Appendix D: Outdoor Developed Areas Accessibility Guidelines, Chapter 1017

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Architectural Barriers Act Accessibility Guidelines; Outdoor Developed Areas

AGENCY: Architectural and Transportation Barriers Compliance Board.

CHAPTER 10: RECREATION FACILITIES

1017 Trails
[Added to Appendix C to Part 1191—Architectural Barriers Act: Scoping]

1017 Trails
1017.1 General

This section contains the technical requirements for trails. The technical requirements address the surface of the trails, passing spaces, and resting intervals (1017.2); the clear tread width of trails (1017.3); passing spaces (1017.4); tread obstacles (1017.5); openings (1017.6); slopes, including running slope (1017.7.1) and cross slope (1017.7.2); resting intervals (1017.8); protruding objects (1017.9); and trailhead signs (1017.10).

Two exceptions are provided. When an entity determines that a condition in 1019 does not permit full compliance with a specific provision in 1017 on a portion of a trail, Exception 1 permits the portion of trail to comply with the provision to the extent practicable. When an entity determines that it is impracticable for the entire trail to comply with the technical requirements in 1017, Exception 2 exempts the entire trail from complying with the requirements. This determination is made after the entity applies Exception 1 to portions of the trail. The entity should consider the portions of the trail that can and cannot fully comply with the specific provisions in 1017 and the extent of compliance where full compliance cannot be achieved when determining whether it would be impracticable for the entire trail to comply with the technical requirements in 1017. As discussed under F201.4.1, federal agencies are required to document the basis for their determination when using Exceptions 1 or 2, and are required notify us when using Exception 2.

1017.2 Surface

This section requires the surface of trails, passing spaces, and resting intervals to be firm and stable. A firm trail surface resists deformation by indentations. A stable trail surface is not permanently affected by expected weather conditions and can sustain normal wear and tear from the expected uses between planned maintenance.

1017.3 Clear Tread Width

This section requires the clear tread width of trails to be 36 inches minimum. The 36 inches minimum clear tread width is to be maintained for the entire distance of the trail and may not be reduced by gates, barriers, or other obstacles unless an entity determines under Exception 1 to 1017.1 that a condition in 1019 does not permit full compliance with the provision.
Where gates and barriers require wheelchair users to make 90 degree or 180 degree turns, sufficient space should be provided for wheelchair users to make the turns. We and National Institute on Disability and Rehabilitation Research sponsored research to collect anthropometric data from a sample of about 500 individuals who use manual wheelchairs, power wheelchairs, and scooters. The research is known as the Anthropometry of Wheeled Mobility Project and was conducted by the Center for Inclusive Design and Environmental Access in the School of Architecture and Planning, University at Buffalo, The State University of New York. The reports on the Anthropometry of Wheeled Mobility Project are available at: *http://www.udeworld.com/anthropometrics.html.* The reports provide data on turning spaces for manual wheelchairs, power wheelchairs, and scooters.

1017.4 Passing Spaces

This section requires passing spaces to be provided at intervals of 1000 feet maximum where the clear tread width of trails is less than 60 inches. Entities should consider providing either 60 inches minimum clear tread width on trails or passing spaces at shorter intervals where the trail is heavily used or where the trail is a boardwalk or otherwise not at the same level as the adjoining ground surface. Where the full length of a trail does not fully comply with the technical requirements in 1017, a passing space is required to be located at the end of the trail segment that fully complies with the technical requirements 1017 to enable individuals who use wheeled mobility devices to turn and exit the trail.

Passing spaces are required to be:

- A space 60 inches minimum by 60 inches minimum; or
- The intersection of two trails providing a T-shaped space complying with 304.3.2 of the Architectural Barriers Act Accessibility Guidelines where the

base and the arms of the T-shaped space extend 48 inches minimum beyond the intersection.

Where the intersection of two trails serves as a passing space, the vertical alignment of the trails at the intersection that form the T-shaped space is required to be nominally planar (i.e., as flat as possible) so that all the wheels of a mobility device touch the ground when turning into and out of the passing space.
Passing spaces and resting intervals are permitted to overlap. Where passing spaces and resting intervals overlap, the technical requirements for resting intervals in 1017.8.3 require the slope of the surface to not be steeper than 1:48 in any direction. Where the surface is other than asphalt, concrete, or boards, slopes not steeper than 1:20 are permitted when necessary for drainage. Otherwise, passing space surfaces have the same slopes as the adjoining trail tread.

1017.5 Tread Obstacles

This section contains technical requirements for tread obstacles on trails, passing spaces, and resting intervals. The vertical alignment of joints in concrete, asphalt, or board surfaces on trails can be tread obstacles. Natural features such as tree roots and rocks within the trail tread also can be obstacles. his section requires obstacles to not exceed 1/2 inch in height measured vertically to the highest point. Where the surface is other than concrete, asphalt, or boards, obstacles are permitted to not exceed 2 inches in height measured vertically to the highest point.

