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ISB Pedestrian Connectivity & Safety Assessment Study Final Report



Prepared by: Ghyabi & Associates, Inc.



Executive Summary

The Pedestrian Connectivity and Safety Assessment Study (PCSA) is a Florida Department of Transportation (FDOT/the Department) project in collaboration with the River to Sea Transportation Planning Organization (R2CTPO), Votran, City of Daytona Beach, Volusia County, the International Speedway Boulevard (ISB) Coalition, and other stakeholders in the study area.

The core study area includes the geographic area generally bounded on the west by Interstate (I)-95; on the east by State Road (SR) 5A/Nova Road; on the north by Dunn Avenue; and on the south by a boundary that extends $\frac{1}{4}$ mile south of United States Highway (US) 92/SR 600/International Speedway Boulevard (ISB). The study area also includes the Volusia County Health Department which is located in the Daytona Business Park, off of Bill France Boulevard and just north of Dunn Avenue.

Pedestrian and bicyclist safety and connectivity are key issues for the PCSA study area. Despite a significant number of commercial and institutional uses within the area, the multimodal network lacks strong connectivity, discouraging pedestrian use and compromising pedestrian safety. Bike lanes are limited and, where they do exist, their location adjacent to high speed traffic lanes negatively impacts their utilization. The purpose of the PCSA study is to address these issues by identifying existing facilities that connect to specific pedestrian-generating development and to determine/prioritize the improvements needed for enhanced pedestrian connectivity and safety within the US 92/SR 600/ISB corridor.

The report lists 116 recommended improvements along with their associated monetary cost, agency responsible, timing (long term or short term), and a priority ranking. The selected prioritization system is utilized by the 2014 Volusia County ADA Transition Plan. However, given the scale of the study area, the distance requirements for high and medium priorities are reduced from $\frac{1}{2}$ mile to $\frac{1}{4}$ mile to be applicable with the context of the PCSA study area. Twenty-eight of the 116 recommended improvements are classified as a high priority. The full list is located on pages 6-14 of the full report.

To assist with the implementation of these improvements, examples of recommended solutions are provided to serve as visual examples of similar facilities in other communities throughout Florida where pedestrian and bicycle improvements have been successfully implemented.

In order to establish a consistent methodology for future multi-modal improvements, design criteria are established that are consistent with the Department's 2015 Plans Preparations Manual (PPM), Votran's 2008 Transit Development Guidelines, Florida Administrative Code, and the Institute of Transportation Engineers' (ITE) Designing Walkable Urban Thoroughfares: A Context Sensitive Approach (2010). The report also provides funding mechanisms from a variety of federal, state, and/or local sources available to pay for these types of transportation improvement projects and strategies for incremental implementation.





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1 INTRODUCTION

The Pedestrian Connectivity and Safety Assessment Study (PCSA) is a Florida Department of Transportation (FDOT/the Department) project in collaboration with the River to Sea Transportation Planning Organization (R2CTPO), Votran, City of Daytona Beach, Volusia County, the International Speedway Boulevard (ISB) Coalition, and other stakeholders in the study area.

The core study area includes the geographic area generally bounded on the west by Interstate (I)-95; on the east by State Road (SR) 5A/Nova Road; on the north by Dunn Avenue; and on the south by a boundary that extends ¼-mile south of United States Highway (US) 92/SR 600/International Speedway Boulevard (ISB). The study area also includes the Volusia County Health Department which is located in the Daytona Business Park, off of Bill France Boulevard and just north of Dunn Avenue. The project study area is depicted in Figure 1.

The major purpose of the PCSA is to identify the existing pedestrian facilities along US 92/SR 600/International Speedway Boulevard, as well as along any neighboring roadways that connect to specific pedestrian-generating development, and to determine/prioritize the improvements needed for enhanced pedestrian connectivity and safety.

The project proceeded through a series of three tasks, as shown below, culminating in this final report.

- Task 1.0: Existing Conditions Summary Report
- Task 2.0: Field Evaluation Report
- **Task 3.0: Development of Draft and Final Report**

This project report addresses Task 3.0 and includes the following major sections:

- Purpose and Need
- Recommended Improvements
- Funding Options
- Implementation Strategies

This report identifies, prioritizes, and advances critical improvements needed for multimodal connectivity and improved accessibility in the study area. It is principally comprised of the results of the evaluation and decision-making process which led to the identification and prioritization of recommended improvements. It also includes conceptual design criteria to guide future development along US 92/SR 600/International Speedway Boulevard such as safety enhancements and bicycle/pedestrian improvements.



1.1 Project Overview and Study Area

Development of the study is being assisted by a Project Coordination Team (PCT) which was assembled to provide feedback throughout the study progress and to identify any outstanding issues concerning the study. The PCT consists of representatives from: FDOT District 5; the City of Daytona Beach; Volusia County; Votran; R2CTPO; the ISB Coalition; and the Daytona Beach International Airport (DBIA).

The Project Study Area is depicted in Figure 1.

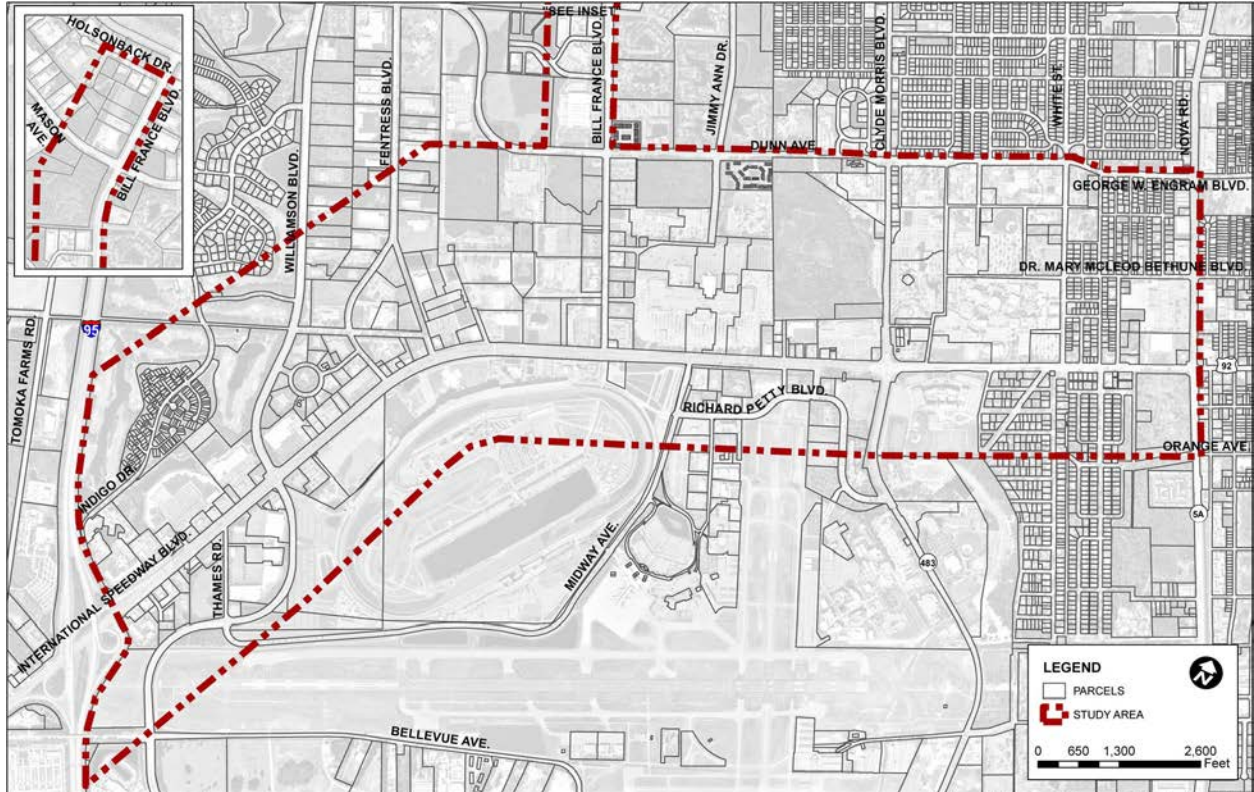


Figure 1: Project Study Area



2 PURPOSE AND NEED

The study area includes several thoroughfares with varying amounts of multimodal traffic. Principal arterials include US 92/SR 600/International Speedway Boulevard, SR 5A/Nova Road, Williamson Boulevard and SR 483/Clyde Morris Boulevard. Generally, operating speeds on major roadways within the study area are between 30 and 45 miles per hour. However, a significant portion of US 92/ SR 600/International Speedway Boulevard, west of SR 483/Clyde Morris Boulevard, operates at 50 miles per hour.

Pedestrian and bicyclist safety and connectivity are key issues for the PCSA study area. Despite a significant number of commercial and institutional uses within the area, the multimodal network could be improved. The sidewalk network within the study area lacks strong connectivity, discouraging pedestrian use and compromising pedestrian safety. Bike lanes are limited and, where they do exist, their location adjacent to high speed traffic lanes negatively impacts their utilization. The purpose of the PCSA study is to address those issues by identifying existing improvements that connect to specific pedestrian-generating development, and prioritizing improvements to said facilities.



3 RECOMMENDED IMPROVEMENTS

3.1 Summary

Depicted in Table 1, the following criteria have been established as a prioritization system for the improvements identified through the field observation and evaluation. The selected prioritization system is utilized by the 2014 Volusia County ADA Transition Plan. However, given the scale of the study area, the distance requirements for high and medium priorities are reduced from half a mile to a quarter of a mile to be applicable with the context of the study area.

Table 1: Prioritization Criteria¹

Priority		Description
High	1	No Curb Ramp; deficient Curb Ramp; Information Barriers (intersection detection, lack of street crossing information); Insufficient Pedestrian Signals located within 0.25 miles of a school, hospital, government building or similar facility
	2	No Curb Ramp; deficient Curb Ramp; Information Barriers (intersection detection, lack of street crossing information); Insufficient Pedestrian Signals located beyond 0.25 miles of a school, hospital, government building or similar facility
Low	3	Insufficient Sidewalk Surface (trip hazards, surface materials, grating, changes in level/elevation, uneven transitions and improper landing pads)
	4	Movement Barriers (obstructions, insufficient widths, sidewalk gaps, median or island crossings that are inaccessible)

¹Source: Volusia County. (2014). *Americans With Disabilities Act (ADA) Transition Plan – Phase 1: Steps to Compliance*.

