

# Appendix A.

## Planning and Designing Trails for Access: Implementation Guide

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The U.S. Access Board defines a pedestrian *trail* as *a pedestrian route developed primarily for outdoor recreational purposes*.<sup>1</sup> It is recommended that an entity considering the design or alteration of a trail, begin with that designed use and designed use in mind. Just as importantly, note that a pedestrian route developed primarily to connect elements, spaces, or facilities within a site is not a trail. Remember, a trail's designed use is the intended use that *controls* the desired geometric design of the trail and determines the subsequent maintenance parameters for the trail. The designed use is the *single design driver* that determines the Design Parameters (technical specifications) for the trail.

The information, definitions and technical specifications that are critical to understanding and implementing the complete process below<sup>2</sup> are discussed in other chapters of this manual. It is

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<sup>1</sup> Excerpt from U.S. Access Board's *Recommendations for Accessibility Guidelines: Outdoor Developed Areas, Final Report* (page 11):

The accessibility guidelines for trails apply to those which are designed and constructed for pedestrian use. These guidelines are not applicable to trails primarily designed and constructed for recreational use by equestrians, mountain bicyclists, snowmobile users, or off-highway vehicle users, even if pedestrians may occasionally use the same trails. People use these categories of trails by means of transportation other than foot travel or personal mobility device. Design and constructed requirements for equestrians, mountain bikes, OHVs, and snowmobiles are based on the specific requirements for the intended mode of transportation. For the safety of trail users, pedestrian use may not always be permitted on these trails in order to minimize conflicts between motorized and non-motorized recreation. These trails do not preclude use by a person with a disability since it is planned that all trail users would be using the one or more alternative means of transportation for which the trail is designed and constructed. The design and construction of pedestrian trails without consideration of these proposed guidelines, by contrast, could present barriers to some trail users because the intended use is by foot or personal mobility device. For these reasons, the committee intentionally limited the application of the proposed guidelines to pedestrian use trails. It should be noted that the definition used in these proposed guidelines is not the only definition used by trail designers and managers. Rather, it was developed to specifically define the scope of these guidelines.

<sup>2</sup> This implementation guide has been adapted from the U.S. Forest Service's Accessibility Guidebook for Outdoor Recreation and Trails, FSTAG Implementation Process Flowchart, p. 115. August 2012, USDA Forest Service Technology and Development Center, Missoula, MT.

recommended that entities undertaking universal design trail projects have familiarity with the BMPs identified in this manual (regulations for federal lands and entities).

Land managers should also be familiar with the 2010 ADA Standards for Accessible Design (“2010 ADA Design Standards”) because recreational facilities and amenities are often associated with hiker-pedestrian trails. For Title II and Title III entities, these facilities are subject to the 2010 ADA Design Standards. In addition, land managers should be familiar with state, county and municipal standards and guidelines that may apply to their new trail planning, design, and construction.

