Promoting Independence and Access through Responsible Design

Part 2: Safe and Accessible Intersections

TRANSCEN inc. career and workforce development

Mid-Atlantic ADA Center

will begin at 2 pm ET

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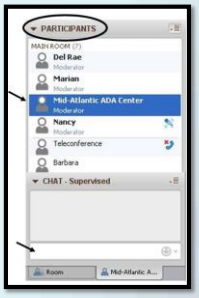

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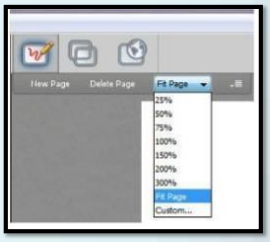

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About Your Hosts…

- TransCen, Inc.
  - Mission Statement: Improving lives of people with disabilities through meaningful work and community inclusion
- Mid-Atlantic ADA Center, a project of TransCen, Inc.
  - Funded by National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), Administration for Community Living, U.S. Department of Health and Human Services

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Promoting Independence and Access through Responsible Design

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Promoting Independence and Access through Responsible Design 4-part Webinar Series

✓Part 1 - Obligations and Sidewalk Basics

- Part 2 - Safe and Accessible Intersections
- Part 3 - Curbside Access
- Part 4 - Ensuring Access on Public Right of Way Projects

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Promoting Independence and Access through Responsible Design 4-part Webinar Series

•Part 2 – Safe and Accessible Intersections

- Legal Obligations Review
- Standards, Guidelines and Other Resources
- Technical Requirements for Curb Ramps
- Technical Requirements for Street Crossings
- Technical Requirements for Pedestrian Signals

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Federal Civil Rights Laws

- 1973 Rehabilitation Act, Section 504
  - Prohibits discrimination in programs and activities receiving Federal funds
  - Enforced by DOT/FHWA
- 1990 Americans with Disabilities Act
  - Prohibits discrimination in the provision of facilities, services, and programs
  - Title II applies to State and Local Governments
  - Enforced by DOJ and DOT/FHWA

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Standards and Guidelines

- US Access Board – independent Federal agency
- Develop Guidelines based on minimum level of access
- Standards adopted from Guidelines
  - Department of Justice – 2010 ADA Standards
  - Department of Transportation ADA Standards
- *Proposed* Guidelines for the right of way
  - Not a Final Guideline
  - Not a Standard

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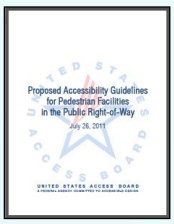
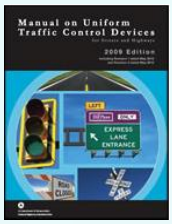
Obligation for Access in the Public Right of Way

- Regulation (28 CFR 35.151) requires curb ramps to comply with 2010 ADA Standards
- Flexibility in design for areas not covered

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





AASHTO

- Highways and Streets
- Pedestrian Facility Design
- Bicycle Facility Design

Obligations for Access

- **New construction** is required to be accessible – no existing constraints
- **Alterations** to existing facilities must be accessible to the maximum extent practicable within the scope of the project
- **Existing facilities** that have not been altered can not deny access to persons with disabilities – Transition Plan

Alterations

- Alteration is a change that affects the usability of a facility
- 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.

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Street Alterations

- If a street is altered a curb ramp must be provided - 35 CFR 35.151(i)

- When is resurfacing a street an alteration?
  - 2013 DOJ/DOT Technical Assistance Memo
  - DOT/DOJ Questions and Answers Supplement
    - Spans one intersection to another
    - Overlay of additional material to the roadway

- Maintenance does not require adding or updating curb ramps

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Street Resurfacing Alterations

- Resurfacing is an alteration that triggers the requirement to add curb ramps if it involves work on a street or roadway spanning from one intersection to another, and includes overlays of additional material to the road surface, with or without milling.
- Examples include, but are not limited to the following treatments or their equivalents: addition of a new layer of asphalt, reconstruction, concrete pavement rehabilitation and reconstruction, open-graded surface course, micro-surfacing and thin lift overlays, cape seals, and in-place asphalt recycling.

