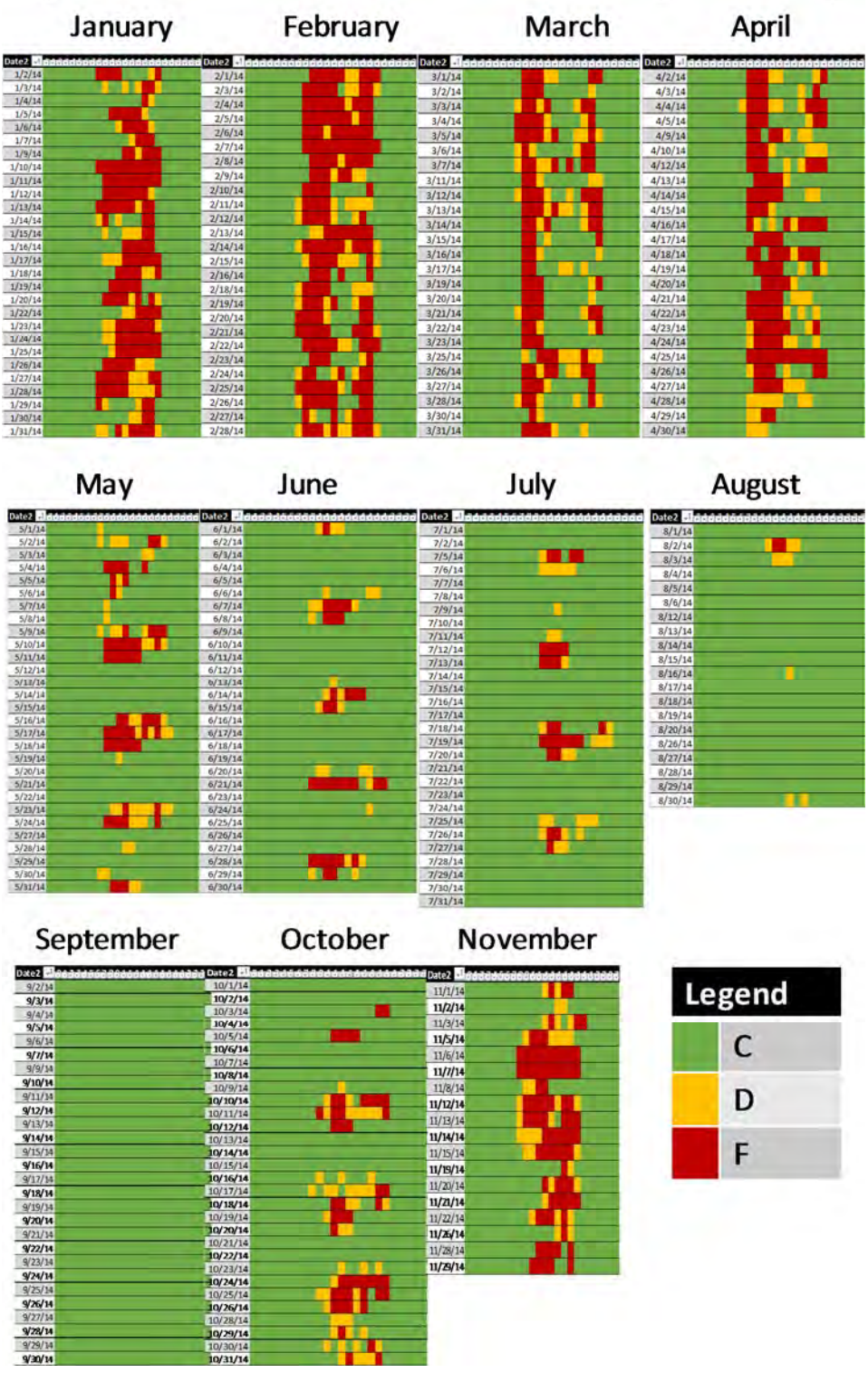


Table 3-2: Recommended 2015 AADT and VPD for Peak Season

Roadway	From	To	Rec. AADT	Peak Season VPD	
			2015	Mon - Thur	Fri & Sat
Estero Boulevard	Crescent Street	East of Crescent Street	17,500	20,500	21,500
Estero Boulevard	Fifth Street	Crescent Boulevard	17,900	20,900	21,900
SR 865	Main Street	Fifth Street	21,500	25,100	26,400
SR 865	Prescott Street	Main Street	22,700	26,500	27,800
SR 865	RV Park	Prescott St.	25,100	29,300	30,800
SR 865	Boardwalk Caper	RV Park	25,300	29,600	31,000
SR 865	Siesta Drive	Boardwalk Caper	25,700	30,000	31,500
SR 865	Isle of Palms Drive	Siesta Drive	26,700	31,200	32,700
SR 865	Broadway Avenue	Isle of Palms Drive	27,100	31,700	33,200
SR 865	Bayside Boulevard	Broadway Avenue	27,300	31,900	33,500
SR 865	Pine Ridge Road	Bayside Boulevard	27,700	32,400	34,000
SR 865	Summerlin Sq. Drive	Pine Ridge Road	21,500	25,100	26,400
SR 865	CR 869	Summerlin Sq. Drive	22,900	26,800	28,100
SR 865	Kelly Road	CR 869	19,100	22,300	23,400
Summerlin Road	Kelly Grove Drive	SR 865	7,600	8,900	9,300
Summerlin Road	SR 865	Pine Ridge Road	10,600	12,400	13,000
Summerlin Sq. Drive	West of SR 865		1,200	1,400	1,500
Summerlin Sq. Drive	East of SR 865		2,600	3,000	3,200
Pine Ridge Road	Seneca Trail	SR 865	2,500	2,900	3,100
Pine Ridge Road	SR 865	Stevens Boulevard	9,300	10,900	11,400
Siesta Drive	West of SR 865		1,300	1,500	1,600
Boardwalk Caper Driveway	West of SR 865		700	800	900
Prescott Street	West of SR 865		1,000	1,200	1,200
Buttonwood / Prescott	East of SR 865		3,000	3,500	3,700
Main Street	San Carlos Drive	SR 865	1,300	1,500	1,600
Main Street	SR 865	Buttonwood Drive	3,500	4,100	4,300
Estero Boulevard	Old San Carlos Drive	SR 865	4,600	5,400	5,600
Fifth Street	East of SR 865		5,600	6,500	6,900
Bayside Boulevard	East of SR 865		1,000	1,200	1,200
Broadway Avenue			1,100	1,300	1,300
Isle of Palms Drive			400	500	500
San Carlos RV Park			600	700	700
Seneca Trail			3,800	4,400	4,700
Southern Driveway			100	100	100
Northern Driveway			100	100	100
Crescent Street	Estero Boulevard	Fifth Street	2,700	3,200	3,300

Table 3-3: Example of Hourly Origin-Destination Matrix Volumes

			SR 865-N	Sum Rd. W	Sum Rd. E	Sum Sq W	Sum Sq E	Pine Rid W	Pine Rid E	Bayside	Broadway	Isle o Paln	Siesta Dr.	Boardwal	RV Park	Prescott	SanCar Ct	ButtonW	Main St W	Main St E	Main W Fr	5th St	Estero Blv	Harbor Ct.	Pk Lot	Conventic	4th St.	3rd St.	1st St.
	Vol	O/D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
SR 865-N	908	1	0	129	201	19	30	32	15	5	3	5	25	11	6	2	9	40	14	19	18	12	190	8	3	29	61	20	3
Sum Rd. W	189	2	84	0	11	3	5	5	2	1	1	1	4	2	1	0	1	7	2	3	3	2	31	1	1	5	10	3	1
Sum Rd. E	378	3	125	30	0	16	11	12	5	2	1	2	9	4	2	1	3	15	5	7	6	4	70	3	1	11	22	7	1
Sum Sq W	38	4	16	8	9	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Sum Sq E	94	5	28	13	16	3	0	2	1	0	0	0	2	1	0	0	1	3	1	1	1	1	13	1	0	2	4	1	0
Pine Rid W	130	6	32	15	19	0	3	0	44	0	0	0	1	0	0	0	0	1	0	1	1	0	6	0	0	1	2	1	0
Pine Rid E	331	7	15	7	8	0	1	20	0	3	2	3	15	7	4	1	5	23	8	11	10	7	111	4	2	17	35	11	2
Bayside	43	8	9	4	5	0	1	0	8	0	0	0	1	0	0	0	0	1	0	1	1	0	6	0	0	1	2	1	0
Broadway	45	9	8	4	5	0	1	0	7	0	0	0	1	0	0	0	0	2	1	1	1	0	8	0	0	1	2	1	0
Isle o Palms	16	10	2	2	2	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	1	0	0
Siesta Dr.	73	11	19	9	11	0	2	1	17	1	0	0	0	0	0	0	0	1	0	1	1	0	6	0	0	1	2	1	0
Boardwalk	15	12	4	2	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
RV Park	11	13	3	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Prescott	7	14	2	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SanCar Ct	36	15	10	5	6	0	1	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
ButtonW	103	16	25	12	14	0	2	0	22	1	0	0	0	0	0	0	1	3	0	1	1	1	11	0	0	2	3	1	0
Main St W	20	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	10	0	0	2	3	1	0
Main St E	117	18	29	13	17	0	2	1	24	1	1	0	0	0	0	0	0	1	1	0	1	1	14	1	0	2	5	1	0
Main W Fr	25	19	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	12	0	0	2	4	1	0
5th St/Est W	61	20	16	8	9	0	1	0	14	1	0	0	0	0	0	0	0	0	1	3	1	0	3	0	0	1	1	0	0
Estero Blvd	532	21	140	66	81	0	12	4	123	7	3	2	1	1	1	0	1	3	7	24	8	2	0	1	0	4	9	3	0
Harbor Ct.	8	22	2	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pk Lot	3	23	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Convention	30	24	8	4	5	0	1	0	7	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	1	0	0
4th St.	61	25	16	8	9	0	1	0	14	1	0	0	0	0	0	0	0	0	1	3	1	0	3	0	0	1	0	0	0
3rd St.	20	26	5	2	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
1st St.	3	27	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3.2 FUTURE TRAFFIC PROJECTIONS

Future year traffic volumes were projected using the Florida Standard Urban Transportation Modeling Structure (FSUTMS) compliant Lee-Collier Model (LC Model), version published on February 28, 2011. The 2011 model's base year of 2007 was conflated with the latest accepted socio-economic data by the two counties to provide the most up-to-date data. A sub-area model of the study area using the Lee-Collier Model was calibrated and validated to provide future year modeling volumes for the corridor. The model volumes were extracted and, utilizing NCHRP's 765 adjustment techniques of ratio and difference methodologies, future year AADT's were developed for the study corridor. The corridor demonstrated an average 0.6% yearly linear growth, the results for the process are presented in **Table 3-7**. The locations that did not have direct representations within the model, barring centroid link inclusion, were forecast using similar roadways as comparable from which to estimate growth rates.

The existing conditions (2015) geometry and future year no-build and build alternatives were analyzed for the following analysis years:

- Opening Year (2020)
- Design Year (2040)

3.3 VISSIM MODEL DEVELOPMENT

A microsimulation model network using VISSIM was developed for each of the intersections along the corridor from Summerlin Road to south of Crescent Road. The network contains each intersection that had turning movement counts collected; additionally, the area in downtown Fort Myers Beach was included in the model to provide circulatory traffic. The model network is presented in **Figure 3-5**. The calibrated base VISSIM model captures operations over the eleven (11) hour period from 7:00 AM to 6:00 PM during the peak season for 2015. The model was also updated and used to find the operational results for the 2040 Future Year conditions.

3.4 LEVEL OF SERVICE AND OPERATIONS ANALYSIS

3.4.1 Operational Analysis Procedures

The Federal Highway Administration's (FHWA) Traffic Analysis Toolbox Volume II: Decision Support Methodology for Selecting Traffic Analysis Tools document was consulted to identify a traffic analysis tool for the project. The operational analysis nature of this project along with the number of intersections and critical nature of distance along the corridor resulted in the selection of a microsimulation traffic analysis tool.

Network-wide, corridor, and intersection Measures of Effectiveness (MOEs) were identified based on guidance in the FDOT *Traffic Analysis Handbook* and FDOT *Mobility Measure Source Book*. Network-wide MOEs include delay, number of stops, stopped delay, total travel time, and total distance traveled. Average per vehicle and total network values are reported for delay, number of stops, and stopped delay. Corridor MOEs include travel time, volume (vehicle throughput), speed, and density. Intersection MOEs include the average queue, maximum queue, vehicles (throughput), vehicle delay, and stops.

3.4.2 Corridor Analysis

The SR 865 corridor was reviewed for bottlenecks using the existing condition volumes, video camera film, in-situ observations, and engineering judgement. The identified bottlenecks included:

- The lane reduction for SR 865 southbound as it drops from two-lanes to one at Main Street with Prescott Street / Buttonwood Drive's metered signal. The peak season's 27,800 Friday/Saturday AADT overwhelms the 15,600 capacity of the SR 865 southbound traffic lanes over the Mantanza's Pass Bridge; an issue not seen during off-peak times as the volumes are dispersed more than during peak season.
- Old San Carlos and Estero Boulevard's three way stop control with significant pedestrian traffic reduced southbound right turn lane throughput.
- The pedestrian crossing at the beginning of the project (south of Estero Boulevard / Fifth Street)

The corridor analysis focused on identifying opportunities to minimize the bottlenecks and increase the vehicular throughput over the bridge. During the turning movement analysis, the southbound approach to the intersection of SR 865 and Estero Boulevard / Fifth Street comprised 30-36% of the total volume; the significant turning movement provided a springboard for alternatives onto the island for the utilization of a drop lane.

3.4.3 Intersection Analysis

The seasonal nature of the study area showed that during the non-peak season, the signalized intersections functioned at a level of service (LOS) "D" or better. However, the analysis of Pine Ridge's westbound left-turn approach during peak season exhibited a LOS "F" and locals noted unsafe movements of vehicles using the middle through lane to make a left-turn. The intersection was identified for further review using the Synchro analysis platform to identify improvements.

The intersection of SR 865 at Pine Ridge was coded into Synchro 10 and the HCM 6th Analysis was used to determine level of service for the intersection movements. **Figure 3-3** shows the existing lane geometry and **Table 3-4** shows the LOS for the existing (2015) traffic volumes. **Table 3-5** shows that LOS results for future year (2040) volumes will continue to degrade if no changes are made.

To improve the level of service for the westbound movements, an iterative process was used to identify the best lane configuration for the intersection. Results from this analysis found that by reconfiguring the existing three westbound lanes to two left turn only lanes and one combined right turn/through lane, shown in **Figure 3-4**, and by optimizing signal timings, the level of service for future volumes was greatly improved with all movements but one having a LOS value below level D as shown in **Table 3-6**. Synchro analysis reports are available in **Appendix B**.

Figure 3-3: Existing (2015) Lane Geometry at SR 865 and Pine Ridge Road

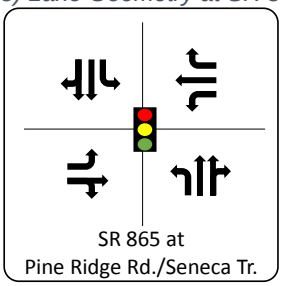


Table 3-4: Existing (2015) Intersection LOS for SR 865 at Pine Ridge Road

Location	Direction	Movement	Intersection LOS			
			Existing AADT (2015)		Peak Season (2015)	
			AM	PM	AM	PM
SR 865 and Pine Ridge	EB	L	C	C	C	D
		T	A	A	A	A
		R	C	C	C	D
	WB	L	C	D	C	F
		T	B	B	B	B
		R	B	B	B	B
	NB	L	A	B	B	B
		T	C	C	C	C
		R	C	C	C	D
	SB	L	B	B	B	B
		T	B	B	C	B
		R	B	B	C	B
	Overall		B	C	C	D

Table 3-5: Future Year (2040) No-Build Intersection LOS for SR 865 at Pine Ridge Road

Location	Direction	Movement	Intersection LOS			
			2040 AADT No Build (NB)		Peak Season NB (2040)	
			AM	PM	AM	PM
SR 865 and Pine Ridge	EB	L	C	C	D	E
		T	A	A	A	A
		R	C	C	C	E
	WB	L	C	D	D	F
		T	B	B	B	C
		R	B	B	B	C
	NB	L	B	B	B	B
		T	C	C	C	D
		R	C	C	C	D
	SB	L	B	B	B	C
		T	B	B	C	C
		R	B	B	C	C
	Overall		C	C	C	D

Figure 3-4: Recommended Lane Geometry at SR 865 and Pine Ridge Road

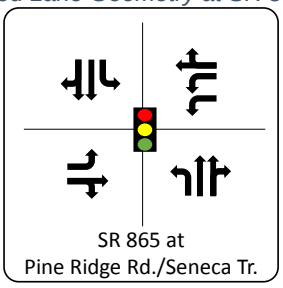


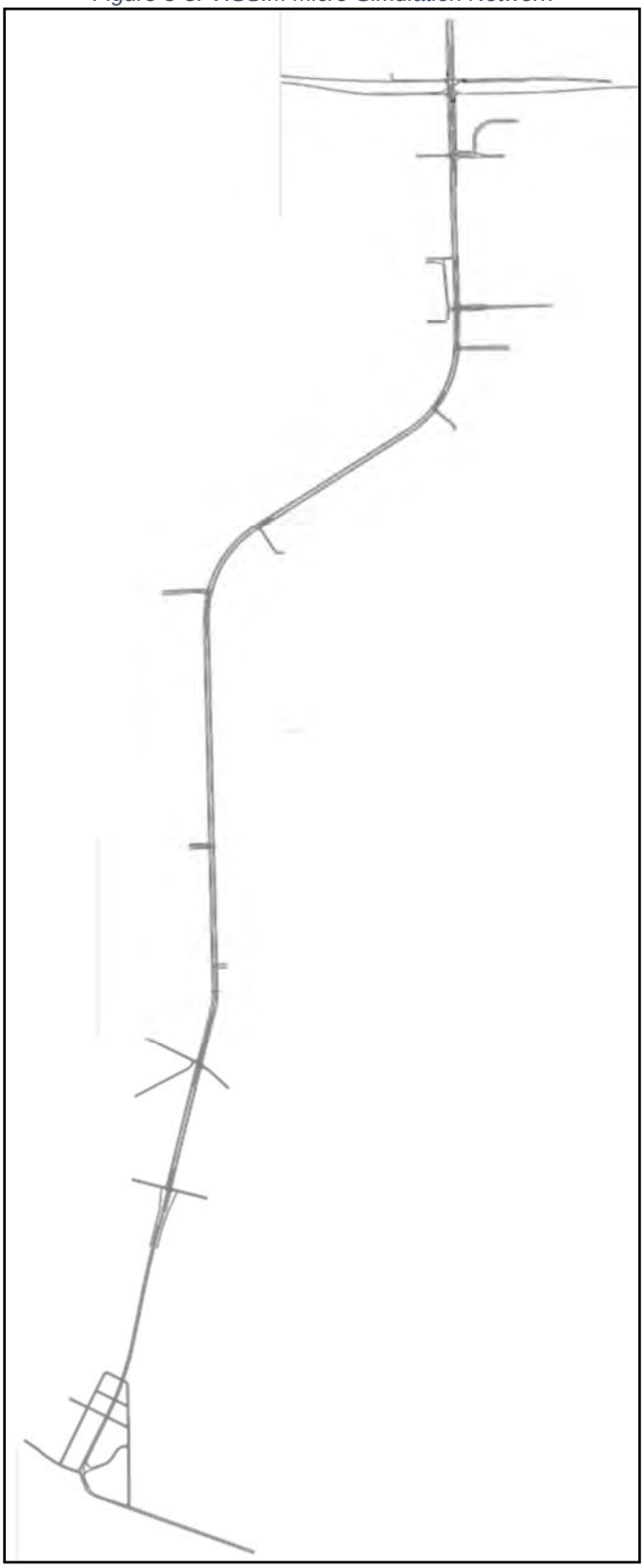
Table 3-6: Future Year (2040) Build LOS for SR 865 and Pine Ridge Road

Location	Direction	Movement	Intersection LOS			
			2040 AADT Build		Peak Season Build (2040)	
			AM	PM	AM	PM
SR 865 and Pine Ridge	EB	L	C	C	C	C
		T	A	A	A	A
		R	C	C	C	C
	WB	L	B	C	C	D
		T	A	A	A	A
		R	B	B	B	C
	NB	L	A	A	B	A
		T	C	B	C	C
		R	C	B	C	C
	SB	L	B	A	B	B
		T	B	B	B	B
		R	B	B	B	B
	Overall		B	B	C	C

Table 3-7: Average Daily Traffic by Year and Day of Week

			Rec. 2015 AADT	2020			2040		
				ADT	Peak Season		ADT	Peak Season	
Roadway	From	To			Mon - Thur	Fri & Sat		Mon - Thur	Fri & Sat
Estero Blvd.	Crescent	Donora Blvd.	17,500	17,900	20,900	21,900	19,500	22,800	23,900
Estero Blvd.	Fifth St.	Crescent Blvd.	17,900	18,000	21,000	22,100	18,500	21,600	22,700
SR 865	Main St.	Fifth St.	21,500	22,100	25,800	27,100	24,600	28,800	30,200
SR 865	Prescott St.	Main St.	22,700	23,400	27,300	28,700	26,400	30,900	32,400
SR 865	RV Park	Prescott St.	25,100	25,900	30,300	31,800	29,000	33,900	35,600
SR 865	Boardwalk Caper	RV Park	25,300	26,100	30,500	32,000	29,200	34,100	35,800
SR 865	Siesta Dr.	Boardwalk Caper	25,700	26,500	31,000	32,500	29,600	34,600	36,300
SR 865	Isle of Palms Dr.	Siesta Dr.	26,700	27,500	32,100	33,700	30,600	35,800	37,500
SR 865	Broadway Ave.	Isle of Palms Dr.	27,100	27,900	32,600	34,200	31,100	36,300	38,100
SR 865	Bayside Blvd.	Broadway Ave.	27,300	28,200	33,000	34,600	31,700	37,000	38,900
SR 865	Pine Ridge Rd.	Bayside Blvd.	27,700	28,600	33,400	35,100	32,100	37,500	39,400
SR 865	Summerlin Square Dr.	Pine Ridge Rd.	21,500	22,100	25,800	27,100	24,500	28,600	30,000
SR 865	CR 869 / Summerlin Rd.	Summerlin Square Dr.	22,900	23,400	27,300	28,700	25,300	29,600	31,000
SR 865	Kelly Road	CR 869 / Summerlin Rd.	19,100	19,900	23,300	24,400	23,200	27,100	28,400
Summerlin Rd.	Kelly Grove Dr.	SR 865	7,600	8,500	9,900	10,400	12,100	14,100	14,800
Summerlin Rd.	SR 865	Pine Ridge Rd.	10,600	11,600	13,600	14,200	15,800	18,500	19,400
Summerlin Sq. Dr.	Whitewater Ct.	SR 865	1,200	1,200	1,400	1,500	1,400	1,600	1,700
Summerlin Sq. Dr.	SR 865	Wal-Mart	2,600	2,900	3,400	3,600	4,300	5,000	5,300
Pine Ridge Rd.	Seneca Trail	SR 865	2,500	2,700	3,200	3,300	3,300	3,900	4,000
Pine Ridge Rd.	SR 865	Stevens Blvd.	9,300	9,700	11,300	11,900	11,500	13,400	14,100
Siesta Dr.	Cutlass Dr.	SR 865	1,300	1,300	1,500	1,600	1,500	1,800	1,800
Boardwalk Caper Drwy.	Complex	SR 865	700	700	800	900	800	900	1,000
Prescott St.	W/of SR 865	SR 865	1,000	1,100	1,300	1,300	1,500	1,800	1,800
Buttonwood / Prescott	SR 865	E/of SR 865	3,000	3,300	3,900	4,000	4,500	5,300	5,500
Main St.	San Carlos Dr.	SR 865	1,300	1,400	1,600	1,700	2,000	2,300	2,500
Main St.	SR 865	Buttonwood Dr.	3,500	3,900	4,600	4,800	5,400	6,300	6,600
Estero Blvd.	Old San Carlos Dr.	SR 865	4,600	4,700	5,500	5,800	5,300	6,200	6,500
Fifth St.	SR 865	E/of SR 865	5,600	6,000	7,000	7,400	7,700	9,000	9,400
Bayside Blvd.	Bayside Blvd.	E/of SR 865	1,000	1,000	1,200	1,200	1,100	1,300	1,300
Broadway Ave.			1,100	1,300	1,500	1,600	1,900	2,200	2,300
Isle of Palms Dr.			400	400	500	500	500	600	600
San Carlos RV Park			600	600	700	700	700	800	900
Seneca Trail			3,800	3,900	4,600	4,800	4,300	5,000	5,300
S Dwy S of Siesta Dr.			100	100	100	100	100	100	100
N Dwy S of Siesta Dr.			100	100	100	100	100	100	100

Figure 3-5: VISSIM Micro-Simulation Network



4 RESEARCHED CONCEPTS

4.1 TRAFFIC SIGNAL WARRANTS

Signal warrant analysis was done for fourteen intersections along the corridor to see if traffic volumes or pedestrian volumes were high enough to warrant additional traffic signals. Results are shown in **Table 4-1**.

New signals were warranted at Estero Boulevard and Crescent Street for traffic and pedestrians, Old San Carlos Boulevard and Estero Boulevard for pedestrians, SR 865 and Fifth Street for traffic, and SR 865 and Main Street for traffic. Signal Warrant sheets can be found in **Appendix C.**

Traffic signals are recommended at the intersection of Estero Boulevard and Crescent Street and at the intersection of Old San Carlos Boulevard and Estero Boulevard. Signals are warranted at SR 865 and Main Street and at SR 865 and Fifth Street, however, the signal at Fifth Street is being evaluated for implementation of a HAWK signal.

Table 4-1: Signal Warrant Results by Intersection

Intersection	Warrant Type	Warranted	Existing Signal
Estero Boulevard and Crescent Street	Four Hour	Yes	No
	Pedestrian	Yes	
Old San Carlos Boulevard and Estero Boulevard	Peak Hour	No	No
	Pedestrian	Yes	
SR 865 and Fifth Street	Peak Hour	Yes	No
SR 865 and Main Street	Peak Hour	Yes	No
SR 865 and Prescott Street/Buttonwood Drive	Peak Hour	No	Yes
SR 865 and San Carlos RV Park	Peak Hour	No	No
SR 865 and The Boardwalk Caper	Peak Hour	No	No
SR 865 and Siesta Drive	Peak Hour	No	No
SR 865 and Isle of Palms Drive	Peak Hour	No	No
SR 865 and Broadway Avenue	Peak Hour	No	No
SR 865 and Bayside Boulevard	Peak Hour	No	No
SR 865 and Pine Ridge Road	Peak Hour	Yes	Yes
SR 865 and Whitewater Court	Peak Hour	Yes	Yes
SR 865 and Summerlin Road (CR 869)	Peak Hour	Yes	Yes

4.1.1 Pedestrian Signal Timing Tests at Old San Carlos Boulevard and Estero Boulevard

At the intersection of Old San Carlos Boulevard and Estero Boulevard a traffic signal was warranted to help with the high volume of pedestrian crossings. The current stop-control is frustrating to drivers and pedestrians during peak times. To evaluate how a signal could help alleviate pedestrian/vehicle conflicts, Synchro 10 was used to develop signal timings for two different build scenarios which were then tested in the field:

- Option 1 included a separate phase for pedestrians to cross in all directions while all vehicle traffic was stopped. No access alterations were made to the intersection. The four signal phases were Southbound, Ped, EBLT, WBLT/WBTR.

- Option 2 removed the eastbound departure lane forcing all eastbound traffic to turn left (north) onto Old San Carlos Boulevard. A separate pedestrian phase was also included. The three phases were SB/EBL, Ped, WBTR.

From 3:00-5:00 PM on February 16, 2018, with the assistance of Fort Myers Beach representatives, the two signal timing options were tested, one hour per option. Comments from pedestrians and drivers were requested throughout the test. Pedestrians were very happy with the dedicated pedestrian crossing times in both options. The same positive comments were expressed by all representatives participating in the live simulation.

Option 2 with the restricted eastbound movement received negative feedback from bus drivers. The test showed that the roadway was not property equipped to handle the vehicle size. Additionally, back-ups were more prevalent with the increased traffic being diverted northbound onto Old San Carlos Boulevard. Option 2 was therefore removed as an alternative.

Option 1 was tested again from 11:00 AM to 12:00 PM on February 17, 2018. Traffic queues cleared during each cycle including the westbound approach coming off the bridge from the north. Pedestrians and vehicle drivers noted their appreciation for the simulated signal and pedestrian phase.

Based on its ability to adjust queue lengths, phase timings, and have a separate pedestrian movement, it is recommended that an adaptive traffic signal be placed at the intersection of Old San Carlos Boulevard and Estero Boulevard. The phase setup for the recommended Option 1 is shown in **Figure 4-1**.

Figure 4-1: Recommended Signal Phases for Estero Boulevard at Old San Carlos Boulevard

4.2 ROUNDABOUTS

4.2.1 Overview

As part of this assessment in accordance with FDOT policy stated within Section 7 of the Florida Intersection Design Guide 2015 (FIDG) and Section 2.13.1 of the Plans Preparation Manual a Step 1 roundabout screening was conducted for the following intersections:

- Summerlin Road (existing traffic signal M.P. 3.122)
- Summerlin Square Drive (existing traffic signal M.P. 2.983)
- Pine Ridge Road (existing traffic signal M.P. 2.675)
- Bayside Boulevard (stop control M. P. 2.594)
- Broadway Avenue (stop control M.P. 2.456)
- Isle of Palms Drive (stop control M.P. 2.027)
- Siesta Drive (stop control M.P. 1.861)
- Boardwalk Caper (stop control M.P. 1.349)
- RV Park (no traffic control approx. M.P. 1.100)
- Buttonwood Drive / Prescott Street (existing metered traffic signal M.P. 0.900)
- Main Street (stop control M.P. 0.643)
- Fifth Street (stop control M.P. 0.041)

4.2.2 Roundabout Screening

The Roundabout Form Step 1 Roundabout Screening tool was performed on each intersection at the behest of stakeholders to identify opportunities for implementation. The screening results based on criteria can be seen in **Table 4-2**. Should any criteria be identified as a yes, the screening creates a failure and halts roundabout screening for the intersection.

Table 4-2: Step 1 Roundabout Screening Criteria Results by Intersection

Intersection	MP	Control	Screening Criteria					
			Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6
Summerlin Road	3.122	Signal	Yes	-	-	-	-	-
Summerlin Square Drive	2.983	Signal	-	-	-	-	-	-
Pine Ridge Road	2.675	Signal	-	-	-	-	-	-
Bayside Boulevard	2.594	Stop	-	Yes	-	-	-	-
Broadway Avenue	2.456	Stop	-	Yes	-	-	-	-
Isle of Palms Drive	2.027	Stop	-	Yes	-	-	-	-
Siesta Drive	1.861	Stop	-	Yes	-	-	-	-
Boardwalk Caper	1.349	Stop	-	Yes	-	-	-	-
RV Park	1.100	Stop	-	Yes	-	-	-	Yes
Buttonwood Drive / Prescott Street	0.900	Signal	-	-	-	-	Yes	-
Main Street	0.643	Stop	Yes	-	-	-	Yes	Yes
Fifth Street	0.041	Stop	Yes	-	-	-	Yes	Yes

4.2.3 Roundabout Recommendation

At the behest of stakeholders, the Main Street and Fifth Street intersections were set for additional review despite failing to cleanly make it through the Step 1 Roundabout Screening; however, preliminary operational issues with the roundabouts proved the efficacy of the screening tool and the roundabouts were dropped from progressing to Step 2 Roundabout Screening.

The documentation of the Step 1 Roundabout Screening Tool can be found in **Appendix D**.

4.3 SIDEWALK & BIKE LANE ANALYSIS

4.3.1 Overview

A review of the sidewalk and bicycle lane availability on the study corridor was conducted using FDOT shapefiles and visual inspection of the corridor; the results of the analysis are shown in **Figure 4-2**.

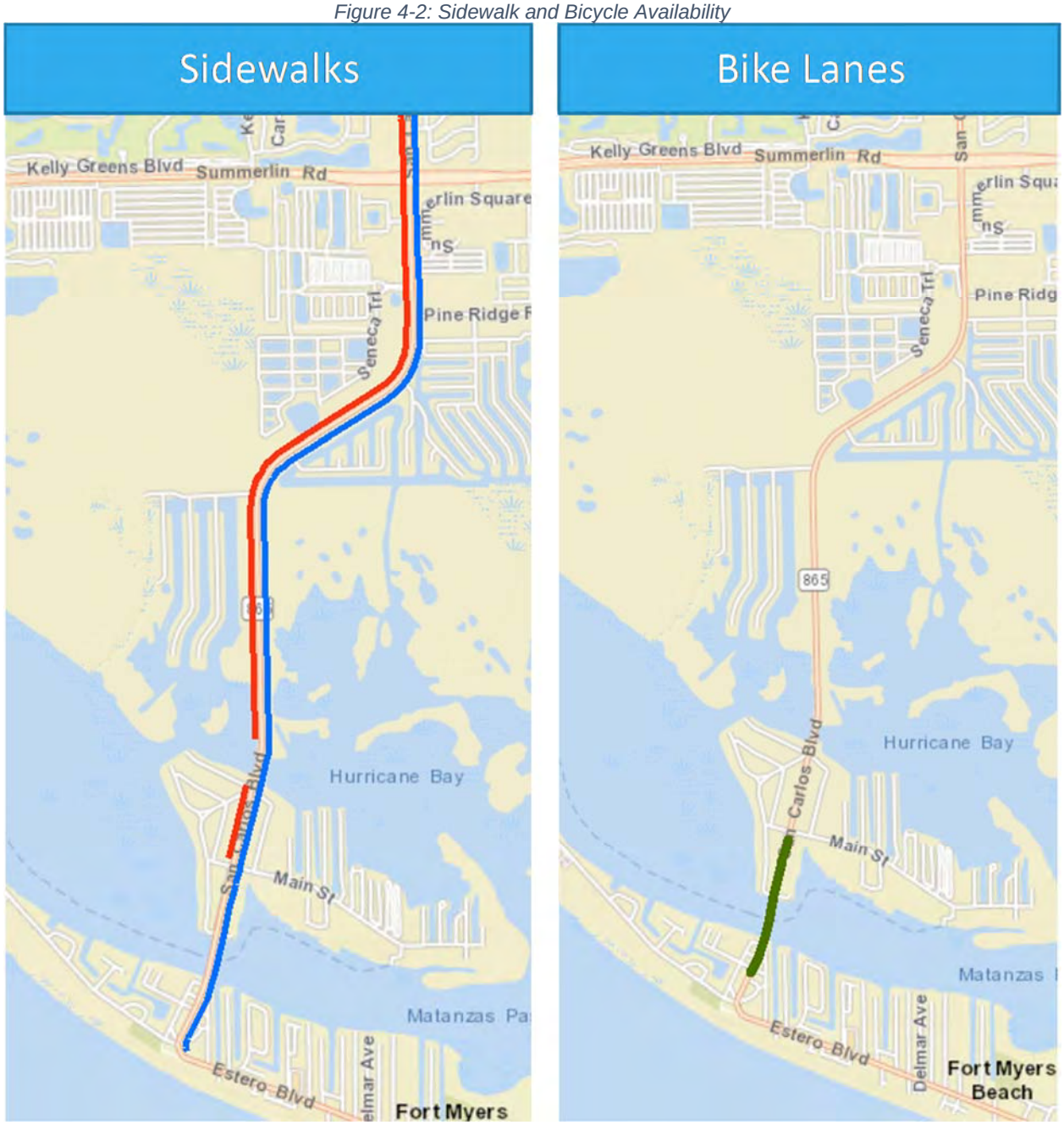
Sidewalks are available from Summerlin Road to north of the Hurricane Pass Bridge on both sides of the road with a pedestrian crossing prior to the bridge to divert pedestrians to the eastern side of the roadway. The sidewalk resumes on both sides after from Prescott Street / Buttonwood Road to Main Street, where the sidewalk on the western side ends and the eastern side carries over Matanzas Pass Bridge where, at the base of the bridge, sidewalks are available.

Bicycle lanes are only available on the Matanzas Pass Bridge as they are part of a sharrow with the dedicated trolley lane.

4.3.2 Recommendation

The FDOT should evaluate and develop roadway typicals and infrastructure improvements to facilitate bike lanes and continuous sidewalks on both sides of the facility.

Figure 4-2: Sidewalk and Bicycle Availability



4.4 TRANSIT ANALYSIS

4.4.1 Overview

The LeeTran transit operator provides two bus routes schedules, 400 and 490, for the SR 865 corridor from Summerlin Road to locations on the island. The 490 runs during peak season from the beginning of the year to the middle of April as the peak season falls off. During the peak season, the route schedules operate with fifteen-minute headways; during off-peak, the headways on route 400 are forty minutes. The two route schedules can be found in **Appendix E**.

4.4.2 Trolley Lane Feasibility Analysis

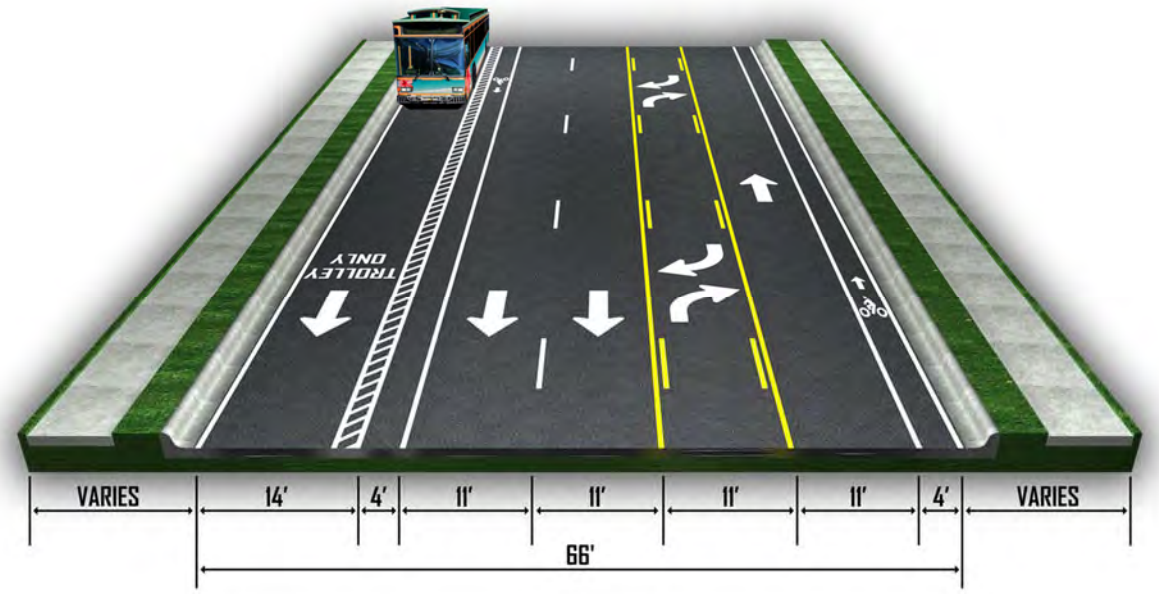
The SR 865 / San Carlos Boulevard Trolley Lane Feasibility Analysis was completed in February of 2012 and documents the feasibility of a trolley lane on San Carlos Boulevard with five different

alternatives. The recommended alternative four, shown in **Figure 4-3**, has a dedicated trolley lane in the southbound direction and eliminates one northbound travel lane and recommends the additional purchase of four trolleys to handle additional capacity needs to meet a suggested headway of 7.5 minutes.

The report used an aggressive 10% mode shift from auto traffic to bus traffic to render the estimated ridership of 310 passengers or 150 vehicles per hour based on a 2.1 vehicle occupancy to ridership value. Southbound directional traffic is currently exhibiting volumes of 1,200 vehicles per hour during the peak season. The peak season volume leads not to an issue with the trolley alternative functioning, rather an issue arising from the 10% hourly reduction in traffic's need for a parking facility. A parking facility would require space for 1,200 vehicles, a space that is estimated to require 10 acres for parking facilities.

An example of this parking issue can be seen in the recently completed LeeTran Beach Park & Ride located at the corner of Summerlin Road and Pine Ridge road, the facility has 129 parking spaces with a pad for an estimated 90 additional parking spaces. The highly successful and meticulously built facility fills up quickly during the peak season in the morning, sometimes prior to the peak period where congestion occurs; the full capacity of the trolley to affect the traffic on the corridor is minimized as traffic bypasses the park and ride.

Figure 4-3: Alternative 4's Transit Lane Study Proposed Typical



4.4.3 Transit Recommendation

Transit within the corridor has been a focal point throughout the years with FDOT and LeeTran making dedicated investments in the travel mode. However, barring the development of a parking garage or significant surface parking, the transit system cannot have much more impact. The recommendation is to develop parking opportunities to enable transit utilization.

4.5 Parking Garage & People Mover

4.5.1 Overview

In an effort to remove vehicles from the roadway to ease traffic congestion, the feasibility of using a people mover system was evaluated. This system would require the addition of several large

parking structures for people to park and then use the people mover to get to the island. Possible parking garage locations were identified, shown in **Figure 4-4**, and evaluated by size, distance to drop-off, and real estate value, **Table 4-3**.

An estimated 7,500 parking spaces would be needed to reduce traffic levels from the forecast 15,100 southbound directional during peak season to an acceptable level of service for a one-lane roadway. At a cost of $20,000 per spot, based on a 2017 parking structure report provided in **Appendix F**, the cost of building the necessary garage space is approximately $150 million.

The Tampa International Airport recently completed its 1.5-mile people mover with an estimated $300 million for the guideway and $115 million for cars and electronics. Based on this estimate, a per mile estimate of variable cost for guideway was set at $200 million per mile with the fixed cost of the cars and electronics to estimate the construction costs of a people mover system; shown in **Table 4-4**.

4.5.2 Parking Garage Recommendation

The *Parking Strategies Report* (Fall 2003) found in **Appendix G**, documented the 6,497 parking spaces on Fort Myers Beach with a predominant amount being hotel/motel or commercial; leaving 1,748 spaces shown in **Table 4-5**. The construction of a parking garage would aide in reducing circulating traffic searching for available parking space, reduce congestion over the Matanzas Pass Bridge, and enable latent travel demands to be met. An additional benefit of a parking garage is its utility during the non-peak periods to serve as a vehicle storage facility during hurricanes.

The seasonal nature of the garage's utilization was reviewed and a back of napkin analysis developed regarding the finances of a 7,500 vehicle structure was completed. With an estimated 80% daily parking space utilization for 85 days out of the year and a daily parking fee of $15, the garage will generate $10.2 million per year. Financing for the structure was estimated at $7.2 million with a yearly operating cost of $100 per parking space or $750,000 per year, bringing total estimated liabilities to $7.95 million per year. An overview of these calculations is provided in **Table 4-6**.

The recommendation for a parking garage is contingent on its construction at map location one, as it is the best opportunity to influence drivers to make the decision to avoid the congestion going over the Matanzas Pass Bridge; other locations were identified as not economically feasible or too distant from the congestion to influence the decision to utilize the garage.

Figure 4-4: Proposed Parking Garage Locations

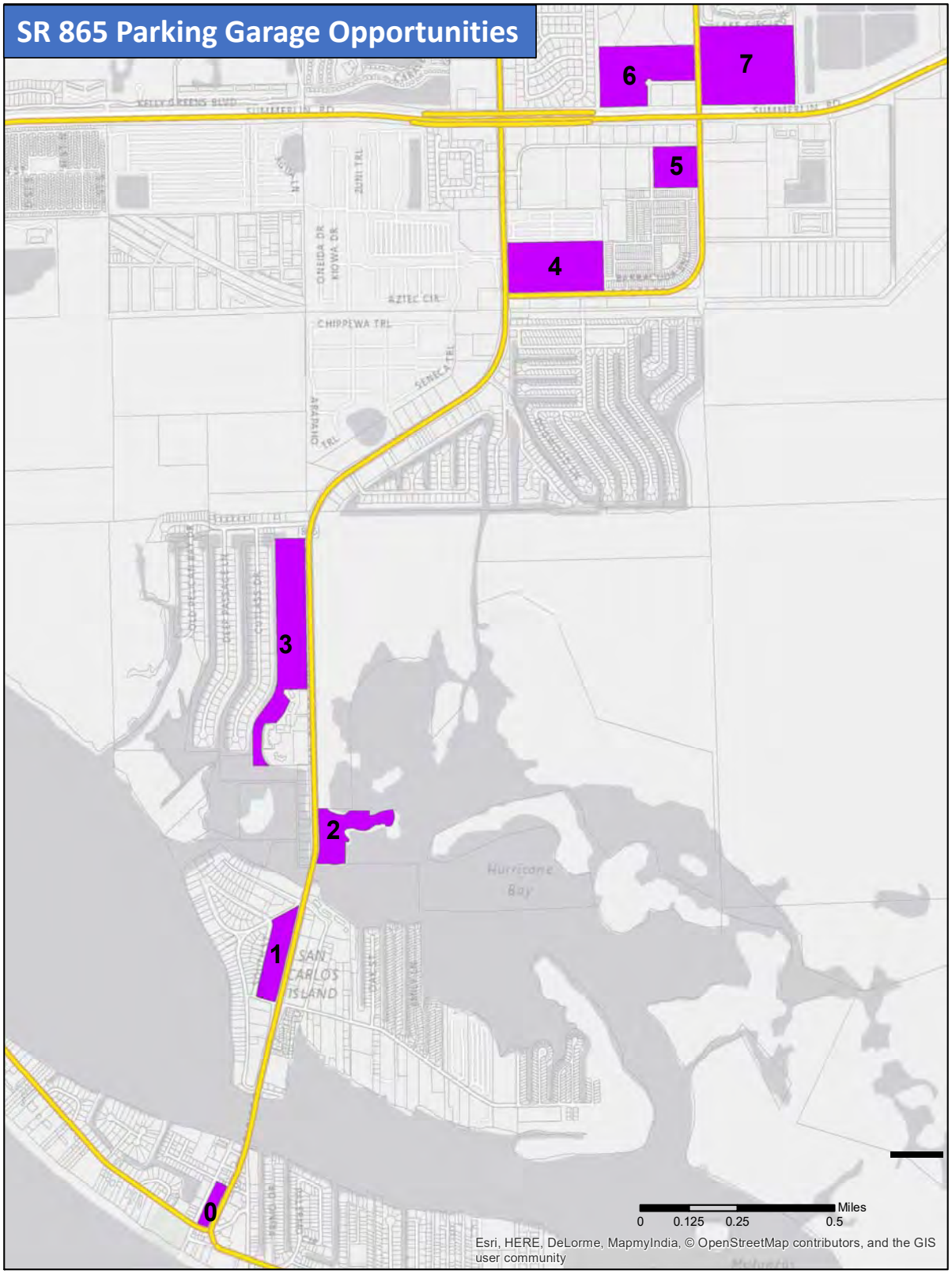


Table 4-3: SR 865 Reviewed Parking Garage Siting Locations

Map ID	Garage Name	Location	GIS parcel size, SF	Taxable Value
0	Drop Off	Between 3rd and 5th Streets, and Old San Carlos and SR 865	97,568	$3,449,170.00
1	Garage 1	Between Main Street and San Carlos Court, and South Street and SR 865	334,795	$3,991,964.00
2	Garage 2	RV Park East of SR 865	384,992	$2,942,255.00
3	Garage 3	South of Siesta Drive and West of SR 865	993,315	$29,887,783.00
4	Garage 4	NE corner of SR 865 and Pine Ridge Road	863,418	$2,761,960.00
5	Garage 5	SW corner of Pine Ridge Road and Summerlin Square Drive	328,971	$174,420.00
6	Garage 6	North of Summerlin Road and West of Pine Ridge Road	824,002	$909,729.00
7	Garage 7	North of Summerlin Road and East of Pine Ridge Road	1,337,782	$1,356,911.00

Table 4-4: People Mover Cost Estimation ($200 million/mile plus $115 million fixed cost)

Map ID	Garage Name	Location	Miles to Drop Off	Estimated People Mover Cost ($millions)
0	Drop Off	Between 3rd and 5th Streets, and Old San Carlos and SR 865	0	-
1	Garage 1	Between Main Street and San Carlos Court, and South Street and SR 865	0.7	$255
2	Garage 2	RV Park East of SR 865	1	$315
3	Garage 3	South of Siesta Drive and West of SR 865	1.5	$415
4	Garage 4	NE corner of SR 865 and Pine Ridge Road	2.6	$635
5	Garage 5	SW corner of Pine Ridge Road and Summerlin Square Drive	3.4	$795
6	Garage 6	North of Summerlin Road and West of Pine Ridge Road	3.5	$815
7	Garage 7	North of Summerlin Road and East of Pine Ridge Road	3.5	$815

Table 4-5: Available Parking by Category from 2003 Parking Strategies Report

Type of Parking	Spaces	<12-hour
Beach Access	63	63
Public-Free	571	571
Public-Paid	336	336
Private-Paid	486	486
Hotel/Motel	2,221	-
Commercial	2,528	-
Handicapped	292	292
Total	6,497	1,748

Table 4-6: Estimated Revenue and Liabilities for a 7,500 Space Parking Garage Structure

Description	Value
Parking Spaces	7,500
Cost charged for Parking per day	$20.00
Daily Utilization Estimate	80%
Revenue per day	$120,000
Days in Utilization	85
Revenue per Year	**$10,200,000**
Operations / Space	$100
Yearly Mortgage	$ 7,200,000
Total Operations	$750,000.00
Liabilities per Year	**$7,950,000**

4.5.3 People Mover Recommendation

The capacity of the people mover could range from a single vehicle up to six connected cars. Estimating 20 seats per connected car, an estimated total of 120 persons could be moved per five-minute trip per direction for twelve trips per hour, giving an estimated 1,440-person capacity per hour per direction; a significant capacity to move parked guests. However, the People Mover's implementation at map location one would cost an estimated $255 million for construction without any current estimate for operations and maintenance.

An alternative to the people mover would be to have automated electric vehicles dispatched from the ground floor of the parking structure and traverse the currently designated trolley lane to the parking lot behind the Winds shopping facility. At an average of four persons per vehicle and a fleet of 100 automated electric vehicles, similar to the one shown in **Figure 4-5** to accommodate beach gear, driving the Matanzas Pass Bridge on a ten-minute trip per direction, capacity would deliver 2,400 persons per hour. The projected cost of an automated vehicle is $5,000 in additional sensors to existing vehicle costs; therefore, the London Taxi's $70,000 vehicle would be $75,000 with automation, with 100 automated electric vehicles the cost would be $7.5 million for outright purchase of the vehicles.

The conveyance of individuals from the parking garage to Fort Myers Beach using automated electric vehicles is recommended based on capacities, operation and maintenance, and general costs.

Figure 4-5: Example of London Taxis to Accommodate Beach Goers

4.6 REVERSIBLE LANES

4.6.1 Overview

Reversible lanes are lanes in which traffic may travel in either direction, depending on certain conditions and are utilized to maximize roadway capacity where significant directional traffic imbalances occur. Implementation is commonly through moveable barrier or a combination of overhead gantry and in-ground LED lighting, as shown in **Figure 4-6**. SR 865's southbound traffic congestion in the morning and the evening's northbound traffic off the island exhibit a situation that would be ideal for a reversible lane system.

Figure 4-6: Utah DOT Flex Lane System in Salt Lake County

4.6.2 Analysis

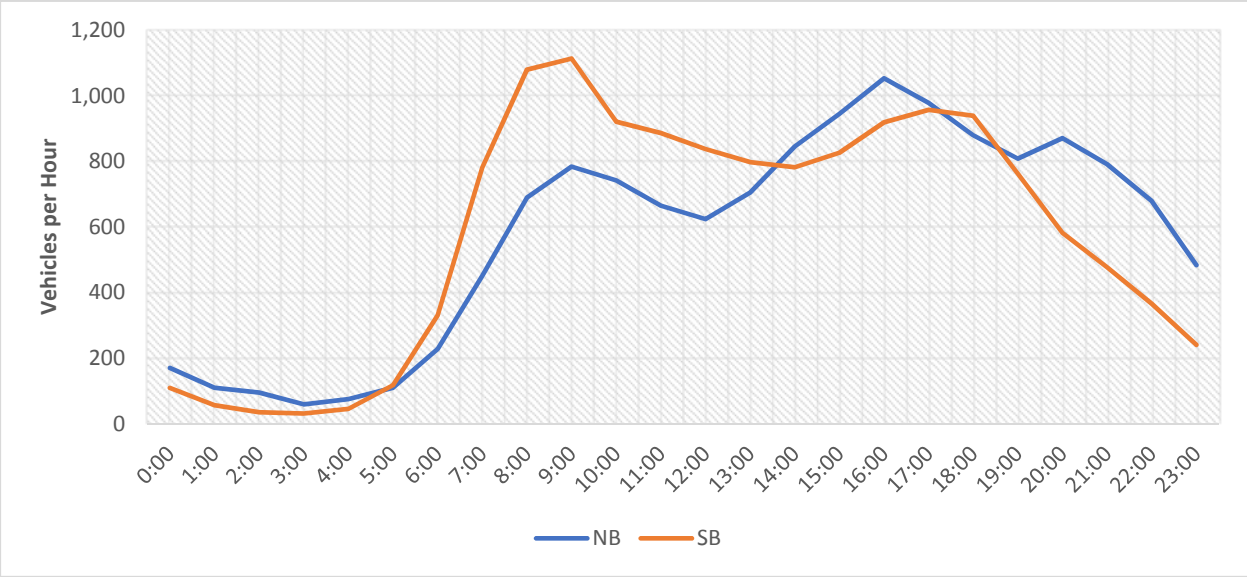
The diurnal curves for the northbound and southbound traffic during peak periods were reviewed to identify a significant separation of direction and reversal of direction during peak season, shown in **Figure 4-7**; further investigation was warranted. Stakeholders were asked their input, in-situ observations were conducted, and implementation approaches were reviewed.

Stakeholders expressed a desire for a dynamic driving surface that would show Ft. Myers Beach as an innovative destination location. Additionally, stakeholders were receptive to the reversible lane concept should it provide an effective traffic congestion opportunity.

In-situ observations of the southbound traffic noted the benefits of having a second lane southbound over the Matanzas Pass Bridge. However, northbound traffic off the island exhibited

essentially free-flow conditions past Crescent Street, the location where the reversible lane was set to begin, thus negating the reversible lane opportunity; Lee County traffic staff agreed with the northbound free-flow conditions north of Crescent Street.

Figure 4-7: Peak Season Directional Volumes at SR 865 north of Main Street



4.6.3 Implementation Approaches

4.6.3.1 Dynamic in-ground signs

The innovative in-ground dynamic driving surface requested by stakeholders is currently not available, as it is currently a proposed idea as shown in **Figure 4-9**. An attempt was made to develop costs and identify issues that the FDOT's would need to pass to the idea's fruition.

Digital advertising boards, like the one shown in **Figure 4-10**, would provide the visual replication of the roadway by displaying the roadway configuration by time of day. Currently, a 36' by 33' panel is $400,000 including installation cost with an annual electrical cost of $2,200 per year. The 3,300' x 35' necessary to cover the Matanzas Pass Bridge would cost an estimated $40 million to install with an estimated $220,000 annual electrical cost.

The concerns regarding this technology would be the operations and maintenance for an in-road application as the surface course used to protect the technology would need to be accessible to address issues. An additional issue would be the process by which the technology would need to go through the FDOT's approved product list (APL) program in compliance with the Manual on Uniform Traffic Control (MUTCD).

Figure 4-8: Example of Dynamic Roadway Implementation

Figure 4-9: Digital Advertising Billboard

4.6.3.2 Overhead gantry

An overhead gantry approach was reviewed, like the previously shown Utah DOT example, and sketch level visuals were developed to replicate the corridor's time of day utilization. The technology has been vetted and would prove easier to implement. The configurations are shown as morning southbound two-lanes in **Figure 4-10**, mid-day / off season one lane per direction in **Figure 4-11,** and evening northbound two-lanes in **Figure 4-12**.

Figure 4-10: Reversible Lane: AM Peak Configuration

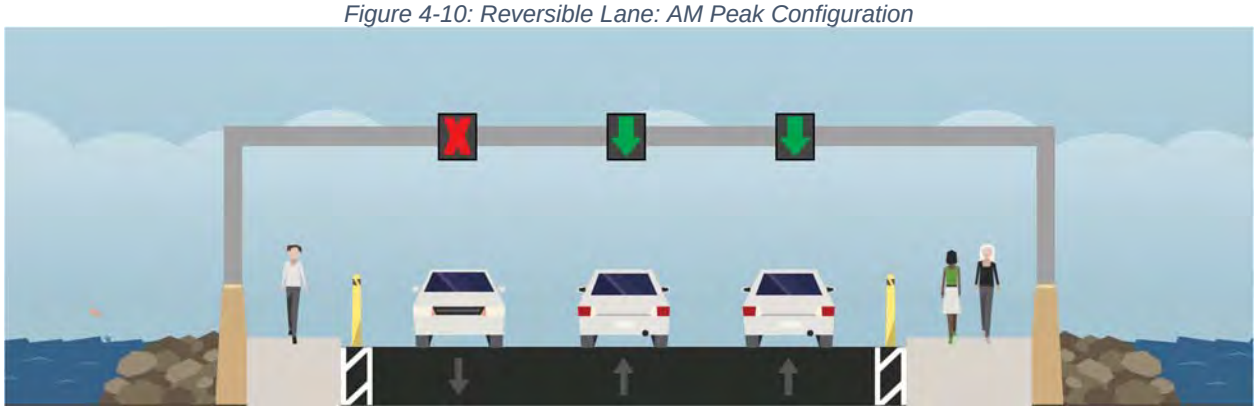


Figure 4-11: Reversible Lane: Non-Peak Configuration

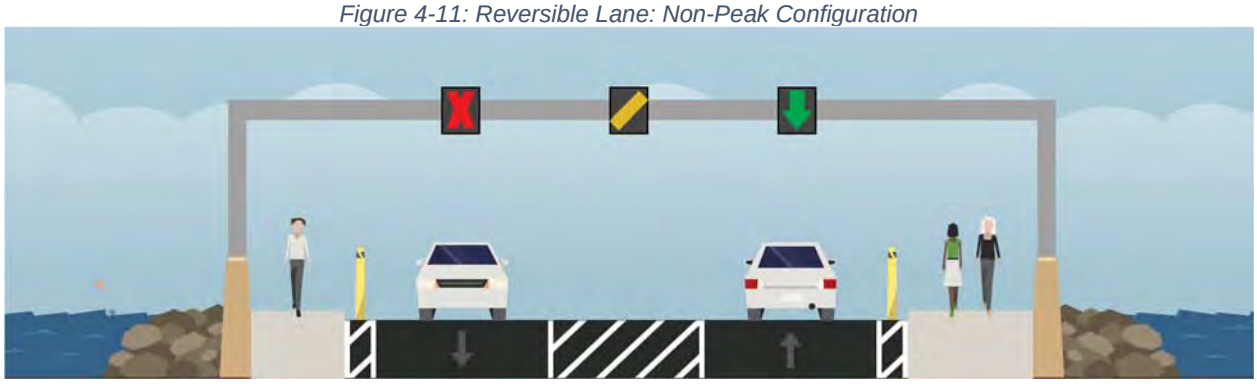
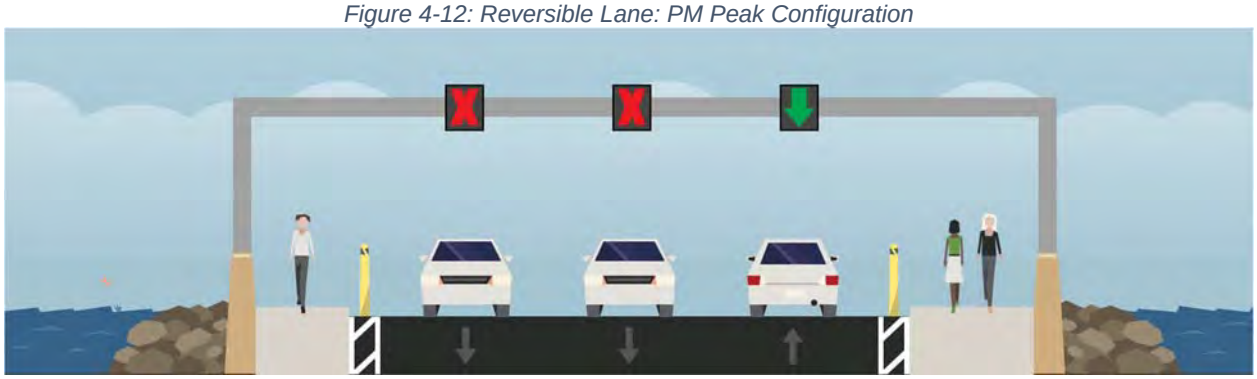


Figure 4-12: Reversible Lane: PM Peak Configuration



4.6.4 Reversible Lane Recommendation

Reversible lanes would not prove effective to implement for day-to-day operation and thus is not recommended as an infrastructure improvement.

