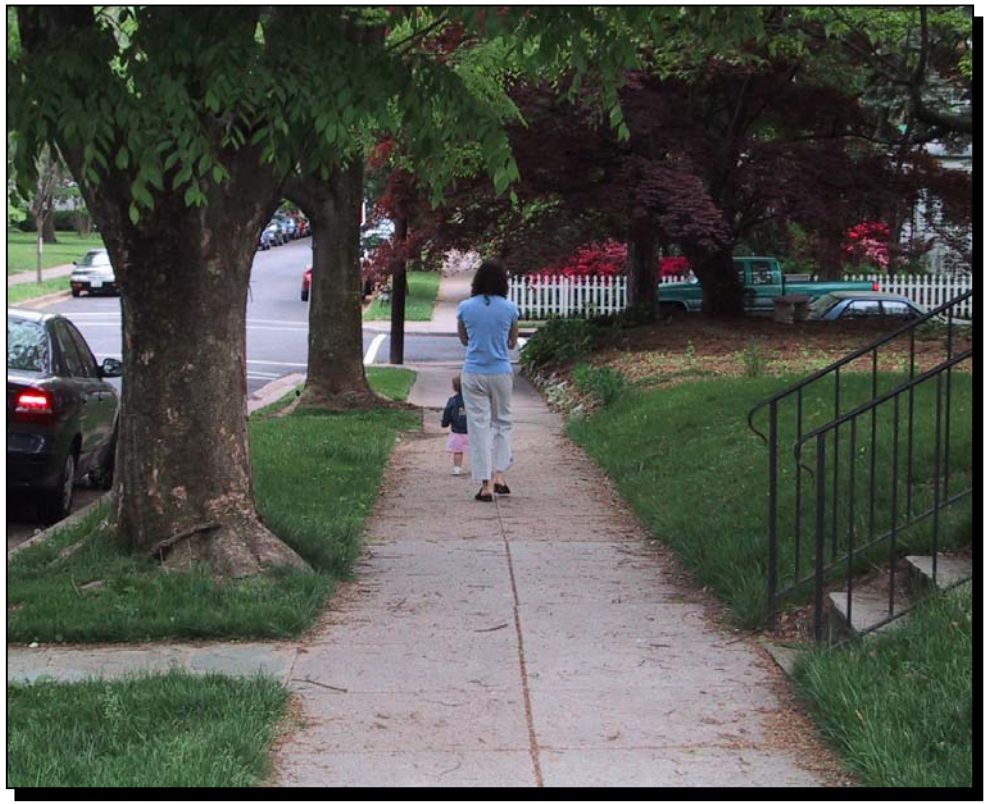
Surfaces

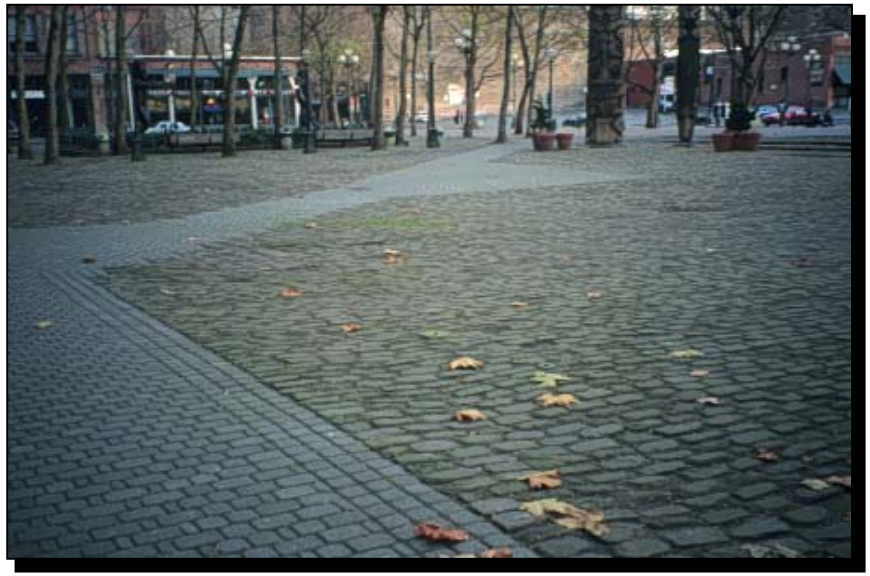


ADAAG requires surface material to be firm and stable (such as concrete and asphalt) and slip resistant

Surfaces

Surfaces should be smooth, free of rough textures, openings and gaps

Rough Texture Surfaces



Brick and tile surfaces often freeze sooner than concrete

Bricks, cobblestone, and textured pavement can cause:

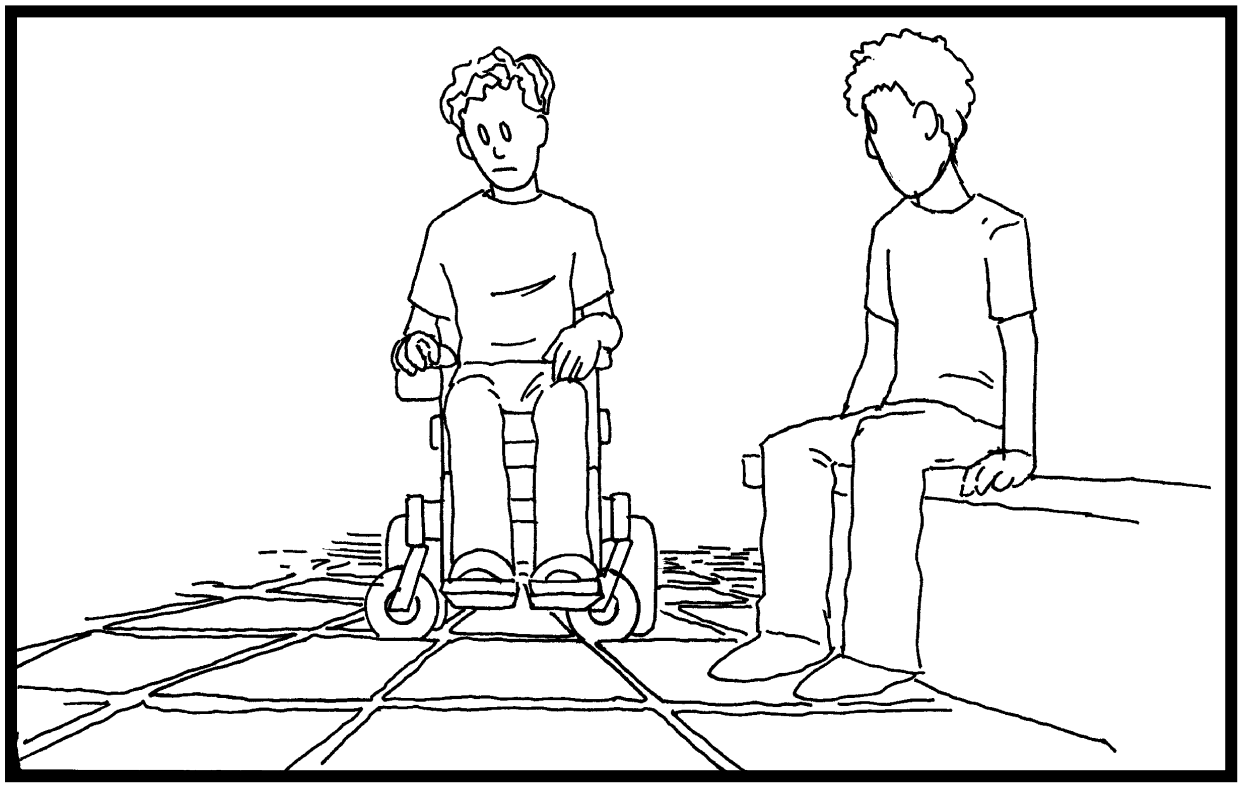
- Tripping hazard
- Confusion to people who are blind in detecting tactile cues
- Painful vibrations to people with brittle bones or spinal cord injuries using wheelchairs

Rough Textures

Some users are excluded from using the following because they are inaccessible:

- Beveled bricks and tiles
- Materials with deep wide grouting
- Exposed aggregate

Surfaces Should Be Free of Joints



Exception: Expansion and contraction joints are allowed but must not create a level change of more than ¼ inch (6.5mm)

Decorative Surfaces

Creative alternatives are suggested:

- Concrete sidewalks with brick trim
- Colored asphalt or concrete

Visual Contrast of Surfaces

- Sidewalk surfaces should be as visually uniform as possible
  - People with low vision may mistake visual contrast in the pathway with changes in grades

Visual Contrast of Surfaces

People with low vision can benefit from visual contrasts at transitions (sidewalk to ramp to street)

Visual Contrast of Surfaces

Clearly definable sidewalk edges provide visual cue to navigate for people with low vision

Visual and Tactile Contrast

Cues needed:

- **High color**
- **Detectable texture by cane and feet**

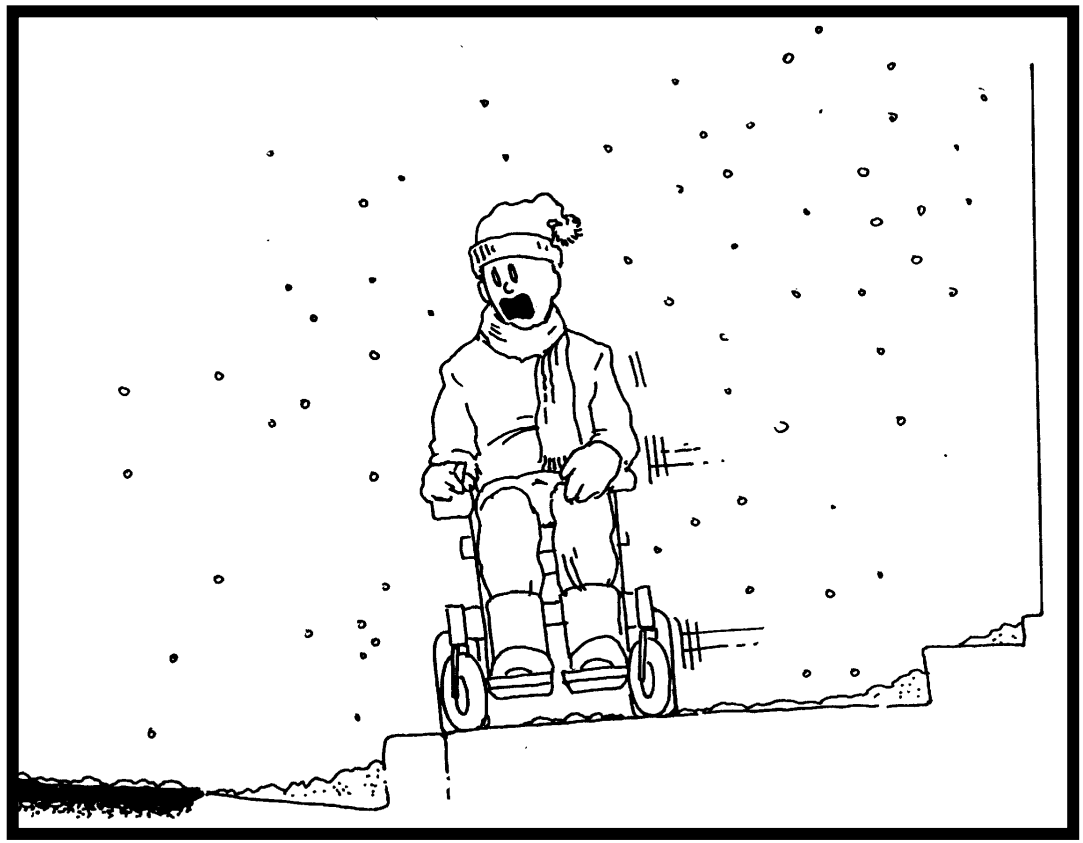
Detectable warning/truncated dome tiles—provides tactile and color contrast cues for the detection of the sidewalk boundary for people with visual disabilities