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Street Maintenance

- Maintenance - Treatments that serve solely to seal and protect the road surface, improve friction, and control splash and spray are considered to be maintenance because they do not significantly affect the public's access to or usability of the road.
- Some examples are: painting or striping lanes, crack filling and sealing, surface sealing, chip seals, slurry seals, fog seals, scrub sealing, joint crack seals, joint repairs, dowel bar retrofit, spot high-friction treatments, diamond grinding, and pavement patching. In some cases, the combination of several maintenance treatments occurring at or near the same time may qualify as an alteration and would trigger the obligation to provide curb ramps.

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Resurfacing Questions

- When a municipality is resurfacing a street and there are curb ramps or sidewalks that are not compliant with the ADA standards or when there are no curb ramps at all at intersections or at street crossings, what is the municipalities responsibility to correct those sidewalks and/or curb ramps?
- Or to install new curb ramps?
- Does the source of funding being used for the resurfacing project play into whether or not curb ramps need fixed or installed?
- Who is ultimately responsible for ensuring that the correct process is being followed when streets are being resurfaced?

Curb Ramps

Scoping and Technical Requirements

Format

PROWAG	ADA Standards	Best Practice
• 2013 Proposed Public Right of Way Accessibility Guidelines	• 2010 ADA Standards, or DOT Standards where noted	• Melissa's opinion based on knowledge and experience

Can you cherry pick??

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Scoping – Where are Curb Ramps Required?

- 35 CFR 35.151(i)
  - (1) Newly constructed or altered streets, roads, and highways must contain curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway.
  - (2) Newly constructed or altered street level pedestrian walkways must contain curb ramps or other sloped areas at intersections to streets, roads, or highways.

At all crosswalks*!

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Scoping – How many curb ramps?

PROWAG

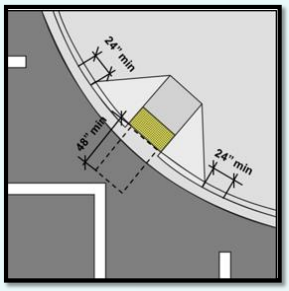
- One for each street crossing
- Alterations where it's impracticable a single diagonal curb ramp is allowed

ADA Standards

- Not specified, but part of an accessible route

Best Practice

- Follow PROWAG, exceeds ADA



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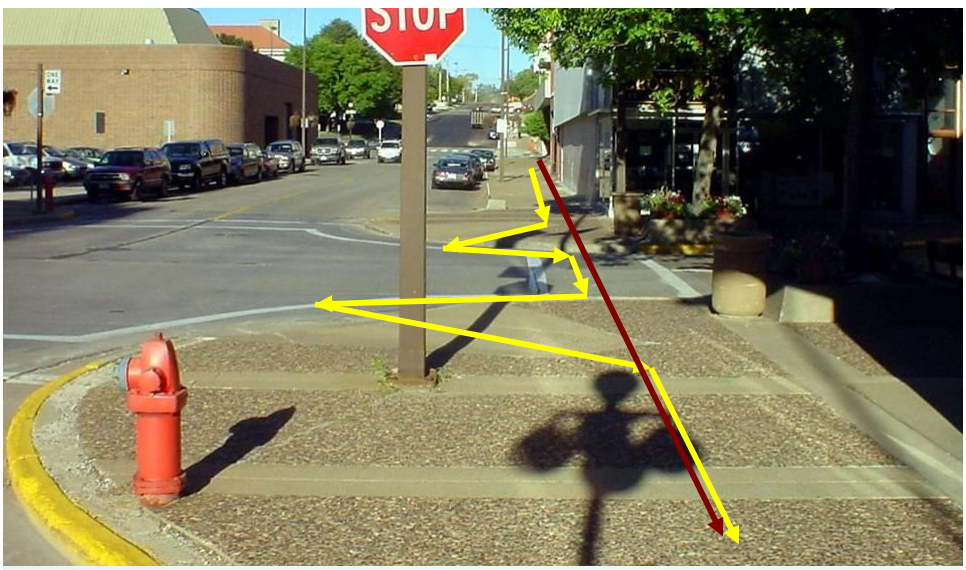

Two curb ramps per corner are required unless impracticable

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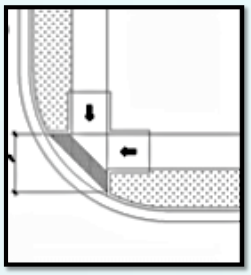

A curb ramp for each street crossing

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Types of Curb Ramps/Transitions