For this study, a number of recommended conceptual improvements have been identified through field investigation within the study area. Figure 2 illustrates the location of the 116 observations throughout the study area. Table 2 lists the location of each identified conceptual safety and connectivity improvement recommendation, as well as an identified deficiency, recommended solution, responsible implementing agency, cost estimate, and time period for construction. Due to the varied types of suggested solutions, cost estimates have been obtained from a number of sources. The following sources of information are utilized in the list:

- FDOT 2014 Generic Cost per Mile Model (GCPP) (sidewalks)
- FHWA Pedestrian and Bicycle Information Center (curb ramps, detectable warning pads, bicycle lanes, crosswalks, shared use paths)
- Votran’s 2012 Transit Development Plan (bus stops)
- www.CFLRoads.com (committed FDOT projects)

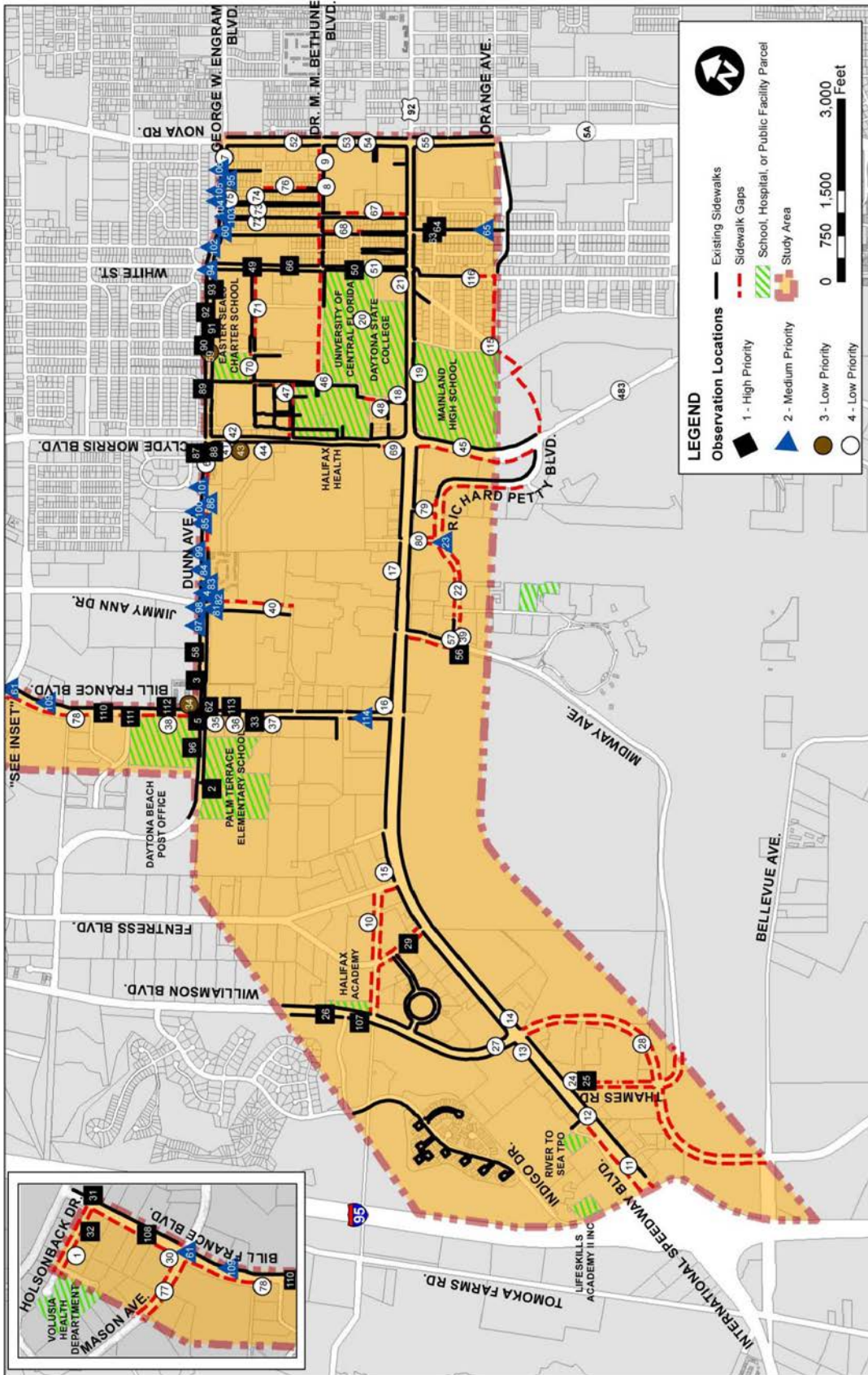


Figure 2: Recommended Improvement Locator Map





Table 2: Recommended Improvements Prioritization and Cost Estimate List

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source	Agency Responsible	Timing
1	4	Holmback Dr.	No sidewalks on Holmback Dr.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.2	\$22,078.40	FDOT GCPMM ¹	City of Daytona Beach	Long-Term
2	1	Dunn Ave	No connection between marked crosswalk and adjacent sidewalk.	Provide new sidewalk connection.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.003	\$331.18	FDOT GCPMM	Volusia County	Long-Term
3	2	Dunn Ave.	Lack of detection pads at Dunn Ave. and Par Brook Ave.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA ²	Volusia County	Short-Term
4	2	Dunn Ave.	No curb ramps at White Fawn Dr. intersection.	Install curb ramps.	Curb Ramp + Detectable Warning Material	\$852.00	unit	1	\$852.00	FHWA	Volusia County	Short-Term
5	2	Dunn Ave.	Bus stop not ADA accessible at Dunn Ave. and Bill France Blvd.	Provide ADA accessible stops.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran ³	City of Daytona Beach	Short-Term
6	4	Dunn Ave.	No sidewalk on south side of street.	Construct sidewalk or shared use path. Volusia County to add shoulders this fiscal year.	Shared Use Path (12 ft. width, 1 side)	\$115,639.32	mile	0.28	\$32,379.01	FDOT GCPMM	Volusia County	Long-Term
7	4	Dunn Ave.	Broken sections of sidewalk.	Repair broken sidewalk sections.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.03	\$3,311.76	FDOT GCPMM	Volusia County	Long-Term
8	4	Dr. Mary McLeod Bethune Blvd.	No sidewalk on north side of street.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.73	\$80,586.15	FDOT GCPMM	City of Daytona Beach	Long-Term
9	4	Dr. Mary McLeod Bethune Blvd.	There are no bicycle lanes but roadway width can accommodate these facilities.	Add cycle track or bicycle lanes through restriping.	Bicycle lane	\$133,170.00	mile	0.73	\$97,214.10	FHWA		Long-Term
10	4	Bayless Blvd.	No sidewalks on Bayless Blvd.	Add shared use path.	Shared Use Path (12 ft. width, 1 side)	\$231,278.63	mile	0.73	\$168,833.40	FDOT GCPMM	City of Daytona Beach	Long-Term
11	4	US 92/ International Speedway Blvd.	No sidewalk on north side of street between I-95 and Indigo Dr.	Construct sidewalk from Williamson Blvd. to Fortness Blvd.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.3	\$33,117.60	FDOT GCPMM	City of Daytona Beach	Long-Term
12	4	US 92/ International Speedway Blvd.	Gap in sidewalk network at northeast corner of Indigo Dr. intersection.	12' wide shared use path included in future roadway widening project.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.26	\$28,701.92	FDOT GCPMM	FDOT	Short-Term
13	4	US 92/ International Speedway Blvd.	Sidewalk on north side of street disrupted by grass and concrete bollards.	Provide new sidewalk connection.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.01	\$1,103.92	FDOT GCPMM	FDOT	Short-Term
14	4	US 92/ International Speedway Blvd.	Sidewalks surrounded by vehicular speeds of 50 mph and large open ditches.	Provide new maintained sidewalk connection. Widen sidewalks in order to provide buffer from street and install closed piping system. Planned safety project will resolve issue between Williamson and Midway Consider extending improvements for remaining corridor within study area.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.01	\$1,103.92	FDOT GCPMM	FDOT	Short-Term
					Sidewalk Widening (12 ft. width 1 side)	\$12,472,971.01	mile	1.38	\$17,212,699.99	CFERoads ⁴	FDOT	Short-Term

¹ FDOT 2014 Generic Cost Per-Mile Model.

² FHWA Pedestrian and Bicycle Information Center

³ 2012 Transit Development Plan - Votran

⁴ www.CFERoads.com

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source	Agency Responsible	Timing
15	4	US 92/ International Speedway Blvd.	Bus stops obstruct sidewalks, limiting their effective width throughout study area.	Widen sidewalks in order to allow for unobstructed pedestrian passage. Planned safety project will resolve issue between Williamson and Midway Consider extending improvements for remaining corridor within study area.	Sidewalk Widening (12 ft. width, 1 side)	N/A	N/A	N/A	Included in above cost	CFL/Roads	FDOT	Short-Term
16	4	US 92/ International Speedway Blvd.	Pedestrian and vehicular conflict points (other crossings) are common at access roadways throughout study area.	Require marking crossings as a part of redevelopment and new development projects.	N/A	N/A	N/A	N/A	\$0.00	N/A	City of Daytona Beach	Long-Term
17	4	US 92/ International Speedway Blvd.	There is no direct sidewalk link between roadway and Volusia Mall. Pedestrians have created a "cattle trail" in shrubbery.	Coordination between FDOT, City of Daytona Beach, and private property owners as property redevelops or renovates over time.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Long-Term
18	4	US 92/ International Speedway Blvd.	The 50 mph maximum speed limit results in cyclists riding on sidewalks instead of in designated bicycle lanes.	Add shared use path between Indigo and White. Mark widened sidewalks to accommodate bicyclist and pedestrians.	Shared Use Path (12 ft. width, 1 side)	\$231,278.63	mile	5.7	\$1,318,288.19	FDOT GCPMM	FDOT	Long-Term
19	4	US 92/ International Speedway Blvd.	Pedestrians make mid block crossings due to the long block length (over 0.50 miles apart).	Addition of mid-block crossing or channeling pedestrians to signalized intersections. Provide stronger connectivity between US 92/ISB and adjacent lane.	Mid-Block Crossing	\$99,148.12	mile	0.02	\$1,982.96	FDOT GCPMM	FDOT/Daytona State College/Volusia County School Board	Long-Term
20	4	US 92/ International Speedway Blvd.	The edge of DSC, Embry-Riddle Aeronautical University and other major destinations in the study area are pedestrian hostile environments.	Coordination of campus master planning with FDOT, COBB, and Volusia County to enhance future connectivity between each entity and FDOT ROW.	N/A	N/A	N/A	N/A	\$0.00	N/A	FODT/Private Sector	Long-Term
21	4	US 92/ International Speedway Blvd.	Street lights are located within the sidewalk on north side of street, compromising sidewalk width and ADA accessibility.	Increase sidewalk width by extending it into 3' planter strip in the vicinity of street lights. Construction of new student union could incorporate sidewalk widening.	Sidewalk (3ft width converted to 5 ft. width for cost analysis purposes, 1 side)	\$110,391.99	mile	6	\$662,351.94	FDOT GCPMM	COBB/Private Sector	Short-Term
22	4	Richard Petty Blvd.	No sidewalks on either side of street.	Construct sidewalks.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	1.09	\$120,327.27	FDOT GCPMM	Volusia County	Long-Term
23	2	Richard Petty Blvd.	Bus stops are not ADA accessible.	Upgrade stops to be ADA accessible.	Shelters	\$30,000.00	unit	4	\$120,000.00	Voltran	City of Daytona Beach	Long-Term
24	4	Thames Rd.	There are no sidewalks on either side of roadway. Pedestrian "cattle trails" have been established.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.8	\$88,313.59	FDOT GCPMM	City of Daytona Beach	Long-Term

