Designing Pedestrian Facilities for Accessibility

Module 2
Pedestrian Access Route
Public Right-of-Way Accessibility Guidelines (PROWAG)

Module 2: Pedestrian Access Route

- Chapter R1 - Application and Administration
- Chapter R2 - Scoping Requirements
- Chapter R3 - Technical Provisions
- Chapter R4 - Supplementary Technical Provisions

Focus will be on Chapter 3

Under “Streets and Sidewalks”, select “Public Rights-of-Way”

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http://www.access-board.gov/prowac/

Streets & Sidewalks

New guidelines the Board is developing will cover access to public rights-of-way, including sidewalks, intersections, street crossings, and on-street parking. The Board is also addressing access to shared use paths providing off-road means of transportation and recreation.

Public Rights-of-Way
New guidelines that will address pedestrian access to sidewalks and streets.

Shared Use Paths
New guidelines that will cover shared use paths.
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About the Rulemaking on Public Rights-of-Way

Sidewalks, street crossings, and other elements in the public right-of-way can pose challenges to accessibility. The Board’s ADA and ABA Accessibility Guidelines focus mainly on facilities on sites. While they address certain features common to public sidewalks, such as curb ramps, further guidance is necessary to address conditions and constraints unique to public rights-of-way.

The Board is developing new guidelines for public rights-of-way that will address various issues, including access for blind pedestrians at street crossings, wheelchair access to on-street parking, and various constraints posed by space limitations, roadway design practices, slope, and terrain. The new guidelines will cover pedestrian access to sidewalks and streets, including crosswalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way. The Board’s aim in developing these guidelines is to ensure that access for persons with disabilities is provided wherever a pedestrian way is newly built or altered, and that the same degree of convenience, connection, and safety afforded the public generally is available to pedestrians with disabilities. Once these guidelines are adopted by the Department of Justice, they will become enforceable standards under title II of the ADA.
Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way

Published in the Federal Register on July 26, 2011.
36 CFR Part 1190
Docket No. ATBCB 2011-04

PREAMBLE

AGENCY: Architectural and Transportation Barriers Compliance Board.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: The Architectural and Transportation Barriers Compliance Board is proposing accessibility guidelines for the design, construction, and alteration of pedestrian facilities in the public right-of-way. The guidelines ensure that sidewalks, pedestrian street crossings, pedestrian signals, and other facilities for pedestrian circulation and use constructed or altered in the public right-of-way by state and local governments are readily accessible to and usable by pedestrians with disabilities. When the guidelines are adopted, with or without additions and modifications, as accessibility standards in regulations issued by other federal agencies implementing the Americans with Disabilities Act, Section 504 of the Rehabilitation Act, and the Architectural Barriers Act, compliance with the accessibility standards is mandatory.

DATES: Submit comments by November 23, 2011. Hearings will be held on the proposed guidelines on the following dates:
1. September 12, 2011, 9:30 to 11:30 a.m., Dallas, TX.
2. November 9, 2011, 9:30 to 11:30 a.m., Washington, DC.

ADDRESSES: Submit comments by any of the following methods:
- E-mail: row@access-board.gov. Include docket number ATBCB 2011-04 in the subject line of the message.
- Fax: 202-272-0081.
- Mail or Hand Delivery/Counter: Office of Technical and Informational Services, Access Board, 1331 F Street, NW, Suite 1000, Washington, DC 20004-1111.
Pedestrian access routes shall consist of one or more of the following components:

- walkways,
- crosswalks,
- ramps,
- curb ramps (excluding flared sides)
- landings,
- blended transitions,
- pedestrian overpasses and underpasses,
- elevators, and
- platform lifts.