4.7 SOUTHBOUND TOLLING

4.7.1 Overview

The Town of Fort Myers Beach has requested an investigation for the ability to toll vehicular traffic headed southbound onto the island as a traffic congestion mitigation strategy. A 2004 paper entitled “Predicted driver response to a cordon toll around Fort Myers Beach, Florida” documented the effects of a southbound toll ranging from $1 to $4 with a maximum cap of $100 monthly for residents utilizing an electronic toll collector (ETC); the paper is provided in **Appendix H**. An example of the proposed southbound tolling facility can be found in **Figure 4-13**.

Additionally, the FDOT’s current policy of retroactively tolling existing facilities would require the secession of ownership of the Matanzas Pass Bridge to Lee County or the Town of Fort Myers Beach. The bridge has been offered to both entities over the last twenty years and each entreaty has been politely declined.

4.7.2 Analysis

Traffic diversion was estimated to be 6.6 percent for a $1 toll, 14.4 percent for a $2 toll, 27.2 percent for a $3 toll, and 31.2 percent for a $4 toll; the results are shown in **Figure 4-14**. The diversion demonstrates a toll elasticity, however the study notes there is a significant latent travel demand. 74 percent of seasonal residents and 73 percent of long-term residents limited their trips because of the traffic congestion and would likely make trips if congestion was reduced, these trips might offset the toll effects on congestion.

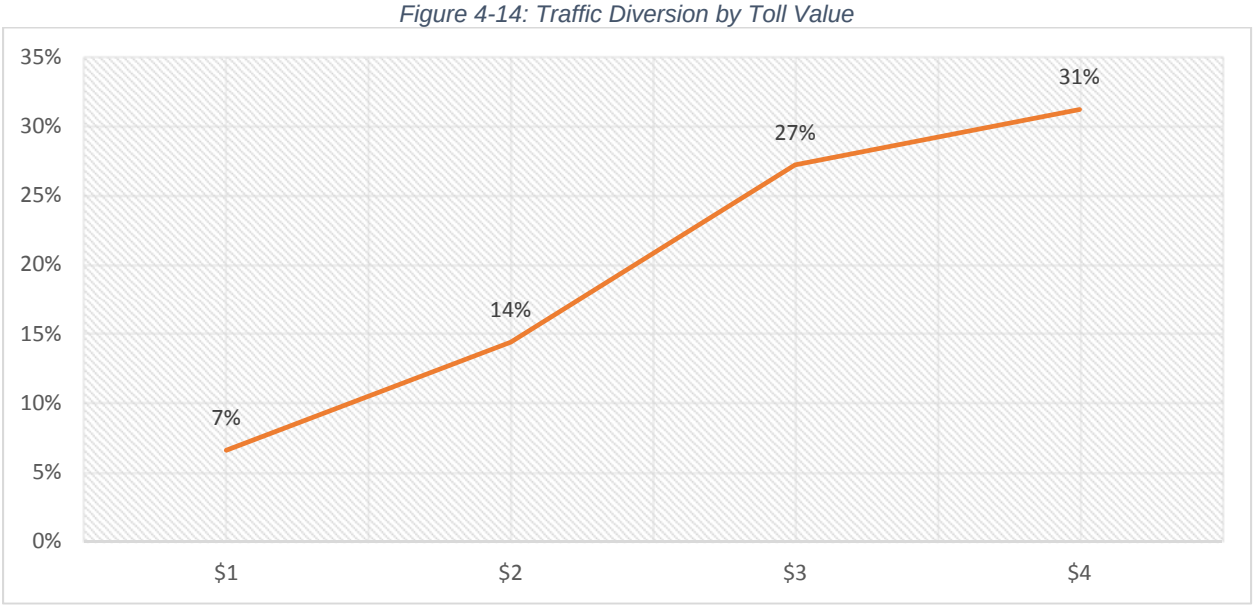
Residents of the Town of Fort Myers Beach expressed significant push-back to the toll concept, significant enough that elected officials supporting the idea were ousted during the next election.

4.7.3 Southbound Tolling Recommendation

The FDOT is recommended to not implement a southbound toll lane based on current policy and analysis showing no impact to traffic congestion.

Figure 4-13: Proposed Southbound SR 865 Tolling Facility Layout south of Main Street

Figure 4-14: Traffic Diversion by Toll Value



4.8 WAYFINDING PARKING AVAILABILITY

4.8.1 Overview

In Section 4.5.2, the availability of non-commercial parking was shown to have approximately 1,750 spaces available; of which 822 is paid parking dispersed around the area, shown in **Table 4-7.** The ability to direct vehicular traffic to these parking spaces would reduce "parking spot hunters" that circulate through the area utilizing roadway capacity.

Table 4-7: Paid Parking Availability from 2003 Study

Facility Name	Number of Spaces	Public/Private
Bowditch Point Park	64	Public
Lynn Hall Park	114	Public
Norm's Beach Parking	49	Private
Old San Carlos	54	Public
Center Street	11	Public
Under Bridge	69	Public
Pizza Hut	87	Private
LaPlaya Beach	84	Private
Park Shop Beach	82	Private
Times Square area	48	Private
Lani-Kai	50	Private
Avenue C	17	Private
Beach Access	93	Public
Total	**822**	

The Town of Ft. Myers Beach electronic system to collect parking space fees and its supporting infrastructure provide the system to determine the availability of spaces and relay that information to vehicular traffic. Recognizing this, opportunities for wayfinding along the corridor were identified.

4.8.2 Parking Wayfinding Recommendations

4.8.2.1 Parking Trailblazing Signage

Parking trailblazing signage, an example shown in **Figure 4-15**: Parking Wayfinding Signage Example would provide an opportunity to influence vehicle movements along the corridor and influence individuals reaching the base of the bridge headed southbound to consider turning right as opposed to the predominant through movement; the increased utilization of the right lane would lead to increased throughput over the bridge.

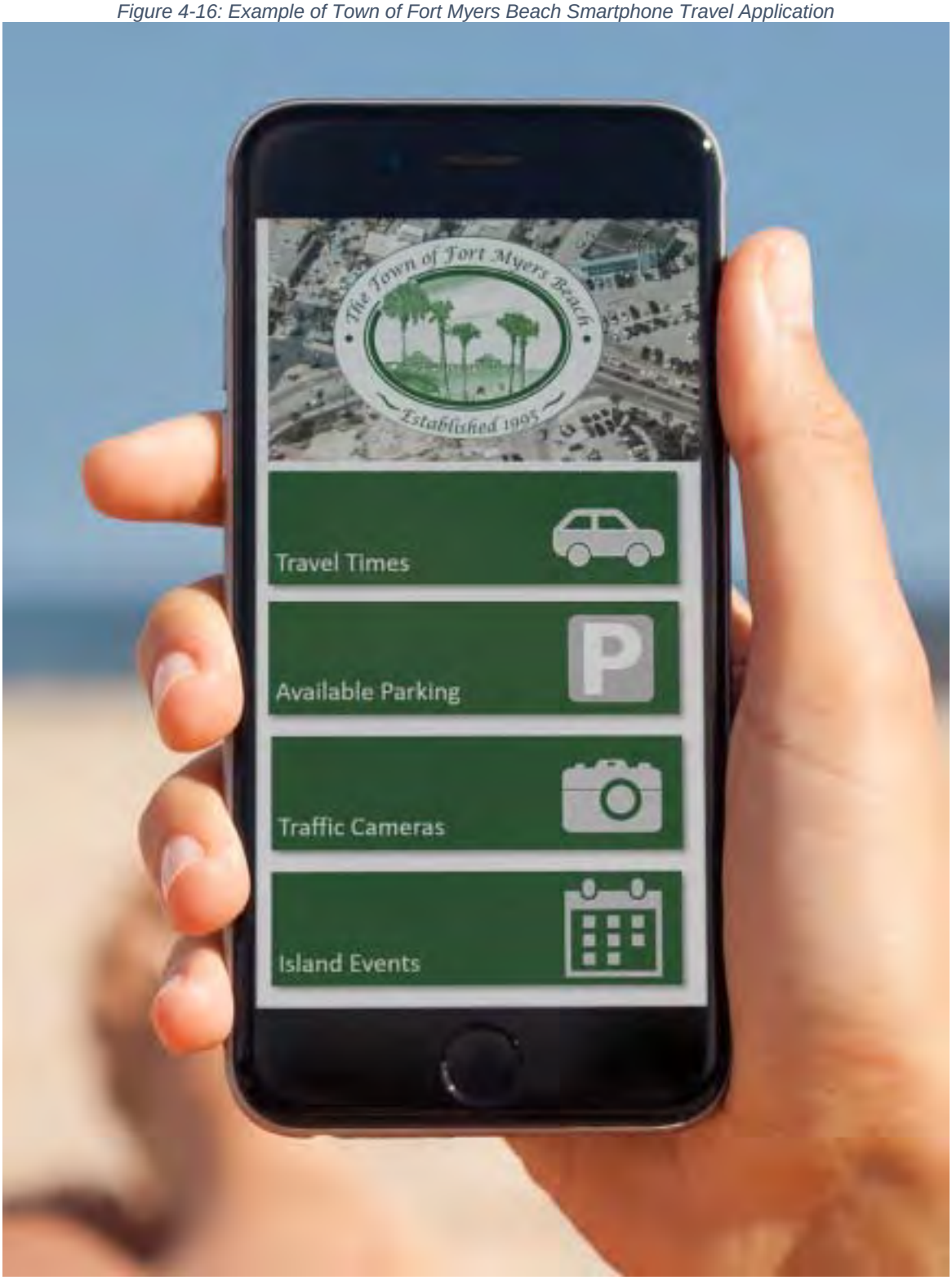
Figure 4-15: Parking Wayfinding Signage Example

4.8.2.2 Smartphone Application

The development of a smartphone application, a mock up can be found in **Figure 4-16**, to be advertised at the airport, local hotels, and shopping areas could provide the following benefits for congestion on the roadway:

- Travel Times:
  - Document the current travel times down to the island from the current position
  - Provide a time of day graphic from historical data to suggest departure times to avoid the traffic congestion. The time-of-day shift would disperse the traffic volumes and reduce the time to LOS F on the corridor
- Available Parking:
  - Provide users with an ability to locate parking spaces on the island and guide users to parking opportunities.
- Traffic Cameras:
  - Provide corroborating evidence to users in regard to estimated travel times.
- Island Events:
  - Provide users with information regarding events on the island and provide a value proposition for the app to remain on the phone for non-residents and encourage future visits.

Figure 4-16: Example of Town of Fort Myers Beach Smartphone Travel Application



4.9 PEDESTRIAN MOVEMENTS AT 5TH STREET / ESTERO BOULEVARD

4.9.1 Overview

The intersection of SR 865 and 5th Street / Estero Boulevard is a stop-controlled intersection, with eastbound and westbound stop controlled, that experiences a significant amount of pedestrian movements. Using **Figure 4-17** as a guide, the predominant movements follow appropriate traffic operations by walking from Zone 4 to Zone 3 or Zone 1 to Zone 2 and then using the pedestrian crossing south of the intersection, however, during the course of a video collection of the intersection, as part of a larger study effort to identify sources of friction at the intersection, a number of pedestrians were recorded crossing the intersection, either from Zone 4 or Zone 3 directly across to Zone 1 or Zone 2. An example of a pedestrian crossing and ambulatory times is provided in **Figure 4-18**.

Figure 4-17: SR 865 at 5th St. / Estero Blvd. with Zonal Overlay

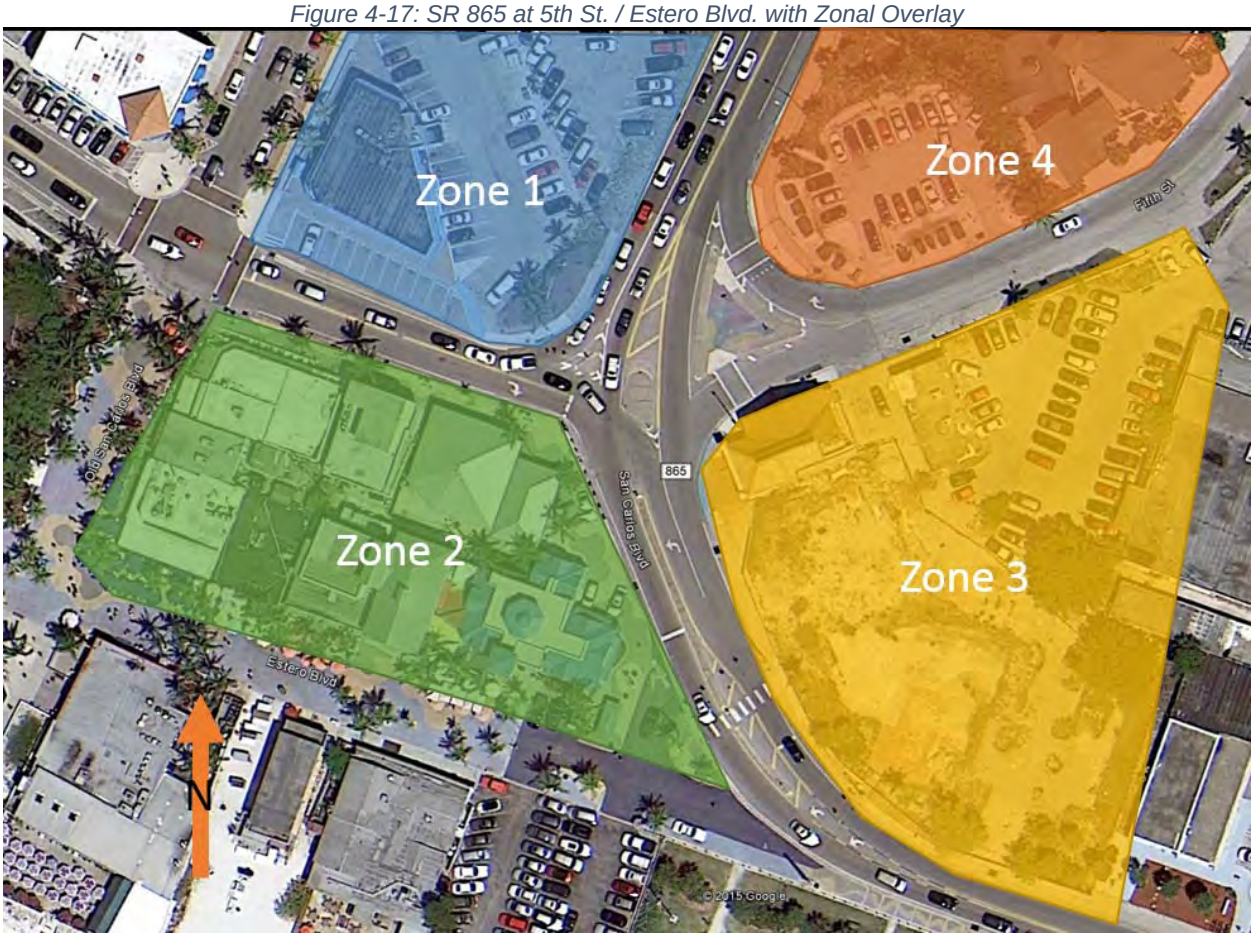
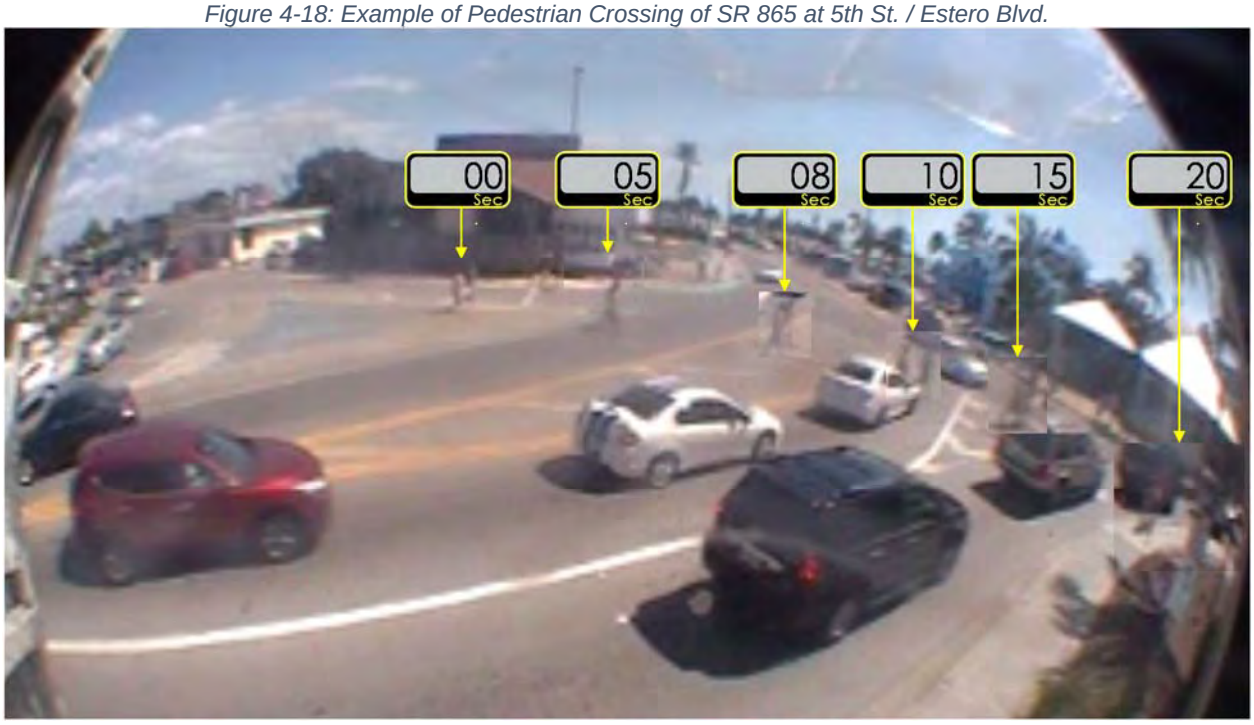


Figure 4-18: Example of Pedestrian Crossing of SR 865 at 5th St. / Estero Blvd.

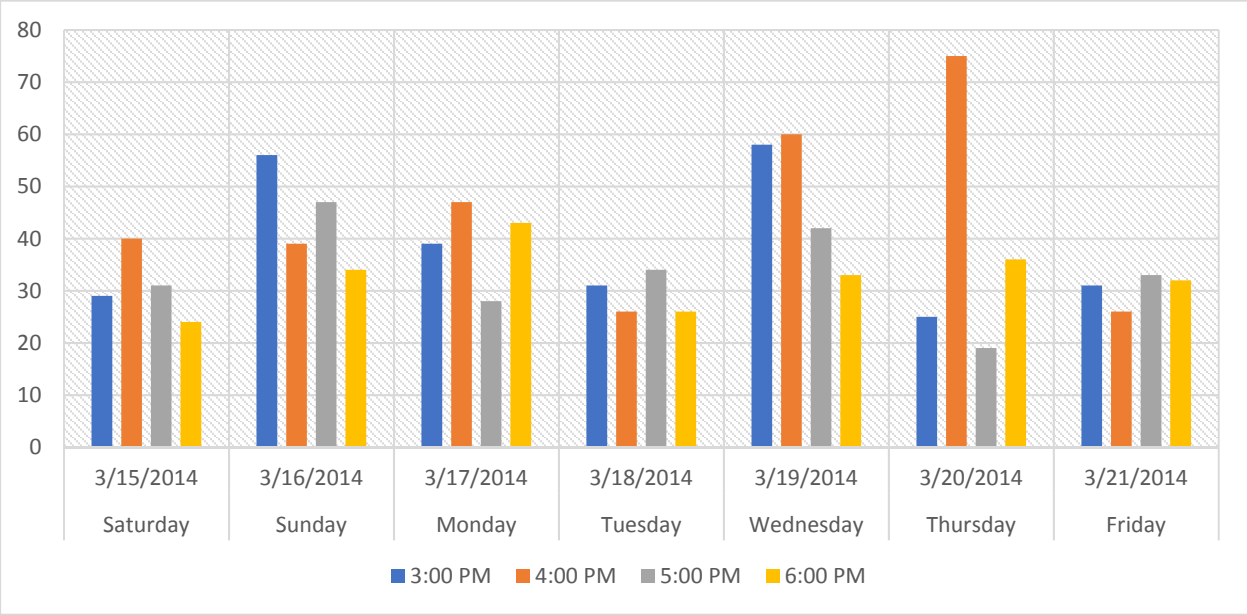


4.9.2 Analysis

A weeklong turning movement count from Saturday March 15, 2014 to Friday March 21, 2014 was conducted with pedestrian and bicycle data included. The pedestrian counts showed a median afternoon crossing of 33 persons per hour, shown in **Figure 4-19**, from one side of the SR 865 to the other.

Crashes within the study area were reviewed in Signal Four Analytics specifically for this intersection to identify any pedestrian related incidences. Of the fourteen crashes in the area from January 1st, 2012 to July 1st, 2018, none involved pedestrians. The slow moving nature of the southbound vehicles creates the opportunities for safe crossing between the vehicles and thus is a contributing factor of perceived safe crossing.

Figure 4-19: Pedestrian Crossings of SR 865 by Hour by Day of Week



4.9.3 Pedestrian Movements at 5th Street / Estero Boulevard Recommendations

The pedestrian movements through the intersection should be reviewed with traffic operations to determine the feasibility of a High intensity Activated crossWalK (HAWK) pedestrian crossing beacon in conjunction with the existing pedestrian crossing to the south of the intersection. The lack of pedestrian related incidents does not create an immediate need to address the situation, however, any improvement should consider mitigation strategies for the existing crossings.

4.10 PEDESTRIAN OVERPASS AT THE PEDESTRIAN CROSSING

4.10.1 Overview

The pedestrian crossing located at Times Square south of the SR 865 at 5th Street / Estero Boulevard intersection experiences a significant number of pedestrian crossings. The crossing, shown in **Figure 4-20**, is a fully signalized crossing activated by pedestrian button, however, locals discussed pedestrians impatiently proceeding across the crosswalk if the signal change to pedestrian cycle was not fast enough; a solution during peak season is the stationing of a safety officer, shown in **Figure 4-21**: Pedestrian Crossing with Safety Officer to regulate Pedestrians, in the median to encourage pedestrian adherence to the signal.

Previous studies have evaluated a pedestrian overpass or underpass as a possible replacement to the at-grade crossing, the *Fort Myers Beach Congestion Mitigation Study: Traffic Operations* and the *Estero Boulevard Streetscape Master Plan*, however the common concerns would be the encouragement of utilization, efficacy of relieving traffic, and the siting of the overpass.

Figure 4-20: Pedestrian Crossing at Time Square

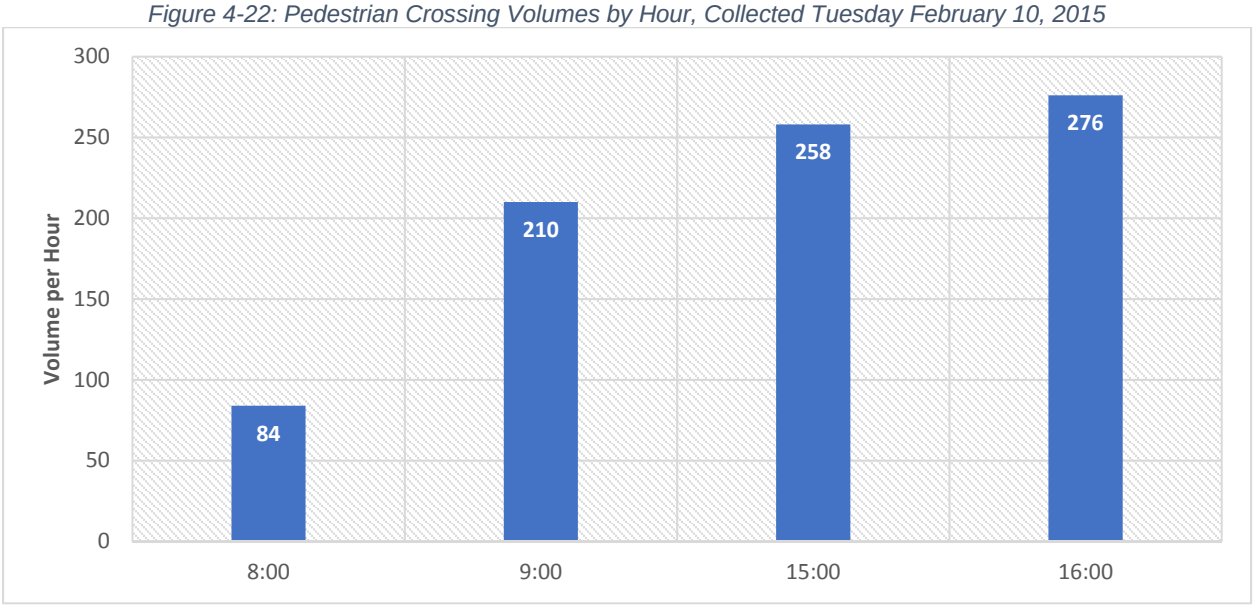
Figure 4-21: Pedestrian Crossing with Safety Officer to regulate Pedestrians

4.10.2 Analysis

4.10.2.1 Pedestrian Volumes

Pedestrian volumes were collected at the crossing to evaluate the magnitude of crossings. The crossing volumes are shown in **Figure 4-22** and demonstrate a significant amount of traffic ranging from 84 to 276 crossing per hour.

Figure 4-22: Pedestrian Crossing Volumes by Hour, Collected Tuesday February 10, 2015



4.10.2.2 Traffic Impact

A commonly expressed concept is that the pedestrian crossing contributes to the back up on the Matanzas Pass Bridge. A southbound travel time study showed that during peak period congested operations, the flow of traffic varies from as low as four miles per hour up to seven miles per hour. The 50' pedestrian crossing would have an estimated crossing time of 26 seconds based on a minimum seven second green, 15 second crossing clearance, and a four second red time. The rounded up 30 second delay on a vehicle going six miles per hour would only produce a 270' gap to the vehicle in front, a distance a vehicle traveling at 15 miles per hour could close in 20 seconds.

4.10.2.3 Siting & Utilization

The current siting space for a landing of a pedestrian overpass was estimated at 2,000 square feet based on Disney Spring's recently completed ADA Compliant pedestrian overpass. The overpass, shown in **Figure 4-23**, has an elevator and stair access within the sight to ascend to the overpass. Finding this space within the existing right of way would be difficult which would require land-use agreements with property owners on either side of the facility.

An issue mentioned in the two prior reports and in discussions with local stakeholders, the concept of utilization was mentioned as individuals may simply wish to take the most direct route and cross the street, thus negating the efficacy of the overpass. The Disney Springs pedestrian overpass utilizes shrubs and fencing, shown in **Figure 4-24**, to encourage the use of the pedestrian overpass. An initial sketch that included these shrubs is shown in **Figure 4-25**.

Figure 4-23: Example of ADA Compliant Pedestrian Overpass at Disney Springs

Figure 4-24: Example of Barrier to Encourage Overpass Utilization

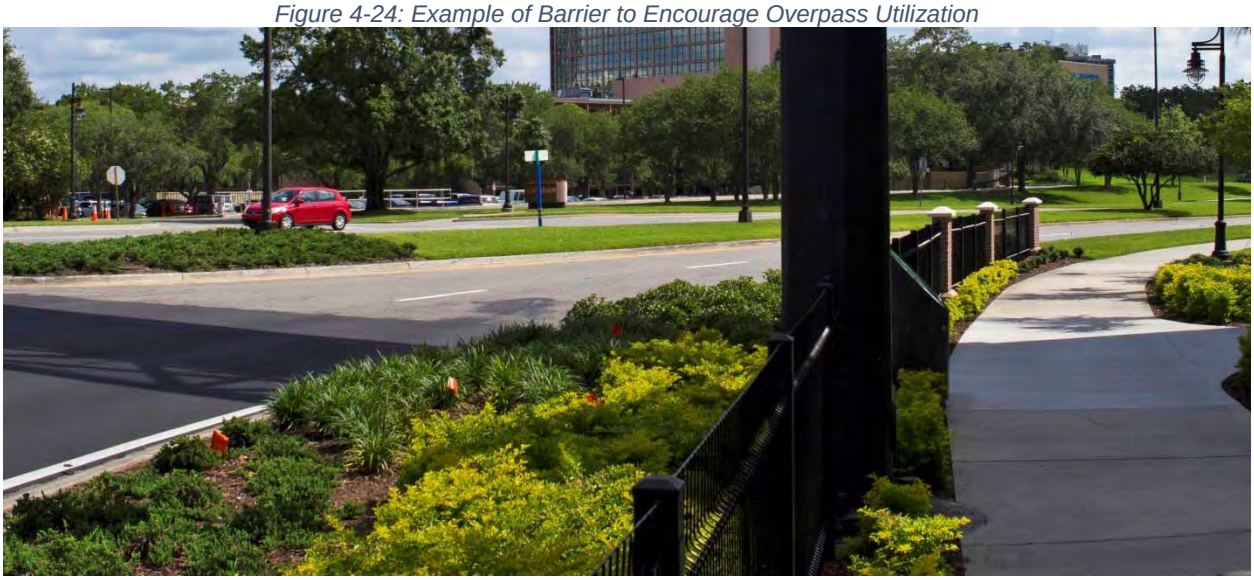


Figure 4-25: Initial Rendering of Pedestrian Overpass

4.10.3 Pedestrian Overpass Recommendation

A pedestrian overpass is recommended from a safety perspective, however, based on calculations, the overpass should not be sold as a means for traffic congestion relief as the current at-grade crossing appears to have negligible impact.

5 ALTERNATIVES EVALUATED

5.1 BUILD ALTERNATIVES

5.1.1 Beach Alternatives

The Beach Alternatives include potential work within the Town of Fort Myers Beach (FMB) on Estero Island and assume that the Matanzas Pass Bridge will be widened before or concurrently as discussed in Section 5.3.3. Four Beach Alternatives were developed and presented at the February 2018 public workshop. Pedestrian railing/barrier between the sidewalks and roadway to keep pedestrians from entering the roadway outside of signalized crosswalks remains an option for all Beach Alternatives; FDOT will continue to coordinate with Lee County and the Town of Fort Myers Beach to determine the use this feature.

5.1.1.1 Beach Alternative 1

Beach Alternative 1 would add three signals and remove the right turn from NB SR 865 to EB Fifth.

This alternative includes milling and resurfacing SR 865 from the existing pedestrian crossing to Matanzas Pass Bridge; milling and resurfacing Estero Blvd from SR 865 to Old San Carlos Blvd; new sidewalk on the west side of SR 865 from Fifth St to the Matanzas Pass Bridge; removal of the existing pedestrian signal and crosswalk between Crescent St and Fifth St; and a total of three new traffic signals at Estero Blvd/SR 865/Fifth St, Old San Carlos Blvd/Estero Blvd, and Estero Blvd/Crescent St. Following the February 2018 public workshop, the alternative was revised to remove the right turn from NB SR 865 to EB Fifth St to address existing safety and operational issues. The existing pedestrian island would be expanded/connected to the existing sidewalk along Fifth St to accomplish this lane closure. This expanded pedestrian island provides a landscape opportunity area for a gateway feature for FMB. See **Appendix I** for the Beach Alternative 1 plan.

Except for the milling and resurfacing along Estero Blvd (FMB) and the proposed signals at Old San Carlos Blvd/Estero Blvd (FMB) and Estero Blvd/Crescent St (Lee County), all work is along FDOT ROW. The only additional ROW that may be required is a corner clip in the NW quadrant of the intersection of Estero Blvd/SR 865/Fifth St.

5.1.1.2 Beach Alternative 2

Beach Alternative 2 would add three signals and a second SB lane onto the island along SR 865/Estero Blvd.

This alternative includes widening SR 865 from two to three lanes (2 SB, 1 NB) from Crescent St to the existing pedestrian crossing; widening for the addition of a right-turn lane from SB SR 865 to WB Estero Blvd; Milling and resurfacing SR 865 from the existing pedestrian crossing to Matanzas Pass Bridge; Milling and resurfacing Estero Blvd from SR 865 to Old San Carlos Blvd; new sidewalk on the west side of SR 865 from Fifth St to the Matanzas Pass Bridge; and a total of three new traffic signals at Estero Blvd/SR 865/Fifth St, Old San Carlos Blvd/Estero Blvd, and Estero Blvd/Crescent St. The two SB lanes coming off the Matanzas Pass Bridge would continue to Crescent St where one would become a left-turn only drop lane. See **Appendix J** for the Beach Alternative 2 plan.

This alternative includes work along Lee County, FMB, and FDOT ROW. Additional ROW would be required along both sides of Estero Blvd/SR 865 between Crescent St and Fifth St.

5.1.1.3 Beach Alternative 3

Beach Alternative 3 would add three signals, one-way SR 865/Estero Blvd onto the island, and require traffic exiting the island to do so via Crescent St and Fifth St.

This alternative includes widening to add a right-turn lane from SB SR 865 to WB Estero Blvd; milling and resurfacing SR 865 from Crescent St to the Matanzas Pass Bridge; milling and resurfacing Estero Blvd from SR 865 to Old San Carlos Blvd; milling and resurfacing Crescent St from SR 865 to First St; milling and resurfacing Third St from Crescent St to under SR 865; milling and resurfacing Second St from Crescent St to under SR 865; milling and resurfacing Fifth St from Crescent St to SR 865; new sidewalk on the west side of SR 865 from Fifth St to the Matanzas Pass Bridge; and a total of three new traffic signals at Estero Blvd/SR 865/Fifth St, Old San Carlos Blvd/Estero Blvd, and Estero Blvd/Crescent St. As part of Beach Alternative 3, SR 865/Estero Blvd would be SB only (two lanes) between Crescent St and Fifth St and Fifth St would be WB only (one lane) between Crescent St and SR 865. Additionally, Crescent St would be NB only (two lanes) between Estero Blvd and Fifth St. See **Appendix K** for the Beach Alternative 3 plan.

This alternative includes work along Lee County, FMB, and FDOT ROW. Additional ROW would be required along the south (beach) side of Estero Blvd/SR 865 between Crescent St and the existing pedestrian crossing.

5.1.1.4 Beach Alternative 4

Beach Alternative 4 would add three signals, one-way SR 865/Estero Blvd onto the island, and require traffic exiting the island to do so via an elevated ramp from Crescent St to the Matanzas Pass Bridge.

This alternative includes milling and resurfacing from Crescent St to the Matanzas Pass Bridge; milling and resurfacing Estero Blvd from SR 865 to Old San Carlos Blvd; milling and resurfacing Crescent St from SR 865 to First St; cul-de-sacing Third St at Crescent St; milling and resurfacing Fifth St from Crescent St to SR 865; new sidewalk on the west side of SR 865 from Fifth St to the Matanzas Pass Bridge; and a total of three new traffic signals at Estero Blvd/SR 865/Fifth St, Old San Carlos Blvd/Estero Blvd, and Estero Blvd/Crescent St. As part of Beach Alternative 3, SR 865/Estero Blvd would be SB only (two lanes) between Crescent St and the Matanzas Pass Bridge and Fifth St would be WB only (one lane) between Crescent St and SR 865. Additionally, Crescent St would be NB only (two lanes) and a direct ramp would be added with a free-flow connection to the Matanzas Pass Bridge. See **Appendix L** for the Beach Alternative 4 plan.

This alternative includes work along Lee County, FMB, and FDOT ROW. Additional ROW would be required along the south (beach) side of Estero Blvd/SR 865 between Crescent St and the existing pedestrian crossing.

5.1.2 Island Alternatives

The Island Alternatives include potential work on San Carlos Island and assume that the Matanzas Pass Bridge will be widened before or concurrently as discussed in Section 5.3.3. Two Island Alternatives were developed and presented at the February 2018 public workshop.

5.1.2.1 Island Alternative 1

Island Alternative 1 includes milling and resurfacing and the addition of a raised median traffic separator along SR 865 between Main St and Prescott St/Buttonwood Dr. A signal would be installed at Main St with left turns from SR 865 prohibited. Traffic heading south on SR 865 wanting to go east on Main St would do so via a new slip ramp to the Fishermans Wharf frontage road along SR 865, U-turn under the Matanzas Pass Bridge, and right turn onto Main St. The

existing metered signal at Prescott St/Buttonwood Dr would be modified to an actuated metered signal that would only run as metered (one lane at a time) when SB traffic backs up across the Matanzas Pass Bridge. A sidewalk would be added on the west side of SR 865 south of Main St to connect to the widened Matanzas Pass Bridge. See **Appendix M** for the Island Alternative 1 plan.

All work is along FDOT ROW and no additional ROW would be required.

5.1.2.2 Island Alternative 2

Island Alternative 2 includes milling and resurfacing SR 865 between Main St and Prescott St/Buttonwood Dr to add bike lanes and a new signal at Main St; see **Figure 5-1** for typical section. SR 865 would be widened to the west to accommodate two SB lanes and a sidewalk onto the Matanzas Pass Bridge south of Main St. Southbound Fishermans Wharf frontage road will have to be shifted to accommodate the SR 865 widening. The existing metered signal at Prescott St/Buttonwood Dr would be modified to an actuated metered signal that would only run as metered (one lane at a time) when SB traffic backs up across the Matanzas Pass Bridge. Landscape opportunity areas would be provided on both sides of SR 865 south of Main St between SR 865 and the Fishermans Wharf frontage roads. See **Appendix N** for the Island Alternative 2 plan.

All work is along FDOT ROW and no additional ROW would be required.

Figure 5-1: Proposed Typical Section - Main St to Hurricane Pass Bridge

5.2 Comparative Evaluation of Alternatives

5.2.1 Operational Evaluation

The *Project Traffic Report* developed a calibrated VISSIM model capturing an eleven-hour period from 7:00 AM to 6:00 PM during the Peak Season. The model was updated and the operational results for the 2040 Future Year No-Build and Alternative iterations of the Beach Alternatives and Island Alternatives were analyzed.

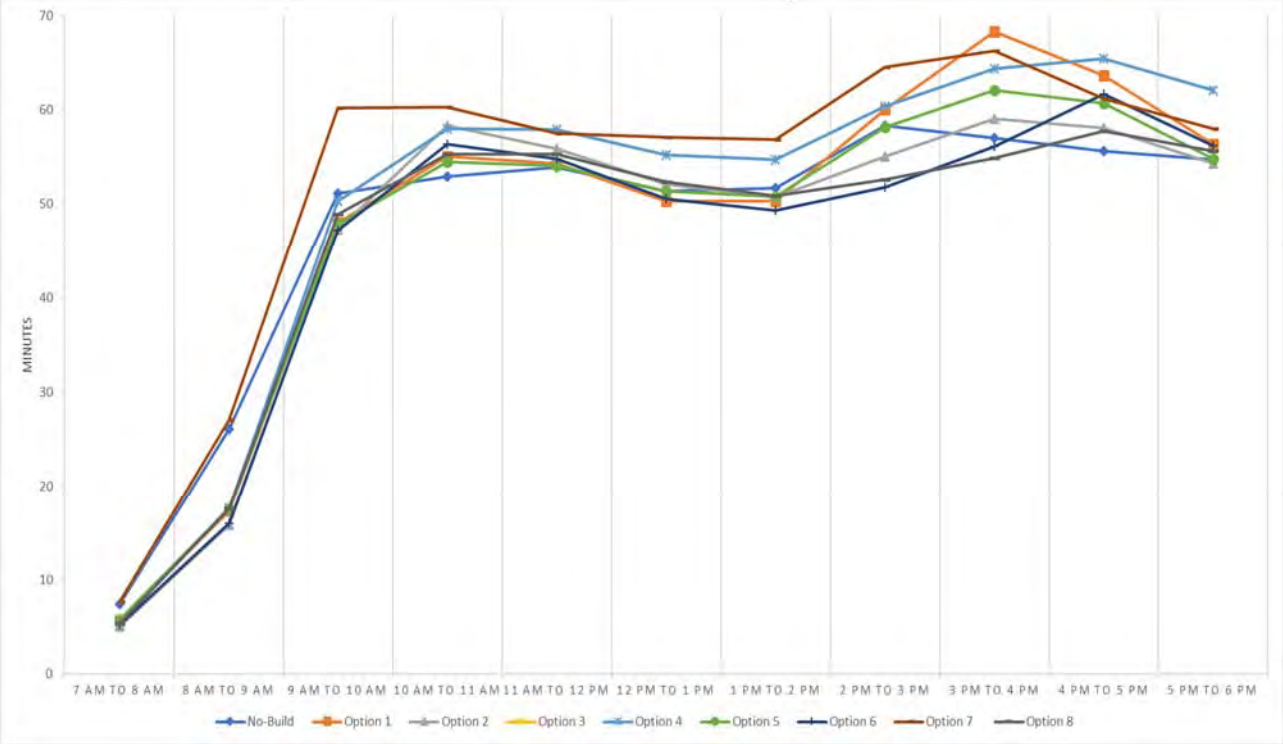
Network-wide, corridor, and intersection Measures of Effectiveness (MOEs) were identified based on guidance in the FDOT *Traffic Analysis Handbook* and FDOT *Mobility Measure Source Book*.

Network-wide MOEs include delay, number of stops, stopped delay, total travel time, and total distance traveled. Average per vehicle and total network values are reported for delay, number of stops, and stopped delay. Corridor MOEs include travel time, volume (vehicle throughput), speed, and density. Intersection MOEs include the average queue, maximum queue, vehicles (throughput), vehicle delay, and stops.

The results presented for the alternatives shows that this corridor will experience very high demand into the Future Year, and without substantial capacity and operational improvements, the anticipated future year travel times are unlikely to change drastically. The proposed options for this stage of the project are not substantial enough to change the future year travel times along the corridor much but are anticipated to increase vehicular throughput. This will allow more drivers to get where they want to go in desired time. A summary of the travel times for southbound SR 865 are presented in **Figure 5-2**. The options listed are as follows:

- Option 1 – Beach Alternative 1 + Island Alternative 1
- Option 2 – Beach Alternative 2 + Island Alternative 1
- Option 3 – Beach Alternative 3 + Island Alternative 1
- Option 4 – Beach Alternative 4 + Island Alternative 1
- Option 5 – Beach Alternative 1 + Island Alternative 2
- Option 6 – Beach Alternative 2 + Island Alternative 2
- Option 7 – Beach Alternative 3 + Island Alternative 2
- Option 8 – Beach Alternative 4 + Island Alternative 2

Figure 5-2: Southbound SR 865 Travel Time Comparison in Minutes



5.2.1.1 Beach Alternative Evaluation

The modeled results of the beach area did not provide a clear alternative, a result that can be expected based on the capacity issues south of the study area; two-lanes of southbound traffic

feeding into one-lane in the beach area. A review of turning movements and projected turning movements from potential developments was performed to identify, from the alternatives, the best location for a lane-drop:

- Beach Alternative 1: The turn lane drop as a right turn at SR 865 and Estero Boulevard / Fifth Street saw approximately 32% of its traffic turning right, a value that should be increased through parking way-finding signage,
- Alternatives 2, 3, & 4: The turn lane drop as a left turn at Estero Boulevard and Crescent Street saw approximately 12% of its traffic turning left.

While Beach Alternatives 2, 3, and 4 include the right turn at SR 865 and Estero Boulevard, the issue of two-lanes of traffic merging into one-lane would remain without any clear opportunity to drop the lane; something addressed currently by the metered signal at Prescott / Buttonwood and by Alternative 1.

Alternative 2's had the greatest property impact which poses additional scheduling and cost risks when compared to the other alternatives.

Crescent Street's operations under Beach Alternatives 3, and 4 were reviewed to determine vehicular interactions in merging and weaving along the section of roadway. Beach Alternatives 3 and 4 divert northbound traffic onto Crescent Street to facilitate the two-lanes southbound; the diversion increases traffic from Crescent Street to Fifth Street from its current 1,650 daily northbound traffic to 10,000 daily northbound traffic an increase not desirable to stakeholders.

Beach Alternative 1 is the recommeded alternative due to its ability to incorporate the right turn as the drop lane and its minimal impact to the surrounding area.

5.2.1.2 Island Alternative Evaluation

The significant difference between the Island Alternatives was the approach to access management on the corridor and the number of phases in the signal at SR 865 and Main Street. Island Alternative 1 proposed the replacement of the center two way left turn lane with a raised median barrier and the elimination of left turns on the predominant movement at Main Street. The alternative's access management was deemed desirable but not necessary to achieve the goals of this project due to the public opposition expressed in public involvement. Additionally, commercial operations in the area expressed concern with truck operations in the corridor.

Island Alternative 2 is the recommended alternative due to its ability to minimize impact to existing operations while still achieving the desired operational goals.

5.2.2 Costs

Present day (2018) construction cost estimates were developed using FDOT's Long Range Estimates (LRE) system for all build alternatives except for Beach Alternative 4; Beach Alternative 4 was removed from further consideration following the February 2018 Public meeting based on feedback received at the meeting. In addition, preliminary right-of-way cost estimates were developed by FDOT District 1's ROW department. The costs presented do not include design or construction engineering and inspection (CEI). See **Table 5-1** for a summary of alternative costs.

Table 5-1: Cost Summary

Alternative	Construction Cost	Right-of-Way Cost	Total Cost
Beach Alternative 1	$1,452,846	$95,000	$1,547,846
Beach Alternative 2	$1,745,528	$3,700,000	$5,445,528
Beach Alternative 3	$1,888,625	$2,070,000	$3,958,625
Beach Alternative 4	Cost Estimates Not Developed		
Island Alternative 1	$1,115,971	$0	$1,115,971
Island Alternative 2	$965,667	$0	$965,667

Note: Present day (2018) costs based on 5/29/2018 LRE update. Does not include design or construction engineering and inspection (CEI).

5.3 Additional Projects

In addition to the Beach and Island alternatives discussed in section 5.1, four standalone projects were evaluated and recommended for implementation as funds become available.

5.3.1 Pine Ridge Rd Intersection

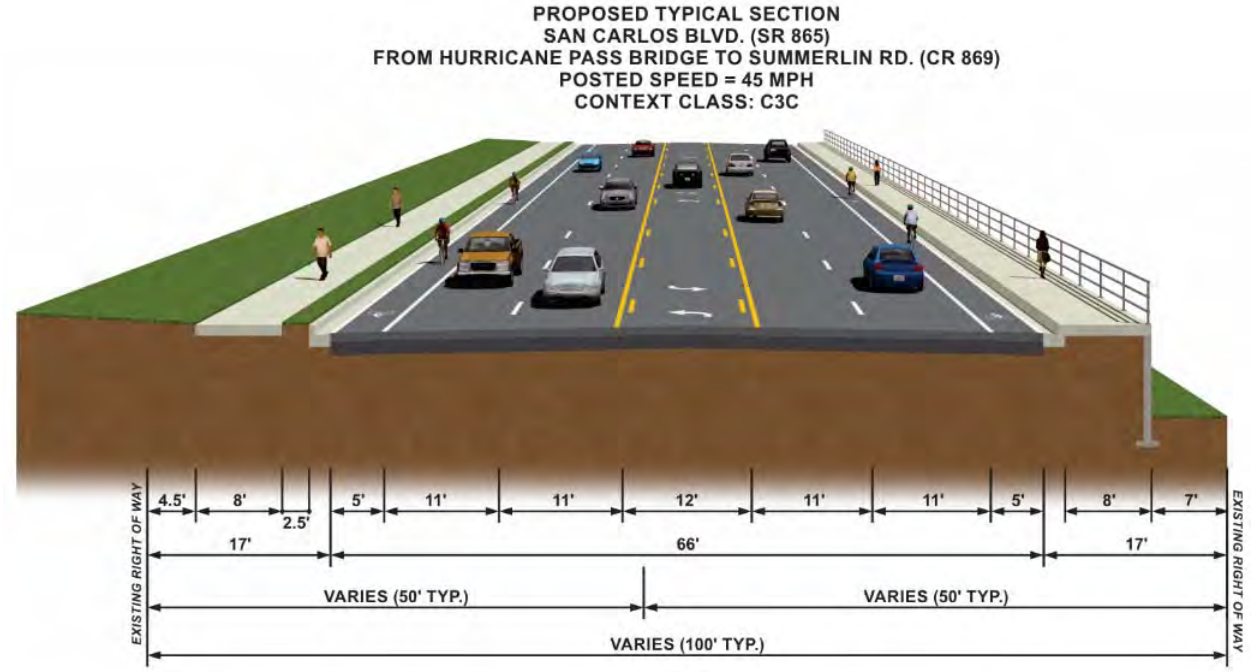
This project involves the conversion of the existing WB through lane to a shared through/left turn lane at the intersection of SR 865 and Pine Ridge Rd. The additional left turn lane will reduce queues that currently form waiting to turn left from WB Pine Ridge Rd to SB SR 865. The upgrade will require restriping and signal head modifications. Two of the existing mast arms may not meet current criteria and may need to be replaced. Additionally, lighting upgrades to meet current safety standards should be investigated as part of the improvements.

The estimated project construction cost in present day (2018) dollars based on the 5/29/2018 LRE is $211,724; this does not include design or construction engineering and inspection (CEI).

5.3.2 SR 865 Resurfacing, Restoration, and Rehabilitation (RRR)

This project includes milling and resurfacing of approximately 2.1 miles of SR 865 from Hurricane Pass Bridge to Summerlin Rd to add bike lanes. See **Figure 5-3** for the proposed typical section.

Figure 5-3: Proposed Typical Section - Hurricane Pass Bridge to Summerlin Rd



The estimated project construction cost in present day (2018) dollars based on the 5/29/2018 LRE is $2,528,976; this does not include design or construction engineering and inspection (CEI).

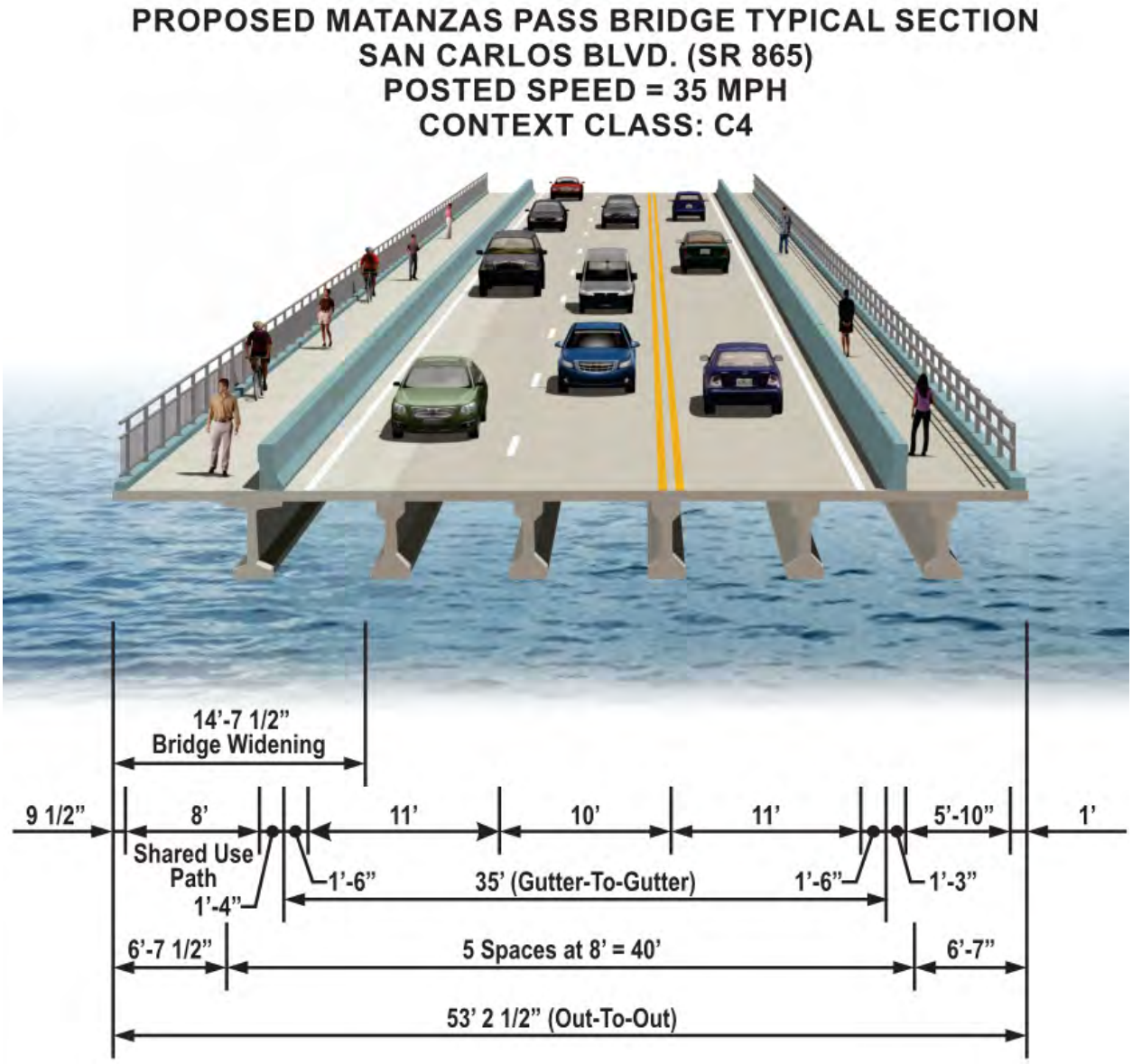
5.3.3 Matanzas Pass Bridge Widening

This project includes the widening of the Matanzas Pass Bridge between Estero Island and San Carlos Island. The bridge would be widened to the west to accommodate a shared use path on the west side of SR 865, thus, filling existing sidewalk gap between the islands. The existing transit only lane would be converted to a general use lane giving the bridge two SB lanes and one NB lane. **Figure 5-4** shows the proposed typical section.

The Beach and Island Alternatives presented in Section 5.1 assume that the Matanzas Pass Bridge will be widened before those improvements are implemented or that the widening will be done concurrently.

The estimated project construction cost in present day (2018) dollars based on the 5/29/2018 LRE is $2,769,116; this does not include design or construction engineering and inspection (CEI).

Figure 5-4: Proposed Typical Section - Matanzas Pass Bridge



5.3.4 Hurricane Pass Bridge Improvements

This project includes the restriping of the Hurricane Pass Bridge between the mainland and San Carlos Island to add bike lanes in both directions and a sidewalk on the west side to close an existing bicycle and pedestrian gap. A lane width variation would be required for the two inside lanes. **Figure 5-5** shows the proposed typical section.

Figure 5-5: Proposed Typical Section - Hurricane Pass Bridge

The estimated project construction cost in present day (2018) dollars based on the 5/29/2018 LRE is $121,223; this does not include design or construction engineering and inspection (CEI).

6 PUBLIC INVOLVEMENT

6.1 AGENCY AND STAKEHOLDER COORDINATION

Throughout the project, coordination has been ongoing with local government and key stakeholders which include: Lee County staff, Lee Metropolitan Planning Organization (MPO) and its committees, and the Town of Fort Myers Beach town council and its representatives to solicit input on the project.

Table 6-1 provides a list of meetings with various agencies and elected officials conducted to date for the project and general meeting notes are provided in **Appendix O**.

Table 6-1: Agency and Stakeholder Meetings

Meeting Date	Description	Town of Fort Myers Beach	Lee County	Lee County MPO	Other
6/30/2015	Stakeholder Discussions	Mayor Cereceda			
11/7/2016	Project Status Update	X			
1/20/2017	MPO Presentation			X	
3/2/2017	Stakeholder Discussions		Commissioner Kiker		
3/8/2017	Project Status Update	One-on-One			
6/16/2017	Representatives Meeting	X	X		
10/2/2017	Stakeholder Discussions		Commissioner Kiker		
10/31/2017	Project Status Update	One-on-One			
12/8/2017	Project Charette		X		
2/15/2018	Project Updates / Public Workshop	One-on-One			
2/20/2018	Project Updates / Public Workshop	Town Council			
5/16/2018	Complete Streets Field Trip	City Manager			
6/11/2018	Project Status Update		X		
6/18/2018	Project Status Update	Town Council			
7/3/2018	Crescent St. at Estero Blvd. Discussion				TPI, FDOT, County, and Town

6.2 PUBLIC MEETING

A Public Meeting was held on February 27, 2018, at the Chapel by the Sea Presbyterian Church in Fort Myers Beach, to present graphics showing potential improvements being considered for the study area along with other project information. Public meeting invitation letters were e-mailed to all elected officials, appointed officials, and agency officials in the project area and invitation newsletters (**Appendix P**) were mailed to property owners and other interested stakeholders. A total of 88 people signed in at the public meeting. A continuously running traffic simulation video

and project brochures were provided in English and Spanish. Study team representatives assisted attendees by answering questions and addressing concerns about the proposed improvements. All attendees were given the opportunity to provide comments at the meeting or within the 10-day comment period. Four emails were submitted before the meeting, 35 comment forms were received at the meeting and 13 comments were received during the 10-day comment period following the meeting. Many of the comments stated a preference for a specific alternative along with some specific recommendations for refining the alternatives. In addition, comments included suggestions and concerns such as speeding and the existing speed limit on San Carlos Boulevard; request to consider a park & ride solution; request to install a traffic control device at the entrance/exit of Boardwalk Caper Condos to allow residents to enter and exit the complex, especially heading northbound on San Carlos Boulevard; adding bicycle lanes or shared-use lanes universally across the island; concerns that the U-turn at Prescott in alternative one will confuse motorists; request that pedestrian crosswalk near the base of the bridge be replaced with a pedestrian bridge; concerns that the project will not address the traffic jams experienced between Pine Ridge and Main Street. All of the comments received were taken into consideration in the development of the recommendations.

6.3 PROJECT WEBSITE

A project website was developed to provide study information to elected officials, agencies and the public. It displays a project map, project information, public involvement information including the project newsletter (February 2018), documents and publications, along with other project information. The website also includes a comments page under public involvement where visitors can provide their comments The address for the website is www.swflroads.com/sr865/sancarlosboulevard/ . The website was updated as necessary.

7 RECOMMENDED ALTERNATIVES AND NEXT STEPS

7.1 RECOMMENDED ALTERNATIVE

Following a review of stakeholder comments and an engineering evaluation, Beach Alternative 1 and Island Alternative 2, along with the Matanzas Pass Bridge Widening, have been selected as the Recommended Alternative to be advanced to the Project Development and Environment (PD&E) phase for further refinement. See Sections 5.1.1.1, 5.1.2.2, and 5.3.3 for details on the Recommended Alternative and **Appendix Q** for the Recommended Alternative plan.

These alternatives were selected due to lower cost, reduced ROW impacts, operational and safety improvements, and increased multimodal (pedestrian and bicycle) accommodation. Additionally, stakeholder comments and ease of implementation were considered during the selection process.

