

Accessible Features in the Public Right of Way



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Learning Objectives

- **Title II Obligations and the proposed Public Right of Way Accessibility Guidelines**
- **Accessible Routes vs Pedestrian Access Routes**
- **Effective Communications and Accessible Pedestrian Signals**
- **Scoping and Design for On-street Parking**
- **Scoping and Design for Transit/Bus Stops**

ADA Title II - Program Access

- ADA Title II prohibits discrimination against people with disabilities in all State and Local Government programs, services and facilities

What to do in the public right of way??!



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Rulemaking Update

- Final Rule Draft has been approved by the Access Board
- Review by the Office of Management and Budget
- Publication in the Federal Register
- Adoption by the Department of Justice and Department of Transportation



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What can State and Local Agencies do in the meantime?

- Review Policies
- Review Standards
- Education
- Enforcement at local level



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Obligations for Access

- **New construction** is required to be accessible
- **Alterations** to existing facilities must be accessible to the maximum extent feasible within the scope of the project



- **Existing facilities** that have not been altered can not deny access to persons with disabilities

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New Construction



Accessibility is easiest to achieve in new construction

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Alterations

- In alterations, it may not be possible to meet all of the accessibility requirements.
- Follow new construction provisions to the extent practicable..... within the scope of the project.



Document decisions!

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Existing Facilities



- Cannot deny access
- Title II - Self-evaluation
- Transition Plan

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Questions?



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Pedestrian Access Routes

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Sidewalks - Who needs them?



If sidewalks are provided, then they are required to be accessible to and usable by a person with a disability.

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What's Required?

- PROWAG does not require Pedestrian Access Routes (PAR).
- If sidewalks are provided, then they are required to be accessible to and usable by a person with a disability.

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Types of Pedestrian Facilities Pedestrian Access Routes



Sidewalks
(pedestrians only)



Shared-use Paths
(peds and bikes)



Shoulders

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Design Basics

- **Surface** - firm, stable and slip resistant;
- **Width** – 48” min. or full width of a shared use path
- **Running slope** – \leq road grade, or 5% max.
- **Cross slope** – 2% max.
- **Level change max.** – ¼” vertical or ½” beveled;
- **No protruding objects** within circulation path;
- **Clear and maneuvering space** at doorways and operable parts

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Clear Width



- 48” min pedestrian access route (PAR)
- 60” passing space max of 200’ if less 60” wide

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Shared Use Path Width



Width determined by use and not accessibility
Full width must be accessible

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Continuous Clear Width



48" min clear width continues around all
obstructions

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Which one
meets the
requirements?

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Running Slope (Grade)

- The running slope of the PAR may match - but not exceed - that of the adjacent roadway.



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Running Slope (SNPRM)

R302.5.1 Within Street or Highway Right-of-Way - The grade shall not exceed the general grade of the adjacent street or highway.

R302.5.2 Not Within Street or Highway Right-of-Way - The grade of pedestrian access routes shall be 5 percent maximum.

R302.5.3 Street Crossings - The grade of pedestrian access routes shall be 5 percent maximum.

R302.5.4 Physical Constraints - Where compliance is not practicable due to existing terrain or infrastructure, right-of-way availability, a notable natural feature, or similar existing physical constraints, compliance is required to the extent practicable.

R302.5.5 Regulatory Constraints - Where compliance is precluded by federal, state, or local laws where the purpose is to preserve threatened or endangered species; the environment; or archaeological, cultural, historical, or significant natural features, compliance is required to the extent practicable.

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Running Slope

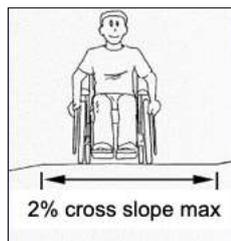


If 2010 ADA Standard slope is applied...

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Cross Slope

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



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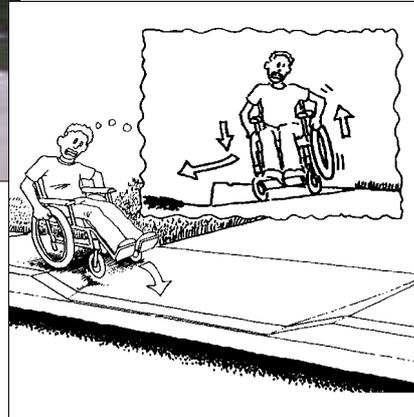
Cross Slope at Driveways



Pedestrian design is not an after thought

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Compound Slopes at Driveways



Compound slopes –
running and cross
slopes combined

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Construction Tolerance

- Construction tolerances?
- Rounding?
2, 2.0, 2.0000?
- Method of measure?
smart level, elevations?



- **Design cross slope <math><2\%</math>**

26

Surfaces

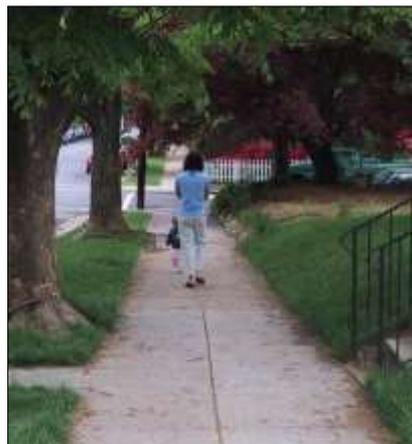


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Surface Basics

Surface requirements:

- Firm, stable, and slip-resistant
- No large openings or gaps
- Minimal vertical discontinuities



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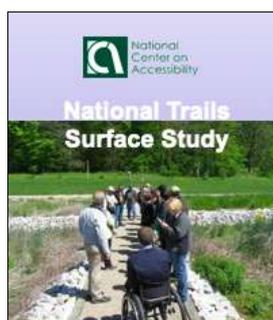
Surface Textures



Properly installed, and well maintained bricks and pavers can work. Beveled edges are a problem for roll ability.

