

2013 Design Update – PPM and Design Standards Florida Dept. of Transportation

Bicycle, Pedestrian and Transit Facilities

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Key Topics for 2013

- ◆ Plans Preparation Manual (PPM)
- ◆ Design Standards
- ◆ Greenbook
- ◆ Research

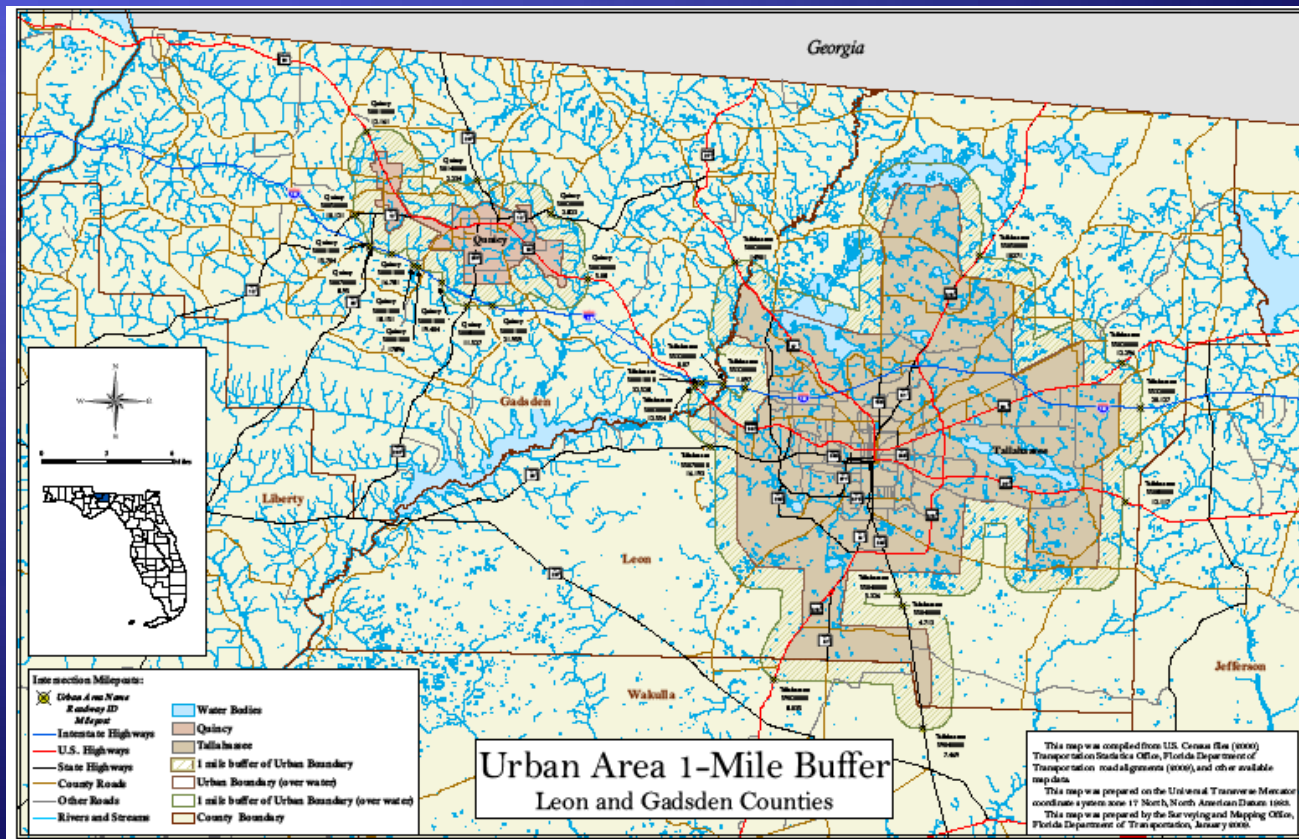


Key Topics for 2013 - PPM

- ◆ Urban Area Maps
- ◆ Sidewalks and Crosswalks
- ◆ Shared Use Paths
 - ◆ Design Speed
 - ◆ Horizontal Alignment
- ◆ Shared Lane Markings

PPM - Urban Area Buffer Maps

- ◆ Priority maps for bike lanes and sidewalks
- ◆ Posted in conjunction with the PPM on Roadway Design's web page
- ◆ <http://www.dot.state.fl.us/rddesign/PPMManual/BM/BufferMaps.shtm>



Sidewalk Location (Section 8.3)



Sidewalk Location (Section 8.3)



PPM - Sidewalks (Section 8.3)

- ◆ Sidewalks on both sides of the street preferred
 - ◆ If on only one side, access to facilities and services on other side should be provided
- ◆ Termini of sidewalks
 - ◆ Should connect with facilities on adjoining projects
 - ◆ Consider extending the sidewalk to next appropriate crossing or access point when no sidewalk present
 - ◆ Coordinate with District Bike and Ped Coordinator
- ◆ Driveways
 - ◆ Evaluate driveways to determine if its possible to upgrade non-conforming ones
 - ◆ Improvements must be feasible within the scope of project

Sidewalk Location (Section 8.3)

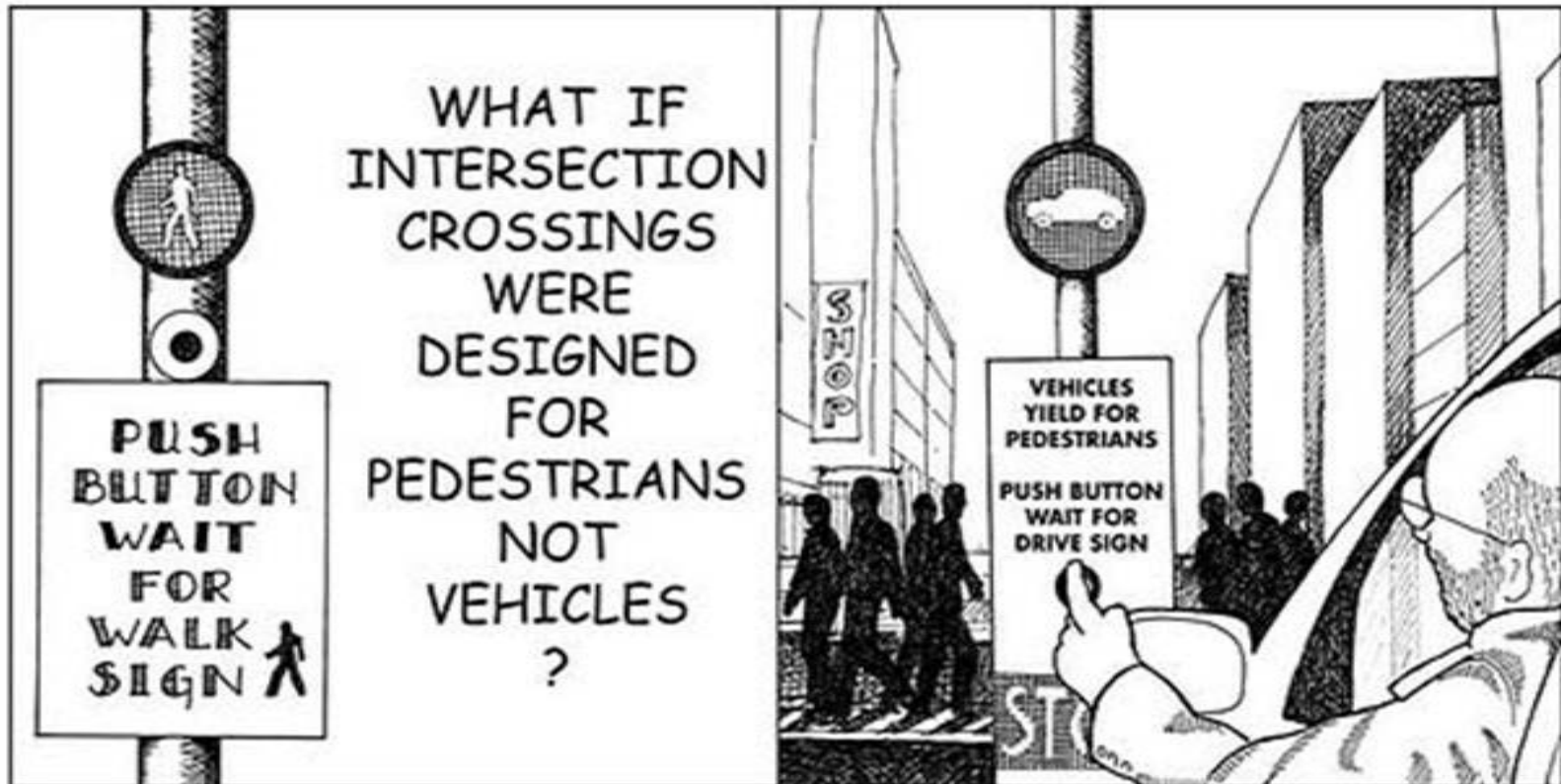


PPM - Sidewalks (Section 25.4)

