



# Public Right-of-Way Accessibility Guidelines (PROWAG)

Scott Windley  
Accessibility Specialist

Juliet Shoultz, PE  
Transportation Systems Engineer

1

1



## Standards & Guidelines

- 2010 ADA Standards for Accessible Design**  
Current enforceable standard under the ADA
- Public Rights-of-Way Accessibility Guidelines (PROWAG)**
  - 2013 Supplemental Notice of Proposed Rulemaking** – accessibility guidelines for shared use paths

2

2



## Public Right of Way Accessibility Guidelines (PROWAG)

- R1 Application and Administration**
- R2 Scoping Requirements**
- R3 Technical Requirements**
  - Pedestrian Access Route and Curb Ramps
  - Accessible Pedestrian Signals
  - Transit Stops/Shelters
  - On-street parking
- R4 Supplementary Technical Requirements**
  - Takes ADA Building Standard Provisions and adapts them for ROW application
- 2013 SNPRM Incorporates Shared Use Path Guidelines**



3

3



## WHY PROWAG

- Pedestrians who use wheelchairs
- Pedestrians with ambulatory impairments
- Pedestrians who are blind
- Pedestrians with low vision

4

4



## PROWAG Application and Administration

- Facilities for pedestrian circulation and use located in the public right-of-way**
- Equivalent facilitation permitted**
- Referenced standards – MUTCD**

5

5



## Scope of Guidelines

- ADA and ABA Facilities**
- New construction and alterations to existing facilities**
- Temporary facilities are also covered (street fairs, block parties, farmers' markets)**

6

6




## Alterations

- Accessible to the extent practicable within the scope of the project
- Recommend documentation of decisions
- Transitional segment compliant to the extent practicable




7

7



## What's Required?

- PROWAG does not require Pedestrian Access Routes unless pedestrian facilities are provided.



- If sidewalks are provided, they are required to be accessible to and usable by persons with disabilities.

8

8

## Types of Pedestrian Facilities



Sidewalks



Shared-use Paths



Shoulders

UNITED STATES ACCESS BOARD 9

9

## Distinguish SUPs from Trails

**SHARED USE PATH** (design to PROWAG)

- Intended for multi-use
- Bicycle/transportation focus
- Machined, layered surface (improved)
- Located in either an “independent corridor” or public right-of-way

**TRAILS** (design to ABA Accessibility Standards)

- Designed for the “recreation experience”
- Does not connect elements and spaces on a site
- Generally includes a trailhead
- Has limited to no transportation function

UNITED STATES ACCESS BOARD 10

10



## Pedestrian Access Route Width



4 feet minimum

- 48” min continuous pedestrian access route (PAR) in the public right-of-way

11

11

## Pedestrian Access Route (PAR)



- Which came first?

UNITED STATES ACCESS BOARD 12

12




### Clear Width Around Obstructions



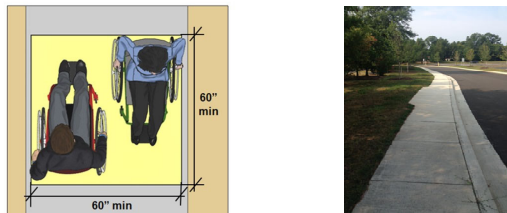
- ❑ **48" minimum clear width must be maintained around obstructions**

13

13



### 60" x 60" Passing Space



- ❑ **PROWAG R302.4 Passing Spaces**

14

14




### Shared Use Path Width



- ❑ **Width determined by use and not accessibility and NOT controlled by our guidelines**
- ❑ **Full width must meet PAR requirements**

15

15




### Width

- ❑ **PROWAG: 4ft minimum**
- ❑ **2013 Supplemental Notice of Proposed Rulemaking i.e. SHARED-USE PATH: Entire width of the shared-use path**


16

16



### Pedestrian Access Route Running Slope

- ❑ **Within Street or Highway Right-of-Way. The grade of pedestrian access routes shall not exceed the general grade established for the adjacent street or highway.**



17

17




### Pedestrian Access Route Running Slope

- ❑ **Not Within Street or Highway Right-of-Way. The grade of pedestrian access routes shall be 5% maximum.**

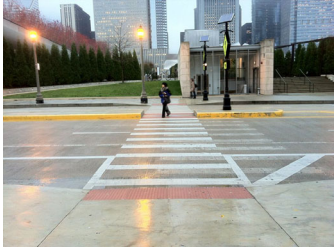


18

18

 **Pedestrian Access Route**  
**Running Slope**

- ❑ Within pedestrian street crossings: 5% maximum



19

19

 **Pedestrian Street Crossings**




- ❑ PROWAG does not specify when to mark...
- ❑ Or how to mark (see MUTCD requirements)

20

20



Which one meets the requirements?