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Surfaces Shared Use Paths and Trails



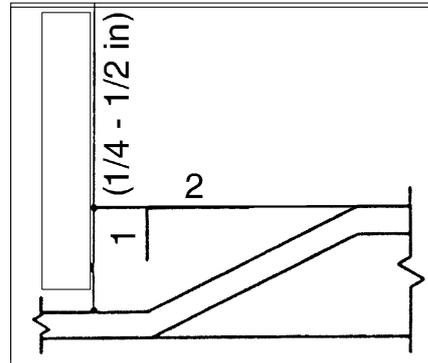
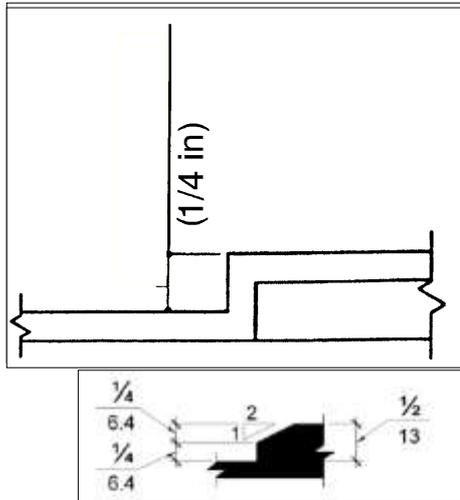
Loose surface materials:

- Generally need special treatment (e.g., binders, consolidants, compaction, and grid forms)
- Frequent maintenance

[NCA's website](http://www.ncaonline.org/) - <http://www.ncaonline.org/>

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Surface Discontinuity



* Grade breaks must be flush

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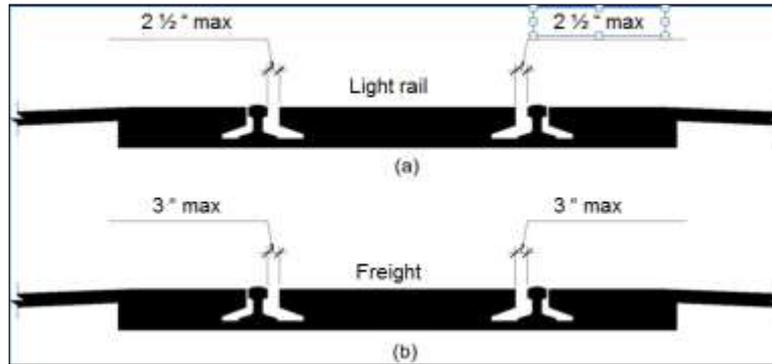
Grates and Openings



No more than 1/2 inch opening in the direction of travel.

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Flange Way Gap



Flange way gap provision for light rail and freight rail at pedestrian rail grade crossing

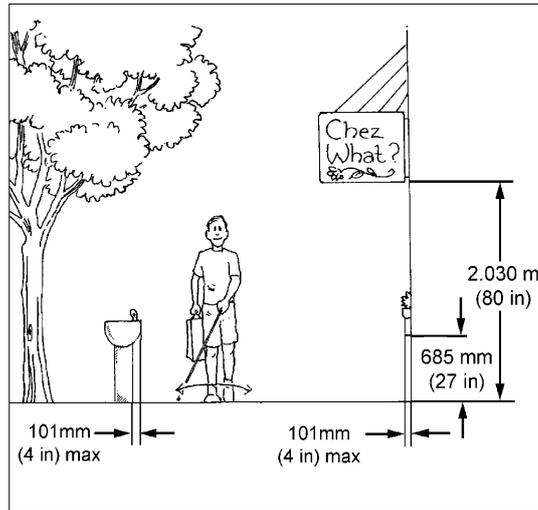
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Circulation Path



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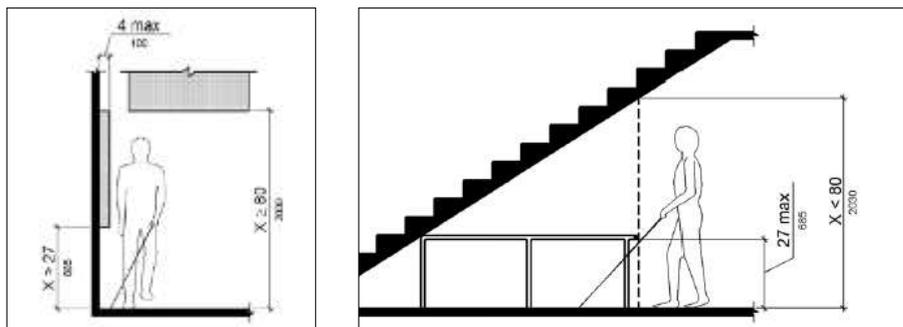
What is the Circulation Path?



Protruding Objects

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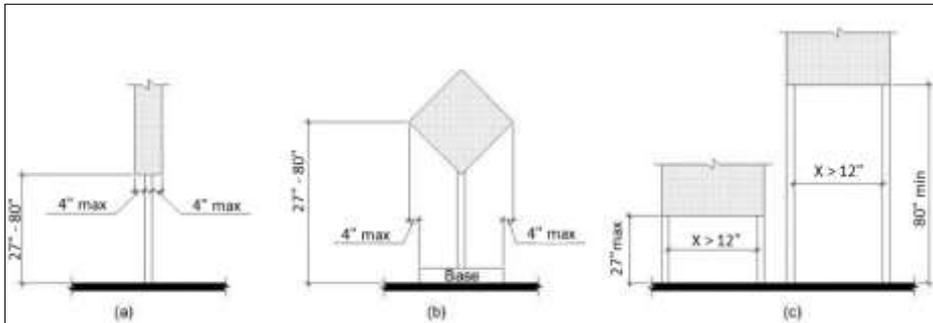
Protruding Objects



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

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Pole Mounted Protruding Objects



- Objects between 27" and 80" may not protrude more than 4"
- 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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Ouch!



No protruding objects within entire width of the pedestrian circulation route

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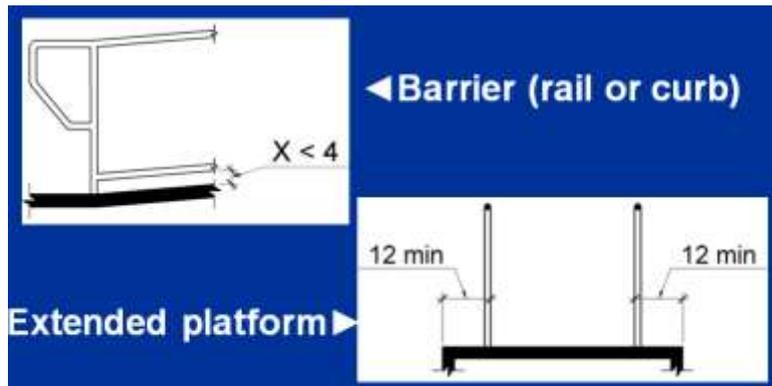
Ramps

- Slope: 1:12 max (8%)
- Cross slope: 2% max
- Clear width: 36" min
- Rise: 30" max
- Level landings
- Handrails (both sides)
- Edge protection



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Ramp Edge Protection

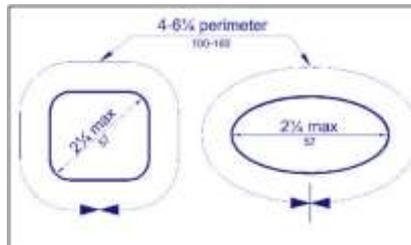


> 6" elevation change requires edge protection

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Handrails

- Ramps, stairs, and walkways
- Knuckle clearance: 1 ½" min
- Diameter: 1 ¼" – 2"
- Applies to outer diameter
- Circular & noncircular cross sections



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Questions?



