

# PEDESTRIAN ISSUES & SYSTEMIC ENGINEERING COUNTERMEASURES

LOCATION	GENERAL ISSUE	SPECIFIC ISSUE	COUNTERMEASURE	IMPLEMENTATION TIME FRAME *	COST
Signalized Intersection	→ CONTINUED FROM FRONT				
	Intersection Lighting	Burnt out light bulbs	Contact the owner/maintainer of the lighting system to replace burnt out bulbs	Maintenance	\$
		No lighting at intersections or inadequate lighting at all marked crosswalks	Add/upgrade intersection lighting (FDOT Plans Preparation Manual Section 7.3.2.2)	Near Term	\$\$
	General ADA Issues	Push button pole not accessible or more than 10' away from curb ramp	Install pole that is accessible or less than 10' from curb ramp (2009 MUTCD Section 4E.08)	Maintenance/Near Term	\$-\$\$
		Detectable warning surfaces for vision impaired pedestrians damaged/missing	Install/replace detectable warning surfaces (FDOT Design Standard 304)	Maintenance	\$
		Need for accessible (audible) pedestrian signals	Install accessible (audible) pedestrian signals (ADA PROWAG guidance Section R209) or (FDOT Traffic Engineering Manual Section 3.7)	Maintenance/Near Term	\$-\$\$
		Pedestrian clearance time does not meet the minimum time	Increase the pedestrian clearance time based on a 3.5 feet/second walking speed (2009 MUTCD Section 4E.06)	Maintenance	\$
		Crosswalk is not perpendicular to roadway or multiple crosswalks may come to the same curb ramp which is pointing to the middle of the intersection	Make crosswalks perpendicular to the roadway, reducing the crossing distance for pedestrians	Maintenance/Near Term	\$-\$\$
		Multiple crosswalks come to the same curb ramp which is pointing to the middle of the intersection	Reconstruct separate curb ramps for each of the crosswalks, perpendicular to the roadway, providing a clear walking direction for visually impaired pedestrians	Maintenance/Near Term	\$-\$\$
	No Protected Left Turn Phasing	Permitted only left turn from major roadway conflicts with pedestrians crossing side street	Change the left turn phasing from permitted only to protected/ permitted (FDOT Traffic Engineering Manual Section 3.2.2(2))	Near Term	\$
Pedestrians Waiting to Cross Major Roadway	2+ minutes wait time to cross major roadway at signalized intersections during off peak periods	Adjust the signal timings so that when a pedestrian is present and requests to cross, the major movement would be cut short if the volumes are low	Near Term	\$	
Minor Street Intersection	Vehicular Sight Distance	Vehicle cannot see pedestrian utilizing sidewalk at current stop bar location	Trim/remove shrubbery, if located on private property work with property owner	Maintenance	\$
			Study to review sight distance triangle at the intersection, remove obstructions within sight triangle or move the stop bar closer to the street	Maintenance/Near Term	\$
	No Crosswalk Markings	No marked crosswalk present at minor street	Add standard or special emphasis crosswalk markings across the minor street (FDOT Design Standard 17346 Sheet 9)	Maintenance	\$
	Conflicts between Pedestrians and Vehicles	Minor streets with pedestrian crash history	Add pedestrian warning signage on the sidewalk in both directions	Maintenance	\$
	Missing Detectable Warning Surfaces	Detectable warning surfaces for vision impaired pedestrians damaged/missing	Install/replace detectable warning surfaces (FDOT Design Standard 304)	Maintenance	\$
No Sidewalks	No sidewalk connectivity from major street back to businesses/neighborhoods along minor street	Construct sidewalks on minor streets where missing to provide connectivity into neighborhoods and commercial developments	Near/Long Term	\$-\$\$\$	
Driveway	No Crosswalk Markings	No marked crosswalk at driveways with high pedestrian activity or crash history/frequency	Add standard or special emphasis crosswalk markings across the minor street (FDOT Design Standard 17346 Sheet 9)	Maintenance	\$
	Conflicts between Pedestrians and Vehicles	Driveways with high pedestrian activity or crash history/frequency	Add pedestrian warning signage on the sidewalk in both directions	Maintenance	\$
	Vehicular Sight Distance	Vehicle cannot see pedestrian utilizing sidewalk at current stop bar location	Trim/remove shrubbery, if located on private property work with property owner	Maintenance	\$
			Study to review sight distance triangle at the intersection, remove obstructions within sight triangle or move the stop bar closer to the street	Maintenance/Near Term	\$
	Fast Turning Vehicles	Vehicles not slowing down enough to see pedestrians on sidewalk	Perform driveway reconstruction during the roadway's next 3R project to reduce curb return radii	Near/Long Term	\$-\$\$\$
	Pedestrian Exposure on Sidewalk	Wide driveways	Perform driveway reconstruction during the roadway's next 3R project to reduce the driveway widths to 36' maximum (FDOT Design Standard 515)	Near/Long Term	\$-\$\$\$
		High driveway frequency	Perform driveway consolidation during potential redevelopment or during the roadway's next 3R project	Near/Long Term	\$-\$\$\$
Sidewalk Slope Across Driveway	Substandard sidewalk slope merges with the slope of the driveway	Reconstruct driveway during the roadway's next 3R project to provide a level sidewalk and meet ADA guidance	Near/Long Term	\$-\$-\$-\$	