UNITED STATES ACCESS BOARD

21

21


 **Pedestrian Access Route**  
**Cross Slope**

- ❑ 0% best for wheelchair users
- ❑ Some slope needed for drainage
- ❑ Max cross slope 2%
  - Exceptions for street crossings





22

22

 **Pedestrian Access Route** **Cross Slope**

- ❑ Pedestrian Street Crossings **with Yield Control**: 2% max
- ❑ Pedestrian Street Crossings **with Stop Control**: 2% max

23

23

 **Pedestrian Access Route** **Cross Slope**

- ❑ Pedestrian Street Crossings **Without Yield or Stop Control**: 5% max



24

24

**United States Access Board**

## Pedestrian Access Route **Cross Slope**

**Midblock Pedestrian Street Crossings: Street or highway grade**

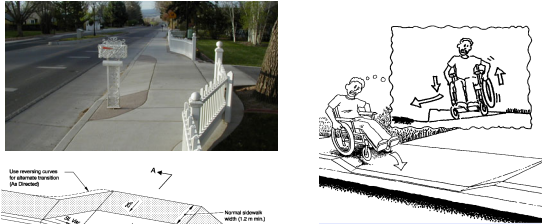


25

25

**United States Access Board**

## Cross Slope at Driveways



**Pedestrian design does not have to be an after thought**

26

26

**United States Access Board**

## Surfaces and Horizontal Openings



**Firm, stable, & slip resistant**

**No large openings or gaps**

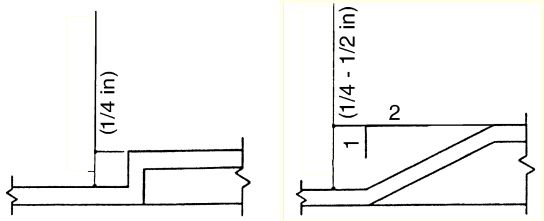
**Bricks and paving stones can work if properly installed and maintained.**

27

27

**United States Access Board**

## Changes in Level



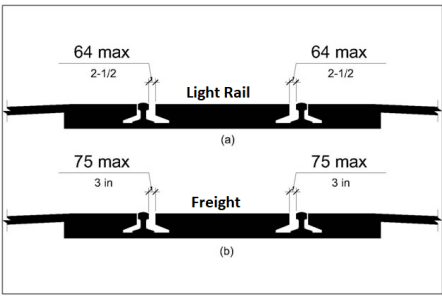
**Must be beveled if greater than 1/4 inch.**

28

28

**United States Access Board**

## Flange Way Gap




29

29

**United States Access Board**

## Grade Level RR Crossings

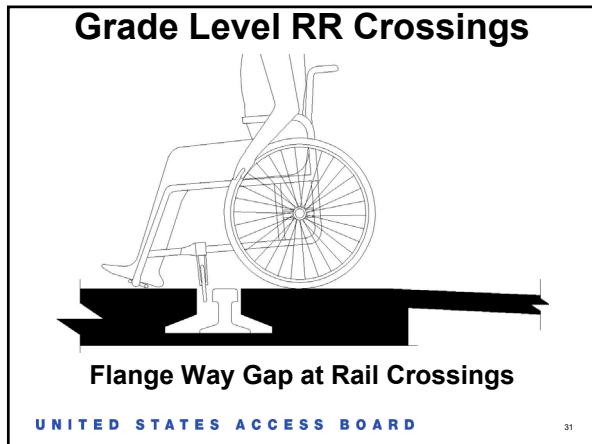


**Flange Way Gap at Rail Crossings**

**UNITED STATES ACCESS BOARD**

30

30



31



32

### Alternate Pedestrian Access Routes

- PROWAG references MUTCD (section 6)
- Maintain pedestrian usability
- Same-side alternate routes if feasible
- Consider APS if extra crossings required
- Cane-detectable barricades