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Curb Ramps

Curb Ramps - What's Required?

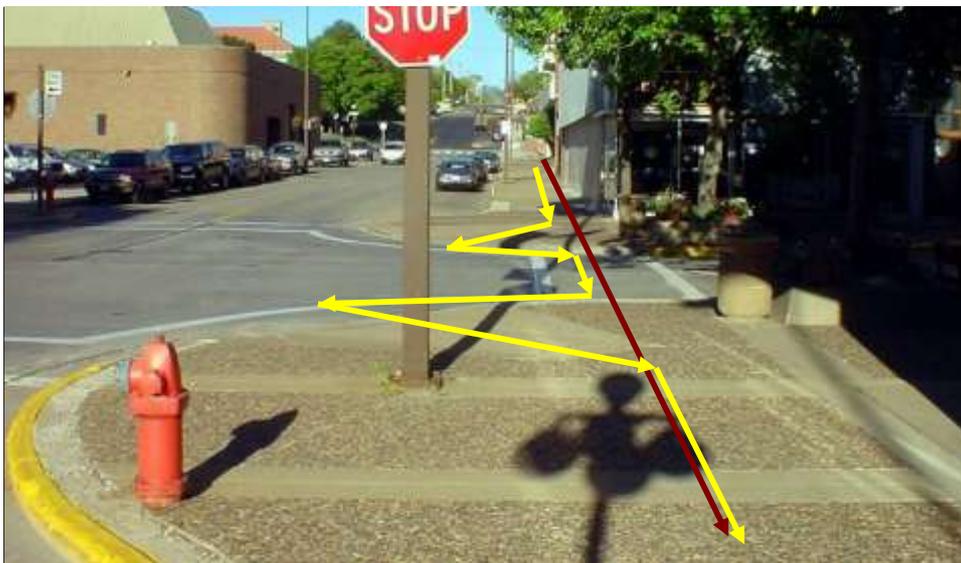
- ADA regulations state that when a sidewalk approaches an intersection a curb ramp is required.
- Detectable Warnings are required on PAR, but not AR (building sites).
- Important to understand that:
 - The 'cookie cutter' curb ramp will not fit all.
 - Some engineering required at most corners.

Curb Ramp for each Street Crossing



Two ramps per corner

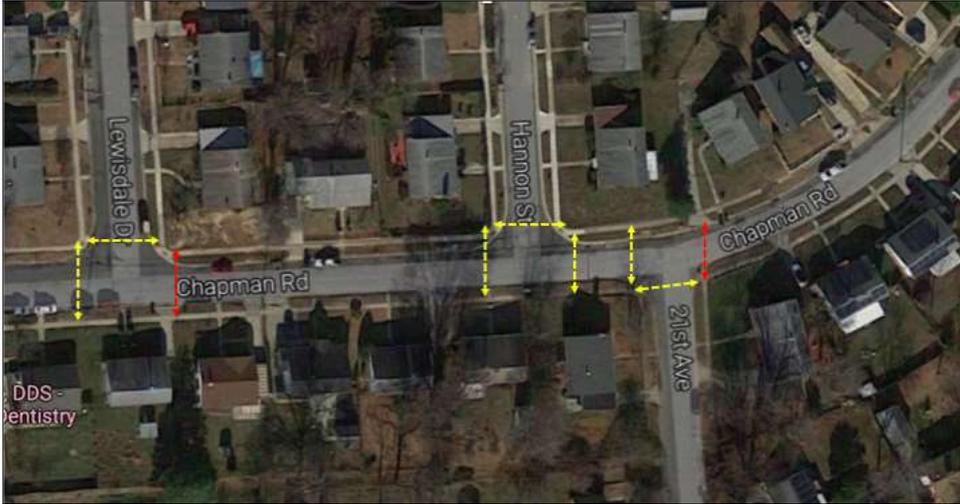
45



Two curb ramps per corner are required when feasible

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What is a crosswalk?



Crosswalk is the extension of a sidewalk across the street (MUTCD)

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Curb Ramp Basics

- Detectable warnings – PAR vs AR
- 1:12, or 8% max. running slope (with length limit as exception to slope limit);
- 1:50, or 2% max. cross slope (with exceptions for stop condition);
- Width – PAR is 4' min, Shared use path is full width
- Turning space at top of a perpendicular curb ramp and at the bottom of a parallel curb ramp;
- Clear space at the bottom outside of travel lane;
- Flush transitions (no lips);
- Perpendicular grade breaks

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Detectable Warnings??

- All curb ramps and blended transitions in the public right of way must have detectable warnings to provide notice underfoot of the change from a pedestrian to a vehicular route.



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Detectable Warnings

- 2010 ADA Standards do not require them on curb ramps on sites
- DOT Standards and 2010 ADA Standards require them at rail platforms where the edge is not protected.



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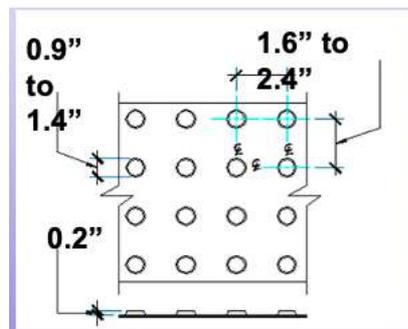
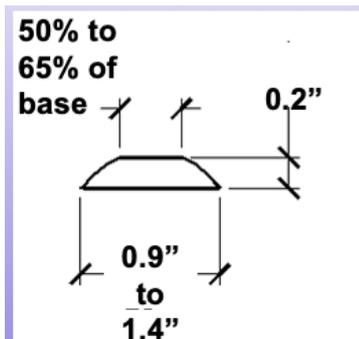
Detectable Warnings (FHWA Memo)