Water collected on sidewalks is difficult for people to negotiate

Surfaces should be designed so that water and ice do not collect on them

Surfaces are hazardous when icy

Establish a regular snow removal/salt or sanding program for sidewalks.



Openings and Gaps

Canes and wheels get trapped in cracks and holes

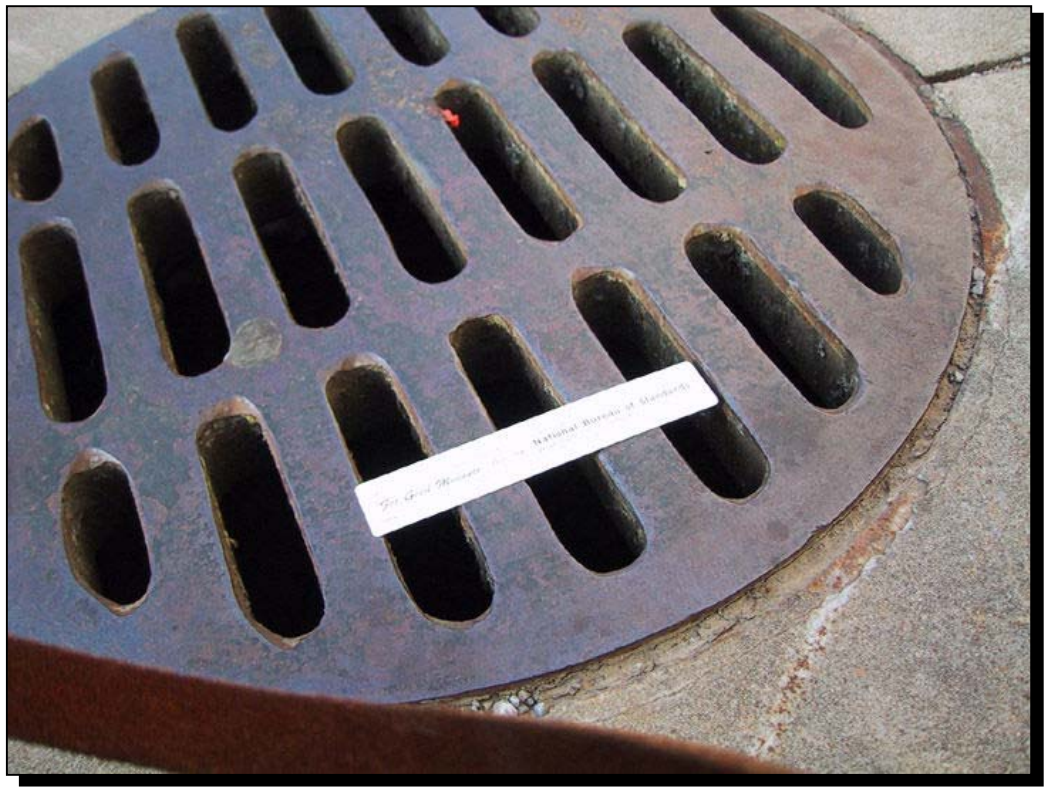
Openings and Gaps

Grate openings:

- Can trap wheels and canes
- Should be perpendicular to direction of travel

Gaps

Openings shall not allow passage of a sphere ½ inch (13mm) diameter (ADAAG)



Utility Covers

Existing faces of grates can be made less slippery with a layer of concrete

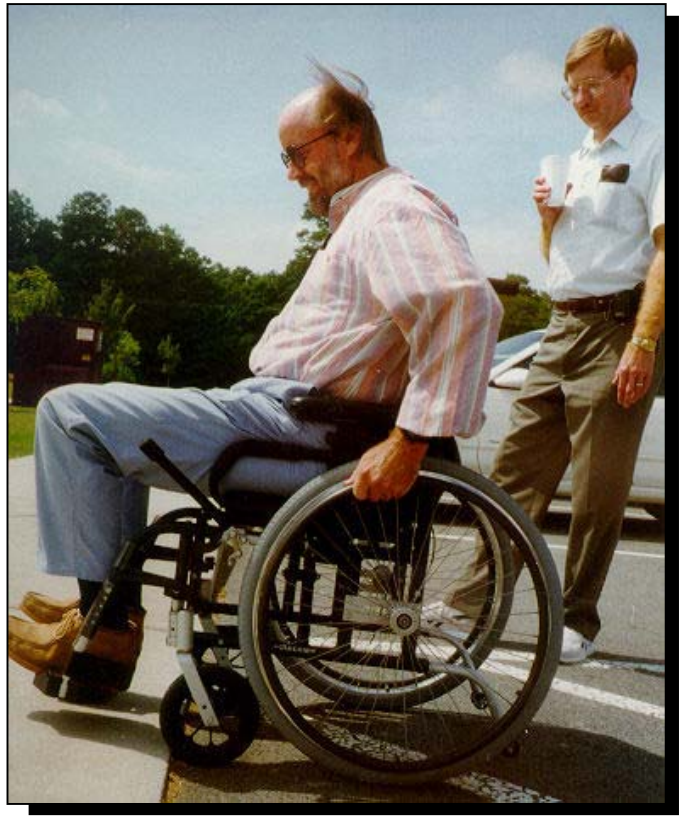
Solution: Existing Open Grates

Wire mesh screen will eliminate hazards from open gaps – Slipping issues are not eliminated