33

33

### Temporary Traffic Control

From MUTCD

34

34

### Curb Ramp Basics

- 8.3% max running slope (with length limit as exception to slope limit)
- 2% cross slope (with exceptions for stop condition)
- Width – PAR is 48" min, Shared use path is full width
- Landing at top of perpendicular curb ramp
- Clear space at the bottom outside of parallel travel lane
- Flush transitions (no lips)
- Perpendicular grade breaks

35


35

### Curb Ramps


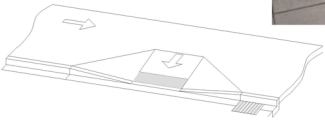
The 'cookie cutter' curb ramp

36

36




### Perpendicular Curb Ramps



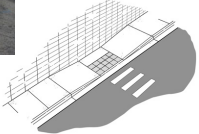



Perpendicular to the curb or street

37




### Parallel Curb Ramps

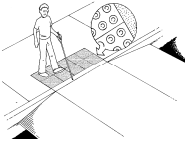





Parallel to curb or street



38



### Blended Transitions





Raised Crossing

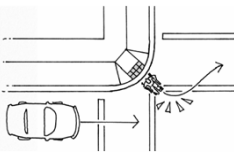
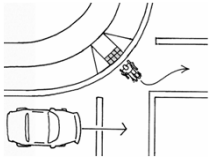



Depressed corner

39



### Diagonal Curb Ramp





Diagonal/Apex can cause dangerous conflicts



Only permitted in ROW alterations as last option (PROWAG R207.2)

Permitted on sites (2010 ADA Standards 406.6)

40



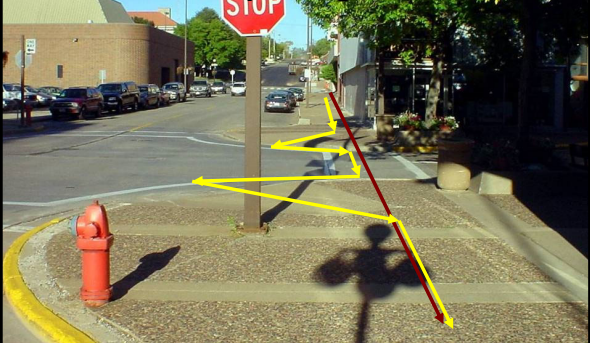
### Street Crossing

Two ramps per corner

41

### Curb Ramp Design Factors



2 ramps per corner are feasible and preferable

UNITED STATES ACCESS BOARD

42




### Creative Design Solutions



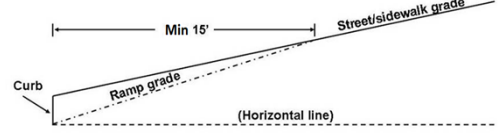
- ❑ Slope the sidewalk down and shorten the perpendicular curb ramp run to the street

43

43



### Curb Ramp Running Slope



- ❑ Maximum curb ramp slope 1:12
- ❑ When 'chasing grade' length of the ramp can be limited to 15 feet.

44

44




### Curb Ramp Cross Slope



- ❑ 2% max at stop/yield controlled crossing
- ❑ 5% max at crossing without stop/yield

45

45




### Curb Ramp Width




- ❑ PAR 48 inches minimum width.
- ❑ Curb ramp must extend full width of a shared use path.

