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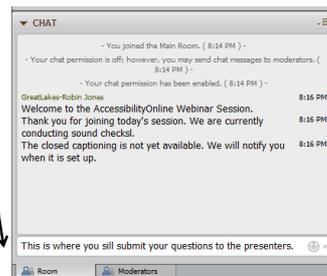
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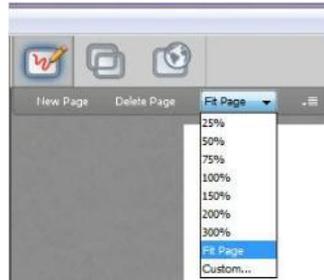
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ACCESSIBLE SIDEWALKS, SHARED USE PATHS, AND STREET CROSSINGS

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Presenters

U.S. Access Board



Juliet Shoultz, P.E

Transportation Engineer



Scott J. Windley

Accessibility Specialist

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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

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Public Right of Way Accessibility Guidelines

- 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**



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PROWAG

Application and Administration

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

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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)**
- Existing facilities are covered by Standard setting agencies requirements**

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Alterations

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



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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.**

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Pedestrian Access Route Width



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

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Clear Width Around Obstructions

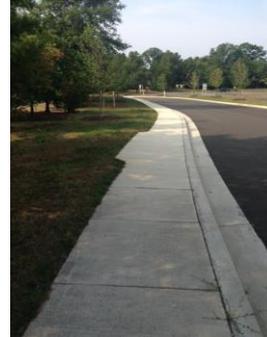
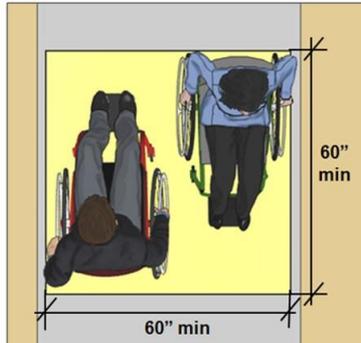


- ❑ **48" minimum clear width must be maintained around obstructions**

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60" x 60" Passing Space



- PROWAG R302.4** Passing Spaces
- 2010 ADA Standards 403.5.3** Passing Spaces

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Shared Use Path Width



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

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Width – Guidelines & Standards

- PROWAG: 4ft minimum
- 2013 Supplemental Notice of Proposed Rulemaking i.e. SHARED-USE PATH: Entire width of the shared-use path
- 2010 ADA Standards: 3ft minimum

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



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Pedestrian Access Route **Running Slope**

- Within pedestrian street crossings: 5% maximum



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Pedestrian Street Crossings



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

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Pedestrian Access Route Cross Slope

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



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Pedestrian Access Route Cross Slope

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



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Pedestrian Access Route **Cross Slope**

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



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Pedestrian Access Route **Cross Slope**

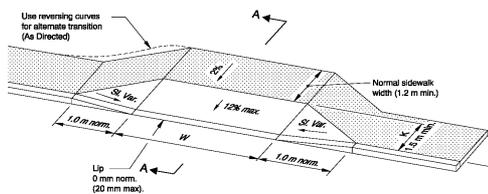
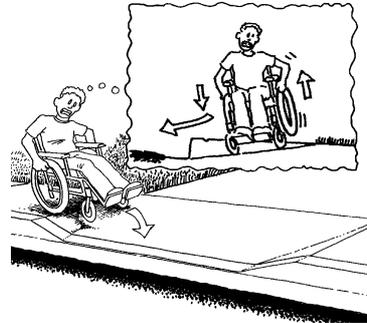
- Midblock Pedestrian Street Crossings: Street or highway grade



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Cross Slope at Driveways



Pedestrian design does not have to be an after thought

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Surfaces and Horizontal Openings



