Road Safety Audit Report

SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive

Palm Beach County, Florida

Section Number: 93 180 000
Mile Posts: 5.497 To 7.343

Safety Review FM No. 429650-2-32-01

Task Work Order No. 78

Prepared for:
Florida Department of Transportation, District 4

Prepared by:
Tindale Oliver

August 2019

Engineers Certification

I, W.T Bowman, P.E. #69132, certify that I currently hold an active Professional Engineers License in the State of Florida and am competent through education or experience to provide engineering services in the civil and traffic engineering disciplines contained in this plan, print, specification, or report.

I further certify that this Road Safety Audit (RSA) was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that all statements, conclusions and recommendations made herein are true and correct to the best of my knowledge and ability.

Study Roadway:	SR-802 (Lake Worth Road)
From:	Raulerson Drive
To:	Douglas Drive
Section No:	93 180 000
Project Mile Posts:	from 5.497 to 7.343
Project Location:	Palm Beach County, Florida

This item has been electronically signed and sealed by W. T. Bowman, P.E. on 8/27/2019 using a digital signature.

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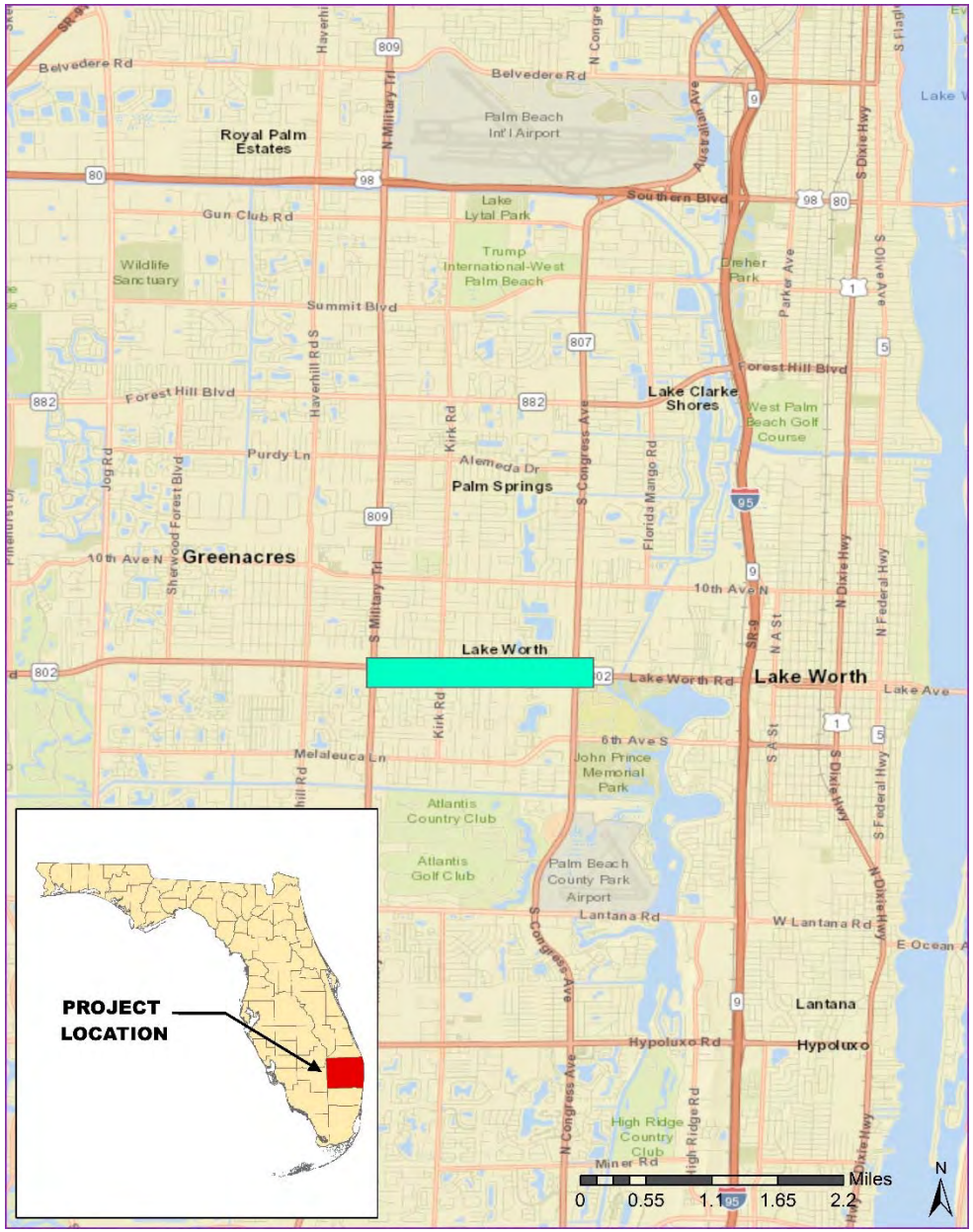


Figure 1: Project Location

Project Location

Figure 2: Study Area

Findings

Road Safety Audit Process

The Federal Highway Administration's (FHWA) Safety Office has established the Roadway Safety Audit (RSA) process as a way to further enhance the overall safety performance of roadways for all users. An RSA is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team that qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in engineering, education, enforcement, and emergency response to improve safety for all road-users.

The goal of an RSA is to provide a low-cost, proactive approach to safety that considers all road users and identifies opportunities to enhance safety and reduce the number and severity of crashes.

A typical RSA consists of the following steps:

1. Identify project or road in service to be audited.
2. Select RSA team.
3. Conduct pre-audit meeting to review project information.
4. Perform field observations under various conditions.
5. Conduct audit analysis and prepare report of findings.
6. Present audit findings to Project Owner/Design Team.
7. Project Owner/Design Team prepares formal response.
8. Incorporate findings into project when appropriate.

Road Safety Audit Purpose

This RSA was conducted along a 1.85-mile segment of SR-802 (Lake Worth Road) in Palm Beach County. Florida. Field reviews were conducted in January 2019, and team observations were as follows:

- RSA Team – midday field observation on January 9, 2019 (11:00 AM–12:30 PM)

The RSA was requested by Florida Department of Transportation (FDOT) District 4 (D4) anticipating a programmed resurfacing project (FM# 441632-1) schedule to start construction in November 2021. The safety of the roadway for all transportation users was reviewed; however, the focus of this RSA was pedestrian/bicycle crash patterns and driver/pedestrian-bicycle behavior within the study area, specifically reviewing midblock crossings. This RSA was conducted to:

- Evaluate pedestrian and bicycle activity along the corridor.
- Identify high conflict areas between pedestrians/bicycles and vehicles.
- Evaluate roadway and roadside features, design elements, and local conditions (street parking, sidewalk and bike lane conditions, night visibility, adjacent land uses, etc.) that would increase the likelihood and severity of crashes.
- Review firsthand the interaction of various design elements with each other and the surrounding road network.
- Observe how roadway users are interacting with the roadway facility and other roadway users.
- Determine if the needs of all roadway users have been adequately and safely met.
- Explore emerging operational trends and/or safety issues at the location.

The objective of this RSA was to answer the following questions:

- What environmental, design, and behavioral elements present potential safety concerns for pedestrians and bicyclists at this location; to what extent, and under what circumstances?
- What engineering, education, and enforcement opportunities exist to eliminate or mitigate identified safety concerns?

Road Safety Audit Team Members

Tindale Oliver conducted pre-audit coordination with stakeholders to familiarize and engage potential partners on the RSA process and outcomes

and to provide participants with an opportunity to exchange information and ideas and ask questions. In addition to the core RSA team, stakeholders in the audit included representatives from Palm Beach County, the Palm Beach Transportation Planning Agency (TPA), FDOT District 4, the Village of Palm Springs, the City of Greenacres, Palm Beach State College (PBSC), and the Village of Palm Springs Police Department.

Specific participants were as follows; those who attended meetings and field reviews are shown in **bold.** Email addresses and other contact information are provided in **Appendix A**.

Core Road Safety Audit Team Members:

- **W.T. Bowman, P.E.**, Tindale Oliver
- **Abel Espino, E.I**., Tindale Oliver

Other Contributing Road Safety Audit Stakeholders:

- **Kim Glas-Castro**, Planning, Zoning and Building, Village of Palm Springs
- **Chad Girard**, Village of Palm Springs
- **Officer Greg Croucher**, Village Police Department, Village of Palm Springs
- **Carlos Cedeno**, Public Works Director, City of Greenacres
- **Wade Neilson**, Roads and Drainage Supervisor, City of Greenacres
- **Melissa Ackert**, Assistant Director of Traffic Engineering, Palm Beach County
- **Fadi Nassar**, Traffic Engineering Operations, Palm Beach County
- **Nicolas Hernandez**, TPA Ped/Bike Coordinator, West Palm Beach
- John Wasukanis, Director of Facilities, Palm Beach State College
- **Robert J. Priolo, P.E.,** Facilities Assistant Director, Palm Beach State College
- **Chris Ward,** Grounds and Landscaping Supervisor, Palm Beach State College
- Thomas Miller, Bike/Ped Safety Program Specialist, FDOT D4
- Adalberto Acuna, Traffic Safety Program Specialist, FDOT D4
- Maria E. Anaya de Yeats, Traffic Operations, FDOT D4

Road Safety Audit Findings

The RSA Findings Summary lists the location, observation overview, recommendations, and responsible agency for each observation. Observations are sorted geographically from south to north or west to east following mile-post convention. Observations and corresponding recommendations are assigned one of three levels of effort categories—Low, Medium, and High:

- "Low" improvements consist of basic improvements such as signs and pavement markings that can generally be done with in-house maintenance forces.
- "Medium" improvements are more involved and can typically be done by pushbutton forces.
- "High" improvements are the most involved in scope, may require right-of-way and public involvement, and typically will require a work program project to complete.

Observations are also assigned one of three time frame categories—Short-Term, Mid-Term, and Long-Term.

- "Short-term" recommendations can take weeks to implement.
- "Mid-term" recommendations can take months to implement.
- "Long-term" recommendations can take years to implement.

The observations and corresponding recommendations are grouped into spot and corridor-wide observations:

- Spot observations relate to one issue at a single location.
- Corridor-wide observations relate to a recurring issue throughout study area.

Study Corridor

SR-802 (Lake Worth Road) is an east-west, 6-lane divided roadway for most of the study segment west of SR-807 (S Congress Avenue). East of SR-807 (S Congress Avenue), it becomes 4-lane divided. The posted speed limit is 40 miles per hour (mph). Street lighting and sidewalks are provided on both sides of SR-802 (Lake Worth Road). There are no bike lanes present along the corridor; bike lanes are provided east of the study area. A mid-block pedestrian crosswalk is located just east of the Swap Shop Flea Market entrance where there is also an emergency signal for Fire Rescue Station 31 to access SR-802 (Lake Worth Road). This emergency signal can be activated by pedestrians using the crosswalk at this location. An existing conditions diagram of the study area is shown in **Figure 3**.

Within the study limits and along SR-802 (Lake Worth Road) are 11 bus stops in the eastbound direction and 9 bus stops in the westbound direction. **Table 1** presents average ridership for the month of October 2018, based on the latest available transit data provided by Palm Tran.

Table 1: Estimated Average Ridership, October 2018

Bus Stop Activity	Eastbound	Westbound
Boarding	811	717
Alighting	590	906
Total	1,401	1,623

Signalized intersections within the study limits are at:

- SR-809 (S Military Trail) MP: 5.677
- Kirk Road MP: 6.198
- Emergency Signal/Pedestrian Crossing (Swap Shop) MP: 6.756
- SR-807 (S Congress Avenue) MP: 7.193
- Douglas Drive MP: 7.357

Based on the traffic information from FDOT's Florida Traffic Online Web Application, the roadway has the following 2017 Annual Average Daily Traffic (AADT) within the study area:

- 43,000 AADT (PTMS-930404: SR-802 – west of SR-809, MP 5.502)
- 45,500 AADT (PTMS-930024: SR-802 – east of SR-809, MP 5.838)
- 40,000 AADT (PTMS-937234: SR-802 – west of SR-807, MP 6.986)

Preliminary review of FDOT Context Classification framework suggests that his section of SR-802 (Lake Worth Road) falls under "C4-Urban General" category, described as *"Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway."*

Figure 3: FDOT Context Classifications

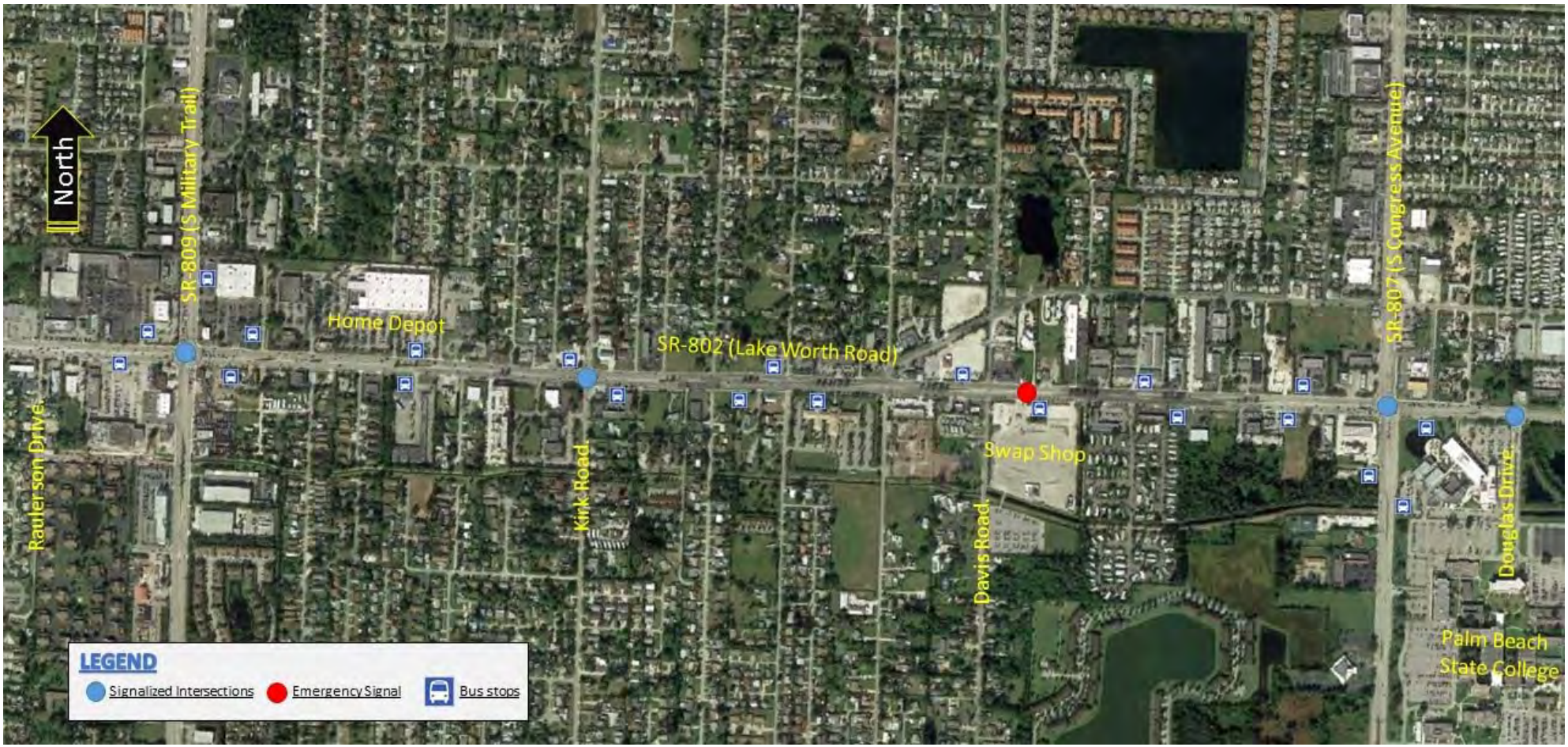


Figure 4: Existing Conditions Diagram

Stakeholders Concerns and Key Observations

Observations and recommendations are summarized in the RSA Findings Summary. Key general observations that resulted from this review and stakeholder coordination include the following:

- Stakeholder mentioned:
  - Only five marked pedestrian crossings within the 1.9-mile study segment. Existing crossings are located at SR-809 (S Military Trail), Kirk Road, Swap Shop, SR-807 (S Congress Avenue) and Douglas Drive.
  - Posted speed limit of 40 mph presents higher safety risks for pedestrians and bicyclists.

- Signal installation at Davis Road instead of exiting directional median prohibiting through traffic north-south at this location.
- Full review of existing cross section of corridor to include bike lanes and narrow travel lanes.
- Demographics of the area generate high pedestrian, bicycle, and transit rider activity. Study corridor experiences high pedestrian and bicycle activity, with a high number of crossings at undesignated areas (mid-block locations).

- Bike lanes are not provided in a corridor with high bicycle activity. Despite corridor currently having "Share Road" bike signs throughout, most bicycles were observed riding on the sidewalk. A high number of bicyclists were traveling in the opposite direction of vehicular traffic. Most bikers in the area are commuters, not recreational.
- Pavement and pavement markings are in poor condition throughout the corridor.

Previous Studies and Background Information

In recent years this corridor has been subject of several studies and analysis where crash data, roadway traffic and operations, and roadway design elements have been reviewed to improve safety for all roadway users. As part of this study, recommendations from previous efforts were evaluated according to most recent available data. **Appendix B** includes a list documenting and summarizing full recommendations from prior studies. Full documents are available upon request. The following is a list and summary of previous studies:

- *SR-802 (Lake Worth) at Davis Road Pedestrian-Bicycle Study (Tindale Oliver, March 2015)* – Study reviewed pedestrian and bicycle historical crash data and field observations. Recommendations were divided in into three timeframe categories: Short-Term, Mid-Term, and Long-Term. Proposed improvements included signage upgrade, pavement marking enhancement, signalization studies, and geometric modifications.
- *3R Safety Review Draft Memo (FDOT Traffic Operations, August 2018)* – Study based on crash data analysis and field observations along SR-802 (Lake Worth Road) from Raulerson Drive to Palm Beach State College Entrance/Douglas Drive. Main recommendations included installation of bike lanes, coordination of targeted enforcement for driving under the influence, discouragement of mid-block crossing and wrong-way bicyclists, and additional pedestrian/bicycle-related signage.
- *Lake Worth Multimodal Corridor Study Update (Treasure Coast Regional Planning Council, October 2018)* – Presents key points from the Lake Worth Multimodal Corridor Study that reviewed existing conditions, crash data, and stakeholder concerns about pedestrian/bicycle safety in the area. Study recommended reduction of speed limit, reconfiguration of corridor cross section to include bike lanes, installation of additional signalized pedestrian crossings, and installation of new traffic signal at Davis Road.

Other reviewed documents are also included in **Appendix B**. Brief descriptions of these documents are as follows:

- *TPA Resolution 2018-17 (October 2018)* – Request to FDOT to accommodate requests for Lake Worth Road corridor speed reduction and narrowing travel lane width.
- *TPA request for speed reduction (October 25, 2018)* – Request to FDOT for speed reduction following approval of resolution 2018-17 by TPA Board; includes response letter from FDOT.
- *F95-7 - Task 3.1 (June 2018)* – Lake Worth Multimodal Corridor Study, Design Session – Meeting Notes Package.
- *City of Greenacres Resolution 2018-24* (October 2018) – Request to FDOT for speed reduction.
- *Village of Palm Springs request for speed reduction (September 2018)* – Request to FDOT for speed reduction following approval of Resolution 2018-21 by Village Council.

FDOT Work Program

Two projects were identified corresponding with the limits of the study:

- *3R project FM# 441632-1* – 3R project along SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive.
- *Intersection Lighting Improvement FM # 436113-1* – Improve lighting at several intersections along SR-802 (Lake Worth Road) including SR-809 (S Military Trail).

Excerpts of approved scopes for these projects are presented in **Appendix C**.

Crash Data Analysis

Crash data from January 2014 to December 2016 were extracted from the State Crash Analysis Reporting System (CARS) and Tindale Oliver's Crash Data Management System (CDMS) along the study area.

Crash data were reviewed to identify any crash patterns that could be addressed as part of the RSA recommendations. A total of 594 crashes were documented, with predominance in rear-end crashes (274, 46%), followed by sideswipes, (127, 21%). **Table 2** shows the overall number of crashes per study year, crash type, lighting conditions, surface conditions, and severity.

Table 2: Crash Statistics (2014–2016)

SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive		Years			3-Year Total	Mean Crashes	%
		2014	2015	2016			
Crash Type	Angle	15	17	24	56	18.7	9.4%
	Bike	9	16	5	30	10	5.1%
	Pedestrian	5	4	2	11	3.7	1.9%
	Near miss	1	0	1	2	0.7	0.3%
	Rear-end	73	93	106	272	90.7	45.8%
	Head-on	2	2	3	7	2.3	1.2%
	Left-turn	9	9	13	31	10.3	5.2%
	Hit Fixed Object	11	7	6	24	8	4.0%
	Hit Non-Fixed Object	0	1	1	2	0.7	0.3%
	Right-turn	4	4	7	15	5	2.5%
	Sideswipe	29	37	61	127	42.3	21.4%
	Single Vehicle	1	1	0	2	0.7	0.3%
	Backed into	1	3	0	4	1.3	0.7%
	U-Turn	6	4	1	11	3.7	1.9%
	Total	*166*	*198*	*230*	*594*	*198.0*	*100%*
Injury Severity	Fatal	1	4	0	5	1.7	0.8%
	Incapacitating	10	5	4	19	6.3	3.2%
	Non Incapacitating	26	20	11	57	19	9.6%
	Possible Injury	43	46	38	127	42.3	21.4%
	None	86	123	177	386	128.7	65.0%
	Total	*166*	*198*	*230*	*594*	*198.0*	*100%*
Lighting Condition	Daylight	117	139	172	428	142.7	72.1%
	Dawn	1	4	3	8	2.7	1.3%
	Dusk	7	3	11	21	7	3.5%
	Dark-Lighted	35	48	44	127	42.3	21.4%
	Dark-Not Lighted	1	3	0	4	1.3	0.7%
	Dark-Unknown Lighting	5	1	0	6	2	1.0%
	Total	*166*	*198*	*230*	*594*	*198.0*	*100%*
Surface Conditions	Dry	139	167	203	509	169.7	85.7%
	Wet	27	31	27	85	28.3	14.3%
	Total	*166*	*198*	*230*	*594*	*198.0*	*100%*

As shown in **Table 2**, total number of crashes increased significantly over the study period, mostly accredited to rear-end and sideswipe crashes. These crashes were primarily related to congestion at intersections.

There were 166 crashes during dark/dusk/dawn lighting conditions (28%),

which is lower than the five-year districtwide average of 31% for nighttime crashes. Crashes during wet pavement conditions totaled 85 (14%), which is below five-year districtwide average of 19%.

Crashes were further broken down into periods of the day, as presented in **Figure 5**. Total crashes showed a fairly steady trend throughout hours of high traffic volume with a spike during the afternoon peak period.

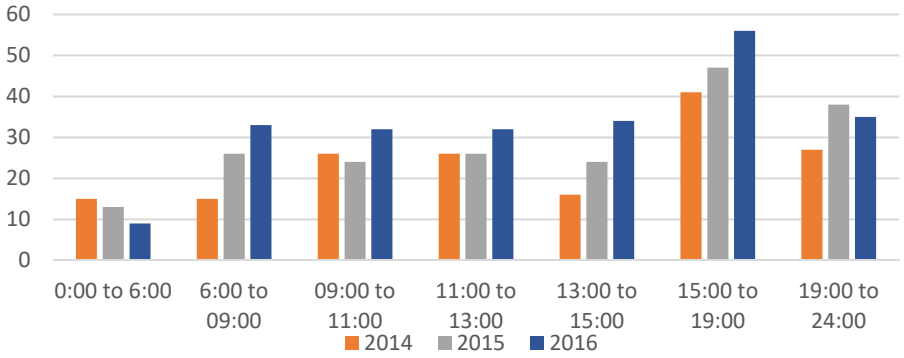


Figure 5: Crashes by Time of Day

Based on the crash severity, of the total 594 crashes, 19 (3%) were incapacitating crashes and 5 (0.8%) were fatalities. **Table 3** summarizes details of fatal crashes along the corridor. **Table 4** presents statistic summary of incapacitating crashes. As described in **Table 3**, four of the five fatal crashes were pedestrian/bicycle-related and three involved a pedestrian-bicyclist crossing outside the designated area.