- Required at all street crossings, railroad and boarding platforms
- Provide warning to the visually impaired that they are about to enter a vehicular area.
- Raised domes with in-line or radial arrangement
- 24" min. in the direction of travel and full width of curb opening
- Contrasting in color



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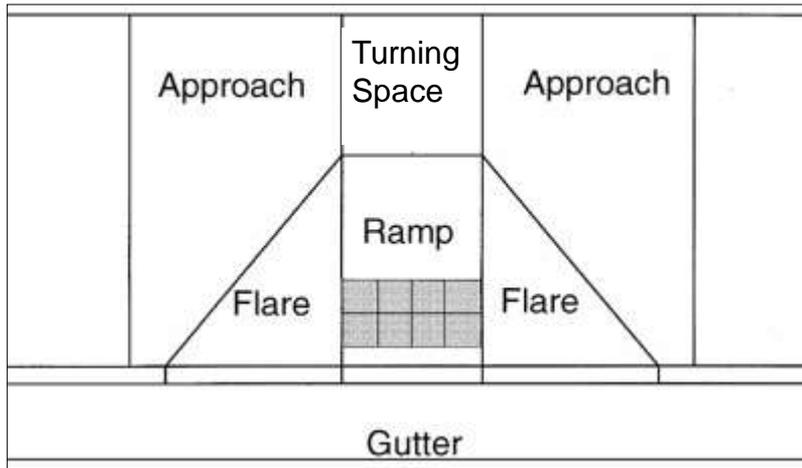
Detectable Warning Dimensions



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

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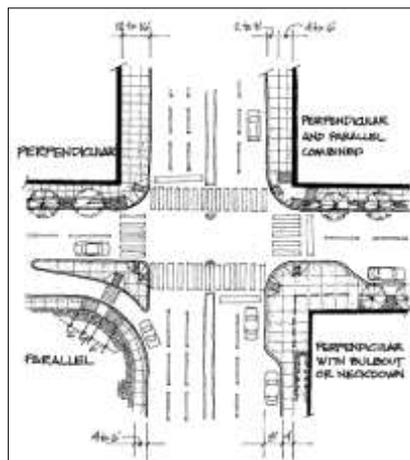
Anatomy of a Curb Ramp



The 'cookie cutter' curb ramp

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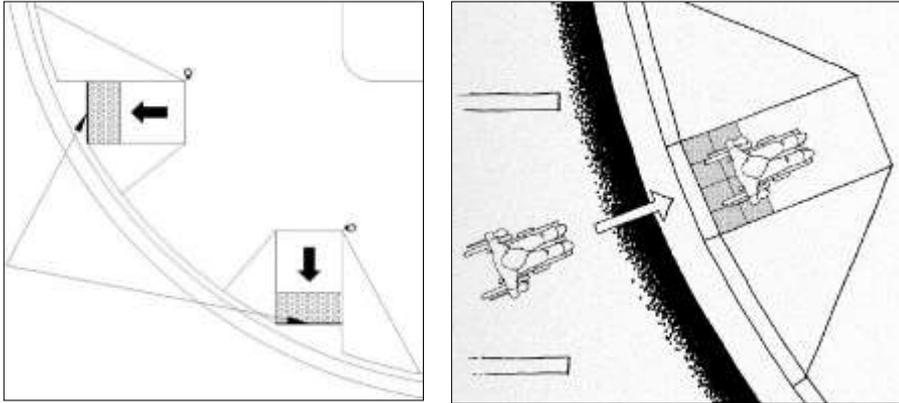
Reality of Curb Ramps



Curb ramps require design work

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Perpendicular Curb Ramps



Perpendicular to the curb or street

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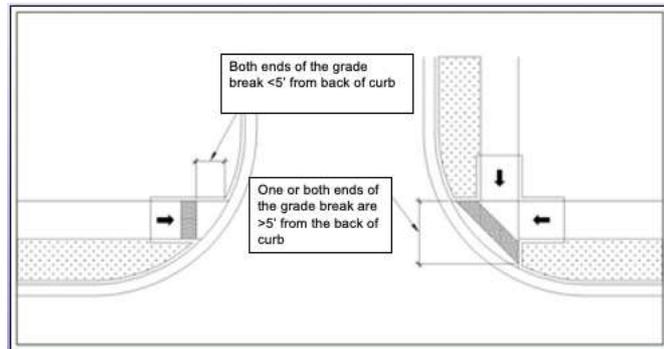
Detectable Warning Location



DW is placed at back of curb or at grade break

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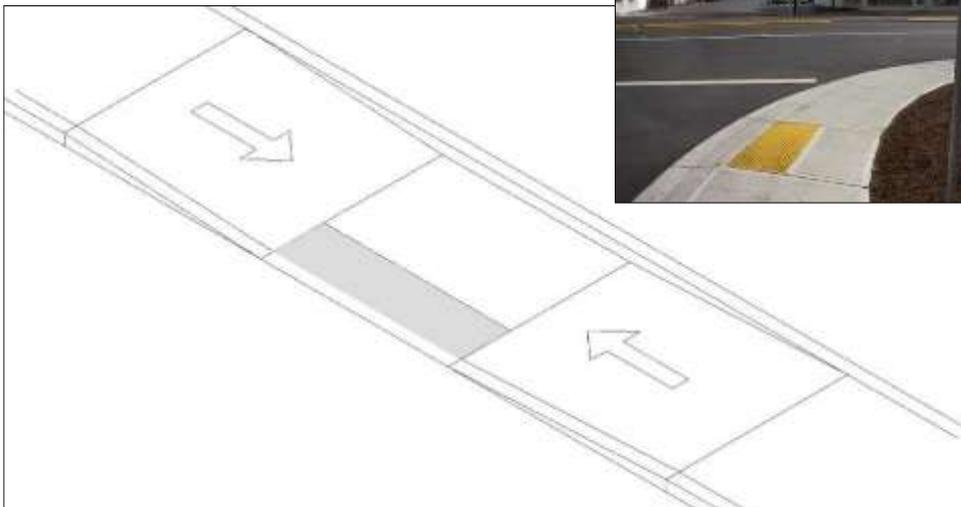
Detectable Warning Locations



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

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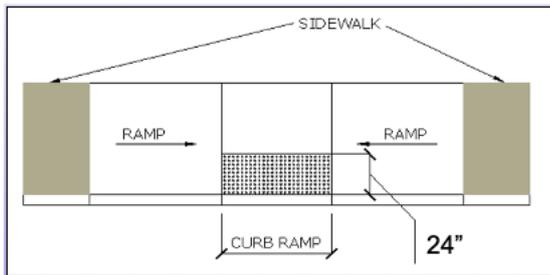
Parallel Curb Ramps