Firm, stable, & slip resistant



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

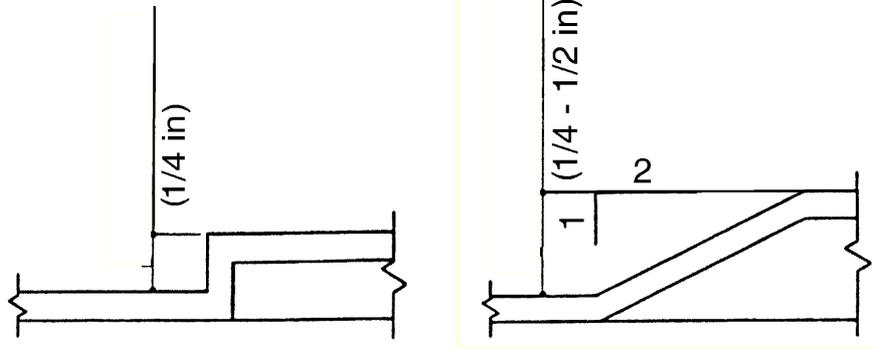


No large openings or gaps

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Changes in Level

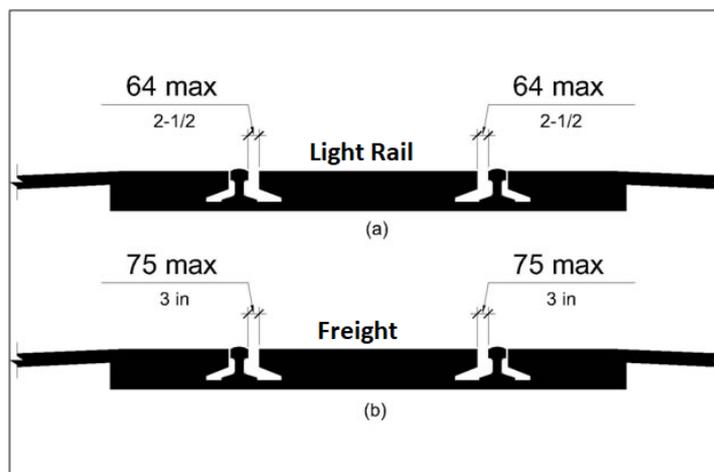


Must be beveled if greater than ¼ inch.

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Flange Way Gap



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Alternate Pedestrian Access Routes

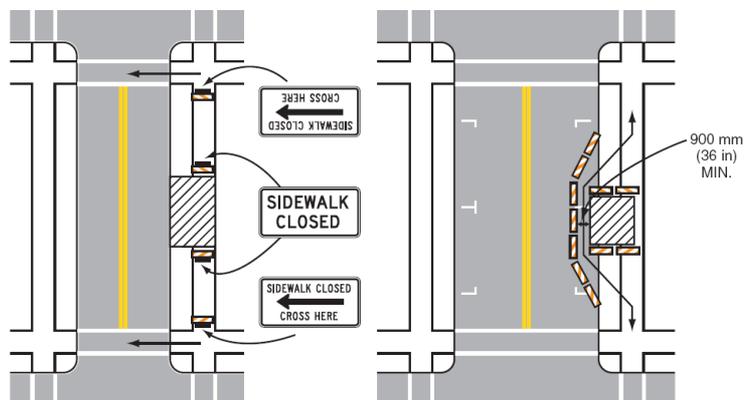
- PROWAG references MUTCD (section 6)
- Maintain pedestrian usability
- Same-side alternate routes if feasible
- Consider APS if extra crossings required
- Cane-detectable barricades



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Temporary Traffic Control



From MUTCD

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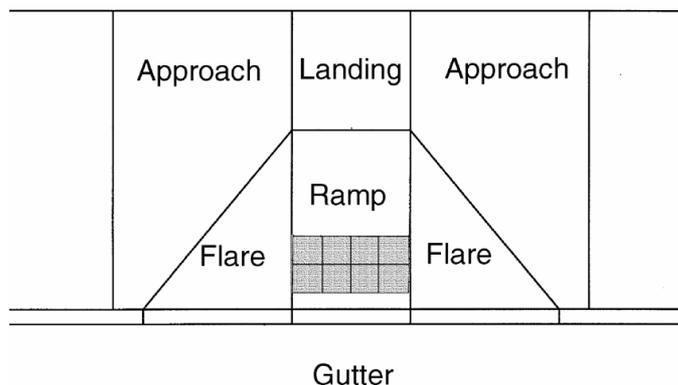
Curb Ramp Basics

- 1:12 max running slope (with length limit as exception to slope limit)
- 1:48 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