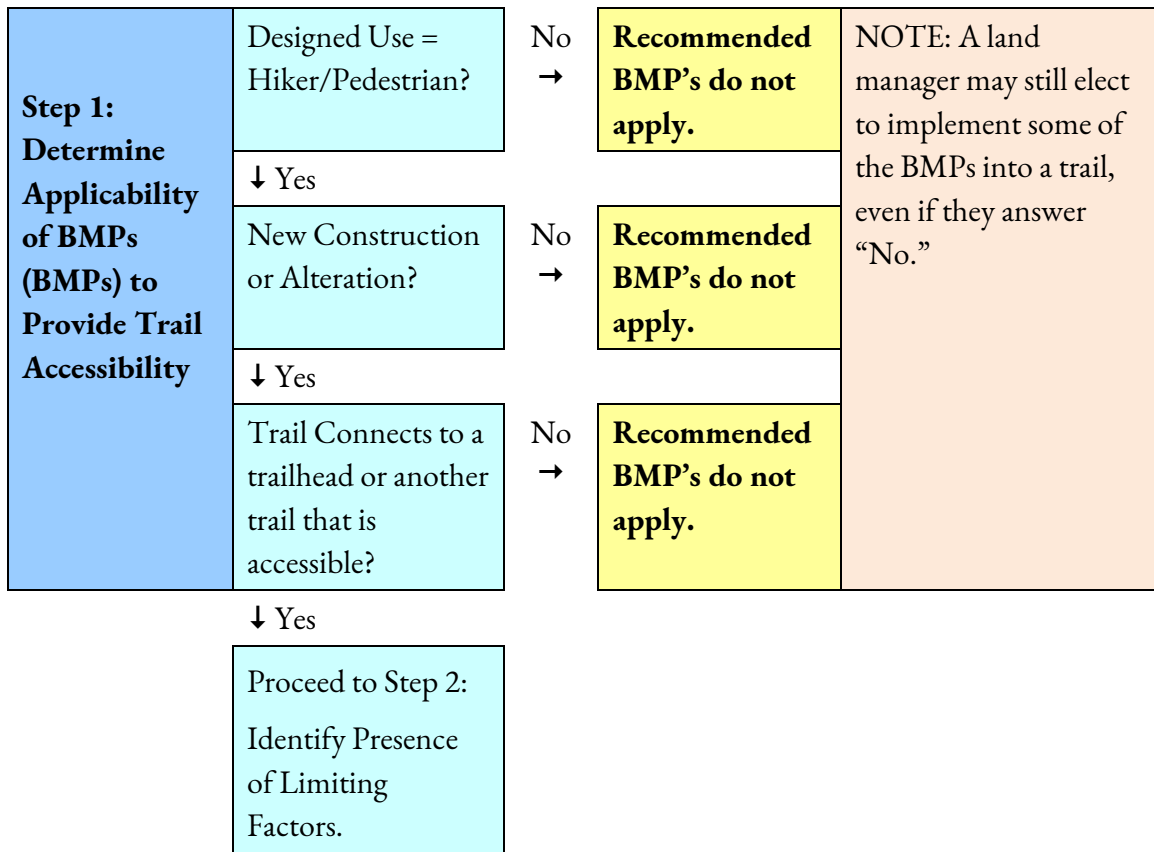
Per this manual’s recommended BMPs, a land manager may choose to ask themselves four questions regarding whether a new or altered trail could incorporate universal design parameters to provide accessibility:

1. Is the trail project for *new* construction, creating a new trail?
2. If not new trail construction, is the construction intended to alter an existing trail from its original use?
3. Is the designed use “hiker/pedestrian” use only?
4. Does the proposed trail connect to a trailhead, or to a trail that substantially complies with trail accessibility BMPs in this guide?

If you answer “yes” to these four questions, and elect to move forward, follow these recommended steps:

5. With the BMPs outlined within this guide in mind, lay out a proposed trail alignment on the ground and conduct an evaluation as you walk the established flag line. Base the review and analysis required in these steps on actual field conditions, rather than relying only on topographic maps.
6. Make sure to apply the conditional exceptions, if any apply, and determine what portions of the proposed trail cannot fully comply with the recommended technical provisions described in the BMPs.
7. Determine if those portions of the trail can still comply with other recommended technical provisions to the maximum extent feasible.
8. Evaluate the entire trail and determine whether it is impracticable for the entire trail to comply with the recommended technical provisions. This determination takes into account what portions of the trail can and cannot fully comply with those technical provisions, and the extent of compliance where full compliance cannot be achieved.
9. Document the basis for the determinations, from steps 5—7, and maintain the documentation with the records for the new trail construction or trail alteration project.