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source	Agency Responsible	Timing
25	1	Thames Rd.	Bus stops are not ADA accessible.	Upgrade stops to be ADA accessible.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
26	1	Williamson Blvd.	Bus stop not ADA accessible at Williamson north of Indigo Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
27	4	Williamson Blvd.	0.15-mile gap in bicycle network between rear of Target store and US 92 / International Speedway Blvd. intersection.	Expand width of sidewalks to accommodate pedestrians and cyclists.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.15	\$16,558.80	FDOT GCPMM	Volusia County	Long-Term
28	4	Williamson Blvd.	No sidewalks on either side of street.	Construct sidewalks.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	2	\$220,783.98	FDOT GCPMM	Volusia County	Long-Term
29	1	Fentress Blvd.	"Cattle trail" created by pedestrians and transit riders at bus stops on roadway with no sidewalks.	Construct sidewalk and ADA accessible bus stops on Fentress Blvd., from ISB to Bayless.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.36	\$39,741.12	FDOT GCPMM	City of Daytona Beach	Long-Term
30	4	Bill France Blvd.	Sidewalk on east side of roadway is disconnected from intersection.	Construct sidewalk connection.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.02	\$2,207.84	FDOT GCPMM	City of Daytona Beach	Long-Term
31	1	Bill France Blvd.	Bus stop is located in ditch and not connected to adjacent sidewalks; at the intersection with Holsenback Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
32	1	Bill France Blvd.	Bus stop is not ADA accessible just west of Holsenback Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
33	1	Bill France Blvd.	Bus stop not ADA accessible between Dunn Ave. and Volusia Mall	Provide ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
34	3	Bill France Blvd.	A drop-off exists at the edge of sidewalk just north of Dunn Ave.	Repair grade to make ground flush with sidewalk travel surface.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.02	\$2,207.84	FDOT GCPMM	City of Daytona Beach	Long-Term
35	4	Bill France Blvd.	No connection between sidewalk and pedestrian crossing button.	New sidewalk connection.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.0004	\$44.16	FDOT GCPMM	City of Daytona Beach	Long-Term
36	4	Bill France Blvd.	Sidewalk on west side of street ends 200' south of Dunn Ave.	Construct sidewalk or shared use path on west side of street from ISB to Mason Ave.	Shared Use Path (12 ft. width, 1 side)	\$231,278.63	mile	0.89	\$205,837.98	FDOT GCPMM	City of Daytona Beach	Long-Term
37	4	Bill France Blvd.	There are no sidewalks on the west side of street north of Volusia Mall.	Construct sidewalk or shared use path on west side of street.	Shared Use Path (12 ft. width, 1 side)	included in cost above				FDOT GCPMM	City of Daytona Beach	Long-Term

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source:	Agency Responsible	Timing
38	4	Bill France Blvd.	Sidewalk gap on west side of Bill France between Dunn Ave. and Bus Park Blvd.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	included in cost above				FDOT GCPMM	City of Daytona Beach	Long-Term
39	4	Midway Ave.	Excluding a short segment on the east side of street, north of Richard Petty Blvd., there are no sidewalks on Midway Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.15	\$16,558.80	FDOT GCPMM	Volusia County	Long-Term
40	4	Jimmy Ann Dr.	There is no sidewalk on the east side of street. A pedestrian "cattle trail" has formed as a result.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.25	\$27,598.00	FDOT GCPMM	City of Daytona Beach	Long-Term
41	4	SR 483 / Clyde Morris Blvd.	Vegetation obstructs the sidewalk on the west side of street near Halifax Health.	Maintenance of vegetation.	N/A	N/A	unit	N/A	0	Contact FDOT	FDOT	Long-Term
42	4	SR 483 / Clyde Morris Blvd.	Existing condition of sidewalk on east side of street creates obstruction for pedestrians after rain events.	Upgrade existing sidewalk conditions.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.01	\$1,103.92	FDOT GCPMM	FDOT	Long-Term
43	3	SR 483 / Clyde Morris Blvd.	Access points in sidewalk on west side of road lack truncated domes. The sidewalk is broken with loose concrete.	Upgrade existing sidewalk conditions.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.005	\$551.96	FDOT GCPMM	FDOT	Long-Term
44	4	SR 483 / Clyde Morris Blvd.	A utility pole is located within the sidewalk on the west side of the road.	Verify the clearance meets minimal ADA accessibility requirements.	N/A	N/A	N/A	N/A	\$0.00	N/A	FDOT	Short-Term
45	4	SR 483 / Clyde Morris Blvd.	Gap in sidewalk network on west side of street, north and south of US 92 / International Speedway Blvd.	New shared use path is planned as a part of the widening of SR 483 / Clyde Morris Blvd. between US 92 / International Speedway Blvd. and Beville Rd.	Shared Use Path (both sides)	\$10,200,000.00	mile	3	\$30,600,000.00	CFL Roads	City of Daytona Beach	Long-Term
46	4	Heinemann St. / Highland Ave.	No sidewalk on east side of street, south of Bird Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.25	\$27,598.00	FDOT GCPMM	City of Daytona Beach	Long-Term
47	4	Heinemann St. / Highland Ave.	Several missing gaps in the existing sidewalk network on west side of street. Existing sections of sidewalk also broken in significant sections.	Construct sidewalks and repair existing broken sections.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.19	\$20,974.48	FDOT GCPMM	City of Daytona Beach	Long-Term

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source	Agency Responsible	Timing
48	4	Heineman St./Highland Ave.	Sidewalk ends at parking lot entrance between Mayberry Ave and Hilton Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.02	\$2,207.84	FDOT GCPMM	City of Daytona Beach	Long-Term
49	3	White St.	Excluding Dr. Mary McLeod Bethune Blvd., all intersections on east side of street lack truncated domes for the visually impaired.	Add truncated domes on sidewalks at intersections.	Detectable Warning Material	\$42.00	unit	4	\$168.00	FHWA	City of Daytona Beach	Long-Term
50	1	White St.	There are no ADA accessible ramps on the sidewalk on the east side of the street at Willis, Milligan, Raiford, and Warnock intersections.	Add ADA accessible ramps at these intersections.	Curb ramp	\$810.00	unit	4	\$3,240.00	FHWA	City of Daytona Beach	Long-Term
51	4	White St.	Vegetation obstructs the sidewalk on the east side of the street.	Maintenance of vegetation.	N/A	N/A	unit	N/A	\$0.00	Contact CODB	City of Daytona Beach	Long-Term
52	4	SR 5A/Nova Rd.	Vegetation obstructs the sidewalk on the east side of the street.	Maintenance of vegetation.	N/A	N/A	unit	N/A	\$0.00	Contact CODB	FDOT	Long-Term
53	4	SR 5A/Nova Rd.	There are no bicycle facilities within corridor. Cyclist ride on the sidewalks.	Coordinate with the City of Daytona Beach to seek designation of safe routes that parallel SR 5A/Nova Rd.	N/A	N/A	N/A	N/A	N/A	N/A	FDOT	Long-Term
54	4	SR 5A/Nova Rd.	Utility pole is located in the sidewalk.	Since relocation of the utility pole is expensive, it would be more cost effective to widen the sidewalk. This should be coordinated with private development of the Midtown Plaza.	Sidewalk (5 ft. width, 1 side)	N/A	N/A	N/A	N/A	N/A	FDOT	Long-Term
55	4	SR 5A/Nova Rd.	Sidewalk changes width in front of Tusawilla Park.	Widen sidewalk (from 5 ft. to 10 ft.).	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.14	\$15,454.88	FDOT GCPMM	FDOT	Long-Term
56	1	Midway Ave.	No detection pads at Midway Ave. and Richard Petty Blvd. intersection.	Add detection pads.	Detectable Warning Material	\$42.00	unit	8	\$336.00	FHWA	Volusia County	Long-Term
57	4	Richard Petty Blvd.	Pedestrian crossing signal obstructs sidewalk.	Widen sidewalk in order to allow pedestrian unimpeded access.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	unit	0.32	\$35,325.44	FDOT GCPMM	City of Daytona Beach	Long-Term
58	1	Dunn Ave.	Lack of detection pads at Dunn Ave. and Windy Pines Apt.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Short-Term
59	3	Dunn Ave.	Improper detection pads at Stadium Dr. and Dunn Ave.	Install new detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Long-Term

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source	Agency Responsible	Timing
60	3	Dunn Ave.	Improper detection pads at Seneca St. and Dunn Ave.	Install new detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Long-Term
61	2	Mason Ave.	No curb ramp or crosswalk at Mason Ave. and Bill France Blvd.	Install curb ramp and crosswalks.	Curb Ramp + Detectable Warning Material	\$852.00	unit	8	\$6,816.00	FHWA	City of Daytona Beach	Long-Term
62	1	Dunn Ave.	No detection pads at NE and SW corner of Dunn Ave. and Bill France Blvd. Intersection.	Install detection pads.	Detectable Warning Material	\$42.00	unit	4	\$168.00	FHWA	Volusia County	Short-Term
63	1	Seneca Blvd.	No curb ramps at north side of Seneca Blvd. and Magnolia Ave.	Install curb ramp with detection pads.	Curb ramp + Detectable Warning Material	\$810.00	unit	4	\$3,240.00	FHWA	City of Daytona Beach	Long-Term
64	1	Seneca Blvd.	No detection pads at Seneca Blvd. and Magnolia Ave.	Install detection pads.	Detectable Warning Material	\$42.00	unit	4	\$168.00	FHWA	City of Daytona Beach	Long-Term
65	2	Seneca Blvd.	No Curb Ramps at Seneca Blvd. and Australia Ave.	Install curb ramps.	Curb ramp + Detectable Warning Material	\$852.00	unit	8	\$6,816.00	FHWA	City of Daytona Beach	Long-Term
66	1	White St.	No curb ramps at Warnock Ave. and White St.	Install curb ramps.	Curb ramp + Detectable Warning Material	\$852.00	unit	8	\$6,816.00	FHWA	City of Daytona Beach	Long-Term
67	4	Frederick Ave.	Sidewalk gap on east side of Frederick Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.2	\$22,078.40	FDOT GCPMM	City of Daytona Beach	Long-Term
68	4	Seneca Blvd.	Sidewalk gap on east side of Seneca St.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.12	\$13,247.04	FDOT GCPMM	City of Daytona Beach	Long-Term
69	4	SR 483 / Clyde Morris Blvd.	Sidewalk gap on west side of Clyde Morris.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.07	\$7,727.44	FDOT GCPMM	FDOT	Long-Term
70	4	Willis Ave.	Sidewalk gap on north side of Willis Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.09	\$9,935.28	FDOT GCPMM	City of Daytona Beach	Long-Term
71	4	Willis Ave.	Sidewalk gap on south side of Willis Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.21	\$23,182.32	FDOT GCPMM	City of Daytona Beach	Long-Term
72	4	Frederick Ave.	Sidewalk gap on west side of Frederick Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.03	\$3,311.76	FDOT GCPMM	City of Daytona Beach	Long-Term
73	4	Sheridan Rd.	Sidewalk gap on north side of Sheridan Rd.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.01	\$1,103.92	FDOT GCPMM	City of Daytona Beach	Long-Term
74	4	Fletcher Ave.	Sidewalk gap on east side of Fletcher Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.04	\$4,415.68	FDOT GCPMM	City of Daytona Beach	Long-Term
75	4	Fletcher Ave.	Sidewalk gap on east side of Fletcher Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.02	\$2,207.84	FDOT GCPMM	City of Daytona Beach	Long-Term
76	4	Jackson Ave.	Sidewalk gap on east side of Jackson Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.14	\$15,454.88	FDOT GCPMM	City of Daytona Beach	Long-Term
77	4	Mason Ave.	No sidewalks on Mason Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.4	\$44,156.80	FDOT GCPMM	City on Daytona Beach	Long-Term