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Curb Ramps

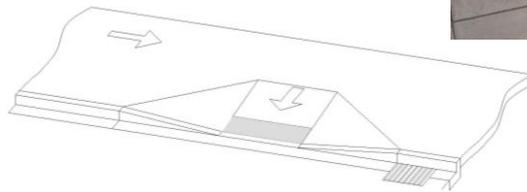


- The 'cookie cutter' curb ramp

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Perpendicular Curb Ramps

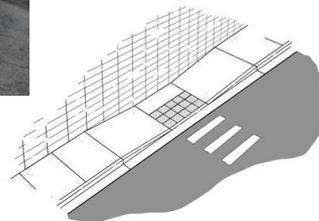
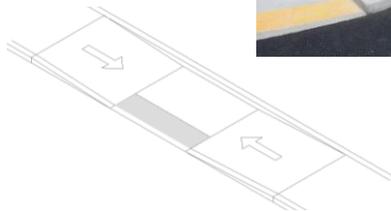


Perpendicular to the curb or street

39



Parallel Curb Ramps

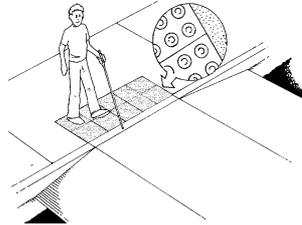


Parallel to curb or street

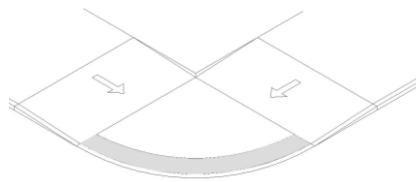
40



Blended Transitions



Raised Crossing

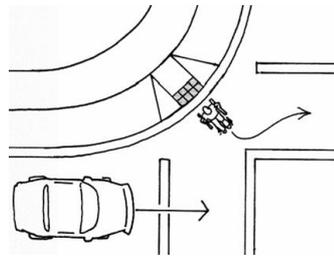
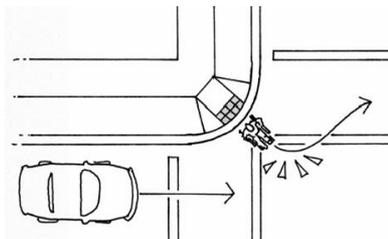


Depressed corner

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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)

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Street Crossing



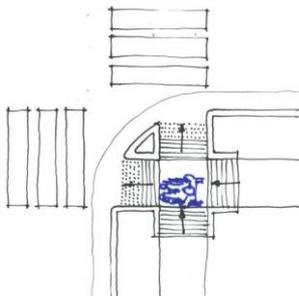
Two ramps per corner



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Creative Design Solutions

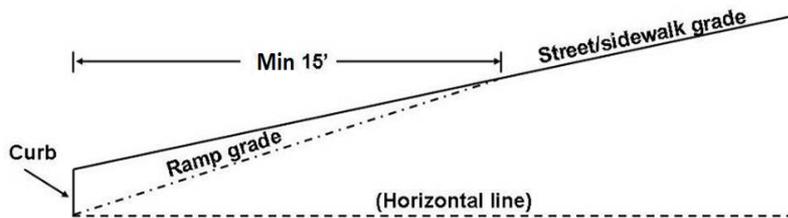


Slope the sidewalk down and shorten the perpendicular curb ramp run to the street

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Curb Ramp **Running Slope**



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

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Curb Ramp **Cross Slope**



- 1:48 max at stop/yield controlled crossing
- 1:20 max at crossing without stop/yield

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Curb Ramp Width

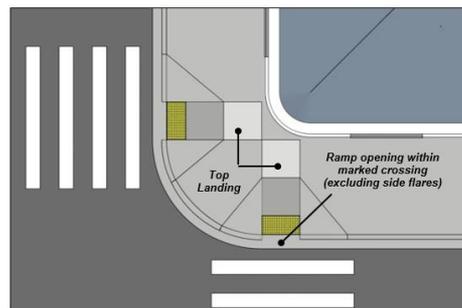


- PAR 48 inches minimum width.
- Curb ramp must extend full width of a shared use path.