- ◆ New or reconstructed sidewalks shall meet the criteria in Chapter 8
- ◆ Detectable warnings and curb ramps for existing sidewalks and shared use paths shall be brought into compliance with ADA requirements
- ◆ If ADA complaints have been received for sidewalks or driveway turnouts within the project limits
 - ◆ Design shall include upgrades to nonconforming elements
 - ◆ Meet criteria in Indexes 304, 310, 515
- ◆ Termini of sidewalks
 - ◆ Should connect with facilities on adjoining projects, intersection, or access point

PPM - Crosswalks (Section 8.3)

- ◆ Crossings should be convenient and minimize the person's exposure in the roadway



Scottsdale, Arizona Ped Crossing



Scottsdale, Arizona Ped Crossing



Pedestrians walking along the median, approaching the second part of the two-step crossing.

PPM – Shared Lane Markings (Section 8.4.5)

- ◆ Should be limited to 35 mph roadways
 - ◆ Revised to be consistent with MUTCD
 - ◆ FHWA recognizes there might be “appropriate engineering reasons” to use on higher speed roadways
- ◆ May be used to identify an alternate route as part of a TTCP



PPM – Shared Use Paths (Section 8.6)

- ◆ Design governed by
 - ◆ Bicycle's operating characteristics, and
 - ◆ 2006 ADA Standards for Transportation Facilities



ADA for Shared Use Paths (US Access Board)

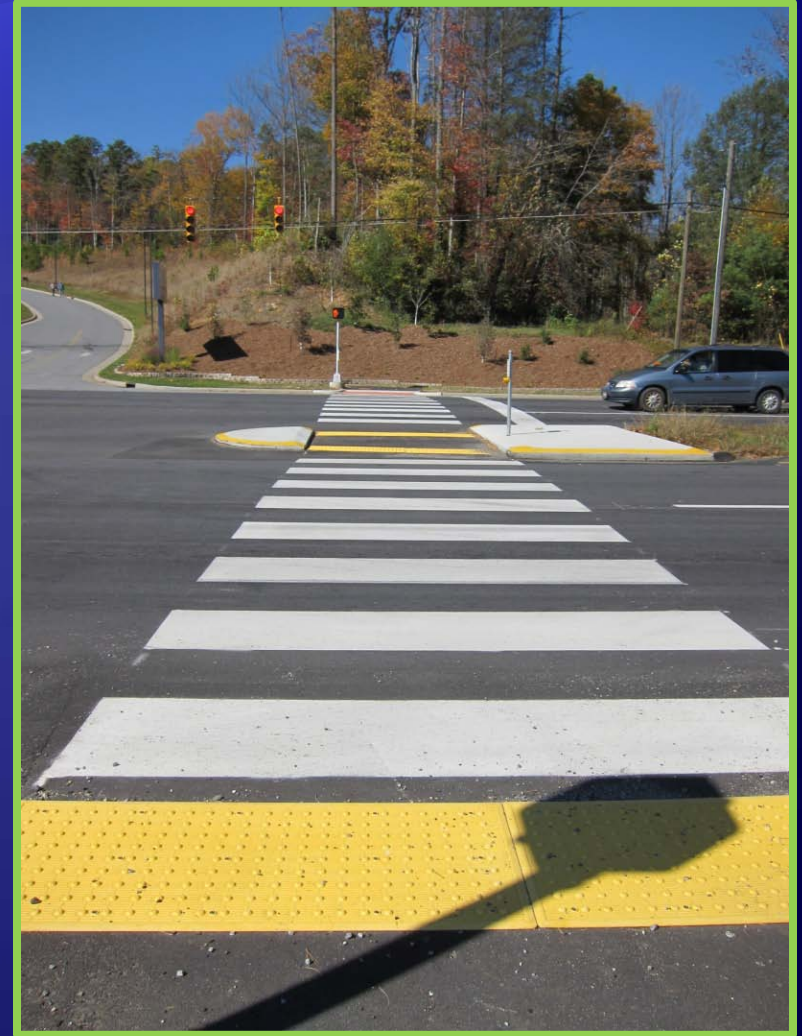
- ◆ Supplemental Notice of Proposed Rulemaking (SNPRM)
 - ◆ Provisions for shared use paths in proposed accessibility guidelines for pedestrian facilities
 - ◆ Applies to the design, construction, and alteration of pedestrian facilities
 - ◆ Ensures that facilities are readily accessible
- ◆ Federal register notice available at www.access-board.gov
 - ◆ Deadline for comments is May 14, 2013

ADA for Shared Use Paths (US Access Board)

- ◆ Adds new provisions for shared use paths that address grade, cross slope, surfaces, and protruding objects
 - ◆ Specifies that grade of paths not exceed 5% or the general grade of adjacent street if contained within a highway right-of-way
 - ◆ Includes exception for grade where constraints imposed by terrain, infrastructure, or other factors make compliance impracticable
 - ◆ Requires curb ramps and blended transitions to extend full path width

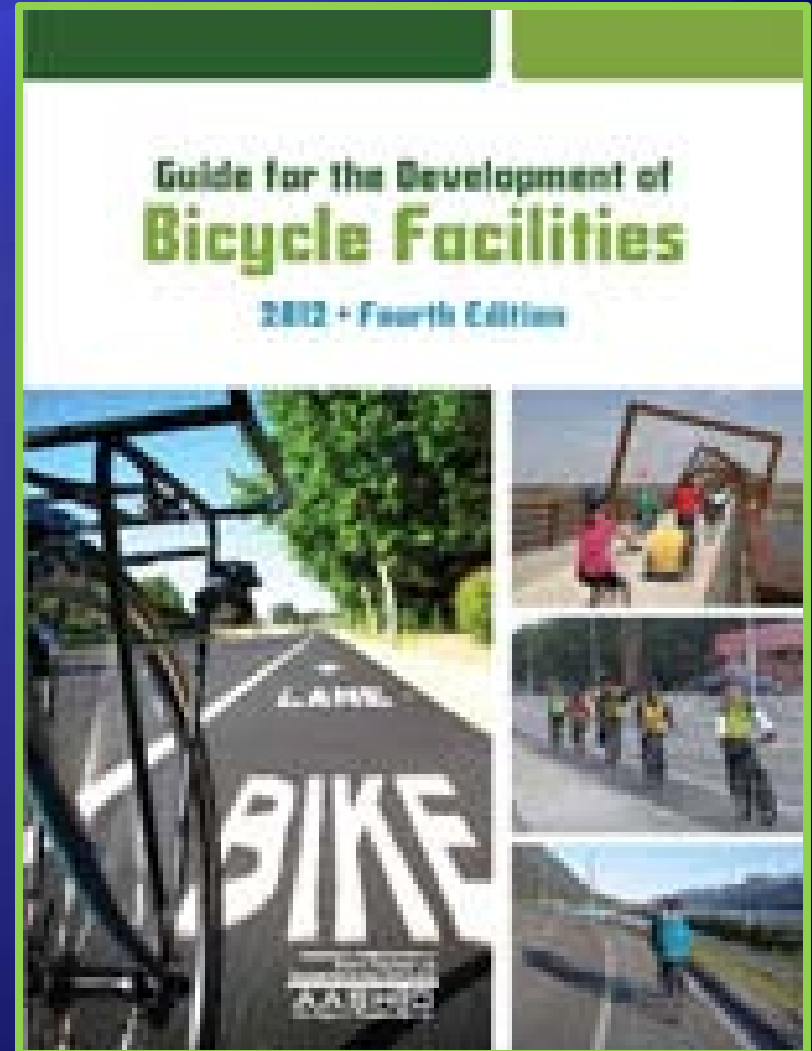
PPM – Shared Use Paths (Section 8.6)

