

## Recommendations for Accessibility Guidelines: Outdoor Developed Areas

### FINAL REPORT

#### Background

The Architectural and Transportation Barriers Compliance Board (Access Board) is responsible for developing accessibility guidelines under the Americans with Disabilities Act of 1990 (ADA) to ensure that new construction and alterations of facilities covered by titles II and III of the (ADA) are readily accessible to and usable by individuals with disabilities. The Access Board initially issued the Americans with Disabilities Act Accessibility Guidelines (ADAAG) in 1991 (36 CFR part 1191, Appendix A). ADAAG consists of general sections (ADAAG 1 to 4) that apply to all types of buildings and facilities, and special application sections (ADAAG 5 to 12) that contain additional requirements for certain types of buildings.

Under the ADA, the Department of Justice is responsible for issuing regulations to implement titles II and III of the Act. The regulations issued by the Department of Justice must include accessibility standards for newly constructed and altered facilities covered by titles II and III of the ADA. The standards must be consistent with the accessibility guidelines issued by the Access Board. The Department of Justice has adopted ADAAG as the Standard for Accessible Design for title III of the ADA. (28 CFR part 36, Appendix A).

Titles II and III of the ADA cover a wide variety of recreation facilities such as boating and fishing facilities, golf courses, parks, places of amusement, play areas, sports facilities, and trails. Newly constructed and altered recreation facilities and outdoor developed areas are required to comply with ADAAG, as adopted by the Department of Justice as the Standards for Accessible Design, where the provisions can be applied. For example, parking areas, entrances, and toilet rooms that are part of newly constructed and altered recreation facilities and outdoor developed areas must comply with ADAAG. Some recreation facilities have unique features for which additional provisions and special application sections need to be developed. The Access Board convened a Recreation Access Advisory Committee (RAAC) in July 1993 as the first step in developing the additional provisions and special application sections. The RAAC issued a report in July 1994 which addressed the various types of recreation facilities and identified the features of each facility type that are not adequately addressed by ADAAG. The RAAC made recommendations for developing accessibility guidelines for those features.

The Access Board published an Advance Notice of Proposed Rulemaking (ANPRM) in September 1994 requesting public comment on the RAAC's recommendations. The public comments expressed support for many of the RAAC's recommendations. However, the public comments also revealed a lack of consensus on some major issues regarding outdoor developed areas among interests that potentially would be affected by accessibility guidelines for those facilities. Consequently, the Access Board decided to develop proposed accessibility guidelines for outdoor developed areas through regulatory negotiation. Regulatory negotiation is a supplement to the traditional rulemaking process that allows for face-to-face negotiations among representatives of affected interests, including the agency, with a goal of arriving at a consensus decision on the text of a proposed rule. The proposed rule is then published in the Federal Register and the public has an opportunity to comment. Based on public comments received, the final rule may differ from the proposed rule.

The Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas was established in June 1997. A notice of intent to form a regulatory negotiation committee was published in the Federal Register on April 8, 1997. This notice proposed a committee membership and requested comments on the establishment of the committee and the proposed membership. One group, the Association of Blind Athletes, was added to the committee membership after several meetings. Committee members represented the diverse interests of those affected by this rulemaking including persons with disabilities, owners and operators of outdoor developed areas, Federal, State, and local land management agencies, designers, and trails groups. The final membership of the committee included:

American Society of Landscape Architects  
American Camping Association  
American Trails  
Appalachian Trail Conference  
Association for Blind Athletes  
Hawaii Commission on Persons with Disabilities  
KOA, Inc.  
National Association of State Park Directors  
National Association of State Trail Administrators  
National Center on Accessibility  
National Council on Independent Living  
National Recreation and Park Association  
National Spinal Cord Injury Association  
New York State Department of Environmental Conservation  
Paralyzed Veterans of America  
Partners for Access to the Woods  
Rails to Trails Conservancy  
State of Washington, Interagency Committee for Outdoor Recreation  
TASH  
U.S. Army Corps of Engineers  
U.S. Department of Agriculture, Forest Service  
U.S. Department of Interior, National Park Service  
U.S. Department of Transportation, Federal Highway Administration  
Whole Access  
U.S. Access Board