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

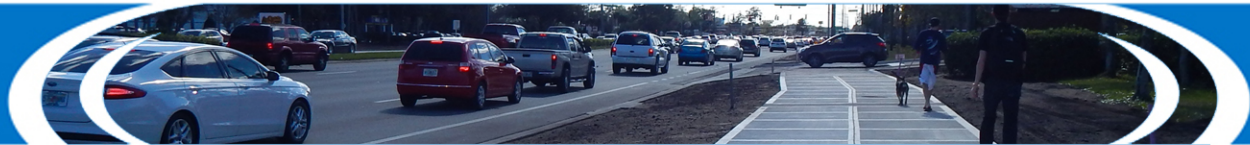
Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source	Agency Responsible	Timing
78	4	Bill France Blvd.	Sidewalk gap on west side of Bill France Blvd. from Bus Park Blvd. to Adkins Road Dr.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.38	\$41,948.96	FDOT GCPMM	City of Daytona Beach	Long-Term
79	4	Corsair Dr.	No sidewalks on Corsair Dr.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.07	\$7,727.44	FDOT GCPMM	City of Daytona Beach	Long-Term
80	4	Hagen Ter.	No sidewalks on Hagen Terrace.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.07	\$7,727.44	FDOT GCPMM	City of Daytona Beach	Long-Term
81	2	Dunn Ave.	Bus stop not ADA accessible at Dunn Ave. and Jimmy Ann Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
82	2	Dunn Ave.	Bus stop not ADA accessible at Dunn Ave. and Jimmy Ann Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
83	2	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. just east of Jimmy Ann Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
84	2	Dunn Ave.	Bus stop not ADA accessible at Dunn Ave. and White Fawn Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
85	2	Dunn Ave.	Bus stop not ADA accessible at Dunn Ave. and Nat'l Health Care Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
86	2	Dunn Ave.	Bus stop not ADA accessible at Dunn Ave. and Nat'l Health Care Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
87	1	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. just west of SR 682 / Chula Moore Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
88	1	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. just west of SR 682 / Chula Moore Blvd.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
89	1	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. just west of Heineman St.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Short-Term
90	1	Dunn Ave.	Bus stop not ADA accessible at Dunn and Fairmount	Construct ADA accessible bus stop	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Long-Term
91	1	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. in between Stadium Rd. and Rockledge Rd.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Long-Term

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source	Agency Responsible	Timing
92	1	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. east of Berkshire Rd.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Long-Term
93	1	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. just west of Welch Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Long-Term
94	2	Dunn Ave.	Bus stop not ADA accessible at Dunn Ave. and White St.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Long-Term
95	2	Dunn Ave.	Bus stop not ADA accessible on Dunn Ave. in between Jackson Ave. and Madison Ave.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	Volusia County	Long-Term
96	1	Dunn Ave.	No detection pads and not ADA compliant sidewalk at Dunn Ave. and IIS Drive. <small>officer detour</small>	Install detection pads and curb cuts.	Detectable Warning Material	\$42.00	unit	4	\$168.00	FHWA	Volusia County	Short-Term
97	2	Dunn Ave.	No detection pads at Dunn Ave. and Wood Pine Driveway.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Short-Term
98	2	Dunn Ave.	No detection pads at Dunn Ave. and Jimmy Ann Dr.	Install detection pads.	Detectable Warning Material	\$42.00	unit	6	\$252.00	FHWA	Volusia County	Short-Term
99	2	Dunn Ave.	No detection pads at Dunn Ave. and White Fawn Dr.	Install detection pads.	Detectable Warning Material	\$42.00	unit	4	\$168.00	FHWA	Volusia County	Short-Term
100	2	Dunn Ave.	No detection pads at Dunn Ave. and Nat'l Health Care Dr.	Install detection pads.	Detectable Warning Material	\$42.00	unit	6	\$252.00	FHWA	Volusia County	Short-Term
101	2	Dunn Ave.	No detection pads at Dunn Ave. and Health Blvd.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Short-Term
102	2	Dunn Ave.	No detection pads at Dunn Ave. and Colfax Drive.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Long-Term
103	2	Dunn Ave.	No detection pads at Dunn Ave. and Frederick Ave.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Long-Term
104	2	Dunn Ave.	No detection pads and crosswalk in poor condition at Dunn Ave and Edgemoor Ave.	Install detection pads, restripe crosswalk.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Long-Term
105	2	Dunn Ave.	No detection pads at Dunn Ave. and Jackson Ave.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Long-Term
106	2	Dunn Ave.	No detection pads at Dunn Ave. and Wilson Ave.	Install detection pads.	Detectable Warning Material	\$42.00	unit	2	\$84.00	FHWA	Volusia County	Long-Term

Table 2: Recommended Improvements Prioritization and Cost Estimate List (continued)

Key Number	Priority	Location	Description of Deficiency	Recommended Solution	Category	Cost per Centerline Mile	Cost Unit	Length or # of Units	Total Cost	Source:	Agency Responsible	Timing
107	1	Williamson Blvd.	Bus stop not ADA accessible on Williamson Blvd. just south of Indigo Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
108	1	Bill France Blvd.	Bus stop not ADA accessible on Bill France Blvd. in between Mason Ave. and Holsonback Dr.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
109	2	Bill France Blvd.	Bus stop not ADA accessible on Bill France Blvd. in between Mason Ave. and Convent Ct.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
110	1	Bill France Blvd.	Bus stop not ADA accessible on Bill France Blvd. south of Concept Ct.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
111	1	Bill France Blvd.	Bus stop not ADA accessible at Bill France Blvd. and Business Park Blvd.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
112	1	Bill France Blvd.	Bus stop not ADA accessible at Bill France Blvd. and post office entrance.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
113	1	Bill France Blvd.	Bus stop not ADA accessible on Bill France Blvd. between Dunn Ave. and Volusia Mall.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
114	2	Bill France Blvd.	Bus stop not ADA accessible on Bill France Blvd. between ISB and Ave. B.	Construct ADA accessible bus stop.	Shelters	\$30,000.00	unit	1	\$30,000.00	Votran	City of Daytona Beach	Long-Term
115	4	Orange Ave.	Sidewalk gap west of Tarragona Way.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.22	\$24,286.24	FDOT GCPMM	City of Daytona Beach/ERAU	Long-Term
				Construct shared use path.	Shared Use Path (12. width, 1 side)	\$231,278.63	mile	0.2	\$46,255.73			
116	4	Tarragona Way	Sidewalk gap between Australia Ave. and Orange Ave.	Construct sidewalk.	Sidewalk (5 ft. width, 1 side)	\$110,391.99	mile	0.09	\$9,935.28	FDOT GCPMM	City of Daytona Beach/ERAU	Long-Term



3.2 Examples of Recommended Solutions

The following images provide visual examples of facilities in other communities throughout Florida where pedestrian and bicycle improvements have been successfully implemented. These types of improvements align with the categories in the PCSA and also provide a tangible example of the environment that can be established when these improvements are made.



Shared Use Path
SR 60/Meridian Avenue –
Tampa



ADA Accessible Bus Stop
SR 37/South Florida Avenue –
Lakeland



New Sidewalks
SR 687/3rd Street South –
St. Petersburg



Cycle Track
Pinellas Trail/Safford Avenue –
Tarpon Springs



ADA Compliant Curb
Lake Nona Boulevard –
Orlando



Widened Sidewalk
SR A1A/Collins Avenue –
Miami Beach



Crosswalks
US 1/SR 5/Main Street –
Jacksonville



Maintained Landscaping
US 41/Tamiami Trail North –
Naples



Pedestrian Channelization
US 23/SR 139/Kings Road –
Jacksonville



3.3 Design Criteria for Future Improvements

In order to establish a consistent methodology for future multi-modal improvements, design criteria are established in the table below. Table 3 shows design parameters for each type of suggested improvement. Further information for this table can be found in the FDOT 2015 Plans Preparations Manual (PPM), Chapter 8 (Bicycle, Pedestrian and Public Transit Facilities) and Chapter 21 (Transportation Design for Livable Communities). Bus stop information was retrieved from Votran’s 2008 Transit Development Guidelines, and is also consistent with rule chapter 14-20.003 of the Florida Administrative Code.

Table 4 describes types of urban thoroughfares, including boulevards, avenues and streets. Potential roadways within the PCSA study that could be improved to fit these qualifications are listed in the adjacent column. This information is consistent with the Institute of Transportation Engineers’ (ITE) *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* (2010). Table 5 shows the type of facilities, including pedestrian, bicycle and transit, which should be installed based on roadway type. These tables, combined with the conceptual design criteria, can be used to guide improvements within the study area in a multi-modal context. Figure 3 displays the boulevards, avenues and streets within and beyond the study area. There are no multiway boulevards in the study area.

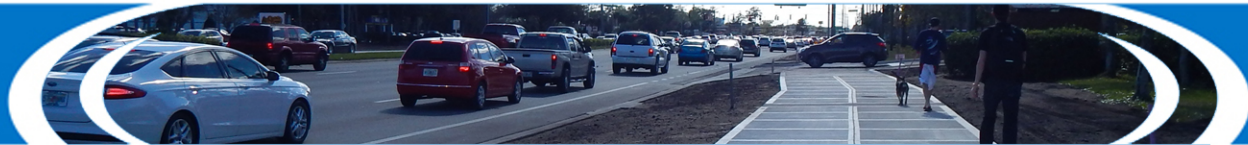


Table 3: Conceptual Design Criteria

Improvement Type	Design Criteria	Source
Sidewalk	5 ft. minimum width, if sidewalk is adjacent to curb then 6 ft. minimum width	FDOT PPM (2015)
	2% Maximum grade for ADA Compliance	
	2 ft. minimum separation from back of curb	
Bicycle Lane	When providing a bicycle lane on a Resurfacing, Restoration, and Rehabilitation (RRR) project, the options in the order of priority are: Preferred – Bicycle Lane Width 1. 7 foot buffered bicycle lane 2. 6 foot buffered bicycle lane Area with Limits – Bicycle Lane Width 3. 5-foot conventional bicycle lane 4. 4-foot conventional bicycle lane	FDOT PPM (2015)
	5 ft. minimum width if RRR project with right turn lane	
	4-ft. paved shoulder can be considered a bicycle lane, with 5-ft. minimum clearance from roadway to gutter face	
Shared-Use Path	10-ft. minimum width	FDOT PPM (2015)
	5% maximum grade, 2% maximum cross-slope	
	8.33% maximum ramp slope	
	Maximum ramp rise 30 inches	
	4-ft. horizontal clearance both sides	
	2-ft. graded area maintained on both sides	
Minimum 4-ft. roadway separation from curb		
ADA Accessibility	4-ft. minimum clearance in sidewalk from an obstruction	FDOT PPM (2012)
Curb Cuts & Curb Ramps	Curb ramps should be constructed parallel to the crossing	FDOT PPM (2012)
	One curb ramp for each road	
	On shared-use path, curb ramp should be the same width as the path	
	Curb ramps cannot be installed without a curb cut or at-grade sidewalk on the other side of the crossing	
	Same cross-slope and maximum grade conditions as sidewalks apply	
Detection Pads	For concrete surfaces, see FDOT's Approved Product List (APL)	FDOT PPM (2012)
	For asphalt surfaces, engineer should specify an appropriate detection system	
Bus Stop	Bus stops should have a clear length of 96 inches and width of at least 60 inches	Votran's Transit Development Guidelines (2008)
	Minimum floor area within a bus shelter is 30 by 48 inches	
	Signs should have a non-glare finish	
	Slope of bus pad must be parallel to roadway	