- ◆ Curb ramps shall be the same width as the path



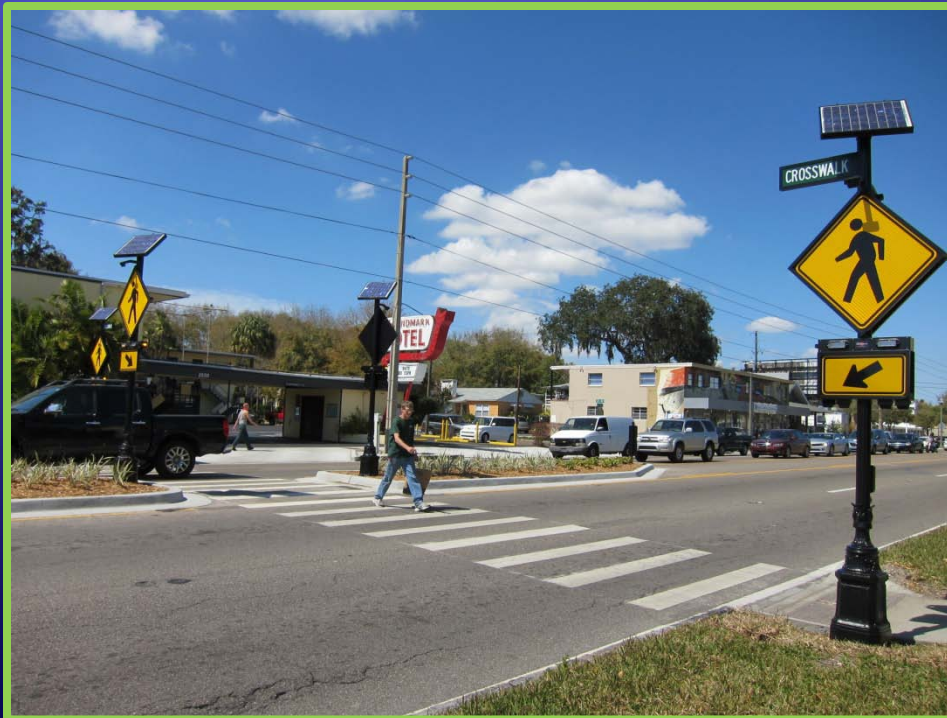
AASHTO Bicycle Facilities Guide – Shared Use Paths

- ◆ “The routine use of bollards... to restrict motor vehicle traffic is NOT recommended.” Page 5-46



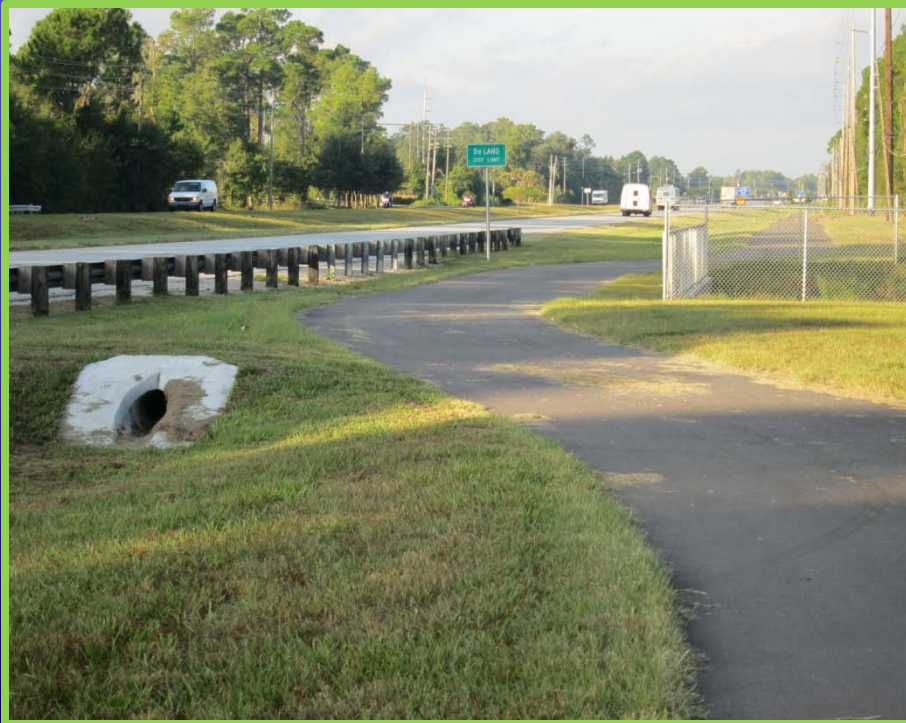
PPM – Shared Use Paths

- ◆ Focus on improving the crossing of the roadway itself through markings, signs, raised medians, curb extensions, beacons and lighting



PPM – Shared Use Paths (Section 8.6)

- Use an 18 mph design speed for paths in relatively flat areas (grades $\leq 4\%$)



PPM – Shared Use Paths (Section 8.6)

Table 8.6.2

Minimum Radii for Horizontal Curves on Shared Use Paths

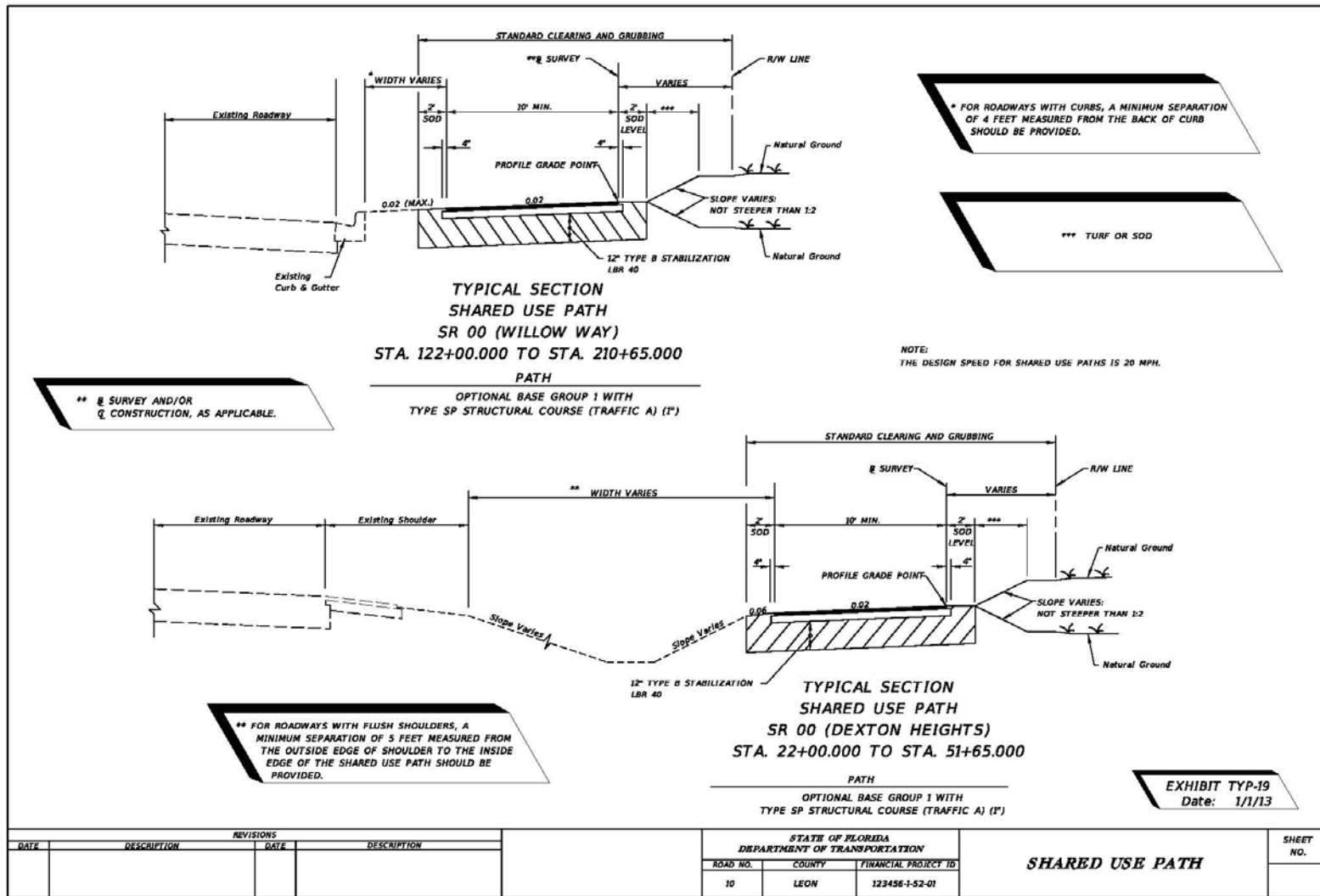
Design Speed	Superelevation	Friction Factor	Minimum Radius (ft.)
18 20	2%	0.27	74 95
18 20	-2%	0.27	86 110
30	2%	0.2 1 2	261 250
30	-2%	0.2 1 2	316 300