The committee met ten times between June 1997 and July 1999 as a full committee. In addition, several workgroups met to gather information or develop recommendations for the full committee. Committee members sought input from the public on issues related to accessibility in outdoor developed areas. The meetings were held in different locations across the country and were attended by over 250 members of the public. A formal public comment period was held at the end of each day of the full committee meetings. The committee participated in tours of several outdoor sites as a part of their meetings. The committee held several meetings in conjunction with conferences such as the International Trails and Greenways Conference, or at sites, such as the National Center on Accessibility at Bradford Woods in Martinsville, Indiana and the Easter Seal Camp in Empire, Colorado. All committee meetings were facilitated by the Federal Mediation and Conciliation Service. An interest based model of negotiation was used during the negotiations.

An interest based model relies on the individual members of the committee to negotiate for their respective constituent groups, with the outcome of the whole in mind. Committee members do not represent their individual opinion, but instead the opinions, or "interest", of the other members of their associations. This model requires a give-and-take by all parties in the negotiation.

The committee began its deliberations by examining available information related to providing access for people with disabilities in outdoor developed areas. The committee relied heavily upon the Recreation Access Advisory Committee (RAAC) Recommendations for Accessibility Guidelines for Recreational Facilities and Outdoor Developed Areas (July 1994). They also examined and discussed other approaches used by States and municipalities in developing accessibility guidelines for trails, picnic and camping facilities, and beaches.

The committee identified basic principles to guide its negotiations. The committee believed that accessibility guidelines should:

1. Protect resource and environment
2. Preserve experience

3. Provide for equality of opportunity
4. Maximize accessibility
5. Be reasonable
6. Address safety
7. Be clear, simple, and understandable
8. Provide guidance
9. Be enforceable and measurable
10. Be consistent with ADAAG (as much as possible)
11. Be based on independent use by persons with disabilities

The regulatory negotiation committee reached consensus on the accessibility guidelines for newly constructed and altered outdoor developed areas covered by the ADA. Where preserving the environment, the nature of the outdoor experience, and access interests conflicted, reaching consensus was difficult. The guidelines proposed by the committee include consideration of the latest information, design, and construction practices in existence. Committee members explored many approaches and compromised in many areas to reach agreement on minimum accessibility guidelines for outdoor developed areas.

## **OTHER ISSUES**

### Alterations and Maintenance

Alterations and maintenance of trails were discussed extensively by the committee. As a result of these discussions, further guidance in determining actions considered to be "maintenance" and those considered to be an "alteration" is provided. This guidance is provided to assist designers and operators in distinguishing between the two actions. Where actions are considered an "alteration", certain technical provisions will apply. There are no obligations for following any technical provisions where the actions are considered "maintenance or repair."

Routine or periodic maintenance or repair of existing trails or trail segments is exempt from the technical and scoping provisions for accessible trails. Maintenance and repair is performed to return the trail or trail segment back to the standards or conditions to which it was originally designed and built. In outdoor environments, the ability to maintain the facility is generally more limited, occurring relatively infrequently, except in highly developed areas. This type of work is not an alteration; it does not change the original purpose, intent, or design of the trail. The act of maintenance and repair includes, but is not limited to:

- Removal of debris and vegetation such as downed trees or broken branches in the trailway, clearing trail of encroaching brush or grasses, removing rock slides, etc.
- Maintenance of trail tread such as filling of ruts and entrenchments; reshaping trail bed; repairing trail surface and washouts; installing rip rap (rock placed to retain cut and fill slopes); constructing retaining walls or cribbing to support trail tread, etc.
- Erosion control and drainage, replacing or installing necessary drainage structures such as drainage dips, water bars, or culverts; realigning sections of trail to deter erosion or avoid boggy/marshy areas, etc.
- Repair of trail and/or trailhead structures. This includes replacing deteriorated, damaged, or vandalized parts of structures such as sections of bridges, boardwalks, information kiosks, fencing, and railings; painting; removing graffiti, etc.