Improvement Type	Design Criteria	Source
Intersection Crosswalk	Intersection crosswalks should be supplemented with beacons, curb extensions, raised medians, traffic islands, or overhead lighting, when following conditions exist:	FDOT PPM (2015)
	Posted speeds greater than 40 mph	
	4 or more lanes, AADT greater than 12,000, no median or traffic island	
Midblock Crosswalk	4 lanes or more, projected AADT greater than 15,000, raised median and traffic island	FDOT PPM (2015)
	Meet all requirements regarding speed limit, AADT, and number of lanes for an intersection crosswalk	
	Minimum spacing between intersections is 660 ft. for permission of midblock crosswalk	
	Must be located a minimum of 300 ft. away from nearest intersection	
	Maximum 60 ft. of crossing distance (unless raised median or island)	
Midblock crosswalks shall not be provided where the sight distance for both the pedestrian and motorist is not adequate		
Midblock crosswalks shall not be located where ADA cross slope and grade criteria along the crosswalk cannot be met		

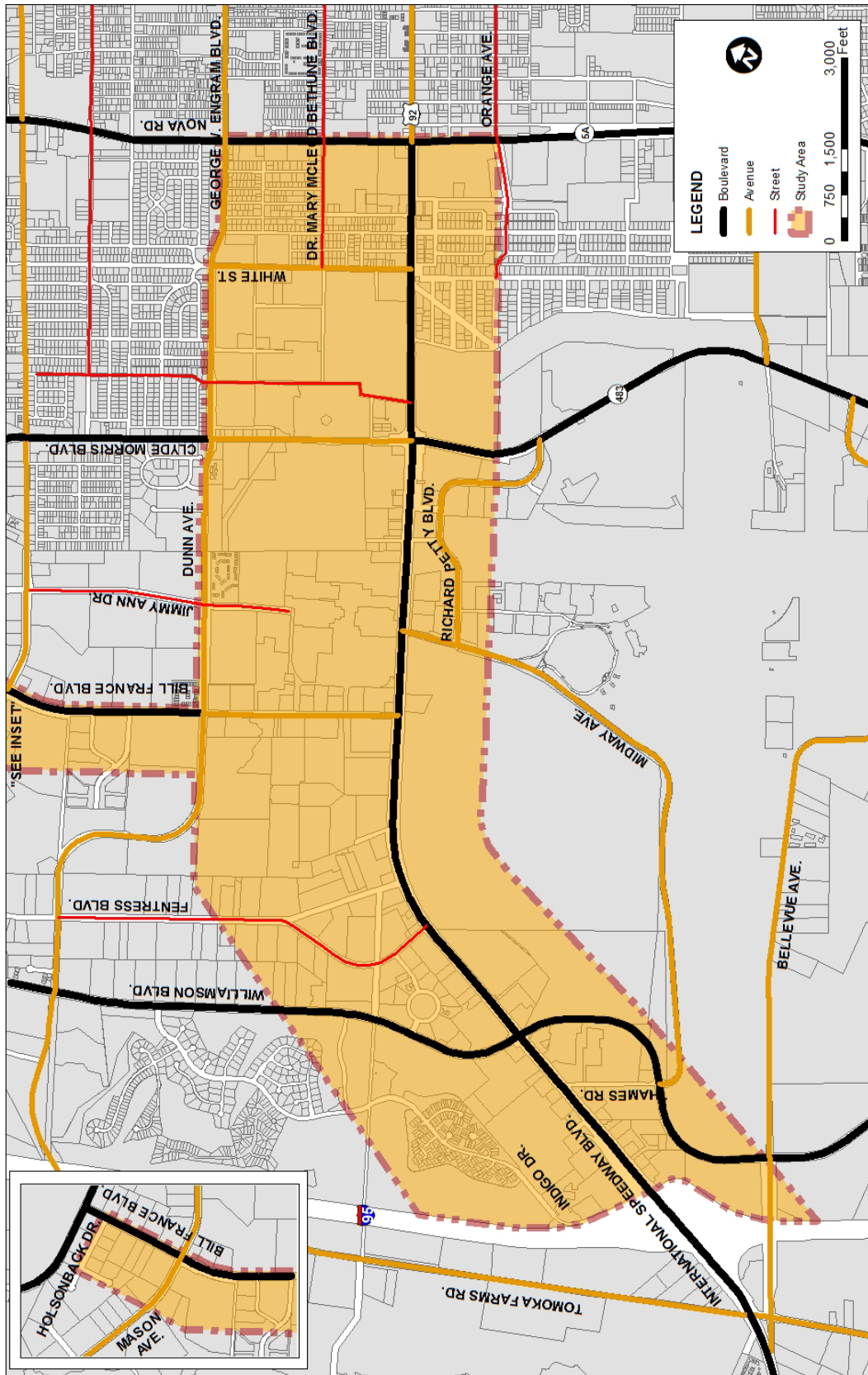


Table 4: Types of Urban Thoroughfares

Urban Thoroughfare Type	Description	Potential Study Area Examples
Boulevard	Walkable divided arterial thoroughfare in urban environments designed to carry both through and local traffic, pedestrians and bicyclists. Boulevards may be long corridors, serve longer trips and provide pedestrian access to land.	US 92/International Speedway Boulevard, Clyde Morris Boulevard, Williamson Boulevard, Bill France Boulevard, Nova Road
Multiway Boulevard	Multiway boulevards are a variation of the boulevard characterized by a central roadway for through traffic and parallel access lanes accessing abutting property, parking and pedestrian and bicycle facilities. Parallel access lanes are separated from the through lanes by curbed islands with landscaping.	There are no Multiway Boulevards in the study area.
Avenue	Walkable, urban arterial or collector thoroughfare, generally shorter in length than boulevards, serving access to abutting land. Avenues serve as primary pedestrian and bicycle routes and may serve local transit routes.	Dunn Avenue, Richard Petty Boulevard, Midway Avenue, Bill France Boulevard, Clyde Morris Boulevard, White Street
Street	Walkable, thoroughfare in urban areas primarily serving abutting property. A street is designed to (1) connect residential neighborhoods with each other, (2) connect neighborhoods with commercial and other districts and (3) connect local streets to arterials.	Fentress Boulevard, Jimmy Ann Drive, Dr. Mary McLeod Bethune Boulevard, Heineman Street/Highland Avenue

Table 5: Improvements Guidelines for Walkable Communities

Urban Thoroughfare Type	Number of Through Lanes	Desired Operating Speed (mph)	Transit Service Emphasis	Median	Curb Parking	Pedestrian Facilities	Bicycle Facilities
Boulevard	4 to 6	30-35	Express and Local	Required	Optional Yes on access roadway	Sidewalk	Bike lanes or parallel route
Multiway Boulevard	4 to 6	25-35	Express and Local	Required on access lanes	Yes on access roadway	Sidewalk	-
Avenue	2 to 4	25-30	Local	Optional	Yes	Sidewalk	Bike lanes or shared
Street	2	25	Local or none	No	Yes	Sidewalk	Shared



Source: Chyabi & Associates. Map Created 3/6/2015

Figure 3: Urban Thoroughfare Types





4 FUNDING OPTIONS

Funding for transportation projects can occur from a variety of federal, state and/or local sources and can be relatively simple or extremely complex. A variety of funding mechanisms may be applicable to the ISB Pedestrian Connectivity and Safety Assessment Study, particularly if separated into individual projects based on timing, scope or applicability of funding sources.

The following sections detail funding mechanisms from federal, state, local and private sources based on revenue generated by fuel taxes, excise vehicle taxes, motor vehicle fees, rental car surcharges, tolls and concessions, documentary stamps, and other miscellaneous revenue sources that are typically used for transportation improvement projects. It should be noted that some of these funding mechanisms may not be applicable to all sections of the study area.

The various funding options, as well as program requirements are detailed in Table 6.

4.1 FEDERAL

Figure 4 depicts the Federal roads within the study area.

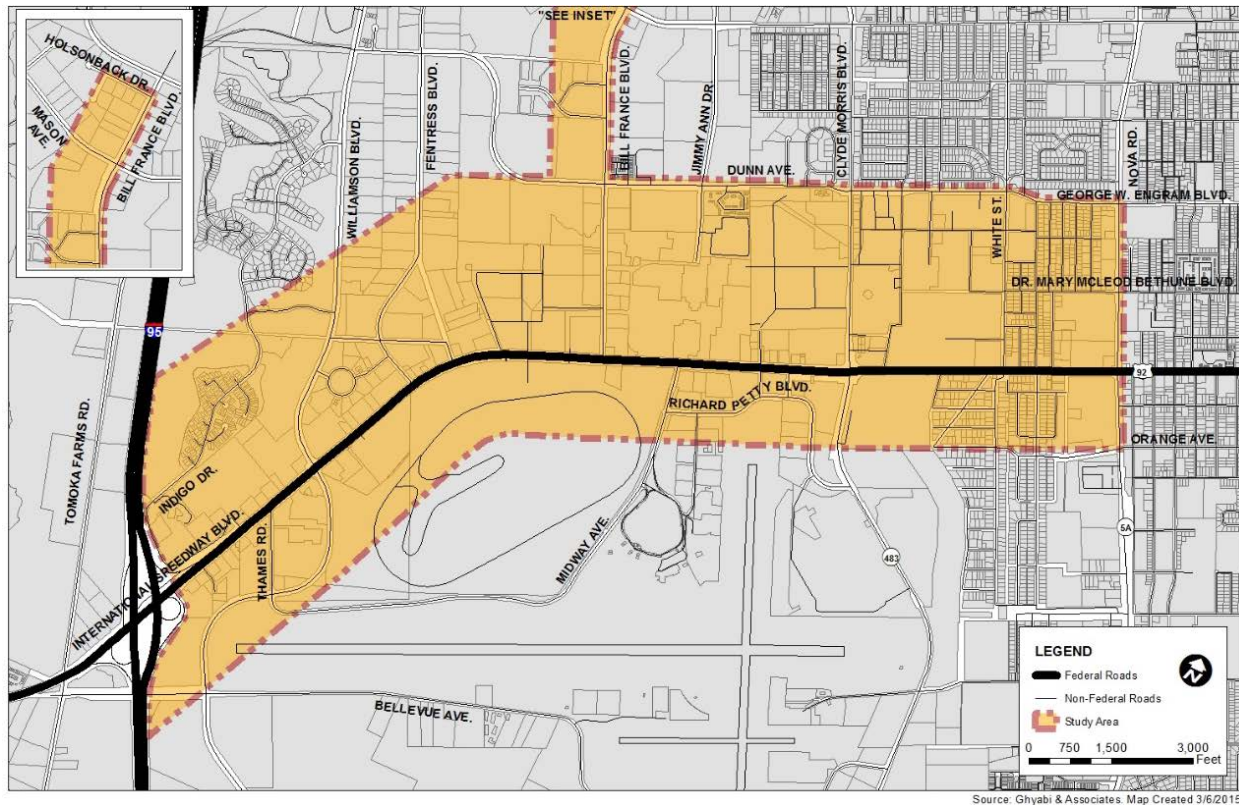


Figure 4: Federal Roadways



4.1.1 MAP-21

Moving Ahead for Progress in the 21st Century (MAP-21) is the Federal-aid transportation reauthorization program passed by the U.S Congress and signed into law by the President in July 2012 for fiscal years 2013 and 2014. It was extended until 2015. It consolidates many of the prior Federal programs into fewer categories and seeks to reduce duplicative programs. MAP-21 eliminates earmarks and has a goal of expediting project delivery while continuing environmental protections in previous transportation authorization programs.