Table 3: Fatal Crash Summary

HWMV Report Number	Date	Location	Day, Time, Lighting	Crash Type	Summary
84508215	12/29/2014	SR-802 (Lake Worth Road) 74 ft. west of Mar-Mak Drive	Monday, 07:34 PM, Dark-Lighted	Pedestrian	Vehicle 1 (V1) traveling eastbound. Pedestrian crossing eastbound lanes southbound at mid-block location. V1 could not avoid impacting pedestrian. Pedestrian was pronounced dead at scene.
81396558	1/3/2015	SR-802 (Lake Worth Road) 100 ft. east of Gulfstream Road	Saturday, 06:09 AM, Daylight	Bike	Vehicle 1 (V1) traveling eastbound in the outside lane. For unknown reasons, bicyclist was lying on the roadway next to his bike also in the outside lane prior to the accident. V1 ran over bicyclist and fled scene. Bicyclist was transported to medical center where he died as results of his injuries.
84511636	3/22/2015	SR-802 (Lake Worth Road) 0.5 miles west of SR-807 (S Congress Avenue)	Sunday, 11:15 AM, Daylight	Bike	Vehicle 1 (V1) traveling westbound. Bicyclist crossing southbound not at designated area, entered the path of V1. V1 was unable to avoid colliding with Bicyclist. Bicyclist was transported to medical center where he was pronounced dead.
81421402	10/25/2015	SR-809 (S Military Trail) 60 ft. north of SR-802 (Lake Worth Road)	Sunday, 12:39 AM, Dark-Lighted	Rear-end	Both vehicles were traveling north bound passed the intersection. Vehicle 1 (V1) was a high speed rate and hit Vehicle 2 (V2) from behind. Driver of V1 was ejected after impact with V2 and died due to her injuries.
85771935	11/20/2015	SR-802 (Lake Worth Road) 711 ft. east of Mar-Mak Drive	Friday, 09:44 PM, Dark-Not Lighted	Pedestrian	Vehicle 1 (V1) traveling eastbound in the inside lane. Pedestrian was crossing northbound and walked into the path on V1. Pedestrian was hit by V1. Pedestrian was transported to hospital where he died as results of his injuries.

Table 4: Incapacitating Crash Summary (2014–2016)

SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive		Years 2014	2015	2016	3-Year Total	Mean Crashes	%
Crash Type	Angle	1	0	1	2	0.7	10.5%
	Bike	3	1	0	4	1.3	21.1%
	Pedestrian	0	1	0	1	0.3	5.3%
	Rear-end	5	1	2	8	2.7	42.1%
	Left-turn	0	0	1	1	0.3	5.3%
	Hit Fixed Object	1	0	0	1	0.3	5.3%
	Sideswipe	0	2	0	2	0.7	10.5%
	Total	*10*	*5*	*4*	*19*	*6.3*	*100%*
Lighting Condition	Daylight	3	2	1	6	2	31.6%
	Dawn	0	1	0	1	0.3	5.3%
	Dusk	1	0	1	2	0.7	10.5%
	Dark-Lighted	6	1	2	9	3	47.4%
	Total	*10*	*5*	*4*	*19*	*6.3*	*100%*
Surface Conditions	Dry	4	5	3	12	4	63.2%
	Wet	6	0	1	7	2.3	36.8%
	Total	*10*	*5*	*4*	*19*	*6.3*	*100%*

Pedestrian and Bicycle Crashes

Crash data showed a total of 30 bicycle crashes and 11 pedestrian crashes during the three-year period of analysis, with an overall yearly average of 14 crashes. An injury severity and lighting condition summary for pedestrian/bicycle crashes is presented in **Table 5**. As shown in **Table 5,** 15 (37%) of the 41 pedestrian/bicycle crashes occurred during nighttime conditions (dawn, dusk, and dark), which is higher than Pedestrian/Bicycle five-year Districtwide average of 31% (2012–2016). A location summary of nighttime pedestrian/bicycle crashes is shown in **Table 6**.

Further review of the locations of pedestrian and bicycle crashes was conducted, with special emphasis on crashes occurring while pedestrians and bicyclists were crossing mid-block. This crash review included rear-end crashes caused by presence of pedestrian on the roadway, coded as “near miss.” Results from the analysis revealed that six pedestrian crashes, four bicycle crashes, and one near miss were reported at mid-block locations. Although no specific hot spot was identified for mid-block crashes, it was noted that six of the 11 crashes were located between Davis Road and SR-807 (S Congress Avenue).

Table 5: Pedestrian-Bicycle Crash Summary (2014–2016)

SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive		Years 2014	2015	2016	3-Year Total	Mean Crashes	%
	Bike	9	16	5	30	10	73.2%
	Pedestrian	5	4	2	11	3.7	26.8%
	Total	*14*	*20*	*7*	*41*	*13.7*	*100%*
Injury Severity	Fatal	1	3	0	4	1.3	9.8%
	Incapacitating	3	2	0	5	1.7	12.2%
	Non Incapacitating	4	4	5	13	4.3	31.7%
	Possible Injury	4	9	2	15	5	36.6%
	None	2	2	0	4	1.3	9.8%
	Total	*14*	*20*	*7*	*41*	*13.7*	*100%*
Lighting Condition	Daylight	8	11	7	26	8.7	63.4%
	Dawn	0	1	0	1	0.3	2.4%
	Dusk	1	0	0	1	0.3	2.4%
	Dark-Lighted	5	7	0	12	4	29.3%
	Dark-Not Lighted	0	1	0	1	0.3	2.4%
	Total	*14*	*20*	*7*	*41*	*13.7*	*100%*

Table 6: Summary of Nighttime Pedestrian/Bicycle crash Location (2014–2016)

Location	Crashes
Mid-block	7
Signalized Intersection	5
Driveway	2
Unsignalized intersection	1
Total	15

A detailed pedestrian/bicycle crash data review also showed the following:

- 16 (53%) of the 30 bicycle crashes were at driveways when bicyclists were on the sidewalk or at unsignalized intersections when bicyclists were at unmarked crosswalk areas connecting sidewalks, and 14 involved bicyclists traveling in the wrong direction.

- 28 (93%) of all bicycle crashes where bicyclists riding on the sidewalk or away from the sidewalk at the time of the crash.
- 6 (14%) of the 41 pedestrian/bicycle crashes involved turning vehicles at an intersection.

Figure 5 presents all pedestrian, bicycle, and near-miss crashes along the corridor during the three-year period from 2014 to 2016. **Figure 6** shows mid-block location crashes.

Although unofficial at the time of this report, crash data corresponding to years 2017 and 2018 also were reviewed; preliminary analysis revealed 14 pedestrian crashes and 4 bicycle crashes, with 4 incapacitating crashes, all pedestrian-related. One fatal crash was reported when a bicycle traveling eastbound on SR-802 (Lake Worth Road) turned left onto the path of vehicle 1 (V1) traveling westbound during dark not-lighted condition. The bicyclist was pronounced dead at the scene.

Quantity and severity of pedestrian/bicycle crashes during 2017–2018 was considerably high.

Upon completion of this RSA and crash data analysis a request was made to review more recent crash data for changing trends. Crash data was reviewed from 2017 to June 2019. Updated tables and crash analysis were included as **Appendix E**.

The new data did not reveal any additional information or changing trends which would change the findings of this analysis.

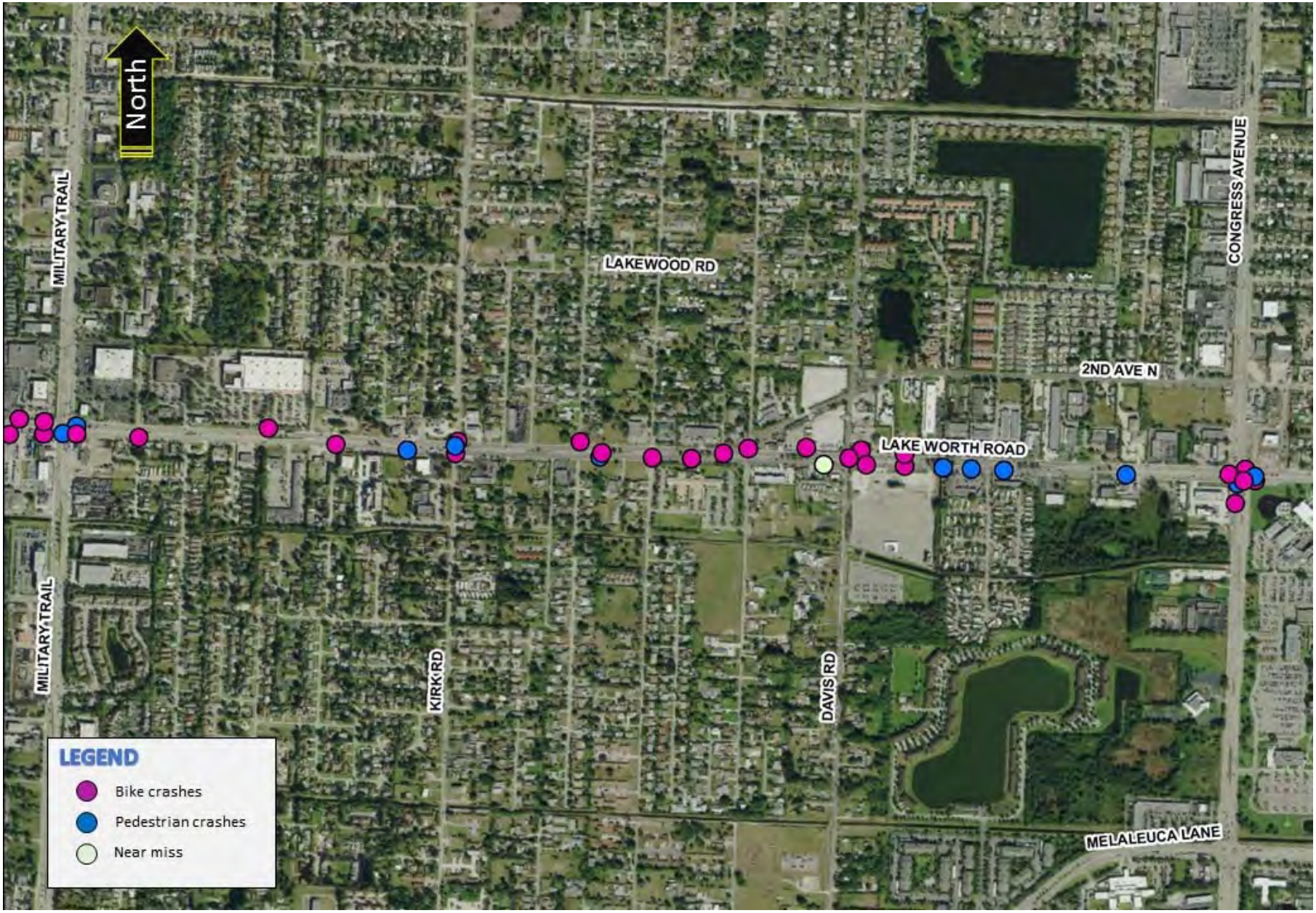


Figure 6: Pedestrian-bicycle Crash Location

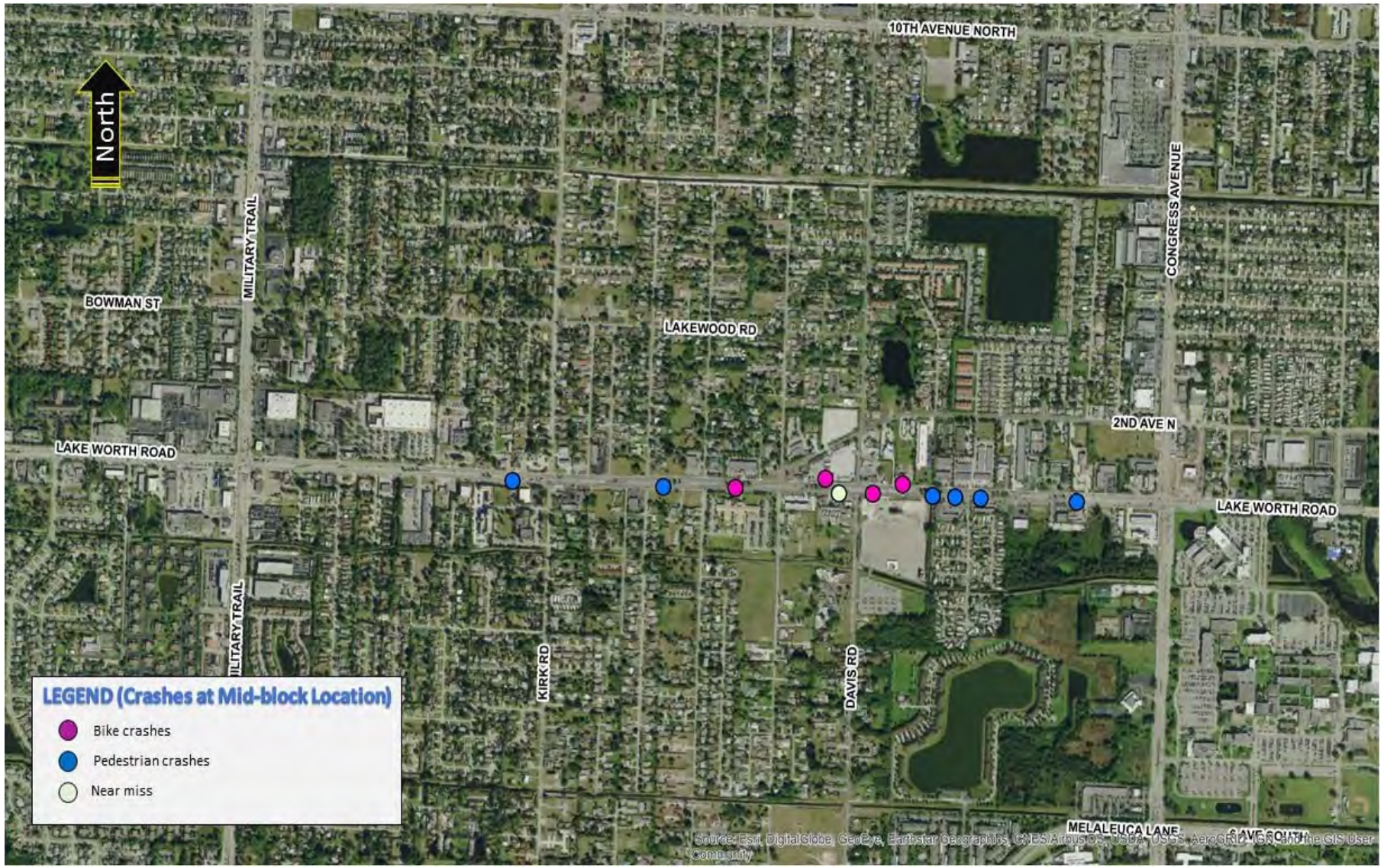


Figure 7: Pedestrian-Bicycle Crashes at Mid-block Location

Road Safety Audit Findings Summary

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:	Assigned to:
C01	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	High pedestrian activity and pedestrian mid-block crossings	Evaluate installation of signalized mid-block crossing	FDOT
C02	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	High bicycle activity along corridor	Evaluate installation of bike lanes	FDOT
C03	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Existing posted speed limit	Review design criteria for speed limit reduction	FDOT
C04	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	High vehicular speed	Install speed feedback signs	FDOT
C05	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Pedestrian/bicycle crashes during nighttime	Evaluate lighting conditions	FDOT
C06	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Bicycle crashes at driveways and unsignalized intersections	Improve signage for bicyclists and drivers	FDOT
C07	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Missing or substandard detectable warning surfaces	Retrofit/provide detectable warning sufaces at ADA ramps	FDOT
C08	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Remnants of utility pole structures on sidewalk	Remove unnecessary obstruction from sidewalk	FDOT
C09	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Lack of back-plates on signal heads	Install back-plates with yellow retroreflective border	FDOT
C10	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Pavement and pavement markings in poor condition	Retrofit pavement and pavement markings	FDOT

ID	Location Description:	Spot Observation Overview:	Recommendations:	Assigned to:
01	SR-802 (Lake Worth Road) at SR-807 (S Congress Avenue)	Standard marking crosswalks	Install special emphasis crosswalks	FDOT
02	SR-802 (Lake Worth Road) at SR-807 (S Congress Avenue)	Lack of pedestrian signs	Install pedestrian signs at intersection	FDOT
03	SR-802 (Lake Worth Road) at Douglas Drive	Standard crosswalk markings on north and south legs	Install special emphasis markings	FDOT
04	SR-802 (Lake Worth Road) at Kirk Road	Faded pedestrian push button signs	Replace push button signs	FDOT
05	SR-802 (Lake Worth Road) 270 feet east of Davis Road (Swap Shop/Emergency signal)	Faded pedestrian push button signs	Replace push button signs	FDOT

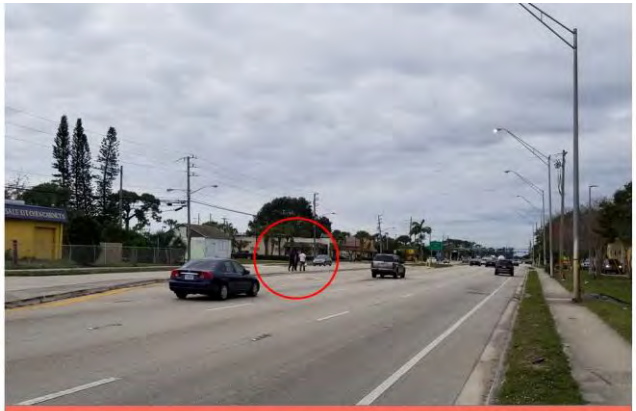
Responses to Recommendations Summary

ID	Location Description:	Corridorwide Recommendation:	Responses to Recommendations:
C01	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Evaluate installation of signalized mid-block crossing	FDOT will initiate mid-block crossing study in 2019 for justification of mid-block crossings. If justified, will be incorporated into 3R project 441632-1.
C02	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Evaluate installation of bike lanes	3R project 441632-1 design team evaluating feasibility and layout of bike lanes to be incorporated into 3R project.
C03	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Review design criteria for speed limit reduction	Several design changes being incorporated into 3R project 441632-1 (i.e., potentially buffered bike lanes and reduced lane width) that could impact travel speed of vehicles.
C04	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Install speed feedback signs	Speed conditions will be re-evaluated after completion of 3R project 441632-1.
C05	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Evaluate lighting conditions	FDOT will conduct lighting study in 2019 to assess necessary improvements or upgrades to corridor and intersection lighting. If needed, lighting improvements will be incorporated into 3R project 441632-1.
C06	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Improve signage for bicyclists and drivers	Short term recommendation to be completed by FDOT.
C07	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Retrofit/provide detectable warning sufaces at ADA ramps	Included in 3R project 441632-1.
C08	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Remove unnecessary obstruction from sidewalk	FDOT to coordinate with Maintenance and local utility companies to determine ownership and responsibility for removal.
C09	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Install back-plates with yellow retroreflective border	Included in 3R project 441632-1.
C10	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Retrofit pavement and pavement markings	Included in 3R project 441632-1.

ID	Location Description:	Spot Recommendation:	Responses to Recommendations:
01	SR-802 (Lake Worth Road) at SR-807 (S Congress Avenue)	Install special emphasis crosswalks	Included in 3R project 441632-1.
02	SR-802 (Lake Worth Road) at SR-807 (S Congress Avenue)	Install pedestrian signs at intersection	Short-term recommendation to be completed by FDOT.
03	SR-802 (Lake Worth Road) at Douglas Drive	Install special emphasis markings	Included in 3R project 441632-1.
04	SR-802 (Lake Worth Road) at Kirk Road	Replace push button signs	Included in 3R Project 441632-1: FDOT reviewing feasibility of advancing this improvement in short term.
05	SR-802 (Lake Worth Road) 270 feet east of Davis Road (Swap Shop/Emergency signal)	Replace push button signs	Included in 3R Project 441632-1: FDOT reviewing feasibility of advancing this improvement in short term.

Road Safety Audit Findings Details - Corridorwide Observations

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C01	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	High pedestrian activity and pedestrian mid-block crossings	Evaluate installation of signalized mid-block crossing



Group of pedestrians staging in the median while crossing mid-block. Looking west.

Pedestrian crossing mid-block after staging in the traffic separator. Looking east (left) and west (right).

Corridorwide Observation Details:

Corridor experiences high pedestrian activity. High number of pedestrians crossing mid-block observed all along study segment. Vehicular traffic was heavy, leaving insufficient gaps to cross in one stage. There are only five protected crossings along the 1.9-mile study segment:

- SR-809 (Military Trail)
- Kirk Road
- SR-807 (Congress Avenue)
- Douglas Drive
- Emergency signal/Pedestrian crossing (Swap Shop)

Recommendation Details:

Evaluate feasibility of installing signalized pedestrian mid-block crossings between existing signals. Installation of a signalized crossing will encourage pedestrians to use marked crosswalk and reduce number of unprotected mid-block crossings. Additionally, it will encourage vehicles to yield to crossing pedestrians and draw attention to sporadic crossings outside designated areas.

This recommendation must be documented by a traffic engineering study in accordance to FDOT TEM section 3.8. Proposed zones to perform required studies for signalized pedestrian crossings are described below and graphically presented in Appendix D.

- Zone 1: From east of Price Street to east of Winsconsin Street
- Zone 2: From west of Serubi Avenue to west of Coconut Road
- Zone 3: From 300 feet west of Mar Mak Drive to 500 feet west of SR-807 (S Congress Avenue)

Agency:	Improvement Type:
FDOT	Construction, Pedestrians
Time Frame:	**EEE:**
Mid Term	Engineering
Level of Effort:	**Comment:**
High	

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C02	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	High bicycle activity along corridor	Evaluate installation of bike lanes

Bicyclist on sidewalk.
Looking east.

Bicyclist on sidewalk.
Looking west.

Corridorwide Observation Details:

Corridor experiences high bicycle activity. Despite corridor having "Share Road" bike signs throughout, most bicyclists observed riding on sidewalk. Also noted high number of bicyclists traveling in opposite direction of vehicular traffic. This situation increases likelihood of bicycle-vehicle crashes at driveways and unsignalized intersections.

Crash data showed 16 (53%) of 30 bicycle crashes were either at driveways while bicyclists were on sidewalk or at unsignalized intersections while bicyclists were at crosswalk areas connecting sidewalks; 14 of these 16 crashes involved bicyclists traveling in opposite direction of vehicular traffic.

According to Straight Line Diagram (SLD) for this section of SR-802 (Lake Worth Road), corridor has 4-ft shoulders on both sides of the road; however, field observations showed that shoulders vary from 3 to 4 feet.

Recommendation Details:

Review cross section and existing ROW for feasibility of installation of bike lanes on both sides of corridor. Include installiton of green-colored bike lanes in high conflict areas. This recommendation should be evaluated for implementation within upcoming 3R project 441632-1. Scope of 3R project 441632-1 is included in Appendix C.

Sample cross sections could include:
a. 5' bike lanes with 11' outside lanes and 10' inside lanes.
b. 7' buffered bike lanes, which would likely require modifications to median or curb along with section modifications to reduce design speed to 40 mph.

Follow guidance from FDM, Section 223.

Agency:	Improvement Type:
FDOT	Construction, Bicycles
Time Frame:	**EEE:**
Long Term	Engineering
Level of Effort:	**Comment:**
High	

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C03	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Existing posted speed limit	Review design criteria for speed limit reduction

Table 201.4.1 Design Speed

Limited Access Facilities (Interstates, Freeways, and Expressways)		
Area	Allowable Range (mph)	SIS Minimum (mph)
Rural and Urban	70	70
Urbanized	50-70	60
Arterials and Collectors		
Context Classification	Allowable Range (mph)	SIS Minimum (mph)
C1 Natural	55-70	65
C2 Rural	55-70	65
C2T Rural Town	25-45	40
C3 Suburban	35-55	50
C4 Urban General	30-45	45

Excerpt of Table 201.4.1 from Florida Design Manual.

Existing posted speed limit along SR-802 (Lake Worth Road). Eastbound lanes.