Where practicable and feasible, resource managers are encouraged to maximize the opportunity to improve accessibility on trails through trail maintenance and repair activities. Every time a trail is maintained, the opportunity to improve access is present.

Question 1: The committee recognized that the distinction between alterations and maintenance activities is as critical to picnic areas, campgrounds, and beaches as it is to trails. Although the previous discussion specifically refers to trails, the examples could be extrapolated to include other outdoor elements. Time constraints did not allow committee members to apply this important issue beyond trails. The committee is

seeking input on how alteration and maintenance activities should be defined for picnic areas, campgrounds, and beaches, including outdoor recreation access and beach access routes.

Question 2: Section 36.211 of the ADA regulation requires the maintenance of accessible features. Unlike many buildings and interior spaces, accessible elements in the outdoor environment are subject to a variety of weather and climate conditions. Trails, for example, are often located in remote areas where there is little surveillance or supervision. Maintenance work is often performed on a seasonal basis and may be infrequent given declining budgets and workforce. In addition, outdoor elements and facilities are routinely subject to extremely heavy use and destructive vandalism. The committee is requesting information related to the effect of this requirement for accessible trails, picnic and camping facilities, and beaches.

Question 3: The committee is also interested in whether or not there should be different construction tolerances for the outdoor environment. For example, should the construction tolerances be greater with respect to trails, picnic areas, camping facilities, and beach access routes than interior accessible routes? If so, how should those tolerances be defined?

### **Relationship Between Use of All Terrain Vehicles (ATVs) and the Proposed Accessibility Guidelines for Trails**

During the deliberations of the committee, some individuals expressed concern that applying the proposed accessibility guidelines to trails in the "back country" or lesser developed portions of outdoor recreation areas would make it more difficult for public land managing agencies to appropriately manage the use of all terrain vehicles (ATVs) and off highway vehicles (OHVs) in these areas. One expressed fear is that requiring land managing agencies to consider making trails in the lesser developed areas accessible according to the proposed guidelines would make it more difficult to control and restrict where these types of devices may be used.

The proposed guidelines for trails address their design, construction, and alteration in the same manner that other ADAAG guidelines address fixed facilities. They are similarly based on the dimensions and use patterns of those assistive devices commonly referenced throughout ADAAG. While in the outdoor environment it may be possible to encompass a wider variety of mobility enhancing equipment, the necessity of protecting the environment and maintaining the appropriateness of the setting might exclude certain of these, particularly all terrain (ATVs) or off highway vehicle (OHVs). That decision is reserved for the administering agency or owner of the affected property and is beyond the scope of these guidelines.

### **Trails Used as Transportation Facilities (Shared Use Paths)**

Many trails are used as non-motorized transportation facilities. Users may include bicyclists and skaters as well as pedestrians. The accessibility guidelines for outdoor developed areas apply to these trails. However, bicyclists and skaters have design needs which exceed the minimum guidelines for trails. A trail designed only to meet the proposed accessibility guidelines for trails may not be adequate, and possibly hazardous for bicyclists or skaters.

The primary design guide for bicycle and shared use facilities is the "Guide for the Development of Bicycle Facilities" from the American Association of State Highway and Transportation Officials (AASHTO), 1999. The AASHTO Guide defines a "shared use path" as a facility on exclusive right-of-way and minimal cross flow by motor vehicles. Users generally include bicyclists, skaters, and pedestrians. (In areas with heavy snow, shared use paths may be used by cross-country skiers or snowmobilers.) A summary of how the AASHTO Guide relates to the proposed accessibility guidelines for trails is included in the appendix. In most cases, the AASHTO Guide requires a greater level of accessibility when designing trails for pedestrians, including bicyclists and skaters.