Changes in Level

Changes in level are vertical elevation differences between adjacent surfaces

Changes in Level



Can be tripping hazards

Can be inaccessible to wheelchair users

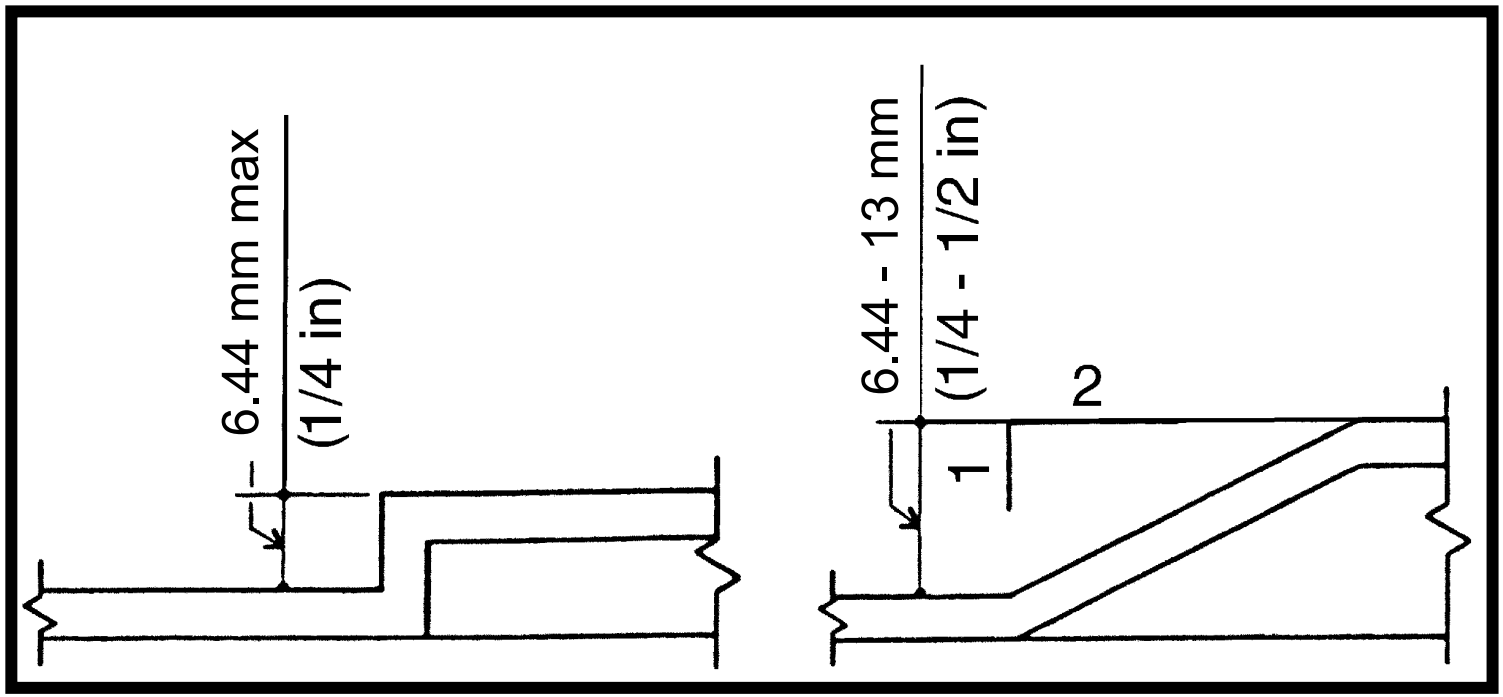
Lips between Street and Curb Ramp

- Lips not detectable by people with vision impairments - too similar to cracks and joints
- Lips create tripping problems for other users