Stairways and escalators are NOT part of a pedestrian access route.
US Access Board Video
Ambulatory Impairments (8 mins)
R301.3.1 Continuous Width

- The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4.0 ft, exclusive of the width of the curb.
3 feet for one wheelchair user
3.5 feet for a person using crutches
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4 ft. for user with guide dog, sighted guide, or one person assisting another
5 ft. for a wheelchair user and walking companion; 6 ft for two wheelchair users
5 ft. for a turning wheelchair
5 or 6 feet provides for two people to walk comfortably side by side (or to pass each other)
How comfortable is this sidewalk width?
Other Guideline minimums:

- 4 feet - “A Policy on Geometric Design of Highways and Streets” (Green Book), AASHTO, 2004
- 5 feet - “Designing Sidewalks and Trails for Access”, FHWA, 2002
The Sidewalk Zone System

- Curb Zone
- Furniture Zone
- Pedestrian Zone
- Frontage Zone
Curb Zone

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- Where pedestrians transition from sidewalk to street
- Also allows for drainage

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Furniture Zone

- Keeps pedestrian zone free of obstacles
  - Space for street furniture (signs, benches, trees, fire hydrants)
- Buffers pedestrians
- Easier to provide accessible ramps and driveways
Furniture Zone

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Pedestrian Zone

- Area reserved for pedestrian travel includes “pedestrian access route” (PAR)
- Must be free of obstacles, protruding objects
- New ADAAG - 3 ft min
- PROWAG - 4 ft min
R301.3.2 Width at Passing Spaces

- Walkways in pedestrian access routes that are less than 5.0 ft in clear width shall provide passing spaces at intervals of 200 ft maximum. Pedestrian access routes at passing spaces shall be 5.0 ft wide for a distance of 5.0 ft.
Sidewalk widened around pole
What’s Wrong with this Picture?

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Sidewalk wraps around large tree
Note that a longer taper would be easier to use.
Frontage Zone

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- Room for doors, planter boxes, signs on buildings, etc.
- Must be free of overhanging and protruding obstacles
- Objects between 27" & 80" above ground must not protrude more than 4" or must be protected by a detectable barrier for the visually impaired

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Zone System Summary: residential
R301.4.1 Cross Slope

- The cross slope of the walkway of a pedestrian access route shall be 2 percent maximum.
Cross Slopes Challenges

- **Steep Cross Slopes**
- **Pedestrians must work against gravity**
  - Crutch, walker, and prosthesis users may be forced to walk sideways
- **Wheelchair users must make significant efforts just to travel straight**
Sometimes building elevations make it difficult to create a proper cross slope
Create a level area of preferably 6 feet (4 feet min.)
Cross Slope Solutions

Possible solution:
- Raise the curb but remember curbs higher than 8” create parking concerns
- Parallel parking - doors cannot be opened
- Diagonal Parking - overhang is impossible

![Diagram showing a raised curb and a 2% cross slope maximum]

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Cross Slope Solutions

Here the curb is stepped to allow diagonal on-street parking & sidewalks with good cross slope.
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Cross Slope Solutions

Tucson, AZ
Cross Slope Solutions

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R301.4.2 Street or Highway Grade
• Where the walkway of a pedestrian access route is contained within a street or highway border, its grade shall not exceed the general grade established for the adjacent street or highway.

R301.4.3 Supported Slope
• Where supported by a structure (i.e., bridge), should not exceed 5%
Running Slope Challenges

- **Uphill**: requires people with mobility impairments to exert more energy
- **Downhill**: difficult for users of walkers, canes, crutches, prostheses
Reducing Impact of Steep or Long Grades

On steep or long grades, provide rest areas at reasonable intervals
Reducing Impact of Steep or Long Grades

- Provide signs that indicate:
  - grade and length
  - alternative routes with lesser grades
- Provide handrails where possible
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Driveway Coaster

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If driveways are not done right, sidewalks won’t be used (most common reason given by wheelchair users using the street)
At noncompliant driveways, sidewalk users encounter:

- Steep Cross slopes
- Rapid grade change at driveway flare
Cross-slope on an old-style sloped driveway is often 5 or 6 times higher than the 2% maximum.
• Accessible driveway requires level pedestrian access route:
  - Cross slope: 2% maximum
  - Width: 4’ minimum (PROWAG)

• Factors to consider when choosing accessible driveway option:
  - Sidewalk width
  - Planter strip width
  - Curb height
  - Available right-of-way
Best Solution - Planter strip allows for flat uninterrupted sidewalk
Inaccessible design - Constant steep slope across planter strip and sidewalk
Good Solution - Level accessible route at back of wide sidewalk

PROWAG specifies 4 ft. min. level area
Level Sidewalk within Driveway

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Acceptable Variation -
Driveway with mountable curb

Revert to vertical curbs before and after the driveway to discourage cars parking on sidewalk.
Good solution for narrow sidewalks

- **Width of level area**
  - 3 ft. min. (ADAAG)
  - 4 ft preferred min.
  - Best to use full sidewalk width

- **Longer tapers are easier to use**
Good use of Landscaping

- Nicely landscaped areas add curb appeal and direct pedestrians away from driveway apron.
- Note that a longer taper would be easier to use.
Acceptable solution for narrow sidewalks
Fully lowered sidewalk

- Possible problems:
  - Drainage
  - Users must negotiate two ramps
  - Peds who are blind may veer into street
  - Allows drivers to turn at higher speeds
Chandler Retrofit Example: BEFORE
Chandler Retrofit Example: AFTER
- R301.5 Surface
- R301.5.1 Vertical Alignment
- R301.5.2 Surface Discontinuities
R301.5 Surfaces

firm, stable and slip resistant
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R301.5.1 Vertical Alignment

- Curb ramp runs, landings & gutter areas within PAR and clear spaces shall be level
- Grade breaks shall be flush
Vertical Alignment

- If changes not addressed, can be tripping hazards
- Can be inaccessible to wheelchair users
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Vertical Alignment

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R301.5.2 Surface Discontinuities

- Surface discontinuities shall not exceed \( \frac{1}{2} \) inch (wide) maximum
- Vertical discontinuities between \( \frac{1}{4} \) and \( \frac{1}{2} \) inch shall be beveled at 1:2 minimum across the entire level change
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Tree Roots

Before

After
Minimizing Changes in Level

Temporary repairs often don’t meet standards but is better than leaving it as is
Minimizing Changes in Level

Better...?
Repair sidewalks

Ultimately need a sidewalk replacement program
Utility Covers

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Not Acceptable

Acceptable

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What is Wrong with this Picture?

Tucson, AZ

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What is Wrong with this Picture?

Flagstaff, AZ
Rough surfaces can cause:

- Tripping hazards
- Confusion to people who are blind in detecting tactile cues
- Painful to people with spinal cord injuries due to vibrations
- Maintenance difficulties
Best Practice: Concrete in the pedestrian zone, textured surface in furniture zone
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Visual Contrast of Surfaces
What is Wrong with this Picture?

Boise, ID

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What is Wrong with this Picture?

Better...?

Boise, ID
R301.7.1 Horizontal Openings

Walkway Joints & Gratings: Openings shall not permit passage of a sphere more than 0.5 inch in diameter. Elongated openings shall be placed so that the long dimension is perpendicular to the dominant direction of travel.
What is Wrong with this Picture?

Flagstaff, AZ

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Solutions to Eliminate Gaps

Use of Wire Mesh Screen

Use of Straps Welded to Existing Grate

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Tree Grates

- Tree grates should be placed in the furnishing zone, outside the pedestrian zone
- Tree grates expand the pedestrian zone for some users
Quality Control of Grades, Cross Slopes and Widths

- Reliant on contractors & inspectors
- Tight construction tolerances are needed
- Inspections: actual measuring (not visual)
- Training for contractors, concrete finishers, and inspectors - some jurisdictions have certifications.