Core programs incorporated into MAP-21 include:

- National Highway Performance Program (NHPP)
- Surface Transportation Program (STP)
- Highway Safety Improvement Program (HSIP)
- Congestion Mitigation and Air Quality Program (CMAQ)
- Transportation Alternatives Program (TAP)

Of particular interest for multimodal strategies that may be included in the ISB corridor is the Transportation Alternatives Program (TAP). This is a new program that provides for a variety of alternative transportation projects, including many that were previously eligible activities under separately funded programs. The TAP replaces funding from programs such as Transportation Enhancements, Recreational Trails, Safe Routes to Schools and several other discretionary programs that were used to fund multimodal transportation facilities including sidewalks, bicycle paths and landscaping/streetscape projects. An amount equal to two percent of the total amount authorized from the Highway Account of the Highway Trust Fund for Federal-aid highways is to be reserved for the TAP each fiscal year. Eligible activities for which TAP may be used include the construction, planning and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation.

Federal funds authorized by MAP-21 can be directed by a variety of State, Metropolitan Planning Organizations (MPOs), local governments, transportation authorities, and other political subdivisions. Projects planned with federal participation must be included in the State Transportation Improvement Program (STIP), which is a federally mandated document listing projects with federal funding for the next four fiscal years.

Traditionally in Florida, federal funds are passed through to the FDOT for inclusion into the Five-Year Work Program; however, organizations such as MPOs have been given increased ability to direct certain federal and state funds within their jurisdictions. In Florida, MPOs in larger urbanized areas (greater than 200,000 in population) can allocate a portion of federal Urban Attributable (XU) Funds toward eligible projects. In addition, transit agencies receive federal allocations based on a variety of factors and have some discretionary authority on spending federal funds that are included within the STIP.



4.1.2 TIGER Grant Program

The Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grant program, provides funds for road, rail, transit and port projects that have significant national interest. This is a highly competitive program that was started as part of the American Recovery and Reinvestment Act (ARRA) in 2009. Organizations including State, local governments, transit agencies, Metropolitan Planning Organizations, port authorities and other political subdivisions of State or local governments are eligible to apply for TIGER Grants.

4.1.3 Federal Transit Capital, Urban & Rural Funds

This is the Federal Transit Administration's (FTA) primary grant program for funding major transit capital investments, including rapid rail, light rail, bus rapid transit, commuter rail and ferries. This category includes the New Starts, Small Starts and Core Capacity Improvements grants.

4.1.4 Transit Enhancements

This grant funds transit capital needs and capitalized operating expenses in urban areas. It includes bus shelters, bus stop amenities, pedestrian access and walkways, and bicycle access. The Transportation Equity Act for the 21st Century (TEA-21) created the "transit enhancements" provisions in the Urbanized Area Formula Program administered by the FTA. TEA-21 established the requirement that a minimum of one percent of FTA's Urbanized Area Formula Program funding for urbanized areas with populations 200,000 and over must be made available for activities that are transit enhancements.

4.1.5 Highway Bridge Replacement and Rehabilitation

This program funds bridge replacements and rehabilitative activities for bridges. Funds become available at the beginning of each fiscal year and 12-35% of these funds must be used on public roads.

4.1.6 The Trust for Public Land Conservation Services

The Trust for Public Land (TPL) uses public funds for acquisition of public land to build trails, sidewalks, etc., and ensures completion of the transaction. However, this is not a grant and expenditures by the TPL must be reimbursed.

4.1.7 Federal Lands Highway Program

The primary purpose of this program is to provide financial resources and technical assistance for a coordinated program of public roads that service the transportation needs of Federal and Indian lands. Funding includes improvements to transportation infrastructure within federally owned lands.



4.1.8 National Scenic Byways Program

The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. Established in Title 23, Section 162 of the United States Code under the Intermodal Surface Transportation Efficiency Act of 1991 and reauthorized and expanded significantly in 1998 under TEA-21 and again under SAFETEA-LU in 2005, the program is a grass-roots collaborative effort established to help recognize, preserve and enhance selected roads throughout the United States. The program helps recognize, preserve and enhance selected roads. The passage of MAP-21 eliminated funding for the National Scenic Byways Program.

4.1.9 Community Development Block Grant

This grant, through the US Department of Housing and Urban Development, provides funding for property acquisition, improvements to neighborhood parks and facilities, new and resurfaced streets and sidewalk installation.

4.1.10 Rails-to-Trails

The Rails-to-Trails Conservancy, an American nonprofit, offers funds for acquisition of land for greenways and trails. The goal is to create a network of trails from former rail lines.

4.1.11 Energy Efficiency and Conservation Block Grant

The US Department of Energy awards this grant to provide funding for projects that increase energy efficiency and promote conservation. Some transportation projects funded by this grant include signal-retiming and streetlight installation.

4.2 STATE

Figure 5 depicts the state roads within the study area.

4.2.1 Urban and Community Forestry Grant

The Urban and Community Forestry Grant can be used for tree ordinance development or revision, tree inventories, management plans, master plans, in-house training, temporary staffing, student internships, and equipment purchases.

4.2.2 Florida Communities Trust Program

The Florida Communities Trust Program is a Florida Department of Environmental Protection (FDEP) program that can provide funding for local governments to acquire land for parks, open space and greenways.

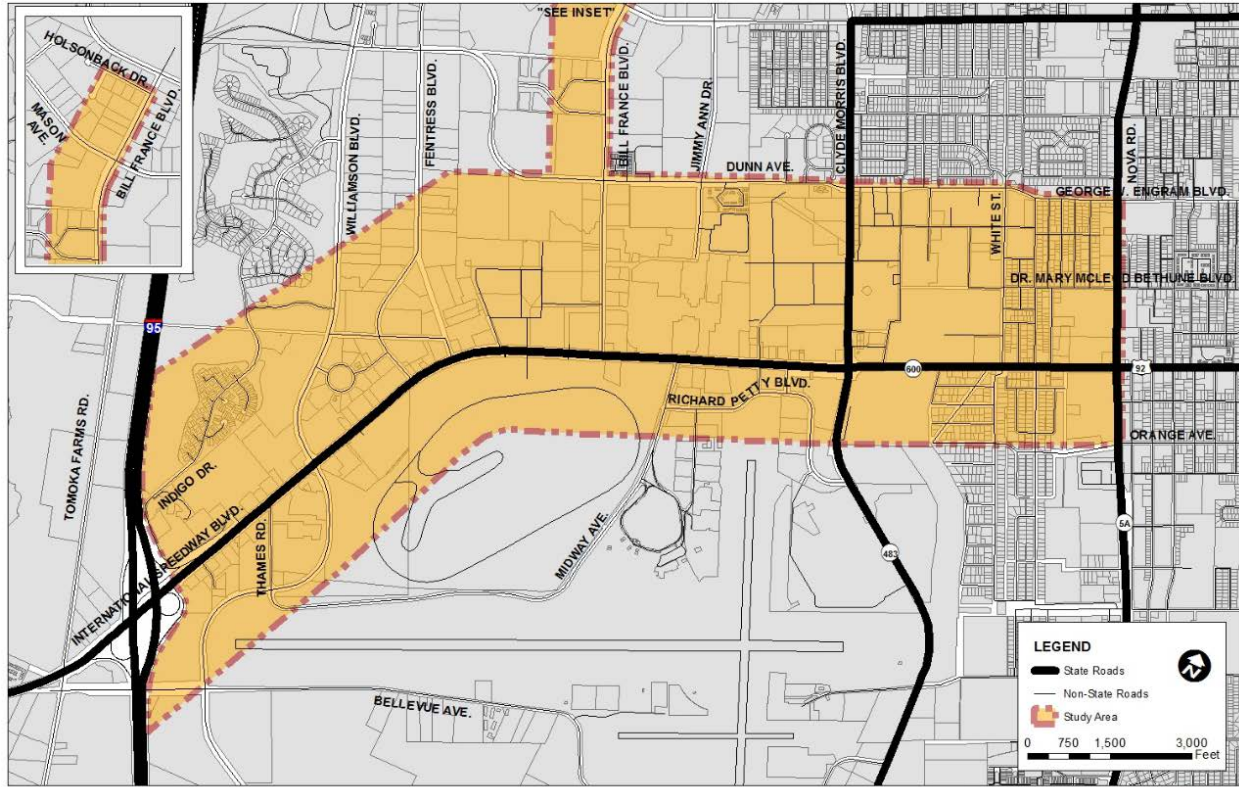
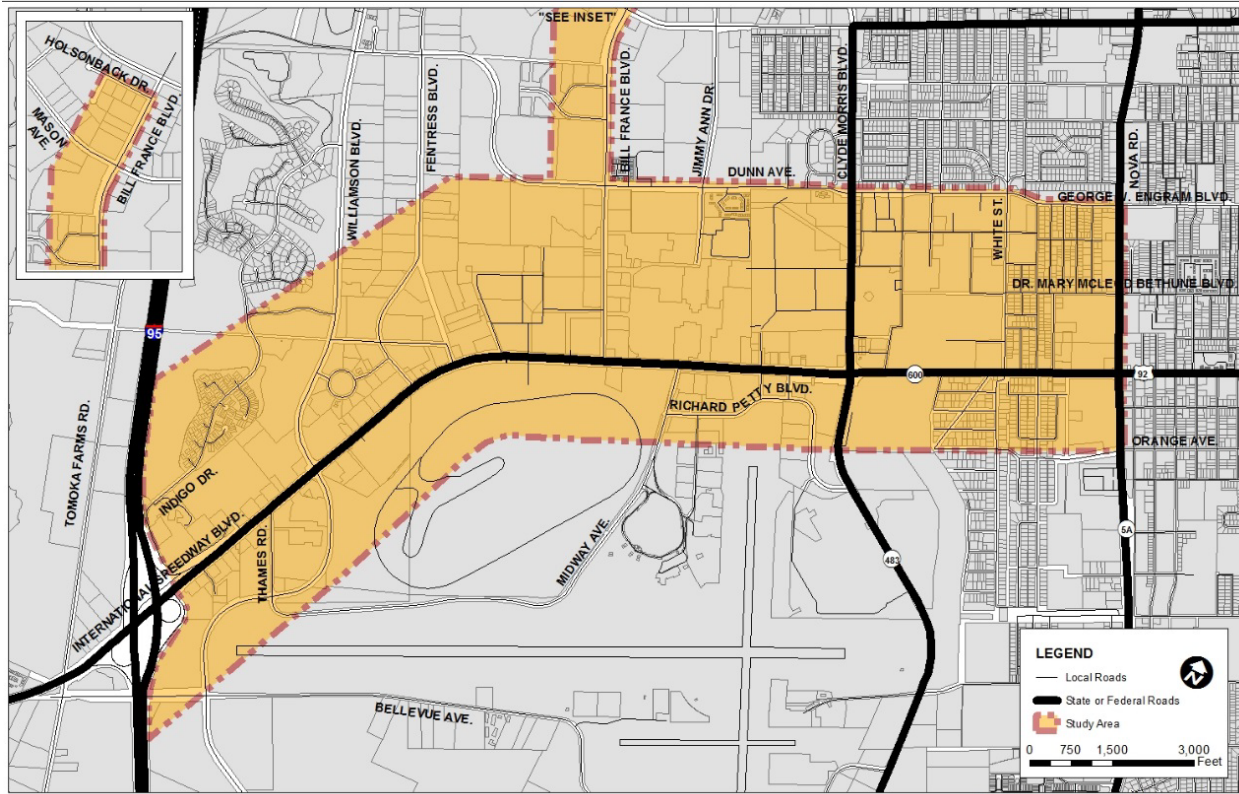