Corridorwide Observation Details:

Although not measured, vehicles appear to travel above posted speed limit during free-flow traffic conditions.

Various stakeholders expressed concern about vehicular speed and its negative effect on pedestrian and bicycle crashes in a corridor with high pedestrian and bicycle activity.

Most bicycles observed riding on sidewalk. Probable cause is high traffic speed combined with lack of on-street bike lanes. Most bikers in area are commuters, not recreational.

Preliminary review of FDOT Context Classification framework suggests this section of SR-802 (Lake Worth Road) falls under C4-Urban General category, which allows for lane width of 10 feet and speed limit range of 30–45 mph.

Recommendation Details:

As part of upcoming 3R project 441632-1, review and evaluate opportunities for speed limit reduction on corridor based on updates in design criteria and use of context classification. Account for high pedestrian and bicycle activity in area. Refer to recommendation C02 for alternatives cross sections.

This review must consider segments of SR-802 (Lake Worth Road) to east and to west of study corridor to keep consistency in driver expectations.

Agency:	Improvement Type:
FDOT	Speed limit
Time Frame:	**EEE:**
Mid Term	Engineering
Level of Effort:	**Comment:**
Low	

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C04	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	High vehicular speed	Install speed feedback signs

Existing posted speed limit along SR-802 (Lake Worth Road). Eastbound lanes.

Example of speed feedback sign arrangements.

Corridorwide Observation Details:

Although not measured, vehicles appear to travel above the posted speed limit during free-flow traffic conditions.

Various stakeholders expressed concern about vehicular speed and its negative effect on pedestrian and bicycle crashes in a corridor with high pedestrian and bicycle activity.

Recommendation Details:

Install speed feedback signs along corridor. This recommendation should be included within upcoming 3R project 441632-1.

Agency:	Improvement Type:
FDOT	Signage
Time Frame:	**EEE:**
Short Term	Engineering
Level of Effort:	**Comment:**
Low	

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C05	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Pedestrian/bicycle crashes during nighttime	Evaluate lighting conditions

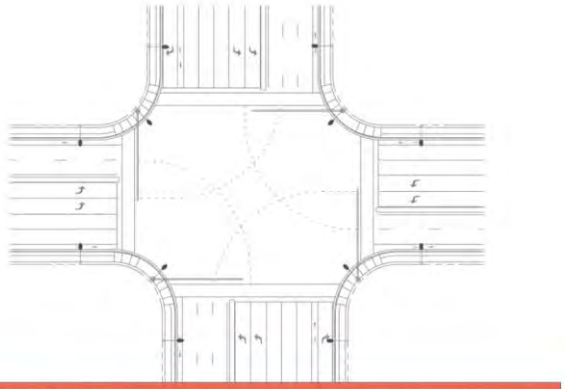
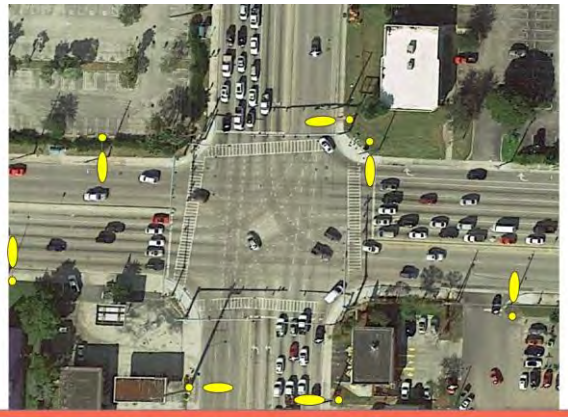


Figure 231.3.4 Typical Lighting Layout for Large Intersection. Florida Design Manual.



Existing lighting layout at SR-809 (Military Trail). Looking north.

Corridorwide Observation Details:

Crash data analysis revealed significant incidence of nighttime in pedestrian and bicycle crashes, at 37%, which higher than pedestrian/bicycle five-year districtwide average of 31 percent (2012-2016).

In addition, existing lighting at major intersections SR-809 (Military Trail) and SR-807 (Congress Avenue) appears to be insufficient for intersections' geometric and pedestrian/bicycle activity. Existing lighting at these intersections was compared to Figure 231.3.4 "Typical lighting layout for large intersections" from FDM and is not estimated to provide adequate lighting levels.

Recommendation Details:

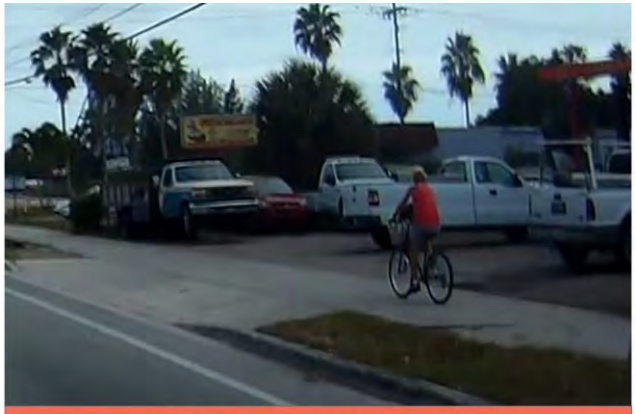
Conduct lighting study to evaluate lighting conditions at mid-block locations and at intersections. Follow guidance from FDM, Chapter 231. Consider high pedestrian/bicycle activity along corridor during evaluation process.

Evaluate feasibility of upgrading lighting to LED throughout corridor. Street lighting east and west of Swap Shop is currently LED. Note that lighting on north side of roadway is maintained by FDOT and lighting on south side is maintained by FPL; therefore, coordination among agencies (FDOT and FPL) and cities (City of Greenacres and Village of Palm Springs) is required to keep consistency along corridor.

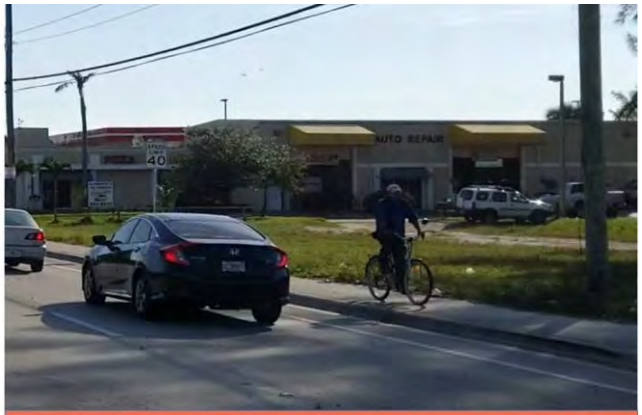
Upgrade lighting at signalized intersections as part of upcoming 3R project 441632-1 along SR-802 (Lake Worth Road). Note that lighitng improvements at SR-802 (S Military Trail) are included in project FM # 436113-1.

Agency:	Improvement Type:
FDOT	Study, Lighting
Time Frame:	**EEE:**
Mid Term	Engineering
Level of Effort:	**Comment:**
Low	

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C06	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Bicycle crashes at driveways and unsignalized intersections	Improve signage for bicyclists and drivers



Bicyclist on sidewalk passing through a driveway. Looking east.



Bicyclist on sidewalk traveling in opposite direction of vehicular traffic. Looking east.

Corridorwide Observation Details:

Corridor experiences high bicycle activity. Most bicycles observed riding on sidewalk, many traveling in opposite direction of vehicular traffic. This situation increases likelihood of bicycle-vehicle crashes at driveways and unsignalized intersections.

Crash data showed 16 (53%) of 30 bicycle crashes were either at driveways while bicyclists were on sidewalk or at unsignalized intersections while bicyclists were at crosswalk areas connecting sidewalks; 14 of these 16 crashes involved bicyclists traveling in opposite direction of vehicular traffic. In most cases (14 of 16 crashes), vehicles were turning onto SR-802 (Lake Worth Road) from driveway or side street.

Recommendation Details:

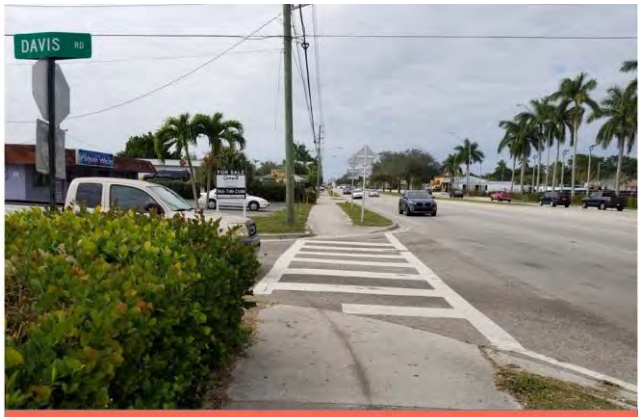
Evaluate feasibility of installing “Watch for Bikes” and W11-1 signs at exit lane of major driveways along corridor to increase driver awareness of bicycle presence. Also, evaluate feasibility of installing stop bar markings at same locations in agreement with business owners.

Additionally, install “Wrong Way” signs for bicycles to alert bicyclists of wrong behavior.

Agency:	Improvement Type:
FDOT	Signs, Bicycles
Time Frame:	**EEE:**
Short Term	Engineering
Level of Effort:	**Comment:**
Low	

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C07	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Missing or substandard detectable warning surfaces	Retrofit/provide detectable warning sufaces at ADA ramps

Substandard detectable warning surface at Price Street. Looking west.



No detectable warning surface provided at Davis Road. Looking west.

Corridorwide Observation Details:

Detectable warning surface at several locations were either non-existent or do not meet current FDOT Design standards.

Recommendation Details:

Install new detectable warning surface at locations where no warning surface is currently installed or existing warning surface does not meet FDOT Standards. Guidance for detectable warning surface design criteria is provided in FDOT Standard Plans Index 522-002.

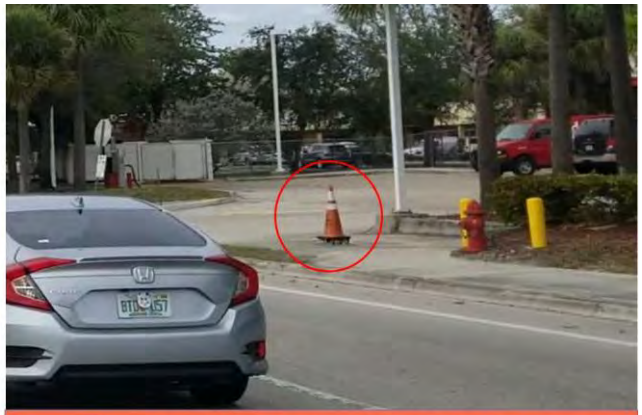
Scope of upcoming 3R project 441632-1 includes replacement of detectable warning surfaces at following locations only:
- SR-807 (Military Trail)
- Kirk Road
- Coconut Road
- Davis Road

Scope of 3R project 441632-1 is included in Appendix C.

Agency:	*Improvement Type:*
FDOT	Pedestrian
Time Frame:	*EEE:*
Short Term	Engineering
Level of Effort:	*Comment:*
Low	Included in 3R project 441632-1.

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C08	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Remnants of utility pole structures on sidewalk	Remove unnecessary obstruction from sidewalk

Remnant utility pole structure on south side sidewalk. Looking south.



Remnant utility pole structure on north side sidewalk. Looking west.

Corridorwide Observation Details:

Remnants of utility pole structures at several locations on sidewalk.

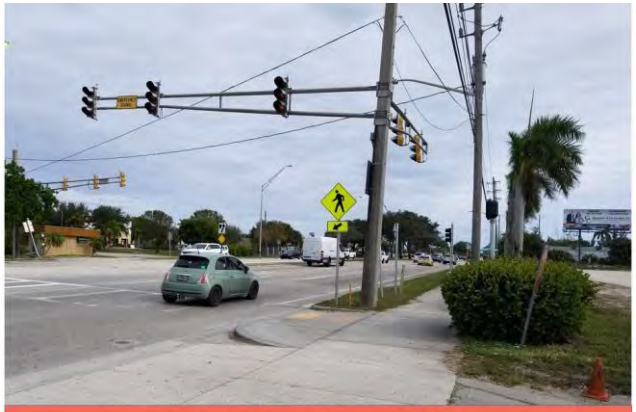
Concern from stakeholder expressed during RSA meeting. At moment of field review, these remnants were covered with reflective traffic cones.

Recommendation Details:

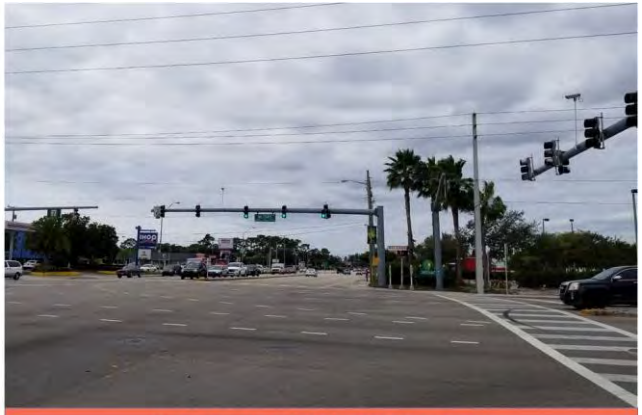
Coordinate with corresponding agency for removal of remnant utility pole structures on sidewalk along corridor.

Agency:	Improvement Type:
FDOT	Maintenance
Time Frame:	**EEE:**
Short Term	Engineering
Level of Effort:	**Comment:**
Medium	

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C09	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Lack of back-plates on signal heads	Install back-plates with yellow retroreflective border



No back-plates at Emergency Signal.
Looking east.



No back-plates at SR-809 (Military Trail).
Looking west.

Corridorwide Observation Details:

Signal heads at all four signalized intersections and emergency signal lack back-plates. Signal locations are listed as follows:

- SR-809 (Military Trail)
- Kirk Road
- SR-807 (Congress Avenue)
- Douglas Drive
- Emergency signal/Pedestrian crossing (Swap Shop)

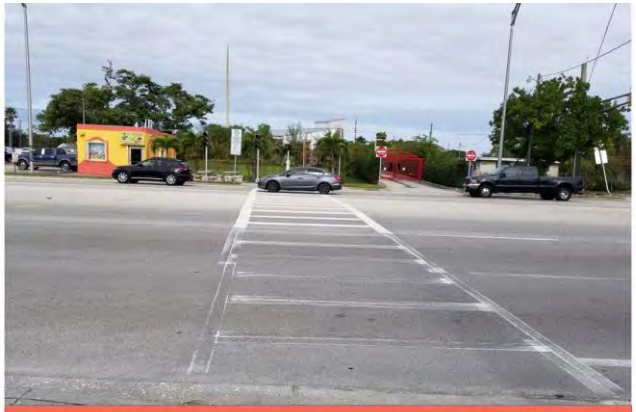
Recommendation Details:

Scope of upcoming 3R project 441632-1 includes upgrade of all signal heads along corridor to have back-plates with yellow retroreflective border per FDOT current standards.

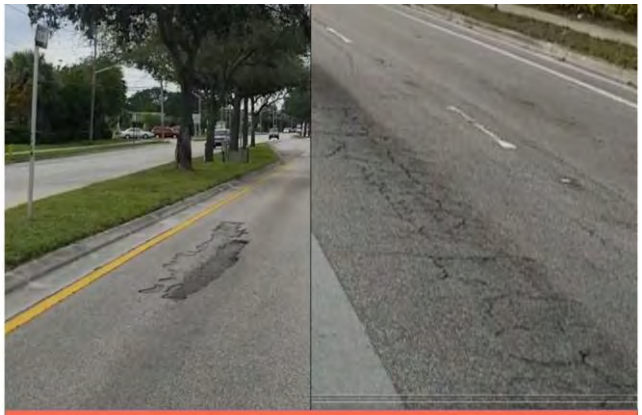
Scope of 3R project 441632-1 is included in Appendix C.

Agency:	Improvement Type:
FDOT	Signals upgrade
Time Frame:	**EEE:**
Mid Term	Engineering
Level of Effort:	**Comment:**
High	Included in 3R project 441632-1.

ID	Location Description:	Corridorwide Observation Overview:	Recommendations:
C10	SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive	Pavement and pavement markings in poor condition	Retrofit pavement and pavement markings



Faded crosswalk markings at Emergency Signal/Swap Shop. Looking north.



Potholes and cracking in the pavement. Eastbound lanes.

Corridorwide Observation Details:

Pavement along study corridor is in poor condition with signs of raveling, cracks, and potholes.

Pavement markings are worn and faded.

Recommendation Details:

Pavement and pavement markings will be replaced as part of upcoming 3R project 441632-1 along SR-802 (Lake Worth Road). All pavement markings will be upgrade to current standards.

Scope of 3R project 441632-1 is included in Appendix C.

Agency:	Improvement Type:
FDOT	Construction, Markings
Time Frame:	**EEE:**
Mid Term	Engineering
Level of Effort:	**Comment:**
High	Included in 3R project 441632-1.

Road Safety Audit Findings Details - Spot Observations

ID	Location Description:	Spot Observation Overview:	Recommendations:
01	SR-802 (Lake Worth Road) at SR-807 (S Congress Avenue)	Standard marking crosswalks	Install special emphasis crosswalks

Aerial view intersection of SR-802 (Lake Worth Road) and SR-807 (Congress Avenue).

Standard marking crosswalk on east leg at SR-807 (Congress Avenue). Looking west.

Spot Observation Details:

Crosswalk markings on all legs of intersection are standard.

Recommendation Details:

Install special emphasis marking crosswalks on all legs.

This recommendation should be implemented as part of oncoming 3R project 441632-1 along SR-802 (Lake Worth Road). Scope of this project includes upgrading pavement markings to current standards. Details of special emphasis markings are included in FDOT Standard Plans Index 711-001.

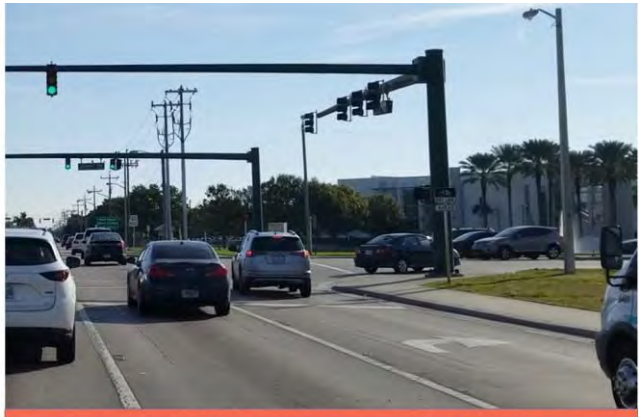
Scope of 3R project 441632-1 is included in Appendix C.

Agency:	Improvement Type:
FDOT	Markings, Pedestrian
Time Frame:	**EEE:**
Mid Term	Engineering
Level of Effort:	**Comment:**
Low	

ID	Location Description:	Spot Observation Overview:	Recommendations:
02	SR-802 (Lake Worth Road) at SR-807 (S Congress Avenue)	Lack of pedestrian signs	Install pedestrian signs at intersection

R10-15

Recommended pedestrian signs.



Southwest corner from eastbound approach at SR-807 (Congress Avenue).

Spot Observation Details:

Field observations revealed lack of pedestrian signs throughout intersection, where pedestrian and bicycle activity is significantly high. Palm Beach State College is in the vicinity of this intersection.

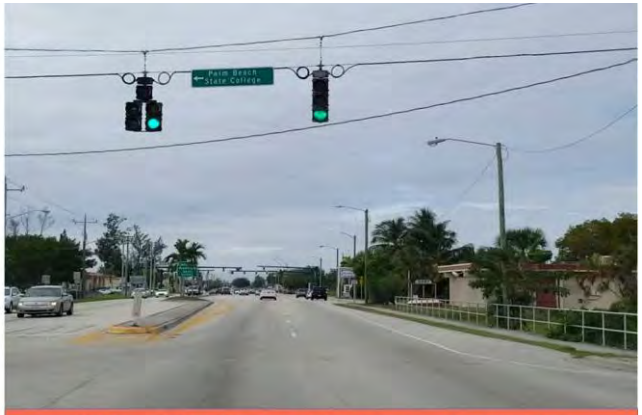
Crash data analysis located 7 pedestrian/bicycle crashes at this intersection.

Recommendation Details:

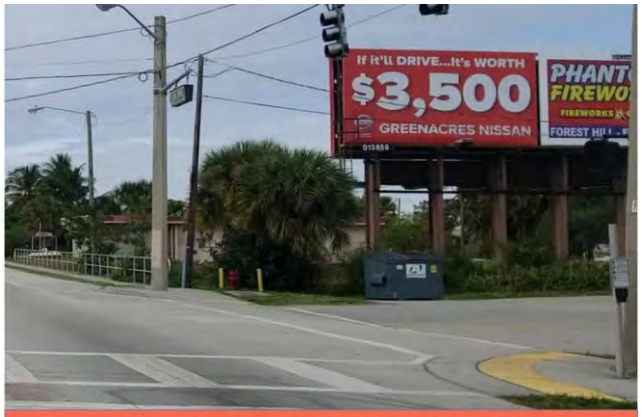
Install pedestrian sign R10-15 at all approaches to increase driver awareness of high pedestrian activity in area and urge caution while turning. This recommendation should be included as part of upcoming 3R project 441632-1.

Agency:	Improvement Type:
FDOT	Signs, Pedestrians
Time Frame:	**EEE:**
Short Term	Engineering
Level of Effort:	**Comment:**
Low	

ID	Location Description:	Spot Observation Overview:	Recommendations:
03	SR-802 (Lake Worth Road) at Douglas Drive	Standard crosswalk markings on north and south legs	Install special emphasis markings



West leg at Douglas drive where no crosswalk is provided. Looking west.



Standard marking crosswalk on north leg at Douglas drive. Looking west.

Spot Observation Details:

Standard marking crosswalks are provided in north and south legs of the intersection. Palm Beach State College is in the vicinity of this intersection, and there is high pedestrian and bicycle activity in area.

Recommendation Details:

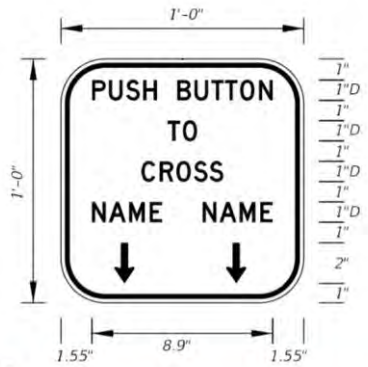
Install special emphasis marking crosswalks on north and south legs of intersection. In addition, evaluate feasibility of providing new special emphasis crosswalk on west leg.

These recommendations should be implemented as part of oncoming 3R project 441632-1 along SR-802 (Lake Worth Road). Scope of this project includes upgrading pavement markings to current standrads. Details of special emphasis markings are included in FDOT Standard Plans Index 711-001.

Scope of 3R project 441632-1 is included in Appendix C.

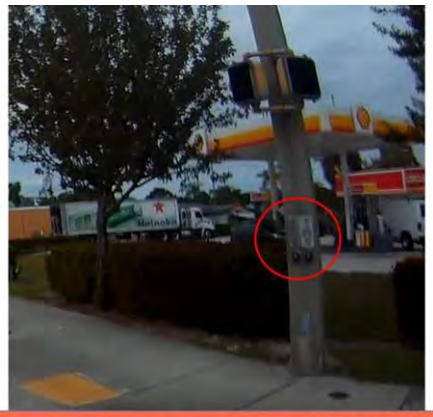
Agency:	Improvement Type:
FDOT	Markings, Pedestrians
Time Frame:	**EEE:**
Short Term	Engineering
Level of Effort:	**Comment:**
Low	

ID	Location Description:	Spot Observation Overview:	Recommendations:
04	SR-802 (Lake Worth Road) at Kirk Road	Faded pedestrian push button signs	Replace push button signs



FTP-26-06

Example of push button sign.
Excerpt from FDOT Standard Plans, Index 700-102.



Pedestrian push button sign in poor condition at Kirk Road.
Northwest corner.

Spot Observation Details:

Pedestrian push button signs are in poor condition and not to current standard at all corners of intersection.