The frequency of tread obstacles and tread obstacles that cross the full width of the trail tread can make travel difficult for individuals who use wheeled mobility devices. Where possible, tread obstacles that cross the full width of the trail tread should be separated by 48 inches minimum so individuals who use wheeled mobility devices can cross the obstacle before confronting another obstacle.

1017.6 Openings

This section requires openings in the surface of trails, passing spaces, and resting intervals such as spaces between the boards in a boardwalk to not allow passage of a sphere more than 1/2 inch in diameter. Elongated openings should be placed so that the long dimension is perpendicular, or as close to perpendicular as possible, to the dominant direction of travel.

1017.7 Slopes

This section contains technical requirements for the maximum running slope and segment length (1017.7.1) and cross slope (1017.7.2) of trails.

1017.7.1 Maximum Running Slope and Segment Length

This section requires that not more than 30 percent of the total length of a trail have a running slope steeper than 1:12 (8.33%), and that the running slope of any segment of a trail not be steeper than 1:8 (12%). Where the running slope of a segment a trail is steeper than 1:20 (5%), the maximum length of the segment is specified in Table 1017.7.1, and a resting interval is required at the top and bottom of each segment. Gradual running slopes are more useable by individuals with disabilities. here the terrain results in steeper running slopes, resting intervals are required more frequently. Where running slopes are less severe, resting intervals are permitted to be further apart.

1017.7.2 Cross Slope

This section requires the cross slope of trails to not be steeper than 1:48. Where the surface is other than asphalt, concrete, or boards, cross slopes not steeper than 1:20 are permitted when necessary for drainage.

1017.8 Resting Intervals

This section contains the technical requirements for the length (1017.8.1), width (1017.8.2), and slope (1017.8.3) of resting intervals; and for a turning space (1017.8.4) where resting intervals are provided adjacent to a trail.

1017.8.1 Length

This section requires resting intervals to be 60 inches long minimum.

1017.8.2 Width

This section requires resting intervals that are provided within the trail tread to be at least as wide as the widest segment of the trail tread leading to the resting interval. Resting intervals that are provided adjacent to the trail tread are required to be 36 inches wide minimum.

1017.8.3 Slope

This section requires the slope of resting intervals to not be steeper than 1:48 in any direction. Where the surface is other than asphalt, concrete, or boards, slopes not steeper than 1:20 are permitted when necessary for drainage.

1017.8.4 Turning Space

This section requires a turning space complying with 304.2.3 of the Architectural Barriers Act Accessibility Guidelines where resting intervals are provided adjacent to the trail tread. The vertical alignment of the trail tread, turning space, and resting interval is required to be nominally planar (i.e., as flat as possible) so that all the wheels of a mobility device touch the ground when turning in and out of the resting interval.

1017.9 Protruding Objects

This section requires constructed elements on trails, resting intervals, and passing spaces to comply with the technical requirements for protruding objects in 307 of the Architectural Barriers Act Accessibility Guidelines. Protruding objects can be hazardous for individuals who are blind or have low vision. Signs and other post mounted objects are examples of constructed elements that can be protruding objects. Natural elements such as tree branches are not required to comply with the technical requirements for protruding objects in 307 of the Architectural Barriers Act Accessibility Guidelines. However, entities should maintain the vertical clearance along the trail tread, resting intervals, and passing spaces free from tree branches for 80 inches high minimum above the ground.

1017.10 Trailhead Signs

This section requires trail information signs at trailheads to include information on the length of the trail or trail segment; surface type; typical and minimum tread width; typical and maximum running slope; and typical and maximum cross slope. This information enables individuals with disabilities to decide whether to hike the trail based on the characteristics of the trail. Entities also should provide information about the accessibility of trails on websites.

Appendix E: Technical Accessibility Guidelines For ORARs

Outdoor Recreation Access Routes (ORARs) are continuous, unobstructed paths for pedestrian use only. They connect elements in a picnic area, campground, or trailhead. hile similar terminology may be used to describe both trails and ORARs, they are very different types of routes.

ORAR LINEAR GRADE GUIDELINES

From	To	Maximum Distance
0%	5%	Any distance
5.1%	8.3%	50 feet
8.3%	10%	30 feet

Photo courtesy Penn Trails LLC

The concept of ORARs was developed for the Outdoor Guidelines (Chapter 1016), which as noted above, applies only to federal entities (which are governed by the ABA). Non-federal entities, on the other hand, are governed by the 2010 ADA Design Standards for Accessible Design, which provide specifications for "accessible routes." Unlike trails, this guide does not recommend that the ORAR design parameters be utilized as BMPs by non-federal entities. This guide recommends that unless advised otherwise by legal counsel or subsequent rulemaking, non-federal trail providers should build this type of route to the more stringent "accessible route" s ndards than the ORAR standards in the Outdoor Guidelines. he chapter references below refer to the Outdoor Guidelines.)