46

46




### Landings



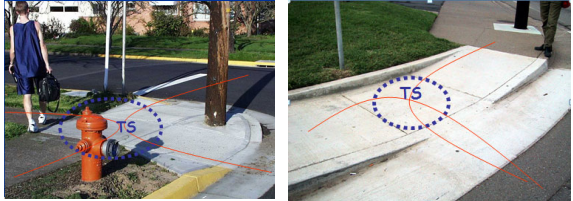
- ❑ Perpendicular curb ramps without landings at the top can be difficult to negotiate (4' x 4' min)

47

47



### Landings



- ❑ Level landing at the top of a perpendicular curb ramp
- ❑ Level landing at the bottom of a parallel curb ramp

48

48




### Curb Ramp Design Factors




Maneuvering space is required at the top of curb ramps for changing direction (4' x 4' min)

UNITED STATES ACCESS BOARD

49




### Grade Break

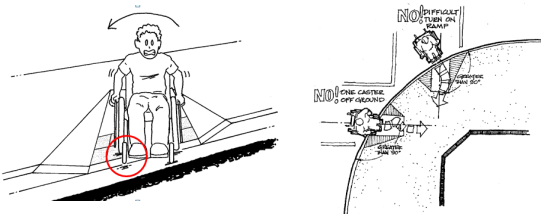


Grade breaks must be perpendicular to direction of travel

50




### Perpendicular Grade Breaks

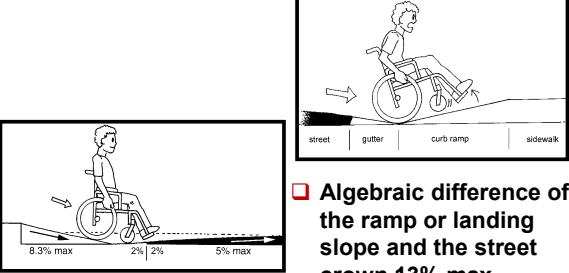


Both wheels must hit the break at the same time for stability (especially manual wheelchairs)

51




### Counter Slope

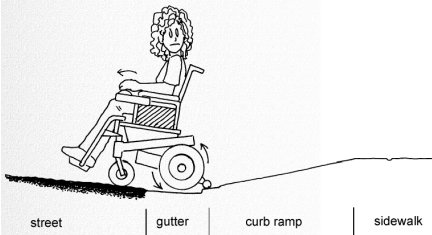


Algebraic difference of the ramp or landing slope and the street crown 13% max

52




### Transitions




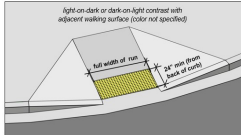
Transition must be flush at all grade breaks

53



### Detectable Warnings

- Required at all street crossings
  - Driveways??
- Provide warning to the visually impaired that they are about to enter a hazardous area.
- 24" min. in the direction of travel and full width of curb opening
- Contrast in color with surrounding surface

54

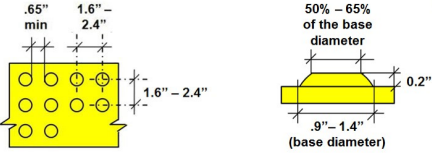
**Detectable warning at boarding area**

- Required at boarding platforms
- Boarding and alighting areas at sidewalk or street level transit stops for rail vehicles



55

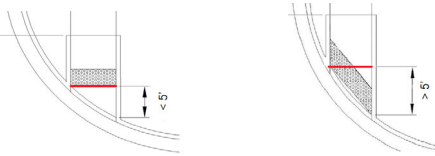
**Detectable Warning Specifications**



- Due to their distinct design, truncated domes are detectable by cane and underfoot

56

**Detectable Warning Location**



- Place DW on curb ramp at grade break if space at bottom of ramp is less than 5' deep
- Place DW on bottom behind the back of the curb if space is more than 5' deep at any point

57

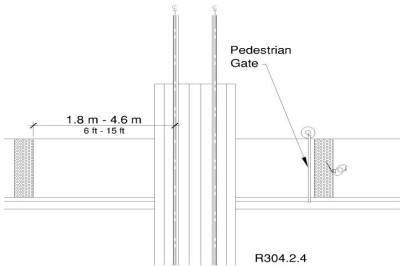
**Detectable Warnings at Refuge Islands**



- Pedestrian refuge islands greater than 6 feet - DWs placed at front edge of island

58

**Detectable Warning at Rail Crossings**



59

**Detectable Warnings**



- DW shall have a visual contrast with the surrounding surfaces (light on dark or dark on light)
- No specific color specified or required

UNITED STATES ACCESS BOARD

60

### Detectable Warnings (Quiz)

1 2 3 4 5 6

UNITED STATES ACCESS BOARD

61

61

### Before

Sometimes it's tough!