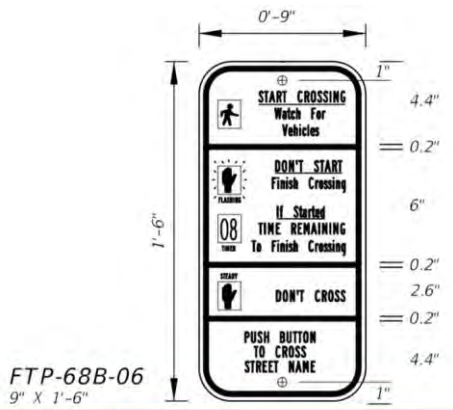
Recommendation Details:

Replace pedestrian push button signs. This recommendation will be addressed as part of oncoming 3R project 441632-1 along SR-802 (Lake Worth Road). Scope of this project includes replacement of signs in poor condition. Current standard pedestrian push button signs are depicted in FDOT Standard Plans Index 700-102.

Scope of 3R project 441632-1 is included in Appendix C.

Agency:	Improvement Type:
FDOT	Signs, Pedestrians
Time Frame:	**EEE:**
Short Term	Engineering
Level of Effort:	**Comment:**
Low	Included in 3R project 441632-1.

ID	Location Description:	Spot Observation Overview:	Recommendations:
05	SR-802 (Lake Worth Road) 270 feet east of Davis Road (Swap Shop/Emergency signal)	Faded pedestrian push button signs	Replace push button signs



Example of push button sign.
Excerpt from FDOT Standard Plans, Index 700-102.

Pedestrian push button sign in poor condition at Emergency Signal/Swap Shop.

Spot Observation Details:

Pedestrian push button signs are in poor condition and not to current standard at all corners of intersection.

Recommendation Details:

Replace pedestrian push button signs.This recommendation will be addressed as part of oncoming 3R project 441632-1 along SR-802 (Lake Worth Road). Scope of this project includes replacement of signs in poor condition. Current standard pedestrian push button signs are depicted in FDOT Standard Plans Index 700-102.

Scope of 3R project 441632-1 is included in Appendix C.

Agency:	*Improvement Type:*
FDOT	Signs, Pedestrian
Time Frame:	*EEE:*
Short Term	Engineering
Level of Effort:	*Comment:*
Low	Included in 3R project 441632-1.

Appendix A

Stakeholders Email List
Sign in Sheet from RSA Team Meeting

Contacts List

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Kim Glas-Castro	Palm Springs, Planning, Zoning & Building	kglas-castro@vpsfl.org
Chad Girard	Village of Palm Springs	cgirard@vpfsl.org
Officer Greg Croucher	Village Police Department	gcroucher@vpsfl.org
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SR-802 (LAKE WORTH ROAD) FROM RAULERSON DRIVE TO DOUGLAS DRIVE

RSA - Sign-in Sheet

January 9, 2019

NAME	AGENCY	EMAIL
Kim Glas-Castro	Village of Palm Springs	kglas-castro@vpsfl.org
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Wade Nelson	" "	wnelson@greenacresfl.gov
Nicholas Hernandez	Palm Beach TPA	nhernandez@palmbeachTPA.org

Appendix B

Previous Studies Recommendations
Other Background Information

Location	Recommendation	Term	Status	Comment
SR-802 Lake Worth at Davis Road Ped Bike Study 2015-03-09				
At Swap Shop Entrance	Repair the pedestrian push button on the south side of SR-802 (Lake Worth Road). Consider replacing both push buttons with actuation responsive buttons.	Short	Complete	
At Swap Shop Entrance	Repair/replace the bulb in the signal head controlling the southbound approach.	Short	Complete	
At Swap Shop Entrance	Revise the pedestrian clearance intervals to be in compliance with current FDOT and MUTCD guidance.	Short	Complete	
Along SR-802 (Lake Worth)	For the east/west pedestrian crossings and ADA ramps at Davis Road and the Swap Shop Driveway provide truncated domes.	Short	Complete	
Along SR-802 (Lake Worth)	With the high incidence of bicycle crashes, consider providing "Share the Road" signage along SR-802 (Lake Worth Road) within and outside of the study limits.	Short	Complete	
At Swap Shop Entrance	As this location has been identified by FDOT as a high pedestrian crash location, upgrade the pedestrian crosswalk across SR-802 (Lake Worth Road) that allows access to the Swap Shop, to special emphasis markings per FDOT Index 17346.	Short	Complete	
At Swap Shop Entrance	In order to improve driver notification, supplement the eastbound and westbound emergency signal (W11-8) signs with the "Emergency Signal Ahead" plaque (W11-12P). For the westbound approach, relocate the Emergency Vehicle (W11-8) sign to the utility strip.	Short	Complete	
At Swap Shop Entrance	In order to improve driver notification, install new fluorescent yellow-green "Pedestrian Crossing" signs (W11-2) with "Ahead" (W16-9P) plaque for the eastbound and westbound approaches. In order to improve visibility, install the signs in the grass strip between the sidewalk and the road.	Short	Complete	
At Davis Road	Relocate the bus stop west of Davis Road, on the north side of SR-802 (Lake Worth Road), closer to the signalized intersection of Kirk Road to encourage pedestrians to use the crosswalk. Coordination with Palm Beach County Transportation (Palm Tran) is required for the relocation of bus stop west of Davis Road.	Mid	Not Complete	Coordinate transit stop locations with Palm Tran, also consider in relation to future midblock crosswalks and signal at Davis Road, if constructed.
At Swap Shop Entrance	Restripe the intersection of SR-802 (Lake Worth Road) at Fire station/Swap Shop, using FDOT Standard turn arrows, special emphasis markings, tracking stripes, etc.	Mid	Complete	
At Swap Shop Entrance	Install retro-reflective back plates and a new R10-13 "Emergency Signal" sign on the mast arms. Perform a structural analysis of the mast arm uprights prior to installation.	Mid	Not Complete	Recommendation should be evaluated.
At Swap Shop Entrance	In addition to the Advance Warning sign upgrades for the short term recommendations, consider also installing a "BE PREPARED TO STOP" sign (W3-4) with a "WHEN FLASHING" plaque (W16-13P) in advance of the intersection with a flashing beacon actuated by the signal.	Mid	Not Complete	Recommendation should be evaluated.
At Swap Shop Entrance	Consider dedicated pedestrian lighting at the crosswalk. This should be in compliance with the developmental standards from FDOT.	Mid	Partially Complete	The vicinity of the Swap Shop entrance appears to have been upgraded to LED lighting, though no dedicated crossing lighting is installed.

Location	Recommendation	Term	Status	Comment
At Swap Shop Entrance	Reconfigure the entire intersection with improved channelization. This will reduce driver confusion and improve pedestrian safety. See Appendix D for a conceptual layout.	Long	Partially Complete	Striping improvements complete. Review "road improvements" as part of the 3R.
At Swap Shop Entrance	Change the traffic signal from a dedicated emergency signal to a fully actuated traffic signal controlling the Fire and Rescue driveway as well as the Swap Shop driveway. Maintain emergency pre-emption. Also consider setting the signal to flash during non-peak periods. Prior to undertaking this study, perform a vehicular and pedestrian signal warrant and engineering study during peak and non-peak periods (i.e. hours of Swap Shop operation and weekends). Guidance should be provided by the MUTCD, but given the nature of the trip generator, the study will need to review special conditions.	Long	Not Complete	Evaluate this recommendation.
Along SR-802 (Lake Worth)	With a resurfacing project, reallocate the lane widths to accommodate bicycle lanes along SR802 (Lake Worth Road).	Long	Not Complete	See current RSA recommendation.
SR-802 Lake Worth Safety Review from Raulerson Dr to Douglas Dr 2018-08-17				
Corridorwide	The Traffic Operations Office should, coordinate with the CTST to increase enforcement of driving under influence (DUI).	Short	Unknown	
Corridorwide	If possible, reallocate lane widths to accommodate bicycle lanes along the study corridor.	Medium	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R.
Corridorwide	Install Bicycle Wrong Way signs (R5-1b) in conjunction with “RIDE WITH TRAFFIC” sign (R9-3c) along the study corridor.	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R. Extend recommendation to all approaches.
Corridorwide	The Traffic Operations Office should, coordinate with the CTST to increase enforcement/education to discourage midblock crossing and wrong-way bicycle riding. Prepare and distribute flyers that inform pedestrians/bicyclists of potential safety issues associated with jaywalking and riding a bicycle the wrong way.	Short	Unknown	
Corridorwide	Contact Palm Beach Sheriff's Office and Palm Tran for other public outreach activities.	Medium	Unknown	
At SR-809 (Military Trail)	It is recommended that yellow retroreflective borders be installed on the signal head backplates at all approaches of the intersection.	Medium	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At SR-809 (Military Trail)	Ensure that yellow and all red clearance intervals at this intersection are in compliance with current FDOT standards.	Short	Unknown	

Location	Recommendation	Term	Status	Comment
At SR-809 (Military Trail)	Install modified ground mounted "Turning Vehicles Stop to Pedestrians" sign facing the westbound, northbound and eastbound right turn vehicles.	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R. Extend recommendation to southbound approach.
At SR-809 (Military Trail)	If possible, install Bicycle/Pedestrian "W11-15" sign with Ahead "W16-9P" plaque or Bicycle/Pedestrian "W11-15" sign with experimental "LOOK" warning plaque facing exiting vehicles at the following location: - 4507 Lake Worth Road - 4544 Lake Worth Road - 4558 Lake Worth Road	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R. Extend recommendation to all busy driveways.
At SR-809 (Military Trail)	The EOR should verify clear zone requirements in the vicinity of this intersection.	Short	Unknown	
At SR-809 (Military Trail)	Remove the cones and install" KEEP RIGHT" (R4-7) sign at the medians of this intersection. If this installation is not possible due to spacing, then install flexible delineator poles.	Short	Complete	
At SR-809 (Military Trail)	It is recommended to remove the faded push button signage from the mast arm and install the push buttons on the new pedestrian poles.	Short	Complete	
At SR-809 (Military Trail)	Replace the missing cap of the pedestrian pole located at the southeast corner of this intersection to cross the south leg.	Short	Complete	
At SR-809 (Military Trail)	It is recommended to remove the additional pedestrian pole with faded signage. Also, it is recommended to repair or replace the pedestrian pole to cross the west leg of this intersection and install the corresponding push button signage on it.	Short	Complete	
At SR-809 (Military Trail)	Remove the faded pedestrian push button signage and broken push buttons from the pedestrian pole located between the pedestrian pole to cross the west leg and the pedestrian pole to cross the south leg or remove this pedestrian pole and relocate the pedestrian signal heads that are on this pole to their respective pedestrian poles.	Short	Complete	
At Kirk Road	It is recommended that yellow retroreflective borders be installed on the signal head backplates at all approaches of the intersection.	Medium	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At Kirk Road	Ensure that yellow and all red clearance intervals at this intersection are in compliance with current FDOT standards.	Short	Unknown	
At Kirk Road	Install "Turning Vehicles Stop for Pedestrian" (R10-15 Modified) sign on the northbound, eastbound, and southbound approaches of this intersection.	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R. Extend recommendation to westbound approach.

Location	Recommendation	Term	Status	Comment
At Kirk Road	If possible, install Bicycle/Pedestrian “W11-15” sign with Ahead “W16-9P” plaque or Bicycle/Pedestrian “W11-15” sign with experimental LOOK warning plaque facing vehicles exiting at 3991 Lake Worth Road.	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R. Extend recommendation to all busy driveways.
At Kirk Road	If possible, install Bicycle/Pedestrian “W11-15” sign with Ahead “W16-9P” plaque or Bicycle/Pedestrian “W11-15” sign with experimental LOOK warning plaque facing vehicles exiting at 3985 Lake Worth Road.	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R. Extend recommendation to all busy driveways.
At Kirk Road	Take corrective action to prevent standing water on the southeast, southwest and northeast corners of the intersection.	Medium	Not Complete	Evaluate this recommendation.
At Kirk Road	Replace the existing pedestrian signals with countdown pedestrian signals and upgrade the push button signage to meet current FDOT standards.	Short	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At Kirk Road	Reconstruct the pedestrian ramps to comply with current ADA standards.	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R.
At Kirk Road	Coordinate with the maintenance office to clean debris and verify if additional issues related to drainage exist.	Short	Unknown	
At Kirk Road	If possible, consider realigning the crosswalk so it does not conflict with the parking lot for the Presto Pawn Store.	Short	Not Complete	Evaluate this recommendation.
At Kirk Road	Install NEXT SIGNAL” signs approaching the intersection of Kirk Road in both directions along Lake Worth Road.	Short	Not Complete	Evaluate this recommendation.
At Swap Shop Entrance	Install additional “Do Not Cross,” “Cross Only at Crosswalk,” signs approaching this pedestrian signal.	Short	Not Complete	Evaluate this recommendation.
At Swap Shop Entrance	Take corrective action to prevent standing water on the south side of Lake Worth Road and this mid-block pedestrian signal.	Medium	Not Complete	Evaluate this recommendation.
At Swap Shop Entrance	Upgrade the push button signage to meet current FDOT standards. Do not remove the Spanish pedestrian signage.	Short	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At Swap Shop Entrance	Replace the “NO TURN ON STEADY RED” and “TURNING TRAFFIC MUST YIELD TO PEDESTRIANS” signs located on the south side of Lake Worth Road.	Short	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At Swap Shop Entrance	Trim overgrown tree on the north side of SR 802 that is partially blocking the pedestrian crossing sign at the signalized pedestrian crossing located east of Davis Road.	Short	Not Complete	Evaluate this recommendation.
At Swap Shop Entrance	Trim overgrown tree on the north side of SR 802 that is partially blocking the "NO TURN ON STEADY RED" and "TURNING TRAFFIC MUST YIELD TO PEDESTRIANS" sign and orient it in the right direction facing the outbound (southbound) traffic from the side street.	Short	Not Complete	Evaluate this recommendation.

Location	Recommendation	Term	Status	Comment
At SR-807 (Congress Avenue)	It is recommended that yellow retroreflective borders be installed on the signal head backplates at all approaches of the intersection.	Medium	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At SR-807 (Congress Avenue)	Ensure that yellow and all red clearance intervals at this intersection are in compliance with current FDOT standards.	Short	Unknown	
At SR-807 (Congress Avenue)	Install modified ground mounted "Turning Vehicles Stop to Pedestrians" sign facing southbound, and eastbound right turns.	Short	Not Complete	Recommendation consistent with the previous and current studies. Evaluate with the 3R. Extend recommendation to northbound and westbound approaches.
At SR-807 (Congress Avenue)	Refurbish crosswalk markings with high emphasis markings at the subject intersection per the guidance from the 2018 FDOT Design Manual (FDM).	Medium	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At SR-807 (Congress Avenue)	Replace the existing pedestrian signals with countdown pedestrian signals and upgrade the push button signage to meet current FDOT standards.	Short	Not Complete	Evaluate this recommendation.
At SR-807 (Congress Avenue)	Repair the existing LED light for the pedestrian signals at the northwest corner of intersection.	Short	Unknown	
At SR-807 (Congress Avenue)	Relocate the existing pedestrian button located on the northeast corner of the intersection to meet ADA distance to the pedestrian ramp or install a separate post-mounted push button to cross the east leg of the intersection.	Short	Unknown	
At SR-807 (Congress Avenue)	Install “CONGRESS AVENUE NEXT SIGNAL” sign approaching the intersection in the eastbound direction.	Short	Not Complete	Evaluate this recommendation.
At SR-807 (Congress Avenue)	Trim the palm trees blocking the “CONGRESS AVENUE NEXT SIGNAL” to make it visible to westbound motorists.	Short	Not Complete	Evaluate this recommendation.
At SR-807 (Congress Avenue)	if possible, install” KEEP RIGHT” (R4-7) sign at the medians of this intersection.	Short	Not Complete	Evaluate this recommendation.
At Douglas Drive	It is recommended that yellow retroreflective borders be installed on the signal head backplates at all approaches of the intersection.	Medium	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At Douglas Drive	Ensure that yellow and all red clearance intervals at this intersection are in compliance with current FDOT standards.	Short	Unknown	
At Douglas Drive	Refurbish crosswalk markings with high emphasis markings at the subject intersection per the guidance from the 2018 FDOT Design Manual (FDM).	Short	Not Complete	Recommendation consistent with the previous and current studies. Included in the 3R.
At Douglas Drive	Take corrective action to prevent standing water on the southeast corner of the intersection.	Medium	Not Complete	Evaluate this recommendation.

Location	Recommendation	Term	Status	Comment
At Douglas Drive	Remove the faded object markers and install" KEEP RIGHT" (R4-7) sign at the medians of this intersection. If it is not possible this installation due to spacing, install flexible delineator poles.	Short	Not Complete	Evaluate this recommendation.
At Douglas Drive	Trim the palm trees blocking the "Palm Beach State College Next Signal" to make it visible to westbound motorists.	Short	Not Complete	Evaluate this recommendation.
At Douglas Drive	If possible, upgrade the street name signs to internally illuminated street signs for the eastbound and westbound approaches of the intersection of SR 802 and Palm Beach College Entrance.	Medium	Not Complete	Evaluate this recommendation within 3R.
Lake Worth Multimodal Corridor Study (TPA).				
Corridorwide	Review cross section of corridor to include buffered bike lanes.	Medium	Not completed	Require additional study. See current RSA recommendation.
Corridorwide	Install two additional pedestrian mid-block crossings. Proposed locations are: -Home Depot/42nd Way/Cooley Court -C&D Produce/Yuan Lane	Medium	Not completed	Require additional study. See current RSA recommendation.
Corridorwide	Reduce speed limit to 35 mph considering that study corridor falls into C4-Urban General category of FDOT Context Classification which allows for 30-40 mph speed limit range.	Medium	Not completed	Require additional study. See current RSA recommendation.
Corridorwide	Narrow travel lanes to 10 feet width considering that study corridor falls into C4-Urban General category of FDOT Context Classification which allows lane width of 10 feet.	Medium	Not completed	Require additional study. See current RSA recommendation.
At Davis Road	Install new traffic signal at Davis Road, consequently opening north and south bound traffic.	Medium	Not completed	Require additional study. See current RSA recommendation.

TPA RESOLUTION 2018-17

A RESOLUTION OF THE PALM BEACH TRANSPORTATION PLANNING AGENCY REQUESTING THE FLORIDA DEPARTMENT OF TRANSPORTATION TO ACCOMMODATE REQUESTS FOR THE LAKE WORTH ROAD CORRIDOR DESIGN SPEED AND LANE WIDTH; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, the Palm Beach Metropolitan Planning Organization (MPO), doing business as the Palm Beach Transportation Planning Agency (TPA), has been designated as the official MPO for the Palm Beach County urbanized area to carry out the federally mandated metropolitan transportation planning process pursuant to 23 CFR 450; and

WHEREAS, the Florida Department of Transportation (FDOT) has a resurfacing project (FM # 4416321) on Lake Worth Road from West of Military Trail to East of Congress Avenue with design funds of $469,364 in FY19 and construction funds of $3,034,671 in FY21; and

WHEREAS, the TPA and FDOT have each adopted a Complete Streets Policy to accommodate safe access and mobility for users of all ages, abilities and modes into the planning, design, and construction of transportation projects; and

WHEREAS, both the TPA and FDOT have adopted Complete Streets Design Guidelines to implement context sensitive facilities that are designed and operated to enable safe access and mobility for all surface transportation system users; and

WHEREAS, both the TPA and FDOT have adopted Vision Zero safety targets with a commitment to eliminate traffic-related fatalities and serious injuries; and

WHEREAS, Lake Worth Road from Jog Road to East of US 1 was identified in the TPA's 2017 Pedestrian and Bicycle Safety Study as one of Palm Beach County's Top 10 High Crash Corridors, with two of the County's Top 10 High Crash Spots located at the intersections of Lake Worth Road with Davis Road and with Congress Avenue; and

WHEREAS, the TPA hired the Treasure Coast Regional Planning Council to work with FDOT, the City of Greenacres and the Village of Palm Springs, to evaluate and identify Complete Streets safety improvements that could be incorporated into the resurfacing project; and

WHEREAS, there is a direct correlation between the speed of a roadway, roadway design, and the number and severity of accidents, including pedestrian and bicyclist fatalities; and

WHEREAS, the City of Greenacres and the Village of Palm Springs have adopted resolutions requesting FDOT to reduce the design and posted speed limit to 35 miles per hour to improve the safety of the corridor.

NOW THEREFORE, BE IT RESOLVED BY THE PALM BEACH MPO, d/b/a PALM BEACH TRANSPORTATION PLANNING AGENCY, THAT:

SECTION 1. The foregoing recitals are hereby adopted and declared to be true and correct and are incorporated herein.

SECTION 2. The TPA Governing Board requests FDOT accommodation of the following:

a. Consideration of a design speed of 35 miles per hour based on the context classification and safety history of the corridor;
b. Consideration of the identified design elements available due to the lower design speed (inner 10-foot wide vehicle lanes with 11-foot wide vehicle lanes curbside to support bus service, separated bike lanes, and introduction of new mid-block pedestrian crossings that employ Pedestrian Hybrid Beacons for traffic control).

SECTION 3. This Resolution shall take effect upon adoption.

The foregoing Resolution was offered by Commissioner Paulette Burdick who moved its adoption. The motion was seconded by Mayor Pam Triolo, and upon being put to a vote, the motion passed. The Chair thereupon declared the Resolution duly adopted this 18th day of October, 2018.

PALM BEACH MPO, d/b/a PALM BEACH TRANSPORTATION PLANNING AGENCY

By: _____
Commissioner Hal Valeche, as its Chair

ATTEST:

_____
TPA Executive Assistant

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

_____
Paul R. Gougelman, TPA General Counsel

PALM BEACH
Transportation
Planning Agency

October 25, 2018

To: Gerry O'Reilly (FDOT D4 District Secretary)
[Delivered via e-mail]

Re: TPA Resolution 2018-17, Lake Worth Road Corridor Design Study

Dear Secretary O'Reilly,

During the October 18, 2018 Palm Beach Transportation Planning Agency (TPA) Governing Board meeting, the Board passed TPA Resolution 2018-17 requesting FDOT accommodation of requests for the Lake Worth Road Corridor related to design speed and complete street design elements.

If you should have any questions or concerns please feel free to contact me.

Sincerely,

Nick Uhren, P.E.
Executive Director

NU/mp

Enclosures

Ec: Ms. Stacy L. Miller, P.E., FDOT D4 Director of Transportation Development
Mr. Scott Thurman, FDOT D4 Project Manager
Mr. Michael Busha, Executive Director, Treasure Coast Regional Planning Council

TPA RESOLUTION 2018-17

A RESOLUTION OF THE PALM BEACH TRANSPORTATION PLANNING AGENCY REQUESTING THE FLORIDA DEPARTMENT OF TRANSPORTATION TO ACCOMMODATE REQUESTS FOR THE LAKE WORTH ROAD CORRIDOR DESIGN SPEED AND LANE WIDTH; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, the Palm Beach Metropolitan Planning Organization (MPO), doing business as the Palm Beach Transportation Planning Agency (TPA), has been designated as the official MPO for the Palm Beach County urbanized area to carry out the federally mandated metropolitan transportation planning process pursuant to 23 CFR 450; and

WHEREAS, the Florida Department of Transportation (FDOT) has a resurfacing project (FM # 4416321) on Lake Worth Road from West of Military Trail to East of Congress Avenue with design funds of $469,364 in FY19 and construction funds of $3,034,671 in FY21; and

WHEREAS, the TPA and FDOT have each adopted a Complete Streets Policy to accommodate safe access and mobility for users of all ages, abilities and modes into the planning, design, and construction of transportation projects; and

WHEREAS, both the TPA and FDOT have adopted Complete Streets Design Guidelines to implement context sensitive facilities that are designed and operated to enable safe access and mobility for all surface transportation system users; and

WHEREAS, both the TPA and FDOT have adopted Vision Zero safety targets with a commitment to eliminate traffic-related fatalities and serious injuries; and

WHEREAS, Lake Worth Road from Jog Road to East of US 1 was identified in the TPA's 2017 Pedestrian and Bicycle Safety Study as one of Palm Beach County's Top 10 High Crash Corridors, with two of the County's Top 10 High Crash Spots located at the intersections of Lake Worth Road with Davis Road and with Congress Avenue; and

WHEREAS, the TPA hired the Treasure Coast Regional Planning Council to work with FDOT, the City of Greenacres and the Village of Palm Springs, to evaluate and identify Complete Streets safety improvements that could be incorporated into the resurfacing project; and

WHEREAS, there is a direct correlation between the speed of a roadway, roadway design, and the number and severity of accidents, including pedestrian and bicyclist fatalities; and

WHEREAS, the City of Greenacres and the Village of Palm Springs have adopted resolutions requesting FDOT to reduce the design and posted speed limit to 35 miles per hour to improve the safety of the corridor.