PPM – Shared Use Paths (Section 8.6)

**Table 8.6.3
Minimum Stopping Sight Distances**

MINIMUM STOPPING SIGHT DISTANCE (FEET)														
FOR 18 Design Speed = 134 FEET, FOR 30 Design Speed = 298 FEET														
Design Speed	GRADES													
	-9%	-8%	-7%	-6%	-5%	-4%	-3%	3%	4%	5%	6%	7%	8%	9%
18	Use 30 Values					156	149	123	120	118	115	113	111	109
30	539	485	444	410	383	Use 18 Values								

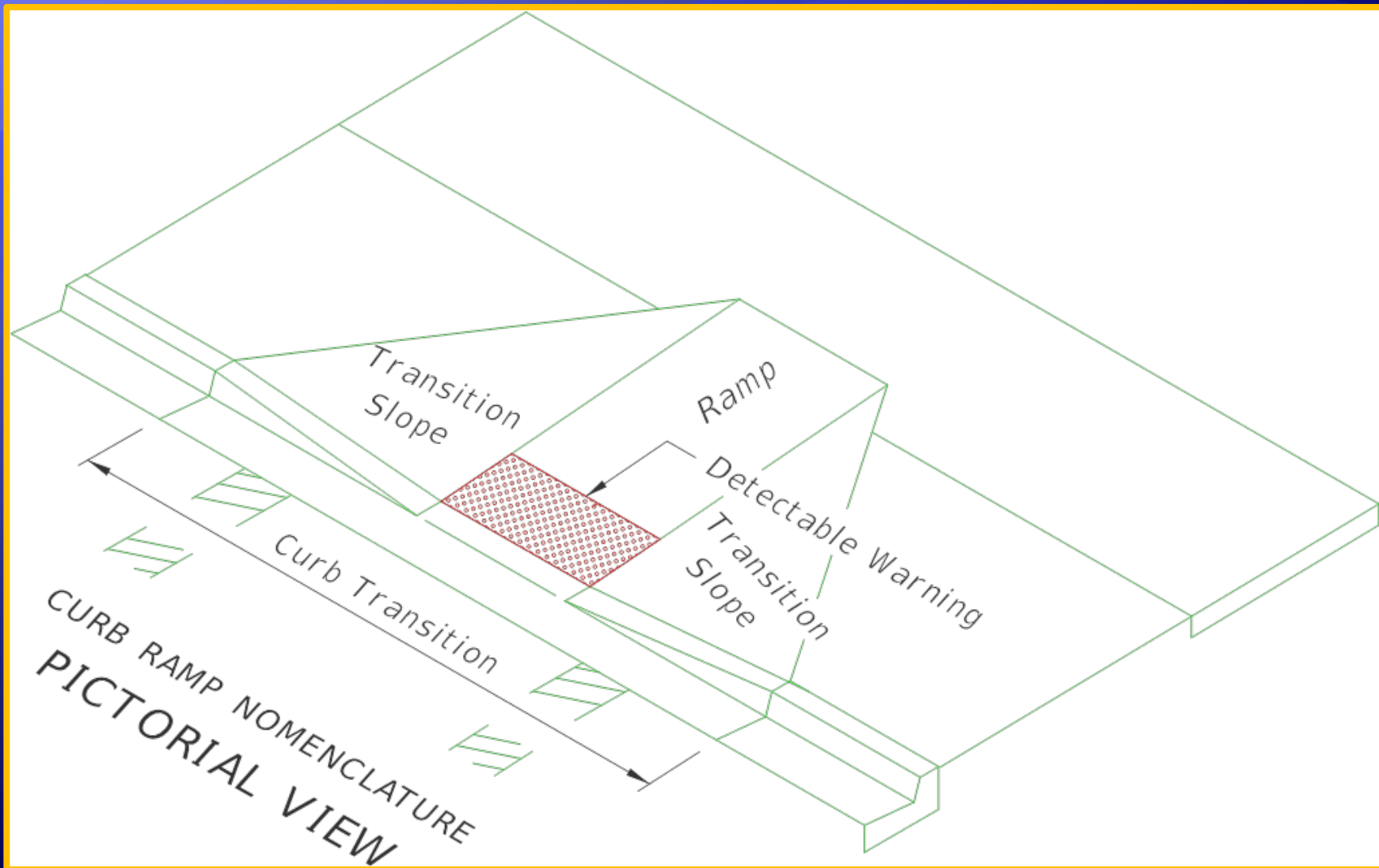
PPM – Shared Use Paths (Volume 2, Exhibit TYP-19)