Steps at Corner: Before

UNITED STATES ACCESS BOARD

62

62

### After

Steps at Corner: After

UNITED STATES ACCESS BOARD

63

63

### Protruding Objects

- Objects between 27" and 80" may not protrude more than 4".
- Entire pedestrian circulation route!

64

64

### Avoiding Protruding Objects

- Post mounted objects must not protrude more than 4" beyond the base
- Space greater than 12" between posts must be detectable

65


65

### Ramps

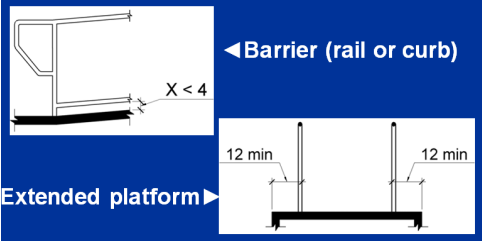
- Slope: 8.3% max
- Cross slope: 2% max
- Clear width: 36" min
- Rise for each run: 30" max
- Handrails (both sides)
- Edge protection
- Level landings (top & bottom)

66

66



## Ramps




Barrier (rail or curb)

Extended platform

- > 6" elevation change requires edge protection

67

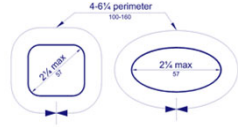
67



## Handrails


Required on ramps and stairs, **not required on curb ramps**

- Knuckle clearance: 1 ½" min
- Diameter: 1 ¼" – 2" (applies to outer diameter)
- Circular & noncircular cross sections



68

68



## Pedestrian Street Crossings

- Accessible Pedestrian Signal: Provide **visual** and **audible** information
- Adequate crossing time (3.5 feet/second(fps))
- Multi-lane roundabouts needs some type of pedestrian demand signalization

69

69

## Pedestrian Street Crossings




**RUN!!!**


UNITED STATES ACCESS BOARD

70

70



## Crossing Time




WALKING SPEED AN ISSUE

START-UP TIME AN ISSUE


- 3.5 fps from top of curb ramp to opposite curb
- PROWAG references MUTCD requirements

71

71



## Crossing Distance



- Curb extensions can reduce crossing distance

72

72

 **Pedestrian Street Crossings**



Refuge islands can be useful

73

73

 **Pedestrian Street Crossings**



If crossing is prohibited, it should be closed off to all pedestrians.

74

74

**Pedestrian Street Crossings**



Running slope of pedestrian street crossing is 1:20 max (crown)

UNITED STATES ACCESS BOARD

75

75

**Pedestrian Street Crossings**




Maximum crosswalk cross slope

- 1:48 is a general requirement for pedestrian access routes
- 1:20 is allowed in a street crossing without stop or yield control

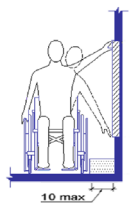
UNITED STATES ACCESS BOARD

76

76

 **Pedestrian Pushbuttons Reach Range**

- 48" max.
- 15" min.
- Side reach within 10"
- No obstruction permitted under forward reach



77

77

 **Accessible Pedestrian Pushbuttons**




- Usable with a closed fist
- Not accessible

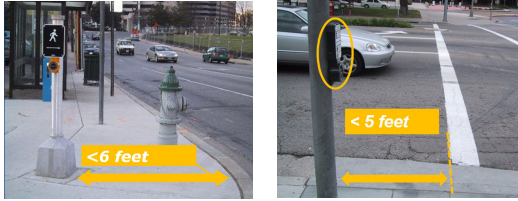
Operable parts shall be operable with one hand and not require tight grasping, pinching or twisting of the wrist.