Figure 5: State Roadways



4.3 LOCAL

Figure 6 depicts the local roads within the study area.



Source: Ghyabi & Associates. Map Created 3/6/2015

Figure 6: Local Roadways

4.3.1 City of Daytona Beach Five Year Capital Program

The City of Daytona Beach has \$600,000 set aside for ADA sidewalk compliance construction between 2014 and 2019.

4.3.2 Volusia County Sidewalk Funding

Volusia County has set aside funds specifically for sidewalk construction.

4.3.3 Volusia ECHO Grants-In-Aid

The Volusia Environmental, Cultural, Historical and Outdoor (ECHO) program provides grant funds to finance acquisition, restoration, construction or improvement of facilities to be used for environmental, cultural, historical and outdoor recreational purposes.

4.3.4 Community Redevelopment Area (CRA) Trust Fund

CRAs can be used for land acquisition, streetscapes etc.



4.3.5 The Capital Projects Fund

A portion of the City of Daytona Beach's funds are set aside for capital projects each year. This includes funding for street and sidewalk projects.

4.3.6 Community Foundation of Volusia and Flagler Counties

This is a local organization that improves local access to health and human services.



Table 6: Funding Options Table

Program/Grant Name	Source	Deadline	Funding Range	Match	Project Type/Description	Website or Contact
Federal						
National Highway System	National Highway Traffic Safety Administration	-	-	-	Funds improvements in highway safety.	http://www.fhwa.dot.gov/federalaid/projects.cfm#current
Surface Transportation Program	Federal Highway Administration	-	-	-	Funds projects related to intersections that have high crash rates, high congestion.	http://www.fhwa.dot.gov/safetealufactsheets/stp.htm
Safe Routes to School Program (Under MAP-21) Transportation Alternatives (TA)	Federal Highway Administration (Part of Surface Transportation Program)	Early March	\$1.4 Million Annually for 9 counties	None	Eligible applicants are Community Traffic Safety Teams, Schools Boards (for public schools), and private schools. Partnership with government agency who owns road is required. Infrastructure projects such as bicycle or pedestrian facilities, traffic calming, and traffic control devices.	http://www.r2ctpo.org
Transportation Enhancement Activities (Under MAP-21) TA	Federal Highway Administration (Part of Surface Transportation Program)	Varied	Varied	Varied	Includes bicycle and pedestrian infrastructure and safety programs, scenic and historic highway programs, landscaping and scenic beautification, historic preservation, and environmental mitigation.	http://www.r2ctpo.org http://www.fhwa.dot.gov/environment/transportation_enhancements/
Recreational Trails Program (Under Map-21) TA	Federal Highway Administration (Part of Surface Transportation Program)	Late March	\$200,000	50:50, 80:20, 60:40	Projects that construct, renovate or maintain recreational trails, trailheads and trailside facilities, and the purchase of trail construction.	http://www.r2ctpo.org http://www.fhwa.dot.gov/environment/recreational_trails/index.cfm
Moving Ahead for Progress in the 21st Century Act (Map-21)	Federal Highway Administration	-	-	-	A long-term highway authorization, providing funding for surface transportation programs for fiscal years 2013 and 2014 (now extended into 2015). Includes performance-based surface transportation programs; see individual programs below.	http://www.fhwa.dot.gov/map21/
Congestion Mitigation/Air Quality Program	Federal Highway Administration	-	-	-	Funds transportation projects that improve air quality and reduce congestion, in areas which have significant air quality issues.	http://www.r2ctpo.org http://www.fhwa.dot.gov/environment/air_quality/cmaq/index.cfm



Program/Grant Name	Source	Deadline	Funding Range	Match	Project Type/Description	Website or Contact
Federal Transit Capital, Urban & Rural Funds	Federal Transit Administration	-	-	-	Funds major transit capital investments, including rapid rail, light rail, bus rapid transit, commuter rail, and ferries	http://www.fta.dot.gov/funding/grants/financing/263.html
Transit Enhancements	Federal Transit Administration	-	-	-	Funds transit capital needs and capitalized operating expenses in urban areas. Includes bus shelters, bus stop amenities, pedestrian access and walkways, and bicycle access.	http://www.fhwa.dot.gov/environment/transportation_enhancement/guidance/te_provision.cfm
Highway Bridge Replacement & Rehabilitation	Federal Highway Administration	-	-	-	Funds bridge replacements and rehabilitative activities for bridges, and is dependent upon bridge inspection.	http://www.fhwa.dot.gov/bridge/hbrrp.cfm
The Trust for Public Land Conservation Services	The Trust for Public Land	-	-	-	Uses public funds for acquisition of public land to build trails, sidewalks, etc. Ensures completion of the transaction. All expenditures by TPL must be reimbursed. This is not a grant.	Kevin Mooney 850-222-7911 ext 21 kevin.mooney@tpl.org
Federal Lands Highway Program	Federal Highway Administration	-	-	-	Improvements to transportation infrastructure within federally owned lands.	http://flh.fhwa.dot.gov/
Community Development Block Grant	US Dept. of Housing and Urban Development	Annually by August	Varied	None	Funding for property acquisition, improvements to neighborhood parks and facilities, new and resurfaced streets, sidewalk installation.	Donna King 386-943-7039 ext 2970 dking@co.volusia.fl.us
Florida Rails to Trails	Rails-to-Trails Conservancy	None	\$225,000	None	Acquisition of land for greenways and trails.	http://www.railstotrails.org/
Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants	Department of Transportation	April 28, 2014	-	-	Funds for road, rail, transit, or port projects that contribute to the five outcomes: safety, economic competitiveness, state of good repair, livability, and environmental sustainability. However, chances of receiving this grant are very low.	http://www.dot.gov/recovery



Program/Grant Name	Source	Deadline	Funding Range	Match	Project Type/Description	Website or Contact
State						
Energy Efficiency and Conservation Block Grant	Department of Energy	-	-	-	Provides funding for projects that increase energy efficiency and promote conservation. Transportation projects funded by this grant include signal-retiming, streetlight installation etc.	http://energy.gov/eere/wipo/energy-efficiency-and-conservation-block-grant-program
Urban Community & Forestry Grant	Florida Department of Agriculture and Consumer Services	Early March	\$250,000 - \$300,000 annually	50:50	Tree ordinance development or revision, tree inventories, management plans, master plans, in-house training, staffing, student interns, and equipment purchases.	Charlie Marcus, 850-921-0300 marcuscd@doacs.state.fl.us ,
Florida Communities Trust Program	FDEP	May	None	None	Acquisition of land for community-based parks, open spaces, and greenways.	Ken Reecy, 850-922-2207 ken.reecy@dca.state.fl.us
Transportation Disadvantaged Trust Fund	Florida Commission for the Transportation Disadvantaged	-	-	-	Funds local services for the transportation disadvantaged. Refer to the River to Sea TPO's Transportation Disadvantaged Local Coordinating Board (TDLCB).	Joshua Wagner, TDLCB Chairman 386-626-6688 jwagner@volusia.org , http://www.r2ctpo.org/board-committees/tdlcb
Local						
Volusia County Sidewalk Funding	Volusia County	-	None	None	Sidewalk Construction.	Gerald Brinton or Jon Cheney 386-736-5967 gbrinton@co.volusia.fl.us
Volusia ECHO Grants-In-Aid	Volusia County	Determined Annually	\$12,500-\$600,000	1:1	Environmental/ecological, cultural, historical, or outdoor recreation purposes that MUST be open for public use. (has to be city/county).	www.volusiaforever-echo.com 866-345-0345
Community Redevelopment Area Trust Fund	City of Daytona Beach	-	-	-	Land acquisition, streetscapes etc.	-
The Capital Projects Fund	City of Daytona Beach	-	-	-	Includes funding for street and sidewalk projects.	-
Community Foundation of Volusia & Flagler Counties	Community Foundation of Volusia & Flagler Counties	-	-	-	Improves local access to health and human services.	http://foundation.unitedwayvfc.org/CFWebTemplate/pages/about/index.htm



Table 7: Funding vs. Improvements Matrix and Key

	Shared Use Path	Curb Cuts & Ramps	Bicycle Lanes on Roadway	Spot Improvement Program	Sidewalk New or Retrofit	Crosswalk New or Retrofit	Bus Stops	Detection Pads	Utility Pole or Crossing Relocation
NHS	*	*	*		*	*		*	
STP	*	*	*	*	*	*		*	
SRTS	*	*	*	*	*	*		*	
TEA	*	*	*	*	*	*		*	
CMAQ	*	*	*		*	*		*	
RTP	*								
FTA			*		*	*	*		
TE			*		*	*	*		
BRI	*		*		*				
FLH	*		*		*	*			
BYW	*		*		*	*			
CDBG	*	*	*		*	*		*	
UCFG	*								
R2T	*		*						
VCS					*				
FCTP	*								
ECHO	*		*		*				
TIGER	*	*	*	*	*	*		*	
TPLC	*		*		*				
EECB	*		*		*				
TDTF		*						*	
CP	*	*	*		*			*	
CRA	*	*	*	*	*	*		*	
CF									

Key to Table 7

NHS	National Highway System	FLH	Federal Lands Highway Program
STP	Surface Transportation Program	BYW	National Scenic Byways Program
SRTS	Safe Routes to School Program	CDBG	Community Development Block Grant
TEA	Transportation Enhancement Activities	UCFG	Urban Community & Forestry Grant
CMAQ	Congestion Mitigation/Air Quality Program	R2T	Florida Rails to Trails
RTP	Recreational Trails Program	VCS	Volusia County Sidewalk Funding
FTA	Federal Transit capital, Urban & Rural Funds	FCTP	Florida Communities Trust Program
TE	Transit Enhancements	ECHO	Volusia ECHO Grants-In-Aid
BRI	Bridge	TIGER	DOT Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants
TPLC	The Trust for Public Land Conservation Services	EECB	Energy Efficiency and Conservation Block Grant
TDTF	Transportation Disadvantaged Trust Fund	CRA	Community Area Redevelopment Trust Fund
CP	Capital Projects Fund	CF	Community Foundation of Volusia & Flagler Counties



5 IMPLEMENTATION STRATEGIES

The improvements identified in this study can be implemented as a series of smaller projects with different timeframes, funding sources and responsible agencies executing the implementation.