NOW THEREFORE, BE IT RESOLVED BY THE PALM BEACH MPO, d/b/a PALM BEACH TRANSPORTATION PLANNING AGENCY, THAT:

SECTION 1. The foregoing recitals are hereby adopted and declared to be true and correct and are incorporated herein.

SECTION 2. The TPA Governing Board requests FDOT accommodation of the following:

a. Consideration of a design speed of 35 miles per hour based on the context classification and safety history of the corridor;
b. Consideration of the identified design elements available due to the lower design speed (inner 10-foot wide vehicle lanes with 11-foot wide vehicle lanes curbside to support bus service, separated bike lanes, and introduction of new mid-block pedestrian crossings that employ Pedestrian Hybrid Beacons for traffic control).

SECTION 3. This Resolution shall take effect upon adoption.

The foregoing Resolution was offered by Commissioner Paulette Burdick who moved its adoption. The motion was seconded by Mayor Pam Triolo, and upon being put to a vote, the motion passed. The Chair thereupon declared the Resolution duly adopted this 18th day of October, 2018.

PALM BEACH MPO, d/b/a PALM BEACH TRANSPORTATION PLANNING AGENCY

By: _____
Commissioner Hal Valeche, as its Chair

ATTEST:

_____
TPA Executive Assistant

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

_____
Paul R. Gougelman, TPA General Counsel

PALM BEACH TPA / TCRPC

LAKE WORTH ROAD MULTIMODAL CORRIDOR STUDY

General Meeting Notes

In- House Design Session with Staff Representatives of Local Governments & Agencies

WEDNESDAY, JUNE 20, 2018
9:30 AM – 3:30 PM

Palm Beach State College; 4200 S Congress Ave, Lake Worth, FL 33461

Meeting arranged by the Treasure Coast Regional Planning Council (TCRPC)

NOTE TO READERS: This document reflects general meeting notes and key points of discussion raised during the design session with the stakeholder representatives from the local governments, agencies and organizations related to the Lake Worth Road Multimodal Corridor Study. The meeting occurred on Wednesday, June 20, 2018. The project is funded by the Palm Beach Transportation Agency (TPA). General meeting notes were prepared by Dr. Kim DeLaney, TCRPC.

Attendees

Danna Ackerman-White	Palm Beach County (Cmr. Kerner)	dawhite@pbcgov.org
Iramis Cabrera	Village of Palm Springs (Planning)	icabrera@vpsfl.org
Carlos Cedeno	City of Greenacres (Public Works)	ccedeno@greenacresfl.gov
Collin Chesston	Alta Planning & Design (Alta)	collinchesston@altaplanning.com
Scott Cirino	City of Greenacres (Planning)	Scirono@greenacresfl.gov
Greg Croucher II	Village of Palm Springs (Police)	gcroucher@vpsfl.org
Brad Davis	Alta Planning & Design (Alta)	braddavis@altaplanning.com
Kim DeLaney	TCRPC	kdelaney@tcrpc.org
Kim Glas-Castro	Village of Palm Springs (Planning)	Kglas-castro@vpsfl.org
Kara Irwin-Ferris	City of Greenacres (Planning)	kferris@greenacresfl.gov
Navael Fontus	Palm Beach TPA	nfontus@palmbeachtpa.org
Alyssa Frank	Palm Beach TPA	afrank@palmbeachtpa.org
Chad Girard	Village of Palm Springs (Public Works)	cgirard@vpsfl.org
Tom Lanahan	TCRPC	tlanahan@tcrpc.org
Andrea McCue	City of Greenacres (City Manager)	amccue@greenacresfl.gov
Khurshid Mohyuddin	Palm Beach County (Planning)	kmohyudd@pbcgov.org
Wade Neilson	City of Greenacres (Public Works)	vneilson@greenacresfl.gov
Jorge Perez	Palm Beach County (Planning)	Jperez1@pbcgov.org
Richard Reade	Village of Palm Springs (Village Manager)	rreade@vpsfl.org
Sherrie Sharps	Palm Tran (Planning)	ssharps@pbcgov.org
Scott Thurman	Florida Department of Transportation (FDOT)	Scott.thurman@dot.state.fl.us
Chris Ward	Palm Beach State College (PBSC)	wardc@palmbeachstate.edu
John Wasukanis	Palm Beach State College (PBSC)	wasukanj@palmbeachstate.edu

The meeting sign-in sheet is included as Attachment 1.

General Meeting Notes

- TCRPC provided a welcome, and meeting attendees provided self-introductions.

- TCRPC provided a brief recap of the project purpose and goals, indicating the Lake Worth Road corridor had been identified by the Palm Beach TPA as a County "hot spot" with a prioritized need for multimodal improvements due to its high accident rate, especially with cyclists and pedestrians; demographics that generated high transit ridership and nonmotorized activity; connectivity to schools, residential neighborhoods, and local-servicing commercial uses; and high vehicular speeds. TCRPC then indicated a walking corridor tour was conducted on Tuesday, June 19, 2018, which included participation by many attendees at the design session as well as other local government and agency staff. TCRPC provided a summary of the key observations noted during the corridor tour as follows:
    - There is a lack of shade on the corridor, leaving pedestrians and cyclists exposed to the elements.
    - Vehicular traffic tends to move faster than the posted 45 MPH speed limit, with several vehicles measured at speeds above 55 MPH during the corridor tour.
    - There are several locations where remnants remain of light poles with metal foundation elements sticking up in the sidewalk.
    - There are numerous driveway curb-cuts, which interrupt the sidewalk network.
    - There are several locations where driveways deposit vehicles into turn lanes.
    - There is a need for transit shelters on the corridor, with shade, seating, and trash receptacles.
    - The transit stop at the southeast corner of Military Trail and Lake Worth Road by Tacos al Carbon is heavily utilized, with an abundance of shopping carts left by bus riders. It is noted there is a grocery store across the street, and shoppers push their carts across the street and leave them at the bus stop. They are also being used as seating.
    - There were many instances of mid-block jaywalking noted in the corridor tour, including moms with kids.
    - Standing water was identified along the corridor, evidencing the flooding problems previously noted by local governments.
    - Sidewalks on the north side are 5 feet wide with a 2 to 3 foot wide grassed utility strip. Sidewalks on the south side are 8 feet wide with no grass strip.
    - Alta Planning distributed maps identifying crash locations and opportunities and constraints (included as Attachments 2 and 3).
    - Following the field work, a map indicating suggested improvements on the corridor (included as Attachment 4) was developed by Alta Planning and distributed to participants as part of the design session.

- Palm-Tran noted a system-wide Route Performance Maximization (RPM) study is underway to determine efficiency improvements for bus routes, frequencies, and stops. Stops along the Lake Worth Road corridor may be consolidated. Regarding design of bus stops, PalmTran's current preference is for the inclusion of bus bay pull-outs for busy

roadways where right-of-way is available and sufficient distance from intersections can be maintained. Shelters are contracted out with vendors who advertise on them.

- The Village of Palm Springs noted the Lake Worth Road/Military Trail bus stop (SE corner) by Tacos Al Carbon is the most problematic on the corridor due to vehicular accidents, with vehicles swerving around stopped buses causing vehicle-to-vehicle and vehicle-to-bus accidents.

- There is also a school bus stop across from Home Depot, which results in many elementary school-aged children walking along the corridor in the afternoon hours. Participants suggested the inclusion of the Palm Beach School District in corridor-related discussions.

- FDOT indicated the planned Resurfacing, Restoration and Rehabilitation (RRR) project does not include funding for right-of-way (ROW) acquisition, but FDOT can build or relocate shelters and/or bus bays as part of the project if ROW is available.

- There was general discussion regarding lighting included a request to convert the current lighting to LED for improved safety and reduced maintenance. In addition, it was noted the corridor has a history of prostitution, for which enforcement was hindered by the lack of proper lighting. Improved lighting would assist in further reducing and eliminating this criminal activity. It was noted existing freestanding light poles are located only on the north side of the corridor, and these may pose a conflict for the installation of shade trees.

- Regarding safety of the corridor, FDOT indicated a safety study was underway to consider reduction of posted speed limits, lighting, and mobility improvements. Upon completion, FDOT indicated the study would be circulated to stakeholders. Further, the remnant utility pole infrastructure identified in the corridor tour would be removed as part of the RRR project.

- There was general discussion regarding the need for additional crosswalks on the corridor to address pedestrian demands and a suggestion of an additional traffic light at Davis Road (with the abandonment of 2nd Street west of Davis Road to its connection with Lake Worth Road). Additionally, participants suggested there should be several additional pedestrian-activated crosswalks installed between existing traffic lights and the newly proposed Davis Road traffic light to increase safety for pedestrians and cyclists by reducing the distance between crosswalks. FDOT noted concerns regarding the possible need for ROW to accommodate a new intersection as the FDOT ROW acquisition process can take 24-30 months. Village of Palm Springs staff indicated the Village's willingness to assist FDOT as appropriate to facilitate ROW acquisition if needed.

- Regarding flooding, FDOT indicated flooding would be addressed as part of the RRR project, and all stormwater infrastructure would be flushed and cleaned as part of the project. Participants noted the presence of permanent signage near Office Depot alerting drivers the road tends to flood regularly during storm events. In addition, FDOT reiterated its request that local governments photograph any instances of flooding to ensure it could be properly addressed as part of the RRR project. Participants noted canals were the

responsibility of the Lake Worth Drainage District, and the agency should be included as a stakeholder in corridor-related discussions.

- PBSC indicated it has commissioned a traffic study to evaluate the installation of a deceleration lane along Lake Worth Road to facilitate access for the college's northern entrance (just east of Congress Avenue). PBSC also noted concerns regarding signal timing of several intersections surrounding the college whereby significant traffic stacking occurs during peak hours. Representatives suggested the vehicle detection pads or other infrastructure may need to be updated to improve signal operation. PBSC also indicated a desire to add an additional exit onto Congress Avenue.

- There was extensive discussion regarding the desire by local governments and agencies to reduce the posted speed to 35 MPH as a safety improvement. The current width of travel lanes is'11"; however, the FDOT Design Manual allows for lane widths of 10' for roadways designed for 25-35 MPH and 11' for those designed for 40-45 MPH. Local government police representatives noted the significant safety improvement resulting from lower-speed crashes as well as the pedestrian benefits for shorter crosswalks if lanes are narrowed. Further, narrower travel lanes would enable the inclusion of bicycle lanes, which would create designated areas for cyclists as well as buffer sidewalks. FDOT indicated travel speeds would be evaluated as part of the safety study and suggested local governments may wish to formally request FDOT reduce the speed of the roadway as part of the RRR project. Local government representatives indicated this issue would be scheduled for discussion by local elected officials in July.

- There was also extensive discussion regarding the possibility of reducing the roadway design from six lanes to four lanes to improve safety and function of the roadway for non-vehicular users. By reconfiguring the roadway, it would be possible to add buffered bicycle lanes consistent with FDOT's standard design criteria, landscape areas with shade trees, bus bays, and bus loading zones. A narrower corridor with landscape improvements would also contribute to traffic calming, further slowing vehicular travel speeds and improving safety.

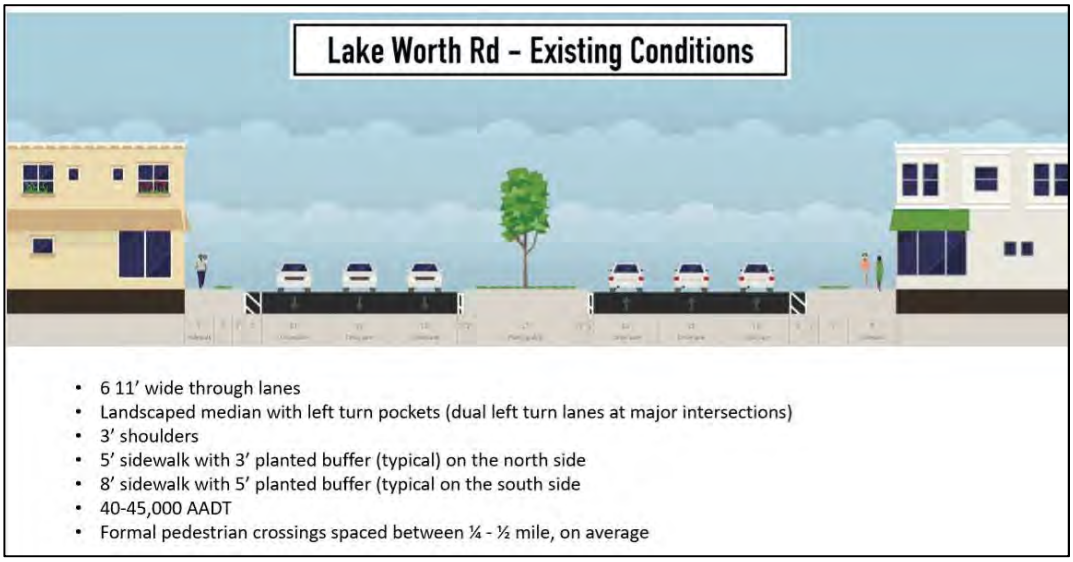
- Participants discussed recent traffic counts, noting the 2016 AADT for the western segment of the Lake Worth Road corridor (from Military Trail to Kirk Road) as 44,545 with lower counts on the eastern segment (from Kirk Road to Congress Avenue) (see image below with excerpt from Palm Beach County 2017 traffic count data). The four-lane configuration of the road immediately east of the Congress Avenue intersection was also discussed along with the lower traffic counts present on that segment.

STA	ROAD	FROM	TO	LANES	LOS	DAILY TRAFFIC VOLUMES					2016 DAILY			2016 AM PEAK HOUR			2016 PM PEAK HOUR		
						2011	2012	2013	2014	2015	DATE	VOL	GR	2-WAY	NB/EB	SB/WB	2-WAY	NB/EB	SB/WB
5307	LAKE IDA RD	Congress Ave	Swinton Ave	4D	1960	19039	18714	18919	19988	21542	2/22/2016	20747	3.12%	1753	1058	695	1961	921	1054
3445	LAKE WORTH RD	South Shore Blvd	120th Av	2	1140		11702	11928	12218	12221	2/10/2016	13161	3.33%	1065	568	525	1121	560	590
4409	LAKE WORTH RD	120th Av	Isles Bl	4D	1960	14905	14438	14670	14802	14871	1/19/2016	15923	2.77%	1439	770	669	1522	705	851
4407	LAKE WORTH RD	Isles Bl	SR-7	4D	1960	27291	25757	26599	26600	26672	1/19/2016	27739	1.41%	2331	1321	1010	2448	1107	1351
4401	LAKE WORTH RD	SR 7	Lyons Rd	6D	2680	32355	30743	34794	37381	38065	4/5/2016	40990	5.61%	2991	1779	1238	3135	1655	1830
4103	LAKE WORTH RD	Lyons Rd	Florida Turnpike	6D	2940				43096	42333	1/19/2016	44333		3650	2187	1481	3882	1798	2101
4201	LAKE WORTH RD	Florida Turnpike	Pinehurst Dr	6D	2680	36088	33882	32373	38071	39166	1/19/2016	39864	7.18%	3089	1362	1776	3406	1849	1557
4645	LAKE WORTH RD	Pinehurst Dr	Jog Rd	6D	2680	45824	46319	45280	46404	46028	1/19/2016	47722	1.77%	3210	1468	1752	3931	2020	1945
4609	LAKE WORTH RD	Jog Rd	Sherwood Forest Blv	6D	2940	42095	42832	43942	45141	45661	2/17/2016	48538	3.37%	3207	1617	1613	3960	2084	1883
4673	LAKE WORTH RD	Sherwood Forest Blvd	Haverhill Rd	6D	2680	40888	39963	42056	43131	41210	3/9/2016	44200	1.67%	2946	1528	1420	3437	1710	1776
4627	LAKE WORTH RD	Haverhill Rd	Military Tr	6D	2940	42224	41047	42285	43957	44371	3/9/2016	45507	2.48%	2953	1727	1268	3599	1774	1856
4611	LAKE WORTH RD	Military Tr	Kirk Rd	6D	2680	41831	41760	43355	42870	42951	3/7/2016	44545	0.91%	2988	1689	1328	3521	1648	1886
4647	LAKE WORTH RD	Kirk Rd	Congress Ave	6D	2940	36874	36598	39516	38338	38415									
4651	LAKE WORTH RD	Congress Ave	Boutwell Rd	4D	1770	25047		24907	24599	23415									

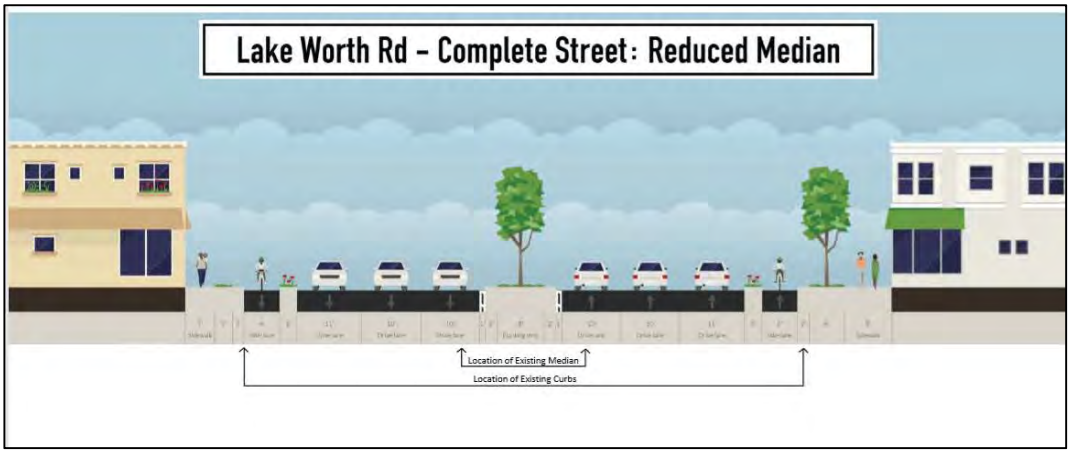
Both municipalities indicated a desire to further explore lane elimination, and the County's prior concerns regarding lane elimination were noted.

Following the general discussion, Alta Planning facilitated a project summary discussion utilizing a "work in progress" presentation (included as Attachment 5), which included an overview of preliminary findings and concepts. The presentation addressed the following topics:

- Review of need and purpose for the study
- Corridor context as identified in the FDOT Complete Streets Design Guide (C-4, Urban General land use and design)
- FDOT design manual regarding roadways in the C4 context (with allowable speeds of 30-45 MPH and lane widths of 10' for roadways designed for 25-35 MPH and 11' for roadways designed for 40-45 MPH)
- The relationship between vehicular travel speeds and the severity of accidents as well as the high amount of pedestrian activity on the corridor
- Design Decision 1: Selection of a Preferred Cross Section
    - A diagram of the existing conditions of the roadway (see image below)

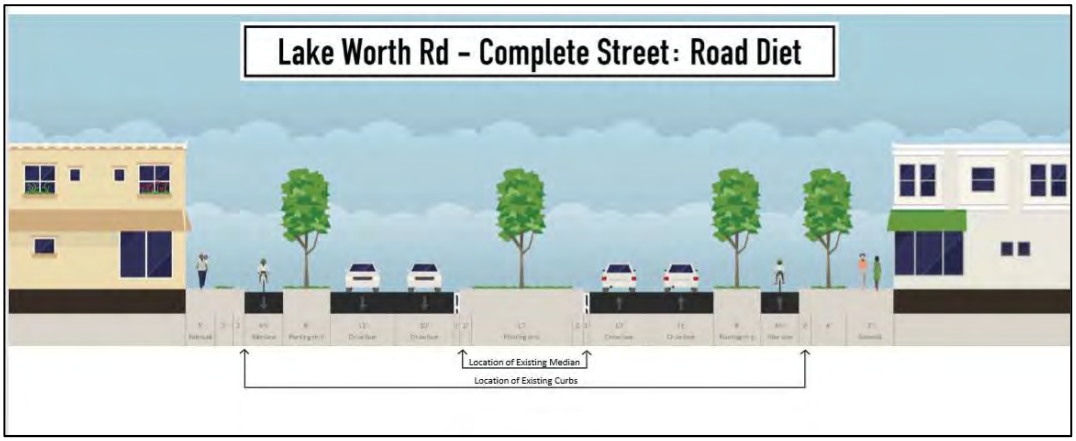


- A diagram of a Complete Streets design alternative with a reduced median and 35 MPH design speed (see image below).



  - Reduced median width from 23' to 14'
  - Reduced 2 inside travel lanes from 11' to 10' (maintain outside travel lane at 11' to accommodate buses)
  - Add 3' planted buffer between travel lanes and bike lane
  - Add 5' buffered bike lane
  - Add shade trees in 6' planting strip
  - Maintain 8' on south side
  - Maintain 5' sidewalk and 3' utility strip on north side (or increase width to 8' by concreting the 3' utility strip)
  - Reduction of design speed from 45 MPH to 35 MPH

- A diagram of a Complete Streets design alternative with a Road Diet (see image below)

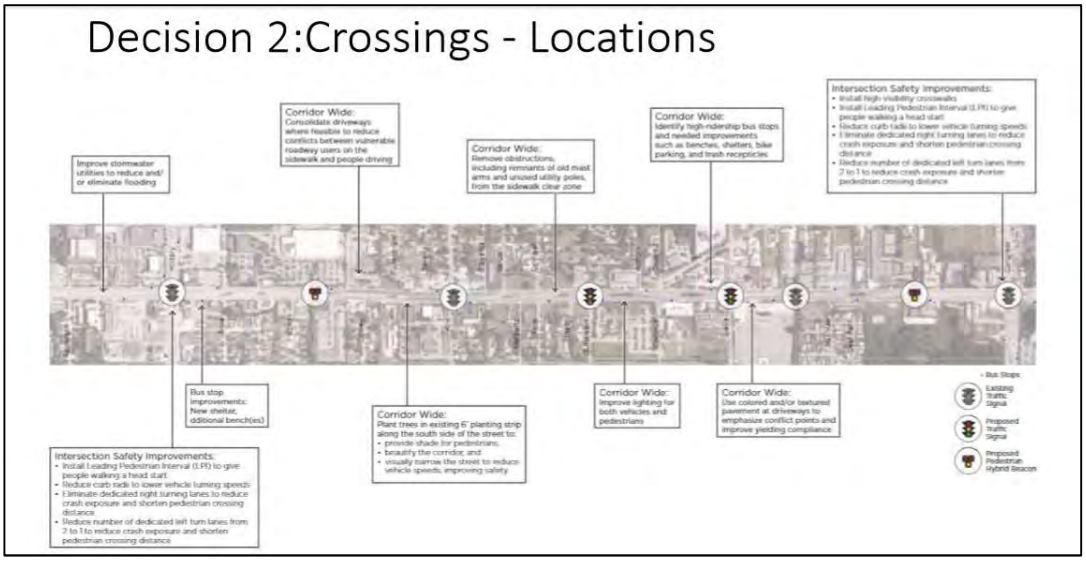


- Maintain center median width of 23’
- Reduce inside travel lane width from 11’ to 10’
- Maintain outside travel lane width of 11’
- Eliminate current outside travel lane
- Add 8’ planting strips on both sides to accommodate installation of shade trees
- Add 6.5’ bike lanes
- Add 6’ planting strip on one side to accommodate installation of shade trees
- Maintain 8’ sidewalk on south side
- Maintain 5’ sidewalk and 3’ utility strip on north side (or increase width to 8’ by concreting the 3’ utility strip)
- Reduction of design speed from 45 MPH to 35 MPH

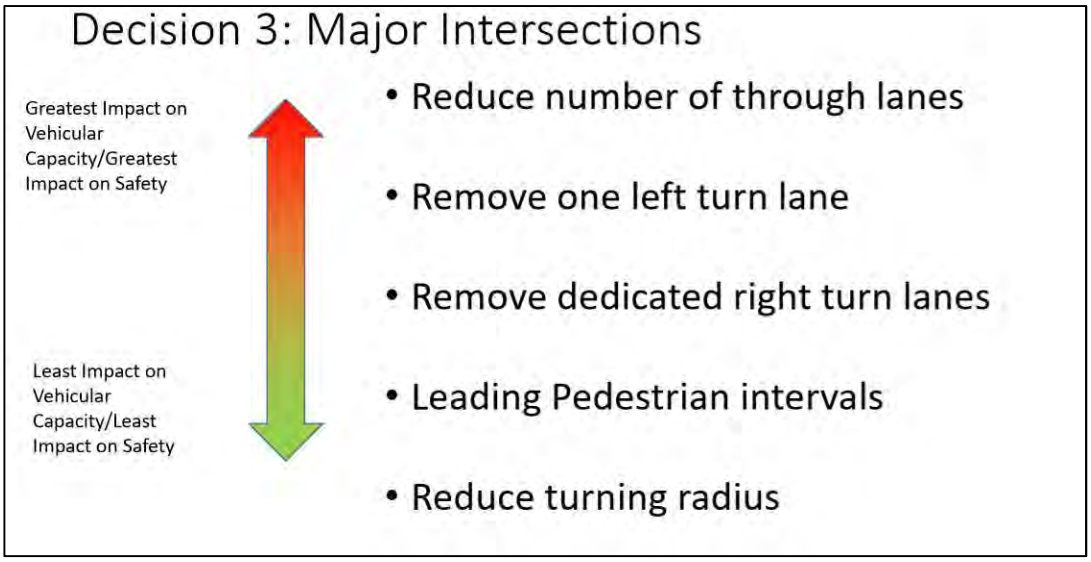
➢ Design Decision 2: Pedestrian Crossings

o Crossing design, location, and the Davis Road signalization as well as the relationship of crossings to design speeds, and traffic calming

o Diagram of potential traffic crossings, including a new traffic signal at the Davis Road intersection and several additional pedestrian-activated crosswalks (see image below)



- Design Decision 3: Major Intersections
    - Discussion of the relationship between intersection design criteria and the impact on vehicular capacity and safety (see image below)
    - Review of intersection sketch prepared by TCRPC staff during the design session which showed that no FDOT ROW is needed and most of the Village of Palm Springs ROW appears to be already in place (it is noted that corner clips for signal poles appear necessary).