## **Section-by-Section Analysis**

This section of the preamble contains a summary of the proposed accessibility guidelines for trails, outdoor recreation access routes, beach access routes, and picnic and camping facilities. The text of the proposed rule follows this section.

### **16. Outdoor Developed Areas**

Section 16 includes scoping and technical provisions for outdoor developed areas. Outdoor developed areas covered by this section shall comply with the applicable requirements of section 4 and the special application sections, except as modified or otherwise provided in this section. For example, where general parking is provided, the provisions of 4.1.2 (5) and 4.6 apply. In addition, special technical provisions are provided in proposed 16.17 addressing recreational vehicle parking.

### **Application of Proposed Accessibility Guidelines**

Proposed section 16.1 requires all areas of newly designed or newly constructed and altered portions of existing trails connecting to designated trailheads or accessible trails to comply with this section. Proposed 16.1 also requires all newly constructed and altered camping facilities, picnic areas, and beach access routes to comply with section 16. It is recognized that compliance with this section will not always result in facilities that will be accessible to all persons with disabilities. These guidelines recognize that often the natural environment will prevent full compliance with certain technical provisions.

Committee members were concerned about the application of these proposed accessibility guidelines to new and altered trails connecting to portions of existing trails. They were concerned about the development of newly constructed trails connecting to an existing trails, where it was highly unlikely that the existing portion could ever be made accessible. They were specifically concerned about newly constructed and altered trails in the "middle of nowhere." To address this concern, section 16.1 clarifies that the technical provisions apply only to newly designed and constructed trails, and altered portions of an existing trail that "connects to an accessible trail" or "designated trailhead." Where new trails connect to an existing trail that is not accessible, the technical provisions do not apply. Additionally, the technical provisions do not apply where the new or altered portion is not connected to a designated trailhead.

Proposed section 16.1.1 defines the extent of application. Departures are permitted from certain technical provisions of this section, where specified, and where at least one of four conditions is present for trails, picnic and camping facilities, and beaches. Each technical provision must be examined individually to determine whether a departure from that provision is permitted. 16.1.1 does not provide an overall exemption of the entire trail or outdoor element. When a departure is permitted, the proposed guidelines specifically provide an exception to the respective technical provision. This is essential as the outdoor environment is very different than a constructed indoor environment. Factors which influence the ability to provide fully accessible facilities such as soil, surrounding vegetation, hydrology, terrain, and surface characteristics, are fundamental to the outdoor area. Where trails are concerned, the committee recognized that without the opportunity to depart from the technical provisions, compliance may significantly alter the nature of the outdoor experience.

When the condition for departure no longer exists, the technical provisions re-apply. For example, the clear width of a trail tread may be reduced because of a significant natural feature. Once the trail passes this feature, all other technical provisions for width shall apply. This approach also applies when designing certain outdoor elements also included in this section.

The conditions that permit departures from specific technical provisions are described below.

1. Where compliance would cause substantial harm to cultural, historic, religious, or significant natural features or characteristics;

For example, a significant natural feature may include a large rock, outcrop, tree, or a water feature which would block or interfere with trail construction or would be directly or indirectly altered or destroyed by construction of the trail to the extent that the trail could not, at that point, be made accessible. This includes areas protected under Federal or State laws, such as areas with threatened or endangered species or designated wetlands that could be threatened or destroyed by full compliance with the technical provisions. It also includes areas where compliance would directly or indirectly substantially harm natural habitat or vegetation.

Significant cultural features include areas such as archaeological sites, sacred lands, burial grounds and cemeteries, Indian tribal protected sites, etc. Significant historical features include properties on or eligible for the National Register of Historic Places or other places of recognized historic value. Significant religious features include Indian sacred sites and other properties designated or held sacred by an organized religious belief or church.