PROWAG

- Perpendicular curb ramps
- Parallel curb ramps
- Blended Transitions

ADA Standards

- Non-specific
- Allows perpendicular, parallel and blended transitions

Best Practice

- Follow ADA, but PROWAG is more specific

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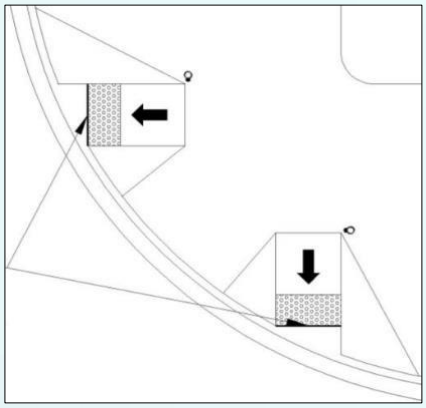
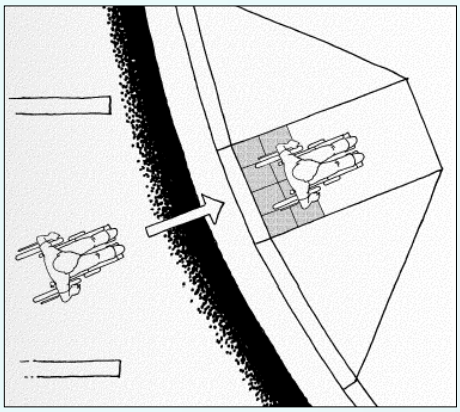
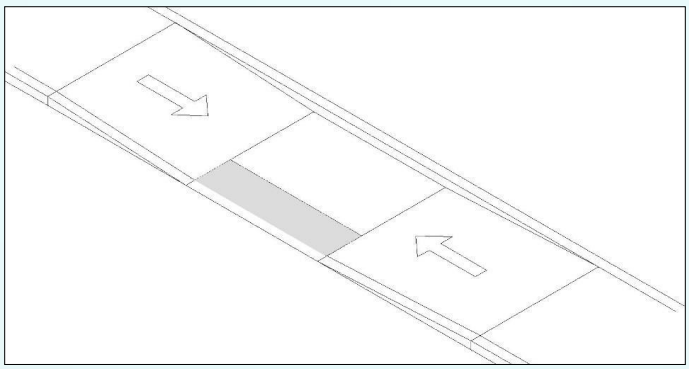
Perpendicular Curb Ramps





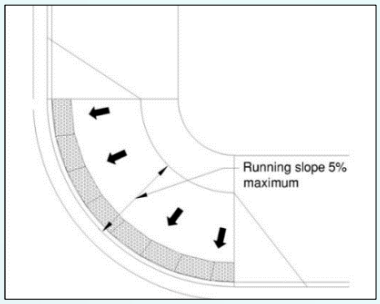
Perpendicular to the curb or street

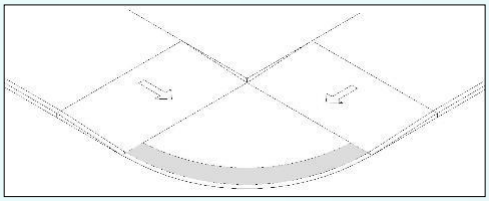
Parallel Curb Ramps



Perpendicular to the curb or street

Blended Transitions





Pedestrian access route transition to street is less than 5%.

Blended Transition (depressed corner)

Technical Requirements

- Surface
- Width
- Running slope, or grade
- Cross slope
- Turning space/landing
- Grade breaks
- Clear space
- Flares
- Detectable warnings
- Counter slope

Curb Ramp Surface Requirements

PROWAG

- Firm, stable and slip resistant
- No grade breaks on ramp runs

ADA Standards

- Firm, stable and slip resistant
- No changes in level on ramp run
- Landings cannot accumulate water

Best Practice

- Follow ADA + no grade breaks
- Concrete easiest to form and most likely to comply with other requirements

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Width Requirements

PROWAG

- 48 inches min
- Full width of a shared use path

ADA Standards

- 36 inches min

Best Practice

- Follow PROWAG, exceeds ADA
- 48+ inches to account for finishing bevel and construction tolerance
- AASHTO and local policies generally 5-8 ft. pedestrian route

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Running Slope Requirements?