**Begin Key Steps and Sequence**



<b>Step 2: Identify Presence of Limiting Factors<sup>3</sup></b>  <b>General Exception 1</b>  <b>General Exception 2</b>	<b>Trail Grade</b> Does more than 30% of the trail's total length exceed 1:12 grade?	No →			<b>BMPs may still apply. Proceed to limiting factor for surface.</b>	
		Yes → Document length and percentage of trail that exceeds 1:12 and data source.	Does condition for departure(s) exist?	No →		<b>BMPs may still apply, between terminus and the condition for departure. Proceed to limiting factor for surface.</b>
		Yes →		Yes → Document condition for departure and linear distance.		
	<b>Trail Surface</b>  Is the trail tread surface Firm and Stable?	Yes →				<b>BMPs may still apply. Proceed to limiting factor for Minimum Trail Width.</b>
		No → Document surface and data source.	Does condition for departure(s) exist?	No →		<b>BMPs may still apply. Proceed to limiting factor for Minimum Trail Width.</b>
Yes → Document condition for departure and the linear distance.		Yes →		<b>BMPs may still apply, between terminus and the condition for departure. Proceed to limiting factor for Trail Width.</b>		

<sup>3</sup> Exceptions:

**General Exception 1.** Where an entity determines that a condition does not permit full compliance with a specific technical provision recommended in the BMP's, on a portion of a trail, that portion of the trail may still comply with the BMP's to the maximum extent feasible. The entity should document the basis for their determination and maintain the documentation with the records for the trail construction or trail alteration project.

**General Exception 2.** Where an entity determines that it is impracticable for an entire trail to comply with the recommended BMP's, the entity would then determine the trail design will be unable to meet the recommended BMP's. The entity should document the basis for their determination and maintain the documentation with the records for the trail construction or alteration project.

General Exception 1. Exception 1 can be applied to specific requirements in the BMP's on a portion of a trail where full compliance with the requirement cannot be achieved due to any of the Conditions for Exceptions (see below).

General Exception 2. First apply Exception 1 to determine the portions of a trail where full compliance with the specific requirements in the BMP's cannot be achieved. An entity should then evaluate the entire trail, taking into account the portions of the trail that can and cannot fully comply with the requirements in the BMP's and the extent of compliance where full compliance cannot be achieved to determine whether it would be impracticable for the entire trail to comply with the BMP's. The determination should be made on a case-by-case basis.

Note: The sequence for identifying limiting factors may vary and does not need to follow the order shown here.	<b>Minimum Trail Tread Width</b>		No →		BMPs may still apply. Proceed to limiting factor for Trail Obstacle.
	Yes →	Document minimum trail width and data source.	No →		
	Is the minimum trail tread width less than 36"?		Does condition for departure(s) exist?	Yes →	Document condition for departure and the linear distance.
<b>Trail Obstacle</b>		No →		BMPs may still apply. Proceed to Step 3: Apply Technical Provisions.	
Yes →	Document obstacle type, dimensions and data source.	No →			
Trail obstacle 2" (other than board, concrete or asphalt) or ½" (board, concrete or asphalt) higher across width of trail?		Does condition for departure(s) exist?	Yes →	Document condition for departure and the linear distance.	BMPs may still apply, between terminus and the condition for departure. Proceed to Step 3: Apply Technical Provisions.

<p><b>Step 3: Apply Technical Provisions</b></p> <p>Technical Provisions (Design Parameters)</p>	<p><b>Trail Grade</b></p> <p>Does trail grade comply with slopes in BMPs?</p>	Yes →				Comply with trail grade technical provision in BMPs			
		No →	Does condition for departure exist?	Yes →	Deviation permitted. Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.	
				No →	Deviation not permitted.	→	Comply with trail grade technical provision in BMPs		
		<p><b>Trail Cross Slope</b></p> <p>Trail cross slope complies with BMPs?</p>	Yes →				Comply with trail cross slope technical provision in BMPs		
			No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.
					No →	Deviation not permitted.	→	Comply with trail cross slope technical provision in BMPs	
	<p><b>Resting Interval</b></p> <p>Resting intervals comply with BMPs?</p>		Yes →				Comply with resting interval technical provision in BMPs		
			No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.
					No →	Deviation not permitted.	→	Comply with resting interval technical provision in BMPs	
		<p><b>Surface</b></p> <p>Surface complies with BMPs?</p>	Yes →				Comply with surface technical provision in BMPs		
			No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.
					No →	Deviation not permitted.	→	Comply with surface technical provision in BMPs	
	<p><b>Clear Tread Width</b></p> <p>Clear tread width complies with BMPs?</p>		Yes →				Comply with clear tread width technical provision in BMPs		
			No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.
					No →	Deviation not permitted.	→	Comply with clear tread width technical provision in BMPs	