Lip at Bottom of Curb Ramp

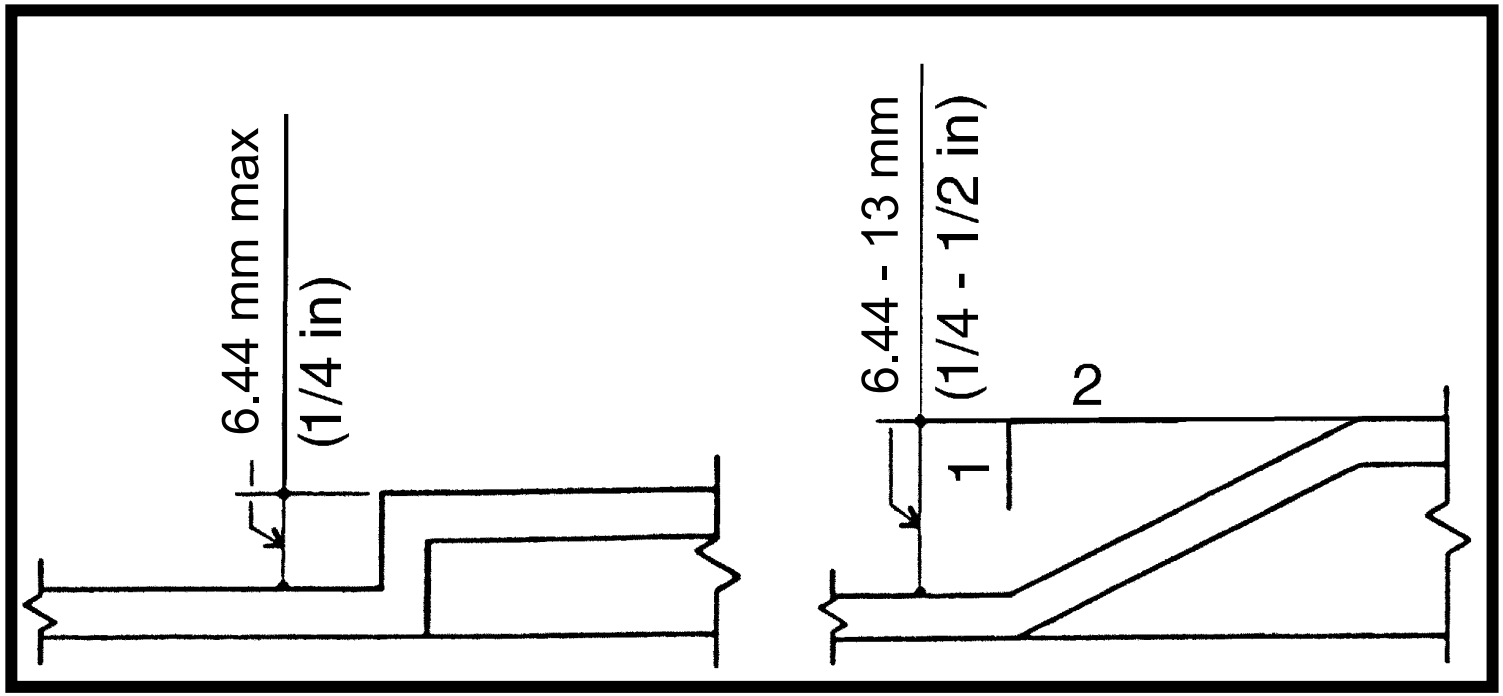
Changes in level make maintaining momentum impossible for traveling up ramp

Vertical Changes
1/4 Inch



Changes in level up to 1/4 inch (6.44mm) may remain vertical and without beveling

Bevel Vertical Changes that Exceed 1/4 Inch

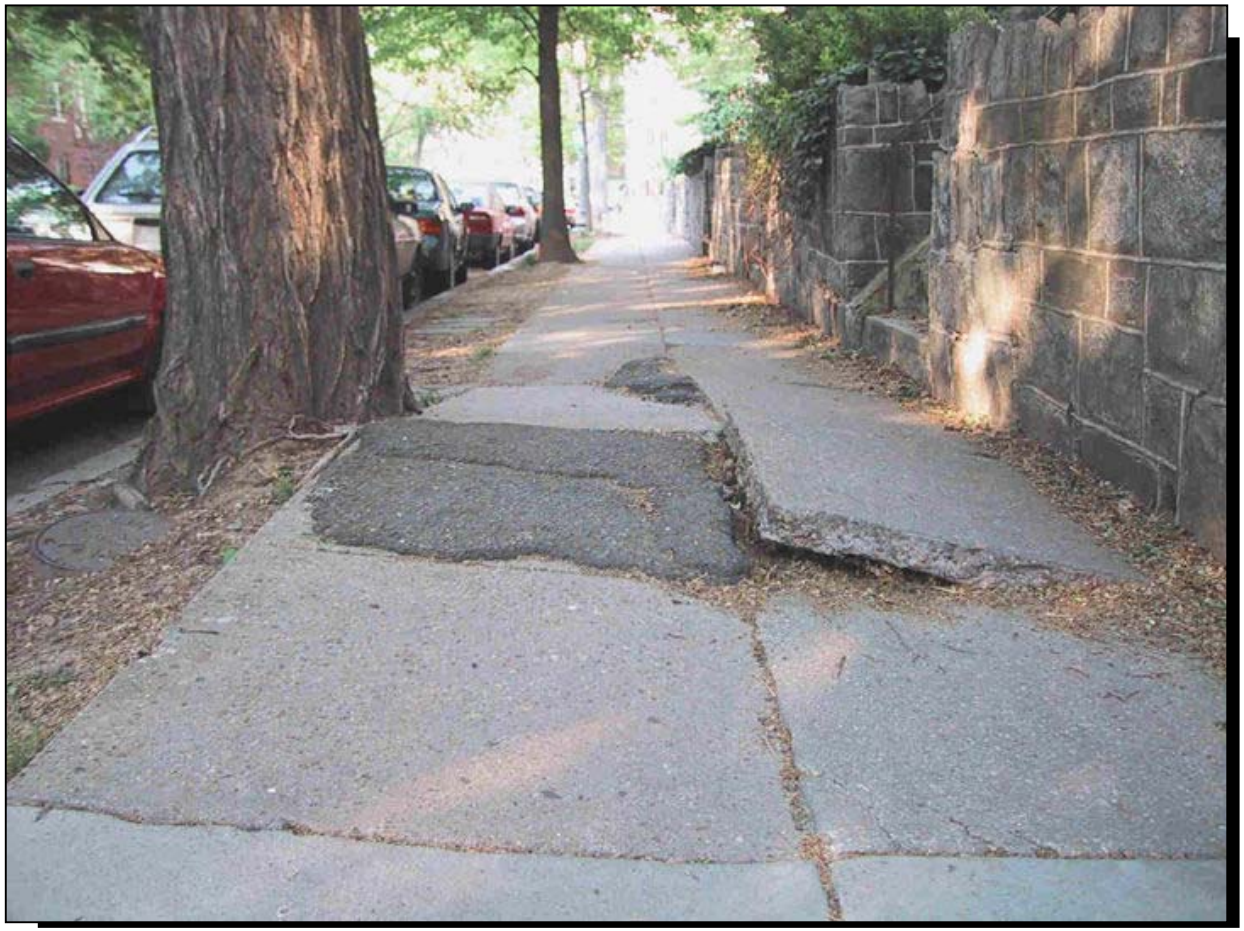


Vertical rise up to 1/2 inch (13mm) is permitted but must be ramped -- bevel cannot be steeper than 1:2