5.1 Timing

In order to implement the recommended improvements, it may be necessary that they be developed as either individual or a group of projects, according to whether they are more feasible in the short-term or long-term. For the purposes of this discussion, the following time frames are established:

- Short-term: 2015-2020
- Long-term: 2020-2035

5.1.1 Short Term

It is recommended that short-term projects be advanced for project development. Design of these improvements can generally occur without extensive environmental documentation, complex design and permitting requirements, or right-of-way acquisition. These improvements could be programmed for construction in the FDOT Work Program without extensive design/permitting requirements. Also, some of the listed improvements are designated as short-term because they are a part of funded projects with a construction date within the next five years. The images below depict a before and after illustration of a shared use path along ISB.



ISB - Before



ISB - After

Figure 7 depicts the study area with the short term sidewalk/multi-use path projects as completed.

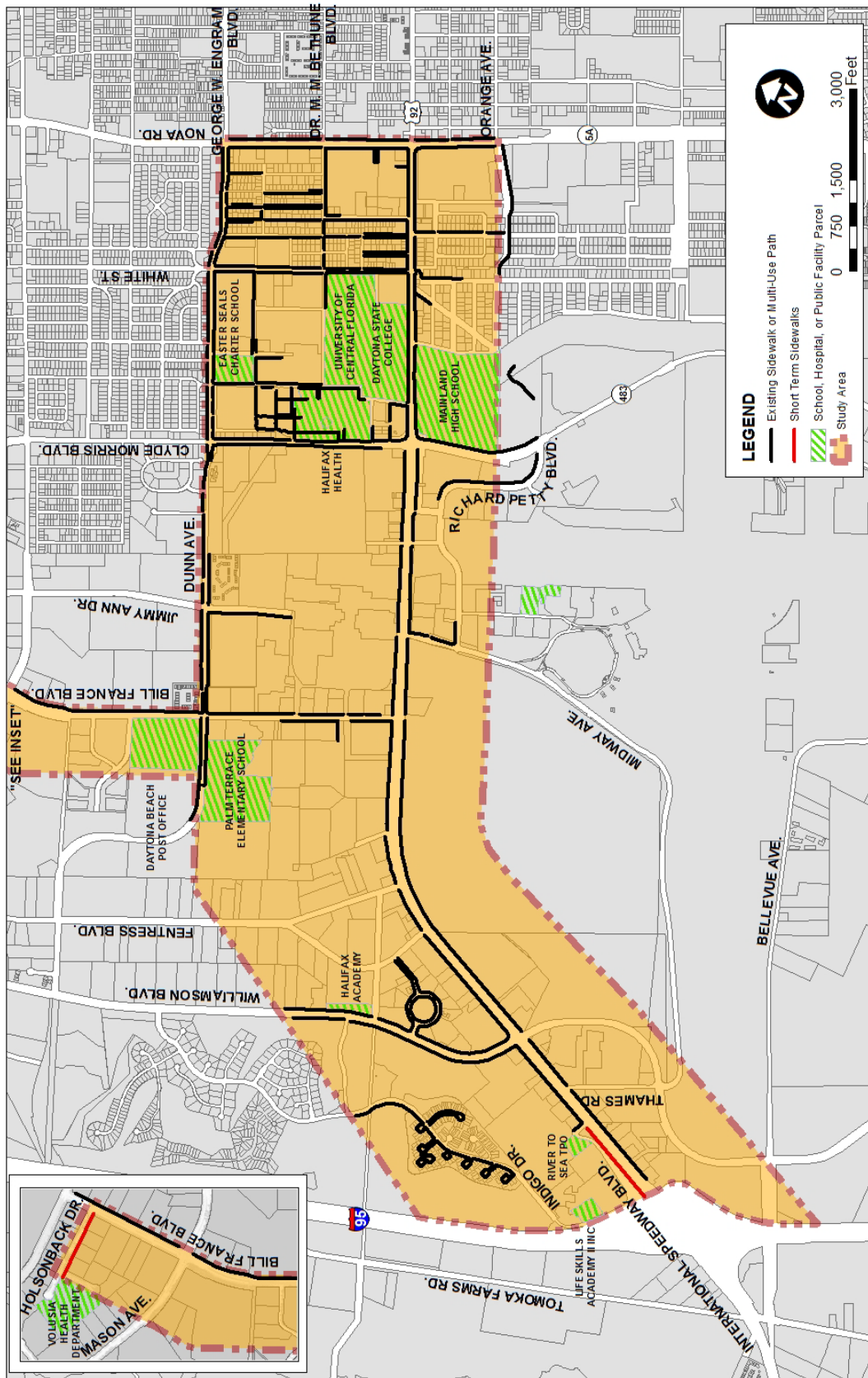


Figure 7: Existing plus Short-Term Sidewalk Projects



5.1.2 Long Term

The long-term projects include those for which implementation is feasible in more than five years from now.

Each of these projects will require acquisition of additional right-of-way and/or easements to accommodate the multi-use path, and more detailed survey and engineering to provide the necessary data to implement the projects. The graphics below show an existing bus stop condition along Bill France Boulevard and two options. The first is a shared use path with a covered bus stop and the second is a sidewalk with a covered bus stop.



Bill France Blvd – Before

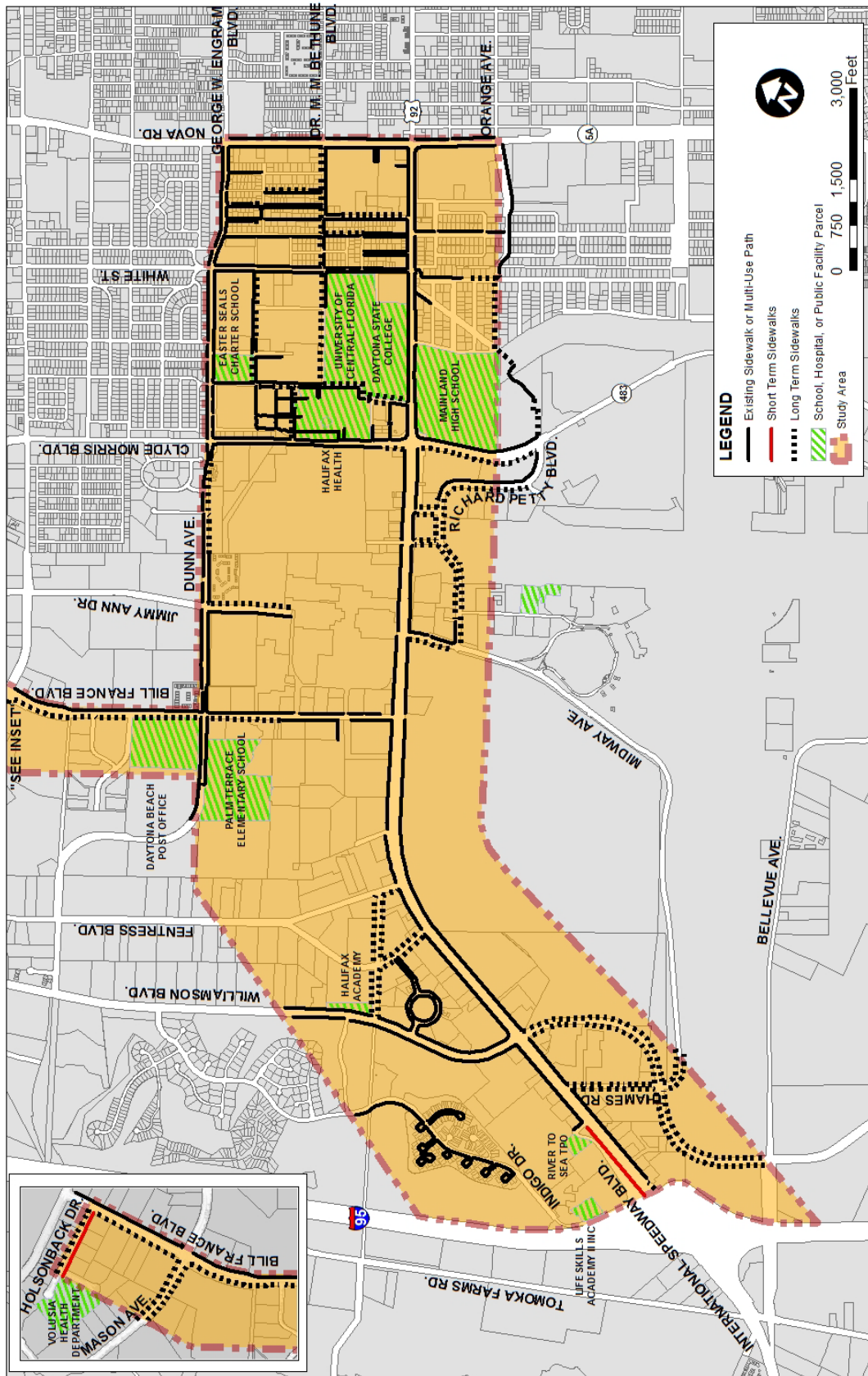


Bill France Blvd – After with Shared Use Path



Bill France Blvd – After with Sidewalk

Figure 8 depicts the long term sidewalk/shared use path projects as completed.



Source: Ghyabi & Associates. Map Created: 3/13/2015

Figure 8: Existing plus Short-Term and Long-Term Sidewalk Projects





5.2 Project Development & Ownership

While the improvements identified through the Pedestrian Safety & Connectivity Study are located within or adjacent to existing State right-of-way, other entities might assume control of the funding, implementation and even ownership of the facilities that are constructed. Examples include transit facilities, that are the responsibility of the City of Daytona Beach, and sidewalks that are owned and maintained by Volusia County.

In addition, funding from private sources might be used to supplement public funds to advance project development. For example, increased connectivity between major activity centers could be coordinated with private entities, such as the colleges/universities. Private developers, such as the Volusia Mall or Midtown Plaza, can incorporate pedestrian-friendly features into their design to enhance the appeal of their retail/commercial facilities.