The estimated project construction cost of the Recommend Alternative in present day (2018) dollars based on the 7/17/2018 LRE is $5,068,226; this does not include design or construction engineering and inspection (CEI).

7.2 NEXT STEPS

It is recommended that the Recommended Alternative be advanced to the PD&E and Design phases to receive National Environmental Policy Act (NEPA) clearances and further design refinement. Stakeholder coordination will continue throughout the study. The final design phase will run concurrently with the PD&E study and is scheduled to begin as FPID 433726-2-32-01 in the fourth quarter of FY 2019. Neither Construction nor ROW are currently funded in FDOT's tentative five-year work program (2019-2023).

Although not part of the Recommended Alternative, the Pine Ridge Road intersection improvements, SR 865 Resurfacing, Restoration, and Rehabilitation (RRR), and Hurricane Pass Bridge improvements discussed in Section 5.3 are recommend for implementation as standalone projects as funding becomes available. PD&E studies are not anticipated for these projects and design, construction, and ROW are not currently funded in FDOT's tentative five-year work program (2019-2023).

APPENDIX A

SR 865 SAFETY ANALYSIS MEMO

MEMORANDUM

101 West Main Street
Suite 240
Lakeland, FL 33815
Phone 863.682.4081
Fax 863.802.3907
www.rkk.com

Date: November 16, 2015
To: Daniel Miller
From: OJ
CC: Stuart Samberg, Charles Bleam
Re: 433726 SR 865 (San Carlos Boulevard) from 5th Street/Estero Blvd to CR 869 Summerlin Road

Introduction

The Florida Department of Transportation is conducting a study to determine potential improvements to SR 865 from 5th Street/Estero Boulevard within the City of Fort Myers Beach and Lee County, Florida. The project's location is shown in Figure 1. The safety analysis presented herein is provided to identify areas of concern, develop short/long term options for the corridor and formulate improvement strategies.

Project Description and Background

San Carlos Boulevard is the primary access to Fort Myers Beach. The only other access to Fort Myers Beach is provided by Bonita Beach Road approximately 12 miles south and approximate 30+ mile additional route if this access is used. The specific area of San Carlos Boulevard being evaluated starts at Estero Boulevard (on the beach) and extends northward along San Carlos Boulevard to CR 869 or Summerlin Road. An approximate distance of 3.15 miles. Specific limits for the project are from Estero Boulevard or milepost 0.000 to milepost 3.15 (Summerlin Road) using the FDOT straight line diagrams or SLD's. The roadway is a 3 lane undivided facility from Estero Boulevard to Main Street (milepost 0.643). Northward to Summerlin Road, San Carlos Boulevard is a 5 lane section with a continuous center left turn lane with channelization at signalized intersections at Prescott Road/Buttonwood Drive (milepost 0.900), the entrances to Boardwalk Capers and Siesta Drive (milepost 1.349 to 1.861), traffic signals at Pine Ridge Road (milepost 2.675), Whitewater Court (milepost 2.983) and the ramps for Summerlin Road (mileposts 3.104 and 3.132). It should be noted that a new Walmart Supercenter has opened at the Whitewater Court intersection (east side). Figures 2 through 8 provide various photographs of the roadway.

San Carlos Boulevard current annual average daily traffic volumes range from 22,700 at permanent (telemetry) traffic monitoring site 126008 (milepost 0.883) between Main Street and Prescott Road/Buttonwood Drive to approximately 19,600 at traffic monitoring site 120020 just north of Summerlin Road. In addition, RK&K has taken an extensive amount of peak season (February through April) traffic counts along the corridor. The data collected along with seasonal variations from continuous daily traffic counts taken at site 126008 will be used to develop traffic volumes for analysis in determination of viable alternatives for the corridor. 2015 AADT values will be used to develop crash rates for the corridor.

Table 1 provides an overall summary of the five year crash history (June 1, 2010 to June 30, 2015) for the corridor. The upper half of Table 1 exhibits segments or intersections along San Carlos Boulevard and calculated crash rates. Segments or intersections with higher overall crash rates are flagged in yellow. The bottom portion of Table 1 provides an overall safety comparison (based on safety emphasis areas) for Fort Myers Beach, Fort Myers and Lee County. Areas highlighted in amber are the emphasis areas for which the Fort Myers Beach are in the upper 25 percent range in the entire State of Florida. A review of this information indicates that Fort Myers Beach is in the upper 25 percent of all comparable (by population cities) in the state of Florida for 1) Fatalities & Injuries, 2) Impaired Drivers, 3) Bicycle Related, 4) Motorcycle Related and 5) Pedestrian Related high emphasis areas. This overview would indicate that improvements that address these emphasis areas may be eligible for the use of State and Federal Safety Funds for potential projects addressing these emphasis groups.

Safety Analysis

Based on the overall information presented in Table 1, a more detailed safety analysis was conducted to determine overall strategies that would be beneficial for high crash rate locations and the overall corridor. Table 2 provides detailed data for segments and intersections by crash type, cause and other factors. Based on a review of the overall crash locations, types and emphasis areas, improvements were reviewed from both the FDOT and Crash Modification Factors (CMF) Clearinghouse were selected to complete various Benefit/Cost analyses to determine the viability of the strategies that could be used for developing improvements along the corridor. Based on the operational (versus capacity) nature of improvements for consideration, some interpretations of data were necessary. Since the project is not proposing any major capacity increases (add lanes), values were adjusted for potential CMF's to allow for reasonable values to consider operational improvements such as reversible lanes and other factors from the available data on similar projects within the CMF's used from the FDOT or the Clearinghouse.

Strategies evaluated included:

1) Operational improvements for bicycles, pedestrians and transit to include transit prioritization, advanced ITS technologies for bus data, tracking and monitoring.
2) Partial improvements (from Estero Boulevard to Main Street) including bicycle, pedestrian and transit coupled with a minor bridge widening of San Carlos Boulevard to accommodate the improvements.
3) Major improvements in terms of upgrading all traffic signals, new traffic signals, transit prioritization, ITS, increased lighting, bicycle and pedestrian improvements.
4) Addition additional traffic signals at various locations, additional lighting and enhancements for pedestrian/bicycles.
5) Roundabout at Prescott Road/Buttonwood Drive;
6) Roundabout at Main Street; and
7) Roundabout at 5th Street.

Table 3 summarizes the results of the benefit/cost analyses for the above strategies. Of the strategies listed above only two did not produce benefit/cost values greater than 1.0. These were multi-modal improvements (with a major bridge widening) from 5th Street to Main Street (item 1 above) and a Roundabout at 5th Street (item 7 above). This analysis does not discard these improvements but is just identifying that based on the planning level analysis conducted for the safety that these currently rank low in terms of benefit to cost yield than improvement types 2 through 6. Strategies 1 and 7 should remain until more definitive engineering analyses are conducted.

Summary

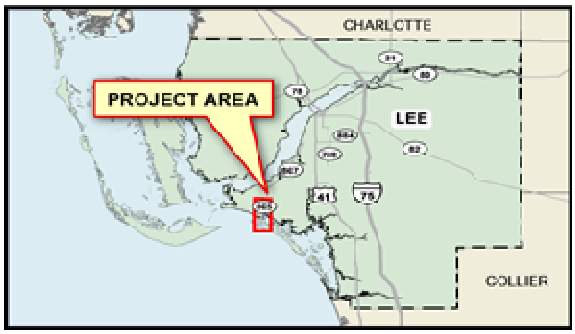
The City of Fort Myers Beach currently ranks in the upper 25 percent (of comparable sized cities) in the following safety emphasis categories:

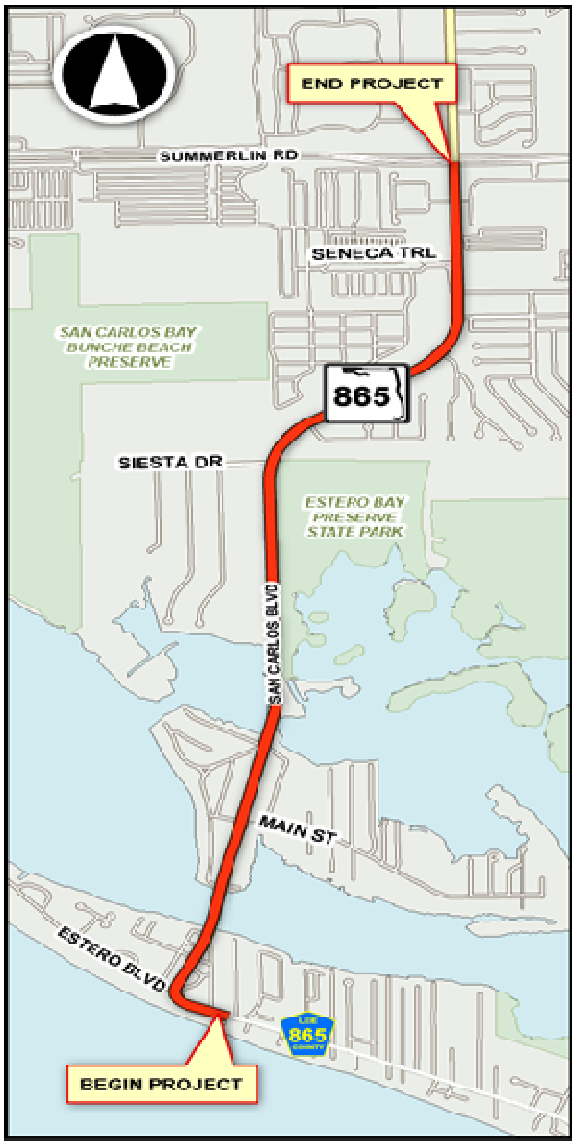
1) Fatalities & Injuries,
2) Impaired Drivers,
3) Bicycle Related,
4) Motorcycle Related; and
5) Pedestrian Related

This is supported by the crash analysis conducted for the corridor for this study. Based on generalized planning costs, base information the following strategies should be considered for the corridor:

1) Improvements (including minor or major widenings for the Matanzas Pass Bridge) to facilitate multi-modal users (pedestrian, bicycle and transit); and reversible lanes.
2) The improvements should extend for the entire corridor limits.
3) Operational improvements including upgrading existing traffic signals along with potential new traffic signals should be considered with or without reversible lanes.
4) Reversible lanes should be considered from Estero Boulevard or 5th Street to Main Street or Prescott Road/Buttonwood Drive.
5) Reversible lanes (with proper control) could extend to Siesta Drive or Pine Ridge Road.
6) Roundabouts should be considered for Prescott Road/Buttonwood Drive, Main Street and potentially 5th Street.

All supporting information is attached to this memorandum.





FDOT

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

Project Location

Figure Number 1

Looking North from Estero Blvd. to San Carlos Blvd.

Looking South from San Carlos Blvd. to Estero Blvd. at 5th Street

Looking North from 5th St. to San Carlos Blvd.

FDOT

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

Project Photographs

Figure Number 2

Looking South along San Carlos Blvd. at Main Street

Looking North along San Carlos Blvd. at Main Street

FDOT

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

Project Photographs

Figure Number 3

Looking North along San Carlos Blvd. at Prescott Rd./ Buttonwood Dr.

Looking South along San Carlos Blvd. at Prescott Rd./ Buttonwood Dr.

FDOT

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

Project Photographs

Figure Number4

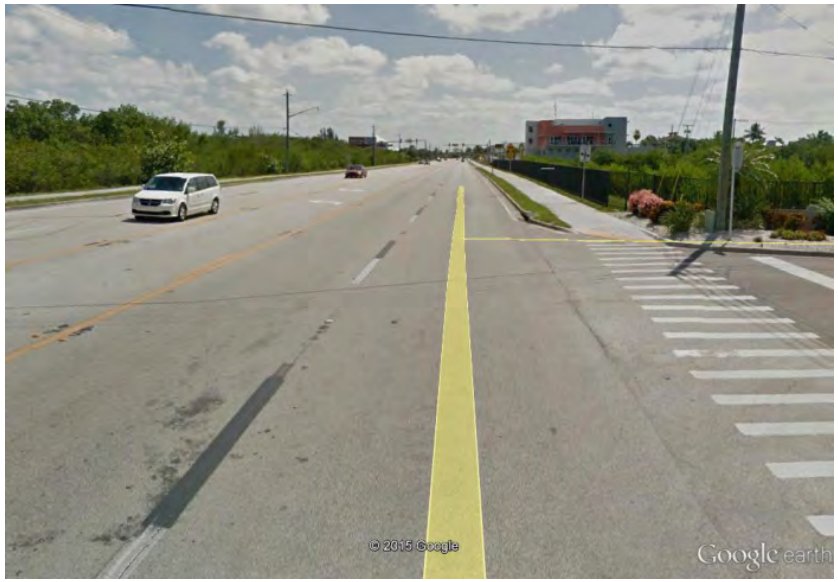
Looking North along San Carlos Blvd. towards Boardwalk Capers

Looking North along San Carlos Blvd. towards Siesta Drive

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

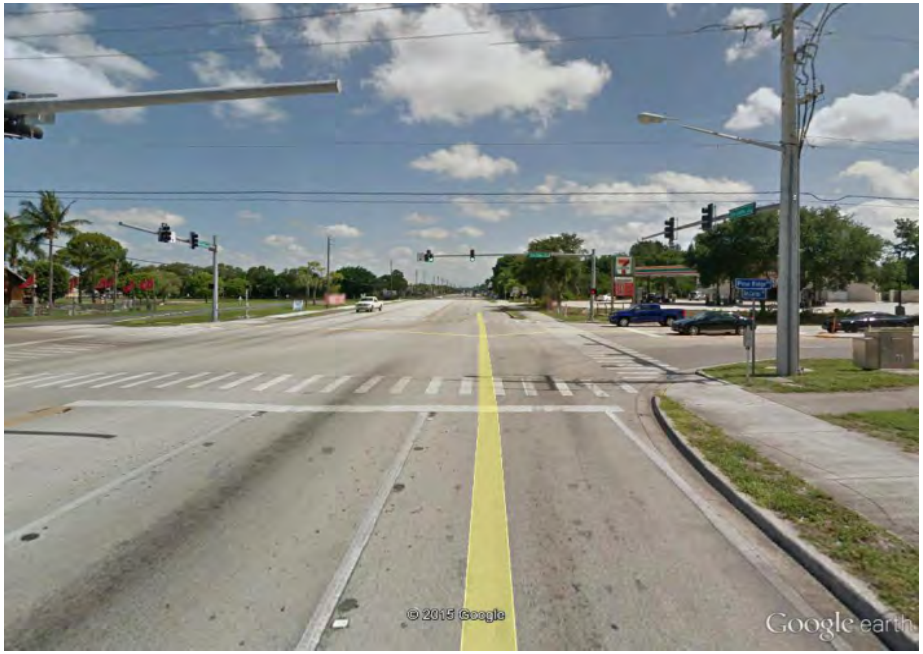
Project Photographs

Figure Number 5



Looking North along San Carlos Blvd. at Isle of Palms Dr.

Looking North along San Carlos Blvd. at Pine Ridge Rd.



FDOT

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

Project Photographs

Figure Number 6

Looking South along San Carlos Blvd. at Pine Ridge Rd.

Looking North along San Carlos Blvd. at Whitewater Ct.

FDOT

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

Project Photographs

Figure Number 7

Looking South along San Carlos Blvd. towards Whitewater Ct.

Looking North along San Carlos Blvd. towards Summerlin Rd.

Looking South Along San Carlos Blvd. towards Summerlin Rd.

FDOT

SR 865 (San Carlos Boulevard)
WPI No.: 433726-1-22-01
Operational Analysis - Safety

Project Photographs

Figure Number 8

Table 1 - Crash Summary & Safety Comparison SR 865

SR 865 Crash Summary

Location	From	To	Crashes/Year (5 year history)	Average AADT	Segment Length	Crash Rate	Comment
San Carlos Boulevard (SR 865) - Summary	**Estero Blvd**	**CR 869**	**45.0**	**24100**	**3.1**	**1.650**	**Entire Corridor**
San Carlos Boulevard (SR 865)	at Estero Blvd.		1.2	17000	0.1	1.934	
San Carlos Boulevard (SR 865)	at 5th Street		1.0	7400	0.2	1.851	
San Carlos Boulevard (SR 865)	5th Street	Main Street	2.4	7400	0.6	1.532	
San Carlos Boulevard (SR 865)	at Main Street		5.4	12900	0.2	5.734	High Crash Rate
San Carlos Boulevard (SR 865)	Main Street	Prescott Road /Buttonwood Drive	1.0	22700	0.3	0.483	
San Carlos Boulevard (SR 865)	at Prescott Road/Buttonwood Drive		7.6	13100	0.2	7.947	High Crash Rate
San Carlos Boulevard (SR 865)	Prescott Road /Buttonwood Drive	Siesta Drive	4.6	25500	0.9	0.537	
San Carlos Boulevard (SR 865)	at Siesta Drive		1.6	17800	0.2	1.642	
San Carlos Boulevard (SR 865)	at Isle of Palms Drive		1.4	17500	0.2	1.461	
San Carlos Boulevard (SR 865)	Isle of Palms Drive	Broadway Ave	3.0	26600	0.4	0.772	
San Carlos Boulevard (SR 865)	at Broadway Ave		1.0	18000	0.2	1.015	
San Carlos Boulevard (SR 865)	at Bayside Blvd		0.6	18000	0.2	0.609	
San Carlos Boulevard (SR 865)	at Pine Ridge Road		6.6	14800	0.2	6.109	High Crash Rate
San Carlos Boulevard (SR 865)	Pine Ridge Road	Whitewater Court	0.8	21700	0.3	0.337	
San Carlos Boulevard (SR 865)	at Whitewater Court		2.2	12100	0.2	2.491	High Crash Rate
San Carlos Boulevard (SR 865)	at CR 869		4.6	15375	0.2	4.098	High Crash Rate

Safety Comparison (Ranking of Highest 25% Per Category Per Location see Note 4)

Category	Fatalities & Injuries	Impaired	Bicycle Related	Motorcycle Related	Pedestrian Related	Speed Related	Occupant Protection	Aggressive Driving	Teen Drivers	Drivers 65+
Fort Myers Beach (1)	25	4	4	23	7	91	38	46	94	74
Fort Myers (2)	18	9	11	13	6	4	4	5	6	6
Lee County (3)	21	12	18	18	18	14	9	20	21	17

(1) Cities with populations 3,000 to 14,99
(2) Cities with populations 15,000 to 74,999
(3) Counties with populations >200,000
(4) Highest 25% in Category for location (information from 2016 FDOT HSP)

Table 2 - Crash Summary & Details SR 865

Summary San Carlos Boulevard (SR 865) from Estero Boulevard to Summerlin Road (CR 869)

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
225	4	68	94	153	6	7	1	18	10	83	20	36	7	0	0	0	4	33
0	2%	30%	-	68%	3%	3%	0%	8%	4%	37%	9%	16%	3%	0%	0%	0%	2%	15%

Contributing Cause																	
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
34	130	51	44	159	26	40	0	46	29	31	5	11	10	9	0	59	6	14
0	58%	23%	20%	71%	12%	18%	0%	20%	13%	14%	2%	5%	4%	4%	0%	26%	3%	6%

Driver Age					
16-24	25-64	65+			
79	238	99	416	Segment Length:	3.1
19%	57%	24%		Crash Rate:	1.650

Avg. AADT: 24100

Crashes Per Year: 45

10^6 veh-mi

(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Estero Boulevard

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
6	0	2	2	4	1	1	1	0	0	3	0	0	0	0	0	0	0	0
0	0%	33%	0%	67%	17%	17%	17%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%

Contributing Cause																	
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane Change	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing Manuever	Followed Too Closely	Ped Crossing Roadway	Other
	Day	Night	N/A	Dry	Wet	N/A												
3	4	0	2	4	0	2	0	0	0	0	0	0	1	0	0	3	1	1
0	67%	0%	33%	67%	0%	33%	0%	0%	0%	0%	0%	0%	17%	0%	0%	50%	17%	17%

Driver Age		
16-24	25-64	65+
3	5	1
33%	56%	11%

Avg. AADT: 17000

Crashes Per Year: 1.2

Segment Length: 0.1

Crash Rate: 1.934 10^6 veh-mi

(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at 5th Street

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
5	0	1	1	4	0	0	0	0	1	3	0	0	0	0	0	1	0	0
0	0%	20%	0%	80%	0%	0%	0%	0%	20%	60%	0%	0%	0%	0%	0%	20%	0%	0%

Contributing Cause																	
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
1	1	1	3	1	1	3	0	0	1	0	0	0	1	1	0	2	0	0
0	20%	20%	60%	20%	20%	60%	0%	0%	20%	0%	0%	0%	20%	20%	0%	40%	0%	0%

Driver Age		
16-24	25-64	65+
4	4	1
44%	44%	11%

Avg. AADT: 7400

Crashes Per Year: 1

Segment Length: 0.2

Crash Rate: 1.851 10^6 veh-mi

(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Matanzas Pass Bridge (from 5th Street to Main Street)

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
12	0	3	4	9	0	1	1	0	0	7	1	1	0	0	0	0	0	1
0	0%	25%	0%	75%	0%	8%	8%	0%	0%	58%	8%	8%	0%	0%	0%	0%	0%	8%

Contributing Cause																	
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane Change	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing Manuever	Followed Too Closely	Ped Crossing Roadway	Other
	Day	Night	N/A	Dry	Wet	N/A												
2	8	3	1	10	1	1	0	3	0	0	0	0	1	1	0	5	1	1
0	67%	25%	8%	83%	8%	8%	0%	25%	0%	0%	0%	0%	8%	8%	0%	42%	8%	8%

Driver Age		
16-24	25-64	65+
4	12	3
21%	63%	16%

Avg. AADT: 7400

Crashes Per Year: 2.4

Segment Length: 0.6

Crash Rate: 1.532 10^6 veh-mi

(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Main Street

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
27	0	12	17	15	1	2	0	1	4	10	6	2	0	0	0	1	0	0
0	0%	44%	0%	56%	4%	7%	0%	4%	15%	37%	22%	7%	0%	0%	0%	4%	0%	0%

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
3	9	11	7	14	6	7	1	3	5	9	0	0	2	0	0	3	2	2
0	33%	41%	26%	52%	22%	26%	4%	11%	19%	33%	0%	0%	7%	0%	0%	11%	7%	7%

Driver Age		
16-24	25-64	65+
11	35	8
20%	65%	15%

Avg. AADT: 12900
Crashes Per Year: 5.4
Segment Length: 0.2
Crash Rate: 5.734 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 from Main Street to Prescott Street/Buttonwood Drive

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
5	1	2	2	2	1	1	1	1	0	1	0	0	0	0	0	0	0	0
0	20%	40%	0%	40%	20%	20%	20%	20%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
2	3	1	1	4	0	1	0	1	2	0	0	0	0	0	0	1	1	0
0	60%	20%	20%	80%	0%	20%	0%	20%	40%	0%	0%	0%	0%	0%	0%	20%	20%	0%

Driver Age		
16-24	25-64	65+
1	5	4
10%	50%	40%

Avg. AADT: 22700
Crashes Per Year: 1
Segment Length: 0.3
Crash Rate: 0.483 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Prescott Street/Buttonwood Drive

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
38	1	10	11	27	0	1	0	0	0	17	5	8	1	0	0	0	0	6
0	3%	26%	0%	71%	0%	3%	0%	0%	0%	45%	13%	21%	3%	0%	0%	0%	0%	16%

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
4	22	8	8	26	4	8	0	10	1	8	1	0	0	0	1	15	1	1
0	58%	21%	21%	68%	11%	21%	0%	26%	3%	21%	3%	0%	0%	0%	3%	39%	3%	3%

Driver Age		
16-24	25-64	65+
12	42	11
18%	65%	17%

Avg. AADT: 13100
Crashes Per Year: 7.6
Segment Length: 0.2
Crash Rate: 7.947 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 from Prescott Street/Buttonwood Drive to Siesta Drive

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
23	0	6	8	17	0	0	1	2	2	13	3	0	0	0	0	0	2	0
0	0%	26%	0%	74%	0%	0%	4%	9%	9%	57%	13%	0%	0%	0%	0%	0%	9%	0%

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
3	13	6	4	19	1	3	0	3	5	2	1	0	0	1	0	8	0	3
0	57%	26%	17%	83%	4%	13%	0%	13%	22%	9%	4%	0%	0%	4%	0%	35%	0%	13%

Driver Age		
16-24	25-64	65+
7	24	11
17%	57%	26%

Avg. AADT: 25500
Crashes Per Year: 4.6
Segment Length: 0.9
Crash Rate: 0.537 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Siesta Drive

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
8	0	4	11	4	0	0	0	0	3	2	0	0	0	2	1	0	0	
0	0%	50%	0%	50%	0%	0%	0%	0%	38%	25%	0%	0%	0%	25%	13%	0%	0%	

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
3	3	3	2	5	1	2	0	3	3	1	0	0	0	0	1	0	0	
0	38%	38%	25%	63%	13%	25%	0%	38%	38%	13%	0%	0%	0%	0%	13%	0%	0%	

Driver Age		
16-24	25-64	65+
2	5	6
15%	38%	46%

Avg. AADT: 17800
Crashes Per Year: 1.6
Segment Length: 0.2
Crash Rate: 1.642 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Isle of Palms Drive

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
7	1	3	4	3	1	1	1	1	1	1	1	0	0	0	0	0	0	0
0	14%	43%	0%	43%	14%	14%	14%	14%	14%	14%	14%	0%	0%	0%	0%	0%	0%	0%

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
1	3	3	1	5	1	1	0	0	2	1	1	0	0	0	0	1	1	1
0	43%	43%	14%	71%	14%	14%	0%	0%	29%	14%	14%	0%	0%	0%	0%	14%	14%	14%

Driver Age		
16-24	25-64	65+
2	6	3
18%	55%	27%

Avg. AADT: 17500
Crashes Per Year: 1.4
Segment Length: 0.2
Crash Rate: 1.461 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 from Isle of Palms Drive to Broadway Avenue

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
15	0	4	6	11	1	0	1	0	1	6	2	0	2	0	1	0	0	1
0	0%	27%	0%	73%	7%	0%	7%	0%	7%	40%	13%	0%	13%	0%	7%	0%	0%	7%

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
4	13	1	1	12	2	1	0	6	2	1	0	0	0	4	0	2	0	0
0	87%	7%	7%	80%	13%	7%	0%	40%	13%	7%	0%	0%	0%	27%	0%	13%	0%	0%

Driver Age		
16-24	25-64	65+
5	14	4
22%	61%	17%

Avg. AADT: 26600
Crashes Per Year: 3
Segment Length: 0.4
Crash Rate: 0.772 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Broadway Avenue

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
5	0	1	1	4	0	0	0	1	0	1	1	0	0	0	0	0	2	
0	0%	20%	0%	80%	0%	0%	0%	20%	0%	20%	20%	0%	0%	0%	0%	0%	40%	

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
1	1	2	2	3	0	2	0	0	0	1	0	0	1	0	1	0	2	
0	20%	40%	40%	60%	0%	40%	0%	0%	0%	20%	0%	0%	20%	0%	20%	0%	40%	

Driver Age		
16-24	25-64	65+
3	3	3
33%	33%	33%

Avg. AADT: 18000
Crashes Per Year: 1
Segment Length: 0.2
Crash Rate: 1.015 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Bayside Boulevard

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
3	0	0	0	3	0	0	0	0	0	1	2	0	0	0	0	0	0	
0	0%	0%	0%	100%	0%	0%	0%	0%	0%	33%	67%	0%	0%	0%	0%	0%	0%	

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
0	3	0	0	3	0	0	0	0	0	1	0	0	1	0	1	0	0	
0	100%	0%	0%	100%	0%	0%	0%	0%	0%	33%	0%	0%	33%	0%	33%	0%	0%	

Driver Age		
16-24	25-64	65+
0	3	3
0%	50%	50%

Avg. AADT: 18000
Crashes Per Year: 0.6
Segment Length: 0.2
Crash Rate: 0.609 10^6 veh-mi
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Pine Ridge Road

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
33	0	8	10	25	0	0	0	3	0	14	3	8	0	0	0	0	2	3
0	0%	24%	0%	76%	0%	0%	0%	9%	0%	42%	9%	24%	0%	0%	0%	0%	6%	9%

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
3	19	4	10	20	5	8	1	11	2	4	0	2	0	0	10	0	2	1
0	58%	12%	30%	61%	15%	24%	3%	33%	6%	12%	0%	6%	0%	0%	30%	0%	6%	3%

Driver Age		
16-24	25-64	65+
10	33	16
17%	56%	27%

Avg. AADT: 14800
Crashes Per Year: 6.6
Segment Length: 0.2
Crash Rate: 6.109 10^6 veh-mi

(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 from Pine Ridge Road to Whitewater Court

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
4	1	1	1	2	0	1	0	1	0	2	0	0	0	0	0	0	0	
0	25%	25%	0%	50%	0%	25%	0%	25%	0%	50%	0%	0%	0%	0%	0%	0%	0%	

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
1	2	2	0	4	0	0	0	1	1	1	0	0	1	0	0	0	0	
0	50%	50%	0%	100%	0%	0%	0%	25%	25%	25%	0%	0%	25%	0%	0%	0%	0%	

Driver Age		
16-24	25-64	65+
2	3	2
29%	43%	29%

Avg. AADT: 21700
Crashes Per Year: 0.8
Segment Length: 0.3
Crash Rate: 0.337 10^6 veh-mi

(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Whitewater Court (New Walmart)

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
11	0	2	4	9	0	0	0	0	3	7	1	0	0	0	0	0	0	
0	0%	18%	0%	82%	0%	0%	0%	0%	27%	64%	9%	0%	0%	0%	0%	0%	0%	

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
0	7	2	2	9	1	1	0	1	1	1	1	2	1	0	4	0	0	
0	64%	18%	18%	82%	9%	9%	0%	9%	9%	9%	9%	18%	9%	0%	36%	0%	0%	

Driver Age		
16-24	25-64	65+
8	7	7
36%	32%	32%

Avg. AADT: 12100
Crashes Per Year: 2.2
Segment Length: 0.2
Crash Rate: 2.491 10^6 veh-mi

(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

SR 865 at Summerlin Road (CR 869)

Crash Severity					Crash Type													
Total Crashes	Fatal Crashes	Injury Crashes	Total Injuries	Property Damage	Bicycle	Pedestrian	Motorcycle /Moped	Left turn	Right Angle	Rear End	Sideswipe	Head On	Offroad	Backed Into	HFO	Lost Control	Over Turned	Other
23	0	9	12	14	2	1	1	4	4	8	3	0	0	0	0	0	0	
0	0%	39%	0%	61%	9%	4%	4%	17%	17%	35%	13%	0%	0%	0%	0%	0%	0%	

							Contributing Cause											
One Vehicle	Lighting Condition			Road Surface Condition			Nothing	Careless Driving	FTYRW	Improper Lane	Improper Turn	Disregard Signal	DUI	Traveling too fast	Improper Backing	Followed Too	Ped Crossing	Other
	Day	Night	N/A	Dry	Wet	N/A												
3	19	4	0	20	3	0	1	4	2	1	1	7	1	0	2	3	1	
0	83%	17%	0%	87%	13%	0%	4%	17%	9%	4%	4%	30%	4%	0%	9%	13%	4%	

Driver Age		
16-24	25-64	65+
3	29	12
7%	66%	27%

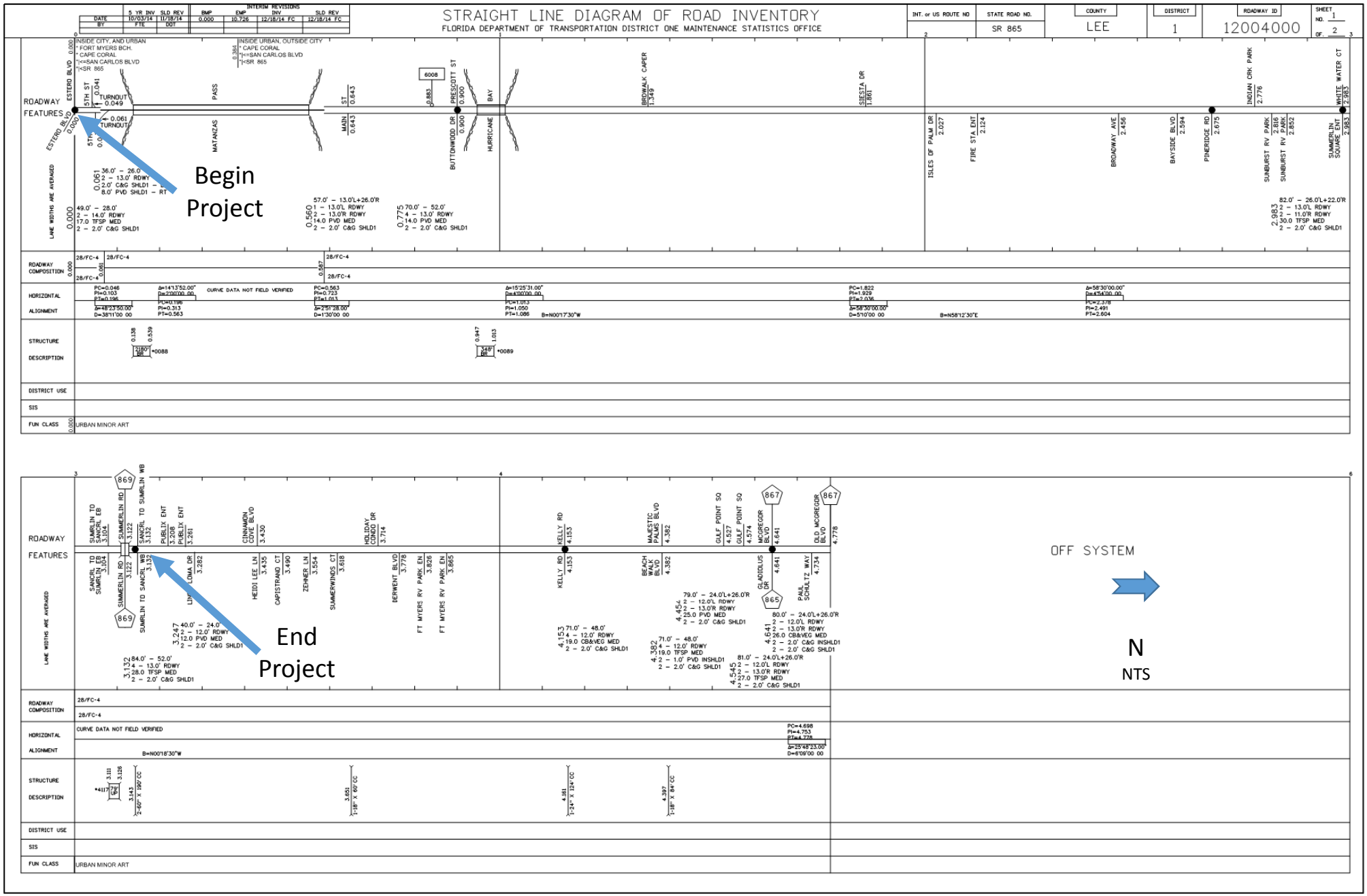
Avg. AADT: 15375
Crashes Per Year: 4.6
Segment Length: 0.2
Crash Rate: 4.098 10^6 veh-mi

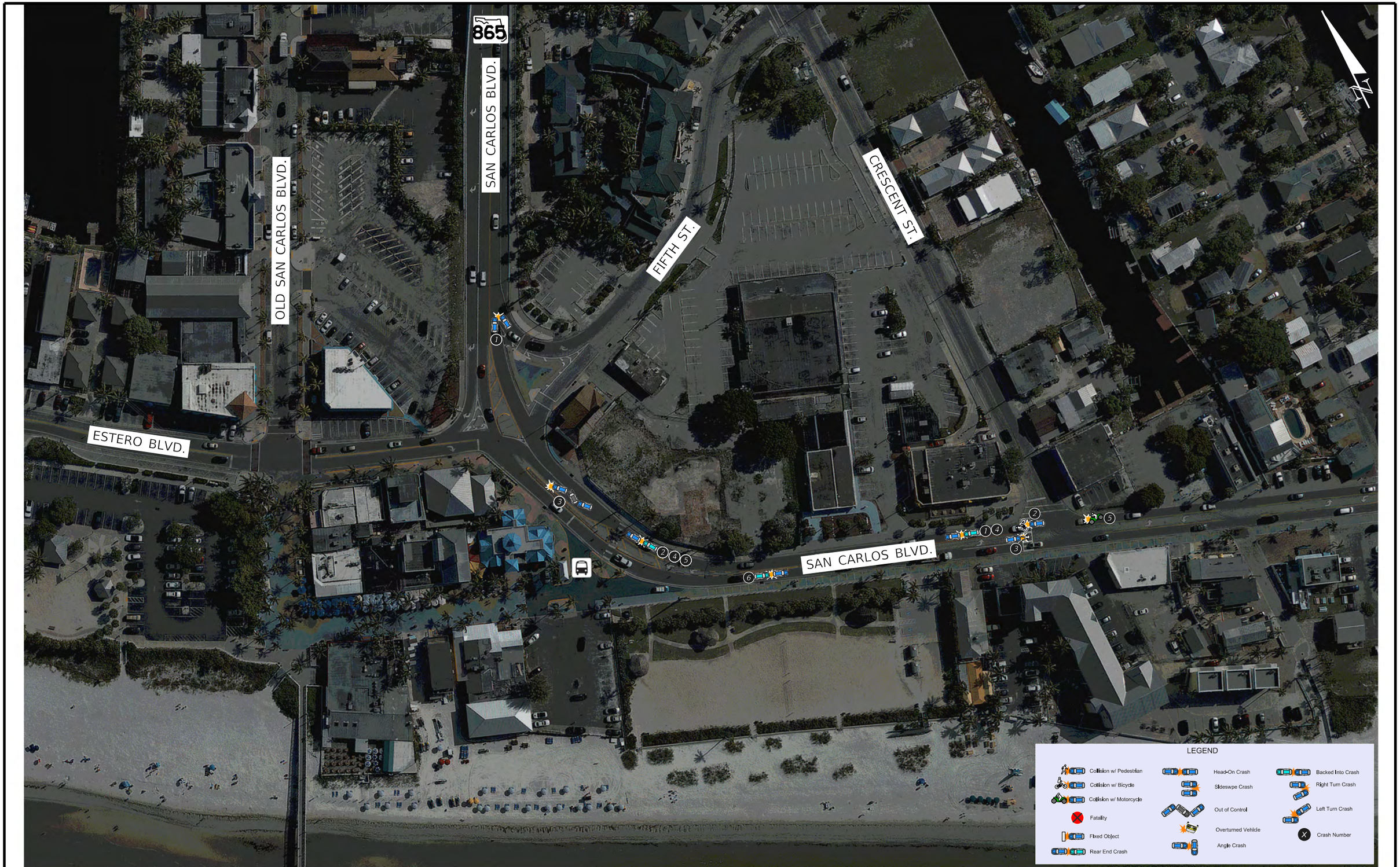
(Crashes * 10^6)/(days/year * #years * avg. AADT * Segment Length)

Table 3 Potential Improvement Strategies (Based on Safety) SR 865

Strategy Evaluated	Estimated Cost (1)	Capitalized Recovery	Combined Crash Reduction Factor	Estimated Benefit/Cost Ratio	Comments
Multi-modal Improvements (includes major bridge widening and estimate for reversible lanes) from 5th Street to Main Street	$ 28,500,000.00	$ 1,622,650.00	50.50%	0.48	Benefit Cost below 1.0
Multi-modal Improvements (includes minor bridge widening and estimate for reversible lanes) from 5th Street to CR 869	$ 17,200,000.00	$ 827,825.00	4.80%	2.45	Good Benefit Cost
Operational Improvements for Signalized Intersections related to reversible lanes and TSP for busses	$ 5,650,000.00	$ 399,390.00	48.02%	2.63	Good Benefit Cost
Add Traffic Signals at Capers Boardwalk and Siesta Drive associated with reversible lane control	$ 5,500,000.00	$ 380,150.00	63.82%	5.40	Good Benefit Cost
Roundabout at Prescott/Buttonwood	$ 8,500,000.00	$ 568,150.00	59.55%	4.13	Good Benefit Cost
Roundabout at Main Street	$ 8,500,000.00	$ 568,150.00	59.55%	1.76	Low Benefit Cost but above 1.0
Roundabout at 5th Street	$ 8,500,000.00	$ 568,150.00	59.55%	0.33	Benefit Cost below 1.0

(1) Costs are planning level estimates and shall be refined/revised as the study progresses


STRAIGHT LINE DIAGRAM OF ROAD INVENTORY
FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT ONE MAINTENANCE STATISTICS OFFICE
INT. or US ROUTE NO
STATE ROAD NO.
SR 865
COUNTY
LEE
DISTRICT
1
ROADWAY ID
12004000
SHEET NO. 1
OF. 2
INTERIM REVISIONS
5 YR INV SLD REV
DATE 10/03/14 11/18/14
BY FTE DOT
BMP EMP INV SLD REV
0.000 10.726 12/18/14 FC 12/18/14 FC
ROADWAY FEATURES
LANE WIDTHS ARE AVERAGED
ESTERO BLVD
5TH ST
TURNOUT
PASS
MAIN ST
PRESCOTT ST
BAY
BUTTONWOOD DR
HURRICANE
BROADWALK CAPER
SIESTA DR
ISLES OF PALM DR
FIRE STA ENT
BROADWAY AVE
BAYSIDE BLVD
PINERIDGE RD
INDIAN CRK PARK
SUNBURST RV PARK
SUNBURST RV PARK
SUMMERLIN SQUARE ENT
WHITE WATER CT
INSIDE CITY, AND URBAN
* FORT MYERS BCH.
* CAPE CORAL
*|<=SAN CARLOS BLVD
*|<SR 865
INSIDE URBAN, OUTSIDE CITY
* CAPE CORAL
*|<=SAN CARLOS BLVD
*|<SR 865
Begin Project
End Project
OFF SYSTEM
N
NTS
ROADWAY COMPOSITION
HORIZONTAL ALIGNMENT
STRUCTURE DESCRIPTION
DISTRICT USE
SIS
FUN CLASS
URBAN MINOR ART
CURVE DATA NOT FIELD VERIFIED



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DATE OF AERIAL: JULY 2015

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101 WEST MAIN STREET, SUITE 240
LAKELAND, FLORIDA 33815
CERTIFICATE OF AUTHORIZATION No. 26879

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
865	LEE	433726-1-22-01

SAFETY ANALYIS

SHEET NO.
1

0 20 100
Feet

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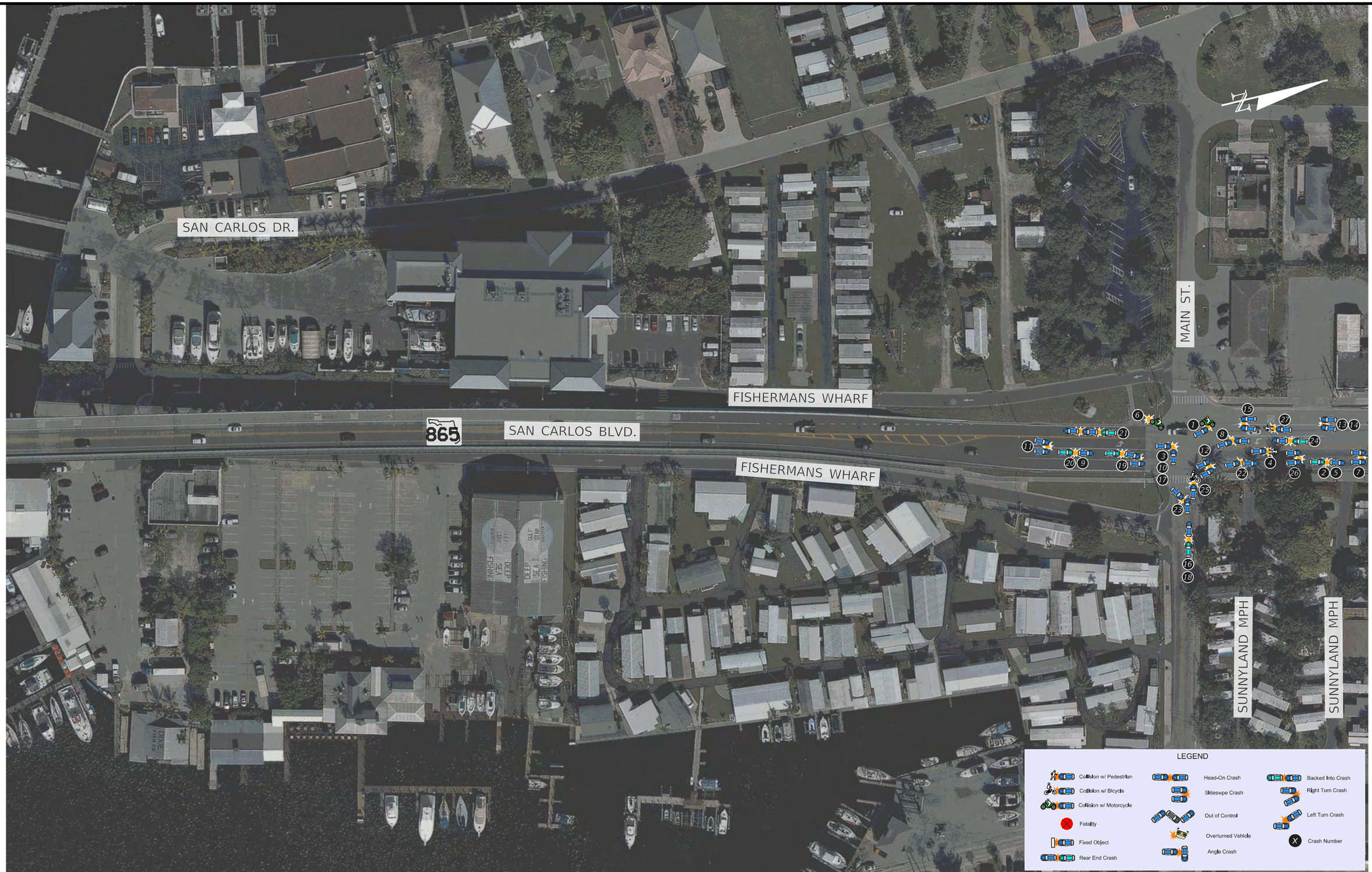
865	LEE	433726-1-22-01

SAFETY ANALYIS

SHEET NO.
2



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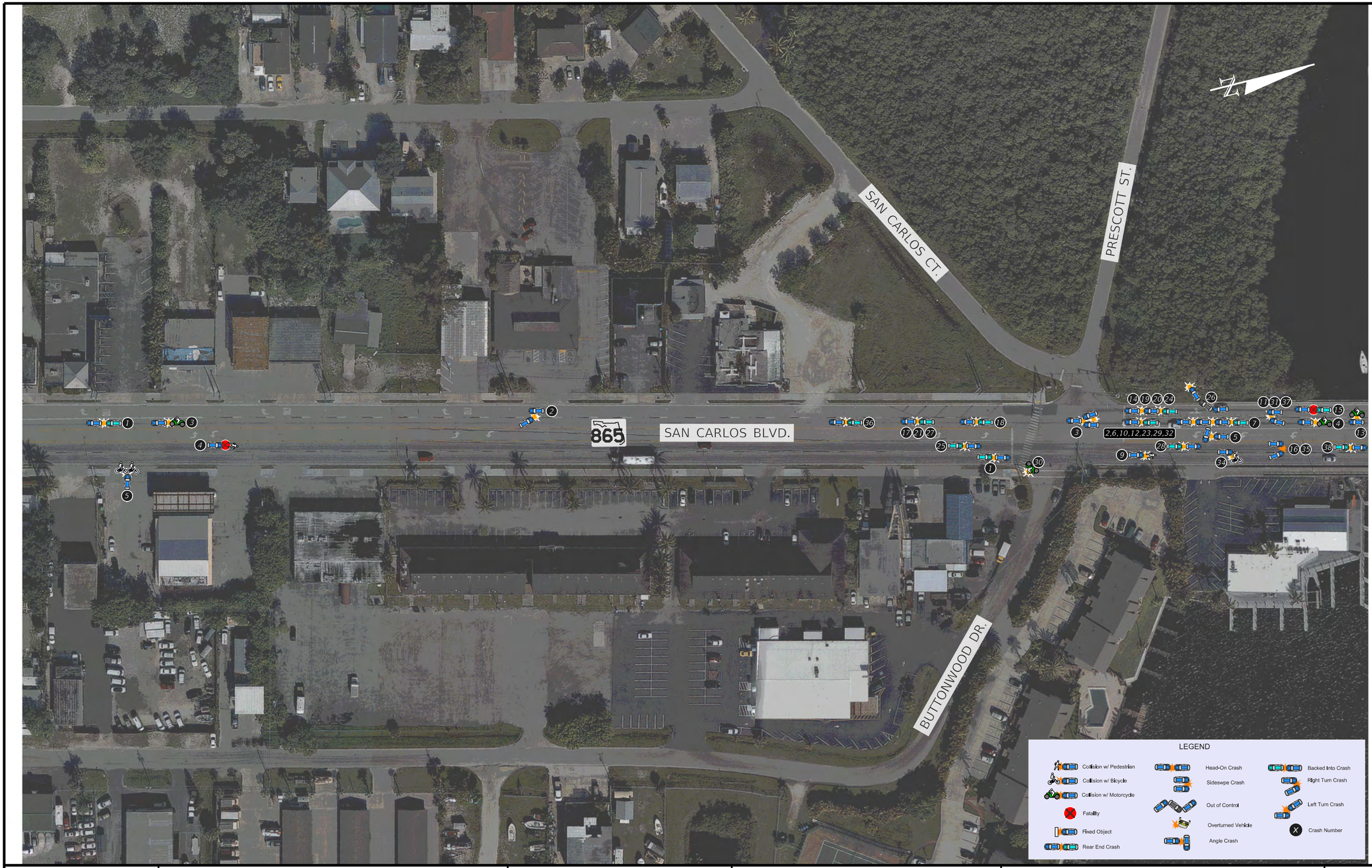
SAFETY ANALYIS

SHEET NO. 3



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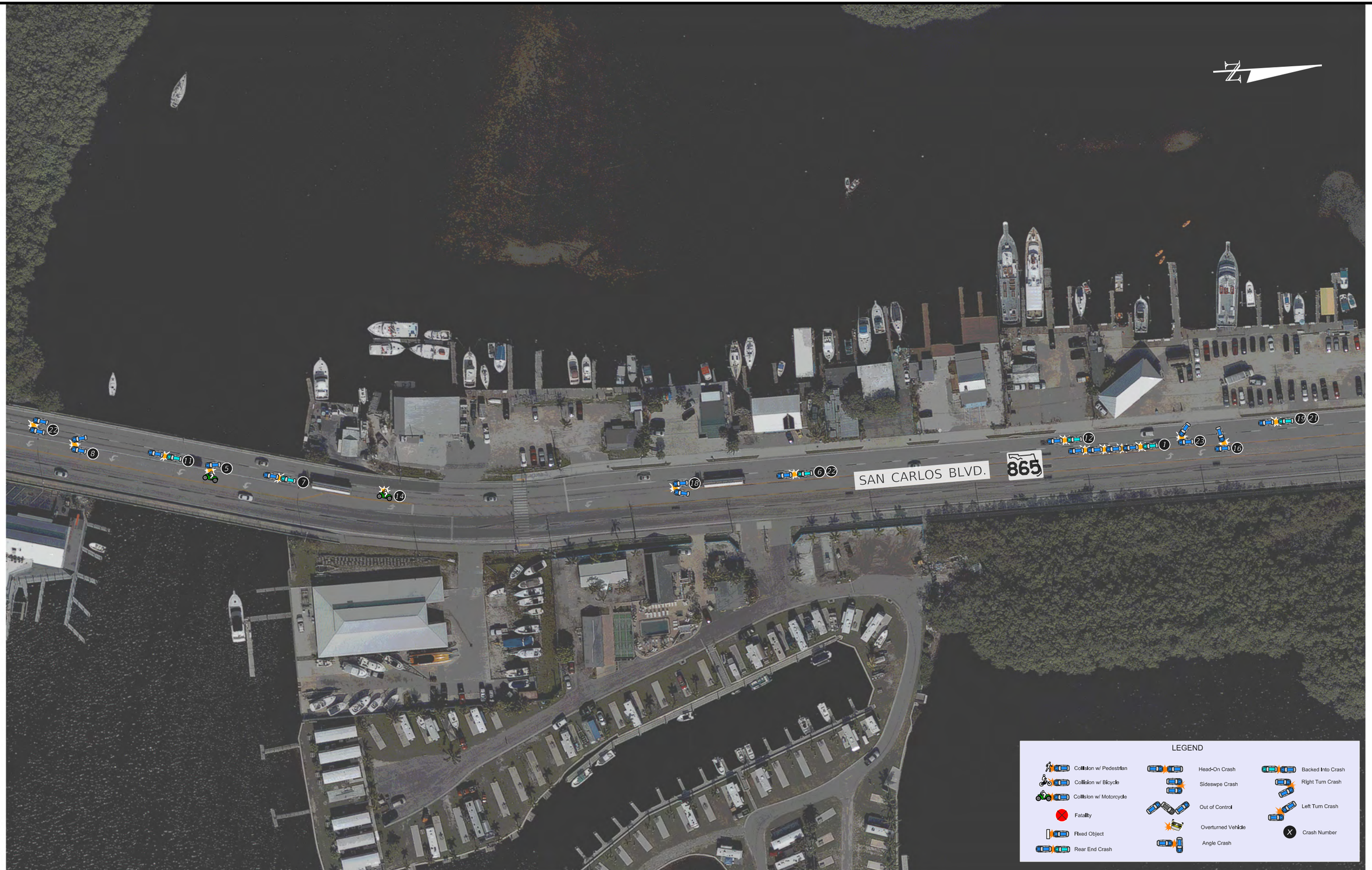
SAFETY ANALYIS

SHEET NO. 4



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STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
865	LEE	433726-1-22-01

SAFETY ANALYIS

SHEET NO.
5

0 20 100

Feet

DATE OF AERIAL: JULY 2015

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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SAFETY ANALYIS

SHEET NO. 6

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Feet

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SAFETY ANALYIS

SHEET NO. 7

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Feet

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SAFETY ANALYIS

SHEET NO.
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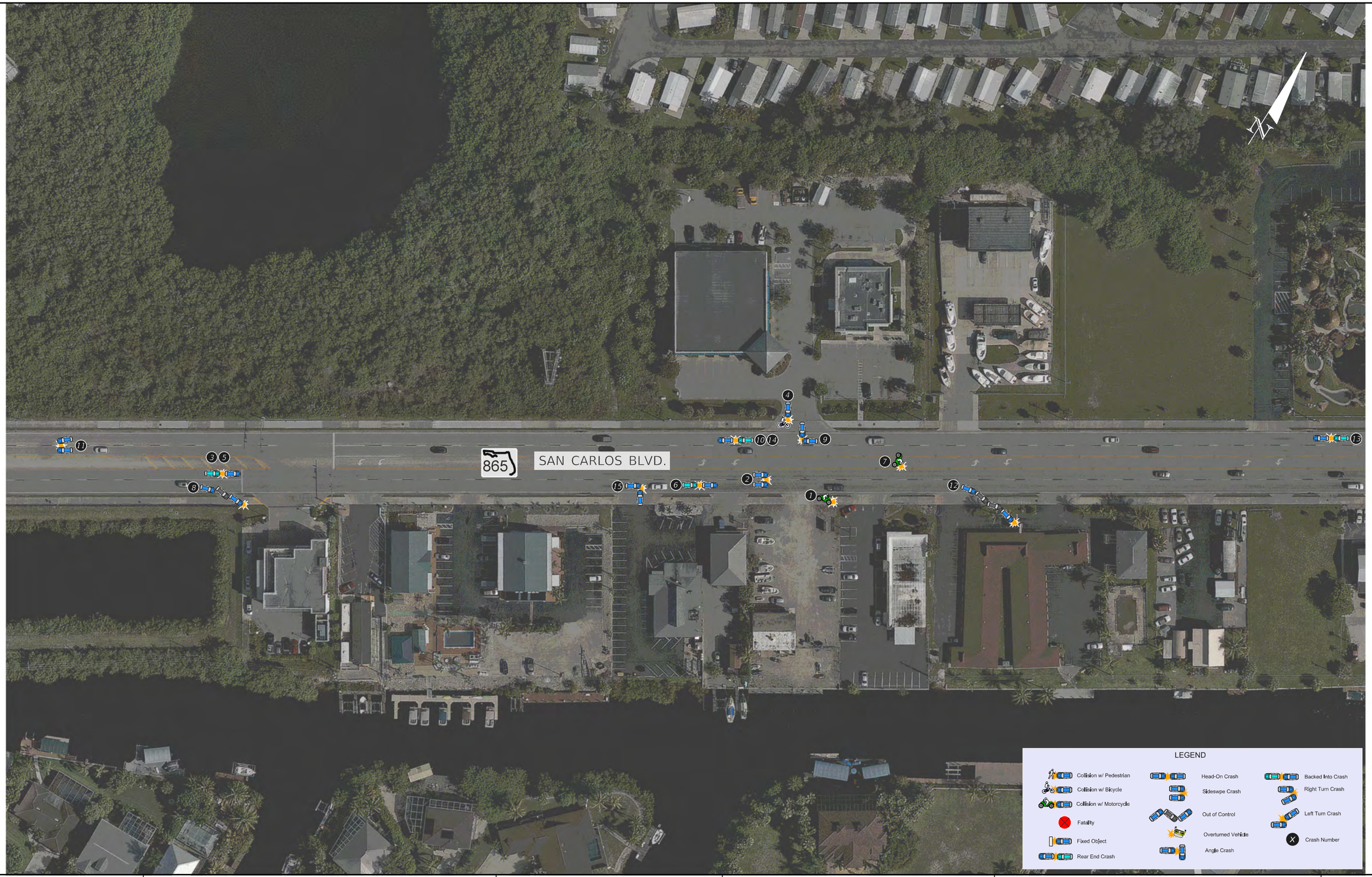