Parallel to the curb or street

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Detectable Warning Location

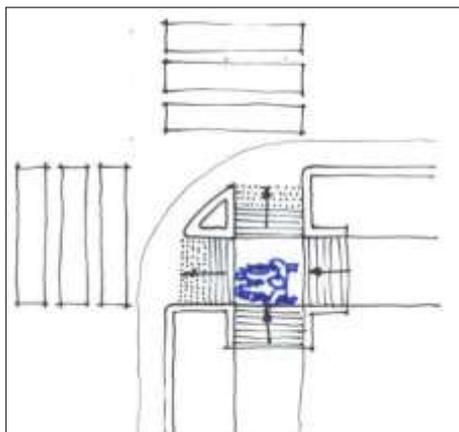


DW placement on parallel curb ramp

Place at back of curb on the landing

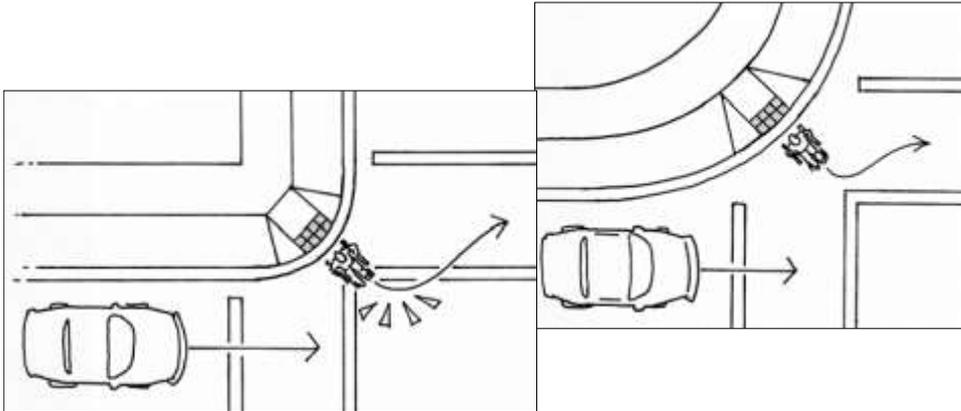


Combination Curb Ramps



Combination ramps slope the sidewalk down and can shorten the perpendicular run to the street

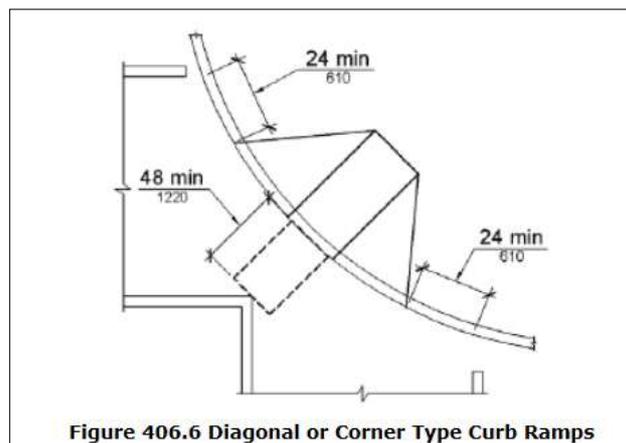
Diagonal Curb Ramps



Diagonal/Apex can cause dangerous conflicts
Only permitted in alterations as last option

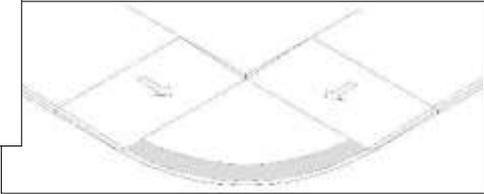
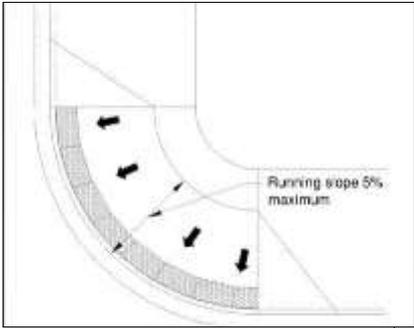
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Diagonal Curb Ramps – Accessible Routes Only* (2010 Standards)



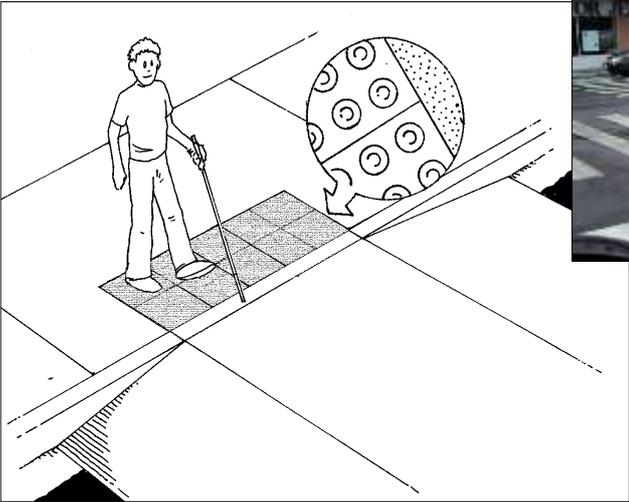
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Blended Transitions



Blended Transition (depressed corner)

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Blended Transition (raised crossing)

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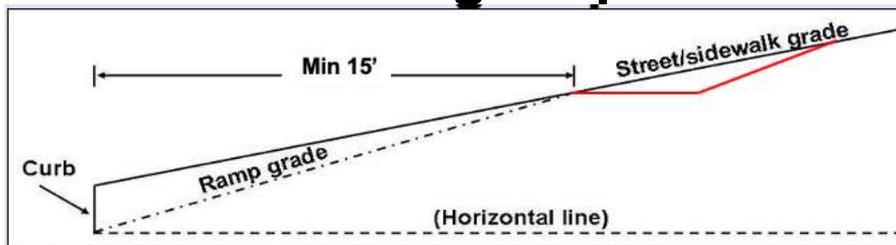
Detectable Warning Location



DW needs to cover the entire flush edge

65

Running Slope



- Maximum curb ramp slope 1:12 (8%)
- When 'chasing grade' length of the ramp may be 15 feet minimum and the slope >8%.
- Consistent slope

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Cross Slope



- 2% max where crossing is stop or yield (ADA Standards)
- 5% max where crossing may be free flow (PROWAG Only)

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Curb Ramp Clear Width



- Curb ramp must be 4-foot-wide minimum and within the crosswalk.
- Curb ramp must extend full width of a shared use path.