Utility Covers

Existing grate must be at same grade level as sidewalk

Changes in Level from Tree Root

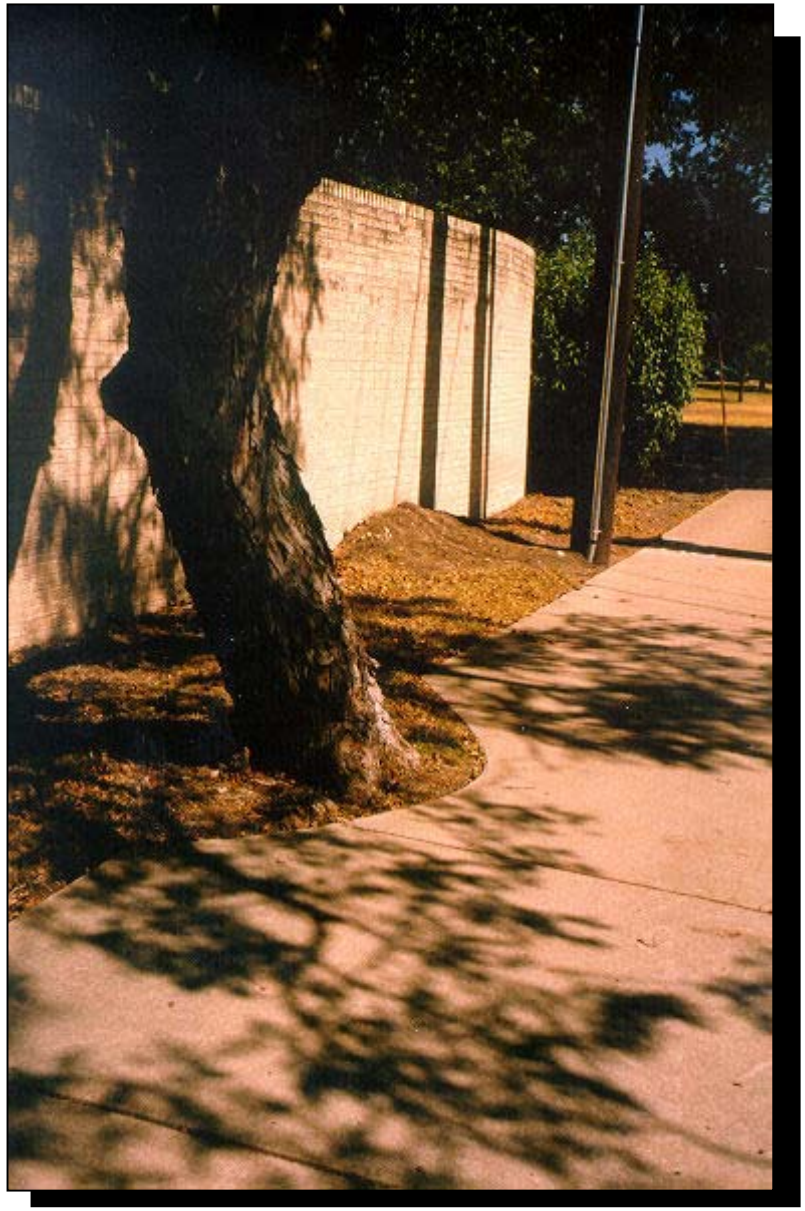


Before

Changes in Level from Tree Root

After

- Build around tree roots where possible
- Trees are an important amenity



Settling problem at curb ramp

Changes in Level

Pedestrians may trip when bricks are buckled

Maintain Surfaces