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SAFETY ANALYIS

SHEET NO. 9

0 20 100
Feet

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SAFETY ANALYIS

SHEET NO.
10

0 20 100
Feet

DATE OF AERIAL: JULY 2015

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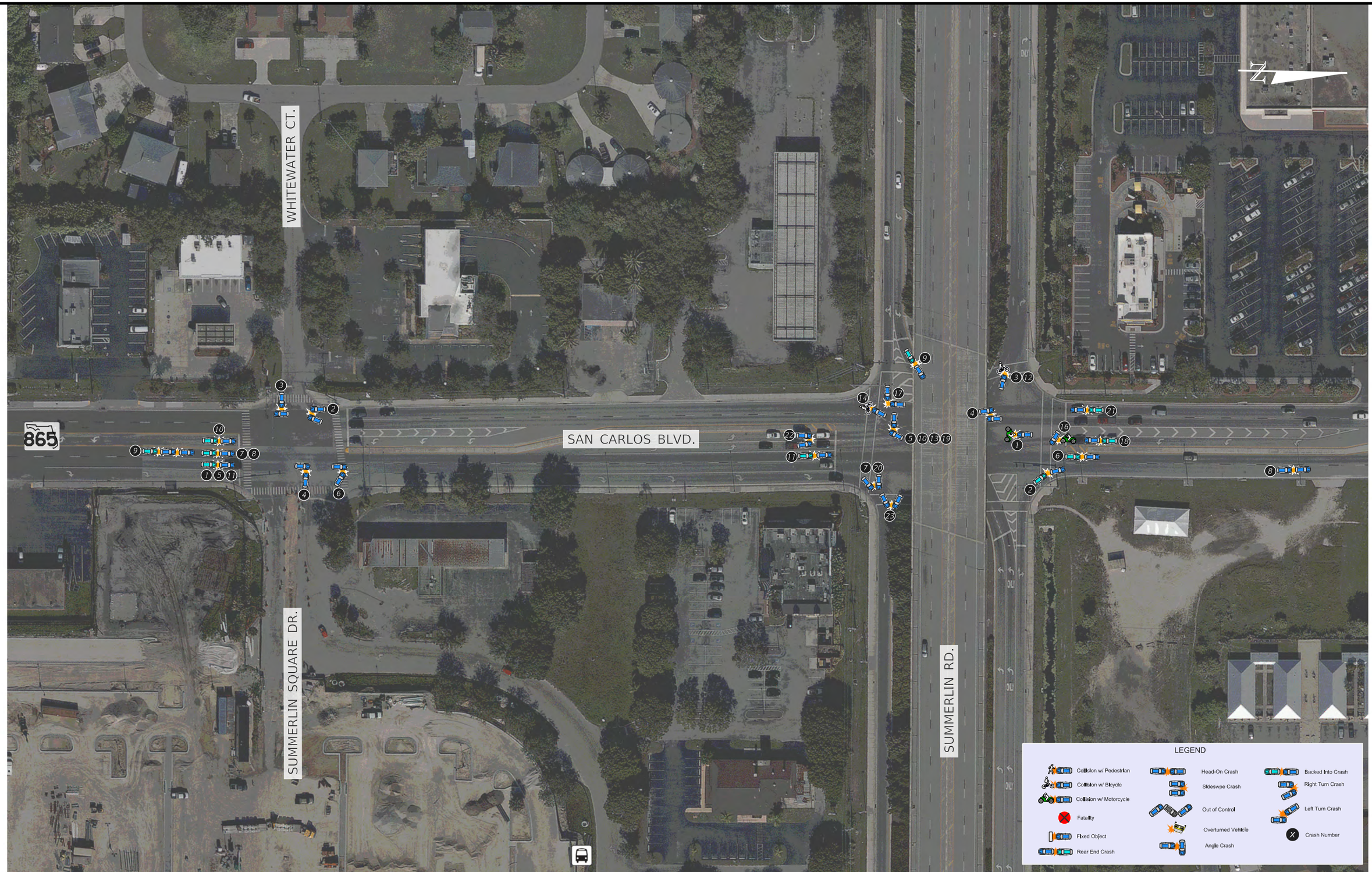
865	LEE	433726-1-22-01

SAFETY ANALYIS

SHEET NO.
11



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DEPARTMENT OF TRANSPORTATION

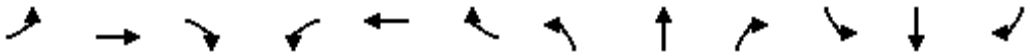
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
865	LEE	433726-1-22-01

SAFETY ANALYIS

SHEET NO. 12

APPENDIX B

PINE RIDGE ROAD SYNCHRO ANALYSIS REPORTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	68	25	295	21	33	8	647	266	19	615	41
Future Volume (veh/h)	106	68	25	295	21	33	8	647	266	19	615	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	74	27	321	23	36	9	703	289	21	668	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	326	173	63	435	613	519	339	908	373	260	1295	87
Arrive On Green	0.13	0.13	0.13	0.10	0.33	0.33	0.01	0.37	0.37	0.03	0.38	0.38
Sat Flow, veh/h	1344	1307	477	1781	1870	1585	1781	2456	1010	1781	3379	227
Grp Volume(v), veh/h	115	0	101	321	23	36	9	509	483	21	351	362
Grp Sat Flow(s),veh/h/ln	1344	0	1784	1781	1870	1585	1781	1777	1689	1781	1777	1829
Q Serve(g_s), s	4.0	0.0	2.5	5.0	0.4	0.8	0.2	12.3	12.3	0.4	7.4	7.4
Cycle Q Clear(g_c), s	4.0	0.0	2.5	5.0	0.4	0.8	0.2	12.3	12.3	0.4	7.4	7.4
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		0.12
Lane Grp Cap(c), veh/h	326	0	236	435	613	519	339	657	624	260	681	701
V/C Ratio(X)	0.35	0.00	0.43	0.74	0.04	0.07	0.03	0.77	0.77	0.08	0.52	0.52
Avail Cap(c_a), veh/h	645	0	660	435	692	586	501	657	624	397	681	701
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	19.4	17.5	11.1	11.3	9.8	13.5	13.5	10.6	11.5	11.5
Incr Delay (d2), s/veh	0.6	0.0	1.2	6.5	0.0	0.1	0.0	8.7	9.1	0.1	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.0	1.6	0.1	0.2	0.1	5.6	5.4	0.1	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	0.0	20.6	24.0	11.2	11.3	9.9	22.2	22.6	10.8	14.3	14.2
LnGrp LOS	C	A	C	C	B	B	A	C	C	B	B	B
Approach Vol, veh/h		216			380			1001			734	
Approach Delay, s/veh		20.7			22.0			22.3			14.2	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	22.5	9.5	10.9	5.1	23.2		20.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	18.0	5.0	18.0	5.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.4	14.3	7.0	6.0	2.2	9.4		2.8				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.7	0.0	2.9		0.1				

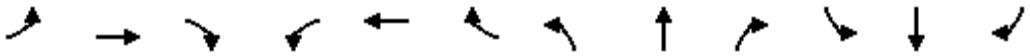
Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	82	98	263	50	31	27	219	246	31	173	134
Average Queue (ft)	48	38	108	8	11	5	113	109	15	97	54
95th Queue (ft)	90	80	192	31	35	21	195	194	40	150	100
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	4	3									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			0								
Queuing Penalty (veh)			0								

Network Summary

Network wide Queuing Penalty: 0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	36	13	417	29	46	9	733	302	20	655	44
Future Volume (veh/h)	56	36	13	417	29	46	9	733	302	20	655	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	39	14	453	32	50	10	797	328	22	712	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	98	35	532	644	546	343	1103	453	233	1558	105
Arrive On Green	0.07	0.07	0.07	0.21	0.34	0.34	0.01	0.45	0.45	0.02	0.46	0.46
Sat Flow, veh/h	1316	1314	472	1781	1870	1585	1781	2456	1009	1781	3379	228
Grp Volume(v), veh/h	61	0	53	453	32	50	10	576	549	22	374	386
Grp Sat Flow(s),veh/h/ln	1316	0	1785	1781	1870	1585	1781	1777	1689	1781	1777	1829
Q Serve(g_s), s	3.3	0.0	2.1	15.5	0.8	1.6	0.2	19.6	19.7	0.5	10.7	10.7
Cycle Q Clear(g_c), s	3.3	0.0	2.1	15.5	0.8	1.6	0.2	19.6	19.7	0.5	10.7	10.7
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.60	1.00		0.12
Lane Grp Cap(c), veh/h	195	0	133	532	644	546	343	798	758	233	819	844
V/C Ratio(X)	0.31	0.00	0.40	0.85	0.05	0.09	0.03	0.72	0.72	0.09	0.46	0.46
Avail Cap(c_a), veh/h	418	0	436	532	961	814	443	798	758	312	819	844
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	32.7	24.3	16.2	16.5	11.5	16.7	16.7	13.1	13.6	13.6
Incr Delay (d2), s/veh	0.9	0.0	1.9	12.5	0.0	0.1	0.0	5.6	5.9	0.2	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.0	8.7	0.4	0.6	0.1	8.5	8.1	0.2	4.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	0.0	34.6	36.8	16.2	16.5	11.5	22.3	22.6	13.3	15.5	15.4
LnGrp LOS	C	A	C	D	B	B	B	C	C	B	B	B
Approach Vol, veh/h		114			535			1135			782	
Approach Delay, s/veh		34.4			33.7			22.3			15.4	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	37.8	20.0	10.0	5.4	38.7		30.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	33.3	15.5	18.1	5.1	33.3		38.1				
Max Q Clear Time (g_c+I1), s	2.5	21.7	17.5	5.3	2.2	12.7		3.6				
Green Ext Time (p_c), s	0.0	5.8	0.0	0.3	0.0	4.8		0.3				

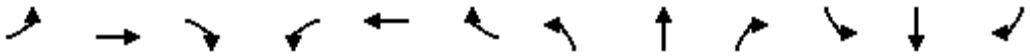
Intersection Summary			
HCM 6th Ctrl Delay		23.1	
HCM 6th LOS		C	

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	66	64	285	389	65	27	248	182	31	185	165
Average Queue (ft)	31	18	186	54	22	6	131	115	19	122	64
95th Queue (ft)	63	44	286	229	47	23	204	181	43	182	129
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	1	0									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			5								
Queuing Penalty (veh)			4								

Network Summary

Network wide Queuing Penalty: 4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	83	31	362	25	40	9	672	277	29	963	64
Future Volume (veh/h)	129	83	31	362	25	40	9	672	277	29	963	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	90	34	393	27	43	10	730	301	32	1047	70
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	182	69	473	670	568	217	1012	417	253	1464	98
Arrive On Green	0.14	0.14	0.14	0.15	0.36	0.36	0.01	0.41	0.41	0.03	0.43	0.43
Sat Flow, veh/h	1331	1294	489	1781	1870	1585	1781	2454	1011	1781	3381	226
Grp Volume(v), veh/h	140	0	124	393	27	43	10	529	502	32	550	567
Grp Sat Flow(s),veh/h/ln	1331	0	1782	1781	1870	1585	1781	1777	1688	1781	1777	1830
Q Serve(g_s), s	7.0	0.0	4.4	10.5	0.6	1.2	0.2	17.1	17.1	0.7	17.5	17.5
Cycle Q Clear(g_c), s	7.0	0.0	4.4	10.5	0.6	1.2	0.2	17.1	17.1	0.7	17.5	17.5
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		0.12
Lane Grp Cap(c), veh/h	291	0	250	473	670	568	217	733	696	253	769	792
V/C Ratio(X)	0.48	0.00	0.50	0.83	0.04	0.08	0.05	0.72	0.72	0.13	0.72	0.72
Avail Cap(c_a), veh/h	454	0	469	473	899	762	324	733	696	323	769	792
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	27.3	22.1	14.4	14.6	13.4	16.9	16.9	13.0	16.0	16.0
Incr Delay (d2), s/veh	1.2	0.0	1.5	11.9	0.0	0.1	0.1	6.1	6.4	0.2	5.6	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.9	6.6	0.3	0.4	0.1	7.5	7.2	0.3	7.5	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	0.0	28.9	34.0	14.4	14.6	13.5	23.0	23.3	13.3	21.7	21.5
LnGrp LOS	C	A	C	C	B	B	B	C	C	B	C	C
Approach Vol, veh/h		264			463			1041			1149	
Approach Delay, s/veh		29.3			31.1			23.0			21.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	32.9	15.0	14.2	5.4	34.3		29.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	28.4	10.5	18.1	5.0	28.4		33.1				
Max Q Clear Time (g_c+I1), s	2.7	19.1	12.5	9.0	2.2	19.5		3.2				
Green Ext Time (p_c), s	0.0	4.6	0.0	0.7	0.0	4.7		0.2				

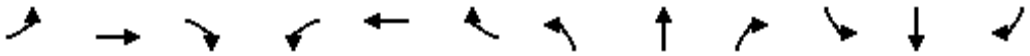
Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	82	82	237	52	55	27	257	289	79	325	288
Average Queue (ft)	59	45	149	7	18	8	141	116	21	173	137
95th Queue (ft)	100	73	207	31	46	26	214	204	52	260	236
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	15	2									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)							0			0	
Queuing Penalty (veh)							0			0	

Network Summary

Network wide Queuing Penalty: 0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	44	16	512	36	57	11	904	372	24	795	53
Future Volume (veh/h)	68	44	16	512	36	57	11	904	372	24	795	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	48	17	557	39	62	12	983	404	26	864	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	109	39	554	679	575	281	1119	454	164	1576	106
Arrive On Green	0.08	0.08	0.08	0.23	0.36	0.36	0.01	0.45	0.45	0.03	0.47	0.47
Sat Flow, veh/h	1294	1319	467	1781	1870	1585	1781	2466	1001	1781	3380	227
Grp Volume(v), veh/h	74	0	65	557	39	62	12	705	682	26	454	468
Grp Sat Flow(s),veh/h/ln	1294	0	1786	1781	1870	1585	1781	1777	1690	1781	1777	1830
Q Serve(g_s), s	4.8	0.0	3.0	19.7	1.2	2.2	0.3	31.0	31.9	0.7	15.8	15.8
Cycle Q Clear(g_c), s	4.8	0.0	3.0	19.7	1.2	2.2	0.3	31.0	31.9	0.7	15.8	15.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.59	1.00		0.12
Lane Grp Cap(c), veh/h	190	0	148	554	679	575	281	806	767	164	828	853
V/C Ratio(X)	0.39	0.00	0.44	1.01	0.06	0.11	0.04	0.87	0.89	0.16	0.55	0.55
Avail Cap(c_a), veh/h	354	0	374	554	916	776	358	806	767	219	828	853
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	37.7	29.0	17.9	18.2	13.6	21.3	21.6	18.1	16.5	16.5
Incr Delay (d2), s/veh	1.3	0.0	2.0	39.6	0.0	0.1	0.1	12.6	14.6	0.4	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.4	8.0	0.5	0.8	0.1	14.8	14.8	0.3	6.6	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	39.8	68.6	17.9	18.3	13.6	34.0	36.2	18.6	19.1	19.1
LnGrp LOS	D	A	D	F	B	B	B	C	D	B	B	B
Approach Vol, veh/h		139			658			1399			948	
Approach Delay, s/veh		39.8			60.9			34.9			19.1	
Approach LOS		D			E			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	43.7	24.2	11.6	5.8	44.8		35.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	39.2	19.7	18.1	5.0	39.2		42.3				
Max Q Clear Time (g_c+I1), s	2.7	33.9	21.7	6.8	2.3	17.8		4.2				
Green Ext Time (p_c), s	0.0	3.8	0.0	0.4	0.0	6.2		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	35.8
HCM 6th LOS	D

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	81	78	285	598	64	69	408	436	57	273	226
Average Queue (ft)	40	31	243	213	25	9	217	222	20	167	118
95th Queue (ft)	78	68	331	618	56	45	339	368	49	242	209
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	5	2		4			0	0			
Queuing Penalty (veh)	0	0		0			0	0			
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			22	0			3			0	
Queuing Penalty (veh)			21	0			0			0	

Network Summary

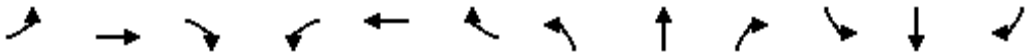
Network wide Queuing Penalty: 21

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	66	80	285	729	125	298	360	495	53	318	244
Average Queue (ft)	37	31	245	335	26	19	241	261	24	175	120
95th Queue (ft)	72	69	327	858	66	110	340	410	50	267	219
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	4	2		25				0			
Queuing Penalty (veh)	0	0		0				0			
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			36	0			3			0	
Queuing Penalty (veh)			33	1			0			0	

Network Summary

Network wide Queuing Penalty: 35



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	68	25	295	21	33	9	750	309	21	701	47
Future Volume (veh/h)	106	68	25	295	21	33	9	750	309	21	701	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	74	27	321	23	36	10	815	336	23	762	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	158	58	423	590	500	342	1119	460	244	1586	106
Arrive On Green	0.12	0.12	0.12	0.13	0.32	0.32	0.01	0.46	0.46	0.03	0.47	0.47
Sat Flow, veh/h	1344	1307	477	1781	1870	1585	1781	2455	1010	1781	3380	226
Grp Volume(v), veh/h	115	0	101	321	23	36	10	589	562	23	400	413
Grp Sat Flow(s),veh/h/ln	1344	0	1784	1781	1870	1585	1781	1777	1689	1781	1777	1830
Q Serve(g_s), s	5.5	0.0	3.5	8.5	0.6	1.1	0.2	18.0	18.1	0.5	10.3	10.3
Cycle Q Clear(g_c), s	5.5	0.0	3.5	8.5	0.6	1.1	0.2	18.0	18.1	0.5	10.3	10.3
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		0.12
Lane Grp Cap(c), veh/h	270	0	215	423	590	500	342	810	770	244	834	859
V/C Ratio(X)	0.43	0.00	0.47	0.76	0.04	0.07	0.03	0.73	0.73	0.09	0.48	0.48
Avail Cap(c_a), veh/h	473	0	484	423	872	739	453	810	770	332	834	859
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	27.3	22.6	15.8	16.0	10.1	14.8	14.8	11.6	12.1	12.1
Incr Delay (d2), s/veh	1.1	0.0	1.6	7.8	0.0	0.1	0.0	5.7	6.0	0.2	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.5	5.0	0.2	0.4	0.1	7.6	7.3	0.2	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	28.9	30.4	15.8	16.0	10.2	20.4	20.8	11.8	14.1	14.1
LnGrp LOS	C	A	C	C	B	B	B	C	C	B	B	B
Approach Vol, veh/h		216			380			1161			836	
Approach Delay, s/veh		29.1			28.1			20.5			14.0	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	34.9	13.0	12.5	5.3	35.8		25.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	30.4	8.5	18.1	5.0	30.4		31.1				
Max Q Clear Time (g_c+I1), s	2.5	20.1	10.5	7.5	2.2	12.3		3.1				
Green Ext Time (p_c), s	0.0	5.5	0.0	0.6	0.0	5.0		0.2				

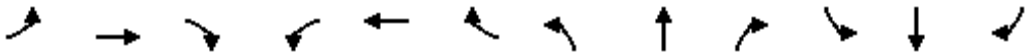
Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	82	82	225	52	67	27	226	317	52	210	134
Average Queue (ft)	55	41	122	13	13	5	140	153	19	122	66
95th Queue (ft)	91	75	196	39	42	22	220	257	45	172	119
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	8	3									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)											
Queuing Penalty (veh)											

Network Summary

Network wide Queuing Penalty: 0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	36	13	417	29	46	11	849	349	23	746	50
Future Volume (veh/h)	56	36	13	417	29	46	11	849	349	23	746	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	39	14	453	32	50	12	923	379	25	811	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	98	35	487	596	505	329	1164	474	210	1640	109
Arrive On Green	0.07	0.07	0.07	0.18	0.32	0.32	0.01	0.47	0.47	0.03	0.49	0.49
Sat Flow, veh/h	1316	1314	472	1781	1870	1585	1781	2463	1003	1781	3382	225
Grp Volume(v), veh/h	61	0	53	453	32	50	12	664	638	25	426	439
Grp Sat Flow(s),veh/h/ln	1316	0	1785	1781	1870	1585	1781	1777	1690	1781	1777	1830
Q Serve(g_s), s	3.3	0.0	2.1	13.7	0.9	1.7	0.3	23.4	23.8	0.5	12.1	12.1
Cycle Q Clear(g_c), s	3.3	0.0	2.1	13.7	0.9	1.7	0.3	23.4	23.8	0.5	12.1	12.1
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.59	1.00		0.12
Lane Grp Cap(c), veh/h	195	0	133	487	596	505	329	840	799	210	862	888
V/C Ratio(X)	0.31	0.00	0.40	0.93	0.05	0.10	0.04	0.79	0.80	0.12	0.49	0.49
Avail Cap(c_a), veh/h	417	0	434	487	912	773	423	840	799	281	862	888
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	32.9	26.6	17.6	17.8	10.7	16.5	16.6	13.5	13.0	13.0
Incr Delay (d2), s/veh	0.9	0.0	1.9	24.7	0.0	0.1	0.0	7.5	8.2	0.3	2.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.0	4.6	0.4	0.6	0.1	10.2	10.0	0.2	4.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	0.0	34.8	51.3	17.6	17.9	10.7	24.0	24.9	13.8	15.0	15.0
LnGrp LOS	C	A	C	D	B	B	B	C	C	B	B	B
Approach Vol, veh/h		114			535			1314			890	
Approach Delay, s/veh		34.6			46.1			24.3			14.9	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	39.7	18.2	10.0	5.6	40.6		28.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	35.2	13.7	18.1	5.0	35.2		36.3				
Max Q Clear Time (g_c+I1), s	2.5	25.8	15.7	5.3	2.3	14.1		3.7				
Green Ext Time (p_c), s	0.0	5.8	0.0	0.3	0.0	5.7		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			25.9									
HCM 6th LOS			C									

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	81	81	285	470	79	27	419	484	52	270	276
Average Queue (ft)	29	25	217	124	23	9	163	158	22	142	70
95th Queue (ft)	65	61	323	428	54	29	281	286	50	217	143
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	3	3						0			
Queuing Penalty (veh)	0	0						0			
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			16				0			0	
Queuing Penalty (veh)			13				0			0	

Network Summary

Network wide Queuing Penalty: 13

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	81	81	285	729	72	299	503	522	72	315	282
Average Queue (ft)	44	41	273	451	23	17	386	415	28	244	198
95th Queue (ft)	79	87	317	914	57	108	556	567	54	313	275
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	8	10		22			4	9			
Queuing Penalty (veh)	0	0		0			0	0			
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			44	0			20			2	
Queuing Penalty (veh)			42	0			3			0	

Network Summary

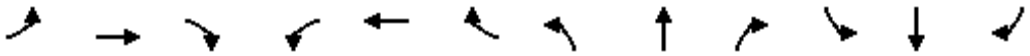
Network wide Queuing Penalty: 45

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	81	82	285	695	91	145	502	509	209	367	331
Average Queue (ft)	48	33	267	378	25	14	323	342	32	222	178
95th Queue (ft)	87	72	326	809	67	81	501	526	110	326	288
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	12	4		11			2	5			
Queuing Penalty (veh)	0	0		0			0	0			
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			38	0			12			2	
Queuing Penalty (veh)			36	0			2			1	

Network Summary

Network wide Queuing Penalty: 39



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	44	16	512	36	57	13	1047	431	28	903	60
Future Volume (veh/h)	68	44	16	512	36	57	13	1047	431	28	903	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	48	17	557	39	62	14	1138	468	30	982	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	100	35	542	660	560	261	1257	502	128	1752	116
Arrive On Green	0.08	0.08	0.08	0.24	0.35	0.35	0.02	0.51	0.51	0.03	0.52	0.52
Sat Flow, veh/h	1294	1319	467	1781	1870	1585	1781	2479	990	1781	3383	224
Grp Volume(v), veh/h	74	0	65	557	39	62	14	806	800	30	516	531
Grp Sat Flow(s),veh/h/ln	1294	0	1786	1781	1870	1585	1781	1777	1692	1781	1777	1830
Q Serve(g_s), s	6.7	0.0	4.2	28.5	1.6	3.1	0.4	48.7	52.6	1.0	23.5	23.5
Cycle Q Clear(g_c), s	6.7	0.0	4.2	28.5	1.6	3.1	0.4	48.7	52.6	1.0	23.5	23.5
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.59	1.00		0.12
Lane Grp Cap(c), veh/h	158	0	135	542	660	560	261	901	858	128	920	948
V/C Ratio(X)	0.47	0.00	0.48	1.03	0.06	0.11	0.05	0.89	0.93	0.23	0.56	0.56
Avail Cap(c_a), veh/h	257	0	272	542	804	681	310	901	858	157	920	948
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	0.0	52.7	39.3	25.4	25.9	15.8	26.5	27.4	26.0	19.5	19.5
Incr Delay (d2), s/veh	2.1	0.0	2.6	46.0	0.0	0.1	0.1	13.3	18.1	0.9	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.0	9.2	0.7	1.2	0.2	23.1	24.7	0.4	10.1	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	0.0	55.4	85.4	25.5	26.0	15.9	39.7	45.5	26.9	21.9	21.9
LnGrp LOS	E	A	E	F	C	C	B	D	D	C	C	C
Approach Vol, veh/h		139			658			1620			1077	
Approach Delay, s/veh		55.7			76.2			42.4			22.0	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	64.8	33.0	13.5	6.4	66.1		46.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	60.3	28.5	18.1	5.1	60.3		51.1				
Max Q Clear Time (g_c+I1), s	3.0	54.6	30.5	8.7	2.4	25.5		5.1				
Green Ext Time (p_c), s	0.0	4.5	0.0	0.3	0.0	8.5		0.4				

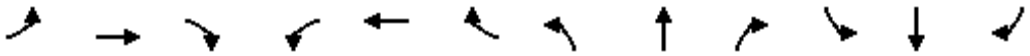
Intersection Summary												
HCM 6th Ctrl Delay			43.0									
HCM 6th LOS			D									

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	85	82	282	71	71	27	264	320	53	339	328
Average Queue (ft)	60	51	162	23	19	5	175	165	24	201	158
95th Queue (ft)	93	94	256	55	55	22	252	259	54	278	257
Link Distance (ft)	66	66		677			488	488		527	527
Upstream Blk Time (%)	16	13									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260		260	275			275		
Storage Blk Time (%)			2				0			1	
Queuing Penalty (veh)			1				0			0	

Network Summary

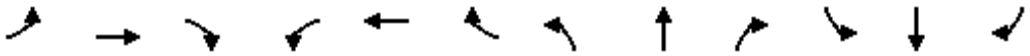
Network wide Queuing Penalty: 2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	83	31	362	25	40	10	779	321	33	1094	73
Future Volume (veh/h)	129	83	31	362	25	40	10	779	321	33	1094	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	90	34	393	27	43	11	847	349	36	1189	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	174	66	455	648	549	195	1109	455	226	1597	106
Arrive On Green	0.13	0.13	0.13	0.16	0.35	0.35	0.01	0.45	0.45	0.03	0.47	0.47
Sat Flow, veh/h	1331	1294	489	1781	1870	1585	1781	2457	1009	1781	3382	224
Grp Volume(v), veh/h	140	0	124	393	27	43	11	612	584	36	624	644
Grp Sat Flow(s),veh/h/ln	1331	0	1782	1781	1870	1585	1781	1777	1689	1781	1777	1830
Q Serve(g_s), s	8.2	0.0	5.2	12.5	0.8	1.5	0.3	23.1	23.3	0.9	23.0	23.0
Cycle Q Clear(g_c), s	8.2	0.0	5.2	12.5	0.8	1.5	0.3	23.1	23.3	0.9	23.0	23.0
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.60	1.00		0.12
Lane Grp Cap(c), veh/h	269	0	240	455	648	549	195	802	762	226	839	864
V/C Ratio(X)	0.52	0.00	0.52	0.86	0.04	0.08	0.06	0.76	0.77	0.16	0.74	0.75
Avail Cap(c_a), veh/h	389	0	401	455	817	692	284	802	762	278	839	864
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	32.3	26.1	17.4	17.7	14.5	18.4	18.5	14.5	17.3	17.3
Incr Delay (d2), s/veh	1.6	0.0	1.7	15.6	0.0	0.1	0.1	6.8	7.2	0.3	5.9	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	2.3	3.2	0.3	0.5	0.1	10.2	9.9	0.3	9.9	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	0.0	34.1	41.7	17.5	17.7	14.6	25.2	25.7	14.8	23.2	23.1
LnGrp LOS	D	A	C	D	B	B	B	C	C	B	C	C
Approach Vol, veh/h		264			463			1207			1304	
Approach Delay, s/veh		34.7			38.1			25.4			22.9	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	40.8	17.0	15.3	5.6	42.5		32.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	36.3	12.5	18.1	5.1	36.3		35.1				
Max Q Clear Time (g_c+I1), s	2.9	25.3	14.5	10.2	2.3	25.0		3.5				
Green Ext Time (p_c), s	0.0	6.0	0.0	0.7	0.0	6.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		26.9	
HCM 6th LOS		C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	68	25	295	21	33	9	750	309	21	701	47
Future Volume (veh/h)	106	68	25	295	21	33	9	750	309	21	701	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	74	27	321	23	36	10	815	336	23	762	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	167	61	766	197	309	341	1054	433	248	1498	100
Arrive On Green	0.13	0.13	0.13	0.09	0.30	0.30	0.01	0.43	0.43	0.03	0.44	0.44
Sat Flow, veh/h	1344	1307	477	3456	657	1028	1781	2455	1010	1781	3380	226
Grp Volume(v), veh/h	115	0	101	321	0	59	10	589	562	23	400	413
Grp Sat Flow(s),veh/h/ln	1344	0	1784	1728	0	1685	1781	1777	1689	1781	1777	1830
Q Serve(g_s), s	4.5	0.0	2.9	4.2	0.0	1.4	0.2	15.7	15.8	0.4	9.0	9.0
Cycle Q Clear(g_c), s	4.5	0.0	2.9	4.2	0.0	1.4	0.2	15.7	15.8	0.4	9.0	9.0
Prop In Lane	1.00		0.27	1.00		0.61	1.00		0.60	1.00		0.12
Lane Grp Cap(c), veh/h	301	0	227	766	0	506	341	763	725	248	787	811
V/C Ratio(X)	0.38	0.00	0.44	0.42	0.00	0.12	0.03	0.77	0.78	0.09	0.51	0.51
Avail Cap(c_a), veh/h	568	0	582	766	0	842	479	763	725	361	787	811
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	22.4	17.2	0.0	14.1	9.3	13.5	13.5	10.7	11.1	11.1
Incr Delay (d2), s/veh	0.8	0.0	1.4	0.4	0.0	0.1	0.0	7.5	7.9	0.2	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.2	1.6	0.0	0.5	0.1	6.8	6.6	0.1	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.9	0.0	23.7	17.6	0.0	14.2	9.3	21.0	21.5	10.8	13.4	13.4
LnGrp LOS	C	A	C	B	A	B	A	C	C	B	B	B
Approach Vol, veh/h		216			380			1161			836	
Approach Delay, s/veh		23.8			17.0			21.1			13.3	
Approach LOS		C			B			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	28.3	9.6	11.6	5.2	29.1		21.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	23.8	5.1	18.1	5.0	23.8		27.7				
Max Q Clear Time (g_c+I1), s	2.4	17.8	6.2	6.5	2.2	11.0		3.4				
Green Ext Time (p_c), s	0.0	3.7	0.0	0.6	0.0	4.2		0.3				

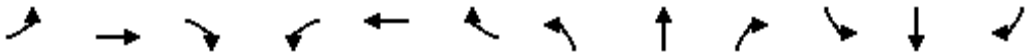
Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	82	82	146	162	66	28	261	253	47	181	154
Average Queue (ft)	41	38	38	98	24	4	128	119	12	115	71
95th Queue (ft)	75	76	114	148	54	20	210	210	35	163	133
Link Distance (ft)	67	67			677		484	484		524	524
Upstream Blk Time (%)	3	2									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260	260		275			275		
Storage Blk Time (%)							0				
Queuing Penalty (veh)							0				

Network Summary

Network wide Queuing Penalty: 0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	36	13	417	29	46	11	849	349	23	746	50
Future Volume (veh/h)	56	36	13	417	29	46	11	849	349	23	746	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	39	14	453	32	50	12	923	379	25	811	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	103	37	657	155	242	390	1290	526	263	1815	121
Arrive On Green	0.08	0.08	0.08	0.09	0.24	0.24	0.02	0.52	0.52	0.03	0.54	0.54
Sat Flow, veh/h	1316	1314	472	3456	658	1028	1781	2463	1003	1781	3382	225
Grp Volume(v), veh/h	61	0	53	453	0	82	12	664	638	25	426	439
Grp Sat Flow(s),veh/h/ln	1316	0	1785	1728	0	1685	1781	1777	1690	1781	1777	1830
Q Serve(g_s), s	2.8	0.0	1.8	5.5	0.0	2.5	0.2	18.1	18.4	0.4	9.3	9.3
Cycle Q Clear(g_c), s	2.8	0.0	1.8	5.5	0.0	2.5	0.2	18.1	18.4	0.4	9.3	9.3
Prop In Lane	1.00		0.26	1.00		0.61	1.00		0.59	1.00		0.12
Lane Grp Cap(c), veh/h	217	0	140	657	0	397	390	931	885	263	954	982
V/C Ratio(X)	0.28	0.00	0.38	0.69	0.00	0.21	0.03	0.71	0.72	0.10	0.45	0.45
Avail Cap(c_a), veh/h	488	0	508	657	0	745	506	931	885	355	954	982
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	0.0	27.8	24.9	0.0	19.5	7.4	11.5	11.6	9.3	9.0	9.0
Incr Delay (d2), s/veh	0.7	0.0	1.7	3.0	0.0	0.3	0.0	4.6	5.1	0.2	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.8	0.9	0.0	0.9	0.1	7.0	6.9	0.1	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	29.5	27.9	0.0	19.8	7.4	16.1	16.6	9.5	10.5	10.4
LnGrp LOS	C	A	C	C	A	B	A	B	B	A	B	B
Approach Vol, veh/h		114			535			1314			890	
Approach Delay, s/veh		29.2			26.7			16.3			10.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	37.8	10.0	9.5	5.5	38.6		19.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	33.3	5.5	18.1	5.1	33.3		28.1				
Max Q Clear Time (g_c+I1), s	2.4	20.4	7.5	4.8	2.2	11.3		4.5				
Green Ext Time (p_c), s	0.0	7.3	0.0	0.3	0.0	5.8		0.4				

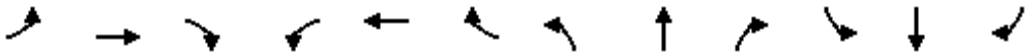
Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	64	80	272	284	330	28	241	303	50	249	233
Average Queue (ft)	23	27	142	194	38	5	141	135	19	119	58
95th Queue (ft)	56	65	248	268	135	23	213	223	45	202	137
Link Distance (ft)	67	67			677		484	484		524	524
Upstream Blk Time (%)	1	3									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260	260		275			275		
Storage Blk Time (%)			0	2							
Queuing Penalty (veh)			0	1							

Network Summary

Network wide Queuing Penalty: 1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	83	31	362	25	40	10	779	321	33	1094	73
Future Volume (veh/h)	129	83	31	362	25	40	10	779	321	33	1094	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	90	34	393	27	43	11	847	349	36	1189	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	186	70	713	194	309	221	1107	455	255	1603	106
Arrive On Green	0.14	0.14	0.14	0.08	0.30	0.30	0.01	0.45	0.45	0.04	0.47	0.47
Sat Flow, veh/h	1331	1294	489	3456	650	1035	1781	2457	1009	1781	3382	224
Grp Volume(v), veh/h	140	0	124	393	0	70	11	612	584	36	624	644
Grp Sat Flow(s),veh/h/ln	1331	0	1782	1728	0	1684	1781	1777	1689	1781	1777	1830
Q Serve(g_s), s	6.4	0.0	4.0	5.3	0.0	1.9	0.2	18.2	18.4	0.7	18.0	18.1
Cycle Q Clear(g_c), s	6.4	0.0	4.0	5.3	0.0	1.9	0.2	18.2	18.4	0.7	18.0	18.1
Prop In Lane	1.00		0.27	1.00		0.61	1.00		0.60	1.00		0.12
Lane Grp Cap(c), veh/h	305	0	256	713	0	503	221	801	761	255	842	867
V/C Ratio(X)	0.46	0.00	0.48	0.55	0.00	0.14	0.05	0.76	0.77	0.14	0.74	0.74
Avail Cap(c_a), veh/h	495	0	510	713	0	743	340	801	761	332	842	867
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	0.0	24.9	20.6	0.0	16.2	11.4	14.6	14.6	11.4	13.5	13.5
Incr Delay (d2), s/veh	1.1	0.0	1.4	0.9	0.0	0.1	0.1	6.8	7.3	0.3	5.8	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.7	2.3	0.0	0.7	0.1	7.8	7.6	0.2	7.5	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	0.0	26.3	21.5	0.0	16.3	11.4	21.4	21.9	11.6	19.3	19.2
LnGrp LOS	C	A	C	C	A	B	B	C	C	B	B	B
Approach Vol, veh/h		264			463			1207			1304	
Approach Delay, s/veh		26.7			20.7			21.5			19.1	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	33.0	9.8	13.6	5.4	34.5		23.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	28.5	5.3	18.1	5.1	28.5		27.9				
Max Q Clear Time (g_c+I1), s	2.7	20.4	7.3	8.4	2.2	20.1		3.9				
Green Ext Time (p_c), s	0.0	4.8	0.0	0.8	0.0	5.1		0.3				

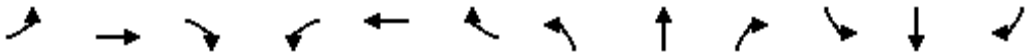
Intersection Summary			
HCM 6th Ctrl Delay		20.8	
HCM 6th LOS		C	

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	101	130	171	200	54	49	294	328	47	263	262
Average Queue (ft)	57	62	43	120	26	11	152	143	22	183	150
95th Queue (ft)	93	105	127	178	48	35	215	243	47	254	239
Link Distance (ft)	67	67			677		484	484		524	524
Upstream Blk Time (%)	8	8									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260	260		275			275		
Storage Blk Time (%)							0			0	
Queuing Penalty (veh)							0			0	

Network Summary

Network wide Queuing Penalty: 0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	44	16	512	36	57	13	1047	431	28	903	60
Future Volume (veh/h)	68	44	16	512	36	57	13	1047	431	28	903	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	48	17	557	39	62	14	1138	468	30	982	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	114	40	644	155	246	335	1369	547	198	1916	127
Arrive On Green	0.09	0.09	0.09	0.09	0.24	0.24	0.02	0.55	0.55	0.03	0.57	0.57
Sat Flow, veh/h	1294	1319	467	3456	650	1034	1781	2479	990	1781	3383	224
Grp Volume(v), veh/h	74	0	65	557	0	101	14	806	800	30	516	531
Grp Sat Flow(s),veh/h/ln	1294	0	1786	1728	0	1684	1781	1777	1692	1781	1777	1830
Q Serve(g_s), s	4.2	0.0	2.6	7.0	0.0	3.7	0.3	28.1	30.4	0.5	13.4	13.4
Cycle Q Clear(g_c), s	4.2	0.0	2.6	7.0	0.0	3.7	0.3	28.1	30.4	0.5	13.4	13.4
Prop In Lane	1.00		0.26	1.00		0.61	1.00		0.59	1.00		0.12
Lane Grp Cap(c), veh/h	207	0	154	644	0	401	335	982	935	198	1007	1037
V/C Ratio(X)	0.36	0.00	0.42	0.86	0.00	0.25	0.04	0.82	0.86	0.15	0.51	0.51
Avail Cap(c_a), veh/h	405	0	427	644	0	659	425	982	935	263	1007	1037
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	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	0.0	32.8	30.5	0.0	23.4	8.1	13.9	14.4	13.4	10.0	10.0
Incr Delay (d2), s/veh	1.0	0.0	1.8	11.8	0.0	0.3	0.1	7.7	9.9	0.4	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.2	2.8	0.0	1.4	0.1	11.7	12.5	0.2	5.1	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	34.6	42.2	0.0	23.7	8.2	21.6	24.3	13.8	11.9	11.8
LnGrp LOS	C	A	C	D	A	C	A	C	C	B	B	B
Approach Vol, veh/h		139			658			1620			1077	
Approach Delay, s/veh		34.6			39.4			22.8			11.9	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	46.3	11.5	11.0	5.8	47.4		22.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.1	41.8	7.0	18.1	5.1	41.8		29.6				
Max Q Clear Time (g_c+I1), s	2.5	32.4	9.0	6.2	2.3	15.4		5.7				
Green Ext Time (p_c), s	0.0	7.0	0.0	0.4	0.0	7.9		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		23.0	
HCM 6th LOS		C	

Intersection: 4:

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	66	82	272	284	477	28	352	344	47	262	194
Average Queue (ft)	34	34	199	233	86	9	194	192	15	157	105
95th Queue (ft)	66	72	309	310	280	29	316	321	41	223	182
Link Distance (ft)	67	67			677		484	484		524	524
Upstream Blk Time (%)	2	2									
Queuing Penalty (veh)	0	0									
Storage Bay Dist (ft)			260	260		275			275		
Storage Blk Time (%)			0	5			1			0	
Queuing Penalty (veh)			0	4			0			0	

Network Summary

Network wide Queuing Penalty: 5

APPENDIX C
TRAFFIC SIGNAL WARRANTS

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Fort Myers Beach**	Engineer:	
County:	**12 – Lee**	Date:	
District:	**One**		

Major Street:	**Estero Blvd.**	Lanes:	**2**	Major Approach Speed:	**25**
Minor Street:	**Crescent St.**	Lanes:	**2**	Minor Approach Speed:	**25**

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

Volume Level Criteria

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

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

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

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

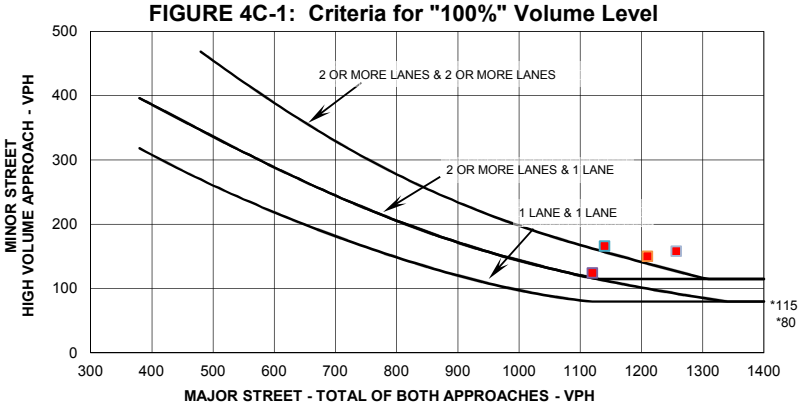
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
1:00 PM	1120	124
2:00 PM	1140	166
3:00 PM	1210	150
4:00 PM	1257	158

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



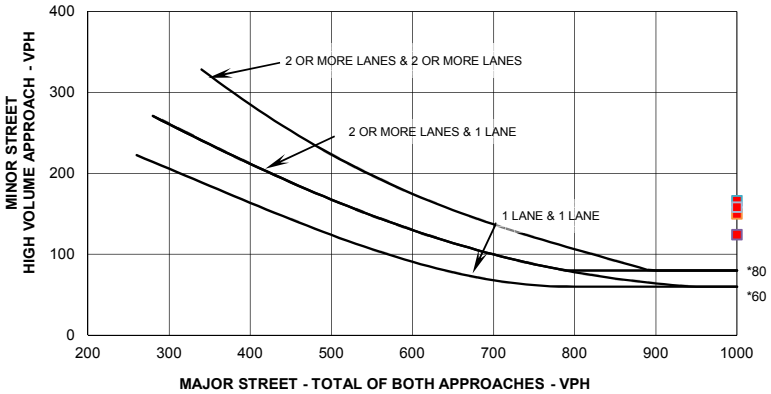
** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Minor Street
1:00 PM	1120	124
2:00 PM	1140	166
3:00 PM	1210	150
4:00 PM	1257	158

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

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



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

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Fort Myers Beach**	Engineer:	
County:	**12 – Lee**	Date:	
District:	**One**		

Major Street:	**Estero Blvd.**	Lanes:	**1**	Major Approach Speed:	**25**
Minor Street:	**Crescent St.**	Lanes:	**1**	Minor Approach Speed:	**25**

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

Volume Level Criteria

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

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

WARRANT 4 - PEDESTRIAN VOLUME

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

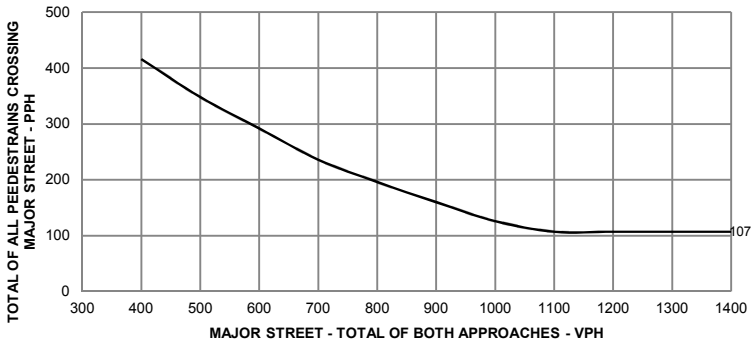
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

Plot four volume combinations on the applicable figure below.

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

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

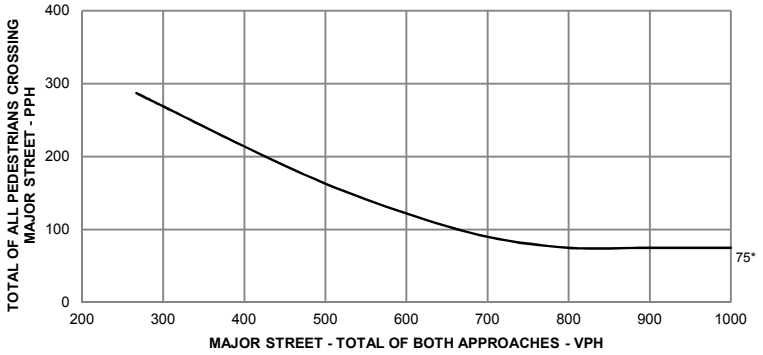


** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

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



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

WARRANT 4 - PEDESTRIAN VOLUME

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

Applicable: ☑ Yes ☐ No

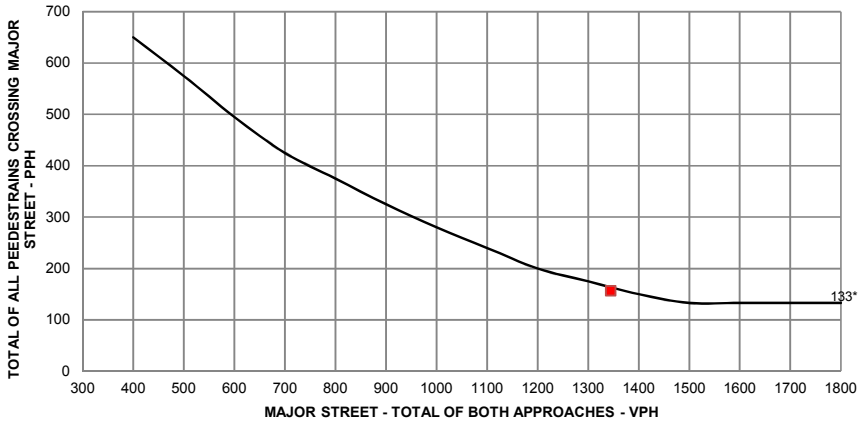
Satisfied: ☑ Yes ☐ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
4:00-5:00	1345	157

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

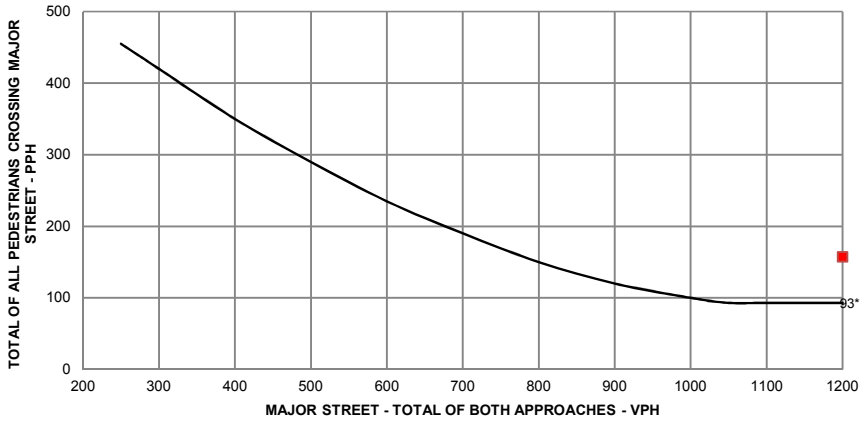


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
4:00-5:00	1345	157

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



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

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Fort Myers Beach**	Engineer:	
County:	**12 – Lee**	Date:	
District:	**One**		

Major Street:	**Estero Blvd.**	Lanes:	**1**	Major Approach Speed:	**25**
Minor Street:	**Old San Carlos**	Lanes:	**1**	Minor Approach Speed:	**25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
3:30-4:30	583	88

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

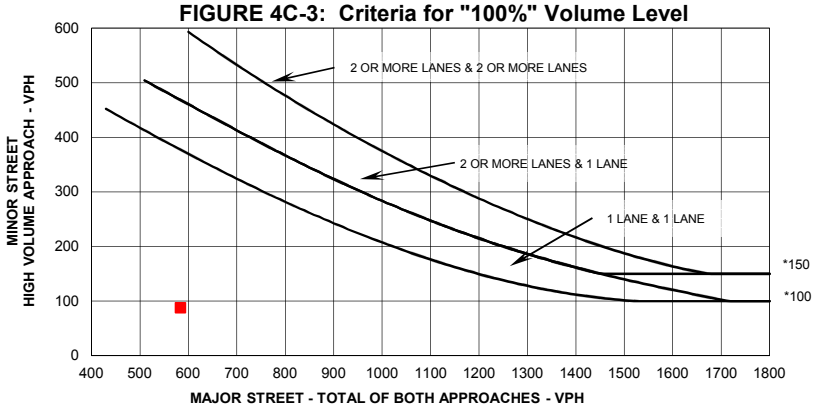
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

Plot volume combination on the applicable figure below.

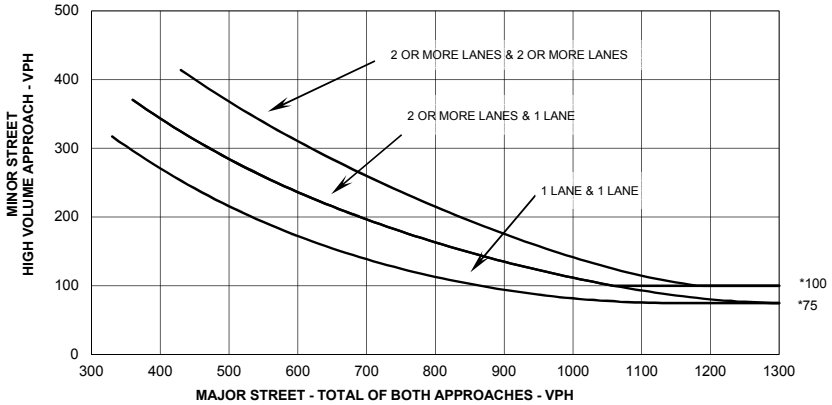
FIGURE 4C-3: Criteria for "100%" Volume Level



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

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

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



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

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Fort Myers Beach**	Engineer:	
County:	**12 – Lee**	Date:	
District:	**One**		

Major Street:	**Estero Blvd.**	Lanes:	**1**	Major Approach Speed:	**25**
Minor Street:	**Old San Carlos**	Lanes:	**1**	Minor Approach Speed:	**25**

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

Volume Level Criteria

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

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

WARRANT 4 - PEDESTRIAN VOLUME

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

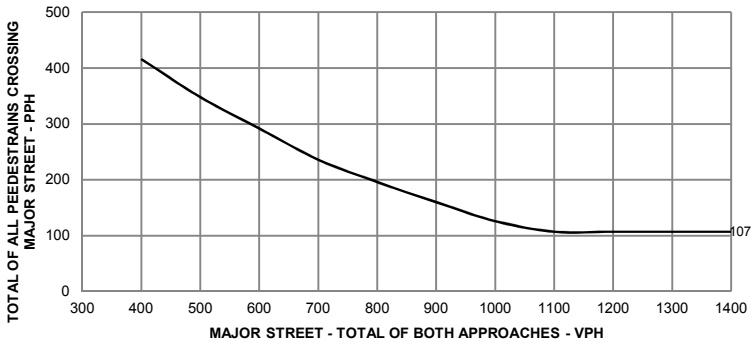
Applicable: ☑ Yes ☐ No
Satisfied: ☑ Yes ☐ No

100% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

Plot four volume combinations on the applicable figure below.

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

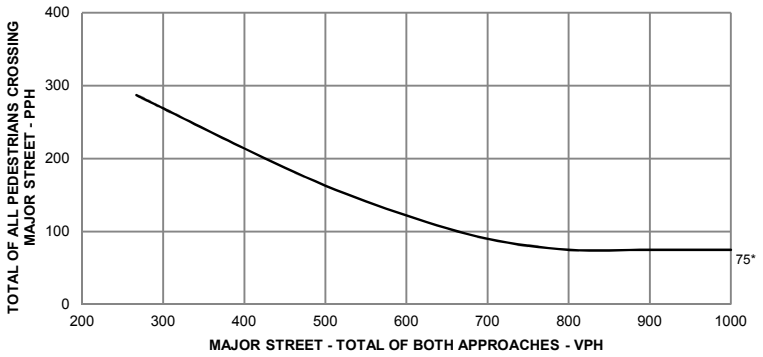


** Note: 107 pph applies as the lower threshold volume*

70% Volume Level

Four Highest Hours	Volumes	
	Major Street	Pedestrian Total

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



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

WARRANT 4 - PEDESTRIAN VOLUME

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

Applicable: ☑ Yes ☐ No

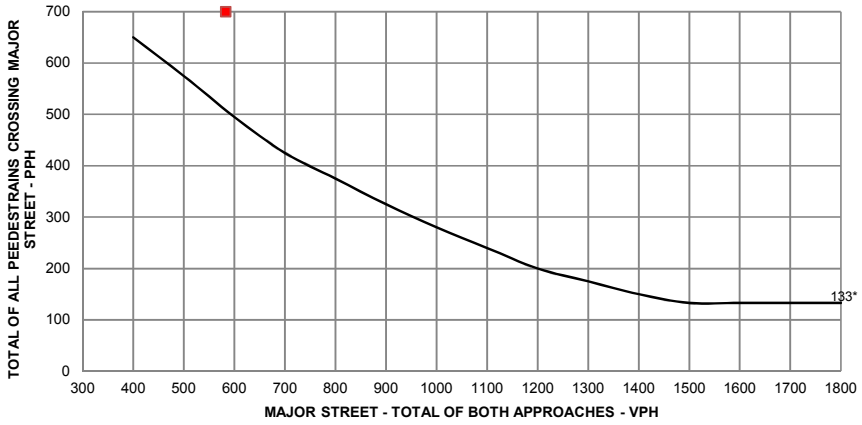
Satisfied: ☑ Yes ☐ No

Plot one volume combination on the applicable figure below.

100% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
3:30-4:30	583	880

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

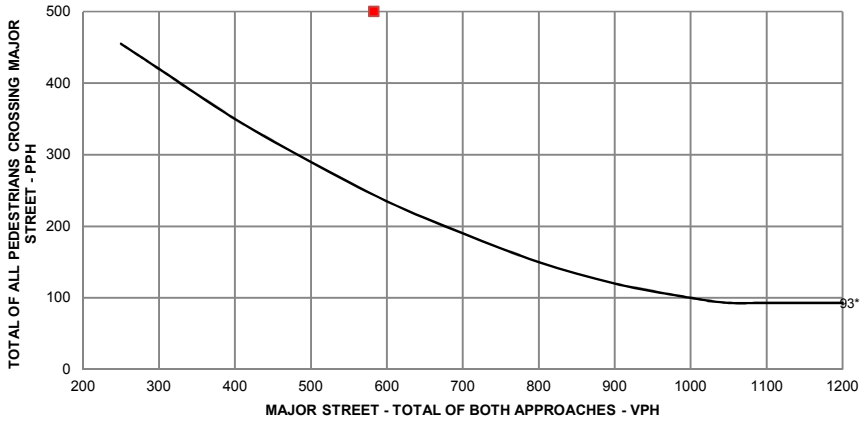


** Note: 133 pph applies as the lower threshold volume*

70% Volume Level

Peak Hour	Volumes	
	Major Street	Pedestrian Total
3:30-4:30	583	880

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



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

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TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **2** Major Approach Speed: **35**
Minor Street: **Fifth** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:30-5:30	1206	437

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

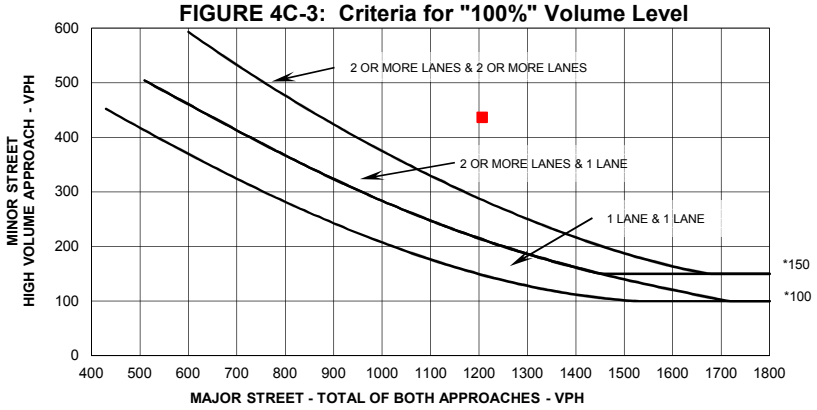
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

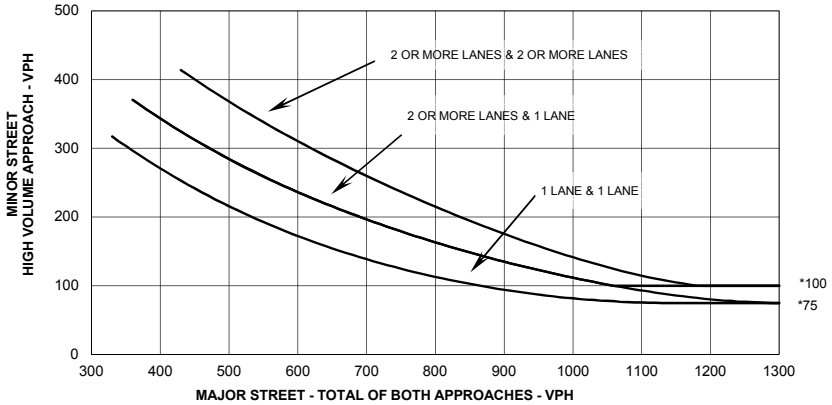
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

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State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **2** Major Approach Speed: **35**
Minor Street: **Main** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:30-5:30	1661	210

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

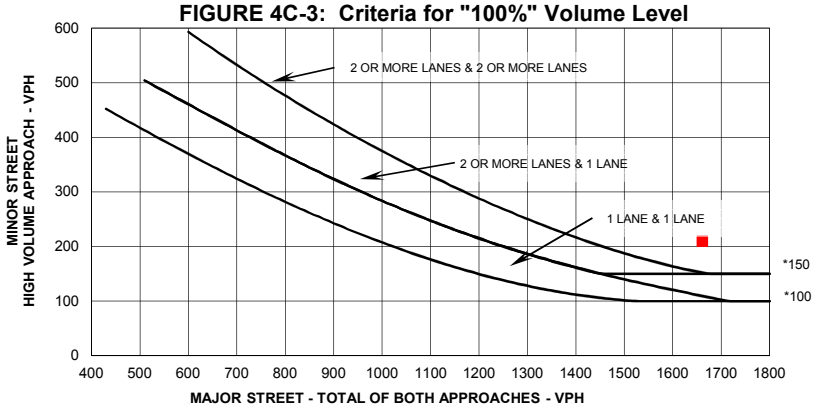
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

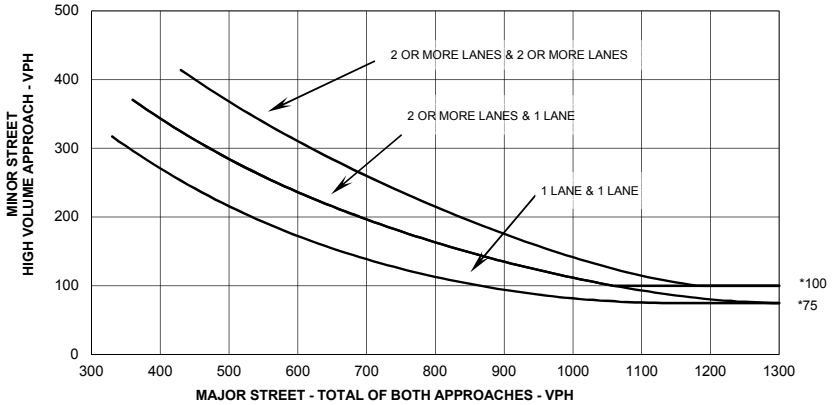
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

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State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **Prescott/Buttonwood** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:30-5:30	1937	75

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:30-5:30	1937	75

Criteria

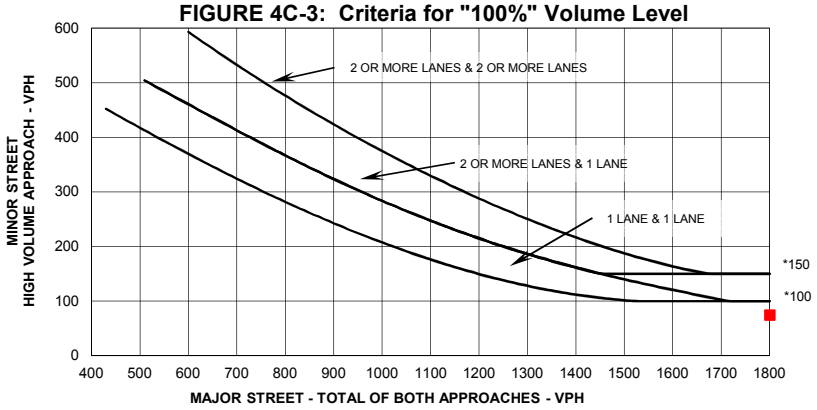
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

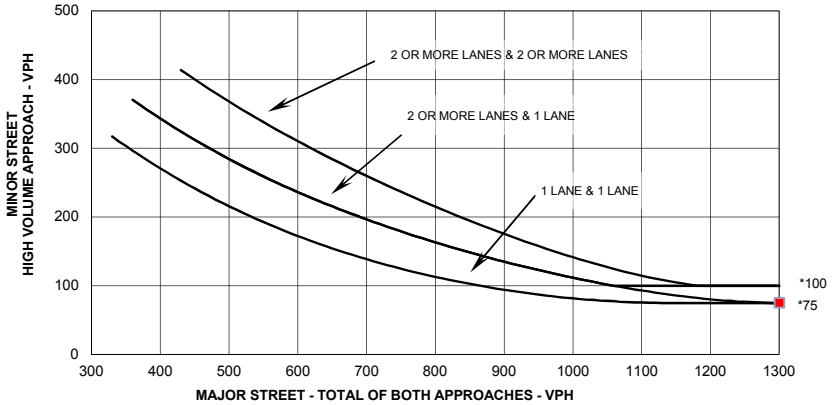
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

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TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **Prescott/Buttonwood** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	1971	14

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	1971	14

Criteria

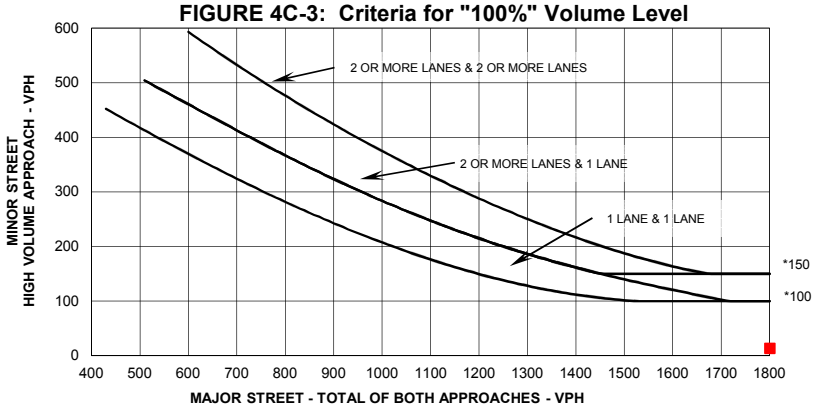
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

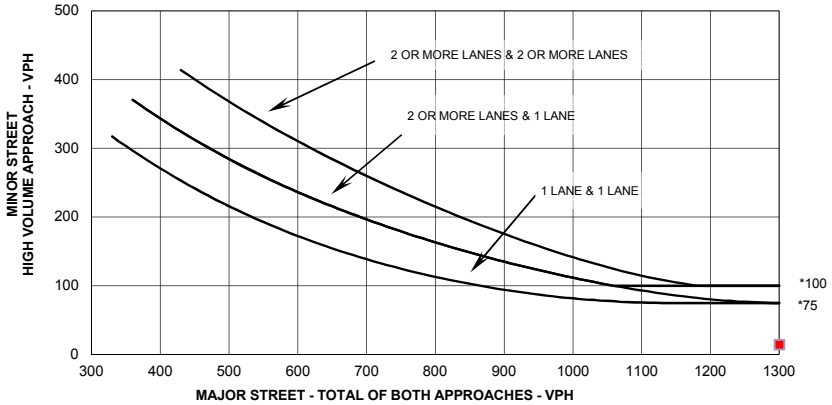
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

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TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **Boardwalk Caper** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2081	25

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2081	25

Criteria

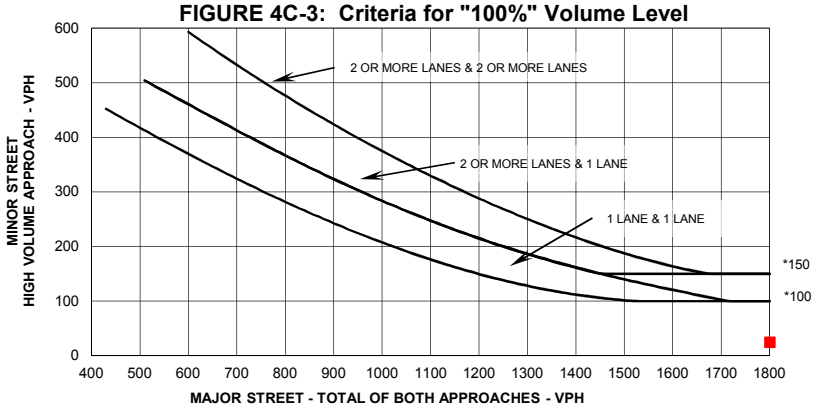
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

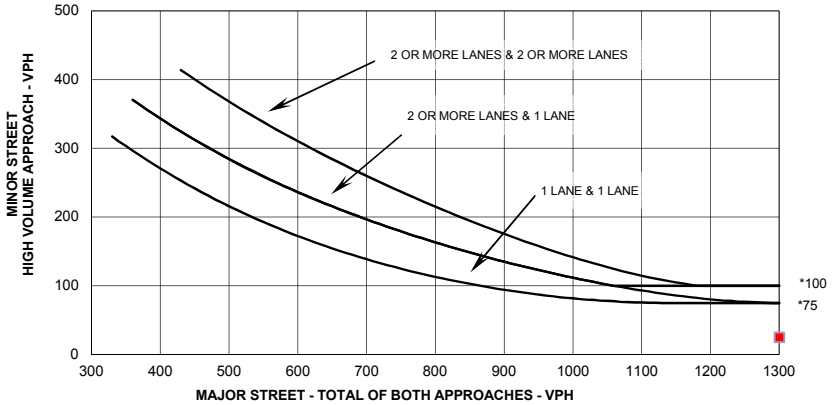
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Fort Myers Beach**	Engineer:	
County:	**12 – Lee**	Date:	
District:	**One**		

Major Street:	**SR 865**	Lanes:	**4**	Major Approach Speed:	**45**
Minor Street:	**Siesta Dr**	Lanes:	**2**	Minor Approach Speed:	**25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2146	51

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2146	51

Criteria

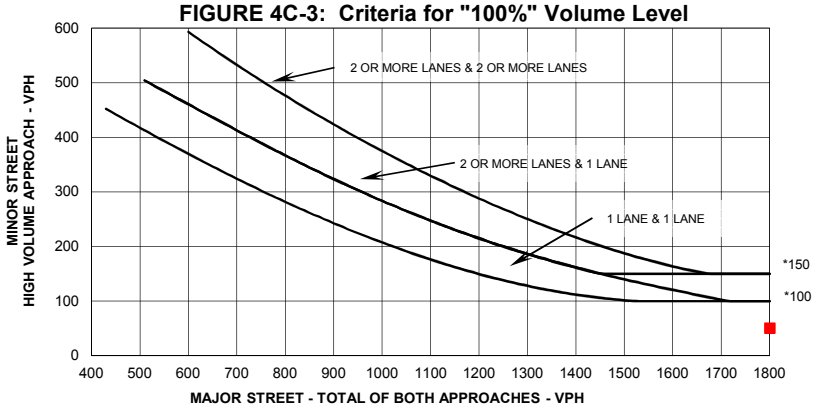
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

Plot volume combination on the applicable figure below.

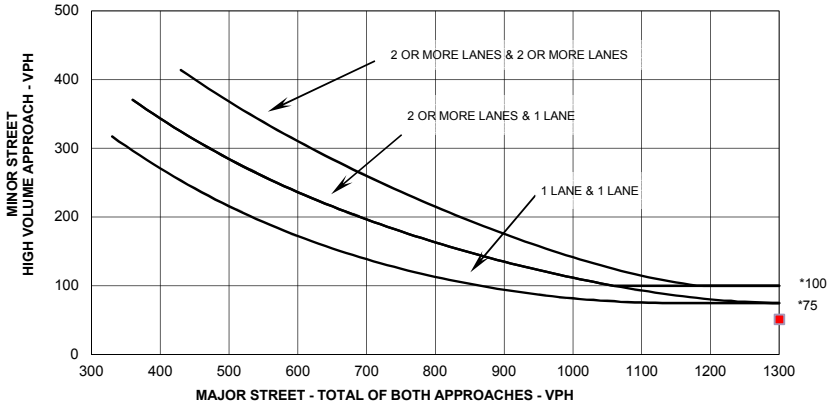
FIGURE 4C-3: Criteria for "100%" Volume Level



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

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

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



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

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TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **Isle of Palms Dr** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2158	15

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2158	15

Criteria

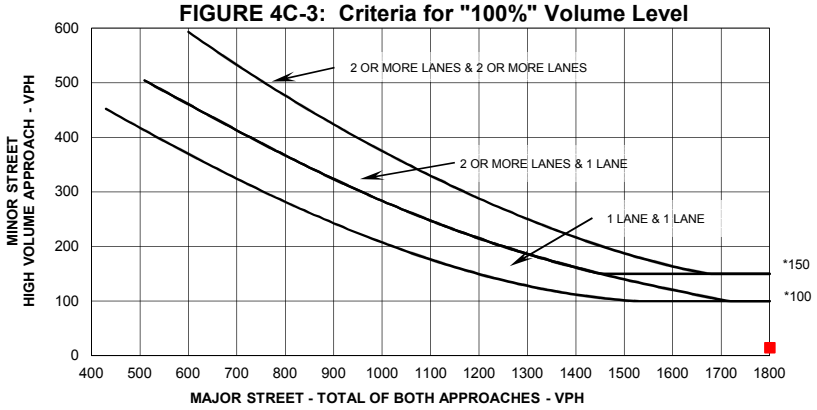
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

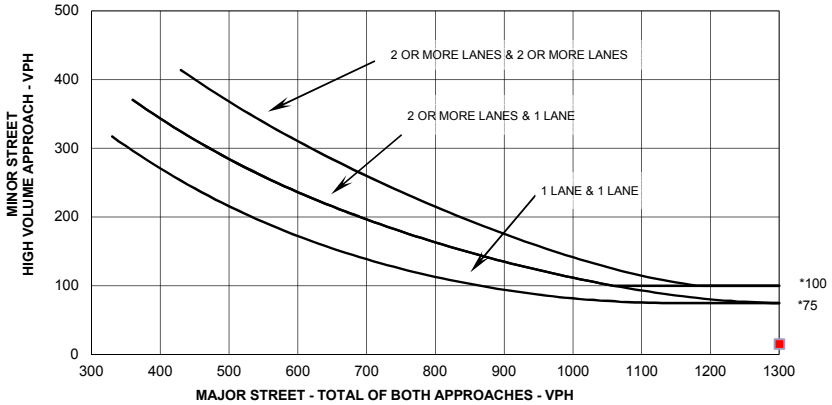
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

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State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **Broadway Ave** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2259	23

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2259	23

Criteria

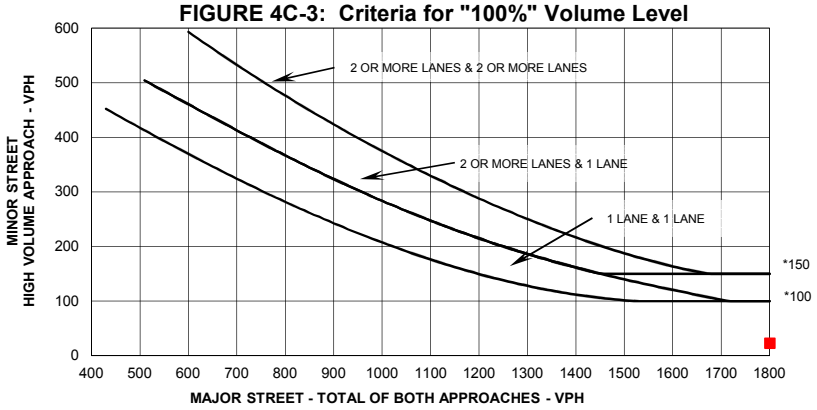
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

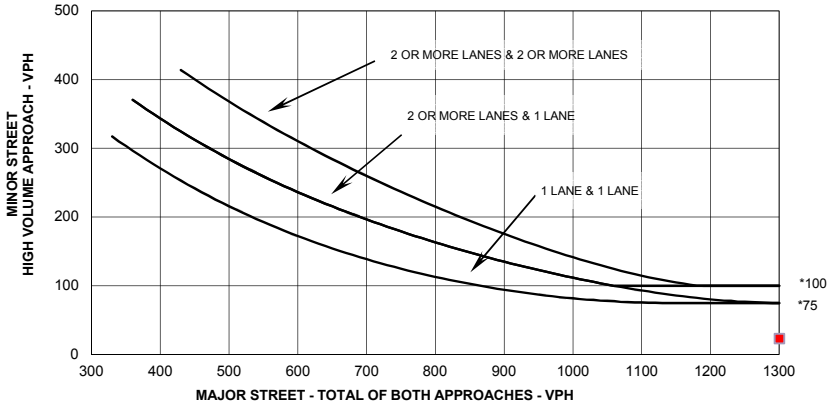
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City:	**Fort Myers Beach**	Engineer:	
County:	**12 – Lee**	Date:	
District:	**One**		

Major Street:	**SR 865**	Lanes:	**4**	Major Approach Speed:	**45**
Minor Street:	**Bayside Blvd**	Lanes:	**2**	Minor Approach Speed:	**25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2293	23

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
4:00-5:00	2293	23

Criteria

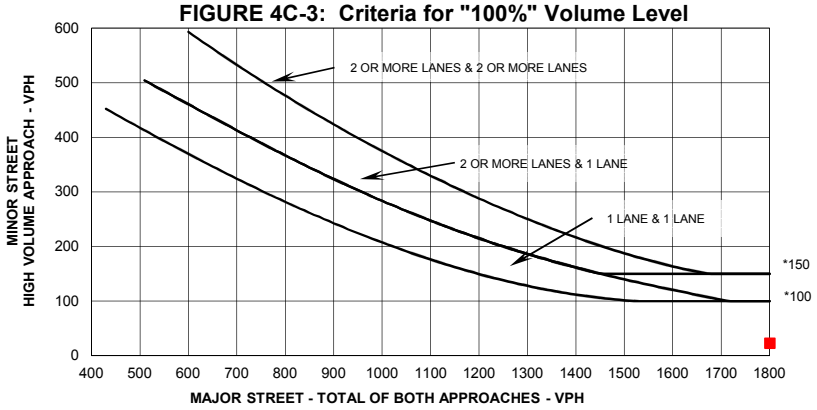
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

Plot volume combination on the applicable figure below.

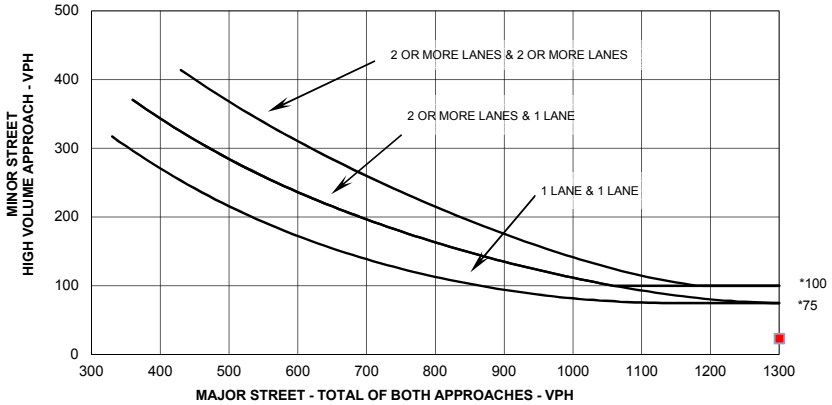
FIGURE 4C-3: Criteria for "100%" Volume Level



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

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

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



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

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **Pine Ridge Rd** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
3:45-4:45	1979	399

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
3:45-4:45	1979	399

Criteria

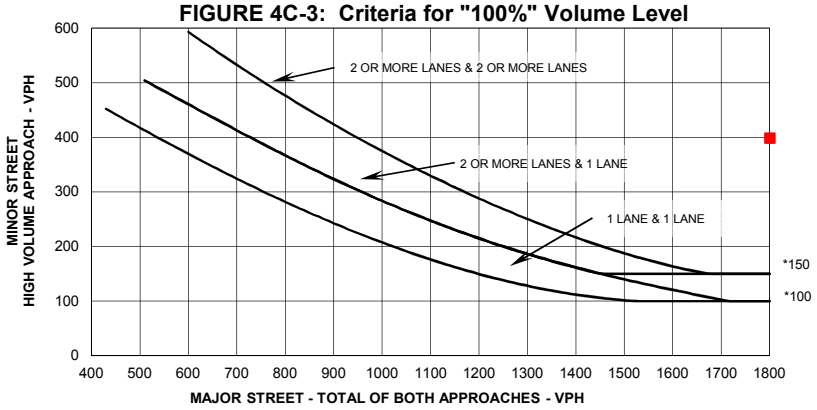
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

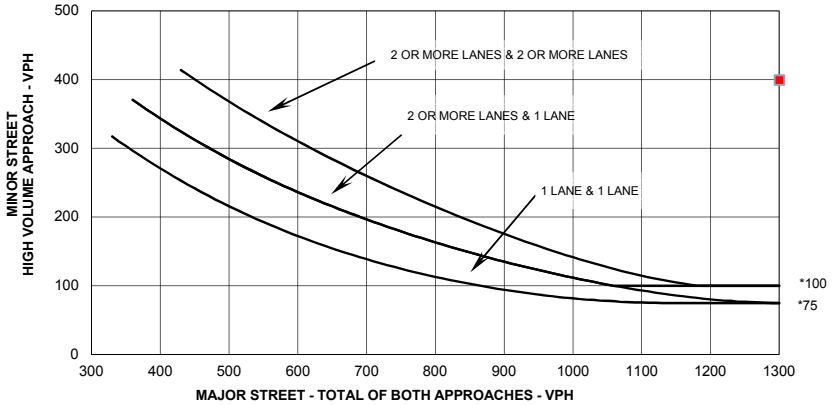
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **Whitewater Ct** Lanes: **2** Minor Approach Speed: **25**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
3:30-4:30	1960	92

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
3:30-4:30	1960	92

Criteria

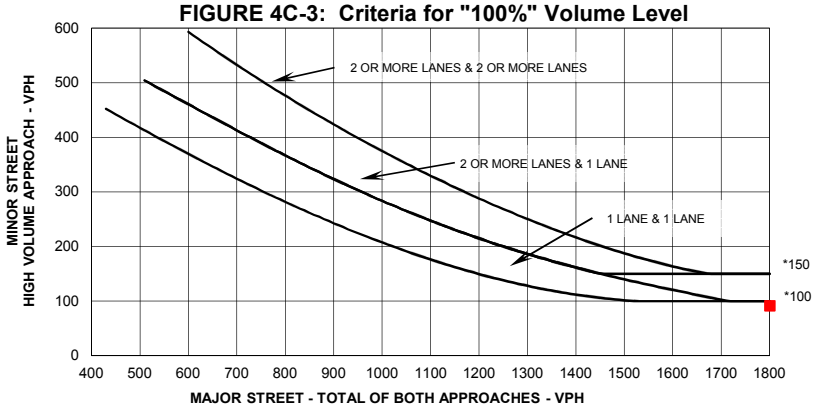
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

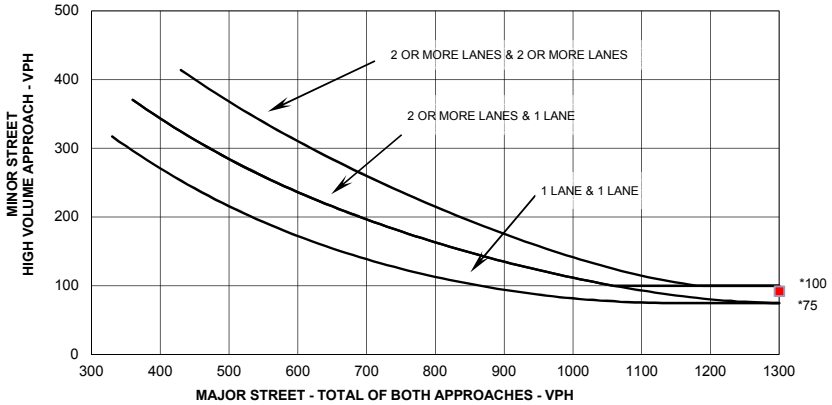
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

Form 750-020-01
TRAFFIC ENGINEERING
10/15

State of Florida Department of Transportation

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Fort Myers Beach**
County: **12 – Lee**
District: **One**

Engineer:
Date:

Major Street: **SR 865** Lanes: **4** Major Approach Speed: **45**
Minor Street: **CR 869 Summerlin Rd** Lanes: **4** Minor Approach Speed: **50**

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
12:15-1:15	1891	527

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.
12:15-1:15	1891	527

Criteria

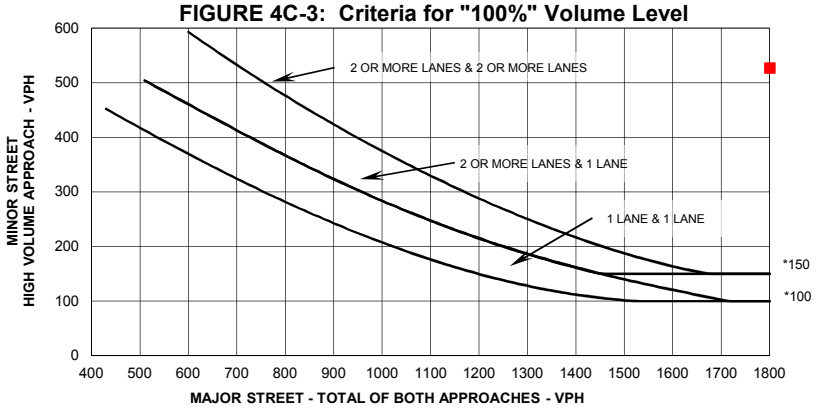
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?:	☐ Yes ☑ No	

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

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

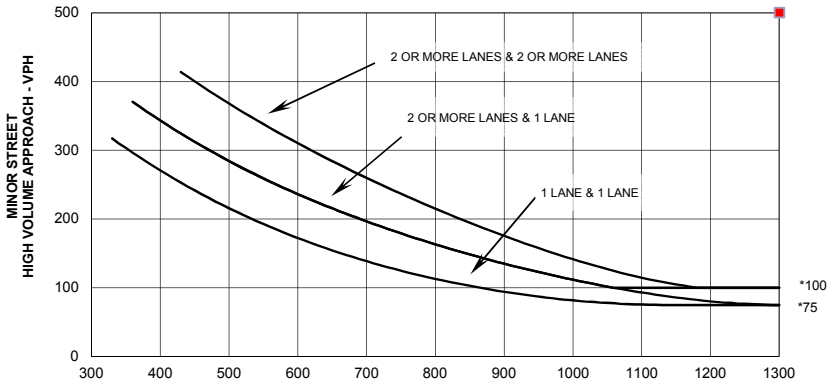
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

APPENDIX D

ROUNDABOUT STEP 1 ANALYSIS FORMS

desi

MEMORANDUM

402 S. Kentucky Ave.
Suite 400
Lakeland, FL 33801
Phone 863.682.4081
Fax 863.802.3907
www.rkk.com

Date: May 15, 2017

To: Marlon Bizerra PM FDOT
Patrick Bateman

From: Dawn Carlson, Daniel Miller – RK&K

CC: Charles Bleam

Re: **433726-1-22-01 SR 865 (San Carlos Blvd.) – Roundabout Evaluation**

Introduction

The Florida Department of Transportation is conducting an Operational Analysis Study for SR 865 (San Carlos Blvd.) Roadway ID 12004000 in Lee County Florid; Figure 1 shows the project area. As part of this assessment in accordance with FDOT policy stated within Section 7 of the Florida Intersection Design Guide 2015 (FIDG) and Section 2.13.1 of the Plans Preparation Manual a Step 1 roundabout screening was conducted for the following intersections within the project.
The locations, shown in Figure 2, are:

- Summerlin Road (existing traffic signal M.P. 3.122)
- Summerlin Square Drive (existing traffic signal M.P. 2.983)
- Pine Ridge Road (existing traffic signal M.P. 2.675)
- Bayside Boulevard (stop control M. P. 2.594)
- Broadway Avenue (stop control M.P. 2.456)
- Isle of Palms Drive (stop control M.P. 2.027)
- Siesta Drive (stop control M.P. 1.861)
- Boardwalk Caper (stop control M.P. 1.349)
- RV Park (stop control M.P. 1.100)
- Buttonwood Drive / Prescott Street (existing metered traffic signal M.P. 0.900)
- Main Street (stop control M.P. 0.643)
- Fifth Street (stop control M.P. 0.041)

The Step 1 roundabout screening is used to determine the viability of a roundabout at the subject locations.

Roundabout Analysis

As cited within Section 2.13.1 of the PPM, Volume 1:

> *Use 20-year design traffic for roundabout evaluation and design. Roundabouts are not to be considered at locations where the design year total traffic volume entering the intersection exceeds 25,000 AADT for a single-lane roundabout, or 45,000 AADT for a two-lane roundabout.*

Under this initial criteria, the intersections listed above, excluding Fifth Street, would all have to be two lane roundabouts because the total entering volumes in the 2040 design year for the project at these locations are all above the 25,000 thresholds for single-lane roundabouts, but none are above the 45,000 thresholds for two lane roundabouts. Estimated year 2040 volumes are shown in Figure 3. Therefore, the intersections were analyzed for a two lane roundabout using the Step 1 criteria.

For Fifth Street, an additional consideration is the low amount of left turns, which based on NCHRP Report 672's Planning-Level Daily Intersection Volumes allow for slight adjustments to the maximum single-lane roundabout sufficiency; this is shown in Figure 4. If Fifth Street will not be a two lane roundabout, it should be analyzed for its unique characteristics as a single lane roundabout with direct right turn.

Step 1 Roundabout Screening

The Roundabout Form Step 1 Roundabout Screening was completed for all intersections. The evaluation criteria consist of six screening criteria that preclude proceeding to Step 2. If "no" is checked for all six criteria for one intersection, that intersection must proceed to Step 2. If "yes" is checked for any criteria, Step 2 is optional.

The predominant number of intersections met screening criterion number two's major roadway average annual daily traffic (AADT) exceeding ninety-percent of the total intersection AADT. The intersections affected by this criterion were:

- Bayside Boulevard
- Broadway Avenue
- Isle of Palms Drive
- Siesta Drive
- Boardwalk Caper
- RV Park

Summerlin Road met screening criterion number one's physical or geometric constraints that would limit visibility or complicate construction due to Summerlin's flyover SR 865.

Summerlin Square Drive and Pine Ridge Road pass the Step 1 screening; however, the two intersections are currently operating at a level of service B and are projected to continue operation at this level through 2040 so no reconstruction of the intersection is required. Any improvements at these intersections would be minor operational improvements and in accordance with the FIDG's, Section 2.13.1 of the PPM, a roundabout evaluation would not be required.

At the remaining intersections, further roundabout analysis is optional per the Step 1 results. The intersections at Fifth Street, Main Street, and Buttonwood/Prescott were selected for further consideration because signal changes are proposed at Buttonwood/Prescott, a signal is proposed to be added at Main Street which meets the signal warrant criteria (Figure 5), and Fifth Street has special circumstances and pedestrian safety issues where a roundabout may be preferable. Conceptual designs for the roundabouts are shown in

Figure 5 Traffic Signal Warrant for SR 865 and Main St

State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING
10/15

TRAFFIC SIGNAL WARRANT SUMMARY

City: Fort Myers Beach
County: 12 – Lee
District: One

Engineer:
Date:

Major Street: SR 865 Lanes: 2 Major Approach Speed: 35
Minor Street: Main Lanes: 2 Minor Approach Speed: 25

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:30-5:30	1661	210

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

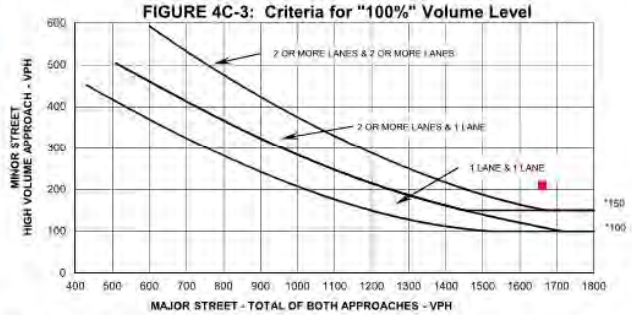
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?: ☐ Yes ☑ No		

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

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

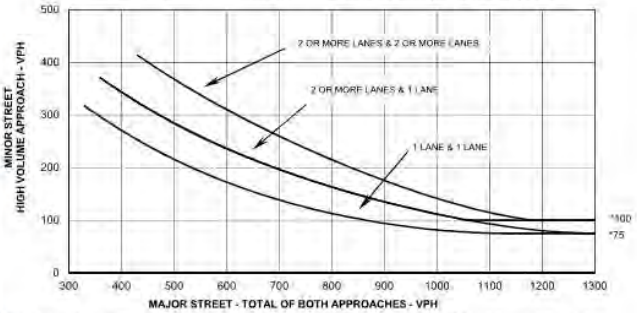
Plot volume combination on the applicable figure below.

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



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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



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

Figure 6, Figure 7, and Figure 8.

Of the six criteria cited in the Step 1 Roundabout Screening criteria 1, 5 and 6 need further consideration for the intersections at Fifth Street, Main Street, and Buttonwood/Prescott.

Criteria 1: Does the intersection have physical or geometric constraints that would limit visibility or complicate construction?
Yes, at Main Street and Fifth Street. There are frontage roads along both sides of SR 865 that intersect Main Street approximately 50' from the intersection that may need to be relocated for safe and efficient roundabout operation. Fifth Street is at the base of the Matanzas Pass Bridge. A roundabout here may need to be sloped to match the roadway grade at the touchdown point. There is also an adjacent gravity wall as the SR 865 roadway elevates to the bridge.

Criteria 5: Is there a downstream traffic control device that could cause queues to back up into the intersection?
Yes, for all three intersections. Under current conditions southbound traffic backs up across the Matanzas Pass Bridge from Fifth Street to the Buttonwood/Prescott intersection. This backup also affects the Main Street intersection. Roundabouts at the Main Street and Buttonwood/Prescott intersections may be impacted by backups. There is a signalized pedestrian crossing approximately 180' south of the Fifth Street intersection and a stop-controlled intersection 180' to the west at Old San Carlos Boulevard and Fifth Street that may affect a roundabout at the SR 865 and Fifth Street location.

Criteria 6: Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Yes.
Would the relocation of residences or businesses be required?
Yes. There is the potential of relocating a business in the southwest quadrant of the Fifth Street intersection if a roundabout is constructed. At the Main Street intersection, there is the possibility of relocating two residences in the northeast quadrant of the intersection and the possibility of relocating other residences in the southeast quadrant for frontage road adjustments.

Step 2 Recommendation

The SR 865 and Main Street intersection, as part of a larger TSM&O for the corridor, and because of traffic backups across the Matanzas Pass Bridge, should not be advanced for roundabout consideration.

The other two locations, SR 865 at Fifth Street and SR 865 at Buttonwood/Prescott can be moved forward to Step 2 (Benefit/Cost) and refined to determine if a roundabout is feasible at these locations. The Step 1 analysis sheets for these two intersections are provided at the end of this report for either approval or denial by the District Design or Traffic Operations Engineer.

Figure 1 Project Location Map

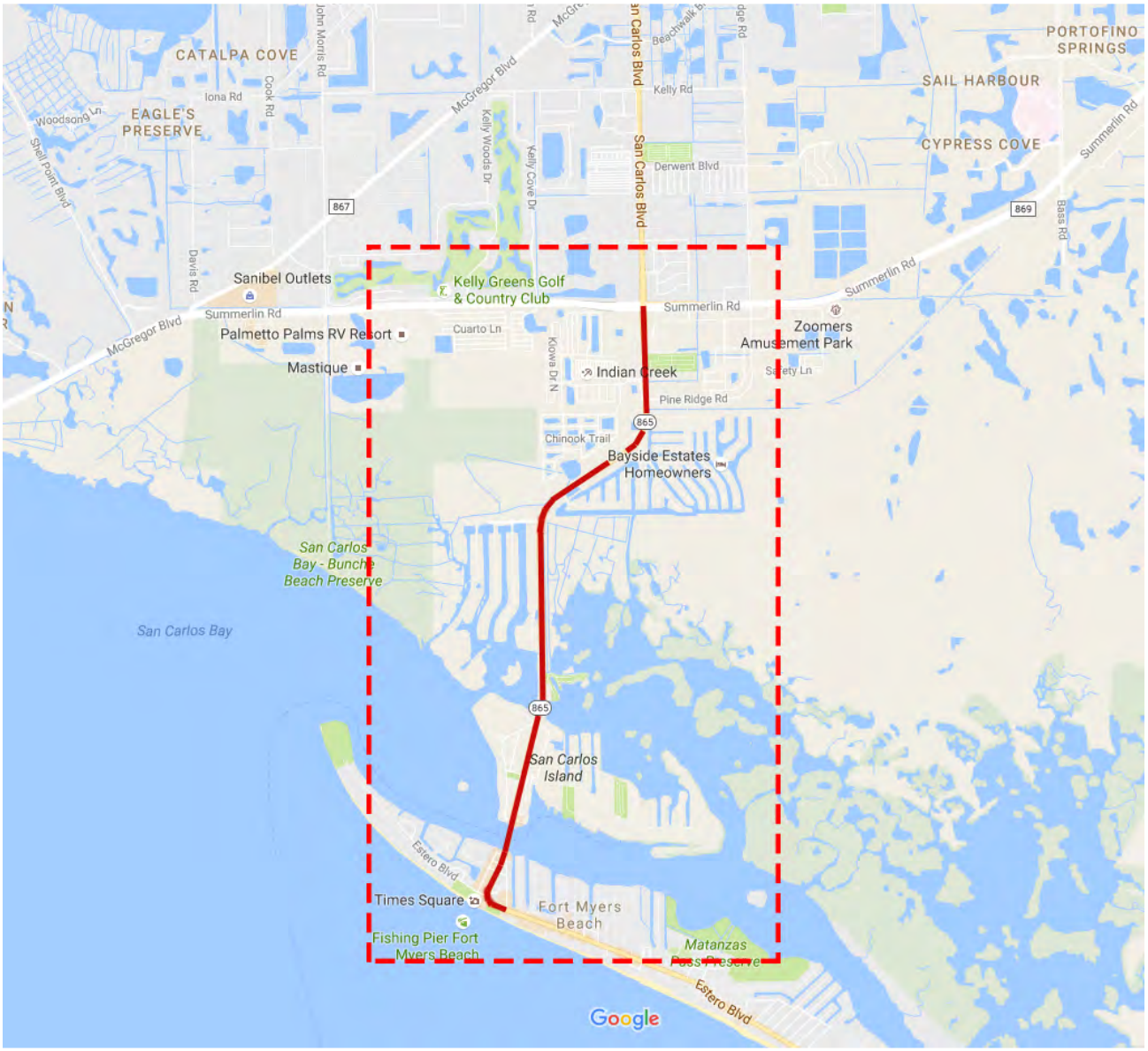


Figure 2 Roundabout Locations for Analysis

Figure 3 Design Year AADTs used in Roundabout Analysis

			Rec. AADT	FY AADT	Open	Design
Roadway	From	To	2015	2035	2020	2040
Estero Blvd.	Crescent	Donora Blvd.	17,500	19,108	17,900	19,500
S.R. 865	Main St.	Fifth St.	21,500	23,961	22,100	24,600
S.R. 865	Prescott St.	Main St.	22,700	25,644	23,400	26,400
S.R. 865	RV Park	Prescott St.	25,100	28,225	25,900	29,000
S.R. 865	Boardwalk Caper	RV Park	25,300	28,438	26,100	29,200
S.R. 865	Siesta Dr.	Boardwalk Caper	25,700	28,783	26,500	29,600
S.R. 865	Isle of Palms Dr.	Siesta Dr.	26,700	29,843	27,500	30,600
S.R. 865	Broadway Ave.	Isle of Palms Dr.	27,100	30,268	27,900	31,100
S.R. 865	Bayside Blvd.	Broadway Ave.	27,300	30,809	28,200	31,700
S.R. 865	Pine Ridge Rd.	Bayside Blvd.	27,700	31,236	28,600	32,100
S.R. 865	Summerlin Square Dr.	Pine Ridge Rd.	21,500	23,865	22,100	24,500
S.R. 865	C.R. 869 / Summerlin Rd.	Summerlin Square Dr.	22,900	24,797	23,400	25,300
S.R. 865	Kelly Road	C.R. 869 / Summerlin Rd.	19,100	22,400	19,900	23,200
Summerlin Rd.	Kelly Grove Dr.	S.R. 865	7,600	11,183	8,500	12,100
Summerlin Rd.	S.R. 865	Pine Ridge Rd.	10,600	14,742	11,600	15,800
Summerlin Sq. Dr.	Whitewater Ct.	S.R. 865	1,200	#N/A	1,200	1,400
Summerlin Sq. Dr.	S.R. 865	WalMart	2,600	3,929	2,900	4,300
Pine Ridge Rd.	Seneca Trail	S.R. 865	2,500	3,146	2,700	3,300
Pine Ridge Rd.	S.R. 865	Stevens Blvd.	9,300	11,033	9,700	11,500
Siesta Dr.	Cutlass Dr.	S.R. 865	1,300	#N/A	1,300	1,500
Boardwalk Caper Drwy.	Complex	S.R. 865	700	756	700	800
Prescott St.	W/of S.R. 865	S.R. 865	1,000	1,407	1,100	1,500
Buttonwood / Prescott	S.R. 865	E/of S.R. 865	3,000	#N/A	3,300	4,500
Main St.	San Carlos Dr.	S.R. 865	1,300	#N/A	1,400	2,000
Main St.	S.R. 865	Buttonwood Dr.	3,500	5,046	3,900	5,400
Estero Blvd.	Old San Carlos Dr.	S.R. 865	4,600	5,134	4,700	5,300
Fifth St.	S.R. 865	E/of S.R. 865	5,600	7,281	6,000	7,700
Bayside Blvd.	Bayside Blvd.	E/of S.R. 865	1,000	#N/A	1,000	1,100
Broadway Ave.			1,100	1,734	1,300	1,900
Isle of Palms Dr.			400	#N/A	400	500
San Carlos RV Park			600	#N/A	600	700
Seneca Trail			3,800	#N/A	3,900	4,300
Southern Dwy South of Siesta Dr. @ Painted Median Break			100	#N/A		100
Northern Dwy South of Siesta Dr. @ Painted Median Opening			100	#N/A		100
Crescent	Estero Blvd.	5th St.	2,700	3,674	2,900	3,900
Estero Blvd.	5th St.	Crescent Blvd.	17,900	18,413	18,000	18,500

From Table 8-6 in SR 865 Existing Conditions Technical Memorandum February 2016

Figure 4 NCHRP 672 Planning-Level Daily Intersection Volumes

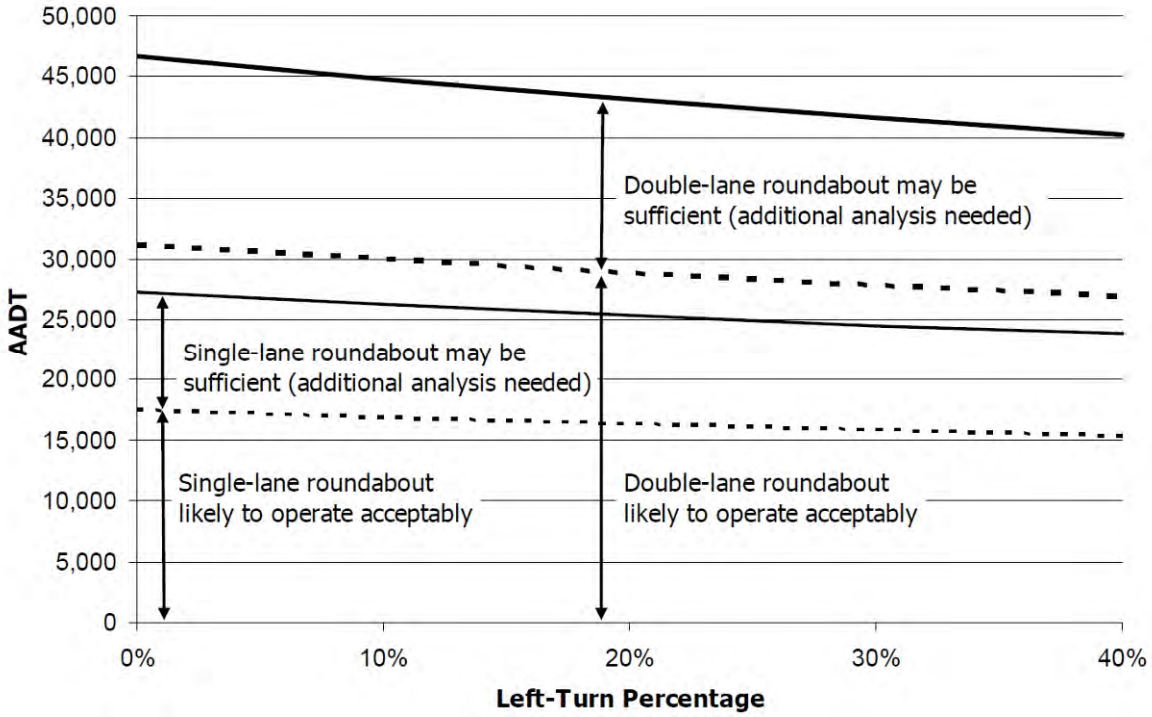
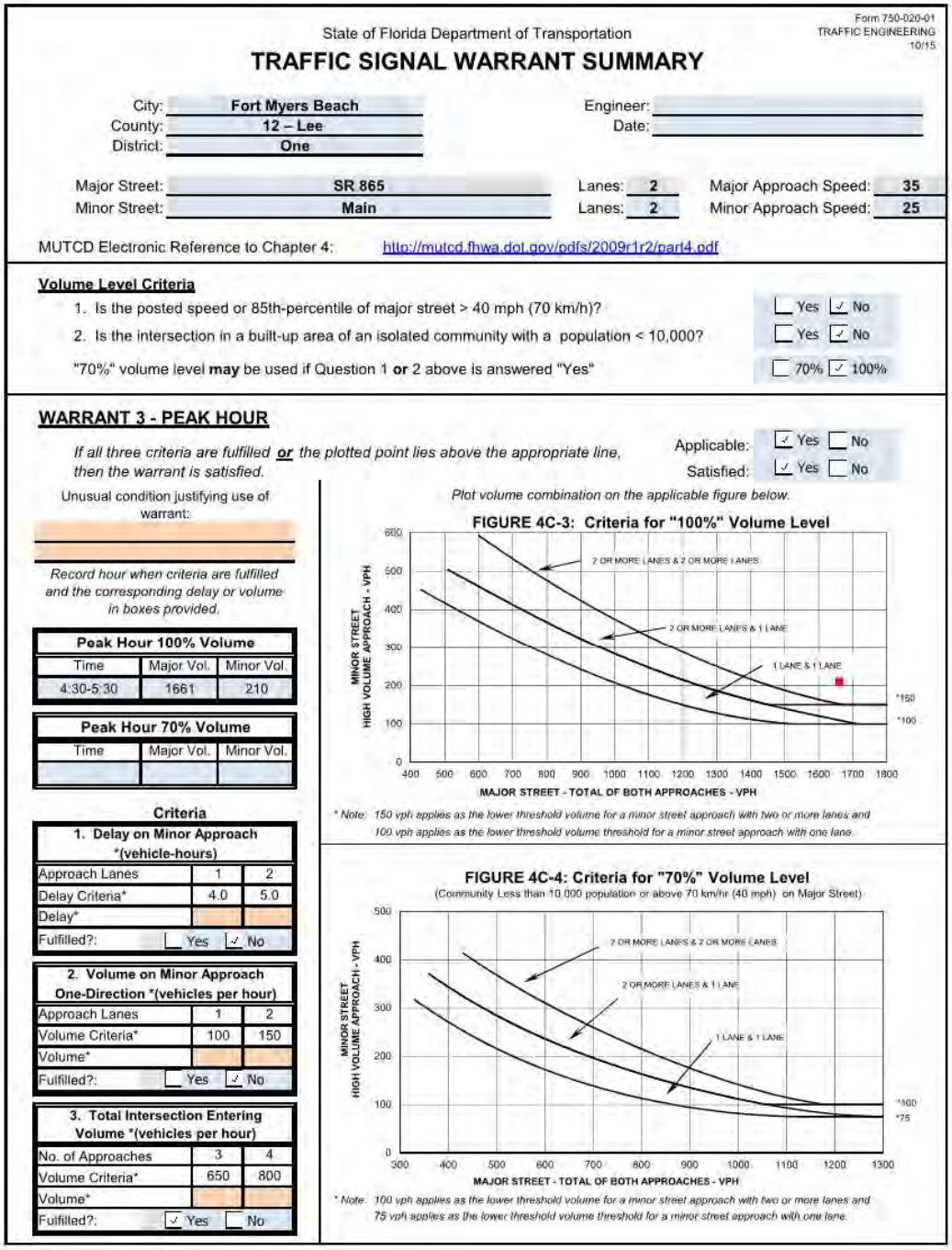


Figure 5 Traffic Signal Warrant for SR 865 and Main St



State of Florida Department of Transportation

Form 750-020-01
TRAFFIC ENGINEERING
10/15

TRAFFIC SIGNAL WARRANT SUMMARY

City: Fort Myers Beach
County: 12 – Lee
District: One

Engineer:
Date:

Major Street: SR 865 — Lanes: 2 — Major Approach Speed: 35
Minor Street: Main — Lanes: 2 — Minor Approach Speed: 25

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

Volume Level Criteria

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

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

WARRANT 3 - PEAK HOUR

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

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

Unusual condition justifying use of warrant:

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

Peak Hour 100% Volume		
Time	Major Vol.	Minor Vol.
4:30-5:30	1661	210

Peak Hour 70% Volume		
Time	Major Vol.	Minor Vol.

Criteria

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

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

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

Plot volume combination on the applicable figure below.

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

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

FIGURE 4C-4: Criteria for "70%" Volume Level
(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)

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

Figure 6 Roundabout Concept at SR 865 and Fifth Street

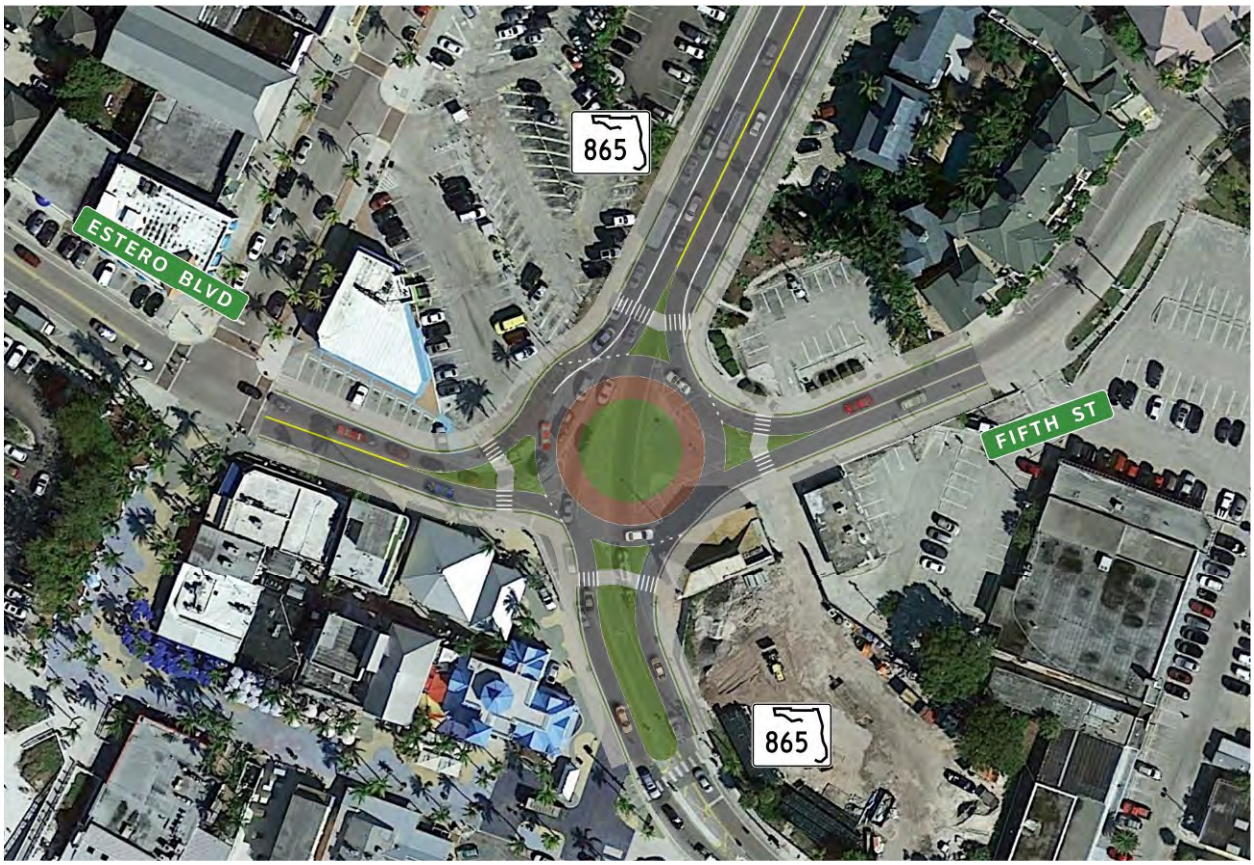
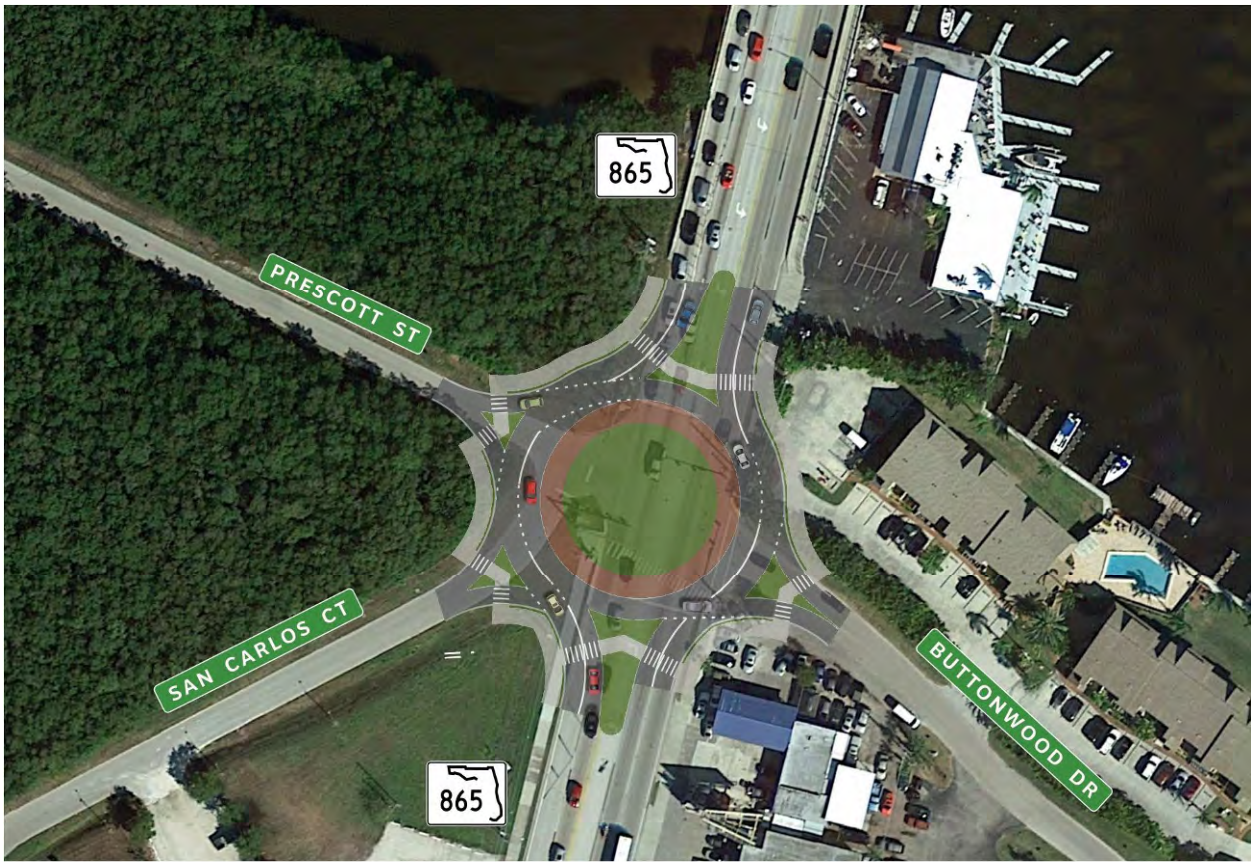


Figure 7 Roundabout Concept at SR 865 and Main Street

Figure 8 Roundabout Concept at SR 865 and Buttonwood Drive/Prescott Street



FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Summerlin Square Drive*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	☐ yes	☐ no
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Summerlin Rd*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	■ yes	☐ no

Summerlin has a flyover for thru traffic across SR 865.

2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	☐ yes	☐ no
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*PIne Ridge Rd*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	☐ yes	☐ no
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Bayside Blvd*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	■ yes	☐ no
	The major road (SR 865) accounts for 98% of traffic approaching this intersection.		
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Broadway Ave*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	■ yes	☐ no
	The major road (SR 865) accounts for 97% of traffic approaching this intersection.		
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Isle of Palms Dr*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	■ yes	☐ no
	The major road (SR 865) accounts for 99% of traffic approaching this intersection.		
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Siesta Dr*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	■ yes	☐ no
	The major road (SR 865) accounts for 98% of traffic approaching this intersection.		
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION

STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Boardwalk Caper*

EXISTING CONTROL/PROJECT CLASSIFICATION					
Control:	☐ Signal	☐ All Way Stop	☐ 2 Way Stop	☐ Yield	☐ None
Classification:		☐ Design.	☐ Traffic Operations	■ Other	

SCREENING CRITERIA		
1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* *The major road (SR 865) accounts for 99% of traffic approaching this intersection.*	■ yes	☐ no
3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4. Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	☐ yes	☐ no
6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation	☐ yes	☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*RV Park*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ☐ yes ☐ no

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ■ yes ☐ no

The major road (SR 865) accounts for 99% of traffic approaching this intersection.

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ☐ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ☐ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ☐ yes ☐ no

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

Potential relocation of business in southeast quadrant of intersection and of residence in northeast quadrant.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ■ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Prescott Street/Buttonwood Drive*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1.	Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")*	☐ yes	■ no
2.	Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")*	☐ yes	☐ no
3.	Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")*	☐ yes	■ no
4.	Is the intersection located within a coordinated signal network? *(comment below if "yes")*	☐ yes	■ no
5.	Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")*	■ yes	☐ no
6.	Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")*	☐ yes	■ no

Southbound traffic regularly backs up across the bridge to Prescott Street along SR 865 from the Fifth Street intersection in Ft. Myers Beach.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ■ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Main Street*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ■ yes ☐ no

One-way frontage roads intersect Main St approximately 50' from SR 865/Main St intersection on both sides of SR 865. Frontage roads would have to me relocated to allow for safe and efficient roundabout operation.

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ☐ yes ☐ no

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ■ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ■ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ■ yes ☐ no

Southbound traffic regularly backs up across the bridge to Main St along SR 865 from the Fifth St intersection in Ft. Myers Beach.

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

Potentially two residential relocations in the northeast quadrant of the intersection. Additional residential relocations may be required for frontage road relocation in the southeast quadrant of the intersection.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ☐ yes ■ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
STEP 1 - ROUNDABOUT SCREENING

Prepared by:	*RK&K*	**Date Prepared:**	*9/15/16*
Financial Project ID:	*433726-1-22-01*	**Project Name:**	*SR 865 PD&E Study*
FAP No.:		**State Road:**	*865*
County:	*Lee*	**Intersecting Road:**	*Fifth Street*

EXISTING CONTROL/PROJECT CLASSIFICATION

Control: ☐ Signal ☐ All Way Stop ☐ 2 Way Stop ☐ Yield ☐ None

Classification: ☐ Design. ☐ Traffic Operations ■ Other

SCREENING CRITERIA

1. Does the intersection have physical or geometric constraints that would limit visibility or complicate construction? *(comment below if "yes")* ■ yes ☐ no

Intersection is at the base of the bridge and roundabout may need to be sloped to match the roadway grade at touchdown point. Adjacent gravity wall as SR 865 elevates to cross channel.

2. Does the major roadway AADT exceed 90% of the total intersection AADT? *(comment below if "yes")* ☐ yes ☐ no

3. Does the intersection have pedestrians with special needs that would have difficulty crossing the road? *(comment below if "yes")* ☐ yes ☐ no

4. Is the intersection located within a coordinated signal network? *(comment below if "yes")* ☐ yes ☐ no

5. Is there downstream traffic control or conditions that could cause queues to back up into the intersection? *(comment below if "yes")* ■ yes ☐ no

Signalized pedestrian crossing approximately 180 feet south of intersection.

6. Would the installation of a roundabout create impacts to historical, 4(f), or environmentally sensitive sites? Would the relocation of residences or businesses be required? *(comment below if "yes")* ■ yes ☐ no

Potential relocation of business in southwest quadrant of intersection.

Step 2 evaluation is required if no is checked for all criteria. Level 2 is optional if yes is checked for one or more of the criteria.

Advance Roundabout Alternative to step 2 Roundabout b/c Evaluation ■ yes ☐ no

Approved by: ☐ DDE or ☐ DTOE

Signature: _____ Date: _____

APPENDIX E

LEETRAN TROLLEY ROUTES

TRANSIT NOTES

- Be at bus stop 5 minutes before scheduled time.
- Cell phone conversations must not disturb other passengers; speakerphones prohibited.
- Out of courtesy to fellow passengers, smoking, drinking, eating, gambling, littering, and music without headphones are not allowed.

FARE INFORMATION

Tram Only ..... Free

Trolley Only

Adult Fare $0.75
Discount Fare $0.35
All Day Pass $2.00
3-Day Pass $4.00

All Other Routes

Adult Fare $1.50
Discount Fare $0.75

(available with Medicare card, or as disabled person, full-time student or age 65 or older with LeeTran photo I.D. card)

Children under 42 inches ..... Free

Exact Fare required.