68

Turning Space



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

69

Turning Space Locations



- Provide a level turning space at the top of a perpendicular ramp, at the bottom of a parallel ramp, and at corners.

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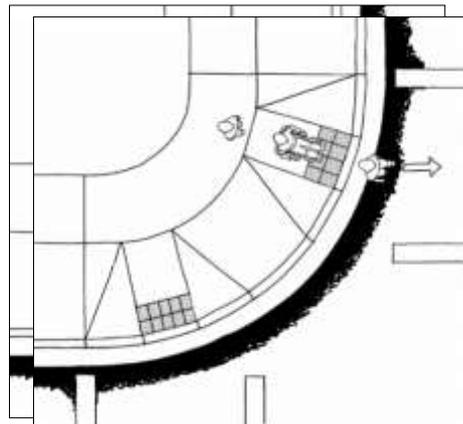
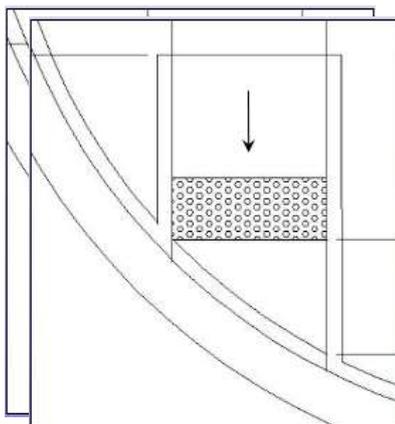
Perpendicular Grade Breaks



Perpendicular grade breaks are required

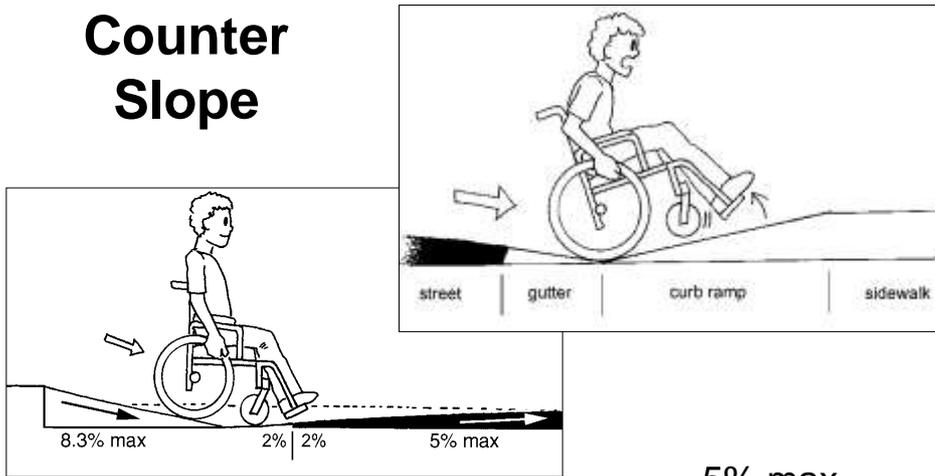
71

Perpendicular Grade Break



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Counter Slope

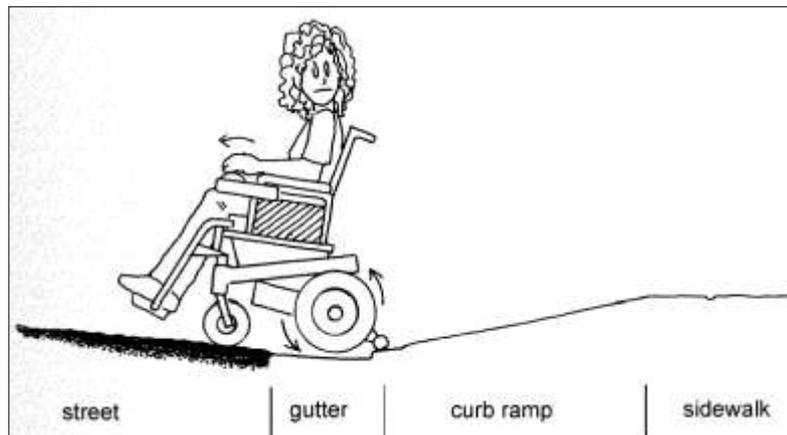


5% max.

- Algebraic difference of the ramp or landing slope and the street crossing grade

73

Counter Slope – No Lip



Transition must be flush at all grade breaks

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Refuge Islands



5-foot minimum width
Median vs Refuge Island - crossing distance

75

Detectable Warning Devices



Pedestrian refuge islands greater than 6 ft. - DWs placed at the curb

76

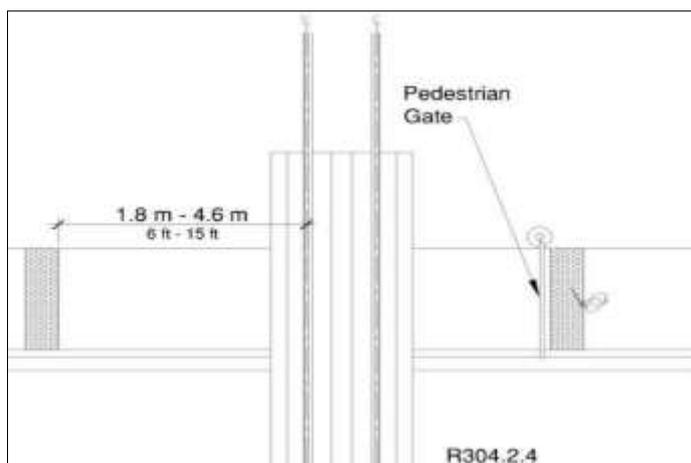
Refuge Islands – Usable?



Turning Space?

77

Railroad Crossing



Detectable warnings at pedestrian/rail crossings
6-15 ft from the near rail, but always outside a gate

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Street Crossings



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Street Crossing Basics

- 5% max running slope, or street crown;
- 2% max cross slope on curb ramps and crosswalks, exception for some intersections;
- Pedestrian walk indicators with non-visual information provided (Accessible Pedestrian Signal);
- Adequate crossing time (3.5 fps);
- Multi-lane roundabouts need some type of pedestrian demand signalization.