PROWAG

- 1:12, or 8.3% max
- "15 ft Rule" allows steeper slope
- Document!!

ADA Standards

- 1:12, or 8.3% max
- Exceptions for space limitations
  - 8.3-10% for 6 in. max rise
  - 10-12.5% for 3 in. max rise
  - 12.5% max
- No "15 ft Rule"

Best Practice

- Follow ADA
- Use the flattest slope possible
- Steeper slope only if technically impracticable, or space limitations
- 7.5% max to allow for construction tolerance
- Note – no max. length for a curb ramp

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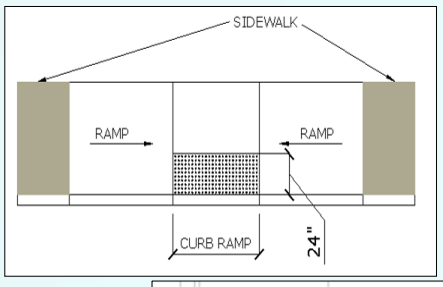
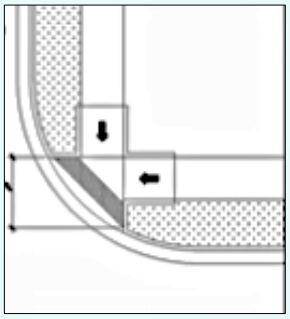
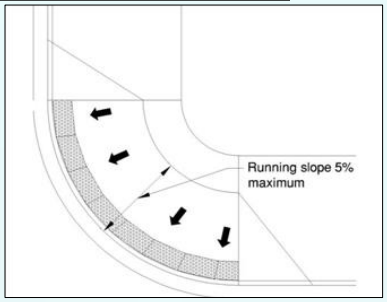
Running Slope Examples







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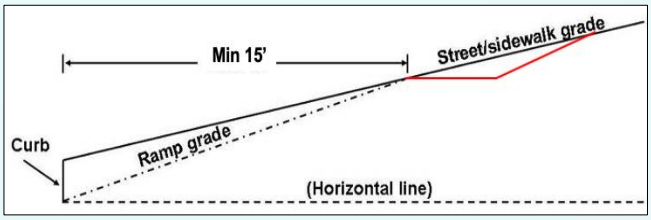
ADA Exception and the "15 Foot Rule"

Table 405.2 Maximum Ramp Slope and Rise for Existing Sites, Buildings, and Facilities	
Slope [1]	Maximum Rise
Steeper than 1:10 but not steeper than 1:8	3 inches (75 mm)
Steeper than 1:12 but not steeper than 1:10	6 inches (150 mm)
1. A slope steeper than 1:8 is prohibited.	

- ADA Standards Exception – alterations with limited space

- PROWAG – "Chasing grade" to meet existing sidewalk



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Cross Slope Requirements?

PROWAG

- 2.0% max if traffic must stop or yield
- 5.0% max if traffic has no stop or yield (through condition)

2010 ADA

- 2.0% max

Best Practice

- Follow ADA
- Steeper cross slope only if technically impracticable, document
- 1.5% max to allow for construction tolerance

How much cross slope is needed to drain water from a curb ramp??

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Cross Slope Examples

ADA Standard vs Reality

Turning Space/Landing Requirements?

PROWAG

- Required at the top of a perpendicular curb ramp and the bottom of a parallel curb ramp
- 4 ft min x 4 ft min
- 4 ft min x 5 ft min, if constrained
- Cross slope 2% max for stop or yield, 5% max in not stop or yield

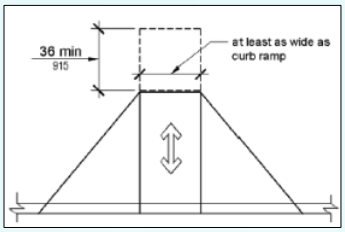
ADA Standards

- Required at the top of a curb ramp
- 36 in min x 36 in min
- If no landing, or <36 in., flares 1:12 max
- Cross slope 2% max

Best Practice

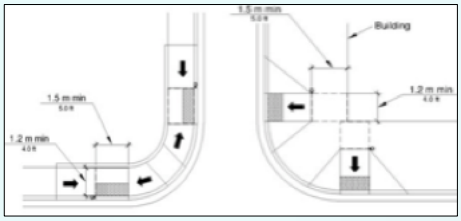
- Follow ADA for slopes and PROWAG for dimensions.
- Always have a landing, or choose different design.
- 1:12 flares with no landing creates a compound slope and is difficult to use.
- Allow for construction tolerance

Turning Space/Landing Examples



2010 ADA Standards

- 36 in min.
- Full width
- 2% max. slopes



PROWAG

- 4 ft x 4 ft min.
- 4ft x 5 ft min. with constraints
- 2% max. slopes
- Slope may vary with crosswalk type

Turning Space – Why Does It Matter?