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Landings

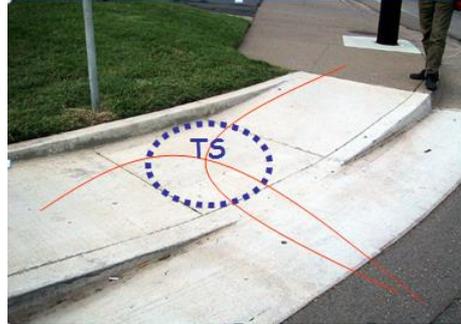


- Perpendicular curb ramps without landings at the top can be difficult to negotiate (4' x 4' min)

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Landings



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

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Grade Break

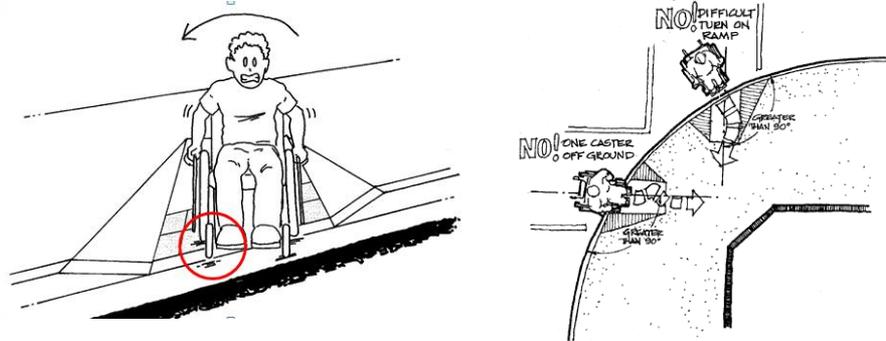


- Grade breaks must be perpendicular to direction of travel

50



Perpendicular Grade Breaks

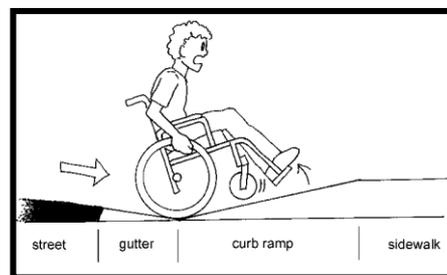
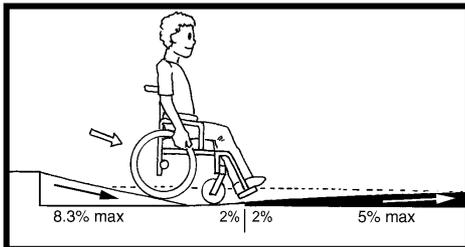


- ❑ Both wheels must hit the break at the same time for stability (especially manual wheelchairs)

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Counter Slope

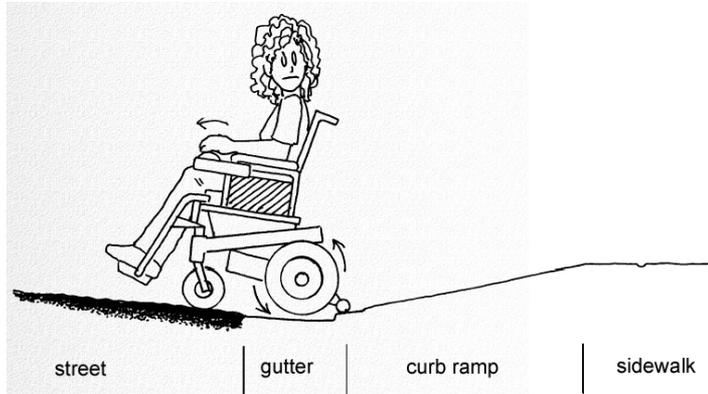


- ❑ Algebraic difference of the ramp or landing slope and the street crown 13% max

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Transitions



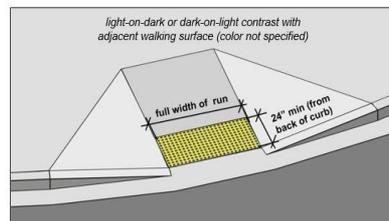
- Transition must be flush at all grade breaks

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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



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Detectable warning at boarding area