Maintain and repair sidewalks to be flush normal with surface

Minimizing Changes in Level

Temporary repair allows passage

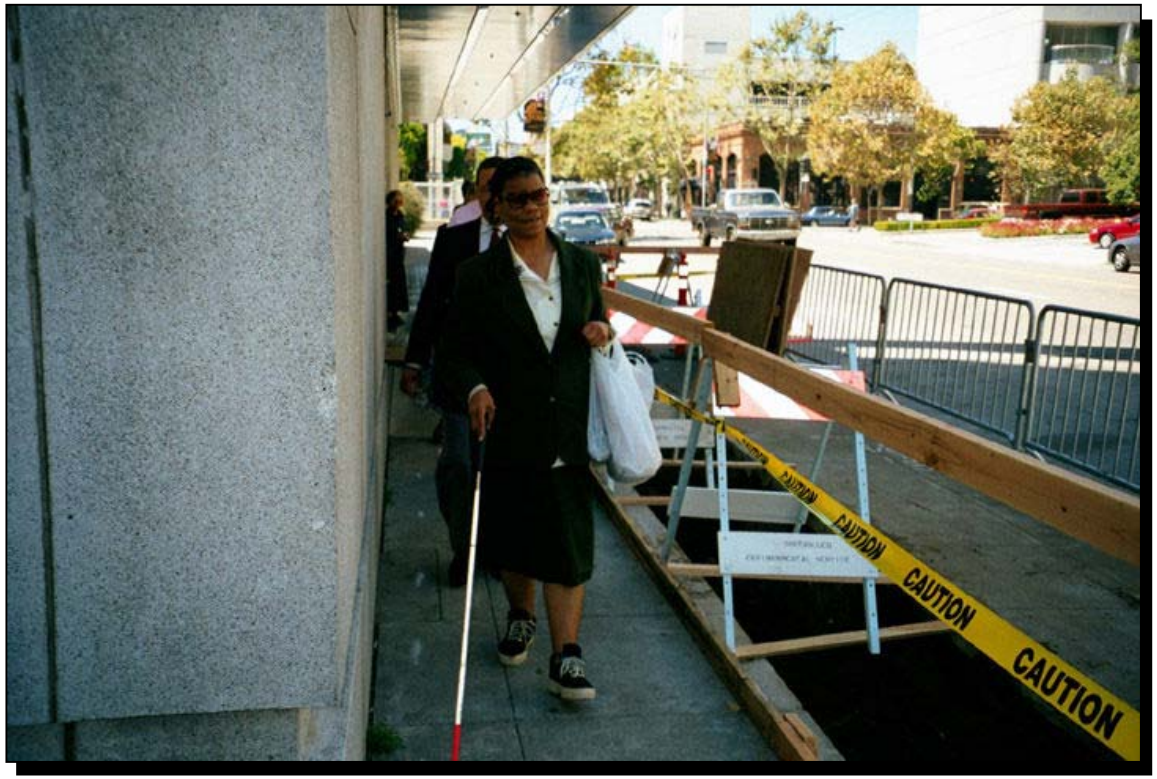
Minimizing Changes in Level

Temporary repair

Edge Protection

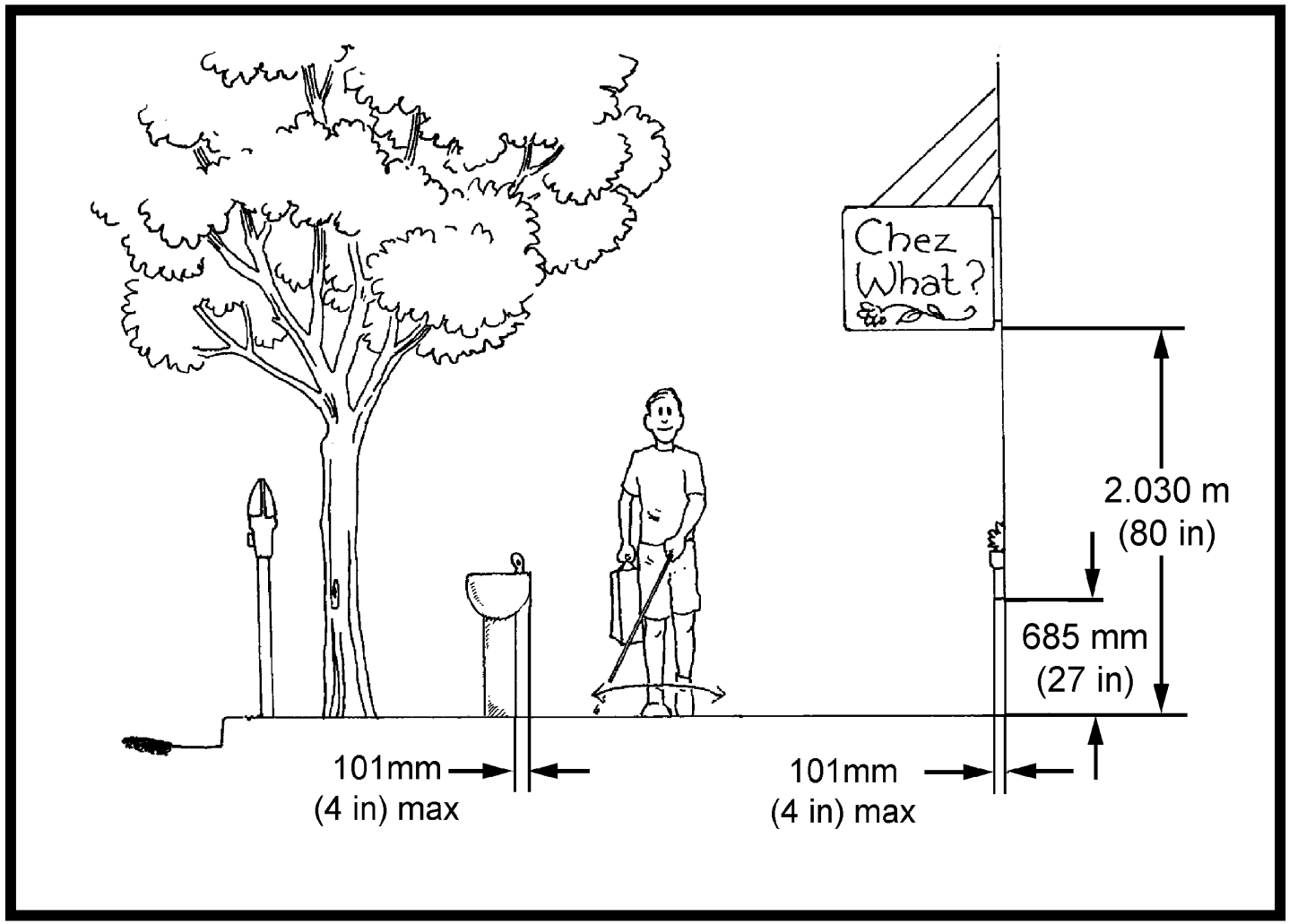
Edge protection is needed if there is a drop off, a slope steeper than 1:3, or other potential hazard next to the pedestrian zone

