

## *Trail Accessibility Guidelines*



## ACCESSIBLE TRAIL FACILITIES

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The American's with Disabilities Act (ADA) of 1990 requires that new and/or altered recreation facilities (including trails) be made accessible to and usable by people with disabilities. These facilities must comply with the ADA Accessibility Guidelines (ADAAG). However, some recreation/trail facilities have unique features for which additional provisions and special application sections are needed. For this reason, the US Access Board developed a report in 1999 outlining accessibility guidelines for newly constructed and altered outdoor developed areas covered by the ADA.<sup>1</sup>

The Access Board's 1999 guidelines propose to create a new chapter (Section 16) in ADAAG. All newly designed and constructed trails, and altered portions of existing trails connected to an accessible trail or accessible trail head must comply with Section 16. Designers and operators are permitted to depart from the technical provisions of section 16 where specified and where at least one or more of four specific conditions are present. The technical provisions for accessible trails are contained in Section 16.2.1 through 16.2.10:



Unpaved Crushed Stone Trail in  
Yellowstone National Park

*Source: Access Today*

**16.2.1 Surface.** The trail surface shall be firm and stable.

**16.2.2 Clear Tread Width.** The clear tread width of the trail shall be 36 inches (915 mm) minimum.

**16.2.3 Openings.** Openings in trail surfaces shall be of a size that does not permit passage of a ½ inch (13 mm) diameter sphere. Elongated openings shall be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel.

**16.2.4 Protruding Objects.** Protruding objects on trails shall comply with ADAAG 4.4.1 and shall have 80 inches (2030 mm) minimum clear head room.

**16.2.5 Tread Obstacles.** Where tread obstacles exist, they shall not exceed 2 inches (50 mm) high maximum.

**16.2.6 Passing Space.** Where the clear tread width of the trail is less than 60 inches (1525 mm), passing spaces shall be provided at intervals of 1000 feet (300 m) maximum. Passing spaces shall be either a 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum space, or an intersection of two walking surfaces which provide a T-shaped space complying with ADAAG 4.2.3 provided that the arms and stem of the T-shaped space extend at least 48 inches (1220 mm) beyond the intersection.

**16.2.7 Slopes.** Slopes shall comply with 16.2.7.1 and 16.2.7.2.

**16.2.8 Resting Intervals.** Resting intervals shall be 60 inches (1525 mm) minimum in length, shall have a width at least as wide as the widest portion of the trail segment leading to the resting interval, and have a slope not exceeding 1:20 in any direction.

**16.2.9 Edge Protection.** Where edge protection is provided along a trail, the edge protection shall have a height of 3 inches (75 mm) minimum.

**16.2.10 Signs.** Newly constructed and altered trails and trail segments complying with 16.2 shall be designated with a symbol\* at the trail head and all designated access points. Signs identifying accessible trail segments shall include the total distance of the accessible segment and the location of the first point of departure from the technical provisions.

As described in Section 16.2.1, two primary measurements of trail accessibility are firmness (i.e., does a surface give way under foot?) and stability (i.e., does a surface shift from side-to-side or when turning?). Firmness and stability are measured using a penetrometer, which measures

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<sup>1</sup> The final report may be found on the U.S. Access Board's website at <http://www.access-board.gov/outdoor/outdoor-rec-rpt.htm>

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firmness using penetration depth and stability using the rotation of the device. There are guidelines in place regarding trail accessibility, described as follows:

ANSI/RESNA Standards for Firmness & Stability			
	Very Firm/Stable	Moderately Firm/Stable	Not Firm/Stable
<b>Firmness</b>	0.3 inch or less	>0.3 & <0.5 inch	>0.5 inch
<b>Stability</b>	0.5 inch or less	>0.5 & <1.0 inch	>1.0 inch
<b>ADA Accessible?</b>	Yes	Yes, on trails ½ mile or shorter	No

Source: United States Access Board, "Access Today." Fall 2001.

An accessible trail must have room for passing every 1000 feet, a 1:20 (5%) cross-slope maximum, and surface openings that do not permit passage of a ½ inch diameter sphere. Thus, non-compacted surfaces such as gravel are generally not accessible. Also, shared-use paths that also allow bicycles and equestrians should be designed in accordance with AASHTO guidelines.

### **Accessible Crushed Stone Trails**

Crushed stone trails are made out of a composite of crushed stones (generally granite) and a binder, which makes it more firm and stable than gravel. There are guidelines as to the maximum allowable diameter of the stones (3/8" or less) and a sieve test can be conducted to ensure that the stones are of a usable size to meet accessibility guidelines. The smoothness of the trail depends on how finely the stone is crushed. There are two types of binders used in crushed stone trails: organic binders, which are derived from the cactus plant, and stone dust, a natural binder that comes from the dust – a by-product of the crushing product. During the installation process, crushed stone is typically laid on a geotextile to improve the lateral stability and to prevent the stone from sinking into the soil (image 2). Usually, the foundation is slightly excavated, so that the trail will be flush with the existing ground. Then, power rollers and/or vibratory compactors roll over the trail in order to compact the trail (image 3). This is necessary for the trail to be firm and stable.

The National Center on Accessibility initiated a multi-year National Trails Surface Study in 2006 to study other suitable materials for accessible trail facilities.

Photos (L to R): Finished crushed stone path in Lake Oswego, OR, laying out the stone, compaction)



**References:**

1. "Trail Surfaces: What do I need to Know Now?" *Access Today*. Fall 2001. [www.ncaonline.org/monographs/Trail\\_Surface.pdf](http://www.ncaonline.org/monographs/Trail_Surface.pdf)
2. "What is an Accessible Trail?" *Access Today*. Fall 2002. [www.ncaonline.org/monographs/Accessible-Trails.pdf](http://www.ncaonline.org/monographs/Accessible-Trails.pdf)
3. "Outdoor Recreation Appendix." United States Access Board. <http://www.access-board.gov/outdoor/outdoor-rec-app.htm>
4. "East Bay Regional Parks District Master Plan" (Chapter 3, Accessibility)
5. Boone, Tony. "Trail Design and Construction: The Art of Building Crushed Stone Trails." <http://www.americantrails.org/resources/trailbuilding/ArtCrushedStone.html>