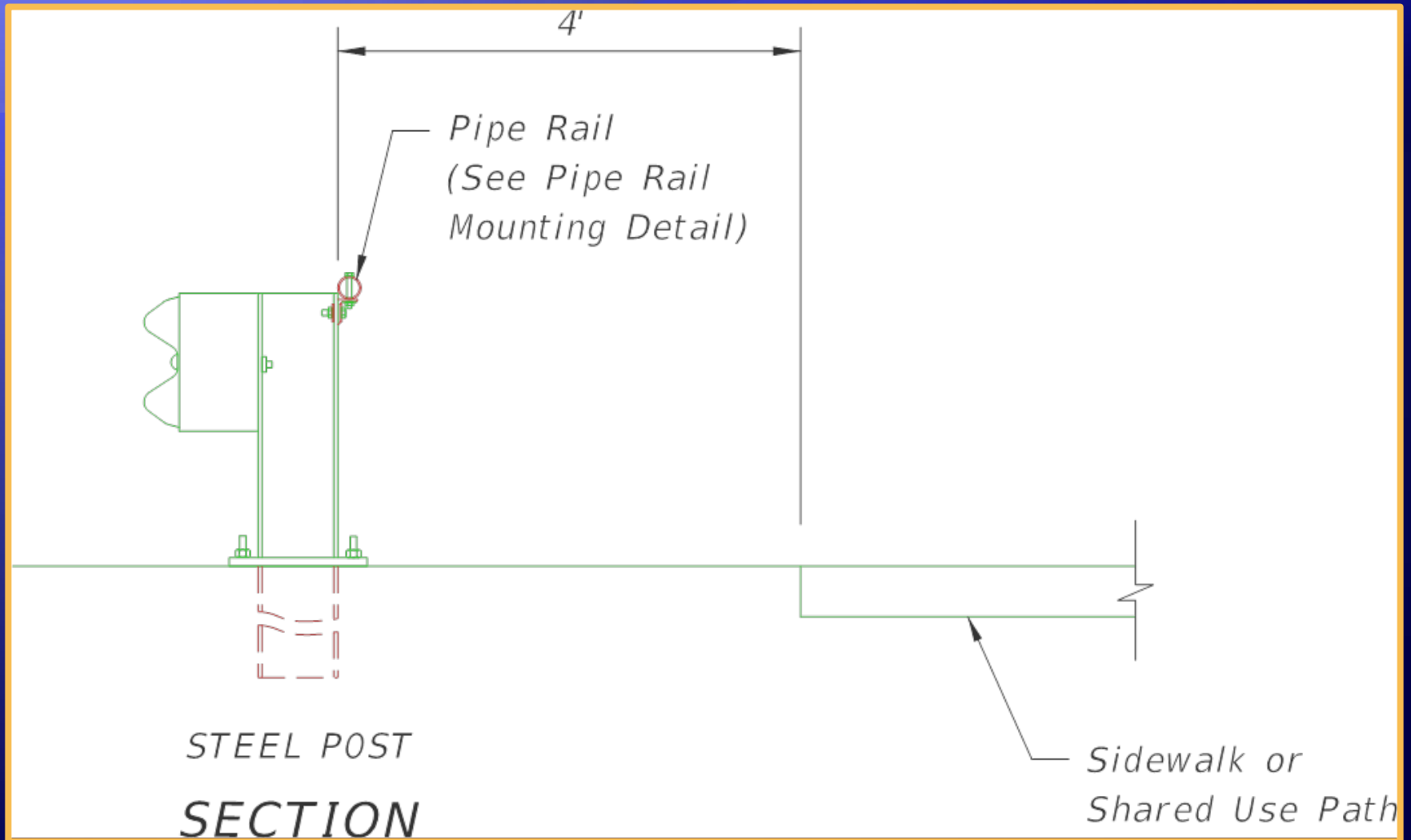
Key Topics for 2013 – Design Standards

- ◆ Index 304 – Level Landings at Bottom of Ramp
- ◆ Index 400 – Guardrail adj. to Sidewalk
- ◆ Index 515 – Min. Sidewalk Width at Driveways
- ◆ Index 600, 660 – Longitudinal Channelizing Device
- ◆ Index 870, 880 – Aluminum and Steel Pipe Guiderail
- ◆ Index 17347 – Sharrow

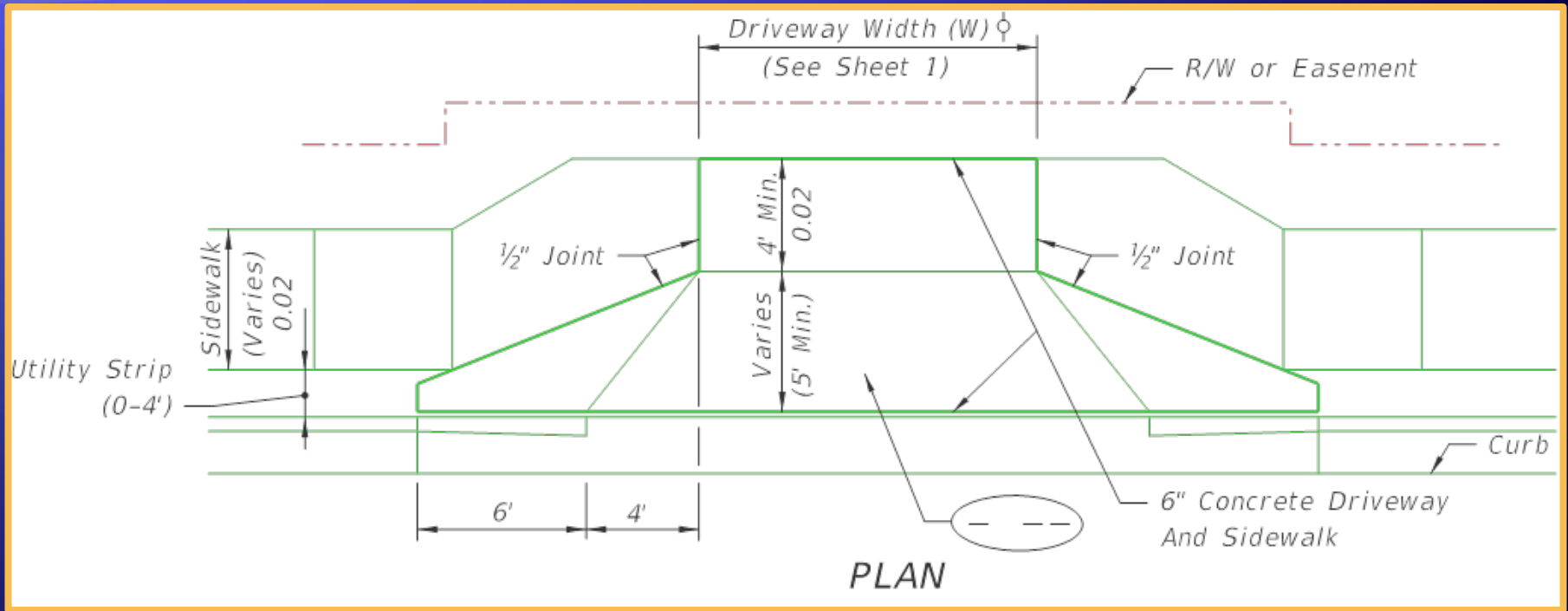
Index 304 – Level Landing



Index 400 – Guardrail adj. to Sidewalk

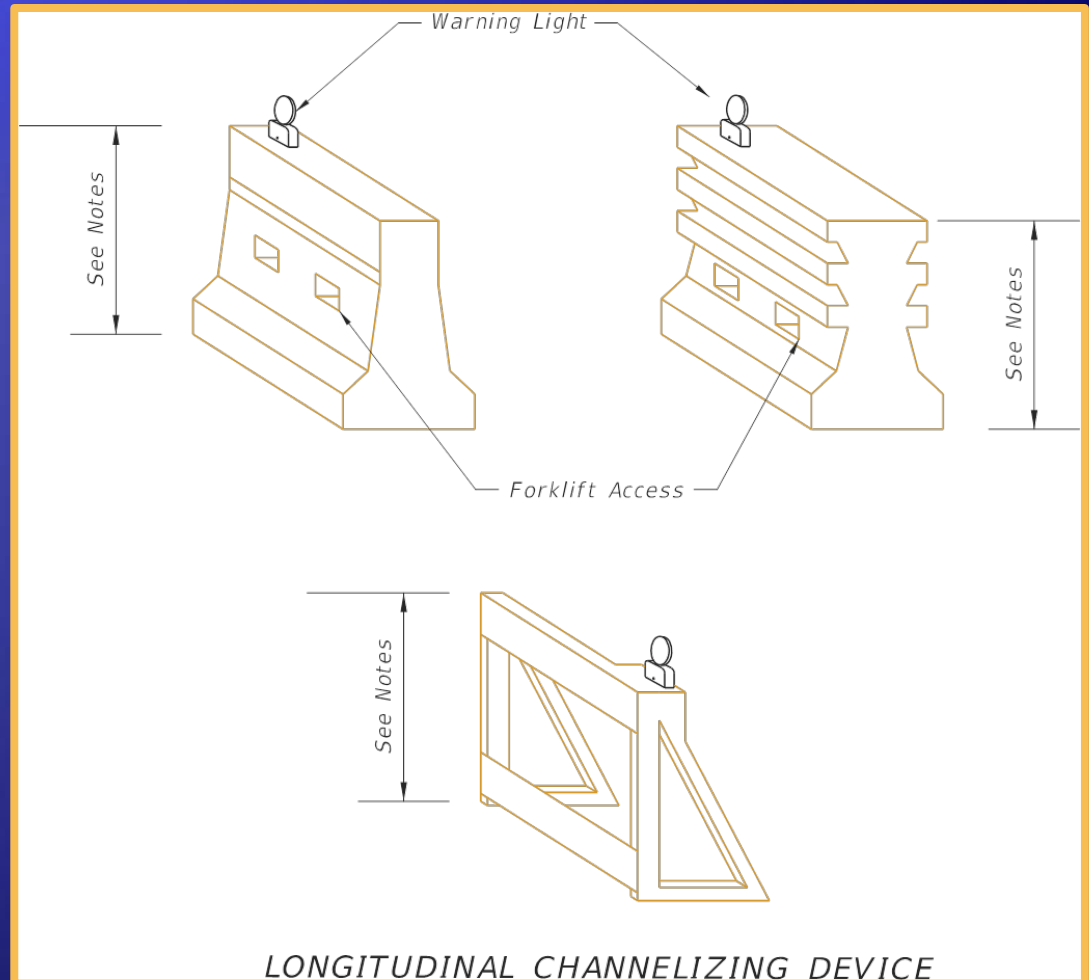


Index 515 – Turnouts



Index 600 – Pedestrian Longitudinal Channelizing Devices (LCD)