PASSES

All Day* $4.00
Adult 7-Day $15.00
Senior/Disabled 7-Day $11.00
Student 7-Day $12.00
Adult 31-Day $40.00
Senior/Disabled 31-Day $23.00
Student 31-Day $25.00
Adult 12-Trip $13.50
Senior/Disabled 12-Trip $6.50
Student 12-Trip $6.75

**Sold on board the buses.*

**LeeTran complies with Title VI of the Civil Rights Act of 1964 which prohibits discrimination on the basis of race, color or national origin. If you feel you have been discriminated you may file a complaint by calling LeeTran at 533-8726 or Lee County's Office of Equal Employment Opportunity 533-2245.*

NOTAS DEL TRANSITO

- Esté en la parada de autobús por lo menos 5 minutos antes de la hora anunciada.
- El uso de teléfonos celulares no debe molestar a los otros pasajeros; el uso de altavoz está prohibido.
- Para la comodidad de todos nuestros pasajeros está prohibido fumar, beber, comer, apostar, tirar basura, o escuchar música sin audífonos.

TARIFAS DE PASAJE

Solo Para Tram ..... Gratis

Solo Para Trolleys

Tarifa para adultos $0.75
Tarifa con descuento $0.35
Pase para todo el día $2.00
Pase de 3 días $4.00

Todas otras líne

Tarifas para Adultos $1.50
Tarifa con descuento $0.75

(disponible con tarjeta "Medicare" o con una tarjeta de identificación de LeeTran)

Niños menos de 42 pulgadas: ..... Gratis

Se require cambio exacto.

PASES

Pase para todo el día* $4.00
Pase de 7 días para Adultos $15.00
Pase de 7 dias para las personas mayores/ discapacitados $11.00
Pase de 7 dias para los estudiantes $12.00
Pase de 31 dias para Adultos $40.00
Pase de 31 dias para las personas mayores/ discapacitados $23.00
Pase de 31 dias para los estudiantes $25.00
Pase de 12 viajes para Adultos $13.50
Pase de 12 viajes para las personas mayores/ discapacitados $6.50
Pase de 12 viajes para los estudiantes $6.75

**Pases se venden en los autobuses.*

**LeeTran cumple con el Titulo VI del Acta de Derechos Civiles de 1964 que prohíbe la discriminación por causa de su raza, color o nación de origen en cualquier programa o actividad que recibe dinero federal. Para reportar violaciones llame a LeeTran al 533-8726 o las oficinas del Condado de Lee al 533-2245.*

BUS PASS OUTLET LOCATIONS

Available at all Publix locations in Lee County

FORT MYERS

Rosa Parks Transportation Center
2250 Widman Way

LeeTran Office
3401 Metro Pkwy

CAPE CORAL

Cape Coral City Hall
1015 Cultural Park Blvd.

PUBLIC LIBRARIES

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Lehigh Acres
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Free WiFi
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MORE INFO
MAS INFORMACION

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All buses are wheelchair accessible.
Todos los autobuses tienen acceso para sillas ruedas.
Tanpri kontakte sèvis kliyan pou enfòmasyon sa a nan kreyòl.

TROLLEY 400
ROUTE
LINEA

Beach Park & Ride • Lovers Key State Park

lee tran
Your Ride Is Here

Monday - Sunday
Lunes - Domingo
Non-Seasonal
April – January

Serving The Following Areas
Sirviendo Las Areas Siguientes

- **Beach Park & Ride**
- **Bowditch Park**
- **Times Square**
- **Santini Plaza**
- **Lovers Key State Park**

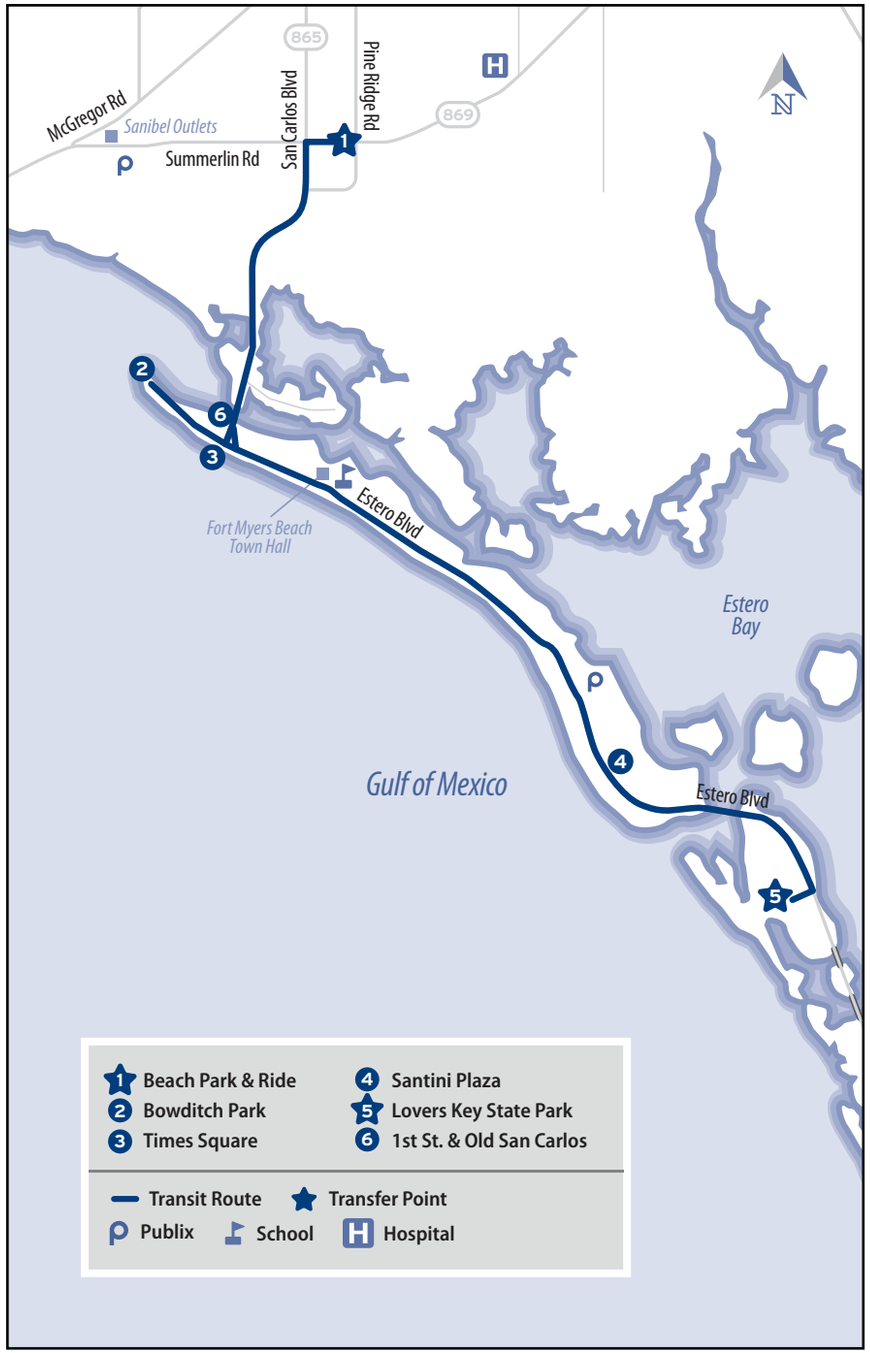
Transfer Points Puntos de Transferencia	Adjoining Routes Lineas Colindantes
Beach Park & Ride	50, 130
Lovers Key State Park	150

Download the ***Ride LeeTran App*** for Real-Time Bus Information

Available on the App Store
ANDROID APP ON Google play

Updated April 2018

TROLLEY 400



MONDAY – SUNDAY SERVICE

SOUTHBOUND

1 Beach Park & Ride	2 Bowditch Park	3 Times Square	4 Santini Plaza	5 Lovers Key State Park
–	–	–	–	–
6:10	6:20	6:25	6:40	6:45
6:50	7:05	7:10	7:25	7:30
7:35	7:50	7:55	8:10	8:15
8:20	8:35	8:40	8:55	9:00
9:05	9:20	9:25	9:40	9:45
9:50	10:05	10:10	10:25	10:30
10:35	10:50	10:55	11:10	11:15
11:20	11:35	11:40	11:55	**12:00**
12:05	**12:20**	**12:25**	**12:40**	**12:45**
12:50	**1:05**	**1:10**	**1:25**	**1:30**
1:35	**1:50**	**1:55**	**2:10**	**2:15**
2:20	**2:35**	**2:40**	**2:55**	**3:00**
3:05	**3:20**	**3:25**	**3:40**	**3:45**
3:50	**4:05**	**4:10**	**4:25**	**4:30**
4:35	**4:50**	**4:55**	**5:10**	**5:15**
5:20	**5:35**	**5:40**	**5:55**	**6:00**
6:05	**6:20**	**6:25**	**6:40**	**6:45**
6:50	**7:05**	**7:10**	**7:25**	**7:30**
7:35	**7:50**	**7:55**	**8:10**	**8:15**

NORTHBOUND

5 Lovers Key State Park	4 Santini Plaza	6 First St & Old San Carlos	2 Bowditch Park	1 Beach Park & Ride
–	5:50	–	–	6:10
6:50	6:55	7:10	7:15	7:30
7:35	7:40	7:55	8:00	8:15
8:20	8:25	8:40	8:45	9:00
9:05	9:10	9:25	9:30	9:45
9:50	9:55	10:10	10:15	10:30
10:35	10:40	10:55	11:00	11:15
11:20	11:25	11:40	11:45	**12:00**
12:05	**12:10**	**12:25**	**12:30**	**12:45**
12:50	**12:55**	**1:10**	**1:15**	**1:30**
1:35	**1:40**	**1:55**	**2:00**	**2:15**
2:20	**2:25**	**2:40**	**2:45**	**3:00**
3:05	**3:10**	**3:25**	**3:30**	**3:45**
3:50	**3:55**	**4:10**	**4:15**	**4:30**
4:35	**4:40**	**4:55**	**5:00**	**5:15**
5:20	**5:25**	**5:40**	**5:45**	**6:00**
6:05	**6:10**	**6:25**	**6:30**	**6:45**
6:50	**6:55**	**7:10**	**7:15**	**7:30**
7:35	**7:40**	**7:55**	**8:00**	**8:15**
8:20	**8:25**	**8:40**	**8:45**	**9:00**

*PM times are in **bold**. All times are approximate.* *Shaded times do NOT run on Sunday*

TROLLEY ROUTES 410 & 490
LINEAS DE TROLLEY

Beach Park & Ride • Lovers Key

lee tran
Your Ride Is Here

Monday - Sunday
Lunes - Domingo
Effective 1/04/18 - 4/11/18

Serving The Following Areas
Sirviendo Las Areas Siguientes

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- **Bowditch Park**
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Beach Park & Ride	50, 130
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Available on the App Store | Google play

NORTHBOUND

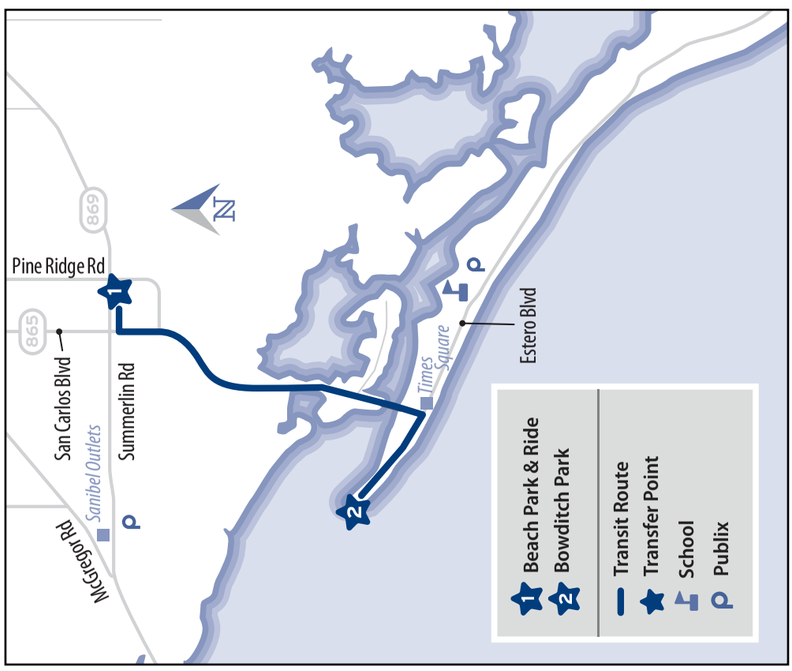
1 Beach Park & Ride	2 Bowditch Park
7:35	7:20
8:05	7:50
8:40	8:20
9:30	9:10
9:45	9:25
10:00	9:40
10:20	10:00
10:35	10:15
10:50	10:30
11:10	10:50
11:25	11:05
11:40	11:20
12:00	11:40
12:15	11:55
12:30	**12:10**
12:50	**12:30**
1:05	**12:45**
1:20	**1:00**
1:40	**1:20**
1:55	**1:35**
2:10	**1:50**
2:30	**2:10**
2:45	**2:25**
3:00	**2:40**
3:20	**3:00**
3:35	**3:15**
3:50	**3:30**
4:10	**3:50**
4:25	**4:05**
4:40	**4:20**
5:00	**4:40**
5:15	**4:55**
5:30	**5:10**
5:50	**5:30**
6:05	**5:45**
6:20	**6:00**
6:40	**6:20**
6:55	**6:35**
7:10	**6:50**
7:25	**7:05**
8:05	**7:45**
8:45	**8:25**

SOUTHBOUND

1 Beach Park & Ride	2 Bowditch Park
7:05	7:20
7:35	7:50
8:05	8:20
8:45	9:05
9:00	9:20
9:15	9:35
9:35	9:55
9:50	10:10
10:05	10:25
10:25	10:45
10:40	11:00
10:55	11:15
11:15	11:35
11:30	11:50
11:45	**12:05**
12:05	**12:25**
12:20	**12:40**
12:35	**12:55**
12:55	**1:15**
1:10	**1:30**
1:25	**1:45**
1:45	**2:05**
2:00	**2:20**
2:15	**2:35**
2:35	**2:55**
2:50	**3:10**
3:05	**3:25**
3:25	**3:45**
3:40	**4:00**
3:55	**4:15**
4:15	**4:35**
4:30	**4:50**
4:45	**5:05**
5:05	**5:25**
5:20	**5:40**
5:35	**5:55**
5:55	**6:15**
6:10	**6:30**
6:25	**6:45**
6:45	**7:05**
7:25	**7:45**
8:05	**8:25**

*PM times are in **bold**. All times are approximate.*

ROUTE 490
MONDAY – SUNDAY SERVICE



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- Be at bus stop 5 minutes before scheduled time.
- Cell phone conversations must not disturb other passengers; speakerphones prohibited.
- Out of courtesy to fellow passengers, smoking, drinking, eating, gambling, littering, and music without headphones are not allowed.

FARE INFORMATION

Trolley Only

Adult Fare	$0.75
Discount Fare	$0.35
All Day Pass	$2.00
3-Day Pass	$4.00

All Other Routes

Adult Fare	$1.50
Discount Fare	$0.75

(available with Medicare card, or as disabled person, full-time student or age 65 or older with LeeTran photo I.D. card)

Children under 42 inches: Free

Exact Fare required.

PASSES

All Day*	$4.00
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- Esté en la parada de autobús por lo menos 5 minutos antes de la hora anunciada.
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- Para la comodidad de todos nuestros pasajeros está prohibido fumar, beber, comer, apostar, tirar basura, o escuchar música sin audífonos.

TARIFAS DE PASAJE

Solo Para Trolleys:

Tarifa para adultos	$0.75
Tarifa con descuento	$0.35
Pase para todo el día	$2.00
Pase de 3 días	$4.00

Todas otras líneas:

Tarifas para Adultos	$1.50
Tarifa con descuento	$0.75

(disponible con tarjeta "Medicare" o con una tarjeta de identificación de LeeTran)

Niños menos de 42 pulgadas: Gratis

Se requiere cambio exacto.

PASES

Pase para todo el día*	$4.00
Pase de 7 días para Adultos	$15.00
Pase de 7 días para las personas mayores/ discapacitados	$11.00
Pase de 7 días para los estudiantes	$12.00
Pase de 31 días para Adultos	$40.00
Pase de 31 días para las personas mayores/ discapacitados	$23.00
Pase de 31 días para los estudiantes	$25.00
Pase de 12 viajes para Adultos	$13.50
Pase de 12 viajes para las personas mayores/ discapacitados	$6.50
Pase de 12 viajes para los estudiantes	$6.75

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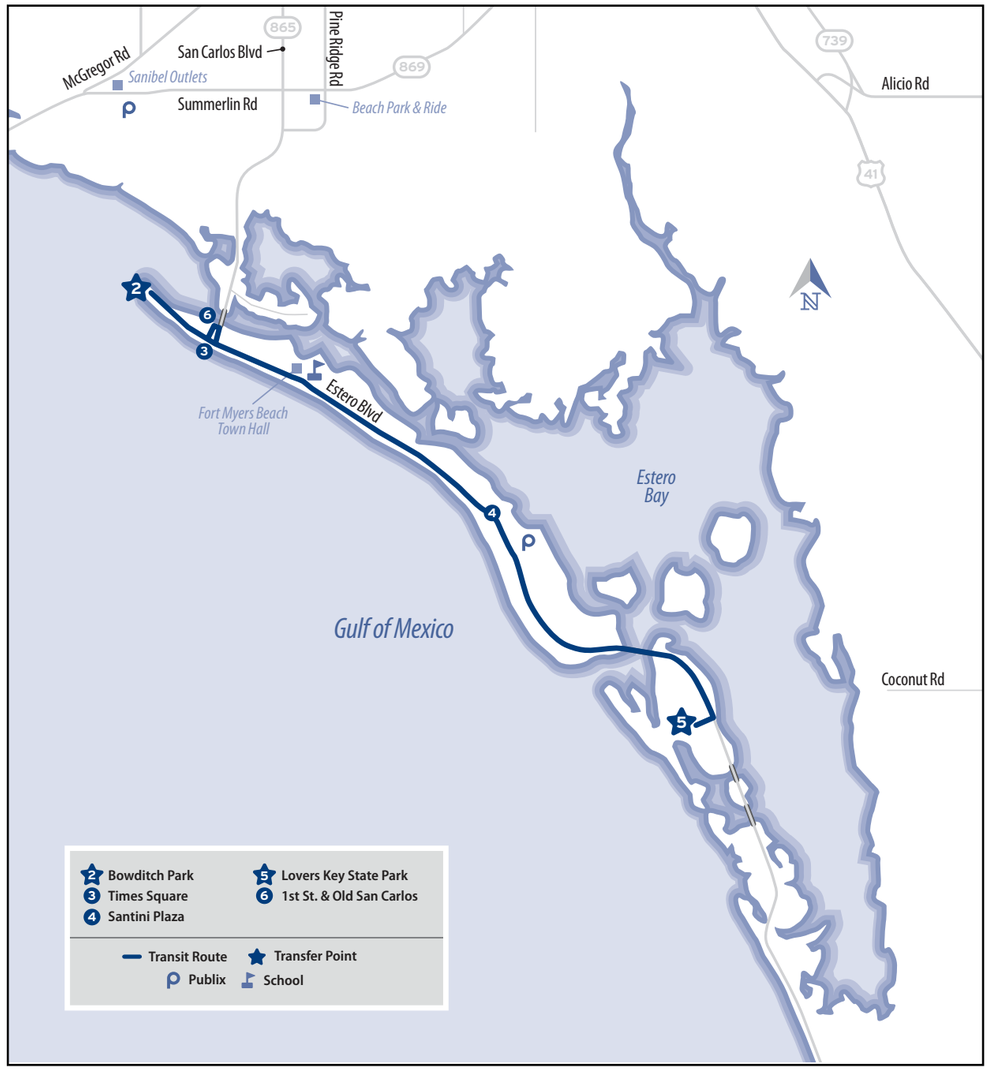
ROUTE *410*



PM times are in ***bold.*** *All times are approximate.*

Shaded trip runs Monday through Saturday only.

** This trip meets Route 50 at Beach Park & Ride at 6:10am* ***Trips end at Beach Park & Ride*

JANUARY 4 – APRIL 11, 2018

SOUTHBOUND

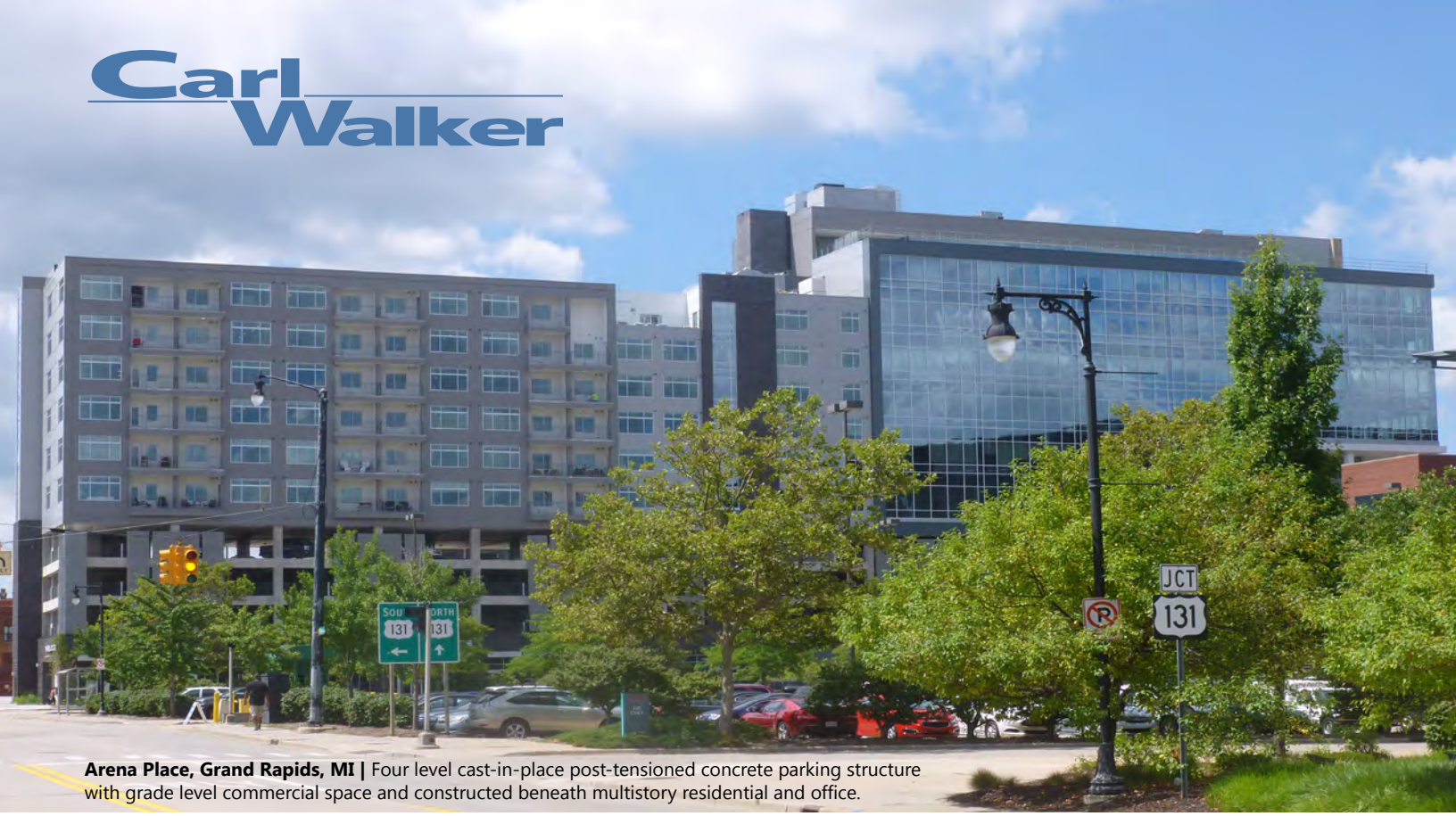
2	3	4	5
Bowditch Park	Times Square	Santini Plaza	Lovers Key State Park
---	---	---	---
6:20	6:25	6:40	6:45
7:20	7:25	7:40	7:45
7:50	7:55	8:10	8:15
8:20	8:25	8:40	8:45
8:50	8:55	9:10	9:15
9:20	9:25	9:40	9:45
9:50	9:55	10:10	10:15
10:22	10:27	10:42	10:47
10:34	10:39	10:54	10:59
10:46	10:51	11:06	11:11
10:58	11:03	11:18	11:23
11:25	11:30	11:45	11:50
11:40	11:45	**12:00**	**12:05**
11:55	**12:00**	**12:15**	**12:20**
12:10	**12:15**	**12:30**	**12:35**
12:25	**12:30**	**12:45**	**12:50**
12:40	**12:45**	**1:00**	**1:05**
12:55	**1:00**	**1:15**	**1:20**
1:10	**1:15**	**1:30**	**1:35**
1:25	**1:30**	**1:45**	**1:50**
1:40	**1:45**	**2:00**	**2:05**
1:55	**2:00**	**2:15**	**2:20**
2:10	**2:15**	**2:30**	**2:35**
2:25	**2:30**	**2:45**	**2:50**
2:40	**2:45**	**3:00**	**3:05**
2:55	**3:00**	**3:15**	**3:20**
3:10	**3:15**	**3:30**	**3:35**
3:25	**3:30**	**3:45**	**3:50**
3:40	**3:45**	**4:00**	**4:05**
3:55	**4:00**	**4:15**	**4:20**
4:10	**4:15**	**4:30**	**4:35**
4:25	**4:30**	**4:45**	**4:50**
4:40	**4:45**	**5:00**	**5:05**
4:55	**5:00**	**5:15**	**5:20**
5:10	**5:15**	**5:30**	**5:35**
5:25	**5:30**	**5:45**	**5:50**
5:40	**5:45**	**6:00**	**6:05**
5:55	**6:00**	**6:15**	**6:20**
6:10	**6:15**	**6:30**	**6:35**
6:40	**6:45**	**7:00**	**7:05**
7:10	**7:15**	**7:30**	**7:35**
7:55	**8:00**	**8:15**	**8:20**
8:25	**8:30**	**8:45**	**8:50**
8:55	**9:00**	**9:15**	**9:20**
9:25	**9:30**	**9:45**	**9:50**

NORTHBOUND

5	4	6	2
Lovers Key State Park	Santini Plaza	1st St. & Old San Carlos	Bowditch Park
---	5:50	*	6:20
6:50	6:55	7:10	7:15
7:50	7:55	8:10	8:15
8:20	8:25	8:40	8:45
8:50	8:55	9:10	9:15
9:20	9:25	9:40	9:45
9:50	9:55	10:10	10:15
10:20	10:25	10:40	10:45
10:52	10:57	11:12	11:17
11:04	11:09	11:24	11:29
11:16	11:21	11:36	11:41
11:28	11:33	11:48	11:53
11:55	**12:00**	**12:30**	**12:35**
12:10	**12:15**	**12:45**	**12:50**
12:25	**12:30**	**1:00**	**1:05**
12:40	**12:45**	**1:15**	**1:20**
12:55	**1:00**	**1:30**	**1:35**
1:10	**1:15**	**1:45**	**1:50**
1:25	**1:30**	**2:00**	**2:05**
1:40	**1:45**	**2:15**	**2:20**
1:55	**2:00**	**2:30**	**2:35**
2:10	**2:15**	**2:45**	**2:50**
2:25	**2:30**	**3:00**	**3:05**
2:40	**2:45**	**3:15**	**3:20**
2:55	**3:00**	**3:30**	**3:35**
3:10	**3:15**	**3:45**	**3:50**
3:25	**3:30**	**4:00**	**4:05**
3:40	**3:45**	**4:15**	**4:20**
3:55	**4:00**	**4:30**	**4:35**
4:10	**4:15**	**4:45**	**4:50**
4:25	**4:30**	**5:00**	**5:05**
4:40	**4:45**	**5:15**	**5:20**
4:55	**5:00**	**5:30**	**5:35**
5:10	**5:15**	**5:45**	**5:50**
5:25	**5:30**	**6:00**	**6:05**
5:40	**5:45**	**6:05**	---
5:55	**6:00**	**6:30**	**6:35**
6:10	**6:15**	**6:35**	---
6:25	**6:30**	**7:00**	**7:05**
6:40	**6:45**	**7:15**	**7:20**
7:10	**7:15**	**7:45**	**7:50**
7:40	**7:45**	**8:15**	****8:20**
8:25	**8:30**	**8:45**	**8:50**
8:55	**9:00**	**9:15**	****9:20**
9:25	**9:30**	**9:45**	**9:50**
9:55	**10:00**	**10:15**	**10:20**

APPENDIX F

PARKING STRUCTURE 2017 COST AVERAGE REPORT



Arena Place, Grand Rapids, MI | Four level cast-in-place post-tensioned concrete parking structure with grade level commercial space and constructed beneath multistory residential and office.

Parking Structure Cost Outlook for 2017

By Gary Cudney, P.E., President/CEO

National Median Parking Structure Construction Cost 2017
$19,700 per space
$59.06 per square foot

Carl Walker is pleased to provide its annual statistical analysis of parking structure construction costs and new parking structure market forecast. At Carl Walker, we specialize in parking structure design, structural engineering, parking studies, parking operations consulting, and restoration of parking structures, plazas, facades, and other buildings. We maintain a database of completed parking structure projects and have developed a methodology to analyze the historical cost information to assist our clients and the industry.

Our construction cost database contains hundreds of completed parking structure projects of varying size, scope, and geographic location. For this forecast, we only omit the cost of parking structures that are completely below grade, since the cost of such structures is much higher. The cost data is assigned factors based on the time of bidding and location of the parking structure. The time factor is based on the Building Cost Index (BCI), published by *Engineering News-Record* (ENR). The location factor is taken from the yearly edition of the *RS Means Building Construction Cost Data*. Applying these two factors to actual construction cost data adjusts the cost to a current national basis and from that we determine the national median. The national median can then be re-adjusted to reflect a median construction cost in almost every city in America.

As of March 2017, our statistical data indicates that the **median** construction cost for a new parking structure is $19,700 per space and $59.06 per square foot, increasing 3.5% from March 2016, when the median cost was $19,037 per space based on our historical database. This relatively minor increase is reflective of the fact that while construction markets are growing, material price increases were very low due to foreign competition, low fuel prices, and labor rates were stable even as the market ramped up. The table on the following page lists the 2017 **median** parking structure construction cost in various U.S. cities.

It should be noted that the construction cost data does not include costs for items such as land acquisition, architectural and engineering fees, environmental evaluations, materials testing, special inspections, geotechnical borings and recommendations, financing, owner administrative and legal, or other project soft costs. Soft costs are typically about 15% to 20% of construction costs, but can be higher for owners who allocate their internal costs directly to the project.

Parking Structure Cost Outlook for 2017

Carl Walker

Median Parking Structure Construction Costs 2017

City	Index	Cost/Space	Cost/SF
Atlanta	88.5	$17,430	$52.27
Baltimore	94.0	$18.514	$55.51
Boston	114.7	$22,591	$67.74
Charlotte	85.8	$16,899	$50.67
Chicago	120.0	$23,634	$70.87
Cleveland	96.9	$19,085	$57.23
Denver	89.8	$17,686	$53.03
Dallas	86.2	$16,977	$50.91
Detroit	100.9	$19,873	$59.59
Houston	85.2	$16,780	$50.32
Indianapolis	91.6	$18,041	$54.10
Kansas City, MO	102.5	$20,188	$60.53
Los Angeles	113.4	$22,334	$66.97
Miami	83.8	$16,505	$49.49
Minneapolis	105.7	$20,818	$62.42
Nashville	87.4	$17,214	$51.62
New York	134.6	$26,510	$79.49
Philadelpphia	115.0	$22,650	$67.92
Phoenix	87.3	$17,194	$51.56
Pittsburgh	102.3	$20,148	$60.42
Portland, OR	99.5	$19,597	$58.76
Richmond	87.3	$17,194	$51.56
St. Louis	101.7	$20,030	$60.06
San Diego	109.1	$21,488	$64.43
San Francisco	128.6	$25,328	$75.95
Seattle	104.9	$20,660	$61.95
Washington D.C.	94.0	$18,514	$55.51
National Average	**100**	**$19,700**	**$59.06**

MEDIAN CONSTRUCTION COST

I am often asked what features are included within the "median construction cost". A median cost parking structure typically includes such features as:

- 8' 6" to 8' 9" wide parking spaces
- Precast concrete superstructure
- Attractive precast concrete façade, but with basic reveal pattern
- Glass backed elevators and unenclosed stairs clad with glass curtain wall to the exterior
- Basic wayfinding and signage
- Shallow spread footing foundations
- All above grade construction
- Open parking structure with natural ventilation, without mechanical ventilation or fire sprinklers
- Little or no grade level commercial space
- Basic parking access and revenue control system
- Energy efficient fluorescent lighting

City of Orland Park, IL Main Street Triangle

Five-level, precast concrete mixed-use parking structure with grade-level commercial and built over a street.

Parking Structure Cost Outlook for 2017

The construction cost of the parking structure will typically be higher than the median if it includes such enhanced features as:

- 9′ 0″ wide parking spaces for better user comfort
- Cast-in-place post-tensioned concrete superstructure for lower maintenance
- Attractive façade with precast, brick, metal panels, and other materials
- ParkSmart Certification following the Green Business Certification, Inc (GBCI) program (formerly Green Garage Certification by the Green Parking Council)
- Energy efficient LED lighting with occupancy and photocell computer controls
- Custom wayfinding and signage system
- Storm water management including on-site retention/ detention
- Deep foundations, such as caissons or pilings
- Below grade construction
- Enclosed stair towers due to local code requirements
- Enclosed parking structure without natural ventilation where mechanical ventilation and fire sprinklers are required
- Grade level commercial space
- Mixed use development where the parking is integrated with office, retail, residential, or other uses
- State-of-the-art parking access and revenue control system
  - License plate recognition
  - Parking guidance system
  - Count system with variable message LED signs
  - Pay-on-foot stations
- Wi-Fi and cellular services

PARKING INDUSTRY CONSTRUCTION ECONOMIC FORECAST

The construction industry is quite busy and "there is a growing belief among industry execs that the market will continue to expand."[1] Likewise, construction of mixed use and stand-alone parking structures should see continued growth in the near term as construction spending in the institutional sector (i.e. city governments, higher education, and healthcare) is predicted to grow almost 6% during 2017 and 2018 and growth in the commercial, office, and retail sectors are predicted to be even higher during 2017 with some slowing in 2018.

Over the past couple of years, warnings have been coming from the construction industry that projected economic growth would lead to escalation of construction costs and longer construction schedules due to labor shortages in construction trades and professional positions and as construction companies increase margins.

University of North Carolina-Charlotte
Craige Parking Structure Expansion and Restoration

Montgomery College Parking Structure
Rendering

Parking Structure Cost Outlook for 2017

The Engineering News-Record (ENR) Building Cost Index increased 3.3% from March 2016 to March 2017 and Turner Construction's Turner Building Cost Index rose 5.05% over the same period. The Consumer Price Index for All Urban Consumers (CPI-U) rose 2.4 percent for the 12 months ending March 2017, indicating construction inflation reported by both the ENR and Turner indexes well exceeded consumer inflation over the same period. Industry experts recently reported the following on construction activity:

- The American Institute of Architects (AIA) chief economist Kermit Baker, PhD stated that "The prospects for the construction sector for this year (2017) and next (2018) remain quite positive...and the expectations are that construction spending will outperform the broader economy this year and next."[2] While there has been fluctuation and regional differences in the AIA Architectural Billings Index (ABI), AIA further reports that the "The average ABI score in 2016 was 51.3", suggesting "moderate growth in 2017". [3]
- The AIA also compiles a Consensus Construction Forecast based on predictions of seven leading U.S. non-residential construction forecasters in the U.S. The Consensus Construction Forecast indicates the non-residential building construction industry is expecting continued growth the next two years. After an estimated 8% growth in nonresidential construction during 2016, the consensus panel projects about 6% growth for 2017 and 5% for 2018, with increases in activity projected for the office sector of 10.6% (2017) and 4.6% (2018), healthcare sector of 4.9% (2017 & 2018), and education sector of 6.3% (2017) and 6.7% (2018).[2]
- Turner Construction's Turner Building Cost Index which tracks construction cost escalation rose 4.7% during 2016. Their 2016 Fourth Quarter Forecast states that "The shortage of skilled labor continues to be a key factor towards cost impacts across the construction industry. As we move into 2017, this focus on skilled labor is expected to intensify."[4] Additionally, the Turner 2017 First Quarter Forecast indicates a 1.29% increase in costs for the quarter and that "the availability of skilled labor continues to influence the decision making of subcontractors, who are making a selective approach to pursuits...and a continued high level of construction activity has potential to extend lead times (for materials and project delivery) in the future."[5]
- The Engineering News-Record (ENR) recently reported their first quarter 2017 Construction Industry Confidence Index (CICI) increased to 76 points on a scale of 100 compared to 61 at this time last year. "The sharp increase in the CICI the past two quarters shows that, of the 263 executives of large construction and design firms responding to the survey, most believe market growth will continue at least through the middle of 2018".[1]

SUMMARY

The sustained growth in architectural firm backlogs reported by the Architectural Billings Index (ABI) is a positive indicator for near term growth in the construction of parking structures. In absence of any major political or economic event, construction activity is forecasted to grow about 5% to 6% the next two years, including the institutional and commercial sectors that traditionally build parking structures. With the improved construction activity, project costs are expected to escalate to a greater level than the projected increase in material and labor costs would indicate. Further, shortages of skilled construction workers could restrain market growth and raise construction inflation greater than consumer inflation over the next two years as well as lengthen project schedules.

The parking professionals at Carl Walker will be happy to assist with budgeting of your next parking structure. If you have any questions or would like specific cost information for your area, contact Gary Cudney at gcudney@carlwalker.com or 800-FYI-PARK (800-394-7275).

REFERENCES

1. "Executives See Gains From Trump Administration Agenda," by Gary J. Tulacz, Engineering News Record, March 20/27, 2017.
2. "Even with uncertainties looming, healthy gains projected for 2017 building activity," by Kermit Baker, PhD, The American Institute of Architects AIArchitect, January 25, 2017.
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APPENDIX G

CRISPE PARKING STRATEGIES REPORT

TECHNICAL REPORT

Parking Strategies Report

As Part of the
Fort Myers Beach Congestion Mitigation Study

Prepared for

2523 Estero Boulevard
Fort Myers Beach, FL 33931

Prepared by

CRS*PE*, Inc.

1414 SE 17th Avenue, Suite 104
Cape Coral, FL 33990

PBSJ

482 South Keller Road
Orlando, FL 32810

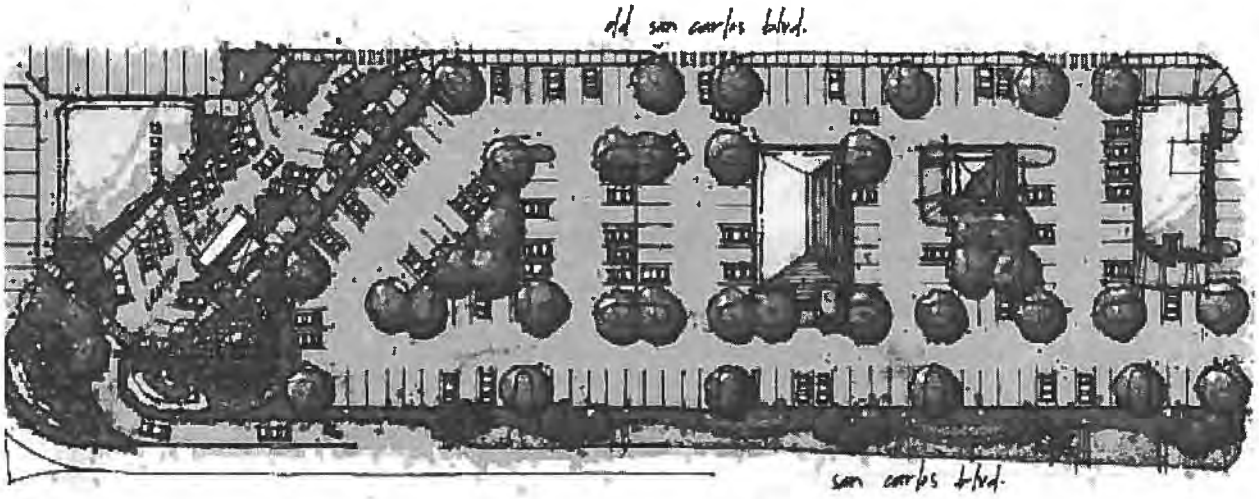
Fall, 2003

EXECUTIVE SUMMARY

The issues of parking and traffic congestion are intertwined for the town of Fort Myers Beach. Additional parking is certainly needed, however, inducing additional automobile trips can have a negative effect on traffic congestion, unless parking can be provided in a way that does not impact the more congested portions of the island.

The CRSPE team began its work on Fort Myers Beach parking by undertaking a comprehensive parking survey in the fall of 2002, with a follow-on survey in October, 2003 to reflect changes made in town parking. The team also analyzed work performed by Spikowski Planning Associates as documented in the *Old San Carlos Master Plan* so that solutions suggested would be compatible with the town's current planning efforts.

A phased approach to parking improvements is recommended. Near-term improvements include better coordination of parking in the Old San Carlos area by combining the existing lots into one lot and providing direct access to this lot from San Carlos Boulevard. This would require a coordinated effort among three separate property owners. If that coordinated effort cannot be brought to fruition, an alternative plan of reopening Center Street is recommended.



In coordination with changes in parking in the Old San Carlos area, improved trailblazing signage is also proposed. Initially, this would include only static signs similar to those that now exist. The purpose of the signs will be to direct drivers to exit the island via the 3rd Street to Crescent Street to 5th Street route. By making these changes a significant number of drivers traveling to the island can park and leave the island without entering the 5th Street/Estero Boulevard intersection or driving on Estero Boulevard in the vicinity of Times Square. In this way, they avoid the worst traffic congestion on the island making travel easier for

themselves, as well as other drivers that cannot avoid these congested areas. Costs for these immediate solutions are estimated at just under $115,000.

In the near-term, expansion of trailblazing signage off the island to dynamic message signs is recommended. Dynamic message signs are expensive, but very effective. One of the primary purposes of the signs is to provide information on parking conditions on the island. Instead of a very complicated, and likely very expensive, system to provide exact parking information for the island that, due to its specificity, may have changed prior to the driver arriving on the island, a generalized system of green, yellow, and red is recommended.

To maintain costs for dynamic message signs at a reasonable level a 6 foot by 14 foot sign that is capable of using "off the shelf" message signs is recommended. Each of the signs is estimated at $85,000. Software and other issues bring the total price to deploy three signs to just over $300,000. Operating costs of about $15,000 per year should also be anticipated.

In the mid to long-term, development of a dedicated off-site parking location is recommended. Currently, there are many parcels available that could meet this need for the town. Using a 15 acre parcel, at $6 per square foot yields a purchase price of just under $4 million for the acreage. Costs of developing the lot for a 500 space test facility are projected at just under $900,000. As the facility proves successful, additional spaces would be added.

Finally, a parking deck either on or off the island may prove desirable in the long-term. If this becomes a case, use of the parking deck as a hurricane shelter should be strongly considered. For this reason, coordination with Lee County and the city of Sanibel should be constant as the town pursues its parking options. Costs for providing 1000 vehicle parking deck are projected at $10 million.

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INTRODUCTION

For a barrier Island such as Fort Myers Beach, the issue of parking often seems to be a contradiction. While there is seldom enough parking, provision of additional parking may encourage additional trips and worsen existing traffic congestion problems. The solution to this contradiction is to evaluate parking in terms of needed parking capacity as well as its impact on traffic flow. The ideal solution should meet the need for on-island parking demand, locate the needed parking capacity in a way that traffic flow associated with parking has as little impact as possible on other Island traffic, and provide off-Island parking alternatives to reduce on-Island demand as practical.

Existing

In the Fall of 2002, CRSPE undertook a physical survey of existing parking conditions in the Town of Fort Myers Beach. This survey was supplemented in October, 2003, by a follow-up survey in the Old San Carlos area and the beach access parking areas to reflect recent changes in Town parking. The information presented in this report reflects these changes. The purpose of the survey was to ascertain the number of existing spaces, by type, to allow for analysis of existing parking conditions on the island.

All parking on the island was surveyed except for residential parking. It has been assumed that residential parking is balanced for its needs. In other words, sufficient parking is provided in residential locations to allow the parking demand for that location to be satisfied. This demand would include residents, commercial vehicles providing service to the residents and persons, specifically visiting residents. It is further assumed that parking beyond that needed to satisfy residential demand is not available. In other words, additional parking that could satisfy demand for residential parking at other locations does not exist.

Surveys were performed in the field, with surveyors performing actual counts of parking spaces. Aerial photography was used to verify that all parking lots have been counted. The number of parking spaces, by type, is shown in Table 1. For purposes of the survey, parking was broken out by type as follows:

- Paid Public Parking
- Paid Private Parking
- Beach Access Points (excludes County parks)
- Free Public Parking (includes parking for public uses such as churches and schools)
- Hotel/Motel
- Unimproved Seasonal Lots
- Commercial
- Handicapped

Table 1: Available Parking By Category

Type of Parking	Spaces
Beach Access	63
Public-Free	571
Public-Paid	336
Private-Paid	486
Hotel/Motel	2221
Commercial	2528
Handicapped	292
Total	6497

Parking of all types is important to Fort Myers Beach, however, the issue of traffic congestion is primarily impacted by the availability of parking for those making day trips to the island without a specific commercial destination in mind. This is not to say that commercial land uses, including restaurants and hotels, cannot benefit from improved parking on-Island, however, those types of parking issues tend to be site-specific rather than an impact on the overall Island. Therefore, for the remainder of this report, the focus will be placed primarily on accommodating demand for parking that is of less than 12-hour duration serving either noncommercial destinations, such as the beach, and trips to multiple commercial and noncommercial destinations. Parking areas serving these types of trips are shown in Table 2.

Table2: Paid Parking Availability

FACILITY NAME	NUMBER OF SPACES	RATE	PUBLIC/PRIVATE
Bowditch Point Park	64	Public	0.75/hr.
Lynn Hall Park	114	Public	$0.25/20 min.
Norm's Beach Parking	49	Private	$6.00/day
Old San Carlos	54	Public	$2.00/hr.
Center Street	11	Public	$2.00/hr.
Under Bridge	69	Public	$2.00/hr.
Pizza Hut	87	Private	$8.00/day
LaPlaya Beach	84	Private	$7.00/day
Park Shop Beach	82	Private	$5.00/day
Times Square area	48	Private	$6.00/day
Lani-Kai	50	Private	$7.00/day
Avenue C	17	Private	$7.00/day
Beach Access	93	Public	$2.00/hr.
Total	822		

Paid parking provided by the Town of Fort Myers Beach and Lee County is a major source of available parking for trips with durations of less than twelve hours. Parking is paid for via parking meters, as well as

parking kiosks as shown in Figures 1 and 2. County parking is provided at two County parks; Lynn Hall Memorial Park (Figure 3), and Bowditch Point Park (Figure 4).

Figure 1: Parking Kiosk

Figure 2: Parking Meter

Figure 3: Lynn Hall Memorial Park

Figure 4: Bowditch Point Park

Parking provided by the Town is located on the Old San Carlos Boulevard (Figure 5), under the Matanzas Pass Bridge (Figure 6), and at beach access points (Figure 7).

Figure 5: Old San Carlos Boulevard

Figure 6: Under Matanzas Pass Bridge

Figure 7: Beach Access

While some beach access is provided in the central and southern portions of the island, the majority of recreational opportunities available to the general public and the majority of commercial development are found on the northern end of the island, particularly in the Times Square area. While commercial development does exist in the middle and southern portions of the island, by observation it tends to have a significantly better balance between parking supply and demand. While the Town may eventually desire to explore the possibility of providing additional public recreation access parking on the central or southern portions of the Island, the critical need relating to congestion is primarily in the northern portions. The distribution of existing parking resources available to short-term trips reflects this. Figure 8 shows the major areas of available public parking. Figure 9 shows the major areas of available private paid parking.

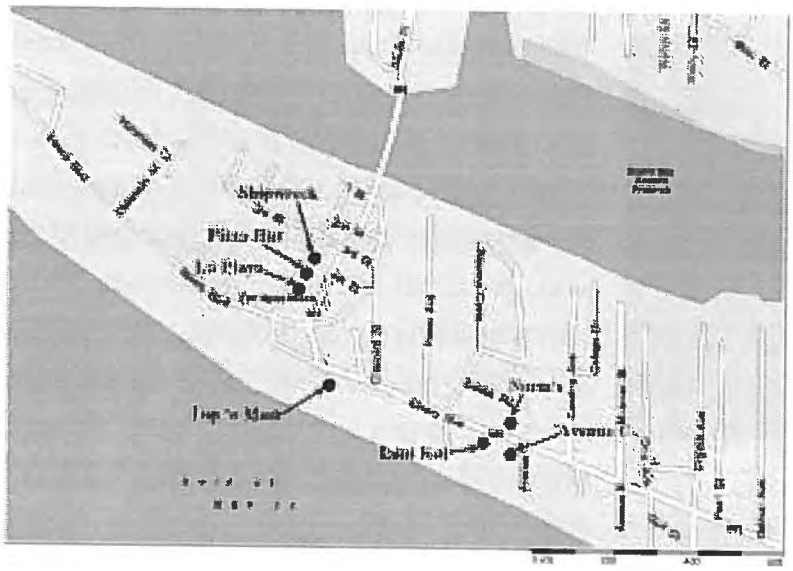
ANALYSIS

Issues relating to overall parking demand will drive the parking solutions for the island. To project expected demand, data from the 2003 in-lane survey performed for Fort Myers Beach was analyzed. Specifically, data pertaining to the percentage of the traffic stream using public parking and the average length of the visit for that portion of the traffic stream was determined. Based on this analysis, parking demand, by hour of the day, was determined.

Figure 8: Available Public Parking

As previously discussed the greatest concern currently facing the island is parking for beach and recreation access and access to multiple commercial uses primarily on the north end of the island. To determine the

Figure 9: Paid Private Parking



types of trips associated with this type of parking, survey results for trip type and type of parking utilized were cross-classified. The Trip Type and Parking Location Cross Classification Matrix is shown in Table 3. Based on this analysis, the overwhelming majority of trips utilizing paid public or paid private parking are trips associated with beach use or other social/recreational trips. However, demand associated with all trip types was developed.

Table 3: Trip Type and Parking Location Cross Classification Matrix

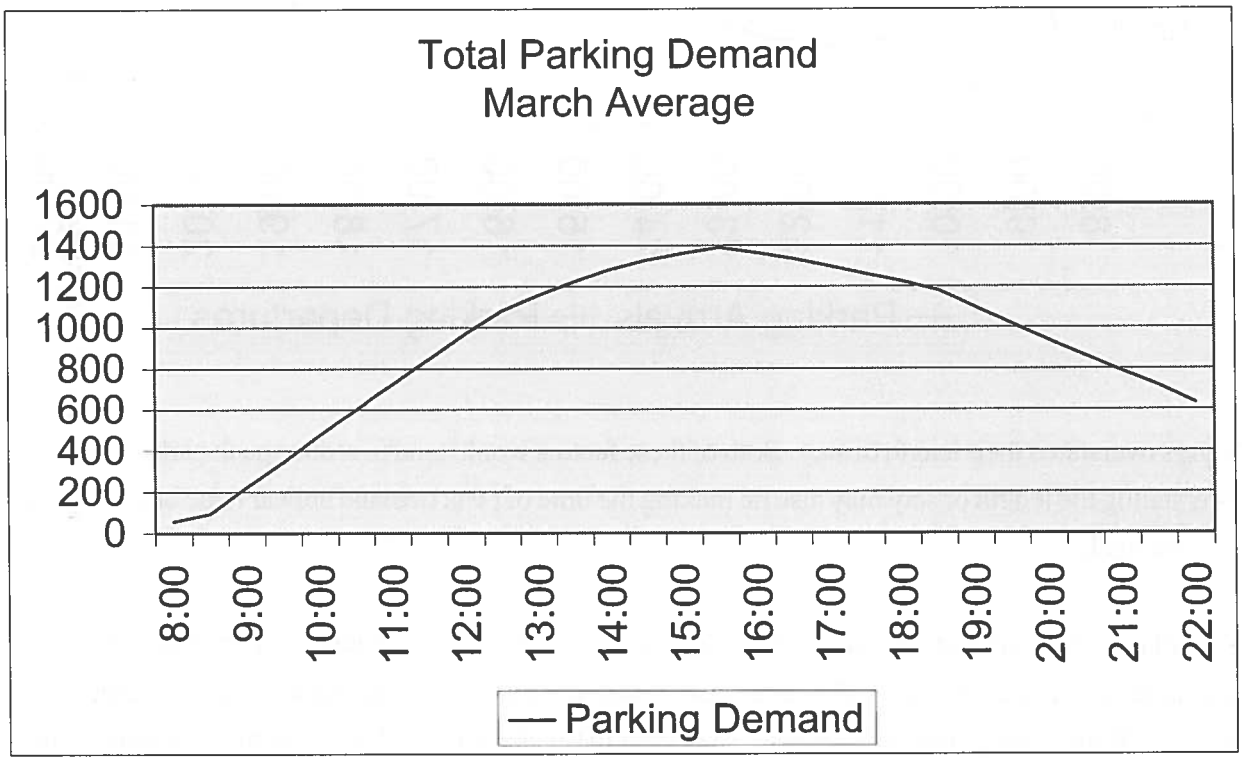
	No Response	Commute	Work	Shop	School	Errands	Social	Beach/ Water	Other
No Response	57.10%	14.60%	24.60%	27.40%	25.00%	18.50%	21.00%	12.20%	17.90%
Paid public beach access	0.00%	1.00%	1.60%	3.50%	25.00%	0.80%	14.30%	25.50%	0.00%
Free parking lot of business	0.00%	39.80%	24.60%	15.90%	0.00%	10.50%	30.50%	14.80%	19.40%
Paid parking lot	0.00%	1.00%	1.60%	3.50%	0.00%	0.80%	3.80%	24.00%	1.50%
Empty vacant lot	0.00%	2.90%	0.00%	0.00%	0.00%	0.00%	1.90%	0.50%	1.50%
Home	28.60%	27.20%	37.70%	40.70%	50.00%	62.90%	13.30%	5.60%	40.30%
Other	14.30%	13.60%	9.80%	8.80%	0.00%	6.50%	15.20%	17.30%	19.40%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Parking demand has two distinct elements. The first element is total demand through the day. The second element is the maximum number of parking spaces that will be required at any one time. The first element is obviously critical for revenue calculations while the second is critical for determining parking lot size.

To develop these two elements, demand was evaluated based on the percentage of drivers that used parking lots other than those located at a specific commercial or residential location. This percentage was coupled with the arriving traffic stream on Fort Myers Beach. For purposes of determining the traffic stream Lee County's Permanent Count Station No. 8, on San Carlos Boulevard just south of Prescott Street was utilized.

To determine the rate of parking departure, length of stay information by trip type was utilized. Based on this information, departure rates were developed based on the length of stay information from the stated preference survey. As stated preference survey information was developed as a day long aggregate, to reflect reasonable changes in the traffic stream the percent of trips by purpose in the traffic stream was varied based on time of day. This included changes such as placing most of the work commute trips during traditional morning and afternoon peak periods. Actual survey data relating to the trip purpose and the traffic streams used for analysis are shown with the variances used in Appendix A. The resulting parking demand, by hour, is shown in Figure 10.

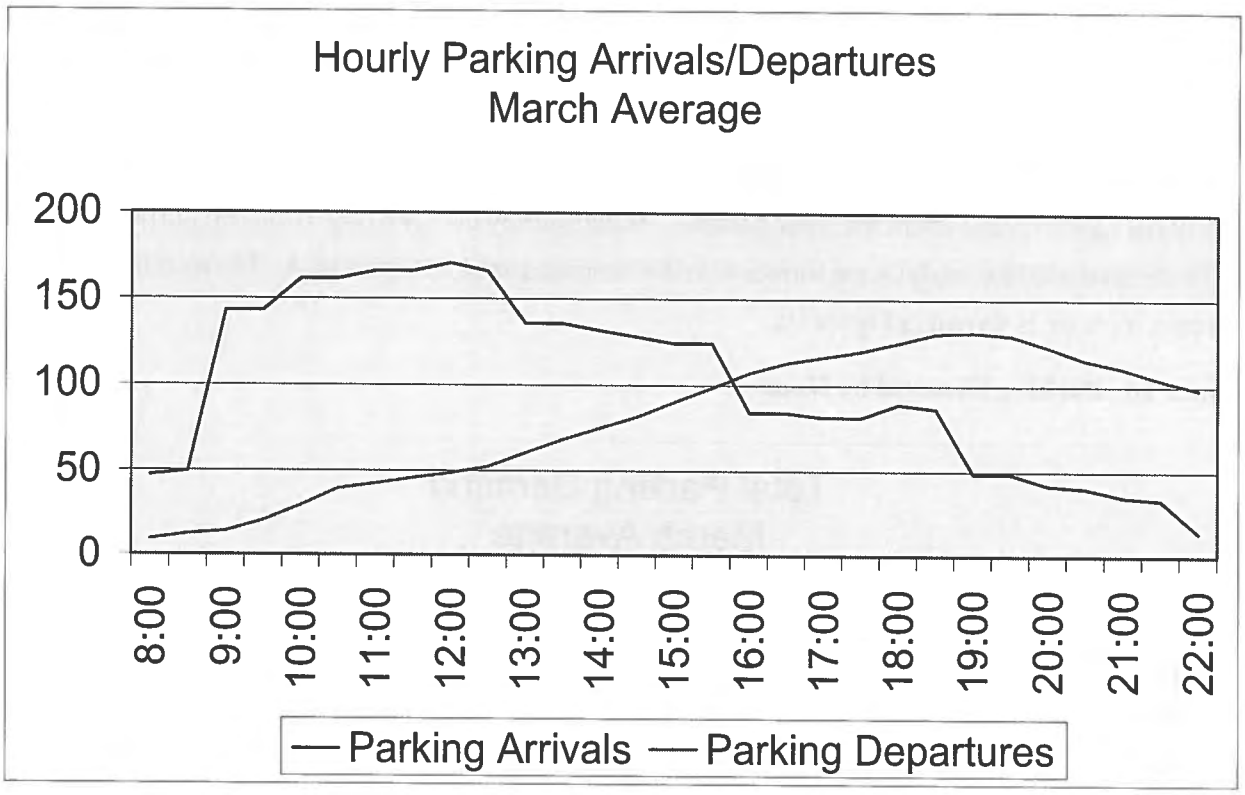
Figure 10: Parking Demand by Hour



Total parking demand derived from the stated preference information exceeds the inventoried supply of parking of the types that would normally meet this demand. It is felt that two phenomena are occurring. The first relates to conditions in Fort Myers Beach during peak months. First, there is a readily observable circulation of drivers looking for a parking space. This would indicate that demand does, in fact, exceed supply. Also, there is a use of temporary parking lots. These lots proliferate on the island during peak season.

The second phenomenon relates to driver response to the surveys. It is very possible that drivers underreported their use of illegal parking, such as improperly using a business lot. It is also possible that

Figure 11: Parking Arrivals and Departures



drivers overstated their length of stay. Both of these factors would tend to reduce peak parking demand. Overstating the length of stay may also be making the time of peak demand appear to be later in the day than it actually is.

It is not possible to directly correlate data collected on trip purpose and length of staying during peak season to off-peak conditions. However, reasonable assumptions were made as to the change in the makeup of the traffic stream from peak season to off-peak season. Based on these assumptions, a maximum parking demand of approximately 300 vehicles was determined for the slowest months of the year. This is equivalent to the combination of the parking lot at Lynn Hall Memorial Park at near capacity and other lots around the Island being between 20 and 30 percent occupied. This would be for the peak hour only with the remainder of the day being lower.