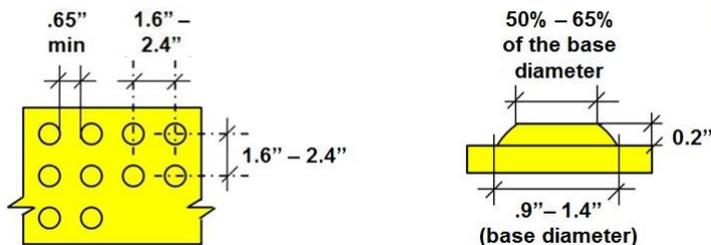
- Required at boarding platforms
- Boarding and alighting areas at sidewalk or street level transit stops for rail vehicles



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Detectable Warning Specifications

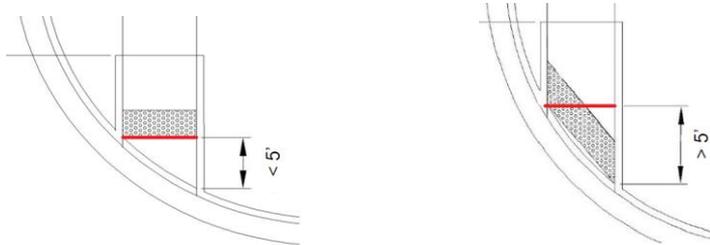


- Due to their distinct design, truncated domes are detectable by cane and underfoot

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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

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Detectable Warnings at Refuge Islands

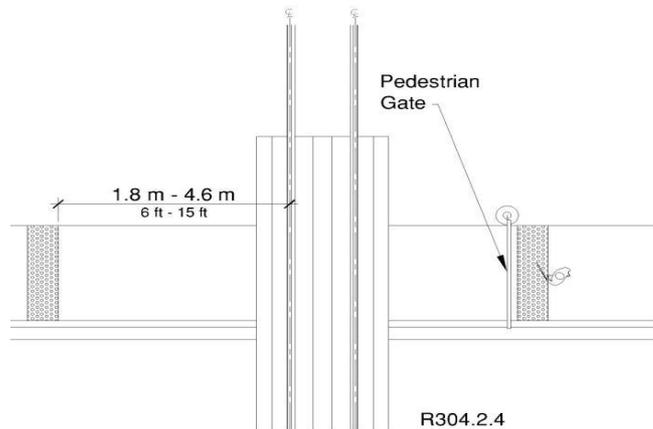


- Pedestrian refuge islands greater than 6 feet
- DWs placed at front edge of island

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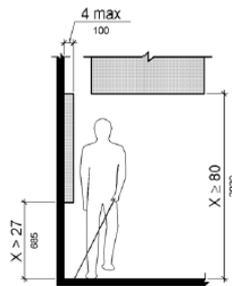
Detectable Warning at Rail Crossings



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Protruding Objects

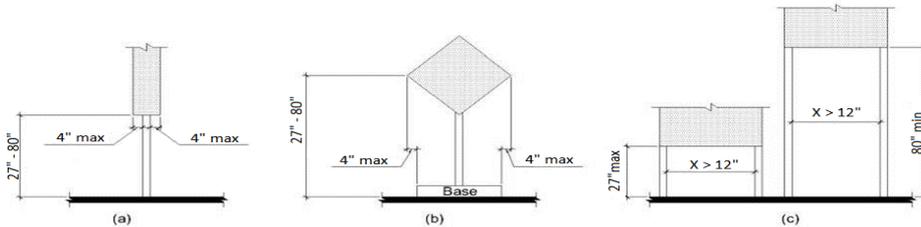


- Objects between 27" and 80" may not protrude more than 4".
- Entire pedestrian circulation route!

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Avoiding Protruding Objects



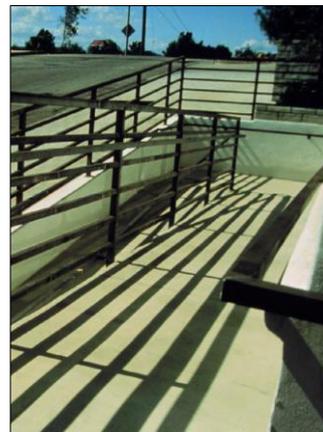
- Post mounted objects must not protrude more than 4" beyond the base
- Space greater than 12" between posts must be detectable