78

78




### Pushbutton Location




- Between 1½ft to 6ft from the edge of curb, shoulder or pavement
- No more than five feet from crosswalk line

79

79




### Pushbutton Location



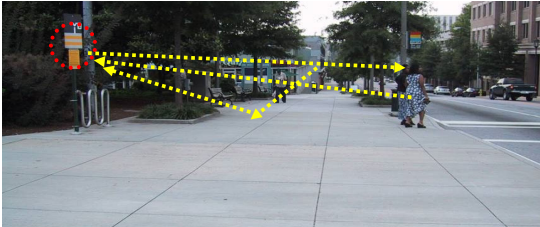
- Face of pushbutton must be parallel to the crosswalk

80

80



### Pushbutton Location?



- Find the pushbutton. Now line up to cross.
- Missed your chance? Do it again

81

81




### Where is the Pushbutton?



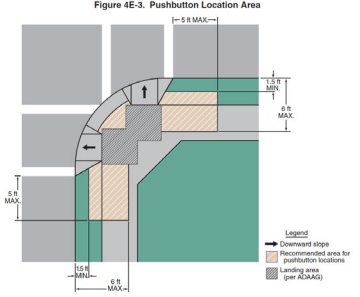
82

82




### Pushbutton Location - MUTCD

Figure 4E-3. Pushbutton Location Area




83

83



### Roundabouts

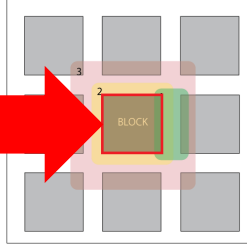


- Fencing guides pedestrians to crossing location.
- Provide pedestrian-activated signals at multiple lane crossings

84

84

**Scoping On-Street Parking**



- Number of accessible spaces is based on total marked or metered spaces on a block perimeter
- Scoping Section Table R214

85

**On-Street Parking**



- Where the width of the adjacent sidewalk or available right-of-way exceeds 14 ft. an access aisle is required (new construction)

86

**On-Street Parking**



- Narrow sidewalks – access aisle not required
- Alterations – access aisle only required when scope of project involves curb and road work

87

**On-Street Parking**



- Angled (or perpendicular) on-street parking; requires an 8ft access aisle

88

**On-Street Parking**

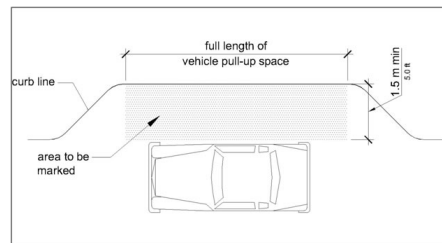


- Information must be visible from a point 3.3 ft. max above the center of the clear space
- Must meet operable parts requirements

Parking meter/pay station displays and information


89

**Passenger Loading Zones**

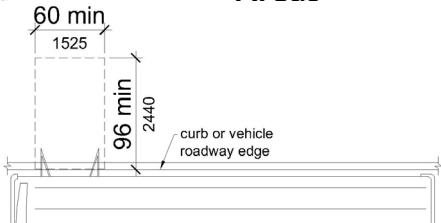


- The access aisle must be connected to the pedestrian access route

90




## Bus Boarding and Alighting Areas



- Clear space: 96" x 60"
- Perpendicular to road – 2% max slope;
- Parallel to the road can match grade of road

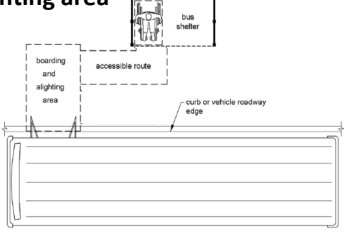
91

91



## Bus Shelters

- Space for wheelchair entirely within shelter
- Pedestrian accessible route connection to boarding/alighting area