<b>Passing Space</b>	Yes →				Comply with passing space technical provision BMPs		
	Passing spaces comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
				No →	Deviation not permitted.	→	Comply with passing space technical provision BMPs
<b>Tread Obstacles</b>	Yes →				Comply with tread obstacle technical provision BMPs		
	Tread obstacles comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
				No →	Deviation not permitted.	→	Comply with tread obstacle technical provision BMPs
<b>Protruding Objects</b>	Yes →				Comply with protruding objects technical provision BMPs		
	Protruding objects comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
				No →	Deviation not permitted.	→	Comply with protruding objects technical provision BMPs
<b>Openings</b>	Yes →				Comply with trail grade technical provision BMPs		
	Openings comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. <sup>2</sup> Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
				No →	Deviation not permitted.	→	Comply with openings technical provision BMPs

<b>Step 4: Calculate Cumulative Deviation Percentage</b>  <i>General Exception 1</i>  <i>General Exception 2</i>	No deviations occur. →			Apply the recommended BMPs' technical provisions to entire trail.
	Yes →	What is the total linear distance, and associated percentage of the trail, that deviations from the guidelines occur?	Total linear distance =  Associated percentage of the trail =	Apply the recommended BMPs' technical provisions to segment(s) of trail where deviation(s) do not occur, document and provide source of data, maintain file.
	Yes →		Determination that it would be impracticable for the entire trail to comply with the recommended BMPs.	Recommended BMPs do not apply, document and provide source of data, maintain file.
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# Appendix B.

## Outdoor Developed Areas

### Accessibility Guidelines, Ch. 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]

##### *1017.1 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. This 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. Where 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 C.

## 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. While similar terminology may be used to describe both trails and ORARs, they are very different types of routes.

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” standards than the ORAR standards in the Outdoor Guidelines. (The chapter references below refer to the Outdoor Guidelines.)

### 1. Grade (Chapter 1016.7)

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 1016.7.2)

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 than 5% are permitted when necessary for drainage.

**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

### 3. Surfaces (Chapter 1016.2)

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 remains 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 Width (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” long. Where 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 boards—no steeper than 2% in any direction.
- Other surfaces—no steeper than 5% in any direction.

If the resting interval is adjacent to an ORAR, a turning space must be provided as well. The turning space must then comply with the 2010 ADA Design Standards 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” minimum on an ORAR or the intersection of two ORAR providing a T-shaped space where the base and the arms of the T-shaped space extend 48” minimum beyond the intersection. The vertical alignment at the T-shape intersection should be nominally planar.

### 7. Tread Obstacles (Chapter 1016.5)

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.<sup>4</sup> It cannot exceed 1 inch for other surfaces. The vertical alignment of joints in concrete, asphalt, or board

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<sup>4</sup> The obstacle height specified in both sections 1017.5 and 1016.5 of the Outdoor Guidelines are based on the technical provisions for changes in level in Chapters 303.3 and 305.2 of the ADA-ABA Accessibility Standards.

surfaces can be tread obstacles. Natural features such as tree roots, or constructed items such as traffic calming devices, can be obstacles. Where 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<sup>5</sup> in surfaces that run perpendicular/diagonal to the primary direction of travel cannot be greater than ½” wide.

#### 9. Protruding Objects (Chapter 1016.9 and 2010 ADA Design Standards §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.

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<sup>5</sup> The Outdoor Guidelines contain a new exception to the 2010 ADA Design Standards specifically for openings in floor or ground surfaces. Permitted openings in an ORAR surface are based on section 302.3 of the 2010 ADA Design Standards plus certain changes made by the Outdoor Guidelines.