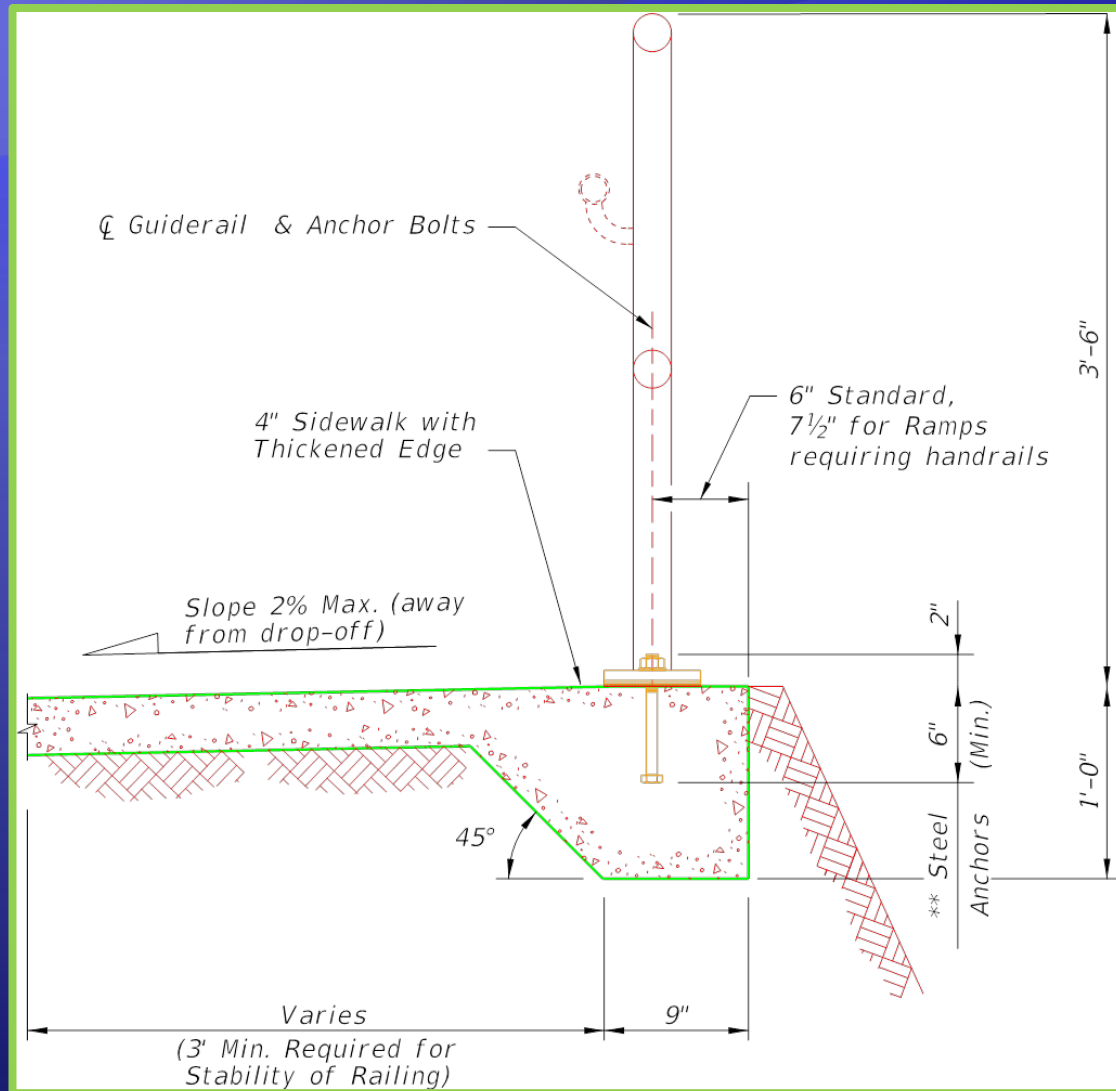
- See Note 12 for details:
- Minimum of 32" high
- An 8" detectable edge at bottom, with no more than a 2" gap for drainage
- Have a foot print or offset of at least 2'



Pedestrian Longitudinal Channelizing Devices



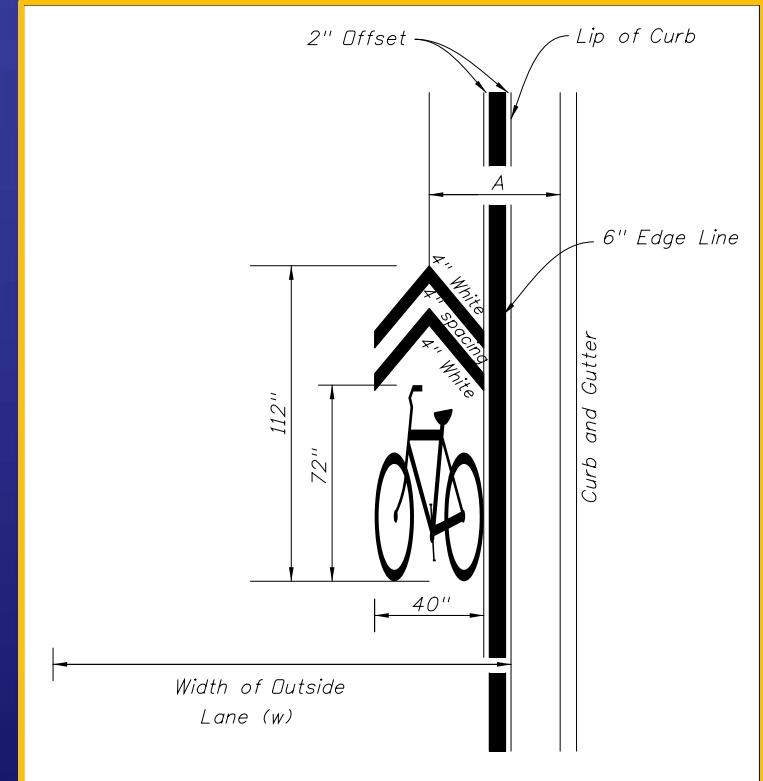
Index 870, 880 – Pipe Guide Rail



Index 17347 - Shared Lane Marking

- ◆ Added a note that "For lane widths less than 11', the symbol shall be centered in the travel lane ."

Lane Width (w)	Sharrow \mathcal{C} (A)
13' or Greater	4'
Less Than 13'	5 1/2'



Key Topics for 2013 - Research

- ◆ Shared Lane Markings
- ◆ Shared Bus/Bike Lanes
- ◆ Nebraska Avenue “Rightsizing”

Shared Lane Markings – Bridge of Lions

- ◆ “Sharrows”
- ◆ Optional pavement marking for shared lane roadways.
- ◆ Priorities for use:
 - ◆ With on-street parking
 - ◆ Gaps in facilities
 - ◆ Identify alternate route as part of MOT
 - ◆ Crash history of 3+/mile, over 3 years