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Ramps

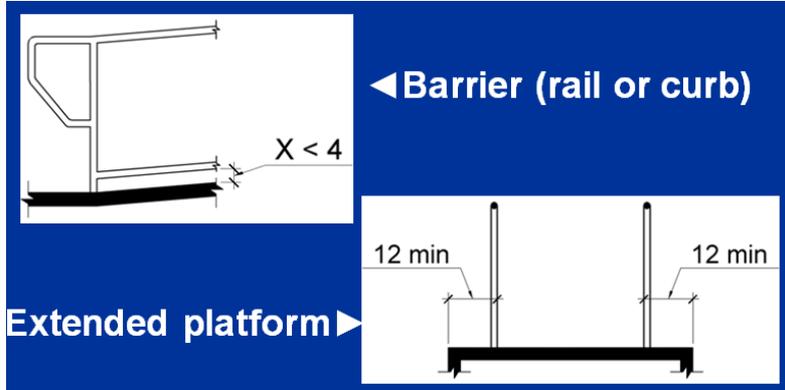
- Slope: 1:12 max
- Cross slope: 1:48 max
- Clear width: 36" min
- Rise for each run: 30" max
- Level landings
- Handrails (both sides)
- Edge protection



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Ramps



- > 6" elevation change requires edge protection**

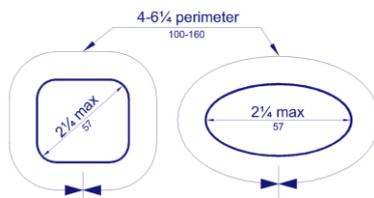
63



Handrails

Required on ramps and stairs, if provided on walkways, **not required on curb ramps**

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



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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

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Crossing Time



WALKING SPEED AN ISSUE



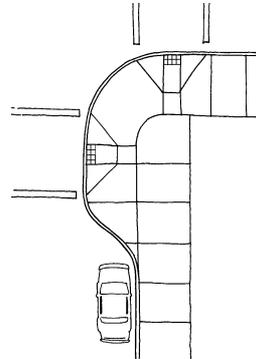
START-UP TIME AN ISSUE

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

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Crossing Distance



Curb extensions can reduce crossing distance

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Pedestrian Street Crossings



Refuge islands can be useful

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Pedestrian Street Crossings



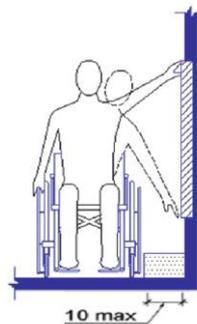
- If crossing is prohibited, it should be closed off to all pedestrians.

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Pedestrian Pushbuttons Reach Range

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



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Accessible Pedestrian Pushbuttons



Usable with a closed fist



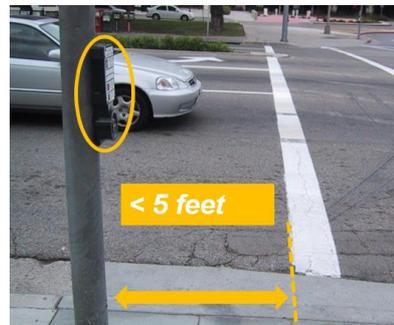
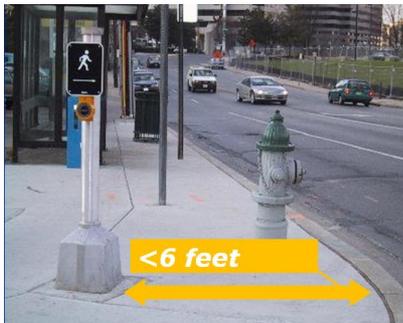
Not accessible

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

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Pushbutton Location



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

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Pushbutton Location

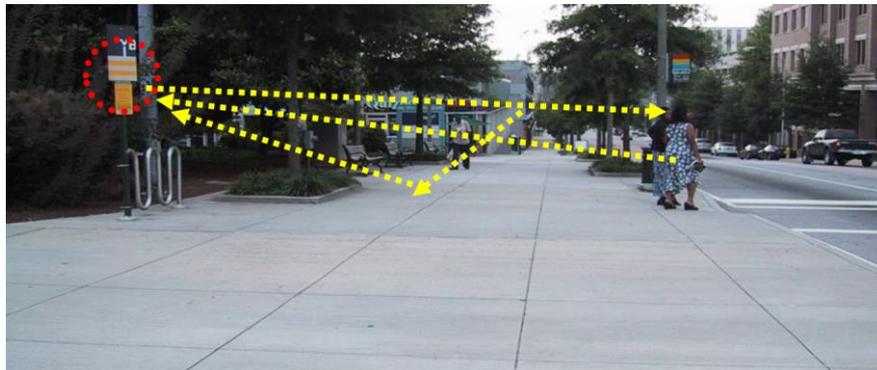


- Face of pushbutton must be parallel to the crosswalk

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Pushbutton Location?