1. Grade (Chapter 1016

The linear grade (running slope) of any segment of an ORAR must not be steeper than 1:10. Where the linear grade of an ORAR segment is steeper than 5%, the maximum length of that segment must be within the parameters shown in the illustration below. In addition, resting intervals must be provided at each end of the ORAR segment that exceeds 5% in grade.

2. Cross Slope (Chapter 1016.7.

As with trails, the maximum cross slope for an ORAR surfaced with concrete, asphalt, or board is 2%. Where the surface is other than asphalt, concrete, or boards, cross slopes not steeper then 5% are permitted when necessary for drainage.

3. Surfaces (Chapter 101

The surface of ORAR, and their related passing and resting spaces, must be firm and stable. As discussed earlier in this guide, a stable surface r mains unchanged by applied force so that when the force is removed the surface returns to its original condition. A firm surface resists deformation by indentations.

4. Clear Tread idth (Chapter 1016.3)

The clear tread width for an ORAR is required to be a minimum of 36".

5. Resting Intervals (Chapter 1016.8

An ORAR resting interval must be a minimum of 60" l ng. here resting intervals are provided *within* the ORAR, they must be at least as wide as the widest segment of the ORAR leading to it. Where resting intervals are provided *adjacent to* an ORAR, the resting interval's clear tread width must be a minimum of 36." The linear grades and cross slopes for resting intervals are:

- Concrete, asphalt, or boar no steeper than 2% in any direction.
- Other surfac no steeper than 5% in any direction.

If the resting interval is adjacent to an ORAR, a turning pace must be provided as well. The turning space must then comply with the 2010 ADA Design Standard Chapter 304.3.2. Vertical alignments between ORAR, turning spaces, and resting intervals must be reasonably planar (i.e., on the same general plane).

6. Passing Spaces (Chapter 1016.4)

ORARs with a clear tread width less than 60" should provide passing spaces at intervals of 200 feet maximum. Given their purpose, ORAR can potentially be subject to heavy usage by pedestrians. While not required, the Outdoor Guidelines recommend that entities consider providing either a 60" minimum clear tread width for ORAR, or if that cannot be achieved, it is recommended that passing spaces be provided at shorter intervals. Passing spaces must be 60" x 60"minium on an ORAR or the intersection of two ORAR providing a T-shaped space where the base and the arms of the T haped space extend 48" minimum beyond the intersection. he vertical alignment at the T- hape intersection should be nominally planar.

7. Tread Obstacles (Chapter 1016

Tread obstacle height (measured vertically to the highest point) on an ORAR and its related resting and passing spaces cannot exceed ½ inch for concrete, asphalt, or boards.[154] It cannot exceed 1 inch for other surfaces. The vertical alignment of joints in concrete, asphalt, or board surfaces can be tread obstacles. Natural features such as tree roots, or constructed items such as traffic calming devices,

can be obstacles. here possible, obstacles on an ORAR should be separated by a distance of 48″ minimum.

8. Openings in Surfaces (Chapter 106.6 and ADA Design Standards §302.3)

Openings[155] in surfaces that run perpendicular/diagonal to the primary direction of travel cannot be greater than ½″ wide.

9. Protru ing Objects (Chapter 1016.9 and 2010 ADA Design Standard §307

Protruding objects on ORARs and associated resting intervals and passing spaces can be hazardous for persons who are blind or have low vision. Therefore, constructed elements must comply with the Outdoor Guidelines under the ABA., which establishes limits on protruding objects. The standards were created to give a person sufficient time to detect the element with a cane before there is body contact:

- Chapter 307.2 *Protrusion Limits*. Objects with leading edges more than 27 inches (685 mm) and not more than 80 inches (2030 mm) above the finish floor or ground shall protrude 4 inches (100 mm) maximum horizontally into the circulation path. EXCEPTION: Handrails shall be permitted to protrude 4 1/2 inches (115 mm) maximum.
- Chapter 307.3 *Post-Mounted Objects*. Free-standing objects mounted on posts or pylons shall overhang circulation paths 12 inches (305 mm) maximum when located 27 inches (685 mm) minimum and 80 inches (2030 mm) maximum above the finish floor or ground. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches (305 mm), the lowest edge of such sign or obstruction shall be 27 inches (685 mm) maximum or 80 inches (2030 mm) minimum above the finish floor or ground. EXCEPTION: The sloping portions of handrails serving stairs and ramps shall not be required to comply with 307.3.
- Chapter 307.4 *Vertical Clearance*. Vertical clearance shall be 80 inches (2030 mm) high minimum. Guardrails or other barriers shall be provided where the vertical clearance is less than 80 inches (2030 mm) high. The leading edge of such guardrail or barrier shall be located 27 inches (685 mm) maximum above the finish floor or ground.