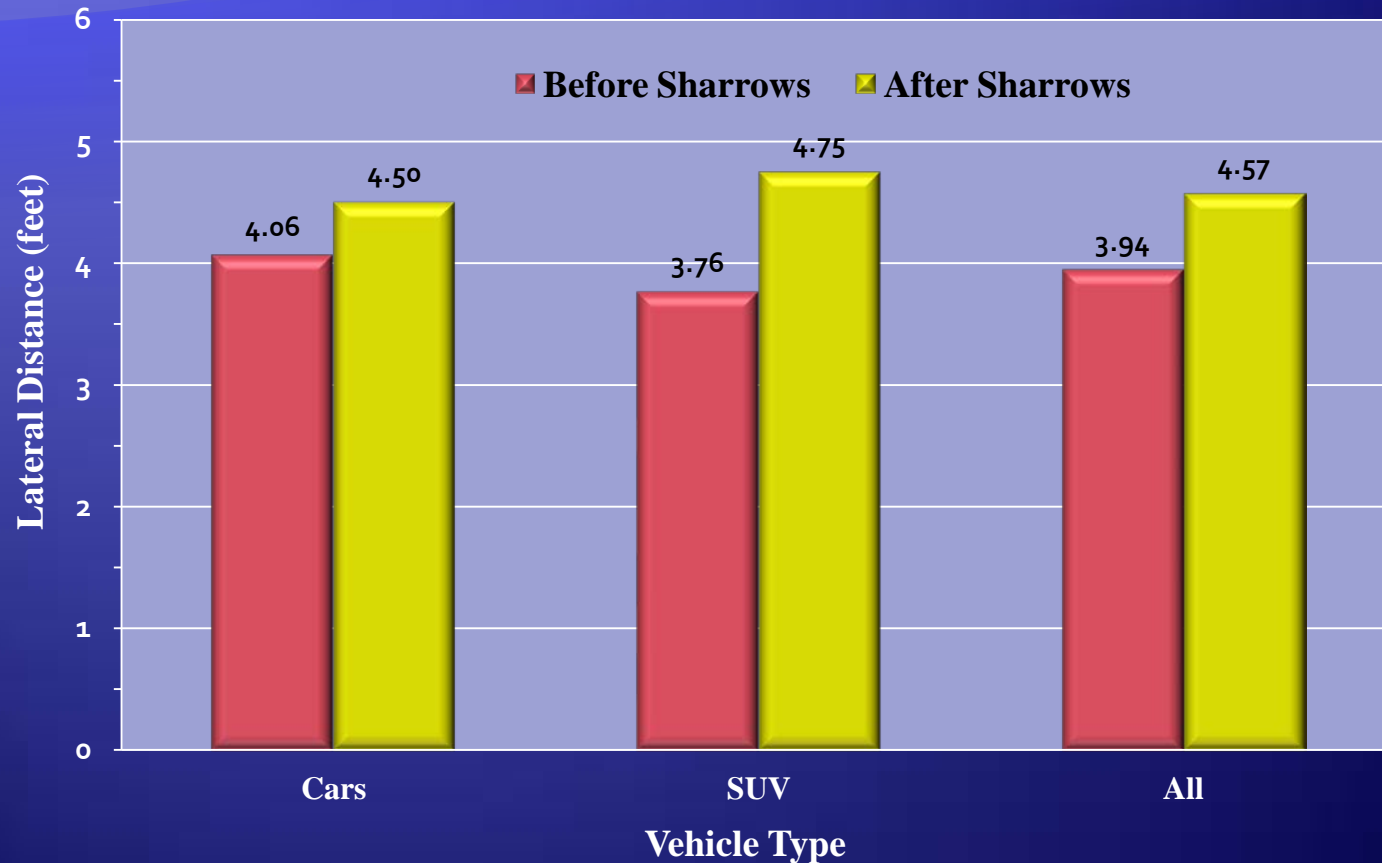


Riverside Drive



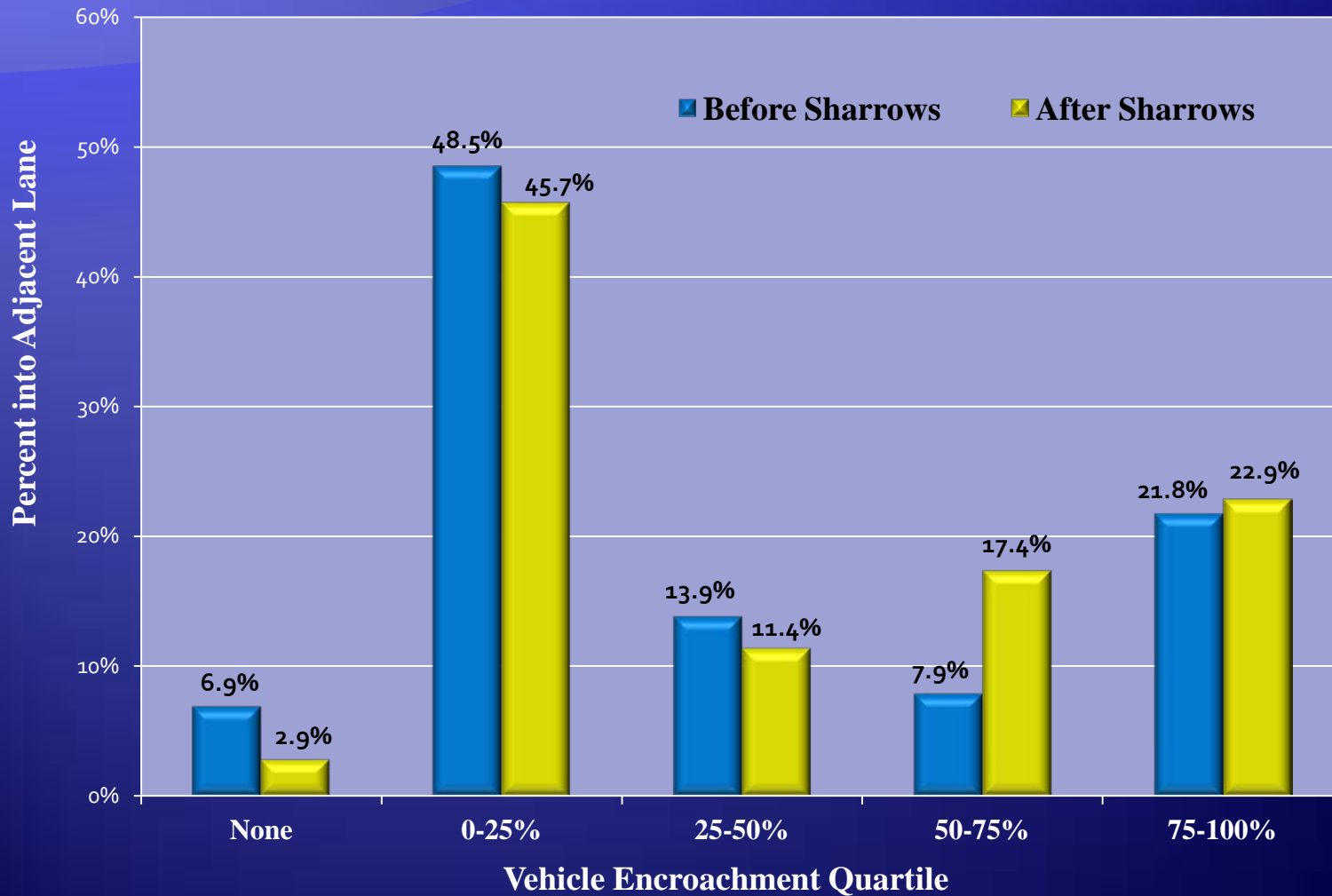
Data Analysis

Lateral Vehicle Clearance (LVC)



Data Analysis

Vehicle Shift into Adjacent Lane



Shared Bicycle/Bus Lane (SBBL)

Panama City Beach
Source: Streetscape
Design Manual



SBBL General Findings

- ◆ Identified 27 examples of existing SBBLs in U.S.
- ◆ Identified 10 other examples of facilities that are unofficial, planned, under study, former, or unusually designed
- ◆ Found variations by bus stop spacing, existence of parking lanes, colored lanes, and time restrictions