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

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Where is the Pushbutton?

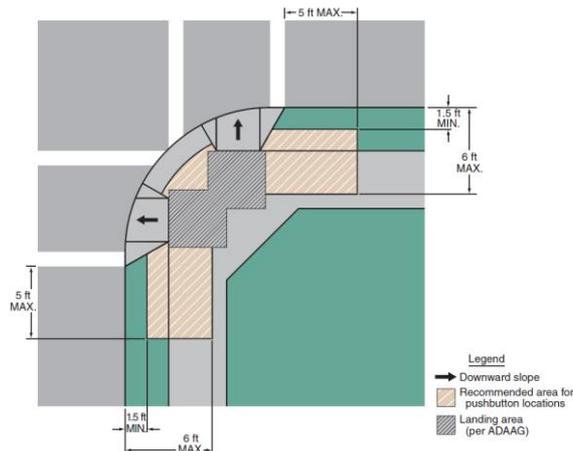


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Pushbutton Location - MUTCD

Figure 4E-3. Pushbutton Location Area



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Roundabouts

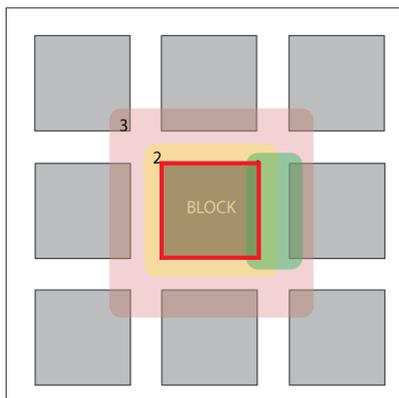


- Fencing guides pedestrians to crossing location.
- Provide pedestrian-activated signals at multiple lane crossings

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Scoping On-Street Parking



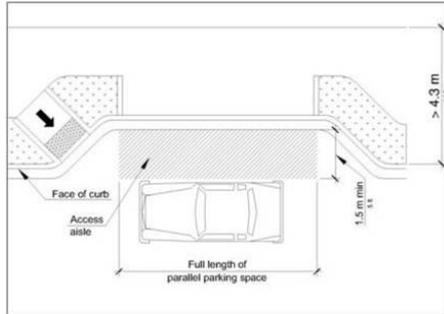
- Number of accessible spaces is based on total marked or metered spaces on a block perimeter

- Scoping Section Table R214

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On-Street Parking

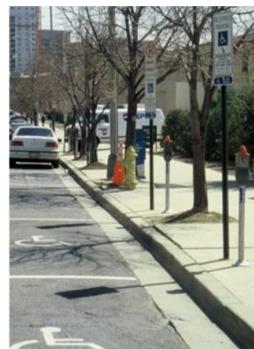
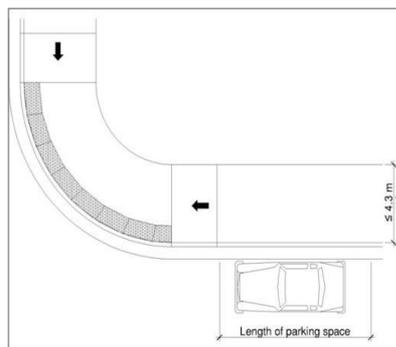


- Where the width of the adjacent sidewalk or available right-of-way exceeds 14 ft. an access aisle is required (new construction)

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On-Street Parking

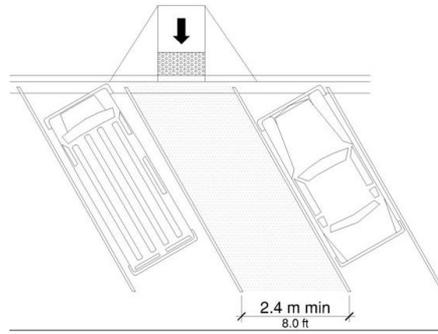


- Narrow sidewalks –access aisle not required
- Alterations – access aisle only required when scope of project involves curb and road work