Grade Break Requirements?

PROWAG

- Perpendicular grade breaks
- Flush transitions

ADA Standards

- Flush transitions

(Cross slope of 2% max. will result in perpendicular grade break)

Best Practice

- Follow PROWAG, exceeds ADA Standards
- A non-perpendicular grade break causes instability

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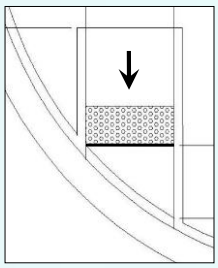
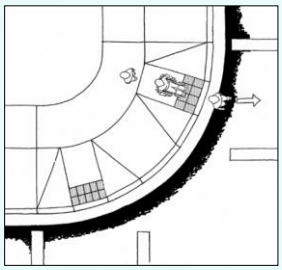
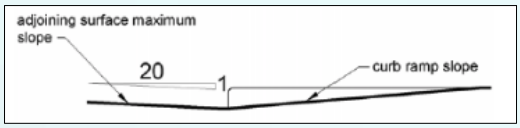
Grade Break Examples

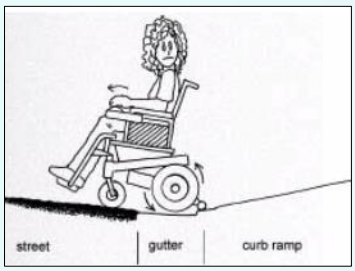




Perpendicular grade break



Flush transition



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Clear Space Requirements?

PROWAG

- Required at the bottom of a curb ramp
- 4 ft min. x 4 ft min.
- Outside parallel vehicle travel lane
- Within the crosswalk

ADA Standards

- Required at the bottom of a diagonal curb ramp
- 48 in min. x 36 in min.
- Outside of active traffic lanes
- Within the crosswalk markings, if marked

Best Practice

- Follow PROWAG, exceeds ADA Standards
- No specific slope requirements

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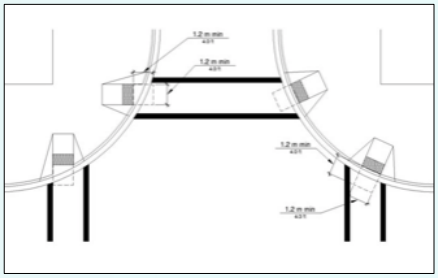
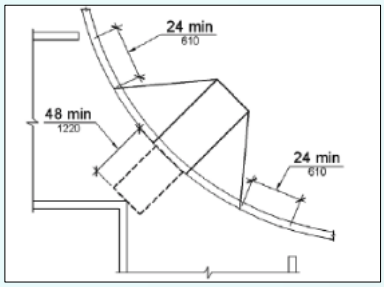
Clear Space Examples





- Within crosswalk
- 48 in. x 48 in. min.
- No special slope requirements

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Clear Space Examples

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Flare Requirements?

PROWAG

- Required where a pedestrian circulation path crosses the curb ramp, flare slope 10% max, measured parallel to the curb

ADA Standards

- Where provided, flare slope 10% max

Best Practice

- Follow PROWAG, and ADA Standards
- Provide flares where curb ramp sides are traversable and all flares 10% max.

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Flare Examples

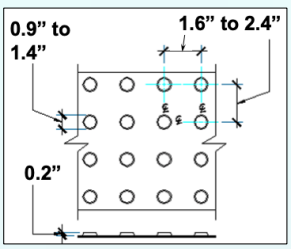
Detectable Warnings Requirements?