While changes in on-island parking can result in better traffic flow and, therefore, free some amount of roadway capacity, in essence no significant new roadway capacity is created by parking changes alone. As discussed in the *Alternating Light Traffic Operations Report*, there is significant evidence that demand has exceeded roadway capacity leading to Fort Myers Beach. Therefore, regardless of growth in the County, it is unlikely that significant numbers of additional vehicles will be able to reach Fort Myers Beach

without other changes. For that reason, increases in parking demand due to latent demand issues are not expected, unless additional capacity enhancing projects are also undertaken.

RECOMMENDED STRATEGIES

After review of the existing conditions, several strategies have been developed to improve parking operations on Fort Myers Beach. The strategies are divided into on-island and off-island strategies.

On-Island Parking Strategy

For persons not visiting public places such as churches and schools, nor specific commercial establishments, such as a hotel or restaurant, paid parking is the only convenient parking resource legally available. This is very likely to continue in the future. Due to the very high value of land on Estero Island, development of parking resources is extremely expensive. It is, therefore, unlikely that development of significant amounts of unpaid public parking is feasible. Furthermore, from a traffic mitigation standpoint, the desirability of unpaid parking is questionable.

On-island parking in the Times Square area has already been examined by Spikowski Planning Associates (Spikowski) and is documented in the *Old San Carlos Boulevard/Crescent Street Master Plan* dated February, 1999. Upon review of the *Master Plan*, the project team endorses the work performed by Spikowski, and many of the recommendations outlined here relating to on-island parking have their roots in the work performed by Spikowski.

To have the maximum benefit, parking for short-term visitors to the island should be easily identified and easily accessed. Preferably, the traffic impact on the island of these visitors should be minimized. One particular location identified by Spikowski suits these criteria particularly well. This location lies between San Carlos Boulevard and Old San Carlos Boulevard. Currently, the majority of this area serves as privately operated paid parking. Currently, all parking is at grade. Existing conditions in Times Square are shown in Figure 12.

Interim Parking Options

Figure 13 presents an at grade interim parking option similar to that presented in the Spikowski Master Plan. The option assumes that all the parking between San Carlos Boulevard and Old San Carlos Boulevard are combined into one lot. Of particular interest in this option are the traffic circulation aspects. By creating an entrance to the parking area from the existing right turn lane on the Matanzas Pass Bridge,

traffic is able to access the parking area without entering either the Estero Boulevard/5th Street intersection or Estero Boulevard adjacent to Times Square. As shown in Figure 14, by using an exit on Third Street, traffic is able to access Fifth Street via Crescent Street and exit the island with minimal traffic impact.

It should be noted that the entrance from the right turn lane would require a Florida Department of Transportation access permit. While allowing an entrance from a turning lane is an exception, such exceptions have been granted in the past, and the benefit brought about in terms of traffic flow should be more than enough to warrant an exception being made.

This concept also works with the Town's current on street metered parking. The on-street parking is designed to be short-term parking primarily serving the adjoining commercial uses. The revised parking plan proposed is designed to provide long-term parking (two hours or greater) for persons accessing the beach, as well as the surrounding commercial opportunities.

The area under consideration is currently owned by three separate entities. For this concept to be most effective, it will be necessary for the three separate owners of the properties involved to cooperate by allowing traffic flow throughout the area. Realistically, this means a combined parking operation.

Initial discussions have taken place with the property owners involved and there is interest in seeing a concept of this type moved forward. However, one of the properties is currently being offered for sale, and additional negotiations will be necessary between the property owners and the Town to finalize any arrangements. While not as effective as the solution which could be obtained if all three property owners work together, it may be feasible to produce a modified version of this concept using only the properties that are not currently for sale.

Operationally, it would be possible for the parking area to operate in either an attended or an unattended mode. There are advantages to both. Unattended operation is likely to be the least costly. Persons parking would pay at a kiosk (Figures 15 and 16) in a manner similar to the current operation of many of the Town's and County's parking areas. With short-term parking having on street metered parking available, parking in the lot is likely to be of a longer-term nature. For this reason, it is likely that all parking in the lot or lots would be based on a flat daily rate. It would, of course, be possible to vary that rate by time of day or season of the year. This will allow some type of consideration for persons arriving very late in the day, or as recognition of lower demand during off-season. If a kiosk is used, consideration should also be given to enabling credit card transactions at kiosk for the convenience of users. Kiosks placed by the Town already have this capability. Capital costs for a single parking kiosk that is capable of handling credit card transactions is $12,000. Annual operating costs are projected at $4,000. If enforcement was performed

Figure 15: Fort Myers Beach Parking Kiosks

Figure 16: Lee County Parking Kiosks

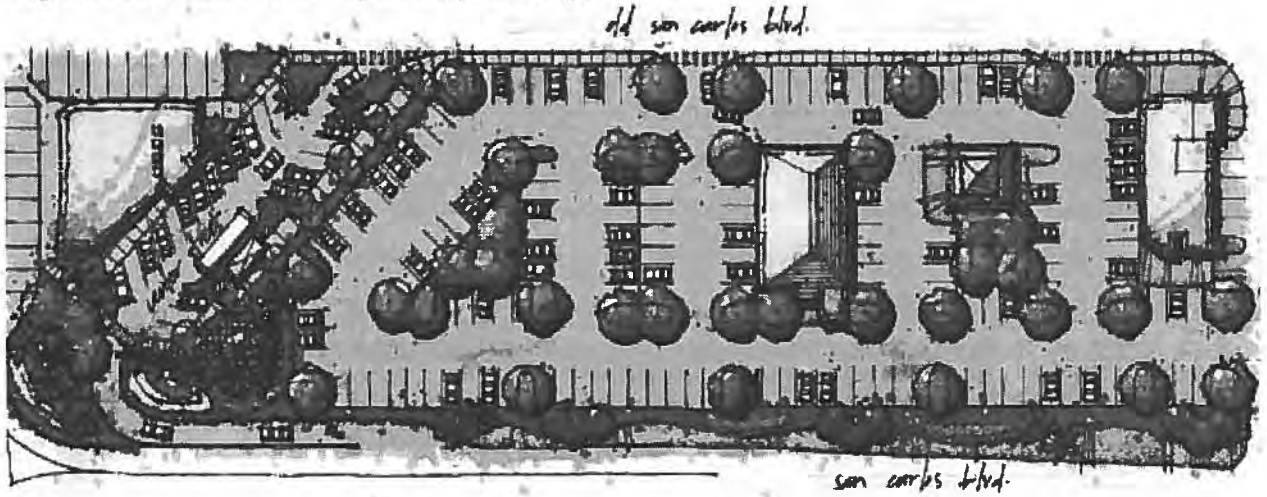
by the Town's existing enforcement personnel, enforcement costs would be significantly lowered and could likely be financed through the revenue obtained from fines.

Attended operation is also a realistic alternative. Attended operation can either be in an hourly mode, or for an all-day cost. Attended operation avoids the capital investment expenditure required for kiosk equipment and also is self enforcing. Attended operation is, however, labor-intensive and labor costs for an operation of this type will approach $100,000 per year.

Ultimately, this will be a decision made by the private sector. Currently, the land in question is already operating as parking. The above discussion simply proposes a mechanism to significantly increase the efficiency of the parking resource. It is felt that this proposal has significant benefits for both the Town and the landowners.

A third option is available to the Town without the need of incorporating private entities. As shown in Figure 17, reopening Center Street provides a similar operating concept to that described above, however, access to Old San Carlos Boulevard is provided via public right-of-way. For this concept to be effective trailblazing, as described below, will be an important consideration.

Figure 17:Center Street Operating Concept



Trailblazing

Trailblazing involves the placement of informational and directional signs in a manner that assists drivers in finding a particular destination. In this case, trailblazing would likely be applicable in two different scenarios: remote information distribution and local information distribution.

Remote information distribution as the name implies, provides drivers with information prior to a destination decision having been made. In the case of Fort Myers Beach parking, information on parking conditions would be valuable prior to leaving home and prior to making a final decision to bring a vehicle onto Fort Myers Beach.

While not traditionally thought of as trailblazing, the first step in having more effective beach parking work as a congestion mitigation measure is informing the public of the existence of the parking. This is best performed through a public education campaign involving all media, traditional advertising and outreach through groups, such as the Fort Myers Beach Chamber of Commerce. This initial first step makes trailblazing on the roadway much more effective as drivers have been informed of the existence of the trailblazing signage.

Remote information distribution will depend on whether or not real-time information on parking conditions can be made available. There are two means to develop this real-time information. The first is with remote sensing devices. This is, however, a relatively expensive method. If a parking deck in this location is a possibility in the future this expense is not likely to be justified. If an attended operation is undertaken, it is a relatively easy matter to determine occupancy by inspection and, in fact, it is necessary to perform such inspection to know whether or not to accept additional vehicles into the lot.

Existing enforcement personnel can also be used to report on the availability of parking on the island. If this concept were to be pursued, combining the enforcement of the Town and County parking lots could greatly facilitate this method.

Regardless of the reporting method used it is crucial that the public be able to rely on the information presented. It must, therefore, be correct and current. For this reason, somewhat generalized, but accurate information, is preferable to detailed information whose accuracy and currency is not reliable.

Therefore, until such time as automated detection is available to determine real-time parking conditions, more generalized messages should be considered. For instance, a red, yellow, green system could be instituted. Under red conditions available parking is very limited and drivers can expect a difficult time locating parking on the island. Yellow condition would indicate somewhat congested parking conditions with spaces, particularly in more desirable locations, being difficult to obtain. A green condition would indicate good parking availability with little or no difficulty finding space. While this information is very general in nature, it nonetheless provides significant information to the driver on conditions likely to be found if a private automobile is the selected mode for visiting the Town.

If the information is available, multiple mediums are available for transmitting it to the driver. It can be transmitted via a web site, which can be checked prior to departure. Conveniently, the availability of web information on mobile devices, such as mobile phones and personal digital assistants (PDAs), is becoming more prevalent allowing information to be provided and updated once the trip has begun.

It is also possible to display such information on dynamic message signs. This concept is shown in Figure 19. The photo shown relays parking information for visitors approaching Baltimore/Washington

Figure 18: PDA and Mobile Phone

Figure 19: Dynamic Message Sign

International Airport and shows a product available from Daktronics (www.daktronics.com) which combines dynamic and static sign elements.

For dynamic message signs to be most effective, it is necessary that they be located such that the driver still has the opportunity to react to the message and change the trip. For Fort Myers Beach, this realistically means that dynamic message signs should be located near the Summerlin/San Carlos intersection. As funds become available, additional signs should be placed along Summerlin Road, McGregor Boulevard and San Carlos Boulevard, moving away from Fort Myers Beach. This allows the driver more options in reacting to the sign's message.

Dynamic message signs are a significant investment. Dynamic message signs used on the nation's interstates can easily exceed $250,000 in cost. Costs for the Fort Myers installation are based on a recent arterial installation in the Orlando area. Based on extensive research done for that installation, a sign size of 6 feet by 14 feet is recommended. Cost per sign is projected at $85,000. This size allows "off the shelf" components to be used significantly reducing the cost. While a smaller sign is possible, use of custom dynamic elements negates any savings.

It is possible for web information distribution and dynamic message sign information distribution to be closely linked. The Texas Department of Transportation provides the information currently seen on its dynamic message signs via a web site. The address of one site is: http://dfwtraffic.dot.state.tx.us/dms-all-dal.asp.

With advancing technology, distribution of real-time information on parking conditions in the Town of Fort Myers Beach is a real possibility that can likely be implemented at a reasonable cost. However, it is essential that the information distributed is reliable. If the public has reason to believe that information posted is not correct, the effectiveness of the signs is basically nullified.

Proposed signing in the vicinity of the parking lot, defined as the north end of the Matanzas Pass Bridge to the lot entrance, is relatively straightforward. Information conveyed is basically that the parking lot entrance is ahead, and it may be desirable to include information on current pricing and, if possible, information on whether the parking lot has available spaces. To maximize the effectiveness of the parking lot location, trailblazing must also take place to direct traffic from the parking lot to the bridge to exit from the island.

While there is existing trailblazing signage in Fort Myers Beach, its effectiveness is felt to be marginal. In general, signs are small and often multiple messages are given. This can lead to driver confusion. An existing example of trailblazing on Fort Myers Beach is shown in Figure 20.

The parking area should also be considered for use as a transit stop, including use as the transfer point between the off-island shuttle and on-island transit service. This allows the off-island shuttles to avoid significant traffic on the island by using the same entrance and exit strategy as the persons parking in vehicles.

Figure20: Trail Blazing Signage

Long-Term Options

In the longer-term, a parking deck should be considered for this location. The benefits associated with the at-grade parking would also apply to the parking deck. A higher number of parking spaces can be provided on the same amount of land with a parking deck rather than at-grade parking lots. However, the primary issue with the parking deck is price. Excluding land costs, parking deck prices range between $5,000 and $15,000 per space. Assuming a cost per space of $8,500 for a parking deck, deck costs become desirable when the land value costs exceed $28.50 per square foot. This is equivalent to approximately $1M per acre. Land values on Fort Myers Beach in the vicinity of Times Square meet and exceed this criterion.

Off-Island Parking Alternatives

For a true long-term solution to be developed for Fort Myers Beach, it is necessary to understand that, regardless of growth on the island itself, demand for access to Fort Myers Beach will continue to increase, due to the rapid and continuing growth in Lee County. Changes in traffic operations and changes in on-island parking can make a real difference and should be pursued. However, the impact from solutions of this type is finite, as is the ability to provide additional roadway capacity on the island. Eventually, continued growth will "use up" the additional capacity made available by these strategies.

Observation has shown that congestion on Fort Myers Beach is much more an issue of too many cars rather than too many people. The island beaches and businesses can handle a larger number of people, if those people can get to Fort Myers Beach.

Further, it is a practical certainty that significant latent demand exists for Fort Myers Beach. Surveys taken of drivers entering and exiting Fort Myers Beach indicate that significant numbers of them would make

additional trips if congestion were reduced. Further, it is common to see vehicles turning around on San Carlos Boulevard after they have entered the queue near the base of the bridge to the island.

The impact of latent demand, trips that would have been made if congestion were reduced, is a difficult issue to assess. However, survey responses indicate that a large majority of those surveyed reduce their trips during periods of congestion. Thus, it is a practical certainty that significant latent demand exists for Fort Myers Beach.

While it is not possible to precisely identify the magnitude of latent demand, it is possible to make an educated projection of it. Traffic volumes on Estero Boulevard and San Carlos Boulevard have seen little growth over the past decade. Traffic on Estero Boulevard north of Donora Street has ranged between 16,300 and 17,500 over the period. The lowest volume, 16,300, was actually reported in 2002, the last year for which counts are available. It is reasonable to say that there has been no growth in traffic on Estero Boulevard over the last decade.

From 1990 to 2000, population in Lee County has grown at a rate of 2.78 percent per year according to the Lee County Metropolitan Planning Organization. It is not unreasonable to think that traffic demand on Fort Myers Beach would increase at least as fast as the County's population. If this were to have occurred, traffic volumes on Estero Boulevard in 2002 north of Donora Street would be expected to be 21,100. This would represent an overall increase of 27 percent.

While slow growth has occurred on San Carlos Boulevard in the vicinity of the Matanzas Pass Bridge, it has not kept pace with the overall growth in the County. From 1993 to 2002, traffic grew from 21,800 to 25,100, a growth rate of 1.6 percent. It should be noted that during that time San Carlos Boulevard was expanded to a 5 lane facility. If traffic growth on San Carlos Boulevard had increased at the same rate as the County's population growth, a volume of 27,900 would be expected in 2002. This would be an overall increase of 11 percent.

Use of the County growth rate as an indicator for growth and demand for access to Fort Myers Beach is felt to be, if anything, conservative. This statement is based on the fact that traffic congestion on the Beach existed prior to the past decade, and a significant amount of latent demand likely existed even then. However, as with everything involved with projection of latent demand, a definitive statement cannot be made.

For purposes of this study, however, a projection of latent demand must be made. It is felt that the San Carlos Boulevard example best represents potential latent demand for access to Fort Myers Beach.

Reflecting the uncertainty of latent demand projections, the rounded rate of 10 percent will be used. For issues relating to travel on Fort Myers Beach, a rate of 25 percent will be used.

As the name implies, off-island parking are parking facilities located outside of Fort Myers Beach. The purpose of off-island parking is to provide automobile storage in areas where they can be better accommodated than they can on a narrow barrier island. Demand for off-island parking was calculated in the same manner as previously described for on-island parking demand. As the availability of off-island parking impacts the demand for the on-island parking, on-island parking demand was recalculated to take into account the impact of the use of off-island parking. Figures 21 and 22 show on-island and off-island parking demand with no latent demand impacts.

Figure 21: On-Island Parking Demand with No Latent Demand

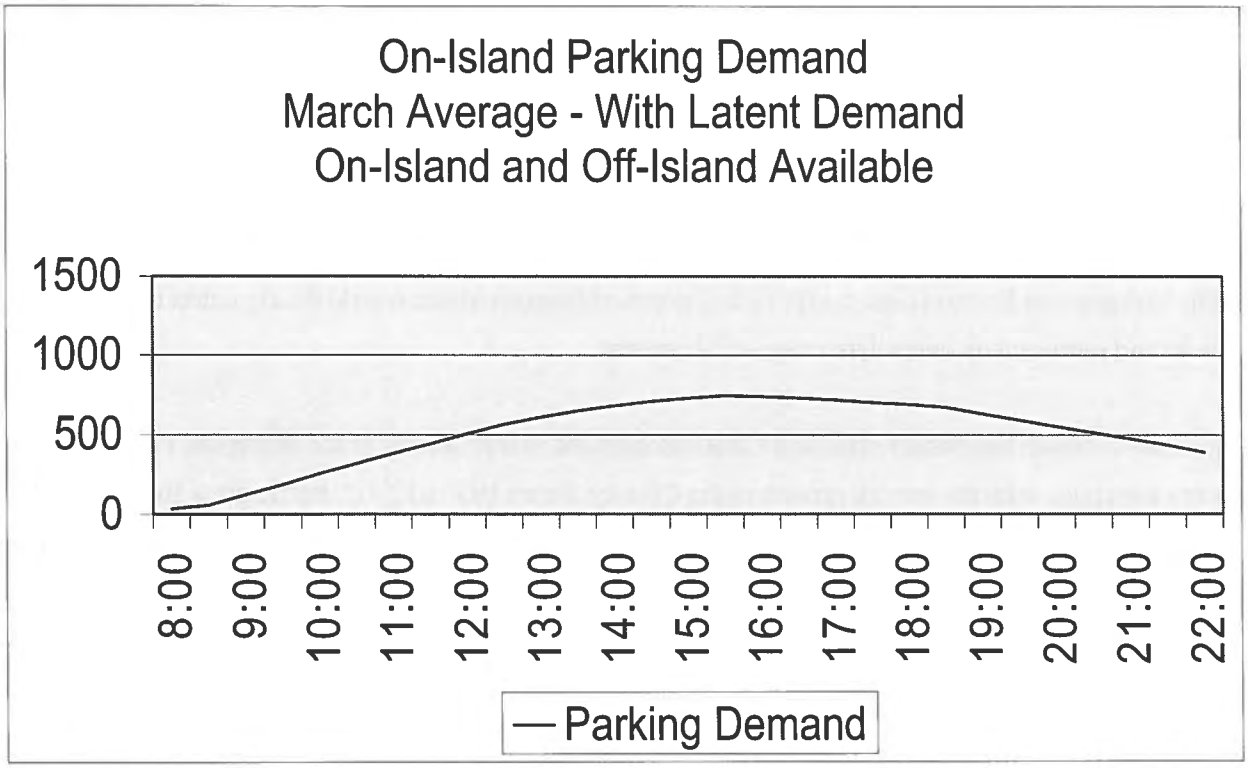
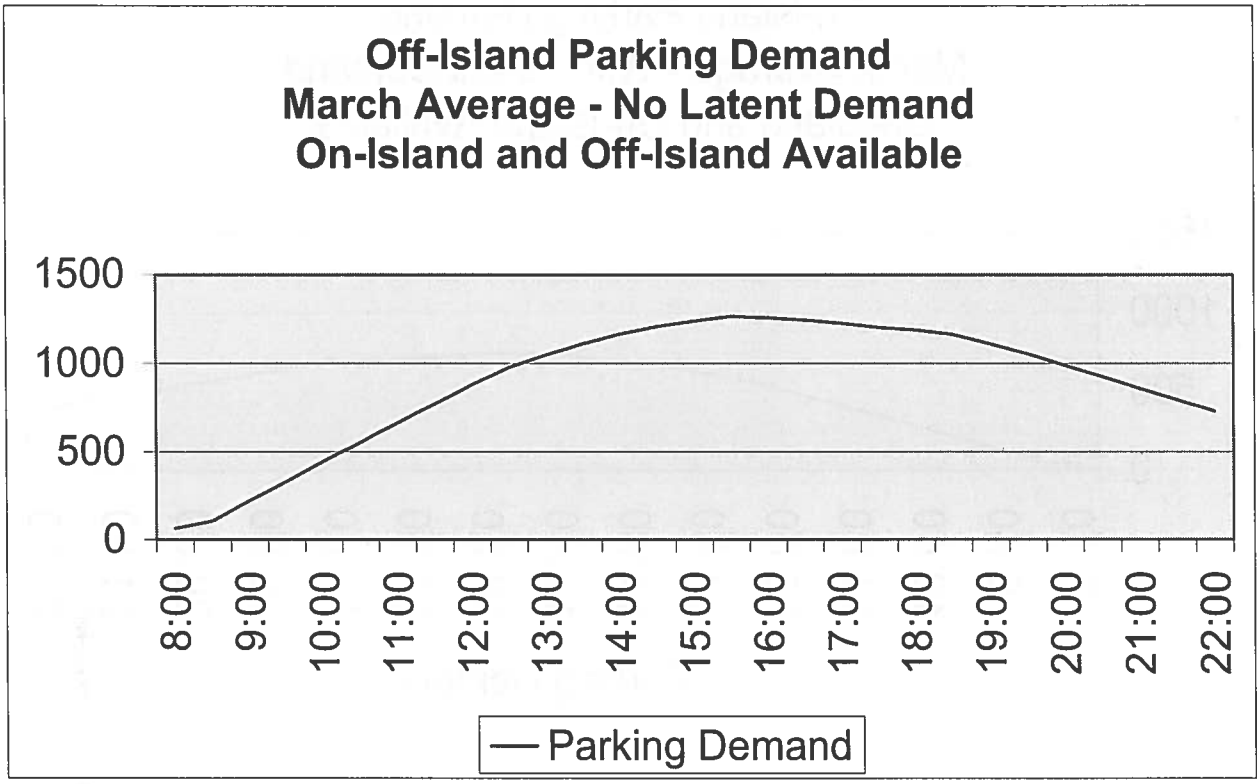


Figure 22: Off-Island Parking Demand with No Latent Demand



Due to the significant uncertainties associated with latent demand, projections of parking demand including the impact of latent demand should be used only as a guide to understand the potential impacts latent demand may have. It is possible that, since provision of off-island parking does not improve the physical capacity of the roadway, latent demand will have significantly less effect. However, as previously discussed, Fort Myers Beach has had issues with traffic congestion for some time. It is, therefore, possible that the impact of latent demand will be even larger than indicated. Projections of parking demand both on-island and off-island including the potential impacts of latent demand are shown in Figures 23 and 24. Parking arrival and departure rates with and without latent demand are contained in Appendices B and C.

Increases in demand for parking of less than one day's duration are more likely to be influenced by the overall growth of Lee County rather than growth of Fort Myers Beach. To determine an appropriate growth factor to examine parking demand 20 years into the future, the *Florida Statistical Abstract* was used to determine likely growth in Lee County. Based on this examination, a growth rate of two percent

Figure 23: On-Island Parking Demand With Latent Demand

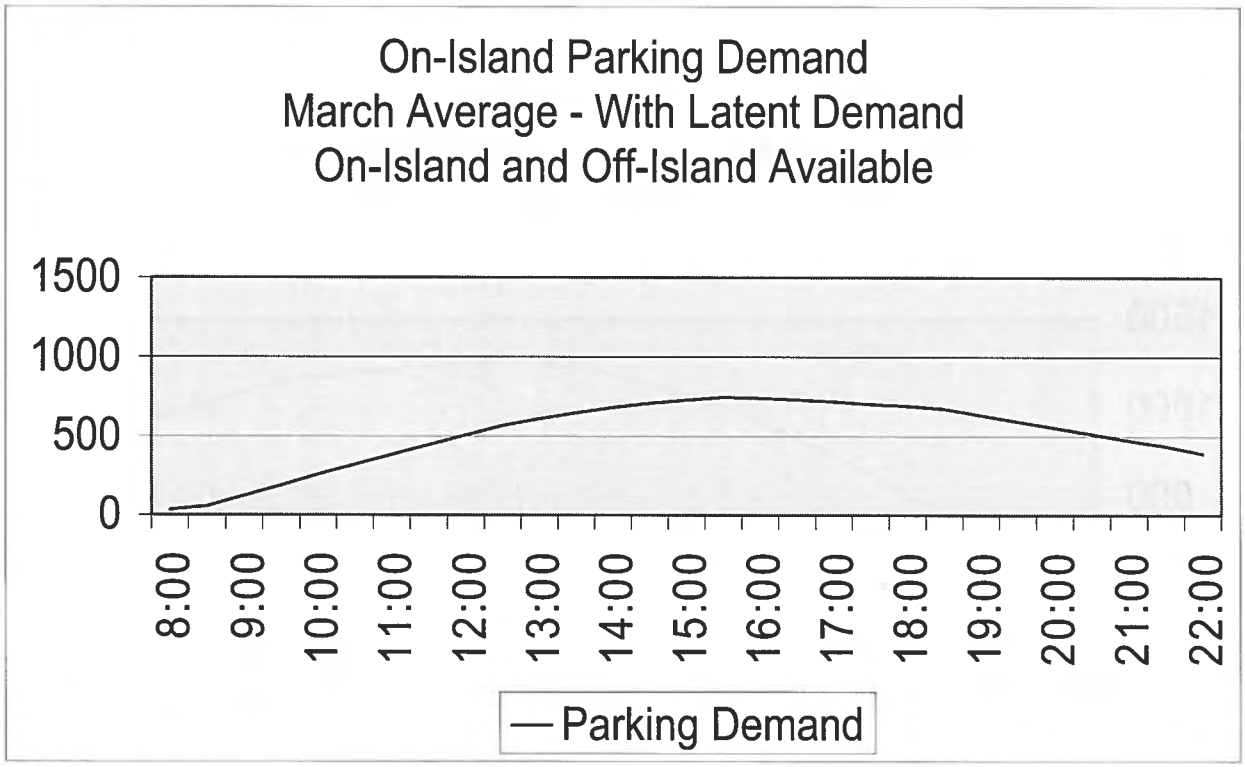
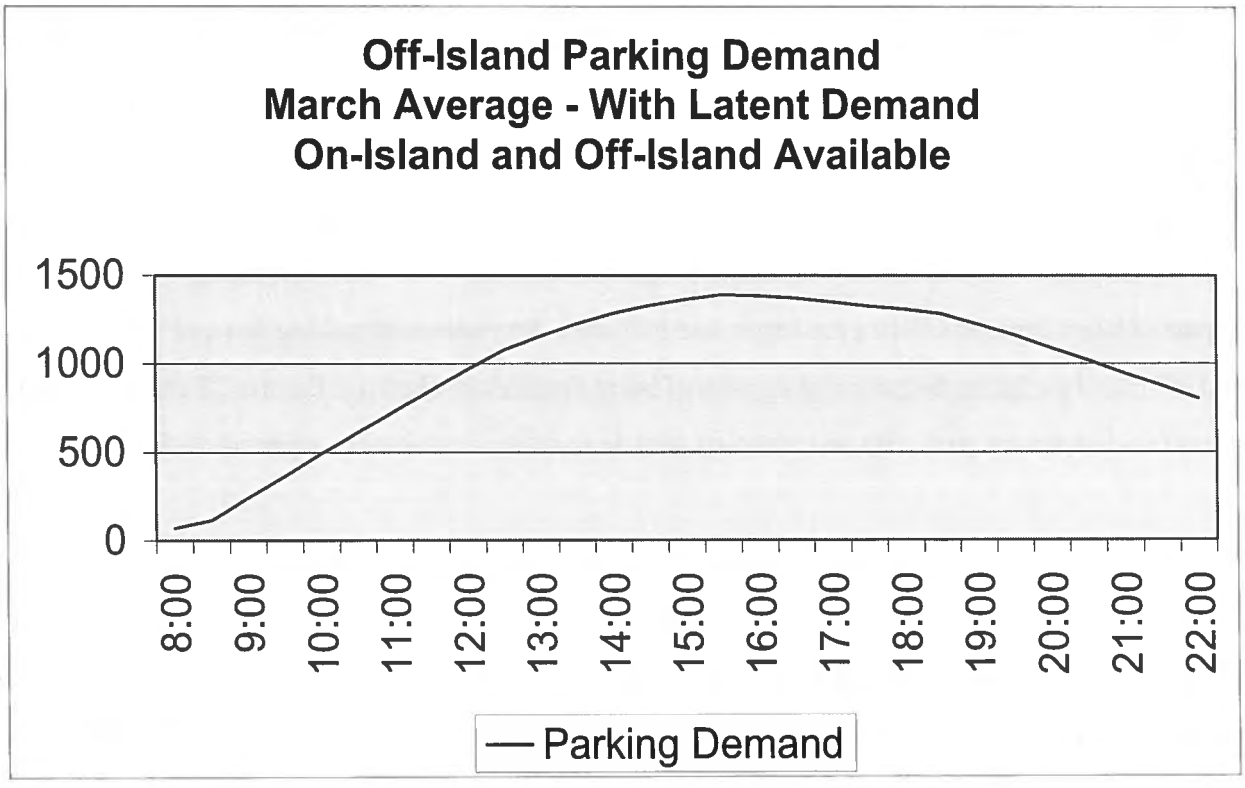


Figure 24: Off-Island Parking Demand with Latent Demand



has been assumed for parking demand. Tables 4 and 5 present parking demand for the current year, as well as 10 and 20 years hence.

Table 4: March Parking Demand With No Latent Demand

March Parking Demand with No Latent Demand						
	Peak Demand			Total Demand		
Year	No Off Island Parking*	With Off Island Parking		No Off Island Parking*	With Off Island Parking	
	On Island	On Island	Off Island	On Island	On Island	Off Island
2003	1390	680	1270	3050	1660	3670
2013	1660	810	1510	3720	2020	4470
2023	2020	990	1840	4540	2470	5450

* Except Existing Park and Ride Facilities

Table 5: March Parking Demand With 10% Latent Demand

March Parking Demand with 10% Latent Demand						
	Peak Demand			Total Demand		
Year	No Off Island Parking*	With Off Island Parking		No Off Island Parking*	With Off Island Parking	
	On Island**	On Island	Off Island	On Island**	On Island	Off Island
2003	1390	750	1390	3050	1830	4040
2013	1660	910	1690	3720	2230	4920
2023	2020	1110	2070	4540	2720	6000

* Except Existing Park and Ride Facilities

** No Latent Demand is Assumed without Additional Off Island Parking

The strategy behind off-island parking alternatives is simple. Visitors are simply asked to store their vehicles off the island. To accomplish this, it is necessary that transit service, such as that outlined in the *Transit Report,* is available to transfer persons to Fort Myers Beach. For that reason, it is also assumed that any off-island parking locations will also be a transit transfer point.

The existing park-and-ride service provided by LeeTran provides an initial indication of the best location for a remote parking lot. The Summerlin Road/San Carlos Boulevard intersection is likely to be the best area for such a facility. Available properties in this area were researched. In addition to the immediate vicinity of the intersection, properties were researched along Summerlin Road, the entire length of Pine Ridge Road and San Carlos Boulevard. Properties available are shown in Figure 25 and details are presented in Appendix D. As shown, many properties are currently available for sale. It should be noted that the information presented was believed current as of November 10, 2003. The market is, however, constantly changing.

Two options exist for off-island parking. The first would provide parking at-grade. The second would provide parking using a parking deck. Both options have advantages and disadvantages.

Figure 25: Existing Parkin g Properties

The major advantage of an at-grade parking facility is construction cost. Compared with the structural requirements of a parking deck, at-grade facilities require relatively little improvement to the land. This can be particularly true if the majority of parking area can remain a pervious surface. Examples of this include parking for the Minnesota Twins spring training facility in incorporated Lee County, the Boston Red Sox spring training facility in Fort Myers and Bowditch Point Park in Fort Myers Beach. At-grade parking can accommodate 100 to140 vehicles per acre. This would require approximately 16 acres to handle parking demand through the year 2023 including space for a transit transfer station. Projected costs for developing such an at-grade facility are shown in Table 6a, 6b, and 6c.

Parking decks are able to provide a relatively large number of parking spaces in a relatively small "footprint". This becomes important as land costs increase. As previously discussed, in addition to land costs, parking deck costs vary between $5,000 and $15,000 per space. The lower costs are generally associated with parking structures that can be built using precast techniques, and those that are not constrained by having to be constructed on particularly small or oddly shaped parcels of land. This would likely be the case for off-island parking for Fort Myers Beach. However, the costs are still significant when compared to the cost of an at-grade facility. Further, soil conditions in the area of the Summerlin Road/San Carlos Boulevard intersection are poor for supporting large structures. Based on analysis performed for interchange work in

Table 6a: Typical 1 Acre Paved Parking Lot

TYPICAL 1 ACRE PAVED PARKING LOT				
CLEAR & GRUB	1.15	AC	$6,000.00	$6,900.00
EMBANKMENT (2')	3,227	CY	$7.00	$22,589.00
COMPACTED SUBGRADE	4,840	SY	$1.00	$4,840.00
6" LIMEROCK	4,840	SY	$8.00	$38,720.00
1-1/2" ASPHALT	4,840	SY	$5.00	$24,200.00
STRIPING	3,600	LF	$0.50	$1,800.00
TYPE F CURB	835	LF	$9.00	$7,515.00
SIGNAGE	1	LS	$3,500.00	$3,500.00
DRAINAGE	1	LS	$50,000.00	$50,000.00
LIGHTING	8	EA	$3,000.00	$24,000.00
PONDS	0.15	AC	$90,000.00	$13,500.00
			TOTAL / ACRE	$197,564.00
			@ 100 CARS / ACRE,	
			COST PER CAR	**$1,976**

Table 6b: Typical 1 Acre Gravel Parking Lot

TYPICAL 1 ACRE GRAVEL PARKING LOT				
CLEAR & GRUB	1.15	AC	$6,000.00	$6,900.00
EMBANKMENT (2')	3,227	CY	$7.00	$22,589.00
COMPACTED SUBGRADE	4,840	SY	$1.00	$4,840.00
12" GRAVEL	1,613	CY	$16.00	$25,808.00
STRIPING	3,600	LF	$0.50	$1,800.00
SIGNAGE	1	LS	$3,500.00	$3,500.00
DRAINAGE	1	LS	$10,000.00	$10,000.00
LIGHTING	8	EA	$3,000.00	$24,000.00
			TOTAL / ACRE	$99,437.00
			@ 100 CARS / ACRE,	
			COST PER CAR	**$994**

Table 6c: Typical 1 Acre Concrete Paver Parking

TYPICAL 1 ACRE CONCRETE PAVER PARKING LOT				
CLEAR & GRUB	1.15	AC	$6,000.00	$6,900.00
EMBANKMENT (2')	3,227	CY	$7.00	$22,589.00
COMPACTED SUBGRADE	4,840	SY	$1.00	$4,840.00
8" GRAVEL BASE	1,081	CY	$16.00	$17,296.00
PRECAST PAVERS	4,840	SY	$8.00	$38,720.00
STRIPING	3,600	LF	$0.50	$1,800.00
SIGNAGE	1	LS	$3,500.00	$3,500.00
DRAINAGE	1	LS	$10,000.00	$10,000.00
LIGHTING	8	EA	$3,000.00	$24,000.00
			TOTAL / ACRE	$129,645.00
			@ 100 CARS / ACRE,	
			COST PER CAR	**$1,296**

the area, it is likely that additional costs will be encountered in the construction of any parking deck. For that reason a cost of $10,000 per space has been assumed for projecting parking deck costs.

For consideration of parking provision only, it is unlikely that a parking deck for off-island parking can be justified. However, parking decks also make excellent hurricane shelters. Therefore, if a parking deck is considered at any location in or near Fort Myers Beach, the potential for using the parking deck as a hurricane shelter should be strongly investigated. According to Lee County, the County currently faces a deficit in hurricane shelter space. Parking decks have the potential to address a significant portion of this deficit due to the type of construction and their large square footage.

Shell Point Village, located near Fort Myers Beach on Summerlin Road, currently uses one floor of its parking deck as a hurricane shelter for its 1,300 residents. Parking decks can offer shelter for up to 15 people for each parking space. While this seems cramped, it must be remembered that a significant amount of space in a parking deck is taken up with driveways. In other words, the vision that 15 people would share a 9 by 20 ft. parking space is not correct. Further, Shell Point Village's concept is that the hurricane shelter is a "lifeboat" not a "cruise ship". This is certainly a reasonable approach.

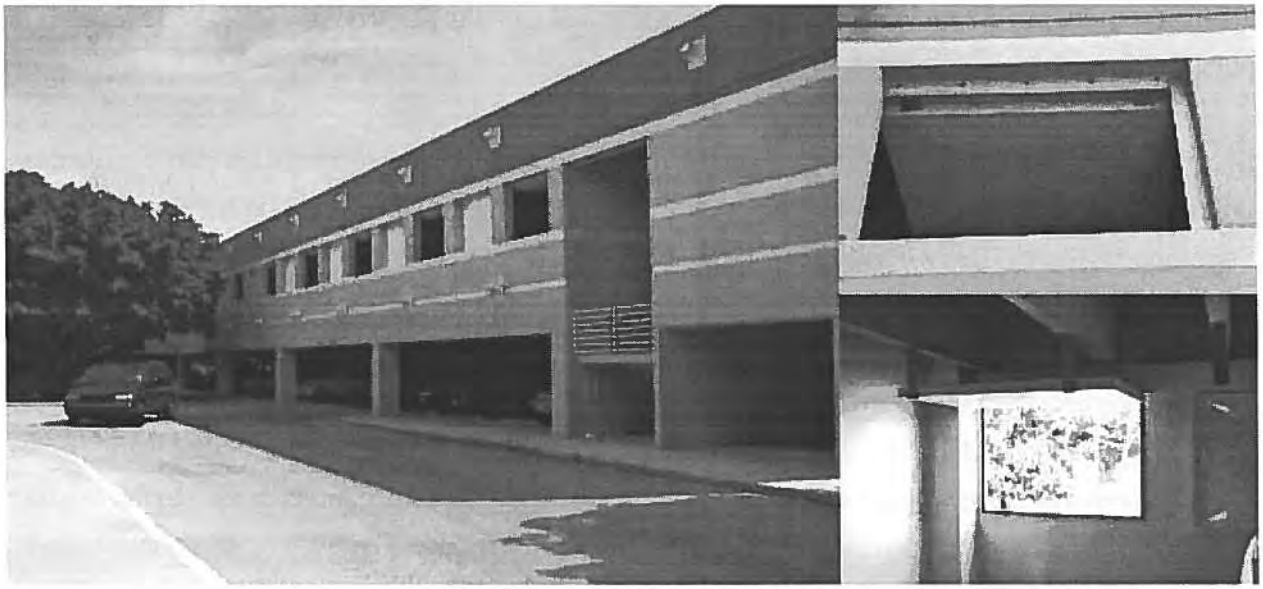
Many elements of the Shell Point Village shelter deserve inclusion in any parking deck/hurricane shelter concept. Many of the design features have been put in place with hurricane shelter space in mind. These

include such items as protective walls around rooftop ventilation structures and special wind load testing of the structure to determine its ability to handle high winds.

To provide basic necessities for residents while they are using the hurricane shelter, a generator is located in the parking deck and food is stored in one room of an adjacent building. Shell Point Village has temporary toilets stockpiled on site and also has an agreement with a local provider of "port-a-pottie" type toilets. This arrangement has benefits for both parties, as Shell Point Village obviously needs the facilities and the business owner needs a safe place to store the toilets during the storm.

In areas subject to storm surge, the bottom floors of a parking deck are obviously not conducive to shelter space. However, the upper floors can prove to be ideal. Conversion of the deck from parking to shelter is relatively straightforward. Built-in shutters are lowered and a large sliding door is closed sealing off the deck. The shutters are shown in Figure 26.

Figure 26: Shell Point Village Hurricane Shelter Shutters



Depending on the location of the parking deck, it is possible that entities other than the Town of Fort Myers Beach would be interested in the potential for shelter space. For that reason it is recommended that the Town include the city of Sanibel and Lee County in discussions relating to a parking deck.

RECOMMENDATIONS

Immediate Recommendations

Immediate recommendations include changes that the Town pursue as soon as possible. The focus for immediate recommendations is on changes that can be made quickly, relatively inexpensively, but which will still have a positive impact on the island. Most immediate recommendations focus on the Old San Carlos area and are primarily designed to improve traffic circulation in the area, as well as directing drivers to parking areas that will minimize the impact on the Times Square area.

The Town should continue to encourage discussions and negotiations relating to combined use of parking facilities between affected property owners in the area between the Matanzas Pass Bridge and Old Carlos Boulevard, as well as properties between Crescent Street and Matanzas Pass Bridge. These parking areas offer the potential for significant improvement in traffic flow associated with parking. If agreement can be quickly reached with the property owners, a concept that would allow an entrance from San Carlos Boulevard just south of the Matanzas Pass Bridge should be pursued with the Florida Department of Transportation. If agreement cannot be quickly reached with the property owners, the Town should pursue reopening Center Street.

In conjunction with the above improvements, the Town should implement significant improvements in trailblazing to parking sites, as well as to improve trailblazing to the off-island route via 3rd Street, Crescent Street and 5th Street. This will include working with the Florida Department of Transportation to provide additional trailblazing signage on San Carlos Boulevard.

While no immediate changes are recommended for off-island parking, the Town should work with Lee Tran to further promote the existing off-island service. This strategy is more fully developed in the *Transit Options Report*. Changes could include improved trailblazing signage to direct drivers to the existing park-and-ride lots, as well as earned media in the form of press releases. Paid advertising should also be strongly considered. Changes in ridership that this additional awareness brings should be closely monitored.

Costs for recommended immediate improvements are shown in Table 7. As shown, trailblazing is a very low-cost option that represents a positive step that the Town can take immediately to improve its traffic circulation.

Costs for opening Center Street are difficult to determine with absolute accuracy. It is possible that, if no complications are encountered, construction costs could be less. However, if particularly sensitive drainage

issues arise, or there are unanticipated conflicts with existing utilities, costs could increase. Regardless, within the context of transportation improvements, reopening Center Street is a relatively low-cost item.

Table 7: Immediate Recommendations Costs

Immediate Recommendations Cost	
Open Center Street	
Design	$10,000
Construction	$95,000
Total	$105,000
TrailBlazing Signage (On-Island)	
Old San Carlos (3)	$1,500
Third Street (2)	$1,000
Crescent Street (1)	$500
Fifth Street (2)	$1,000
Estero Boulevard (2)	$1,000
Total	$5,000
Trail Blazing Signage (Off-Island)	
Summerlin Road (3)	$2,250
San Carlos Boulevard (1)*	$750
San Carlos Boulevard (2)**	$1,500
Total	$4,500
TOTAL	$114,500

*Trailblazing to Summerlin Square Park and Ride
** Trailblazing to On-Island Parking

Near-Term Recommendations

Near-term improvements are improvements the Town should begin focusing on now, but will likely take more than six months to bring to fruition. These improvements often involve coordination with other governmental agencies.

On Estero Island, near-term solutions continue to involve improvements to parking in the immediate vicinity of the Times Square and Old San Carlos area. The Town should continue working with property owners in the area to encourage changes that will benefit parking and traffic circulation. This may include proposals for parking decks and may involve changes in parking in other areas of the Town. The potential for regulating temporary parking facilities should also be examined.

In the near-term, the Town should also investigate the possibility of providing parking conditions via remote dynamic message signs and the internet. This would require coordination with the Florida Department of Transportation and Lee County.

The Town should also begin to work with Lee Tran on the potential for providing transit service for an off-island parking facility. This option is further discussed in *Transit Options Report*.

Costs for dynamic message signs are shown in Table 8. In developing the cost projection, it has been assumed that two dynamic message sign would be placed on Summerlin Road, and one dynamic message sign would be placed on San Carlos Boulevard. In addition to construction costs annual operating costs of approximately $15,000 per year should be anticipated.

Table 8: Near-Term Recommendations Cost

Near-Term Recommendations Cost	
Off-Island Dynamic Message Signs	
Software	$50,000
Signage (3)	$255,000
Total	$305,000

Mid- to Long-Term Recommendations

Many of the mid- to long-term items the Town should begin pursuing now. Implementation time, however, will exceed one year and, in many cases, will require several years to fully implement.

The Town should solicit and consider proposals for properly located parking decks to service on-island demand. Again, the project team endorses the parking plans developed by Spikowski and encourages the Town to move in the direction Spikowski outlined in the *Old San Carlos Master Plan*. All reasonable locations for parking decks are located on the bay side of Estero Boulevard. This will cause a significant increase in pedestrian traffic crossing Estero Boulevard. It is possible, and probably desirable, that parking deck options considered also include some type of elevated walkway so that drivers can access beach areas without having to negotiate an at-grade roadway crossing. It should be noted that since the majority of the parking will be at, or above, the level of the elevated crosswalk, the traditional problem of low usage due to the inconvenience of the elevated crosswalk is eliminated.

The Town should also consider the potential for removing parking at Lynn Hall Memorial Park. The area in the park currently devoted to parking could be well used to expand facilities at the park. With the potential implementation of a parking deck on the Island, particularly if off-island parking is also pursued, the need for the parking spaces currently existing at Lynn Hall Memorial Park is eliminated. It would, however, be reasonable for some level of handicapped parking to remain, as well as provisions for a transit stop.

The Town should also strongly consider obtaining property for an off-Island parking area. As previously discussed, this would be an effort that should be coordinated with Lee County and, possibly, the City of Sanibel. Due to property values in the area and the availability of relatively large acreage, a parking deck is not likely to be necessary or feasible, at least in the initial years of operation. The Town should consider developing only a portion of the land initially. A test site of 300 to 500 spaces would provide substantial

relief to the Town's traffic congestion and serve as an excellent test of the overall concept. It should be noted that if the concept does not prove successful, it is unlikely that the value of the land purchased would not decrease in price. Thus, the long-term financial risk is relatively minor. If the Town works in concert with the County on this project, the risk is even less. If the concept proves successful, the facilities should be expanded as demand warrants.

Assuming the Town moves forward with remote parking as outlined above and as land values increase, a parking deck may eventually become a desirable option. This is especially true given the potential for hurricane shelter use. This would allow a large portion of the property to be sold to assist with covering the costs of the parking deck, or, if the project has been done in concert with the County, perhaps to be converted into recreational use. If this were to occur, park impact fee money could be used to "purchase" the land to be converted and, therefore, used for deck construction.

Costs for providing an off-island parking facility are shown in Table 9. As discussed above, the cost estimates assume the purchase of a property large enough to accommodate long-term demand, however, only a portion of the property is developed initially. In addition to the construction costs shown, annual operating costs of $100 per parking space should also be assumed. This would result in a $50,000 per year cost of operation.

Table 9: Costs Off-island Parking Facility

Mid to Long Term Recommendations Cost	
Aquire Property	
15 Acres @ $6/sq ft	$3,920,000
Total	$3,920,000
Property Improvement (500 space gravel)	
Design	$75,000
Construction	$497,000
TrailBlazing Signs (Static)	$4,000
TrailBlazing Signs (Dynamic)	$170,000
Software	$25,000
Payment Kiosks (10)	$120,000
Total	$891,000
TOTAL	$4,811,000

CONCLUSIONS

Parking is a major issue for Fort Myers Beach. It not only impacts the trips of those drivers accessing the parking areas, it also impacts all drivers due to the additional congestion created by drivers searching for an available parking space. Increasing the efficiency of the

existing parking, as well as providing proper trailblazing to assist drivers in locating parking, can make a positive impact on beach traffic. It will also improve the beach experience for visitors.

While such a detailed development of parking options might seem unusual for a report associated with the Federal Highway Administration's Value Pricing Program, the purpose of any value pricing program is congestion relief, and parking is an integral part of any congestion relief effort on Fort Myers Beach. Further, use of parking pricing as an effective value pricing tool is recognized by the Federal Highway Administration as a very legitimate value pricing measure.

Many of the options presented in this element of the report have been discussed in the Town for quite some time. The Town has already successfully implemented some of the recommendations from previous reports. Continuing to move forward with the recommendations outlined above can build upon the Town's successful track record.

APPENDIX A
TRAFFIC STREAM BY TRIP PURPOSE

APPENDIX B
PARKING DEMAND AND ARRIVAL AND DEPARTURE RATES
WITH NO LATENT DEMAND

APPENDIX C
PARKING DEMAND AND ARRIVAL AND DEPARTURE RATES
WITH LATENT DEMAND

APPENDIX D
AVAILABLE ACREAGE DETAILS

APPENDIX H

TOLL AROUND FT MYERS BEACH PAPER

Predicted driver response to a cordon toll around Fort Myers Beach, Florida

M.W. Burris K.T. Lanan

Texas A&M University, Department of Civil Engineering, 3136 TAMU, College Station, TX, USA
e-mail: mburris@tamu.edu kevinlanan@tamu.edu

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Abstract

Fort Myers Beach experiences severe traffic congestion from January to April when many travelers visit the island. Throughout this four-month period, drivers routinely wait 30 to 45 minutes in congestion stretching as far as 1.2 miles in order to cross Matanzas Pass Bridge at the north end of Estero Island. Cordon tolls have been suggested as a possible method of traffic congestion mitigation. This paper examines the results from a voluntary survey conducted in March of 2003 in order to predict driver response to this potential toll. The findings indicate that a cordon toll would remove 6.6 percent to 31.3 percent of current bridge traffic at toll levels ranging from $1 to $4. This does not take into account any latent demand that is likely to occur due to this predicted traffic reduction. These traffic diversion estimates are reasonable when compared to other cordon tolls outside of the United States.

Keywords – Cordon toll, value pricing, toll elasticity

1. Introduction

Fort Myers Beach is located on Estero Island in Lee County, Florida southwest of Fort Myers and north of Naples. With miles of beach, the island is a popular vacationing and tourism spot for over 1.8 million visitors annually. Estero Boulevard (Highway 865), a three-lane road traversing the length of the island, services all vehicular traffic entering or exiting the island (see figure 1). During the winter months, many visitors come to the island creating traffic congestion and delays from approximately 9 a.m. to 6 p.m. Local government officials and residents are interested in traffic reduction, and cordon tolls have been suggested as a possible means of traffic congestion mitigation.

During approximately four months of the year, January through April, peak period traffic demand greatly exceeds the capacity of Estero Blvd. During these peak months, drivers routinely wait 30 to 45 minutes in traffic stretching as far as 1.2 miles in order to cross Matanzas Pass Bridge at the north end of the island. Once on the island, a six-mile trip from the Matanzas Pass Bridge to the Big Carlos Pass Bridge at the southern end of the island can take an additional 30 to 45 minutes. The traffic condition is lessened somewhat during the remaining months. Traffic counts from the 2001 FDOT Florida Traffic Information Report show traffic flow has not increased from approximately 16,800 vehicles per day in several years, despite the fact the county population and number of tourists to Lee County are both increasing rapidly. This likely indicates that Estero Blvd. currently operates at capacity with no room for additional vehicles [5].

Fig. 1 – Fort Myers Beach, FL (MapQuest.com, Inc.)

In addition to the large amount of vehicular traffic, numerous pedestrians and cyclists move along Estero Blvd., often failing to use designated crosswalks when accessing the beach and/or businesses along the Boulevard. One intersection, Estero Boulevard and 5th street, intensifies congestion at the Northern end of the island. This non-signalized intersection has been studied by CRSPE, Inc. [9] and PBS&J in Spring 2003 [8] when a draft options report was submitted, and it was recommended to signalize the intersection. Although signalizing this intersection, along with other roadway improvements, would increase capacity, it would not alleviate the congestion problem during peak periods. The traditional solution, widening Estero Blvd., would not be economically viable. Extensive development covers the island leaving no room for roadway expansion. Without the option of widening Estero Blvd. to significantly increase capacity, solutions to alleviate congestion must focus on reducing demand. According to the 2000 US Census [13], there are just 6,105 residents over 16 years old in Fort Myers Beach, while there are 363,694 residents in Lee County, FL (U.S. Census Bureau). When polled by the Census Bureau, 1,675 residents of Fort Myers Beach reported commuting alone in a personal vehicle whereas, 59

residents used public transportation and 256 residents carpooled. Based on these population figures, the average annual daily traffic flow of 16,800 vehicles, and the seasonal fluctuation in traffic flow, it appears that tourists and seasonal residents contribute significantly to traffic congestion during peak periods. Further evidence includes irregular daily fluctuations in traffic. In most areas traffic volumes typically peak from 7 a.m. to 9 a.m. and from 4 p.m. to 6 p.m. However, traffic flow along Estero Blvd in Fort Myers Beach and on the Bridge to the Island (Matanzas Pass Bridge - see figure 2) generally peaks at 9 a.m. and remains congested until 6 p.m. To ameliorate traffic congestion, one possibility would be to distribute traffic more evenly throughout the day, especially during the high seasonal traffic flow periods. However, traffic is already well distributed throughout the day. Therefore, total demand would need to be reduced. A proposed cordon toll on each of the island's bridges was examined to estimate its potential to reduce the number of vehicles traveling on Estero Blvd. and/or shift the traffic flow pattern enough to be accommodated by existing Estero Blvd.

2. Cordon tolls as a traffic mitigation device

London sought to relieve traffic congestion by implementing a cordon toll around the central part of the city. Private vehicles must now pay £5 whereas buses, taxies, and drivers with disabilities are exempt from the toll. Additionally, area residents enjoy a 90 percent toll reduction. Traffic reduced significantly during the first two months after the program's implementation in February 2003. Traffic declined about 20 percent, a larger reduction than expected, resulting in peak period traffic speeds increasing from 9.5 mph to 20 mph. Also, congestion delays declined about 30 percent, and bus delays have been cut in half resulting in a 14 percent increase in bus ridership [6; 10]. Initially, there was concern about traffic spill over onto surrounding streets, but any increase in traffic delay has been too small to measure. Although there was a 10 percent increase in traffic volume on these roadways, traffic lights were adjusted to effectively limit additional traffic delays. Implementation of the program was met with political opposition, but support has increased after its success in reducing traffic. Once the £150 million implementation costs have been repaid, estimated to take 24 months, the £100 million earned annually will be used to improve mass transit services and to cover operating costs [6; 10].

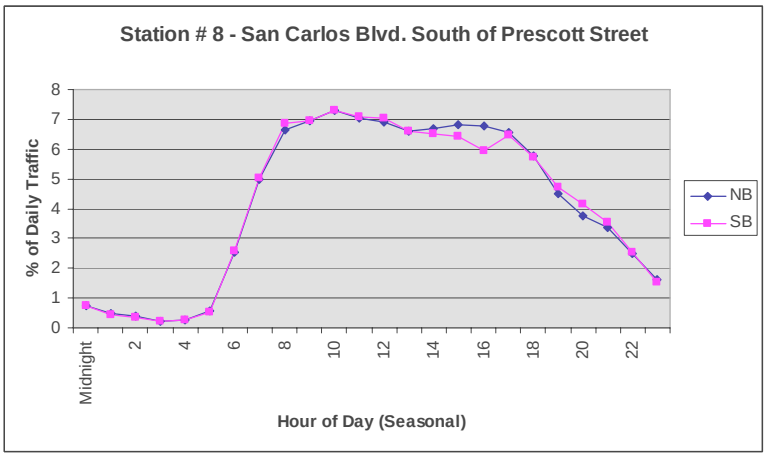

Fig. 2 – Daily Traffic Fluctuations Near Matanzas Pass Bridge (Lee County DOT)

Norway has implemented cordon tolls around the central business districts of its three largest cities. Included is Oslo with 500,000, Bergen with 200,000, and Trodheim with 140,000 people. Although these toll rings were not constructed as a congestion management system, a small decrease in traffic flow has been noted.

The primary benefit of Norway cordon tolls has been the increased funds to improve roadways, the public transportation system, and to increase promotion of bicycling and walking. It is important to highlight that public support for the toll ring in Bergen was initially 46 percent, and one year after implementation, support rose to 63 percent [7; 15].

The proposed Fort Myers Beach cordon toll will be variable so as to reduce peak period traffic. Cities and countries around the world have successfully altered traffic patterns by employing variable tolling. For example, the Singapore Area License Scheme is the oldest variable pricing program, which successfully limits traffic congestion while population increases [11; 15]. Also, France has shifted the peaking characteristics of traffic on two motorways in the Paris area. In the United States, variable tolls have been used successfully on SR-91 express lanes and I-15 high Occupancy Toll lanes in California, Lee County toll bridges, Port Authority of New York and New Jersey crossings, and the New Jersey Turnpike [1; 2; 3; 12; 14; 16].

The Fort Myers Beach cordon toll project, if adopted, would primarily be directed towards traffic congestion mitigation. Infrastructure improvement using toll revenue would be a secondary result. Following the success in improving traffic flow and producing increased transportation funds in England, Norway, and other countries, a variable pricing cordon toll may provide notable relief of traffic congestion in the Fort Myers Beach area. The cordon toll project would not be easy to implement as it would be the first in the United States, although public support was found to be over 50 percent. Furthermore, a cordon toll project in the United States will pose unique difficulties that will best be overcome through cooperation between federal, state, and local governments in addition to cooperation with the local public.

3. Research objective

The objective of this research was to estimate the potential effectiveness of a cordon toll around Fort Myers Beach, Florida using previously collected survey data. Particular attention was given to observing survey response variation between selected groups categorized by factors such as trip frequency, residency, and purpose of trip. Descriptive statistics were used to complete a general analysis of the data, which may be viewed in Table 1. Additionally, hypothetical toll amounts from $1 to $4 were used to calculate traffic volume reductions.

4. Data

The data used in the following analysis was collected as part of the voluntary Fort Myers Beach Congestion Mitigation Survey conducted in March 2003. This survey was randomly distributed to drivers stopped at the pedestrian crossing on San Carlos Boulevard near 5th Street in both directions. Surveys were handed to drivers on Sunday, March 16, 2003, Monday, March 17, 2003, Wednesday, March 19, 2003, Friday March 21, 2003, and Saturday, March 29, 2003 between the hours of 9 a.m. and 6:30 p.m.

The survey was printed with metered prepaid postage so that, after completing the survey, respondents could fold the survey, staple/tape it together and place it in the mail. Additional surveys were distributed at the Publix located at 4791 Estero Blvd. and at Times Square but were not included in this study. This study examines only the 1398 voluntary responses from surveys distributed at San Carlos Blvd near 5th Street.

The survey contained a generic introductory statement that a traffic study was being undertaken (not mentioning tolls) and a phone number where respondents could call for help in completing the survey. Respondents were then asked about their current trip, their frequency of travel on the island and about other mode of travel around the island, the trolley. Next the concept of cordon tolling was introduced and respondents indicated their potential response to various cordon toll prices and their response to different uses of the cordon toll revenue. Finally, respondents were asked to provide standard socio-economic information (table 1 contains the results of many of those questions).

5. Research methodology

The data set was carefully examined and obvious errors were removed. Then, since the survey was voluntary, it was likely that drivers with less interest in the survey (visitors) would be less inclined to complete the survey. Therefore, visitors to the island during the survey period were probably underrepresented in the final survey results. In order to correct this response bias, surveys were weighted so that the percentage of non-residents (those who stay less than 1 month per year), seasonal residents (those who stay 1 to 6 months per year), and long-term residents (those who stay 7 to 12 months per year) matched the expected percentages in the traffic stream. It is important to note that residency was derived from length of stay in Lee County during the year as reported on the survey. The expected percentages were obtained from a previous survey conducted in March 1999 on Estero Island where drivers were required to pull over for the survey. Fortunately, both surveys were conducted during the same month of the year. Therefore, the residency classification of respondents in the 1999 survey will likely reflect the true distribution of drivers in the traffic stream in 2003.