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Crossings



- PROWAG does not tell you when to mark
- Or how to mark (meet MUTCD requirements)

81

Detectable Crossings



- Prohibited crossings happen...
- Prohibit for ALL pedestrians

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Crossing Running Slope



Running slope of crosswalk is 5% max

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Separated Crossings



Running slope –
5% max

Pedestrian Overpasses and Underpasses

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Pedestrian Crossings



Maximum crosswalk cross slope

- 2% is a general requirement for pedestrian access routes
- 5% is allowed in a street crossing without stop or yield control

85

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

86

Crossing Length



Shorten the crossing with bump outs and islands

87

Pedestrian Signals & Pushbuttons



Usable information about crossings

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Effective Communication

28 CFR §35.160 General. (shortened)

(a)(1) A public entity shall take appropriate steps to ensure that communications with members of the public with disabilities are as effective as communications with others.

(b)(1) A public entity shall furnish appropriate auxiliary aids and services where necessary to afford individuals with disabilities an equal opportunity to participate in, and enjoy the benefits of, a service, program, or activity of a public entity.

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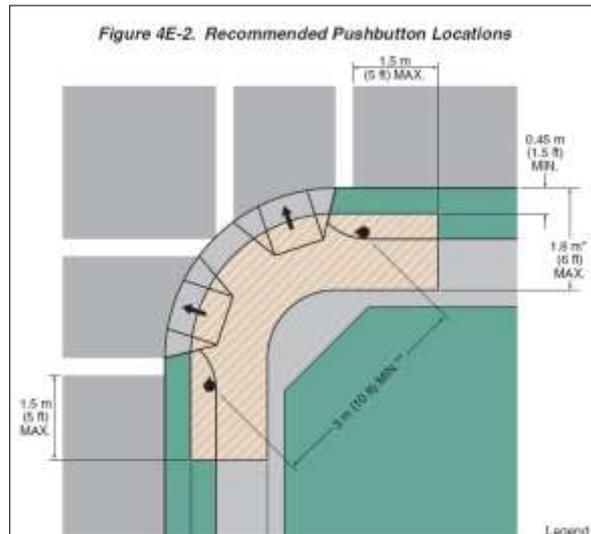
Pedestrian Pushbuttons that are Accessible

- **Button**
 - Face of button parallel to crosswalk
 - Mounted at 48" max
 - Max 5 lbs pressure needed to activate
 - Clear space needed
- **Sign**
 - Adjacent to button – explains purpose and use
 - Must clearly indicate crosswalk direction



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Pushbutton Location



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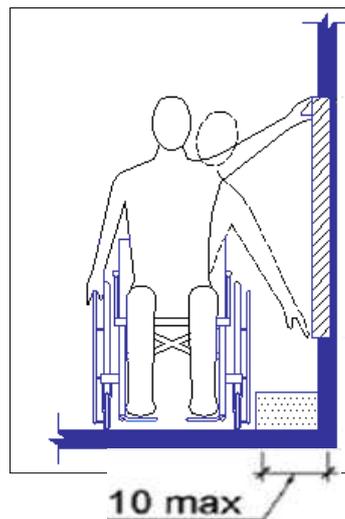
Reach Ranges

Vertical

- Reach height – 15” - 48”.
(forward & side reach)

Horizontal

- Side reach within 10”
- Forward reach – no obstruction or space



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Pushbutton Size



Usable with a closed fist

93

Pedestrian Pushbutton Access?



Must be connected by a pedestrian access route

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Accessible Pedestrian Signals

Communication Features

- Locator tone
- Audible and vibro-tactile detectors required
- Tactile arrow indicates direction
- 10 ft. separation, or speech indication
- Volume adjusts for ambient noise
- Speech walk criteria MUTCD 4E.11
- Extended Press Features



MUTCD 4E.08-4E.13

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Pushbutton Orientation



Face of pushbutton must be parallel to the crosswalk

96

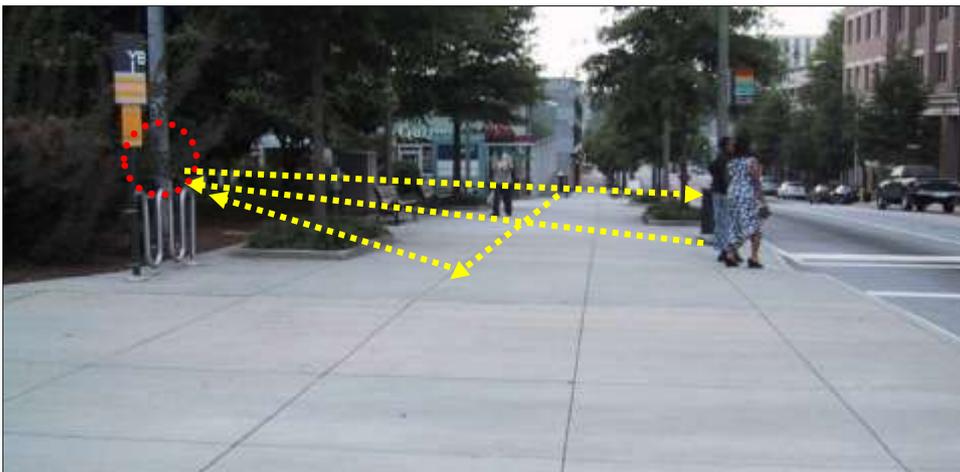
Accessible Pedestrian Signal



Locator tone then walk indication
Helps locate pushbutton and crossing

97

Where's the Pushbutton?



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

98

Alterations and Project Scope

What's required??

- APS → curb ramp?
- Curb ramp → APS?
- Curb ramp → receiving curb ramp
- APS on one crossing → full intersection?



Depends on project scope!



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Questions?



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Temporary Routes



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Temporary Route Basics (Work Zones)

- PROWAG references MUTCD
- Maintain pedestrian usability;
- Same-side alternate routes if feasible (extra crossings increase risk);
- Cane-detectable barricades;
- Temporary facilities are also covered (street fairs, block parties, farmer's markets...)

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Temporary Traffic Control



Yellow tape stops anything... right?