**SPACE COAST**  
**TPO**  
TRANSPORTATION PLANNING ORGANIZATION

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LOCATION	GENERAL ISSUE	SPECIFIC ISSUE	COUNTERMEASURE	IMPLEMENTATION TIME FRAME *	COST	
Roadway Segment	Pedestrian Concentration Areas	High pedestrian activity or crash history/frequency	Install pedestrian warning signage (MUTCD Sign W11-2)		Maintenance	\$
		Trip hazards within sidewalk	Remove trip hazard obstruction(s)		Maintenance	\$
	General ADA Issues	Uneven or broken sidewalk	Repair/reconstruct the sidewalk with 0.5 maximum vertical surface discontinuities (ADA PROWAG Section R302.7.2)		Maintenance/Near Term	\$-\$
		Less than 4' wide sidewalks	Provide a 4' minimum continuous width (R302.3 of the ADA PROWAG)		Maintenance/Near Term	\$-\$-\$
		Cross slope greater than 2 percent	Provide a walking surface that meets the 2 percent maximum cross slope (ADA PROWAG Section R302.6)		Maintenance/Near Term	\$-\$-\$
	No Pedestrian Refuge Islands/ Marked Crossings between Signals	Signal or marked crosswalk spacing more than 1/4 of a mile No raised median for pedestrian refuge	Conduct a mid-block crossing study per Section 3.8 of the FDOT Traffic Engineering Manual (TEM); provide an active warning device, such as Rapid Rectangular Flashing Beacons (RRFB), at the crosswalk where speed limit exceeds 40 MPH (MUTCD Section 3B.18); provide a median refuge island for pedestrians in the TWLTL; install overhead or pedestrian scale lighting on either side of the crosswalk; stripe the crosswalk with special emphasis crosswalk markings consistent with sheet 10 of FDOT Design Standard Index 17346		Near/Long Term	\$-\$-\$-\$
		Roadways having a center two-way left-turn lane (TWLTL) or no refuge areas to cross between signalized intersections	Review locations for spot medians in places where they do not restrict turning movements at minor streets or major driveways (this is not a marked pedestrian crossing)		Near/Long Term	\$-\$-\$-\$
			Assess the feasibility of removing the center two-way left-turn lane and constructing a raised median		Near/Long Term	\$-\$-\$-\$
	Pedestrians Crossing Roadway	Potential pedestrian crossings within median area on divided roadways with grass median	Install a concrete pedestrian refuge island (this is not a marked pedestrian crossing)		Near/Long Term	\$-\$-\$-\$
		Not utilizing marked crosswalks or crossing at unmarked locations, locations with a history of pedestrian crossing crashes	Install pedestrian channelization barrier (FDOT Design Standard D804)		Near Term	\$-\$-\$
	Corridor Lighting	Burnt out light bulbs	Contact the owner/maintainer of the lighting system to replace burnt out bulbs		Maintenance	\$
		Inconsistent lighting levels and/or light poles spaced unevenly	Perform lighting uniformity study		Near/Long Term	\$-\$-\$-\$
		No lighting present	Perform lighting justification study		Near/Long Term	\$-\$-\$-\$
	No Sidewalks	No sidewalks present in area with pedestrian activity	Low lighting levels in areas where lighting is present and evenly spaced	Change from high pressure sodium lighting to LED lighting if lighting levels along corridor meet standard but nighttime crashes are occurring		Long Term
Construct sidewalks where missing For State roadways, reference the FDOT gaps list in the Space Coast TPO's State of the System report				Near/Long Term	\$-\$-\$	
Pedestrians Crossing Large Roadways	Greater than 2 lane roadways with pedestrian crash history and excess vehicular capacity	Perform lane elimination study (FDOT Statewide Lane Elimination Guide)		Near/Long Term	\$	
School Zones	Inadequate/faded/missing/old style signage or pavement markings at intersections	Add/update signage and/or update pavement markings at intersections (FDOT Design Standard 17344 and MUTCD Section 2A.07-08)		Maintenance/Near Term	\$-\$	
	Sidewalk gaps between school and roadway or between roadway and surrounding neighborhoods	Construct sidewalks where missing For State roadways, reference the FDOT gaps list in the Space Coast TPO's State of the System report		Near/Long Term	\$-\$-\$	
Signalized Intersection	Missing/Faded Crosswalk Markings	Missing crosswalk markings	Add/restripe special emphasis crosswalk markings (FDOT Design Standard 17346 Sheet 9)		Maintenance	\$
		Faded/old style crosswalk markings				
	Conflicts between Pedestrians and Vehicles	Crosswalks with a pedestrian crash history	Add TURNING VEHICLES YIELD TO PEDESTRIANS (MUTCD Sign R10-15 ) signage at the intersection crosswalk		Maintenance	\$
	Pedestrian Crossing Time	No countdown pedestrian signals	Upgrade the pedestrian signal to have the countdown feature (2009 MUTCD Section 4E.07)		Maintenance/Near Term	\$-\$
CONTINUED ON BACK →						