92

92

## Bus Shelters



2004.11.30

**If a PAR is provided, it shall continue around street furniture or bus stops.**

UNITED STATES ACCESS BOARD

93

93

## Bus Shelters



**Better placement of Bus stop**

UNITED STATES ACCESS BOARD

94

94

## Bus Stop Signs

**Must comply with the requirements of visual characters found in R410**




UNITED STATES ACCESS BOARD

95

95

## Bus Stop Signs

**Schedules, timetables and maps are not required to comply with R410)**

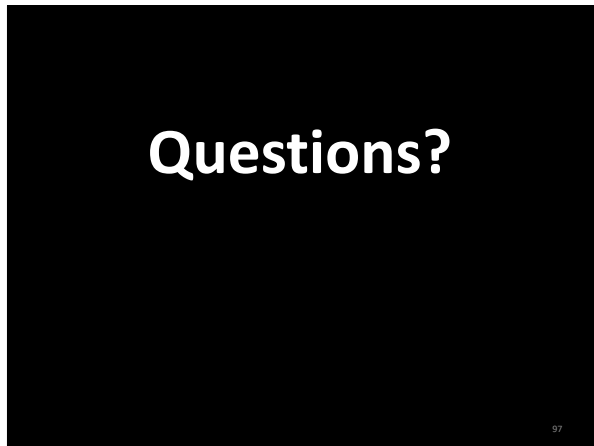


UNITED STATES ACCESS BOARD

96

96





97



**U.S. Access Board**  
 (800) 872-2253 (voice)  
 (800) 993-2822 (TTY)  
 E-mail: row@access-board.gov  
 www.access-board.gov

98

**Time For A Quiz?**



**UNITED STATES ACCESS BOARD**

99



100



101



102



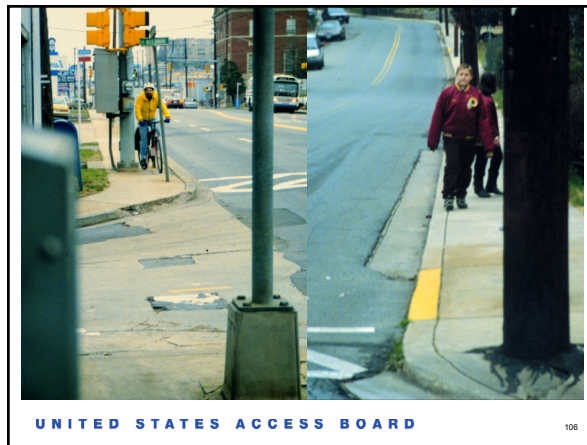
103



104



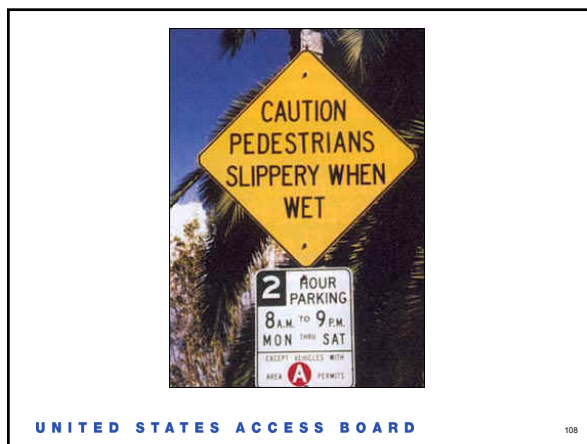
105



106



107



108



109



110



111



112



113



114



UNITED STATES ACCESS BOARD

115

115



UNITED STATES ACCESS BOARD

116

116



UNITED STATES ACCESS BOARD

117

117



UNITED STATES ACCESS BOARD

118

118



UNITED STATES ACCESS BOARD

119

119



UNITED STATES ACCESS BOARD

120

120



121



122



123



124



125



126



127



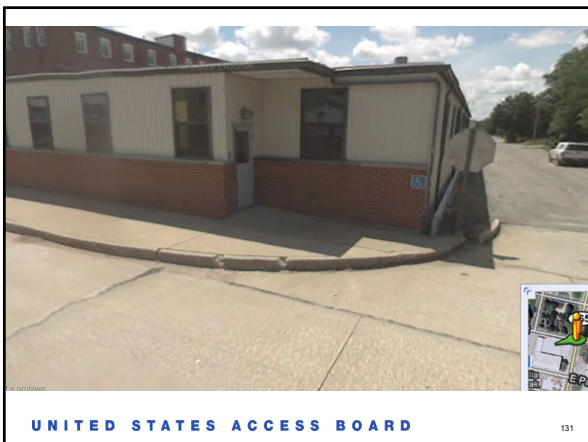
128



129



130



131



**U.S. Access Board**

**(800) 872-2253 (voice)**  
**(800) 993-2822 (TTY)**  
**E-mail: row@access-board.gov**  
**www.access-board.gov**

132

132