103

Temporary Traffic Control Devices



104

Temporary Curb Ramps

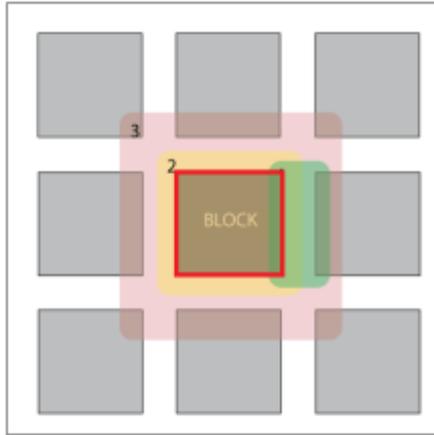


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Parking

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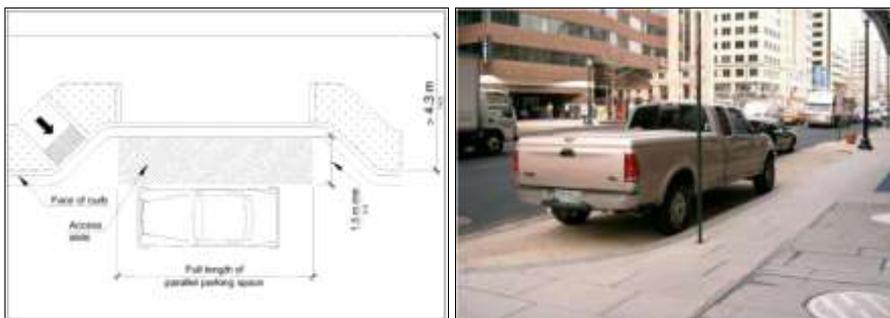
On-Street Parking – Scoping



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

107

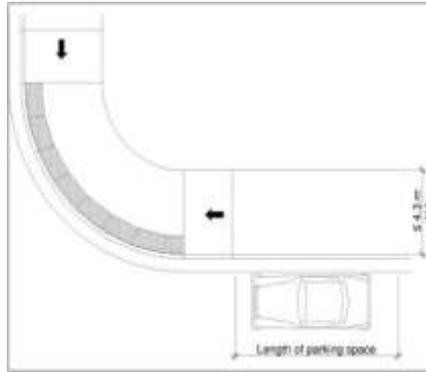
On-Street Parking – Wide ROW



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

108

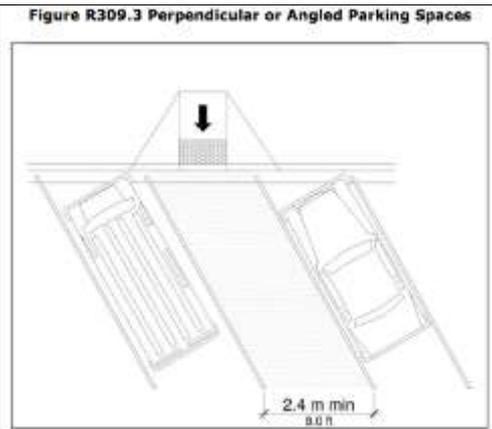
On-Street Parking – Narrow ROW



Narrow sidewalks – an access aisle is not required

109

On-Street Parking - Angled



Angled (or perpendicular) on-street parking

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Parking meter displays and information



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

111

Thoughtful Design vs Minimum



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Transit

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Transportation Facilities

- Bus Boarding and Alighting Areas (810.2)
- Bus Shelters (810.3)
- Bus Signs (810.4)

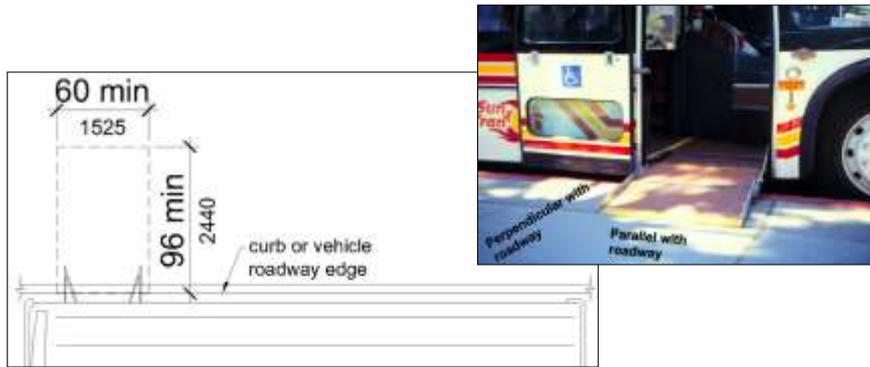


US DOT Standards

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Bus Boarding and Alighting Areas

- Clear space: 96"x60"
- Perpendicular to road - 2% max slope;
- Parallel to the road can match grade of road



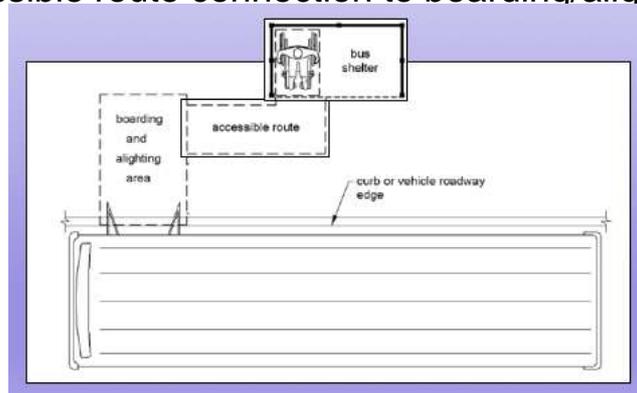
Section 810.2

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Clear Space and Access

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



Section 810.3

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Bus Stops & Shelters



Connect boarding areas, shelters and pedestrian network with an accessible route (PROWAG and 810.3)

117



Bus Route Signs

Must comply with the requirements of visual characters found in 703 (PROWAG R410)



Section 810.4

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Bus Maps and Schedules

Schedules, timetables and maps are not required to comply with 703 (PROWAG 410)



Section 810.4

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Available Resources

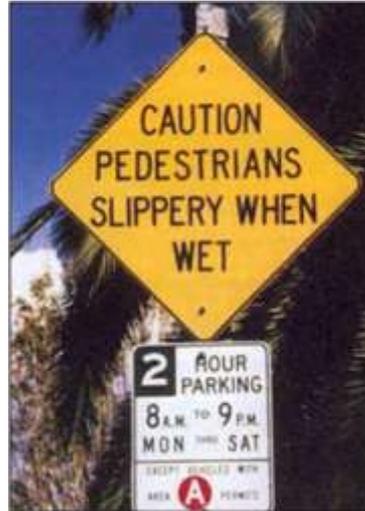
- US Access Board - www.access-board.gov
- US DOJ - www.ada.gov
- FHWA - www.fhwa.dot.gov/civilrights
- ADA National Network – www.adata.org

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Questions?

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