- Participants discussed the various design decisions, and there was a consensus that either design alternative was preferable to the existing condition of the corridor. Alta Planning was directed to develop detailed conceptual design plans for the two alternatives to present back to stakeholders at a follow-up meeting (tentatively scheduled for August 22, 2018).

- TCRPC indicated all materials distributed and presented during the design session would be circulated to participants and other stakeholder representatives.

- TCRPC reviewed an updated project study schedule as follows:

May 2018	Staff Level Kickoff
May/June 2018	Data Collection, Field Work
June 2018	Design Session & Presentation of Preliminary Conceptual Plans
Aug 2018	Distribution of Conceptual Plans to Stakeholders Stakeholder Meeting 2 Finalization of Conceptual Plans
Sept/Oct 2018	Presentations to Municipal Councils
Oct/Nov 2018	Presentation of Conceptual Plans to TPA Committees & Board

Next Steps

FDOT	• Provide corridor safety studies as available • Confirm process for speed reduction as requested by local governments • Provide update regarding lighting study • Provide location data regarding utilities as available • Confirm process for signal warrant and ROW acquisition (e.g., with assistance from Village of Palm Springs) for new traffic signal at Davis Road intersection
PalmTran	• Provide status of RPM and potential changes to bus stop locations • Confirm preference and design criteria for bus pull-outs
Greenacres & Palm Springs	• Provide documentation (GIS maps, photos) of drainage problems • Obtain Council direction regarding desired design speed (45 vs 35 MPH) • Provide public hearing dates in September & October for presentation to City/Village Councils • Provide summary of LDR requirements for driveway consolidation, cross-access agreements, and shade trees
TPA	• Confirm availability of TAP and Local Initiative funding for potential multimodal improvements to supplement RRR funds
TCRPC	• Include Palm Beach School District and Lake Worth Drainage District as stakeholder agencies • Assist Greenacres and Palm Springs with speed reduction discussion (e.g., agenda items, model resolution) • Confirm date/location of Stakeholder Meeting 2 (tentative August 22, 2018 at Palm Beach TPA • Circulate design alternative conceptual plans for review by stakeholders prior to Stakeholder Meeting 2 • Provide design session meeting notes for review by stakeholders

ATTACHMENT 1

LW ROAD DESIGN SESSION 6/20/18

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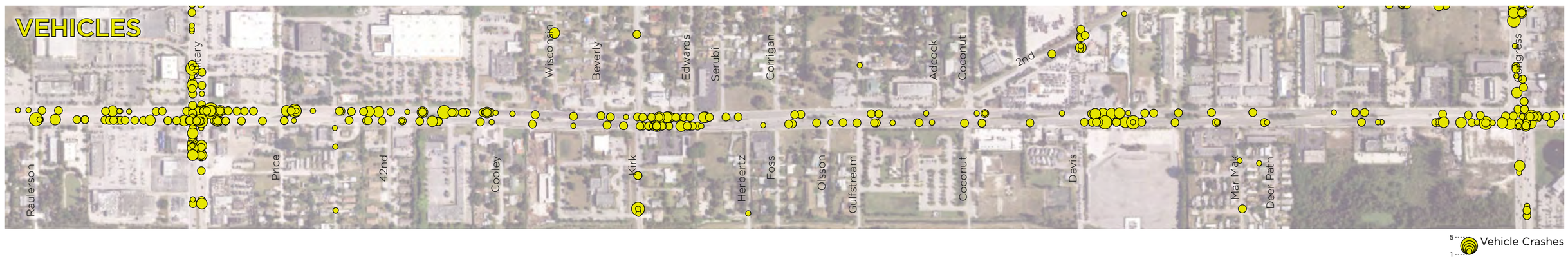
Lake Worth Road

CRASHES BY MODE OF TRANSPORTATION



0 0.25 0.5 MILES

Lake Worth Road

OPPORTUNITIES AND CONSTRAINTS

OPPORTUNITIES

- Wide roadway could be reconfigured in multiple different ways to make more space for people walking and bicycling
- Curb radii could be decreased to reduce vehicle turning speeds and increase rates of yielding to pedestrians, improving safety for vulnerable roadway users
- Use physical lane narrowing, visual narrowing, signal timing, on-street parking, and/or new pedestrian crossings to slow vehicles, improving safety for all road users
- Design treatments such as raised bike lanes, green conflict markings, and high visibility crosswalks could be installed at driveways to improve driver yielding compliance to bicyclists and pedestrians
- Existing planted areas in center median and in planting strips along sidewalks could be used to manage, clean, and infiltrate storm water.
- Wide spacing between existing traffic signals creates multiple opportunities for new pedestrian crossings; existing center medians could be retrofitted with formal pedestrian refuge islands
- Over time, individual properties could be redeveloped to be friendlier to pedestrians
- High-visibility crosswalk markings at major intersections would improve visibility of crosswalks.

CONSTRAINTS

- Traffic volumes are high enough that repurposing standard travel lanes for low-stress bikeways and/or walkways may increase delay for people in cars, trucks, and buses
- Narrowing travel lanes requires special approval from FDOT
- Some re-configurations may exceed available funding
- Accommodating large vehicles such as trucks and buses on this route may require larger curb radii than desired for pedestrian safety
- Design treatments for reducing speeds on multi-lane arterials are limited, and speed reduction may create slightly longer travel times for people traveling in cars, trucks, and buses
- Frequent driveways create conflict points between motor vehicles and pedestrians/bicyclists
- Green infrastructure improvements may fall outside of the project scope and/or exceed available funding
- Traffic speeds, volumes, and number of lanes require relatively expensive improvements to improve pedestrian crossing frequency
- Adjacent land uses are auto-oriented
- High-visibility crosswalks with longitudinal markings have slightly higher installation and maintenance costs

0 0.25 0.5 MILES

Lake Worth Road

SUGGESTED IMPROVEMENTS

Improve stormwater utilities to reduce and/ or eliminate flooding

Corridor Wide:
Consolidate driveways where feasible to reduce conflicts between vulnerable roadway users on the sidewalk and people driving

Corridor Wide:
Remove obstructions, including remnants of old mast arms and unused utility poles, from the sidewalk clear zone

Corridor Wide:
Identify high-ridership bus stops and needed improvements such as benches, shelters, bike parking, and trash recepticles

Intersection Safety Improvements:
- Install high-visibility crosswalks
- Install Leading Pedestrian Interval (LPI) to give people walking a head start
- Reduce curb radii to lower vehicle turning speeds
- Eliminate dedicated right turning lanes to reduce crash exposure and shorten pedestrian crossing distance
- Reduce number of dedicated left turn lanes from 2 to 1 to reduce crash exposure and shorten pedestrian crossing distance

Bus stop improvements:
New shelter, dditional bench(es)

Intersection Safety Improvements:
- Install Leading Pedestrian Interval (LPI) to give people walking a head start
- Reduce curb radii to lower vehicle turning speeds
- Eliminate dedicated right turning lanes to reduce crash exposure and shorten pedestrian crossing distance
- Reduce number of dedicated left turn lanes from 2 to 1 to reduce crash exposure and shorten pedestrian crossing distance

Corridor Wide:
Plant trees in existing 6' planting strip along the south side of the street to:
- provide shade for pedestrians,
- beautify the corridor, and
- visually narrow the street to reduce vehicle speeds, improving safety

Corridor Wide:
Improve lighting for both vehicles and pedestrians

Corridor Wide:
Use colored and/or textured pavement at driveways to emphasize conflict points and improve yielding compliance

- Bus Stops
- Existing Traffic Signal
- Proposed Traffic Signal
- Proposed Pedestrian Hybrid Beacon

0 0.25 0.5 MILES

Work in Progress

Lake Worth Road 3R project

Need and Purpose

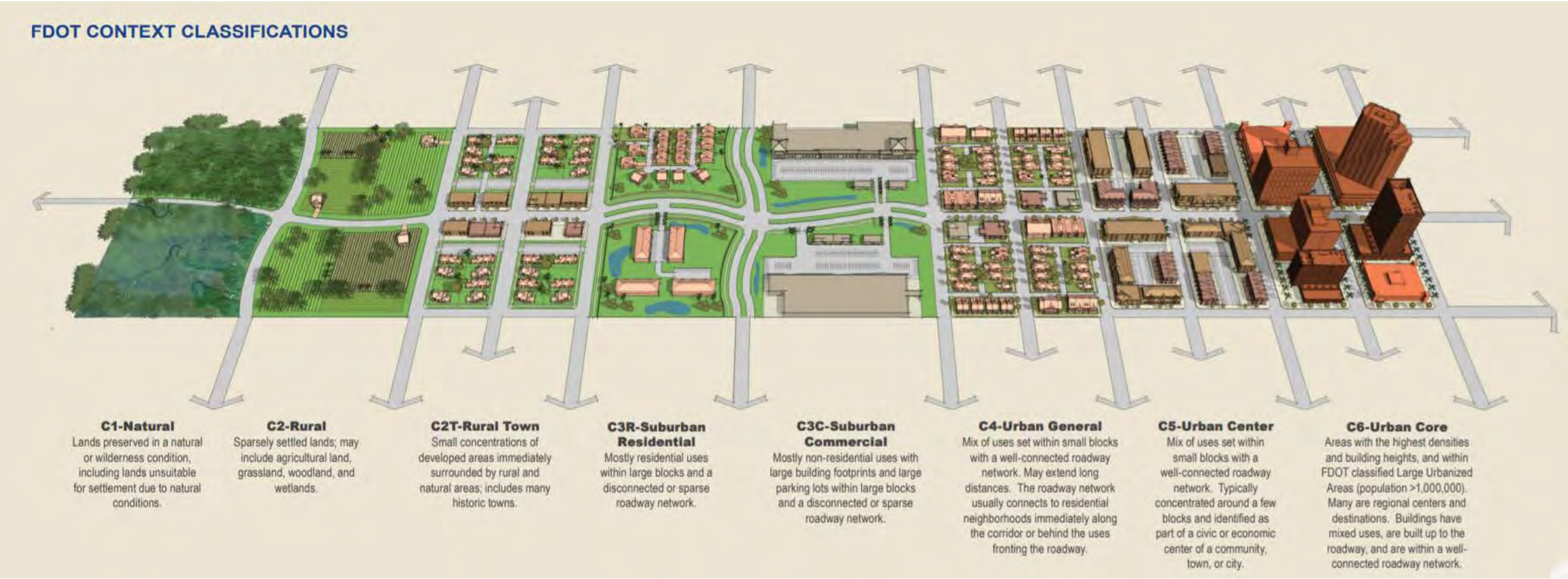
Big Moves

- Safety Improvements
- Crossings and Neighborhood Connections
- Dedicated/Enhanced Space for People Walking and Biking
- Beautification/Comfort/Shade

Other Improvements

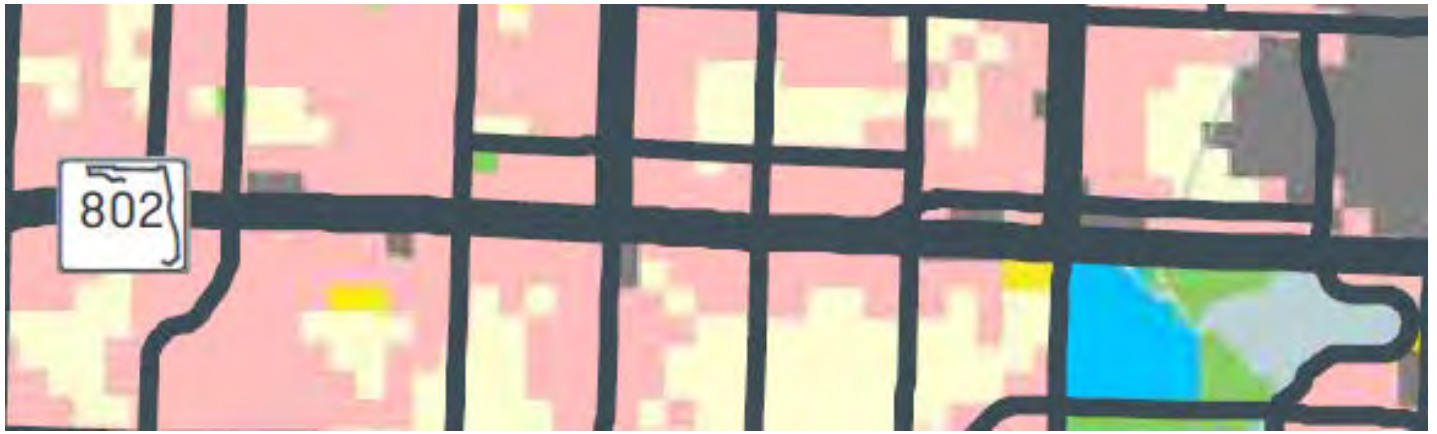
- Clear walkways
- Lighting improvements
- Flooding
- Driveway Consolidation and CleanUp

Corridor Context

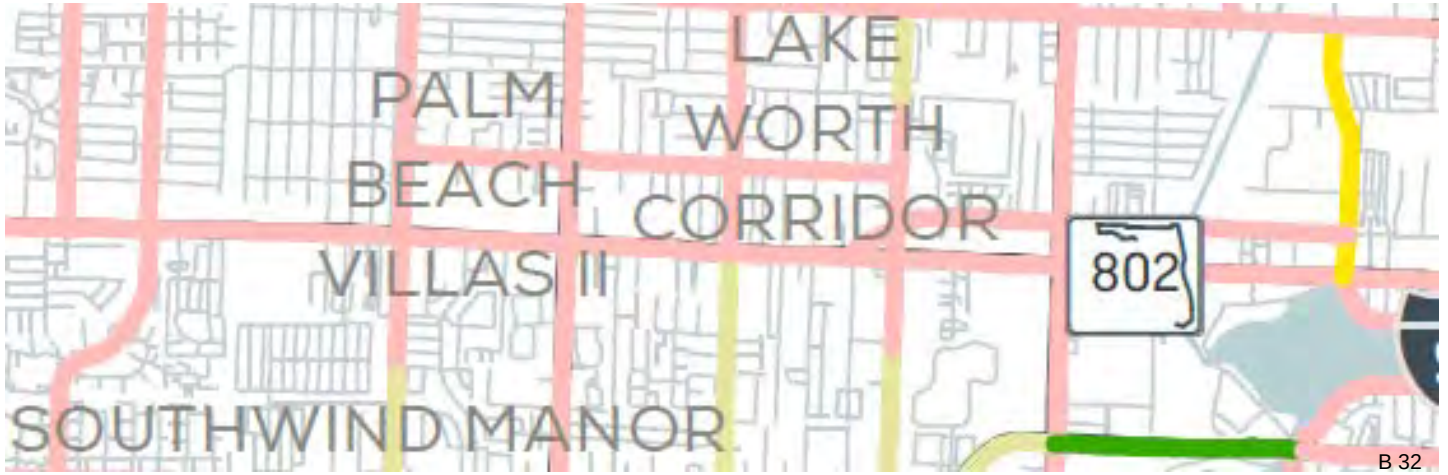


Corridor Context

Land Use
- C4 – General Urban



Roadway Classification
- C4 – General Urban



Corridor Context

Table 201.4.1 Design Speed

Limited Access Facilities (Interstates, Freeways, and Expressways)		
Area	**Allowable Range (mph)**	**SIS Minimum (mph)**
Rural and Urban	70	70
Urbanized	50-70	60
Arterials and Collectors		
Context Classification	**Allowable Range (mph)**	**SIS Minimum (mph)**
C1 Natural	55-70	65
C2 Rural	55-70	65
C2T Rural Town	25-45	40
C3 Suburban	35-55	50
C4 Urban General	30-45	45
C5 Urban Center	25-35	35
C6 Urban Core	25-30	30

Topic #625-000-002
FDOT Design Manual
January 1, 2018

Table 210.2.1 – Minimum Travel and Auxiliary Lane Widths

Context Classification		Travel (feet)			Auxiliary (feet)			Two-Way Left Turn (feet)	
		Design Speed (mph)			Design Speed (mph)			Design Speed (mph)	
		25-35	40-45	≥ 50	25-35	40-45	≥ 50	25-35	40
C1	Natural	11	11	12	11	11	12	N/A	
C2	Rural	11	11	12	11	11	12		
C2T	Rural Town	11	11	12	11	11	12	12	12
C3	Suburban	10	11	12	10	11	12	11	12
C4	Urban General	10	11	12	10	11	12	11	12
C5	Urban Center	10	11	12	10	11	12	11	12
C6	Urban Core	10	11	12	10	11	12	11	12

Travel Lanes:

(1) Minimum 11-foot travel lanes on designated freight corridors, SIS facilities, or when truck volume exceeds 10% with design speed 25-35 mph (regardless of context).

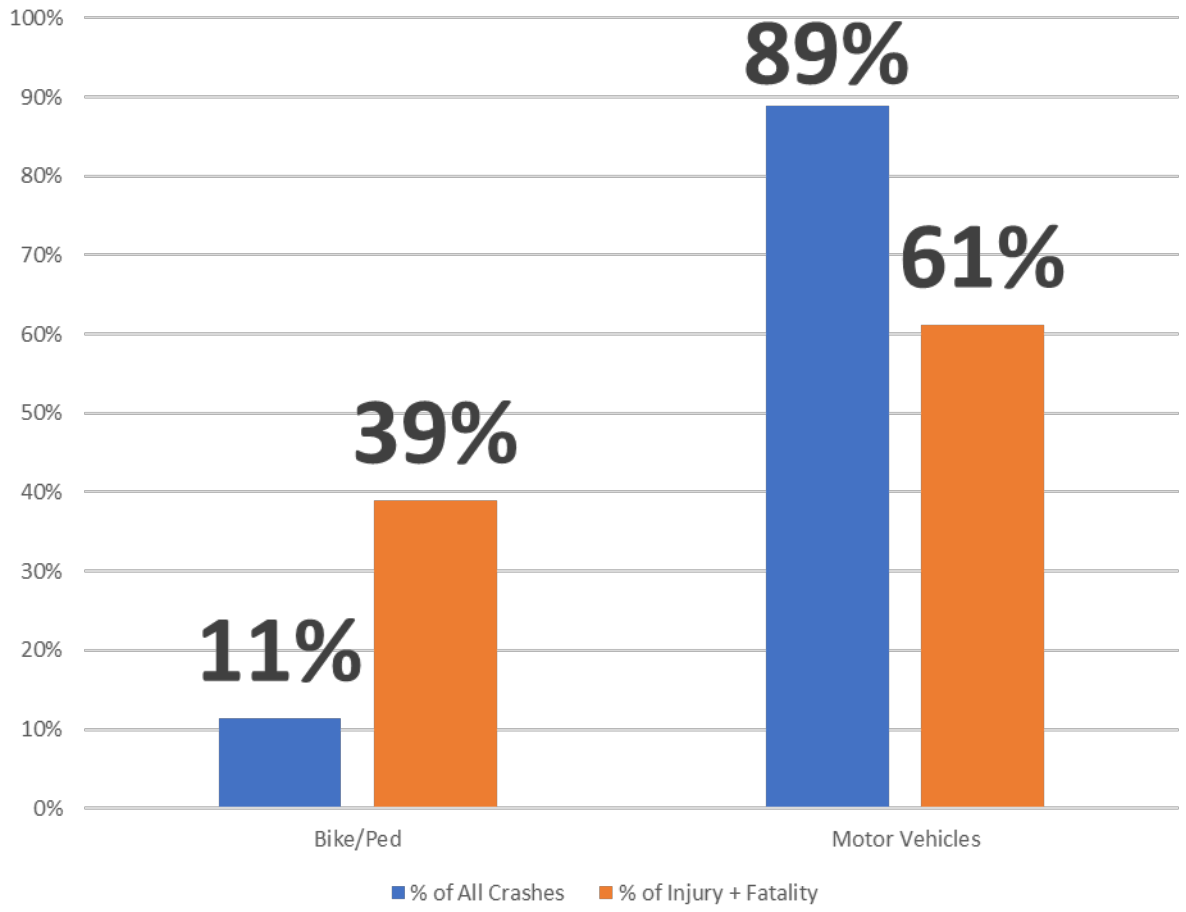
(2) Minimum 12-foot travel lanes on all undivided 2-lane, 2-way roadways (for all context classifications and design speeds). However, 11-foot lanes may be used on 2-lane, 2-way curbed roadways that have adjacent buffered bicycle lanes.

(3) 10-foot travel lanes are typically provided on very low speed roadways, but should consider wider lanes when transit is present or truck volume exceeds 10%.

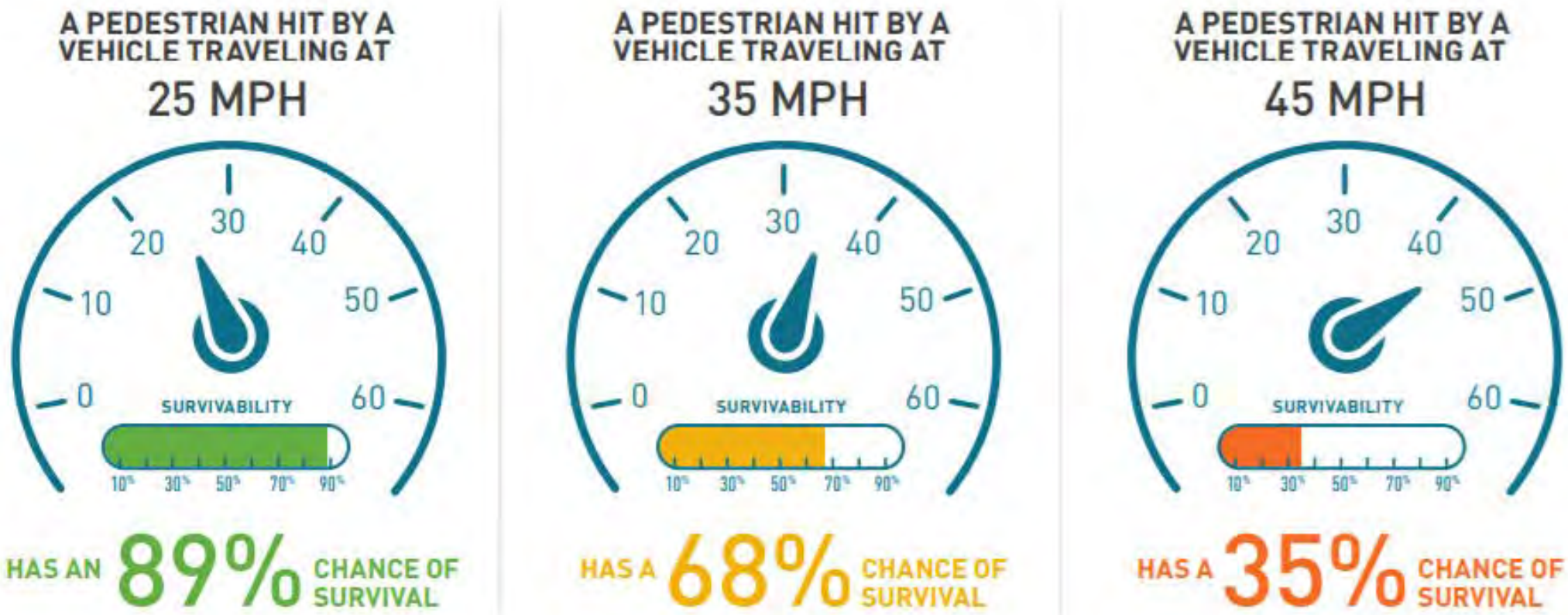
(4) Travel lanes should not exceed 14 feet in width.