The portions of non-residents, seasonal residents, and long-term residents were computed and then compared (see table 2). Since the May 1998 Sanibel Causeway #3 survey (also a mandatory response type survey) was conducted on Sanibel Island (not Estero Island), it could only be used as a rough guideline when determining the true distribution of drivers in the traffic stream [4].

The above comparison yielded weight factors of 3.9 for non-residents, 0.5 for seasonal residents, and 0.9 for long-term residents. With these weights, a representative population sample was created from the survey respondents in the Fort Myers Beach Survey conducted during March 2003 (see the last row of table 2). All results presented here are based on weighted data.

6. Results

6.1 Response frequencies

After applying the above weights to the survey data, survey response frequencies were calculated with respect to their appropriate residency categories (see table 2). In order to observe significant differences between residency groups based on their survey responses, two statistical significance tests were employed. Survey questions were analyzed for response differences using both the Kruskal-Wallis test for comparison of ordinal data (age, education, and income) and the Chi-Squared test for comparison of nominal data (gender, household type, etc.). These tests were conducted in conjunction with the cross tabulation of frequencies.

The null hypothesis stated that there was no significant ($p=0.05$) response variation between residency groups. It was interesting to note that 93.3 percent of seasonal residents were 55 or older whereas 34.1 percent of non-residents were 55 or older. Additionally, support for the tolls ranged as high as 80.3 percent by non-residents to 53.2 percent by seasonal residents. The survey response frequencies and group significance findings are summarized in table 1.

Tab. 1 – Fort Myers Beach survey results (A)

Characteristic (Percent of Respondents in Each Category)	Groups Based on Residency			
	All (N=1,398)	Non-Residents (N=124) W=3.9	Seasonal Residents (N=510) W=0.5	Long-Term Residents (N=736) W=0.9
Trip Purpose [A]				
Commute*	10.9%	0.8%	0.8%	22.3%
Work other than commute*	6.4%	0.0%	1.6%	12.9%
Shopping*	13.0%	13.7%	20.9%	9.4%
School*	0.4%	0.0%	1.2%	0.3%
Personal/Errands*	13.6%	5.6%	17.0%	18.2%
Social/Entertainment*	14.8%	16.1%	18.9%	12.3%
Beach/Recreation*	32.6%	51.7%	31.6%	18.9%
Other*	12.4%	15.3%	15.4%	9.1%
Vehicle Type?				
Motorcycle*	0.9%	0.0%	1.6%	1.2%
2-Axle Vehicle	97.6%	98.3%	97.2%	97.3%
2-Axle Vehicle with Trailer	0.6%	0.8%	0.4%	0.6%
3-or more Axle Vehicle	0.9%	0.8%	1.2%	0.9%
Number Of Vehicle Occupants				
1*	30.3%	10.5%	19.2%	49.0%
2*	47.3%	57.2%	57.6%	36.1%
3	8.8%	10.5%	7.5%	8.0%
4 or more*	13.7%	21.7%	16.1%	6.9%
Do you ____ that vehicle?				
Own/Lease more than one month*	81.8%	55.2%	94.1%	96.5%
Rent one month or less*	14.4%	39.0%	4.7%	0.2%
Other*	3.7%	5.6%	1.2%	3.4%
Did you park on island?*				
Yes	72.2%	75.6%	65.5%	72.3%
No	27.8%	24.4%	34.5%	27.7%
Where did you park? [A]				
Paid public beach access*	10.3%	11.5%	15.2%	7.8%
Free business lot*	29.6%	34.4%	23.4%	28.4%
Paid parking lot*	13.7%	20.9%	13.0%	8.7%
Empty vacant lot	1.5%	1.1%	1.6%	1.7%
Home*	25.9%	9.4%	32.1%	35.4%
Other*	20.8%	25.1%	17.9%	18.7%
Did your vehicle have a LeeWay transponder?*				
Yes	14.6%	6.6%	11.8%	21.6%
No	85.4%	93.4%	88.2%	78.4%
Are you aware of a trolley or bus service in the FMB area?*				
Yes	89.6%	78.9%	95.3%	95.3%
No	10.4%	21.1%	4.7%	4.7%
If yes, have you ever used the trolley service?*				
Yes	47.5%	39.2%	62.1%	47.5%
No	52.5%	60.8%	37.9%	52.5%

Tab. 1 – Fort Myers Beach survey results (B)

Characteristic (Percent of Respondents in Each Category)	Groups Based on Residency			
	All (N=1,398)	Non-Residents (N=124) W=3.9	Seasonal Residents (N=510) W=0.5	Long-Term Residents (N=736) W=0.9
What options would influence you to ride the trolley? [A]				
Free parking in garage*	45.9%	50.4%	38.9%	44.7%
Exact trolley times	64.0%	67.9%	60.1%	62.2%
Wait less than 15 minutes*	76.8%	82.6%	76.4%	72.0%
Free trolley rides*	54.5%	66.1%	42.8%	49.2%
Trolley transports rec. gear	30.3%	32.1%	27.4%	29.8%
Transit only lane across bridge*	52.2%	56.6%	52.4%	48.2%
Trolley stops wherever requested*	41.5%	48.7%	36.1%	37.5%
Comfortable trolley stops*	54.1%	60.8%	45.2%	51.8%
One Dollar toll				
Paid the toll*	68.2%	85.8%	57.2%	58.6%
Used the trolley*	7.1%	4.3%	10.4%	8.1%
Not made the trip*	12.0%	5.8%	16.6%	15.2%
Undecided*	7.8%	3.4%	11.7%	9.8%
Other*	4.9%	.9%	4.5%	8.3%
Two Dollar toll				
Paid the toll*	48.4%	66.7%	33.8%	38.5%
Used the trolley*	12.7%	10.6%	17.6%	12.7%
Not made the trip*	22.9%	13.1%	30.8%	28.3%
Undecided	10.9%	8.8%	12.6%	12.1%
Other*	5.0%	0.9%	5.5%	8.4%
Three Dollar Toll				
Paid the toll*	27.0%	38.1%	15.7%	21.8%
Used the trolley	18.2%	19.5%	20.8%	16.0%
Not made the trip*	36.8%	27.4%	47.2%	40.8%
Undecided	11.7%	13.2%	11.2%	10.7%
Other*	6.5%	1.8%	5.6%	10.7%
Four Dollar Toll				
Paid the toll*	21.5%	31.4%	10.3%	17.3%
Used the trolley*	18.8%	22.4%	18.6%	15.8%
Not made the trip*	42.5%	33.0%	53.6%	46.3%
Undecided	10.7%	11.7%	11.3%	9.6%
Other*	6.7%	1.8%	6.2%	11.0%
Do you think tolls are a fair way to pay for transportation improvements?*				
Strongly agree	24.4%	32.5%	21.1%	19.5%
Somewhat agree	39.2%	47.8%	36.1%	33.7%
Somewhat disagree	10.7%	10.3%	10.1%	11.2%
Strongly disagree	25.7%	9.4%	32.6%	35.7%
If there were a way to reimburse residents, how do you feel about the tolls?*				
Strongly approve	29.5%	34.0%	20.9%	29.6%
Somewhat approve	33.8%	43.2%	34.1%	26.9%
Somewhat disapprove	9.8%	8.3%	10.9%	10.5%
Strongly disapprove	26.9%	14.6%	34.1%	33.0%

Tab. 1 – Fort Myers Beach survey results (C)

Characteristic (Percent of Respondents in Each Category)	Groups Based on Residency			
	All (N=1,398)	Non-Residents (N=124) W=3.9	Seasonal Residents (N=510) W=0.5	Long-Term Residents (N=736) W=0.9
Do you consider the traffic congestion in and around the island to be a problem?				
Yes, something must be done*	64.2%	75.6%	57.8%	58.2%
Yes, something should be done as long as there are no user fees*	19.7%	12.9%	26.2%	22.3%
Yes, but it is not a big enough problem to make any changes*	14.5%	11.5%	14.3%	16.9%
No problem at all*	1.6%	0.0%	2.0%	2.7%
How many trips do you make onto the island?				
0 ≤ trips per week < 1/4*	27.7%	54.7%	14.2%	13.1%
¼ ≤ trips per week < 1	8.7%	7.7%	9.2%	9.3%
1 ≤ trips per week < 5*	30.6%	13.6%	50.0%	35.5%
5 ≤ trips per week*	33.1%	23.9%	26.7%	42.2%
Does the level of traffic limit the number of trips you make to, or around the Town of Fort Myers Beach during the year?				
Yes	71.3%	67.8%	73.8%	72.9%
No	28.7%	32.2%	26.2%	27.1%
How many months each year do you stay or live in Lee County?				
One week or less*	14.8%	42.8%	0.0%	0.0%
Less than one month per year*	19.8%	57.2%	0.0%	0.0%
1 to 3 months per year*	7.1%	0.0%	38.7%	0.0%
4 to 6 months per year*	11.2%	0.0%	61.3%	0.0%
7 to 11 months per year*	10.6%	0.0%	0.0%	22.5%
12 months per year*	36.7%	0.0%	0.0%	77.5%
What is the last year of school you completed?				
Less than high school	2.3%	3.4%	1.2%	1.9%
High school graduate	19.1%	18.4%	22.4%	18.4%
Some college/vocational training	31.4%	28.4%	28.5%	34.7%
College graduate*	30.4%	25.9%	29.7%	33.9%
Postgraduate degree*	16.9%	24.1%	18.5%	11.1%
What is your age?				
Under 18	0.5%	0.8%	0.0%	0.5%
18-24*	3.6%	4.8%	0.4%	4.0%
25-34*	7.0%	10.6%	0.4%	6.8%
35-44*	12.1%	17.1%	1.2%	12.6%
45-54*	22.2%	32.5%	5.1%	21.3%
55-64*	26.0%	23.5%	36.8%	23.7%
65+*	28.6%	10.6%	56.5%	31.1%
What is your sex?*				
Male	48.5%	44.2%	58.7%	47.5%
Female	51.5%	55.8%	41.3%	52.5%

Tab. 1 – Fort Myers Beach survey results (D)

Characteristic (Percent of Respondents in Each Category)	Groups Based on Residency			
	All (N=1,398)	**Non-Residents (N=124) W=3.9**	**Seasonal Residents (N=510) W=0.5**	**Long-Term Residents (N=736) W=0.9**
What is your current household type?				
Single adult*	18.9%	16.3%	10.6%	24.0%
Unrelated adults*	8.3%	11.5%	3.1%	7.9%
Married without children*	37.9%	25.2%	55.9%	40.2%
Married with children*	30.7%	43.1%	29.2%	22.2%
Single parent family*	2.7%	3.3%	0.0%	3.2%
Other	1.9%	0.8%	2.0%	2.7%
What is your current employment status?				
Full time*	44.4%	61.8%	8.7%	45.4%
Part time	11.4%	10.6%	9.9%	12.5%
Retired*	41.9%	22.8%	81.9%	40.5%
Unemployed	2.9%	3.3%	1.2%	3.2%
Student*	1.9%	3.3%	0.4%	1.5%
What was your annual household income before taxes in 2002?				
Under $16,000	4.4%	3.7%	3.3%	5.4%
$16,001 - $30,000*	15.0%	10.8%	9.9%	20.2%
$30,001 - $50,000*	26.1%	20.6%	22.6%	31.5%
$50,001 - $75,000*	22.6%	24.1%	27.4%	19.7%
Over $75,000*	32.1%	41.1%	37.7%	23.2%

[A] Percentages sum to greater than 100% because multiple responses were allowed.
* These answers significantly differ between residency groups.

Tab. 2 – Traffic Stream Comparison

Survey	Voluntary or Required Pull Over	Residency Classification		
		Less than 1 month per year	1 to 6 months per year	More than 6 months per year
FMB Cordon Toll Survey (March 2003)	Voluntary	8.9%	36.5%	52.6%
FMB Traffic Survey (March 1999)	Required	35.0%	18.0%	47.0%
Sanibel Causeway # 3 (May 1998)	Required	36.0%	8.1%	55.8%
Weighted FMB Cordon Toll Survey (March 2003)	Voluntary	34.5%	18.2%	47.3%

FMB = Fort Myers Beach

6.2 Respondent characteristics by residency

Not surprisingly, non-residents and seasonal-residents were significantly less likely to be on commute trips and significantly more likely to be on a shopping or beach/recreational trip than were long-term residents. Approximately 39 percent of non-residents were traveling in rental cars, highlighting the importance of working with rental car agencies if a high ETC penetration rate is desired. Just under 15 percent of vehicles already had a LeeWay ETC transponder. This would indicate a lack of familiarity with ETC and the necessity to perform some public awareness activities prior to an ETC system being installed. Conversely, the majority of respondents were familiar with the trolley and over 50 percent had taken it in the past. All three residential groups cited a reduction in wait times to below 15 minutes was the most likely factor to increase their trolley use.

Approximately 64 percent of all respondents indicated traffic congestion reached the point where something must be done, even if it involved user fees or other changes. Non-residents were significantly more likely (75.6 percent) to consider traffic congestion this onerous than were seasonal residents (57.8 percent) and long-term residents (58.2 percent). The distinction between non-residents and residents can be seen as seasonal and long-term residents were almost twice as likely (23.4 percent) as non-residents (12.9 percent) to indicate that traffic congestion was a problem and something should be done, as long as it did not include user fees. Support for user fees drops considerably among seasonal and long-term residents – who will have the largest voice in whether or not user fees are implemented. Those who oppose user fees are often a vocal group and with only a slight majority of resident survey respondents supportive of the idea it will face serious political challenges. The fact that traffic congestion limited the number of trips made by over 70 percent of respondents may be one of the reasons for some support of user fees.

Another option being considered by local officials and transportation planners is to alter the cost of parking in such a way to reduce traffic and shift some trips to off-peak periods. Based on survey results, over one-third of non-residents parked for free at local businesses. Therefore, for parking pricing to be most effective, it will require both altering the price of parking at current pay lots plus converting many free lots to pay lots. This option would still have a limited impact on long-term residents, as they were significantly more likely to park at their home.

6.3 Traffic reduction prediction

In order to estimate traffic reduction caused by a toll, survey respondents were classified into one of 12 groups created by cross-classifying respondents according to:

- Residency (non-residents, seasonal residents, and long-term residents)
- Frequency of crossing the bridge onto Fort Myers Beach (less than 0.25 trips per week (1 trip per month), less than 1 trip per week, 2 to 5 trips per week, and over 5 trips per week)

The survey did not discuss potential discounts or toll caps. However, due to the controversial nature of cordon tolling existing (toll-free) bridges, it was felt that long-term residents would be exempt from the toll. Additionally, a toll cap of $100 was considered for those travelers participating in ETC and making enough trips to reach that toll limit. Therefore, survey responses from those respondents who would be eligible for these toll discounts had to be modified as the toll was expected to have little impact on the driving behavior of those groups. For this calculation, those groups were expected to divert 0 trips to the trolley and eliminate 0 trips. (Note, well after this study was complete the Town of Fort Myers Beach choose not to pursue a cordon

toll, primarily due to residential opposition to the idea. The proposed residential toll discounts were not sufficient to persuade local travelers to support the cordon toll concept. Parking pricing is now being investigated as an alternative measure to influence traffic demand.)

Respondent groups who made very few trips (non-residents and seasonal residents who made few trips) were not expected to obtain an ETC account or be eligible for the discount programs discussed above. Therefore, all of the trips made by these groups might be converted to trolley trips or eliminated. The final group of travelers included seasonal residents who made at least 1 trip per week. It was expected a high percentage of these travelers would obtain an ETC account and be eligible for the toll discount programs. Therefore, the majority of those travelers would not take transit or eliminate their trip due to the toll. It should be noted that ETC adoption percentages were not drawn from the survey data but were estimates made based on engineering experience from other sites with ETC. Next, the 12 groups of respondents were further subdivided by trip purpose (work related, beach, and other) to create 36 groups of respondents with similar residencies, trip purposes, and bridge crossing frequencies.

In the survey, respondents indicted their reaction to a $1, $2, $3, and a $4 toll. When asked what they would do if each toll amount were charged to drive their vehicle onto the island, survey respondents could answer: pay the toll, use the trolley, not make the trip, undecided, or other. In the analysis, these possible responses were grouped into three relevant categories including pay the toll (pay), take the trolley (trolley), or not make the trip (no trip). If a respondent answered undecided or other, that toll response was disregarded, as it was not useful in determining the driver's response to a toll. While accounting for ETC, the $100 toll cap, and long-term resident reimbursement, following equations were used to calculate the final traffic diversion rates for each toll:

$$Toll\ Trips_i = Paid\ Trips_i + Trolley\ Trip_i \times Disc_i + No\ Trip_i \times Disc_i$$

$$Trolley\ Trips_i = (1\text{-}Disc_i) \times Trolley\ Trip_i$$

$$No\ Trips_i = (1\text{-}Disc_i) \times No\ Trip_i$$

$$Traffic\ Reduction = \frac{\sum_{i=1}^{12} Trolley\ Trips_i + \sum_{i=1}^{12} No\ Trips_i}{\sum_{i=1}^{12} Toll\ Trips_i + \sum_{i=1}^{12} Trolley\ Trips_i + \sum_{i=1}^{12} No\ Trips_i}$$

where:

i	= group number (1 to 12)
Disc	= Percent of respondents who are eligible for toll discounts and will not divert their trips
Toll Trips	= Adjusted number of respondents who would pay the toll (removed travellers who would be eligible for the toll discount).
Trolley Trips	= Number of trolley trips for each group
No Trip	= Number of respondents who would not make the trip
Paid Trips	= Number of respondents who would pay the toll, unadjusted from the survey responses.
Traffic Reduction	= the percentage reduction in traffic volumes

Traffic diversion was estimated to be 6.6 percent for a $1 toll, 14.4 percent for a $2 toll, 27.2 percent for a $3 toll, and 31.2 percent for a $4 toll. These traffic reduction estimates will vary slightly with the estimated ETC adoption percentages for those groups who will partially adopt ETC (seasonal residents who make more than 1 trip per week). Therefore, a Monte Carlo simulation was run in order to observe the sensitivity of the traffic diversion results upon these percentages. The percentage of ETC adopters in the two groups was randomly determined using a normal distribution. The diversion rates for various ETC adoption percentages (shown in figure 3) indicate that ETC adoption within this reasonable range will not drastically change the final results.

These results, particularly at the higher toll levels of $3 or $4, indicate a relatively high toll elasticity. For example, varying the toll from $1 to $4 results in an elasticity of –0.5, whereas toll elasticities are often in the range of –0.33 (Burris, 2004). This level of elasticity is not surprising considering the nature of the trips impacted by the potential toll. The majority of impacted trips would be beach/recreational trips generated by non-residents who have the option of using the trolley or traveling to alternate beaches. This flexibility in travel can significantly impact the respondent's reaction to the toll.

6.4 Latent travel demand

The most significant unknown in this project is the impact of latent travel demand. From the survey, 73.8 percent of seasonal residents and 72.9 percent of long-term residents limited the number of trips to, or around the town of Fort Myers Beach during the year and would likely make additional trips if congestion were reduced.

Therefore, some of the trips removed due to the toll would be countered by additional trips made by long-term residents taking advantage of the residential reimbursement or seasonal residents taking advantage of the $100 ETC toll cap. These additional trips would lessen the actual traffic reduction percentages calculated here.

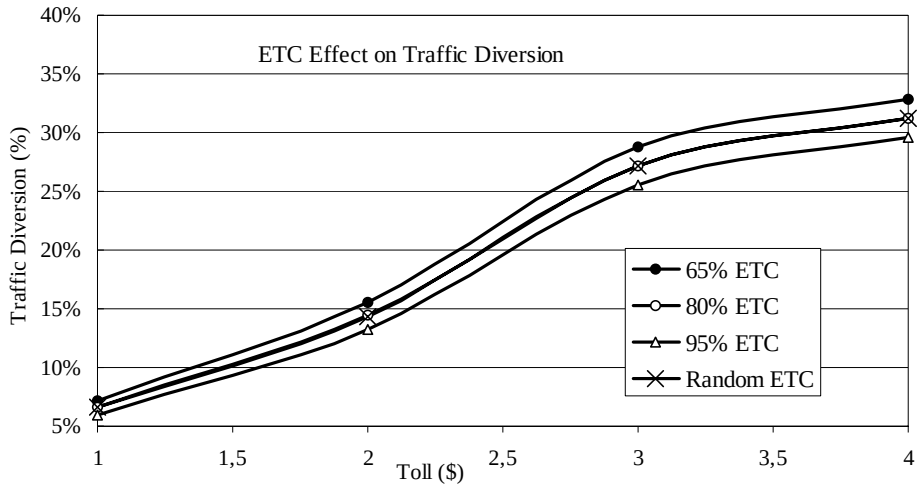

Fig. 3 – ETC Adoption's Impact on Traffic Diversion

7. Conclusion

As shown above, traffic reduction percentages have been calculated as 6.6 percent for a $1 toll, 14.4 percent for a $2 toll, 27.2 percent for a $3 toll, and 31.2 percent for a $4 toll. This indicates a relatively high toll-elasticity, which is not surprising considering the flexible nature of the trips impacted by the toll. However, actual traffic reduction will be less than these predicted numbers due to latent travel demand from seasonal and long-term residents who would likely take advantage of a significant toll discount, rebate or toll cap.

It should be noted that these traffic reduction percentages are estimates based upon a detailed analysis of the responses to a voluntary survey in March 2003. The above percentages will not be applicable during the off-peak season due to the differentiating traffic flow composition. These results should provide a reasonable traffic reduction estimate for tolls between $1 and $4 if the Town of Fort Myers Beach had decided to implement such a tolling system. Additionally, these traffic reduction estimates are reasonable when compared to other tolling systems including the London cordon tolling system that obtained a 20 percent traffic reduction within the cordoned area. On the other hand, if these tolls were to be implemented, an in depth follow up study would be advantageous in quantifying the effectiveness of the tolling system.

Acknowledgments

This investigation of a cordon toll was sponsored by the Federal Highway Administration's Value Pricing Pilot Program, the Lee County Board of County Commissioners, and the Florida Department of Transportation District 1. The authors wish to thank these agencies for their continued support and guidance throughout this project. Additionally, the authors wish to thank the anonymous reviewers for their insightful comments and suggestions. However, all contents of this paper reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein.

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APPENDIX I

BEACH ALTERNATIVE 1

SR 865 (San Carlos Blvd.) from South of Estero Blvd. to CR 869 (Summerlin Road)

Operational Analysis Study

FDOT
District One | Lee County
FPID: 433726-1-22-01

Beach Alternative 1

Estero Blvd. Intersection and Matanzas Bridge | Beach Alternative 1

APPENDIX J
BEACH ALTERNATIVE 2

SR 865 (San Carlos Blvd.) from South of Estero Blvd. to CR 869 (Summerlin Road)

Operational Analysis Study

FDOT
District One | Lee County
FPID: 433726-1-22-01

Beach Alternative 2

Estero Blvd. Intersection and Matanzas Bridge | Beach Alternative 2

APPENDIX K
BEACH ALTERNATIVE 3

SR 865 (San Carlos Blvd.) from South of Estero Blvd. to CR 869 (Summerlin Road)

Operational Analysis Study

FDOT
District One | Lee County
FPID: 433726-1-22-01

Beach Alternative 3

Estero Blvd. Intersection and Matanzas Bridge | Beach Alternative 3

APPENDIX L
BEACH ALTERNATIVE 4

SR 865 (San Carlos Blvd.) from South of Estero Blvd. to CR 869 (Summerlin Road)

Operational Analysis Study

FDOT

District One | Lee County

FPID: 433726-1-22-01

Beach Alternative 4

Estero Blvd. Intersection and Matanzas Bridge | Beach Alternative 4

APPENDIX M

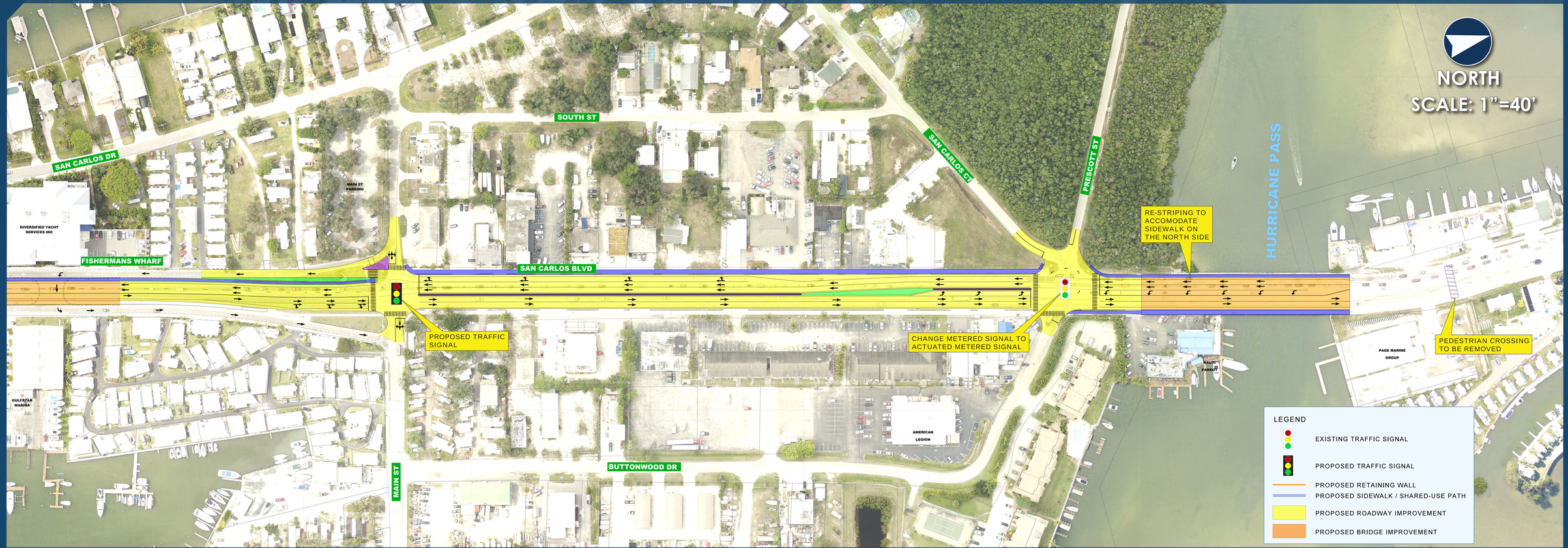
ISLAND ALTERNATIVE 1

SR 865 (San Carlos Blvd.) from South of Estero Blvd. to CR 869 (Summerlin Road)

Operational Analysis Study

FDOT
District One | Lee County
FPID: 433726-1-22-01

Island Alternative 1



Main Street Intersection to Hurricane Pass Bridge

Island Alternative 1

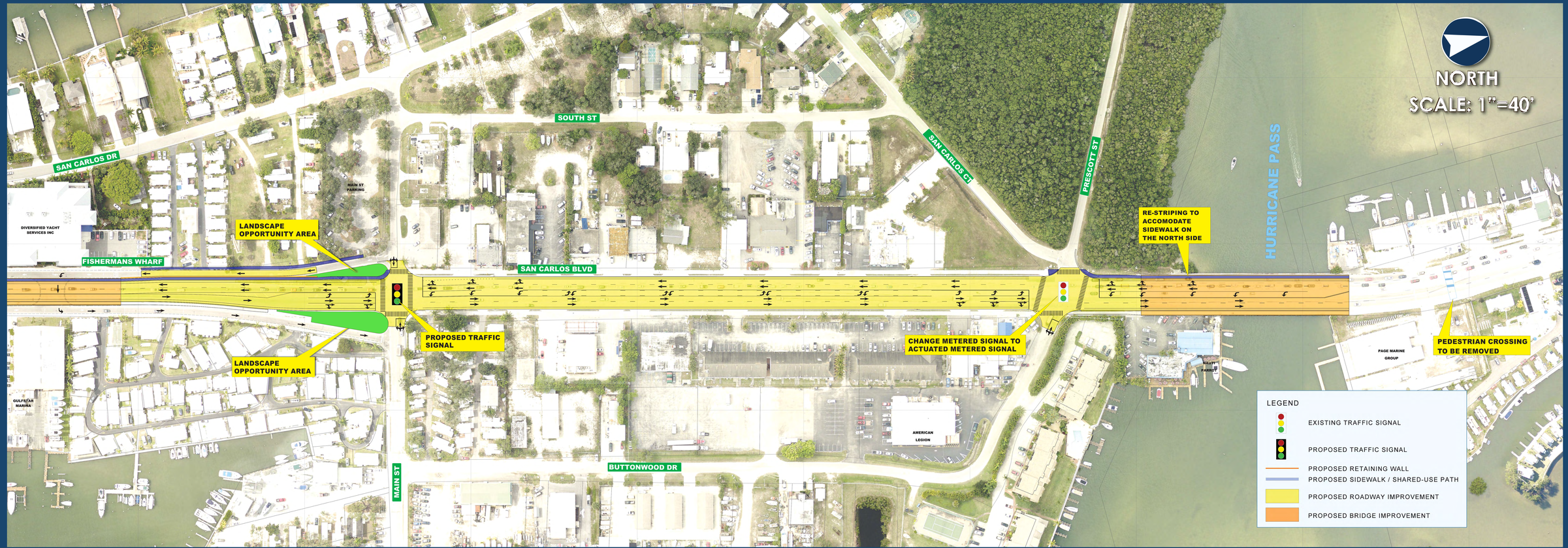
APPENDIX N
ISLAND ALTERNATIVE 2

SR 865 (San Carlos Blvd.) from South of Estero Blvd. to CR 869 (Summerlin Road)

Operational Analysis Study

FDOT
District One | Lee County
FPID: 433726-1-22-01

Island Alternative 2



Main Street Intersection to Hurricane Pass Bridge | Island Alternative 2

APPENDIX O
STAKEHOLDER MEETING NOTES

MEMORANDUM

402 Kentucky Ave.
Suite 400
Lakeland, FL 33815
Phone 863.682.4081
Fax 863.802.3907
www.rkk.com

Date: **November 7, 2016**

To: **File**

From: **Charles R. Bleam, PM**

Attendees: **Charles Bleam, Daniel Miller, Tony Sherrard, OJ Oujevolk, Dawn Carlson**

Re: **433726-1-22-01 – SR 865 (San Carlos Blvd) from S of Estero Blvd to CR 869**
Presentation to the City of Fort Myers Beach Town Hall Meeting

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QUESTIONS ASKED:

Council Members: Mayor Dennis Boback
Anita Cereceda
Rexann Hosafros
Summer Stockton
Tracey Gore

Anita Cereceda:

1.) Will the metered signal at Buttonwood/Prescott be removed?
2.) Will the Main Street Signal be metered?
3.) Will there be signals at Old San Carlos and Crescent?
4.) Will the pedestrian signal be removed just past 5th st. in time square?
5.) Was your traffic data collection inclusive of the development in San Carlos Island?
6.) Is there any plans to improve the Park and ride lot at Main St.?

Roxann Hosafros:

1.) Is the spit of traffic going north to Bowditch Park really 60/40 with 40% going north?
2.) Thinks that the removal of the metered signal at Buttonwood would create a hostile road rage environment.
3.) Carman promised a roundabout at 5th st.
4.) When were the traffic counts taken.

Dennis Boback:

1.) Agreed that taking out the metered signal at Buttonwood would be dangerous.
2.) How are you going to funnel pedestrians to the overpasses?
3.) Roundabouts are difficult for the older demographic and for those that visit once a year.

Summer Stockton:

1.) How much are you going to weigh our opinion in this process?
2.) How long are you talking about when you say short term vs. Long term solutions?
3.) She can't understand roundabouts and despises them.
4.) Are roundabouts pedestrian friendly.
5.) Doesn't like pedestrian overpasses, makes it feel like a large intercity.
6.) Would like to see stricter enforcement of jaywalking laws.
7.) Loves what we are doing to widen Mantanzas Pass and Hurricane Pass bridges for pedestrians.

Tracey Gore:

1.) Feel we are filtering traffic on the island instead of at Buttonwood.
2.) Was told that we couldn't do a roundabout at 5th street because of R/W needs.
3.) Wanted to make sure we knew about Bay Harbor Resorts on San Carlos Island and to make sure that all our work was independent of the Grand Resorts Development.
4.) Parallel parking at 5th street going to Old San Carlos was a R/W taking.
5.) What was the life expectancy of the Mantanzas Pass Bridge?
6.) Doesn't like the pedestrian overpasses.
7.) Was told in the past that they couldn't put a signal at Main St.
8.) Asked how a roundabout would help at 5th St.

Anita Cereceda:

1.) The parallel parking at 5th street would go from private parking to public parking.
2.) Liked the pedestrian overpasses because it could create a focal point for pictures of the town.
3.) Can we do a trial roundabout at 5th street to see if it would work.

Tracey Gore:

1.) Could you build a ramp off the Matanzas Pass Bridge to tie into Center St. once you came over the bridge to the beach.
2.) Would be pedestrian overpasses have safety barriers to keep the vehicles safe?

MEMORANDUM

402 S. Kentucky Avenue
Suite 400
Lakeland, FL 33801
Phone 863.682.4081
Fax 863.802.3907
www.rkk.com

Date: Monday November 7th, 2016

To: Charles Bleam

From: Daniel Miller

CC: Dawn Carlson

Re: SR 865 Concept Presentation to Ft. Myers Beach City Council

---

Overview

Presentation of SR 865 to the City Council of Ft. Myers Beach municipality.

Goals & Objectives

- Present to the City Council of Fort Myers Beach on behalf of the FDOT regarding the efforts made by RK&K
- Answer any questions in presenting the initial concepts the City Council may have

Analysis of Outcomes

- Presentation was well received
- No significant push back on the ideas
- Concern over elimination of signal meter at Prescott / Buttonwood

Analysis of the Performance Shown on Critical Tasks

- Charles and Daniel were able to deliver a presentation to the City Council
- Questions focused on
    - The roundabouts and their implementation
    - Signal Metering

Summary of Meeting as provided by website:

Charles Blaine, Project Manager for RK&K, discussed the San Carlos Study. Daniel Miller, Project Engineer, utilized a Power Point presentation to discuss the project overview, data collection & analysis, define congestion management plan and potential ideas/strategies.

Slides included project limits, what we hear, what we are doing, define the infrastructure to support the system, data collection traffic counts, pedestrian traffic, data analysis of the average daily traffic in 2014 by month and week and define congestion management plan to identify problem areas. Potential ideas and strategies were listed for short and long term solutions. Slides illustrated short term improvements, performance measures, roundabout analysis at various locations, pictures of what changes would look like and long term solutions for Matanzas Pass Bridge. A public workshop will take place February/March 2017.

Council Member Cereceda clarified the location and existence of specific traffic signals.

Council Member Hosafros requested a copy of the slide presentation. She discussed the traffic counts of people crossing the bridge and turning right. The alternating light worked well and she felt that people would be angry if it reverted to the way it was. She questioned the existence of a roundabout at the foot of the bridge. Mr. Blaine stated that they were looking at that intersection to see if it made sense, but it was a strong possibility. Traffic counts were taken during February and March.

Mayor Boback agreed with Council Member Cereceda regarding the double light. He questioned the type of hedges that would line the street. He commented that a roundabout was installed at Crystal and Plantation and it was not pleasant.

Vice Mayor Stockton questioned whether their opinions of the project would be considered. Mr. Blaine replied that their opinions were paramount. She confirmed that short term was zero to five years and long term was five to twenty, depending on funding and approvals. She relayed her experiences with roundabouts. Mr. Blaine replied that they slowed traffic down and serious crashes had been nearly eliminated. Vice Mayor Stockton questioned an alternative to pedestrian overpasses. Mr. Blaine responded that they were looking at all options. Vice Mayor Stockton would prefer to have stricter laws on jaywalking. She was happy about the Hurricane Pass and the Matanzas Pass Bridge ideas.
Council Member Gore questioned filtering traffic after they were already on the Island. Mr. Blaine responded that the traffic numbers guided their plans. Council Member Gore referenced a 2013 Lee County/FDOT study that indicated a roundabout before the bridge would not work due to the lack of a right of way for big trucks. Mr. Blaine noted that they were in the middle of the process and everything was being looked at. Council Member Gore questioned the life expectancy of the bridge. Mr. Blaine replied that the bridge was doing very well and widening it was no problem. Council Member Gore was not a fan of the walkovers. Mr. Blaine explained the reason for a roundabout and how it would help the flow.
Council Member Cereceda questioned changing parking to parallel on Fifth and the right of way, the overpass being an attraction and trying roundabouts before implementation. Mr. Blaine responded that the parking would be public, the crossover would be open and roundabouts could be set up with cones first.

Action Items

- Provide copy of presentation to council members
- Demonstrate the improvements with graphics and visuals
    - Note elimination of transit lanes and conversion to right lane
- Overview of the Roundabout Process and why it might not function in locations

MEMORANDUM

3504 Lake Lynda Drive | Suite 165
Orlando, FL 32817
Phone 321.397.7820
Fax 321.397.7826
www.rkk.com

Date: June 16, 2017

To: Marlon Bizerra, Steve Walls, Joshua Jester

From: Daniel R. Miller

CC: Charles Bleam

Re: SR 865: Meeting with City of Fort Myers Beach & Lee County Representatives

Attendees

- FDOT: Steve Walls, Marlon Bizerra, Joshua Jester,
- Lee County MPO: Don Scott
- Lee County: Andrew Getch
- Ft. Myers Beach: Roger Hernstadt, Town Manager,
  Scott Baker, Public Works Director
- Consulting Team, RK&K: Charles Bleam, Daniel Miller

Overview of Meeting

The status of the SR 865 efforts was presented by Messrs. Bleam and Miller that included the following:

- Review of previous studies which included
  - Signalization and pedestrian crossings at 5th Street and SR 865
  - Parking strategies including trailblazing signage and smartphone information dispersion
  - Alternative forms of transportation, including aerial tramways and water ferry
  - Southbound Roadway Tolling
  - Trolley Lane Feasibility
- FDOT's Commitment to Ft. Myers Beach in TTMS locations along the corridor and LeeTran Trolley Lane implementation
- Identified differences from previous studies and key takeaway that an excess of 440 vehicles per hour are trying to ingress the island over what the one lane capacity will allow
- Presented the growth rates and the impact it will have on the varying seasons of travel along the corridor
- Reviewed potential ideas and strategies
  - Short term:
    - Traffic Signal at Crescent St. & Estero Blvd. and Old San Carlos Blvd. & 5th St.
    - Traffic Signal at Main St.
    - Remove metering signal at Buttonwood Dr./Prescott St.
    - Restripe San Carlos at Main St. to allow two lanes over Matanzas pass bridge
    - Analyze roundabout at all intersections
    - Bike lanes throughout
    - Trolley Lane Implementation
    - Restripe Hurricane Pass Bridge to allow sidewalk/bicycle lane to be installed on north side

MEMORANDUM

www.rkk.com

Date: October 2, 2017

To: Lawrence Massey, Marlon Bizerra

From: Charles Bleam, RK&K

CC: Daniel Miller

Re: **SR 865 -** Meeting Notes from October 2nd, 2017 meeting with Comm. Kiker

---

INTRODUCTION

On October 2nd, 2017, we held a meeting with Comm. Kiker and Steve Myers, Transit Director of Leetrans at Comm. Kikers Office in Fort Myers. The purpose of these meetings was to review the progress of the SR 865 project from Summerlin Boulevard to Crescent Street and to go over the concepts that was asked of us to review from Comm. Kiker, as well as announce the tentatively scheduled public workshop on December 12, 2017. The meeting started with Daniel Miller going over the concepts and are as follows:

- Parking Garage
- LED lighting in the pavement to reverse lanes
- Tolling the entrance to the beach

We explained to Comm. Kiker that each idea that we had proposed could stand alone but was modeled to be a part of a system that as a whole gave the most benefit and fixed the gaps in the system, such as sidewalks, signals, pedestrian crossings that had existed along the corridor and ideas that could help the flow of traffic onto the beach. We explained that there was not a fix to the traffic problem but what we are proposing would help.

We explained that Counsel women, Vice Chair Tracey Gore had asked for separate meetings with each counsel member be set up prior to the workshop to bring them up to speed on any new developments.

        - Mobile applications and information distribution
    - Long Term
        - Widen Matanzas Pass Bridge to accommodate sidewalk on North side.
        - Potential Traffic Signal or Roundabouts at Studied Intersections.
        - ITS – DMS, Cameras, Adaptive Signal Control, Advance Lane Control
        - Access Management (Pedestrians/Bicycles)
        - Enhanced Transit
        - Parking Garage and associated costs with optional people mover
        - Dynamic roadway using overhead gantries in conjunction with raised pavement markers with LED lights to adjust number of lanes
- Reviewed checklist of desires from Lee County MPO Stakeholder Coordination Update

After the presentation, discussion with attendees on the project.

Meeting Notes

- Presentation by Messrs. Bleam and Miller
- Roger Hernstadt
    - Queried the impact of routing vehicles traveling northbound on Estero Boulevard to Crescent Street; Charles noted that this is not something that was looked at
    - A query was made on the interest of a southbound toll onto the island. Daniel noted that the previous efforts had been stymied after an election routed those in favor of the tolling option. Mr. Hernstadt noted that this occurred in over 12 years ago and the public opinion might have shifted. Following up, he wanted to know if there would be a way to limit the amount of toll charged to $80 per year for residents. Daniel pointed out the 2004 southbound toll study noted the volume reductions on the island from tourists impacted by toll elasticity would be offset by increased volumes from locals, negating any effects on volumes.
    - Noted that the efforts of FDOT were piece-meal to reduce volumes along the corridor as opposed to what is needed for the corridor which is a four-lane south of Main Street. In ongoing negotiations with the developer, were there any items that could be recommended for the long-term goals of the city. Daniel noted the proposed overpass along Estero Boulevard is set for the two-lane width, however the city should ensure a right-of-way for a four-lane complete street or minimum four-lane with dual left turn lane, ranging from 80’ to 90’ typical section to preserve future growth.
    - A query was made on how far down Estero Boulevard a four-lane roadway expansion would be necessary; Charles noted that this was not part of our efforts and the team had come up with problem areas for the study corridor to help the flow of traffic and connect deficient pedestrian facilities.
    - It was asked why we have not been coordinating with the developer to make sure that they offer solutions for the problem. Charles stated that until the development was approved we were not able to include what they were doing so our improvements were independent of their plan.
- Steve Walls
    - Noted that the possibility existed of using SunTrail funds to widen the bridge for the Matanzas Pass and Hurricane Pass Bridges.

MEMORANDUM

www.rkk.com

Date: October 31, 2017

To: Lawrence Massey, Zachary Burch, Marlon Bizerra

From: Charles Bleam, RK&K

CC: Daniel Miller

Re: **SR 865 -** Meeting Notes from Fort Myers Beach Town Council Members

---

INTRODUCTION

On October 31st, 2017, meetings with Ft. Myers Beach town council members were conducted individually throughout the day. The purpose of these meetings was to review the progress of the SR 865 project from Summerlin Boulevard to Crescent Street and solicit opinions, insight, and ideas the council members may have on the proposed concepts. The concepts included:

- Short Term Concepts
  - Traffic Signal at Crescent St. & Estero Blvd. and Old San Carlos Blvd. & 5th St.
  - Traffic Signal at Main St.
  - Remove metering signal at Buttonwood Dr./Prescott St.
  - Restripe San Carlos at Main St. to allow two lanes over Matanzas pass bridge
  - Results from Roundabout Analyses
  - Bike lanes throughout
  - Restripe Hurricane Pass Bridge to allow sidewalk/bicycle lane to be installed on north side
  - Mobile applications and information distribution
- Long Term Concepts
  - Widen Matanzas Pass Bridge to accommodate sidewalk on North side.
  - ITS – DMS, Cameras, Adaptive Signal Control, Advance Lane Control
  - Access Management (Pedestrians/Bicycles)
  - Enhanced Transit
  - Parking Garage

Mayor Dennis C. Boback

- Noted, in agreement with the team, that there is no golden fix for the corridor
- The town currently has a plan in which they close off the bridge to southbound traffic and utilize all three lanes off the island (Northbound).
- Expressed opposition to roundabout at Estero and SR 865
- Noted the development of Tide hotels on San Carlos Island
- Detailed the city's idea of opening Center Street to auto/ motorbike /bicycle movements with an exclusion of medium to heavy truck traffic including RV's
- Intrigued by concept of dedicated Trolley Lane from parking garage locations shown in presentation
- Identified the city's utilization of "voicemembers" who controlled traffic at SR 865 and Estero Boulevard
- Noted the pedestrian crossing north of Buttonwood allows for some clearing of traffic prior to the metered signal
- Noted pedestrian signal at SR 865 and Estero worked "great" when signal light was "clear." Referring to it simply blinking instead of its current actuated state.
  - When sheriff is there to regulate traffic, same result occurs
  - Recommends changing it from actuated to flashing yellow
- Voiced an issue with removing the meter signaling at Buttonwood / Prescott
  - Noted that the signal "eliminates conflict of cars on bridge" referring to the single lane allowing for roadway users to avoid switching lanes once on the bridge
- Noted an issue at Park Ride and Summerlin in regards to the right turn and a request to examine installing delineators to prevent crashes

Councilmember Tracey Gore

- Jim Steele agreed with light at Old San Carlos and Estero Blvd.
- Asked about the efficacy of Center Street
- Inquired about
    - the analysis completed on the roundabout at SR 865 and Estero Blvd.
    - Status of pedestrian overpasses
- Wanted to make sure MPO members were invited to the Workshop

Coucilmember JoAnne Shamp

- The team presented pedestrian treatment barriers and Councilmember JoAnne noted that an opportunity exists to apply public art at the base of the bridge
- Opportunities to evaluate and implement an express lane / variable toll lane
- Recommended wayfinding signs along corridor similar to Disney's "wait time from this point is XX minutes"
- Recommendations in approaching the workshop
    - Start frank and honest: There is no magic bullet
    - Break out each intersection / concept and enable attendees / stakeholders to apply green / red dots; enable red-dot appliers to note issues

Councilmember Anita Cereceda

- Inquired regarding the roundabout, team explained the 3-step process and the Step 1 issues
- Pedestrian treatment barrier is an opportunity to be part of the redevelopment features
- Landscaping at touchdown could be an opportunity to provide Gateway Feeling
- Recommended Nello for use in the immediate term concept of a signalization trial using signal timings at Old San Carlos and Estero Blvd.

Action Items

- Develop videos for Public Workshop showing the VISSIM modeling of the corridor. If possible, have it overlaid on aerials
- Identify who is the owner of the parking lot between Old San Carlos and Estero Blvd.
- Where would wait times signs go along corridor?
- VISSIM model setup and run of dynamic assignment to include side street access from Prescott / Buttonwood to Main Street, these are South Street to the west and Buttonwood Dr. to the east.

MEMORANDUM

402 S. Kentucky Ave. | Suite 400
Lakeland, FL 33801
Phone 863.682.4081
www.rkk.com

Date: December 8, 2017
To: Marlon Bizerra, Lawrence Massey
From: Charles Bleam
CC: Daniel Miller, Jennifer Marshall
Re: SR 865: Meeting with Lee County Representatives

Attendees

- FDOT: Marlon Bizerra, Lawrence Massey, Jennifer Marshall
- Lee County MPO: Don Scott, MPO Director
- Lee County:
  - Lee County Commissioner Larry Kiker
  - Dave Loveland, Director, Community Development
  - Andrew Getch, Engineering Manager,
  - Steven Jansen, Lee Co. DOT
  - Roger Desjarlais, County Manager
  - Douglas Meurer, Assistant County Manager
  - Randy Cerchie, Director Lee County Transportation
  - Richard Wesch, Lee County Attorney
  -
- Consulting Team:
  - RK&K: Charles Bleam, Daniel Miller
  - HDR: Smith Siromaskul

Overview of Meeting

Presentation by FDOT and consulting staff as to the status of SR 865 project. Started by Lawrence Massey to introduce the project and the persons in attendance, followed by Charles Bleam and Daniel Miller providing analysis and recommendations from the work completed to date.

Purpose of the Meeting

The purpose of this meeting is to gather additional information from Lee County staff regarding the potential improvements along San Carlos and to gather information from ongoing improvements with Estero Blvd.

We d

Discussion regarding the recently completed rehabilitation of Estero Blvd. south of the SR 865 project termini. The 15 year coordinated project did not provide capacity improvements for the corridor, but did provide bus pull-outs, sharrows, and traffic calming techniques.

Mr. Siromaskul presented the idea of implementing a superstreet concept for the segment south of the SR 865 project termini, from Crescent St. south; a concept that eliminates left turns and improves some intersections that could be used as U-turns and with a goal of channeling pedestrians and aide in traffic flows. Mr. Cerchie noted that the recently completed rehabilitation of Estero Blvd. did not include the superstreet's bulb outs necessary for U-Turns and the county would be hesitant to make any changes in the short term as emergency services use the center lane.

Mr. Scott mentioned that the 2002 Origin-Destination study indicated that an intelligent parking system was desired to give beach-goers advance parking information before sitting in traffic for over an hour and then circling the city area in search of non-existent parking spaces.

The upcoming Big San Carlos Pass Bridges' public workshop on January 18, 2018 was discussed. The models created of the two alternatives, high-span and low-level bascule bridge, were shown to interested parties. A concern was noted of the San Carlos SR 865 public meeting targeted for January 25, 2018 causing confusion amongst the public at large.

An alternative was presented to close off a section of Old San Carlos Blvd from Estero Blvd. to the parking city parking lot entrance to create a pedestrian mall; as a city street, their approval would be necessary. this would mean mainland access to that parking lot would then require a SBL turn. Though it should allow for signalization of the pedestrian mall crossing on a fairly short cycle while also significantly reducing demand for the SBR and traffic crossing the pedestrain mall.

We discussed the test signal at Old San Carlos and Estero Blvd. and that it could be expanded to include the partial signal at 5th St. and San Calos that Mr. Siromaskul proposed. The partial signal is for SBT/SBR from bridge versus EBR and NBL. We will look into expanding the test if possible.

It was discussed to remove the left turn north bound at 5th St. and funnel that traffic to turn right on Crescent and make their way on Third St. and up Old San Carlos to go north toward Bowditch. This would be precluded with the pedestrain mall option.

Mr. Siromaskul explained further the signal at 5th St. to be not only a two-phase signal for north bound left and southbound right, but also a second phase for southbound left and southbound thru. That signal would be tied to the signal at Old San Carlos to try and move traffic through that intersection. Priority for the progression will have to go to the NBL since there is no significant storage for that movement. This allows breaks in traffic to facilitate grouping pedestrians crossing San Carlos. Further modeling will need to be done.

Lee County representatives asked about the Matanzas Pass Bridge being able to accommodate three lanes of traffic across the bridge when removing the trolley lane, and it was confirmed from the FDOT structures group and the consultant RS&H that the bridge can handle the traffic.

Mr. Siromaskul talked about the intersection at Old San Carlos of creating a center refuge for pedestrians to allow the timing to cross them in platoons and keeping the signal timing as short as possible to help flow. Analysis is possible using fairly straightforward techniques. Our pedestrain specialist expects being able to do that analysis in around 4 hours. It would be iterative as the crosswalk width and "depth" of the refuge would also come into play and that is driven by feasibility of the geometric design.

Mr. Siromaskul talked about a new concept that would bring Crescent street up as a ramp to the bridge and remove all off-island traffic between Crescent St. and where the ramp would connect. This would give all three lanes coming off the bridge to be used at right, thru and left turns in to times square, and simplifies intermodal conflicts at Times Square. This could be a long-term solution.

We also discussed the improvements associated with Main St. and the ability to utilize the left turn lanes to develop two lanes over the bridge enabling the metered signal to be changed to a normal timed signal and allow traffic to fill in the exiting capacity not utilized and created from the signal at Buttonwood. Mr. Siromaskul mentioned a plan that would create a slip ramp just past the intersection of Main Street that would give access to the frontage road along and below the bridge to allow the traffic to flow under the bridge and back to Main St. to fulfill the left turn at main. This concept could be implemented very quickly to utilize the empty lanes from Buttonwood to the beach.

Commissioner Kiker requested information on the development in Time Square and along the beach but county staff did not have any information on when an approval would happen.

At the Main Street intersection, it was discussed that it was possible to implement a very short-term solution to bring two lanes of traffic over the bridge by restriping the roadway and removing the left turn lanes and implementing a slip ramp on the southbound side just past main street to access the frontage below the bridge and use the median opening under the bridge for traffic to circle back to Main St. to fulfill the left turn. This concept would also remove the metered signal at Buttonwood to be a regular timed signal and traffic would fill in the capacity of the lane not being used from Buttonwood to 5th St. over the bridge.

Commissioner Kiker stated that the development planned in Time Square will implement a pedestrian crosswalk to the beach. He also mentioned that people will jaywalk no matter what type of crossing features implemented. He also was concerned that Lee County staff has not done enough planning in the area south of Crescent St. to effect traffic flow.

Commissioner Kiker stated that FDOT needs to tell the area what is needed to improve the traffic and address increasing vehicular demand. Specifically, parking garages, location and size, getting

people out of their cars and on to a transit system or other mode of travel to traverse to Fort Myers Beach. Commissioner Kiker was interested in the location of a parking garage and its impact to the system. This item was analyzed to take the excess of vehicles off the road of 11K, the cost per parking space was estimated to be $10k per.

Commissioner Kiker stated that we need to restate the problem so that everyone understands why we are not redoing past solutions. He voiced his concern regarding the roll-back of an improvement should it not be successful and what should the metric of success be.

Mr. Cerchie asked that all the improvements talked about today be put on the map so that county staff could review before going forward with evaluation and including them in the workshop.

The three alternatives that were talked about and need further evaluation were as follows

- Alternative 1:
    - Construction of coordinated traffic signals at Old San Carlos and Estero Boulevard and SR 865 and Estero Boulevard / Fifth Street
    - Traffic signal at SR 865 and Estero Blvd. / Fifth Street would be a two-phase signal with phase one NBL, EBR, and phase two SBR, SBT.
- Alternative 2:
    - Removal of Northbound movement along Estero Boulevard from Crescent Street north
    - Stripe existing right of way approaching SR 865 at Estero Blvd. / Fifth Street intersection to utilize all three lanes to SBL, SBT, SBR
    - Construct Crescent St. on-ramp from Fifth Street up to the bridge
- Alternative 3
    - Widening of Estero Boulevard from SR 865 to Old San Carlos Boulevard
    - Installation of pedestrian landing between EB and WB movements
    - Purpose is to reduce pedestrian crossing times allotted in signal timings.

APPENDIX P
NEWSLETTER

State Road 865

(San Carlos Boulevard) Operational Analysis Study

District One
FPID: 433726-1-22-01

From south of Estero Boulevard to County Road 869 (Summerlin Road) in Lee County

February 2018

SR 865 (San Carlos Boulevard) Public Meeting is Tuesday, February 27, 2018

The Florida Department of Transportation (FDOT), District One, will hold a public meeting to discuss the operational analysis study to identify a series of mobility improvements for State Road (SR) 865 (San Carlos Boulevard) from south of Estero Boulevard to County Road (CR) 869 (Summerlin Road), approximately 3.1 miles, in Lee County.

The public meeting is from 5 p.m. to 7 p.m., Tuesday, February 27, 2018 at the Chapel by the Sea Presbyterian Church, 100 Chapel Street, Fort Myers Beach, Florida 33931.

The purpose of this operational analysis study is to determine locations and types of operational deficiencies that exist along the project corridor and identify specific improvement alternatives that can be developed and evaluated. The goal of the study is to identify ways to reduce travel times on SR 865 (San Carlos Boulevard) during the peak seasons for people getting onto and off of Estero and San Carlos Islands. Adding additional lanes on San Carlos Boulevard may not be feasible, so improvements are needed for all modes of travel including busses and trolleys, cars, bicycles, and pedestrians. In addition to the emphasis on alternative modes of transportation, improvements to safety and accessibility are also an important element of the study.

The proposed project is also intended to promote emphasis for alternative transportation use and to increase public transit ridership. The project will also enhance mobility and safety for vehicular and non-vehicular transportation and increase accessibility and connections between community points of interest.

Traffic volume on SR 865 (San Carlos Boulevard) from south of Estero Boulevard to CR 869 (Summerlin Road) averages about 25,000 vehicles per day during peak season. Traffic is expected to increase to over 31,000 vehicles per day by the year 2040.

Since beginning the study, FDOT has been conducting analyses, meeting with stakeholders, and identifying potential improvements to address the operational deficiencies. Input received to date has been incorporated where feasible. Potential improvements include improved signalization; adding sidewalks and bicycle lanes where currently not present, including the Matanzas Pass bridge and Hurricane Bay bridge; and enhanced transit service.

The purpose of the meeting is to present potential improvements identified by the study team and to obtain comments so that the department can determine which improvements to move forward to the next phase of development. The meeting will be conducted in an informal open house setting. Attendees are encouraged to come to this meeting at any time between 5 p.m. and 7 p.m. to review the potential improvements. Project information, aerial photographs and poster board displays will be available for review. An informational video regarding the proposed project will run continuously throughout the meeting. Department representatives will be available during the meeting to informally discuss the project and to answer your questions. This meeting will give interested people the opportunity to review displays and talk one-on-one with staff. Written comments are encouraged.

FDOT solicits public participation without regard to race, color, national origin, age, sex, religion, disability, or family status. Persons who require special accommodations under the Americans with Disabilities Act or people who require translation services (free of charge) should contact Jamie Schley, District One Title VI Coordinator, at (863) 519-2573 or by e-mail at Jamie.schley@dot.state.fl.us at least seven (7) days prior to the meeting. If you are hearing or speech impaired, please contact the agency using the Florida Relay Services, 1 (800) 955-8771 (TDD) or 1 (800) 955-8770 (Voice).

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated December 14, 2016 and executed by the Federal Highway Administration and FDOT.

ATTN: Marlon Bizerra, P.E.
Florida Department of Transportation
District One
P.O. Box 1249
Bartow, FL 33831

Project Contact

For more information about the project, please contact Marlon Bizerra, P.E., Project Manager, Florida Department of Transportation at 863-519-2250 or toll-free at 1-800-292-3368 Ext. 2250, or by email at marlon.bizerra@dot.state.fl.us. Written comments and questions can be mailed to Mr. Bizerra's attention at Florida Department of Transportation, P.O. Box 1249, Bartow, Florida 33831.

Connect with the
SR 865 (San Carlos Boulevard)
Operational Analysis Study on the web!

www.swflroads.com/sr865/sancarlosboulevard/

APPENDIX Q

RECOMMENDED ALTERNATIVE PLAN


ESTERO BLVD
LAGOON ST
HARBOR CT
THIRD ST
OLD SAN CARLOS BLVD
SECOND ST
FIRST ST
FIFTH ST
FOURTH ST
CRESCENT ST
CANAL ST
PRIMO DR
PALERMO CIR
AVENUE A
MATANZAS PASS
SAN CARLOS DR
SOUTH ST
SAN CARLOS BLVD
NORTH ST
SAN CARLOS CT
FRESCOTT ST
HURRICANE PASS
FISHERMANS WHARF
MAIN ST
BUTTONWOOD DR
MATANZAS HARBOR
LEGEND
PROPOSED TRAFFIC SIGNAL
EXISTING TRAFFIC SIGNAL
PROPOSED SIDEWALK / SHARED-USE PATH
PROPOSED ROADWAY IMPROVEMENT
PROPOSED BRIDGE IMPROVEMENT
PROPOSED CONCRETE ISLAND
EXISTING RIGHT-OF-WAY LINE