PROWAG

- 2 ft min in direction of travel
- Contrasting
- Full width of curb ramp, blended transition or turning space
- Same specs (R305)
- RR crossings and boarding platforms
- Location guidance

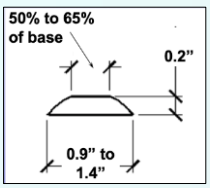
DOT ADA Standards

- 2 ft min in direction of travel
- Full width of curb ramp
- Contrasting
- Same specs (705)

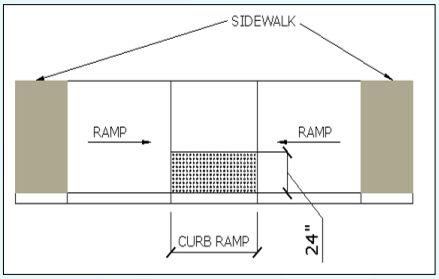


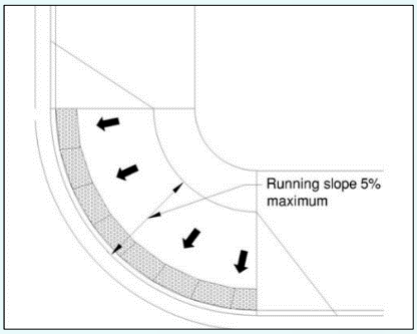
Best Practice

- Follow PROWAG, exceeds ADA Standards
- Provides location guidance
- Protect the full width of the curb opening



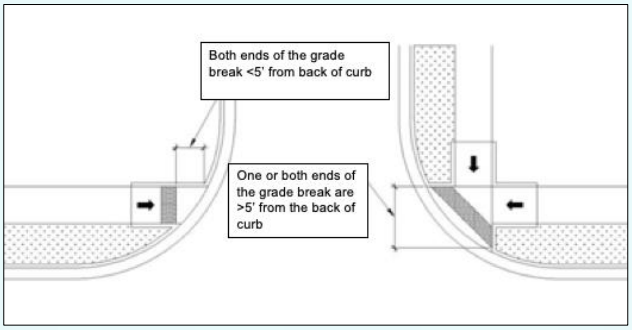
Detectable Warning Locations – Parallel Curb Ramps and Blended Transitions





- Place DW at the back of the curb

Detectable Warning Locations – Perpendicular Curb Ramps



- 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

Detectable Warning Locations

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Counter Slope Requirements?

PROWAG

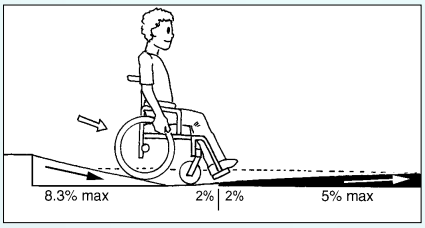
- 5% max

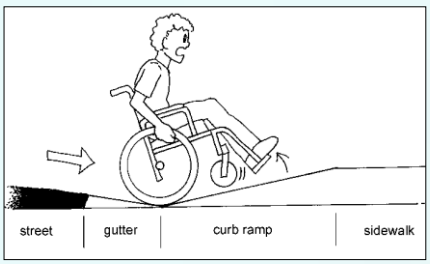
ADA Standards

- 5% max
- Flush at transitions

Best Practice

- Follow ADA





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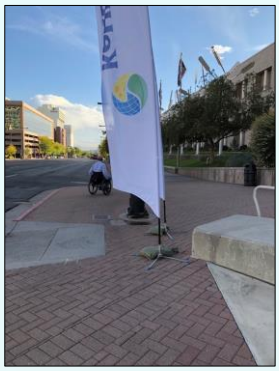
Curb Ramp Maintenance



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Street Crossings/Crosswalks

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Street Crossing Resources

PROWAG	2010 ADA	Best Practice
• Covered in PROWAG	• Not covered	• Follow PROWAG

Definition of a Crosswalk, MUTCD - the part of a roadway included within the connections of the lateral lines of the sidewalks on opposite sides of the highway, and in the absence of a sidewalk on one side of the roadway, the extension of the lateral lines of the sidewalk at right angles to the center line; or any portion of a roadway indicated as a pedestrian crossing by pavement markings

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Where do Crosswalks Exist?

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Technical Requirements for Crossings

- Marked vs Unmarked
- Surface
- Width
- Running slope, or grade
- Cross slope

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Marked vs Unmarked Crossings

No accessibility information to address marking a crosswalk. See Part 3 of the MUTCD and TRB Research

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Crosswalk Surface

Part of the pedestrian access route

- Firm, stable and slip resistant
- 1/4 - 1/2 in. max. surface discontinuities
- No large openings or gaps
- 48 in. min. width, full width of a shared use path

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Crosswalk Running Slope

Part of the pedestrian access route

- 5% max.