Edge Conditions

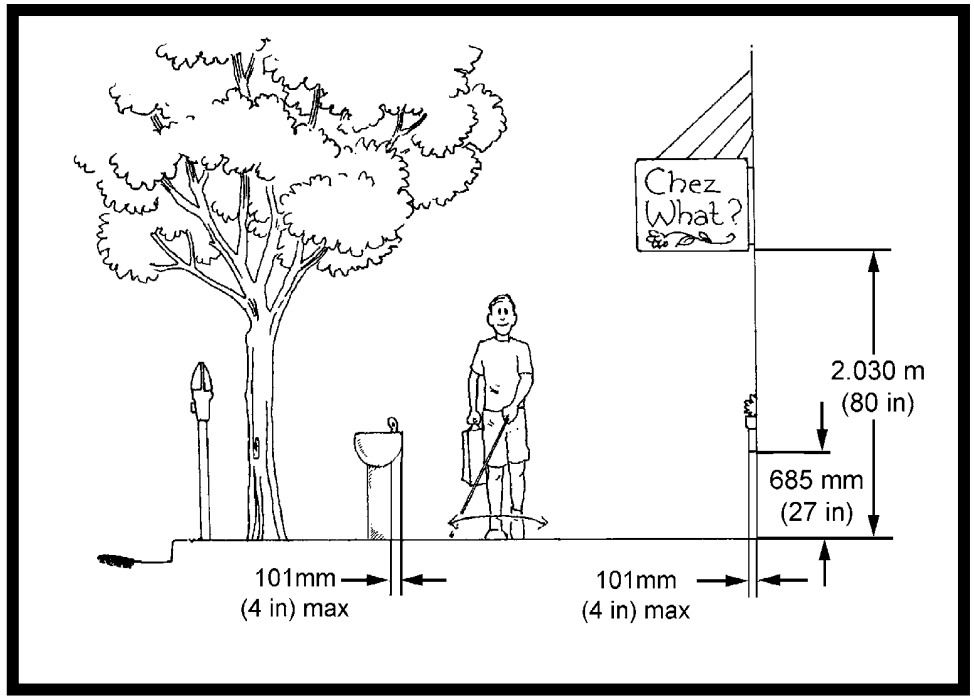


A physical barrier such as a wall, shrubbery, railing or fence is preferred

Protruding Objects



Protruding Objects



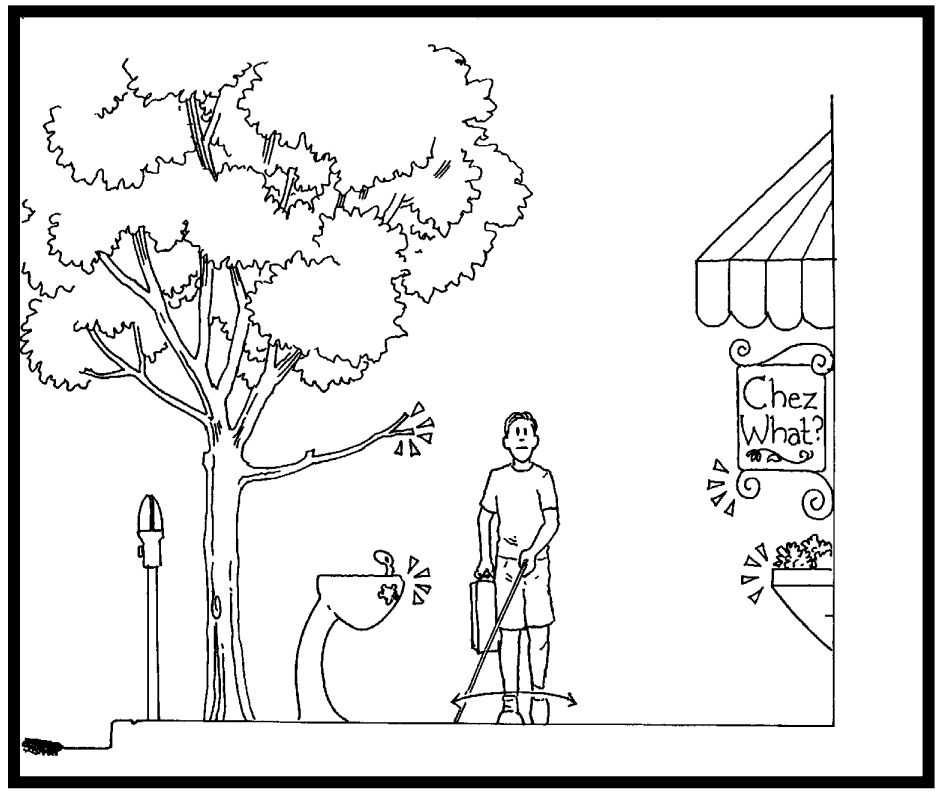
Objects must not protrude:

- Lower than a height of 80 inches
- Higher than 27 inches from the ground
- Outward more than 4 inches from posts, buildings or free standing fixtures

Protruding Objects

Objects that protrude into sidewalk corridor must be:

- Relocated
  or
- Protected
  by a barrier



Protruding Objects

Branches between height of 27 to 80 inches must be cut regularly

Protruding Objects

Signs within height of 27 to 80 inches must not protrude into pedestrian path of travel

Question

What are other examples of designs resulting in protruding objects that may affect various pedestrian populations, such as children, the elderly, and people with disabilities?

How could these designs affect these populations?