Safety Summary

- Avg. 108 crashes per year over 5 years
- Crash approx. every 3 days
- 7% of all crashes involve a serious injury or fatality



Impact of Speed on Chance of Survival



Speed impacts the safety of all users of the street.

Posted Speed vs Actual Speed

Crossings and Neighborhood Connections

Dedicated/Enhanced Space for People

3’

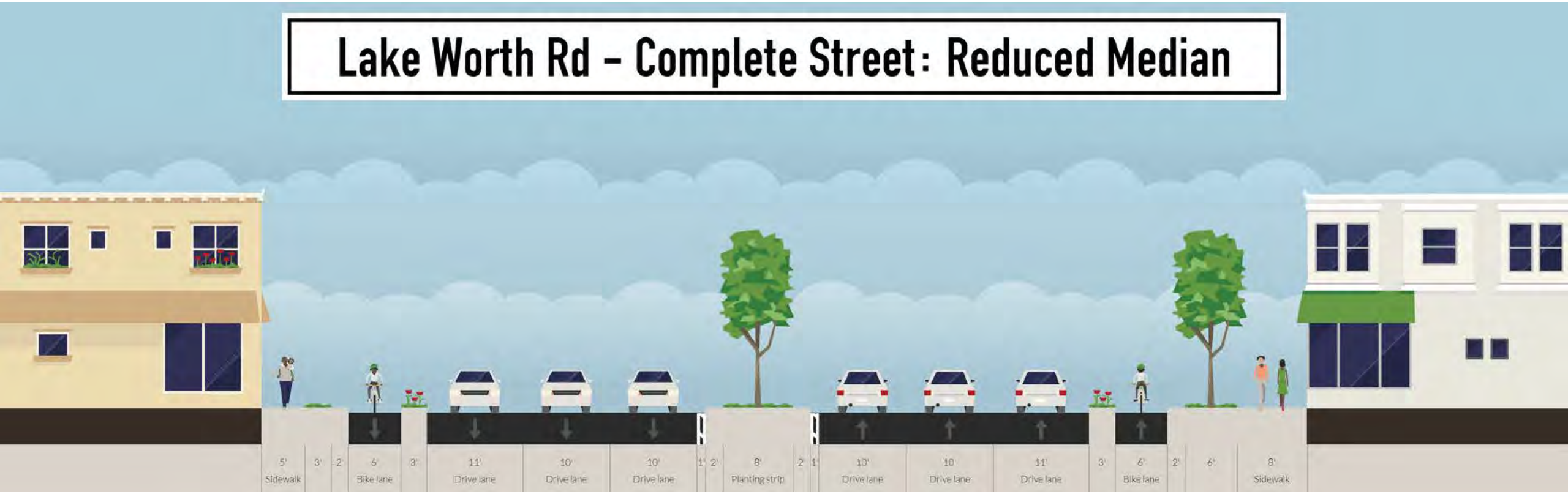
5’

Decision 1:Cross Section Selection

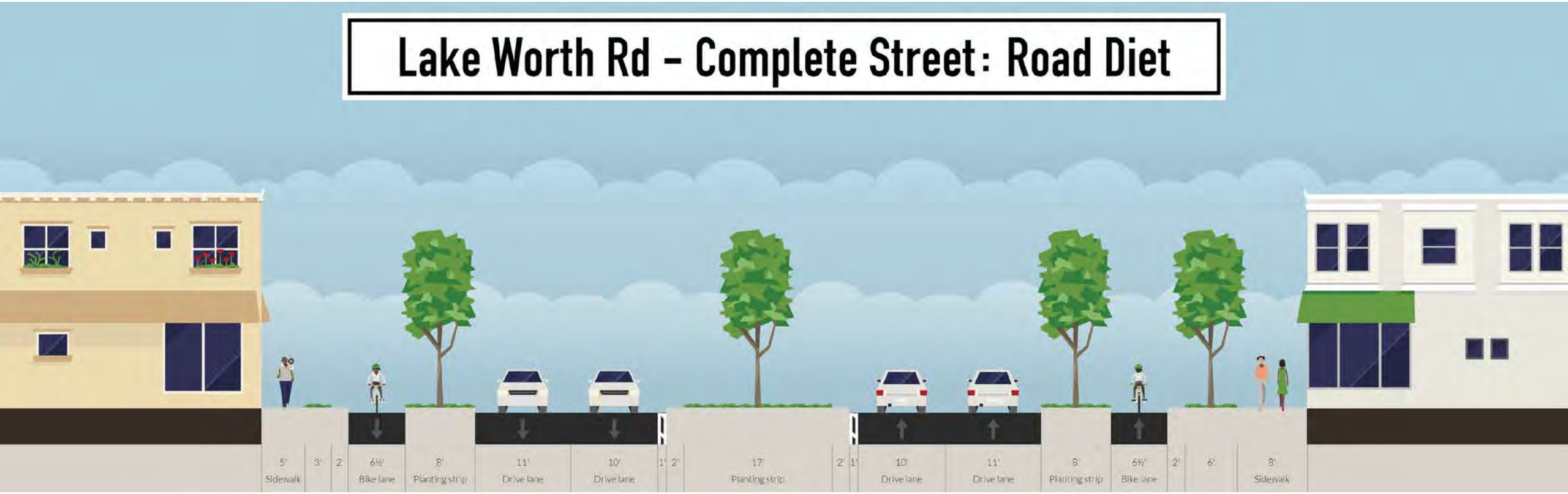
Lake Worth Rd – Existing Conditions

- 6 11’ wide through lanes
- Landscaped median with left turn pockets (dual left turn lanes at major intersections)
- 3’ shoulders
- 5’ sidewalk with 3’ planted buffer (typical) on the north side
- 8’ sidewalk with 5’ planted buffer (typical on the south side
- 40-45,000 AADT
- Formal pedestrian crossings spaced between ¼ - ½ mile, on average

Lake Worth Rd – Complete Street: Reduced Median



Lake Worth Rd – Complete Street: Road Diet



Location of Existing Median

Location of Existing Curbs

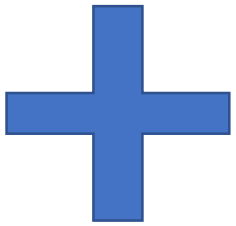
Decision 2:Crossings

- Increase Frequency of Crossings
- Crossing Design
- Design @ Davis

Decision 2:Crossings – Traffic Calming

Narrow Travel Lanes

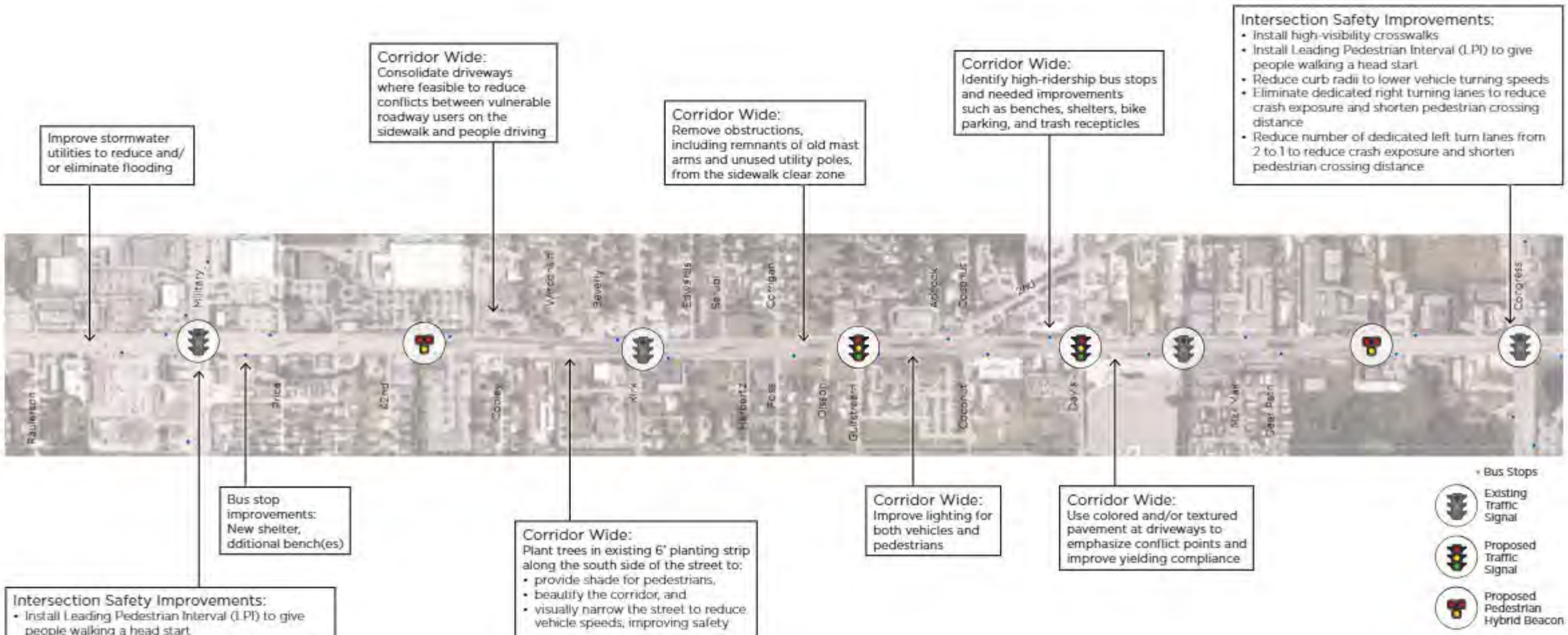
Increase Frequency of Signalized Crossings



Reduce Posted Speed Limit

Traffic Calming at Crossing/Intersections

Decision 2:Crossings - Locations



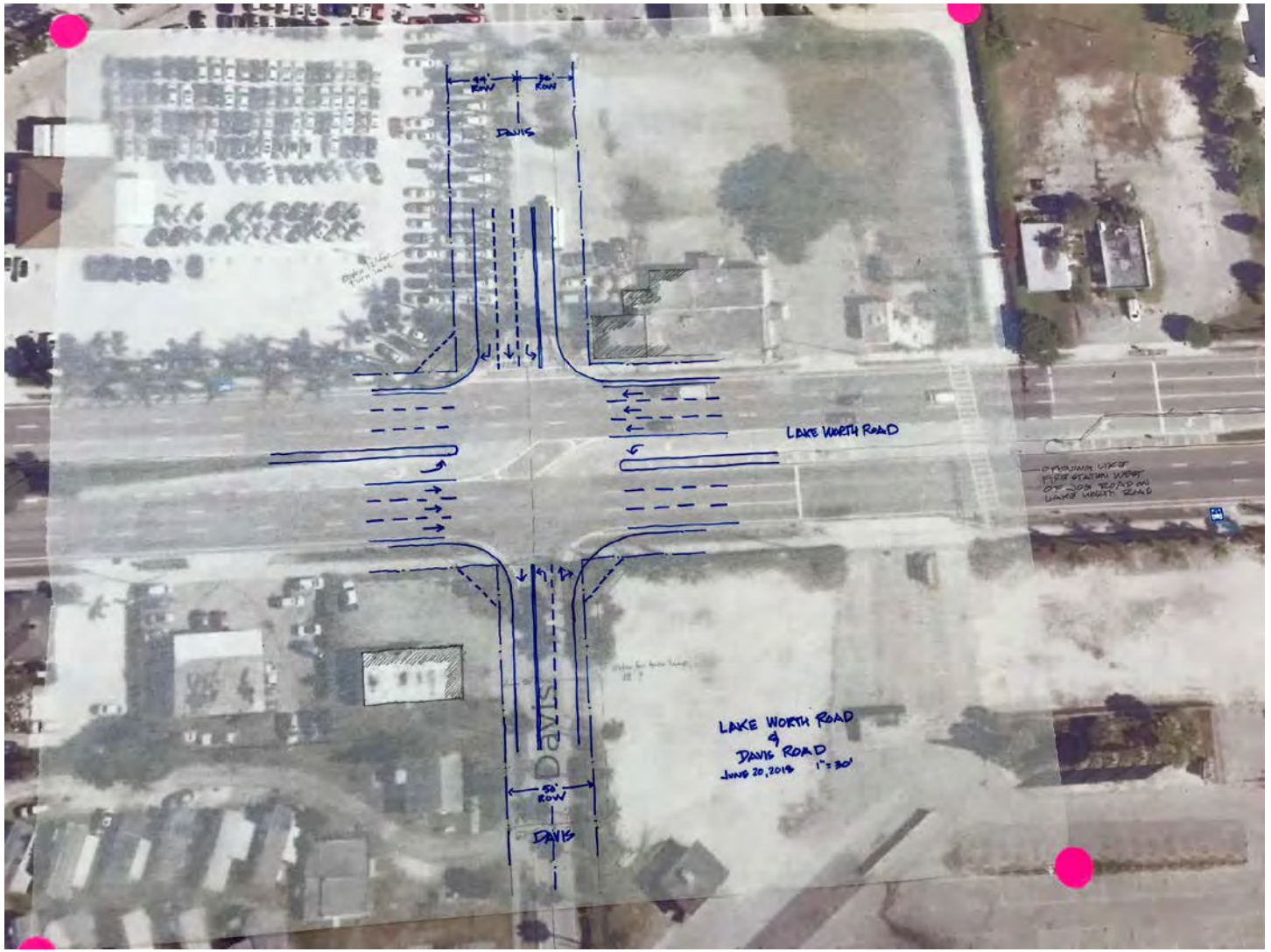
Decision 2:Crossings - Crossing Design

Painted Crossings/Intersections

Decision 2:
Crossings – Crossing Design

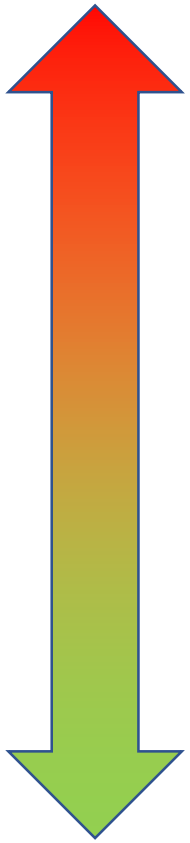
Pedestrian Hybrid Beacons

Decision 2:Crossings – Crossing @ Davis



Decision 3: Major Intersections

Greatest Impact on Vehicular Capacity/Greatest Impact on Safety



Least Impact on Vehicular Capacity/Least Impact on Safety

- Reduce number of through lanes
- Remove one left turn lane
- Remove dedicated right turn lanes
- Leading Pedestrian intervals
- Reduce turning radius

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

MIKE DEW
SECRETARY

November 8, 2018

Mr. Nick Uhren, P.E.
Palm Beach Transportation Planning Agency (TPA)
2300 North Jog Road – 4th Floor
West Palm Beach, FL 33411

Dear Mr. Uhren:

RE: TPA Resolution 2018-17, Lake Worth Road Corridor Design Study

This is in response to your October 25, 2018 letter requesting the Florida Department of Transportation (Department) to accommodate the TPA's resolution relating to design speed and complete street design elements, on the above-mentioned corridor.

The November 5, 2018 meeting (attended by you and Ms. Kim DeLaney) provided the Department's Design Team with a better understanding of the TPA's vision for the corridor. This will greatly assist in our evaluation of the median, through lane, and bicycle lane widths that could accomplish the desired effect, without having to lower the design speed. As you are aware, the Department is currently evaluating available data, including crash history, along with potential approaches that could achieve the TPA's and stakeholders' vision for the corridor. Our design team will continue to work with you and other stakeholders to assess viable typical section options and define the scope for the project.

The Department looks forward to continued cooperation with the Palm Beach TPA on this project. Please feel free to contact the Department's project manager Scott Thurman at (954) 777-4135 or via email at scott.thurman@dot.state.fl.us, for any additional information.

Sincerely,

Gerry O'Reilly, P.E.
District Four Secretary

GO:stj

cc: Michael Busha, Executive Director – Treasure Coast Regional Planning Council
Kim DeLaney, Ph.D., Director of Strategic Dev. & Policy – Treasure Coast Regional Planning Council
Mayur Patel, P.E., District Planning and Environmental Administrator – FDOT
Steve Braun, P.E., District Design Engineer – FDOT
Scott Thurman, P.E., Project Manager – FDOT

GovQA # W011076 102618

RESOLUTION NO. 2018-24

A RESOLUTION ADOPTED BY THE CITY COUNCIL OF THE CITY OF GREENACRES, FLORIDA, SUPPORTING A REQUEST TO HAVE A SAFETY STUDY CONDUCTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) FOR LAKE WORTH ROAD IN CONSIDERATION OF A SPEED REDUCTION; PROVIDING FOR TRANSMITTAL TO THE VILLAGE OF PALM SPRINGS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT); AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Lake Worth Road Corridor is a primary corridor through the City of Greenacres; and

WHEREAS, the Lake Worth Road Corridor provides a "front door" welcome to residents and visitors to the City of Greenacres; and

WHEREAS, Lake Worth Road provides an essential connection from the Florida Turnpike, as well as the county's western Palm Beach County communities, through the City of Greenacres to the eastern portion of Palm Beach County; and

WHEREAS, Lake Worth Road corridor also provides direct connections to LC Swain Middle School and indirect connections to Greenacres Elementary School for bicycle and pedestrian traffic; and

WHEREAS, there is substantial pedestrian and cyclist activity on Lake Worth Road for residential, commercial, educational, institutional, recreational, and other purposes; and

WHEREAS, the Lake Worth Road Corridor has been identified as one of the most dangerous roadways in Palm Beach County by the Palm Beach TPA due to the high number and severity of accidents on the corridor; and

WHEREAS, there is a direct correlation between the speed of a roadway, roadway design, and the number and severity of accidents, including pedestrian and cyclist fatalities; and

WHEREAS, the current posted speed on Lake Worth Road within the City of Greenacres is 45 MPH; and

WHEREAS, the current posted speed on Lake Worth Road within the Village of Palm Springs along the portion of Lake Worth Road from South Military Trail to Congress Avenue is 40 MPH speed, and 35 MPH along the portion of Lake Worth Road from Congress Avenue east; and

WHEREAS, the portion of Lake Worth Road from Congress Avenue west through the City of Greenacres has urban characteristics; a high degree of pedestrian, cyclist, and transit usage; a significant number of driveways; and a history of severe accidents, including pedestrian and cycling fatalities; and

WHEREAS, Lake Worth is a state roadway, falling under the jurisdiction of FDOT for design, maintenance, and vehicular speed designations; and

WHEREAS, in July 2018, FDOT will begin an analysis to "Resurface, Restore and Rehabilitate" (RRR) Lake Worth Road from Raulerson Drive to Congress Avenue, including a portion within the City of Greenacres; and

WHEREAS, the Village of Palm Springs desires to reduce the speed limit on the portion of Lake Worth Road that traverses their jurisdiction to 35 MPH; and

WHEREAS, a 35 MPH designation for this portion of Lake Worth Road would require slower speed vehicular traffic and the narrowing of vehicular travel lanes, which would provide a safer condition on the roadway; and

WHEREAS, the City of Greenacres is working with the Village of Palm Springs and other agencies to address the significant safety concerns associated with Lake Worth Road; and

WHEREAS, the Village of Palm Springs is requesting FDOT reduce the posted and design speed of its portion of Lake Worth Road from 40 MPH to 35 MPH in order to improve the safety of the corridor and provide the ability to make design modifications; and

WHEREAS, the City of Greenacres considers safety of residents and visitors to be of the utmost priority; and

WHEREAS, a design and posted speed of 35 MPH would help improve the safety of Lake Worth Road within the Village of Palm Springs; and

WHEREAS, a reduction in the design and posted speed limit of Lake Worth Road within the City of Greenacres would also improve the safety of the roadway;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GREENACRES, FLORIDA, THAT:

Section 1. The City of Greenacres requests FDOT initiate a "safety study" to evaluate the conditions on Lake Worth Road; and

Section 2. The FDOT safety study consider the unique conditions present along the corridor, including schools, the high number of destinations, the high number of driveways, the high and increasing amount of pedestrian, cyclist, and transit usage; and the visual impacts of sunset for westbound afternoon drivers.

Section 3. A speed reduction to 35 MPH shall be considered as part of the design plans for the planned FDOT RRR project for the subject portion of Lake Worth Road.

Section 4. This resolution shall take effect immediately upon its adoption.

RESOLVED AND ADOPTED this 6th day of August, 2018.

	Voted
Joel Flores **Mayor**	
Paula Bousquet **Deputy Mayor**	(Yes)
Attest: **Joanna Cunningham** **City Clerk**	
John Tharp **Council Member, District I**	(Yes)
Peter Noble **Council Member, District II**	(Yes)
Judith Dugo **Council Member, District III**	(Yes)
Jonathan G. Pearce **Council Member, District IV**	(No)

Approved as to Form and Legal Sufficiency:

Glen J. Torcivia
City Attorney

Village of Palm Springs
"a great place to call home"

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561.965.4010 • Fax 561.965.0899

September 26, 2018

The Honorable Gerry O'Reilly
District Secretary
FDOT District 4
3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

RE: Request for Speed Reduction on Lake Worth Road (State Road 802)

Dear District Secretary O'Reilly:

I am writing to formally request the Florida Department of Transportation (FDOT) consider a request by the Village Council of the Village of Palm Springs to reduce the posted and design speed on the portion of Lake Worth Road that traverses the Village (E-4 Keller Canal west to Military Trail). This request is being made following unanimous approval of Resolution No. 2018-21 on July 12, 2018 by the Village of Palm Springs Village Council.

This corridor was annexed into the Village limits in 2014 and has been a safety concern for our community and our Police Department since its incorporation. Additionally, the long-standing safety issues that are being experienced have existed for a number of years prior to the roadway coming into the Village; therefore, something to improve the safety for those utilizing this road must be done as soon as possible.

Recently, the Palm Beach Metropolitan Planning Organization (MPO) (renamed as the Palm Beach Transportation Planning Agency) conducted a Pedestrian and Bicycle Safety Study (in 2017) that identified Lake Worth Road as a "high crash corridor." Further, this section of Lake Worth Road has become so dangerous that it has been labeled as the "Corridor of Death" as a result of a WPBF25 (television) news investigative report[1].

Since January 2016 to present, our Police Department has responded to 515 crashes, including 143 injuries and 2 fatalities. Additionally, from January 2013 to September 2018 (present) there have been 21 traffic fatalities. The investigating agencies for these traffic fatalities include: 11 worked by the Palm Springs Police Department, 6 worked by the Florida Highway Patrol and 4 worked by the Palm Beach County Sheriff's Office.

[1] WPBF25 reported 50 crashes along the road from August 2008 to January 2009.