Chestnut Street, Philadelphia, PA
Source: Michelle Derobertis

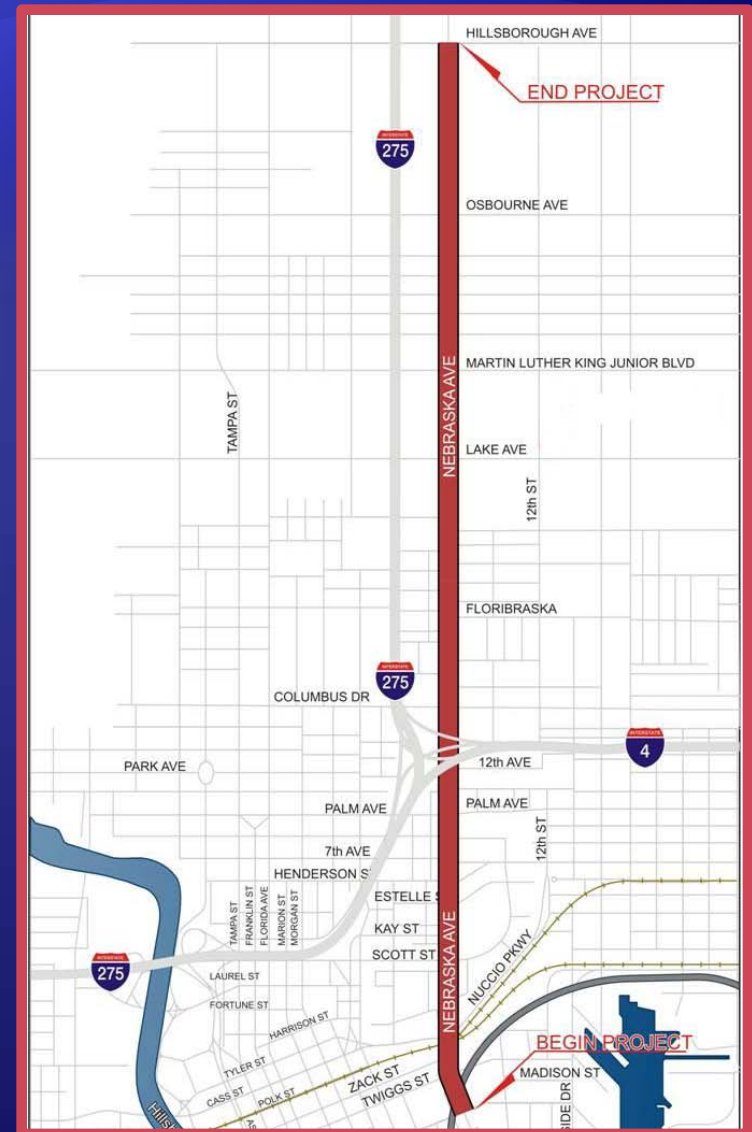
More Research Is Needed On:

- ◆ Effect of SBBLs on encouraging bicycling
- ◆ Better ways to collect bicycle traffic count data
- ◆ Mobility impacts of an SBBL upon all modes
- ◆ Crash analysis of SBBLs, esp. compared to other bicycle facility types
- ◆ Evaluation of alternative bus stop treatments
- ◆ Determination of the maximum safe speed
- ◆ Characteristics of gaps in traffic that are necessary to provide safe passing opportunities
- ◆ Effective ways to enforce SBBL restrictions

http://www.dot.state.fl.us/research-center/Completed_RD.shtm

Nebraska Ave. Road Diet

- Urban Minor Arterial
- Highly urbanized area of Tampa with residential and commercial development
- One of the highest bicycle and pedestrian crash frequency corridors in District 7
- Carrying 14,000 – 15,600 motor vehicle trips per day in 2011



New Bike Lanes, Sidewalks, Crosswalks, Bus Bays and TWLTLs

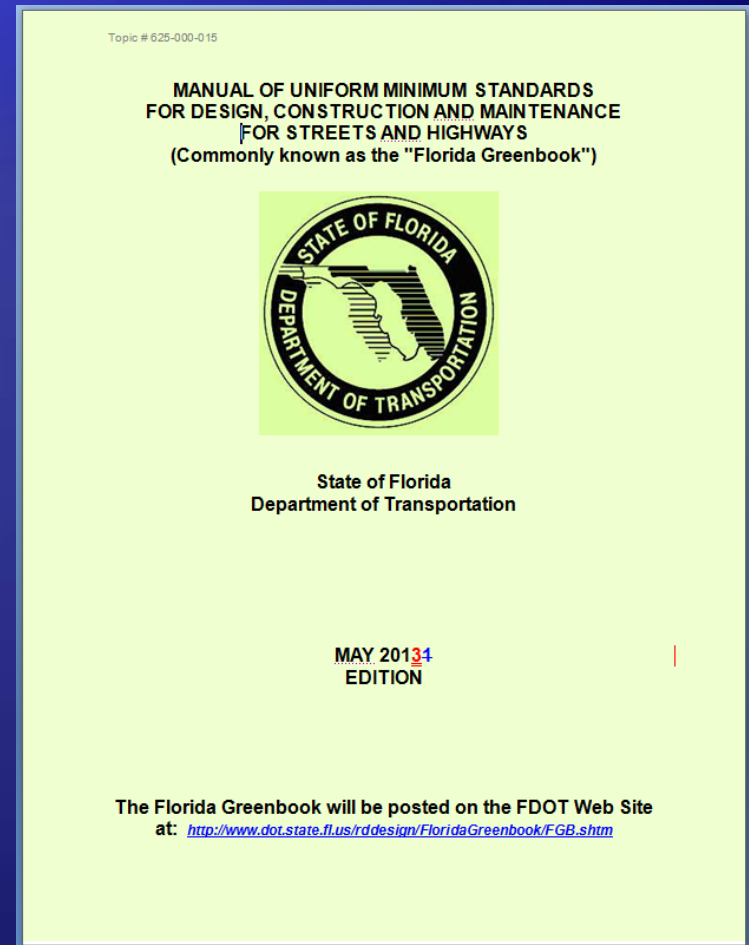


Nebraska Ave. Crash Reductions

- Total Crash Rate – down 8.5 to 3.3 crashes per MVMT
- Fatal and Incapacitating Crashes – down by 33% per MVMT
 - Tend to be head-on, angle/left turn, pedestrian and bicycle crashes
- Pedestrian Crashes - down 7 to 2.7 crashes per year
- Bicycle Crashes – down 5.0 to 2.7 per year
- Sideswipe Crashes - down 0.8 to 0.1 crashes per MVMT
- Rear End Crashes – down 1.2 to .9 crashes per MVMT
- <http://www.pps.org/reference/rightsizing/>

Key Topics for 2013 – Greenbook

- ◆ Current version
 - ◆ May 2011 Edition
- ◆ Proposed version
 - ◆ May 2013 Edition
- ◆ <http://www.dot.state.fl.us/rddesign/FloridaGreenbook/FGB.shtm>



Key Topics for 2013 – Greenbook: Chapter 3 Geometric Design

- ◆ Update of Accessibility References
 - ◆ 2006 Americans with Disabilities Act Standards for Transportation Facilities
 - ◆ 2012 Florida Accessibility Code (Rule 9B-7.0042)
- ◆ Bus Benches and Transit Shelters
 - ◆ A 30" wide x 48" deep wheelchair space adjacent to bench shall be provided
- ◆ Chapters 8, 13 also updated

Key Topics for 2013 – Greenbook: Chapter 13 Public Transit

- ◆ Stops and Station Areas
 - ◆ New bus stops with bus bays or other areas where a ramp or lift is to be deployed shall have a boarding and alighting area (B & A)
 - ◆ Firm, stable, slip resistant surface 6 a min. of 60" in width and depth of 96"
 - ◆ Connected to streets, sidewalks or pedestrian paths
- ◆ Transit Shelters
 - ◆ Shall connect via an accessible route to the B & A

Key Topics for 2013 – Greenbook: Chapter 13 Public Transit

- ◆ Benches
 - ◆ Shall be in an accessible location
 - ◆ Connected to streets, sidewalks or pedestrian paths
 - ◆ Connected to the B & A
- ◆ Transit Shelters
 - ◆ Shall connect via an accessible route to the B & A



Key Topics for 2013 – Greenbook: Chapter 13 Public Transit

- ◆ Transit facilities should comply with Chapter 14-20, Florida Administrative Code
 - ◆ <https://www.flrules.org/gateway/ChapterHome.asp?Chapter=14-20>
- ◆ Transit Handbooks
 - Accessing Transit: Design Handbook for Florida Bus Passenger Facilities
 - <http://www.dot.state.fl.us/transit/Pages/NewTransitFacilitiesDesign.shtm>

Key Topics for 2013 – Greenbook: Chapter 17 Bridges and Other Structures

- ◆ Pedestrian Bridges
 - ◆ Use the guidance in the Structures Manual Volume 1 - Design Guidelines Chapter 10
 - ◆ <http://www.dot.state.fl.us/structures/StructuresManual/CurrentRelease/StructuresManual.shtm>



Questions?

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