**Pedestrian Refuge Island**  
Photo: KAI

**Example Mid-Block Crosswalk**  
Photo: KAI



### \*IMPLEMENTATION TIME FRAME DESCRIPTIONS

- **Maintenance:** Addressed by public agency staff on a short timeframe at a relatively low cost
- **Near Term (within 3-5 years):** Suggestions needing additional study; suggestions that could be incorporated into an upcoming construction project (i.e. 3R project)
- **Long Term (5+ years):** Suggestions that may be incorporated into longer term construction projects or may need to be programmed for funding as a standalone project

### FUNDING OPTIONS

SOURCE	APPLIES TO	CONTACT
Safe Routes to School (SRTS)	Safety projects near school or within school zone	SCTPO
Highway Safety Improvement Program (HSIP)	State roadway safety projects	FDOT
Highway Safety Improvement Program (HSIP)	Non-State roadway safety projects with local match funding	FDOT
Community Traffic Safety Team (CTST) Request	Safety related projects	SCTPO
SCTPO Transportation Alternatives Application	Sidewalk gap related projects	SCTPO

### RESOURCES AND CONTACT INFORMATION

- FDOT Design Standards: <http://www.dot.state.fl.us/rddesign/DS/16/STDs.shtm>
- FDOT Traffic Engineering Manual: <http://www.dot.state.fl.us/trafficoperations/Operations/Studies/TEM/TEM.shtm>
- FDOT Statewide Lane Elimination Guide: <http://www.dot.state.fl.us/rddesign/CSI/Default.shtm>
- FDOT Plans Preparation Manual: <http://www.dot.state.fl.us/rddesign/PPMManual/PPM.shtm>
- Manual on Uniform Traffic Control Devices (MUTCD): [http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf\\_index.htm](http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm)
- ADA Guidance: <https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/introduction>
- Space Coast TPO State of the System Report: <http://spacecoasttpo.com/counts/performance-monitoring-and-management/>
- For questions relating to safety projects on State roadways, contact Tony Nosse with the FDOT District 5 - 386-943-5000
- For questions relating to safety projects on Non-State roadways, contact the Space Coast TPO - 321-690-6890