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As a result, the total number of accidents that are occurring along this road is significantly impacting the safety and lives of our community residents, businesses, students, visitors and stakeholders. Thus, improving pedestrian and bicycle deficiencies as part of the FDOT's planned Resurfacing, Restoration and Rehabilitation (RRR) Project for Lake Worth Road is timely and, in fact, warranted due to the significant existing safety concerns and the high number of Village and unincorporated residents who live in this area and depend on this roadway (i.e., walk, bike, public transit, school bus transit, etc.) to shop, go to work and attend school (public school as well as Palm Beach State College).

We strongly believe that by our request to reduce speed limits into the FDOT's upcoming RRR project for Lake Worth Road would be consistent with FDOT's Complete Streets Policy and Design Manual while also enabling the FDOT and the Village of Palm Springs (and other surrounding local governments and state agencies) to work collaboratively to provide a safer and healthier roadway that does not consistently endanger our residents.

I appreciate your consideration of our community's request that the FDOT consider a speed reduction as part of the design plans for the RRR project on this dangerous portion of Lake Worth Road. We are working to continuously improve the livability of our region of Palm Beach County and FDOT taking on this action would make a big impact in achieving this goal.

Thank you for your ongoing support of our Village and for your consideration to providing a safe, multi-modal corridor for our residents, businesses, students, visitors and stakeholders.

Sincerely,

Bev Smith
Mayor

Attachment

c: The Honorable Rick Scott, Governor of the State of Florida
The Honorable Mike Dew, Secretary of the Florida Department of Transportation
Village of Palm Springs Village Council
The Honorable Lori Berman, Florida Senator - District 31
The Honorable David Silvers, Florida House of Representative - District 87
The Honorable Melissa McKinlay, Mayor, and Members of the Palm Beach County Board of County Commissioners
The Honorable David Kerner, Commissioner - Palm Beach County Board of County Commissioners

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The Honorable Joel Flores, Mayor - City of Greenacres
The Honorable Pam Triolo, Mayor – City of Lake Worth
The Honorable Anne Gerwig – President – The Palm Beach County League of Cities
Richard J. Reade, Village Manager – Village of Palm Springs
Andrea McCue, City Manager - City of Greenacres
Mike Bornstein, City Manager – City of Lake Worth
Verdenia Baker, County Administrator - Palm Beach County Board of County Commissioners
Glen Torcivia, Village Attorney - Village of Palm Springs
Ava Parker, President – Palm Beach State College
Steve Braun, Planning & Environmental Engineer - FDOT District 4
Scott Thurman, Project Manager - FDOT District 4
Nick Uhren, Executive Director - Palm Beach Transportation Planning Agency
Richard Radcliffe, Executive Director – The Palm Beach County League of Cities
Thomas Lanahan, Executive Director - Treasure Coast Regional Planning Council
Kim DeLaney, Director of Strategic Development & Policy - Treasure Coast Regional Planning Agency

RESOLUTION NO. 2018-21

A RESOLUTION OF THE VILLAGE OF PALM SPRINGS SUPPORTING A REQUEST TO HAVE A SAFETY STUDY CONDUCTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) FOR LAKE WORTH ROAD IN CONSIDERATION OF A SPEED REDUCTION; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Lake Worth Road Corridor is a primary corridor through the Village of Palm Springs; and

WHEREAS, the Lake Worth Road Corridor provides a "front door" welcome to residents and visitors to the Village of Palm Springs; and

WHEREAS, Lake Worth Road provides an essential connection from the Florida Turnpike to the Village of Palm Springs; and

WHEREAS, Lake Worth Road provides direct connections to schools, neighborhoods and destinations in the Village of Palm Springs; and

WHEREAS, there is substantial pedestrian and cyclist activity on Lake Worth Road for residential, commercial, educational, institutional, recreational, and other purposes; and

WHEREAS, the Lake Worth Road Corridor has been identified as one of the most dangerous roadways in Palm Beach County by the Palm Beach TPA due to the high number and severity of accidents on the corridor; and

WHEREAS, there is a direct correlation between the speed of a roadway, roadway design, and the number and severity of accidents, including pedestrian and cyclist fatalities; and

WHEREAS, the current posted speed on Lake Worth Road is 45 MPH; and

WHEREAS, the portion of Lake Worth Road from Congress Avenue west through the Village of Palm Springs has urban characteristics; a high degree of pedestrian, cyclist, and transit usage; a significant number of driveways; and a history of severe accidents, including pedestrian and cycling fatalities; and

WHEREAS, Lake Worth is a state roadway, falling under the jurisdiction of FDOT for design, maintenance, and vehicular speed designations; and

WHEREAS, in July 2018, FDOT will begin an analysis to "Resurface, Restore and Rehabilitate" (RRR) Lake Worth Road from Raulerson Drive to Congress Avenue, including a portion within the Village of Palm Springs; and

WHEREAS, a 35 MPH designation for this portion of Lake Worth Road would require slower speed vehicular traffic and enable the narrowing of vehicular travel lanes, which would provide a safer condition on the roadway; and

WHEREAS, the Village of Palm Springs is working with the City of Greenacres and other agencies to address the significant safety concerns associated with Lake Worth Road; and

WHEREAS, the Village of Palm Springs, through which Lake Worth traverses is requesting FDOT reduce the posted and design speed of its portion of Lake Worth Road from 45 MPH to 35 MPH to improve the safety of the corridor; and

WHEREAS, that portion of Lake Worth Road from Congress Avenue east has a posted speed of 35 MPH; and

WHEREAS, the Village of Palm Springs considers safety of residents and visitors to be of the utmost priority; and

WHEREAS, a design and posted speed of 35 MPH would help improve the safety of Lake Worth Road.

NOW THEREFORE, BE IT RESOLVED BY THE VILLAGE COUNCIL OF THE VILLAGE OF PALM SPRINGS, FLORIDA, as follows:

Section 1. The Village of Palm Springs requests FDOT initiate a "safety study" to evaluate the conditions on Lake Worth Road.

Section 2. The FDOT safety study consider the unique conditions present along the corridor, including schools, the high number of destinations, the high number of driveways, the high and increasing amount of pedestrian, cyclist, and transit usage; the visual impacts of sunset for westbound afternoon drivers.

Section 3. A speed reduction to 35 MPH be considered as part of the design plans for the planned FDOT RRR project for the subject portion of Lake Worth Road.

Section 4. This Resolution shall take effect immediately upon adoption. Council Member Gunther offered the foregoing resolution. Council Member Waller seconded the motion, and upon being put to a vote, the vote was as follows:

	Aye	Nay	Absent
BEV SMITH, MAYOR	✓	☐	☐
DOUG GUNTHER, VICE MAYOR	✓	☐	☐
JONI BRINKMAN, MAYOR PRO TEM	✓	☐	☐
PATTI WALLER, COUNCIL MEMBER	✓	☐	☐
LIZ SHIELDS, COUNCIL MEMBER	☐	☐	✓

The Mayor thereupon declared this Resolution duly passed and adopted this 12th day of JULY, 2018.

VILLAGE OF PALM SPRINGS, FLORIDA

BY: _____

BEV SMITH, MAYOR

ATTEST:

BY: Kimberly M. Wynn

KIMBERLY M. WYNN, VILLAGE CLERK

VILLAGE OF PALM SPRINGS SEAL 1957 FLORIDA

REVIEWED FOR FORM AND LEGAL SUFFICIENCY

BY: _____

GLEN J. TORCIVIA, VILLAGE ATTORNEY

Appendix C

Scope of 3R Project 441632-1

Approved Scope (Click to collapse)

Current Approved Project Scope (Click to collapse)

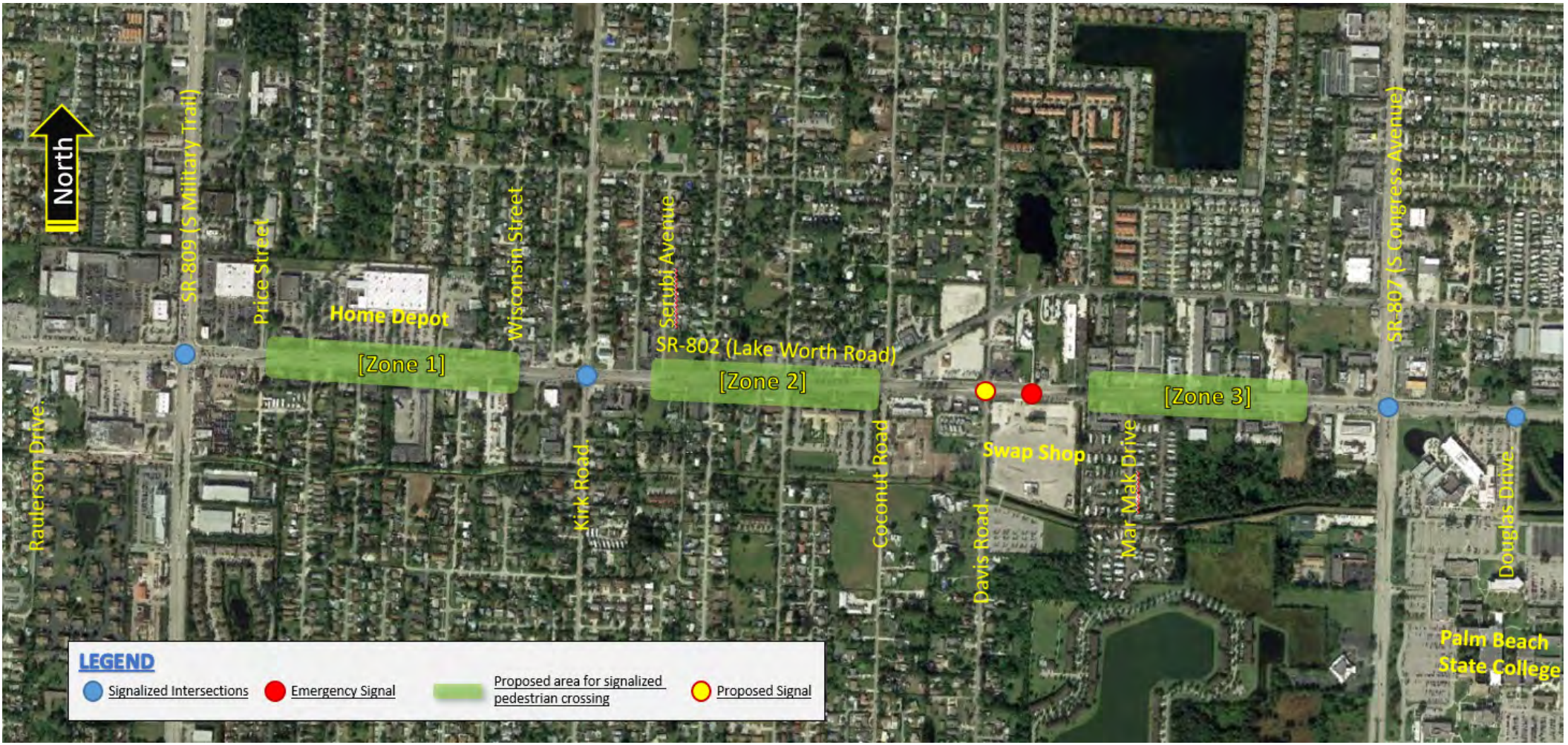
Scope Definition: This RRR project is located in Palm Beach County. Limits are from Raulerson Drive (MP 5.504) to Palm Beach State College entrance (MP 7.357). SR 802 is classified as an urban principal arterial other throughout the limits of the project. The corridor is comprised of a 6-lane section (3-lanes in each direction), with auxiliary lanes. There are no designated bike lanes, but there are 'Share Road' signs within the project limits. There is curb and gutter type F and Type E on the outside and inside, respectively. The posted speed limit for the corridor is 40 MPH.

Scope Elements:

ADA	Sidewalk on both sides from the beginning to the end of the project. The curb ramps will need to be upgraded to have detectable warnings at Military Trail, Kirk Road, Coconut Road and Davis Road.
Context Sensitive Solutions	To assist the department in helping to meet stakeholders expectations regarding miscellaneous aesthetics and decorative features, as well as pedestrian, bicyclist and transit friendly options. This process will emphasize and encourage discussions among inter- disciplinary professions, local government officials, homeowners and business associations and other local interest groups regarding but not limited to; miscellaneous aesthetics, decorative features, and pedestrian friendly options.
Drainage	The urban section of the project features a closed drainage system with type F curb and gutter on the outside and curb drainage structures. No modifications needed.
Landscaping/Hardscape	Landscape medians are present within the project limits. No modifications needed.
Lighting	Lighting is provided on both sides of the roadway the entire length of the project.
Signalization	There are 4 signalized intersection, and 1 signalized mid-block crossing within the project limits. The signals at Kirk Road are strain poles, and the other 3 are mast arms. The mid-block crossing signals are mounted on concrete poles. All signal heads will need to be upgrade to have back-plates to meet current standards.
Signing and Marking	Existing signs to be replaced only based on condition and reflectivity. Pavement markings to be replaced due to milling and resurfacing and upgraded to current standards. There are no designated bike lanes within the corridor, but there are 'SHARE ROAD' bike signs throughout.
Transit/Modal	Palm Beach County's Public Transportation system has several bus stop locations within the project limits on both sides of the roadway. 10 bus stop locations will require bus pad connections from the back of curb to the face of the sidewalk.
Typical Section	The typical section consists of 6 travel lanes (3 in each direction), with widths of 3-11' lanes and auxiliary lanes for left and right turn movements. There is type F curb and gutter on the outside and Type E curb and gutter on the inside for both directions. The median is 22', with a combination of traffic separator/lanes and some landscaping. 5' (minimum width) concrete sidewalk is found in both directions.
Utilities	Overhead utilities are present throughout the project limits. Underground utilities including water and sewer were observed.
Roadway	Mill and resurface 2.50" the entire project (final pavement design will be determined during the design phase). Type F and Type E curb and gutter are in good condition.
Sidewalks	There is 5' minimum sidewalk on both sides of the roadway. Reconstruction of a few concrete driveways are needed.

Appendix D

Proposed Locations for Pedestrian Signalized Crossings


North
SR-809 (S Military Trail)
Price Street
Home Depot
[Zone 1]
Wisconsin Street
Scrubj Avenue
SR-802 (Lake Worth Road)
[Zone 2]
[Zone 3]
SR-807 (S Congress Avenue)
Rauterson Drive
Kirk Road
Coconut Road
Swap Shop
Davis Road
Mar Mak Drive
Douglas Drive
Palm Beach State College
LEGEND
Signalized Intersections
Emergency Signal
Proposed area for signalized pedestrian crossing
Proposed Signal

Appendix E

Extended Period Crash Data Review

Crash data from January 2017 to June 2019 were extracted from the State Crash Analysis Reporting System (CARS) and Tindale Oliver's Crash Data Management System (CDMS) along the study area.

Summary of the most recent crash data combined with previously reviewed crashes from years 2014, 2015 and 2016 is presented in **Table 1**.

Table 1: Crash Statistics (2014–2019)

SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive		Years						5.5-Year Total	Mean Crashes	%
		2014	2015	2016	2017	2018	2019			
Crash Type	Angle	15	17	24	54	29	11	150	27.3	13.7%
	Bike	9	16	5	0	4	1	35	6.4	3.2%
	Pedestrian	5	4	2	2	8	4	25	4.5	2.3%
	Near miss	1	0	1	0	0	0	2	0.4	0.2%
	Rear-end	73	93	106	114	71	36	493	89.6	45.2%
	Head-on	2	2	3	4	5	1	17	3.1	1.6%
	Left-turn	9	9	13	5	7	4	47	8.5	4.3%
	Hit Fixed Object	11	7	6	9	14	2	49	8.9	4.5%
	Hit Non-Fixed Object	0	1	1	1	2	0	5	0.9	0.5%
	Right-turn	4	4	7	5	2	4	26	4.7	2.4%
	Sideswipe	29	37	61	36	24	21	208	37.8	19.1%
	Single Vehicle	1	1	0	2	2	0	6	1.1	0.5%
	Run off Road	0	0	0	0	0	0	0	0	0.0%
	Backed into	1	3	0	0	0	0	4	0.7	0.4%
	Animal	0	0	0	0	0	0	0	0	0.0%
	U-Turn	6	4	1	6	5	2	24	4.4	2.2%
	Unknown	0	0	0	0	0	0	0	0	0.0%
	Total	*166*	*198*	*230*	*238*	*173*	*86*	*1091*	*198.4*	*100%*
Injury Severity	Fatal	1	4	0	0	2	4	11	2	1.0%
	Incapacitating	10	5	4	4	5	0	28	5.1	2.6%
	Non Incapacitating	26	20	11	14	14	6	91	16.5	8.3%
	Possible Injury	43	46	38	34	28	16	205	37.3	18.8%
	None	86	123	177	186	124	60	756	137.5	69.3%
	Total	*166*	*198*	*230*	*238*	*173*	*86*	*1091*	*198.4*	*100%*
Lighting Condition	Daylight	117	139	172	162	121	56	767	139.5	70.3%
	Dawn	1	4	3	0	2	2	12	2.2	1.1%
	Dusk	7	3	11	4	8	1	34	6.2	3.1%
	Dark-Lighted	35	48	44	65	39	27	258	46.9	23.6%
	Dark-Not Lighted	1	3	0	7	3	0	14	2.5	1.3%
	Dark-Unknown Lighting	5	1	0	0	0	0	6	1.1	0.5%
	Total	*166*	*198*	*230*	*238*	*173*	*86*	*1091*	*198.4*	*100%*
Surface Conditions	Dry	139	167	203	215	153	74	951	172.9	87.2%
	Wet	27	31	27	23	20	12	140	25.5	12.8%
	Total	*166*	*198*	*230*	*238*	*173*	*86*	*1091*	*198.4*	*100%*

Table 2 presents a summary of pedestrian and bicycle crashes within the study segment and during the extended analysis period from 2014 to 2019.

Table 2: Pedestrian-Bicycle Crash Summary (2014–2019)

SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive		Years						5.5-Year Total	Mean Crashes	%
		2014	2015	2016	2017	2018	2019			
Crash Type	Bike	9	16	5	0	4	1	35	6.4	58.3%
	Pedestrian	5	4	2	2	8	4	25	4.5	41.7%
	Total	*14*	*20*	*7*	*2*	*12*	*5*	*60*	*10.9*	*100%*
Injury Severity	Fatal	1	3	0	0	1	2	7	1.3	11.7%
	Incapacitating	3	2	0	0	4	0	9	1.6	15.0%
	Non Incapacitating	4	4	5	2	3	1	19	3.5	31.7%
	Possible Injury	4	9	2	0	1	1	17	3.1	28.3%
	None	2	2	0	0	3	1	8	1.5	13.3%
	Total	*14*	*20*	*7*	*2*	*12*	*5*	*60*	*10.9*	*100%*
Lighting Condition	Daylight	8	11	7	1	9	2	38	6.9	63.3%
	Dawn	0	1	0	0	0	0	1	0.2	1.7%
	Dusk	1	0	0	0	0	0	1	0.2	1.7%
	Dark-Lighted	5	7	0	1	1	3	17	3.1	28.3%
	Dark-Not Lighted	0	1	0	0	2	0	3	0.5	5.0%
	Dark-Unknown Lighting	0	0	0	0	0	0	0	0	0.0%
	Total	*14*	*20*	*7*	*2*	*12*	*5*	*60*	*10.9*	*100%*
Surface Conditions	Dry	13	20	7	1	12	4	57	10.4	95.0%
	Wet	1	0	0	1	0	1	3	0.5	5.0%
	Total	*14*	*20*	*7*	*2*	*12*	*5*	*60*	*10.9*	*100%*

As shown in the crash data, overall crash number has fluctuated during study years, not showing a clear trend. This behavior is observed also for high severity crashes and for pedestrian/bicycle crashes.

Further review of fatal and incapacitating crashes did not establish a strong correlation between severity and speeding as a total. Analysis showed that 5 of 15 KA crashes (33%) were speed related, however none of them were pedestrian or bicycle crashes.

It is worth note, occurrence of four fatal crashes in first six months of 2019, two of which were ped/bike related. These crashes did not show a particular pattern.

Appendix F

Comments Response Letter

July 25, 2019

Motasem Al-Turk, Ph.D., P.E.
Director
Traffic Division
Palm Beach County Engineering & Public Works Department

Melissa Ackert, P.E.
Assistant Director of Traffic Engineering
Traffic Division
Palm Beach County Engineering & Public Works Department

Subject: Response to Palm Beach County Engineering & Public Works Department, Traffic Division comments
Road Safety Audit (RSA): SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive

Dears Mr. Motasem and Mrs. Ackert,

We have reviewed June 26, 2019 comments on the RSA findings report for a segment of SR-802 (Lake Worth Road) from Raulerson Drive to Douglas Drive. The following details our responses to the comments:

1. Multimodal sidewalks will probably fit better with the demographics of this corridor. I don't think many people will be using on street bike lanes if provided. The character of this corridor is very similar to Australian Ave between Banyan Blvd and 45th St which was the subject of a recently completed RSA by Simons & White. This study recommended multimodal sidewalks instead of on-street bike lanes.

   Response: As noted in the 3R report, this corridor has a coming 3R project (FM# 441632-1). The 3R team is currently reviewing multi-modal options for the accommodation of bicycles. It is recommended that the County coordinate directly with the 3R Project Manager to discuss options.

2. Page 9 notes that crashes have increased over the years 2014- 2016 along the study corridor. I am curious if the traffic volume trends had anything to do with this increase?

   We looked at more recent crash information we have in our database and determined that Lake Worth Road is a high crash corridor but 2018 has by far the lowest crashes (122 vs 212 in

2017 and 186 in 2016). Traffic volumes are constant or negative typical to congested corridors (see attachments for more information). This is maybe worth mentioning as well on page 9?

Response: We will note the increases in volume and crashes. However, I want to point out that the majority of the increase is in No-Injury/PDO crashes. I have seen this trend throughout the state and in other jurisdictions. My hypothesis is that since the form change in 2011 that PDO crashes are simply being reported at a higher rate by law enforcement each year. Crashes that are Possible Injury and above have gone from 80 to 75 to 53 in the three years of data in the report.

3. The context of the area may also be important to consider. There is a community college and I believe we discussed in the meeting that there is also a large homeless population. The college may generate ped/bike traffic to/from certain places along the corridor (driveway from the college, routes students might take to walk/ride a bike to restaurants, etc.) that could be targeted for some of the treatments they think would help. In regard to the homeless population (I don't think it's going to be clear from the crash reports that the ped/bike crashes involved homeless people). The field observations may have shown that most ped/bike appeared to be low income. Should the study consider how to improve conditions for homeless people as a separate special user of the roadway? How do you improve crossing conditions for homeless people who may have learning disabilities (maybe they don't understand the signs and symbols used along the roadway that are meant to guide them to safer crossings?) and or mental disorders? I recall too we discussed even where the homeless liked to stay/campout. Should these locations be viewed as ped/bike traffic generators and then maybe we either try to move them or accommodate the homeless ped/bike travel pattern?

   Fadi provided some additional input on my comment above:

   > The corridor has high pedestrian/bike traffic. Your observation is correct about homeless population (see the bike picture I took at the shopping center, most bikes are pretty old). So multimodal improvement is recommended. What is most needed, is enforcing/educating the public and college students as we observed many people recklessly crossing midblock. Also, some driveway/access management if possible would improve safety as we also observed reckless/aggressive driving not always waiting for adequate gaps.

   Response: We acknowledge this and agree. Educational and Enforcement campaigns would typically be undertaken by the County and the TPA in conjunction with other partners.

4. We would like to caution against reducing the lane width and design speed without an evaluation on the capacity consequences this would have. There are no other east west arterials in this area. This should be pointed out as another thing to consider as part of the recommendation to reduce speeds and lane widths.

   Response: Agree. As stated in the RSA report, any lane reduction or speed reduction proposal must be preceded by an engineering study to evaluate operation and capacity impacts. Note of importance of the corridor will be included in the report. As part of your coordination with the 3R project manager, please review and consider the proposed options.

We will provide a discussion of Comment 1 in the report narrative on Page 9 of the RSA. Comments 2 through 4 will be documented, through this letter within the Appendix of the report, once we receive your concurrence.

Thank you for your review of the RSA report on SR-802 (Lake Worth Road). We trust that we have addressed all comments. If you should have further comments or questions, please contact me.

Sincerely,
W. T. Bowman, P.E., RSP1
Southeast Florida Regional Manager
Associate Director of Transportation
Engineering and Safety

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