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On-Street Parking

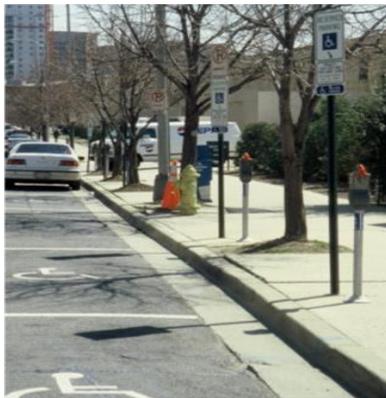


- **Angled (or perpendicular) on-street parking; requires an 8ft access aisle**

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On-Street Parking



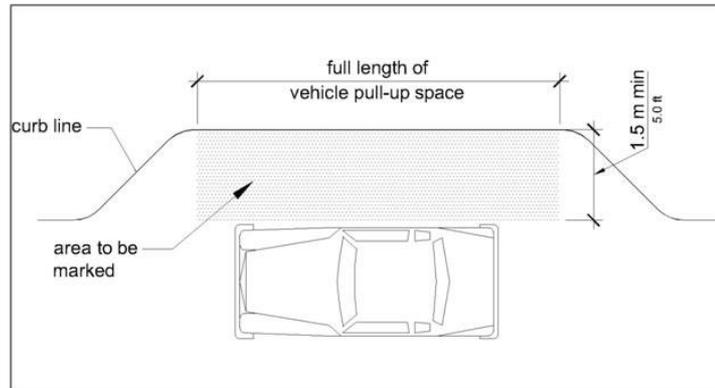
- Information must be visible from a point 3.3 ft. max above the center of the clear space**
- Must meet operable parts requirements**

Parking meter/pay station displays and information

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Passenger Loading Zones

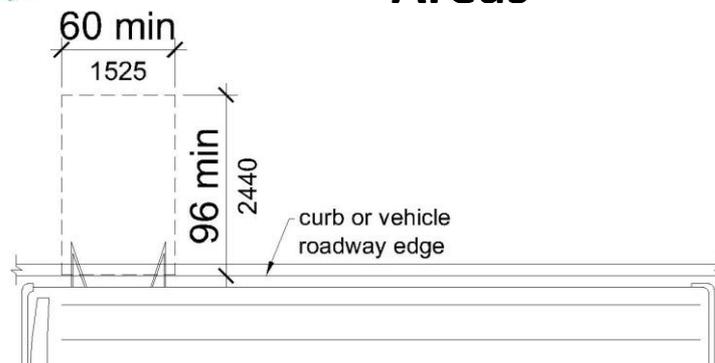


- The access aisle must be connected to the pedestrian access route

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Bus Boarding and Alighting Areas



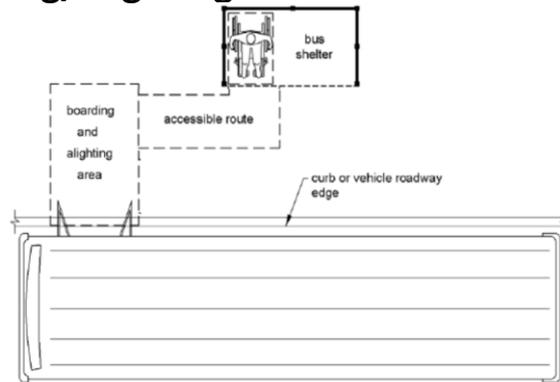
- Clear space: 96" x 60"
- Perpendicular to road – 1:48 max slope;
- Parallel to the road can match grade of road

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Bus Shelters

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



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The Changing landscape of Transportation



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Questions?

**You may type and submit questions in the
Chat Area Text Box or press Control-M
and enter text in the Chat Area**

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Continuing Education



AIA Provider Number: I017

Course Title: Accessible Sidewalks, Shared Use Paths and Accessible Crossings

AIA Course Number: GL20190207

Date: February 7, 2019

Credits earned on completion of this course will be reported to **AIA CES** for AIA members. Certificates of Completion are available upon request.

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**Thank you for participating
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