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Crosswalk Cross Slopes

Maximum crosswalk cross slope

- 2% is a general requirement for pedestrian access routes and stop or yield vehicle control
- 5% is allowed in a street crossing without stop or yield vehicle control – free flow (PROWAG only)

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Median vs Refuge Island

Median

- Median allows full street crossing
- No pedestrian wait area
- No detectable warnings

Refuge Island

- Refuge island provides pedestrian wait area – 6 ft. long
- 5 ft. wide min.
- Requires detectable warnings

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Pedestrian Crossings at Roundabouts

- Separated sidewalk
- Multi-lane must have pedestrian activated signal

Pedestrian Signals – Effective Communication

ADA - 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.

Usable vs Accessible Pedestrian Signal

Accessible to and Usable by

- Pedestrian access route
- Surface slopes
- Reach range
- Operable parts

Accessible Pedestrian Signal

- Locator tone
- Audible indicators
- Vibrotactile indicators

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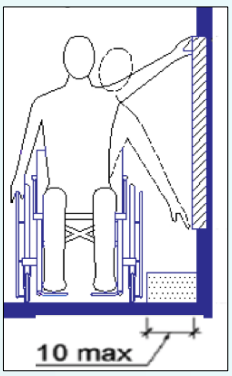
Reach from Clear Space



- **Vertical**
  - Max. Reach – 48”
  - Min. Reach – 15” (forward & side)
- **Horizontal**
  - Side reach within 10”
  - Forward reach – no obstruction or space
- **Operable Parts**
  - No tight grasping, twisting, or pinching

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Clear Space

- 30 in. x 48 in min.
- Alcove requires maneuvering space
- Cross slope 2% max.

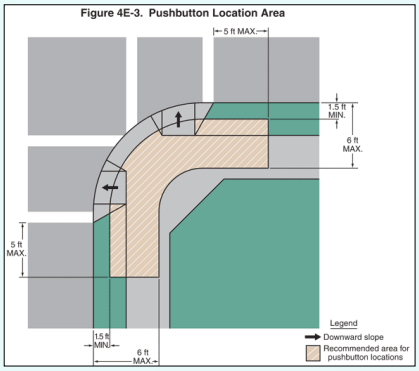
- Best practice, less than 2% max. slope in each direction

Usable Pedestrian Signal

- **Button**
  - Face of button parallel to crosswalk
  - Mounted at 42” (48” max used to be 54”)
  - Max. 5 lbs pressure needed to activate
- **Sign**
  - Adjacent to button – explains purpose and use
  - Must clearly indicate crosswalk direction

Pedestrian Pushbutton Location (MUTCD Guidance)

- Accessible route to ramp and crossing
- Reachable (10 in) from a clear space
- 5 ft from the crosswalk
- 1.5-6 ft from edge of curb or pavement
- See MUTCD Guidance Fig. 4E-4



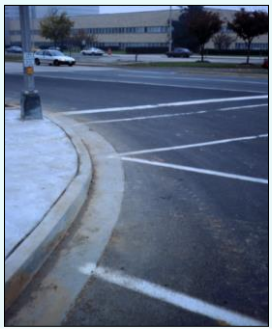
Accessible Pedestrian Signals

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

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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Resources

➢US Access Board –

- www.access-board.gov
- www.row@access-board.gov

➢FHWA –

- www.fhwa.gov

State Division Office

For more specific resources see the handout on the webpage

➢DOJ –

- www.ada.gov

Title II Technical Assistance

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Questions?

Upcoming Webinars

- ✓ **Part 1 - Obligations and Sidewalk Basics**
- ✓ **Part 2 - Safe and Accessible Intersections**

  Curb ramps, street crossings, signals

- **Part 3 - Curbside Access**

  Transit stops, parking, passenger loading zones

- **Part 4 - Ensuring Access on Public Right of Way Projects**

  Design decisions, construction inspection and best practices

Certificate of Participation and/or LU/HSW AIA Code

- Please consult the reminder email you received about this session for instructions on obtaining a certificate of participation for this webinar.
- Please email the code above to adatraining@transcen.org by **5 PM E.T. on Monday, May 20th**.

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Thank You!