2. Where compliance would substantially alter the nature of the setting or the purpose of the facility, or portion of the facility;

Examples include a trail intended to provide a rugged experience such as a cross country training trail with a steep grade or a challenge course with abrupt and severe changes in level. If these types of trails were flattened out or otherwise constructed to comply with the technical provisions for accessible trails, they would not provide the intended and desired level of challenge and difficulty to users. Trails that traverse over boulders and rocky outcrops, are another example. The purpose of such a trail is to provide people with the opportunity to climb the rocks. To remove the obstacles along the way or reroute the trail around the rocks would destroy the purpose of the trail. The "nature of the setting" may also be compromised by actions such as widening for the construction of an imported surfaces on a trail in a remote location or removing ground vegetation in meadows or alpine areas.

Trails and other outdoor elements such as picnic and camping areas are designed to provide a particular opportunity for the user. Throughout the discussions regarding these outdoor elements and accessibility, many committee members were concerned that complying with the technical provisions could change the nature of some recreation opportunities. Further, compliance could negatively impact the unique characteristics of the natural setting, the reasons why people choose to recreate in the outdoor rather than the indoor environment. People using primitive trails or camping areas, for example, often experience the outdoor environment in a more natural state with limited or no development. Evidence of manufactured building materials or engineered construction techniques in such a setting can change its primitive character, and therefore, the user's experience. In these settings, people are generally looking for a higher degree of challenge and risk where they can use their outdoor/survival skills. Compliance with the technical provisions, particularly those related to surface and obstacles, could destroy the "natural" or undeveloped" nature of the setting. This condition addresses these concerns.

3. Where compliance would require construction methods or materials that are prohibited by Federal, State, or local regulations or statutes;

For example, Federally designated and some State designated Wilderness Areas prohibit use of mechanized equipment, limiting construction methods to hand tools. Imported materials may be prohibited in order to maintain the integrity of the natural ecosystem. Construction methods and materials employed in designated wetlands or coastal areas are strictly limited. For traditional, historic, or other reasons, many trails are built using only the native soil for surfacing, which may not be firm and stable. Federal statutes such as the Wilderness Act and the Endangered Species Act, and the State and local statutes often impose restrictions to protect or address environmental concerns. Many aquatic features are protected under Federal or State laws. Some constructed water crossings, which would be required to provide accessibility, may not be permitted under certain laws or regulations.

"Local regulations and statutes" have been included to address conditions where "conservation easements" or "development rights" programs have prohibited or restricted construction methods and practices. For example, where land is purchased from farms, certain use restrictions may prohibit the

importation of surfacing. On the other hand, local regulations or statutes may not be developed or initiated with the sole purpose of prohibiting use by people with disabilities. For example, initiating a new local regulation that arbitrarily restricts trail width to a dimension that would not allow passage of wheelchairs or other mobility devices from accessing a trail, is not permitted under this conditional departure.

#### 4. Where compliance would not be feasible due to terrain or the prevailing construction practices.

For example, complying with the technical provisions, particularly running slope (16.2.7), in areas of steep terrain may require extensive cuts or fills that would be difficult to construct and maintain, or cause drainage and erosion problems. Also, in order to construct a trail on some steep slopes, the trail may become significantly longer causing a much greater impact on the environment. Certain soils are highly susceptible to erosion. Other soils expand and contract along with water content. If compliance requires techniques that conflict with the natural drainage or existing soil, the trail would be difficult, if not impossible to maintain. This condition may also apply where construction methods for particularly difficult terrain or an obstacle would require the use of equipment other than that typically used throughout the length of the trail. One example is requiring the use of a bulldozer to remove a rock outcropping when hand tools are commonly used.

Several of these conditions for departures are consistent with other exceptions in ADAAG and the ADA. For example, it may be impracticable in new construction to follow ADAAG where soil and terrain pose obstacles which cannot be remedied. Compliance with the provision for a firm and stable surface might conflict with the prevailing construction practices by requiring the importation of a new surfacing material that would not otherwise have been used. For example, if the prevailing construction practices would not include the importation of a new surface material and the natural surface material could not be made firm and stable, the trail may not be able to comply with that specific provision.

The term "not feasible" is used in this situation to specify what is "reasonably do-able". It does not refer to the technical feasibility or possibility of full compliance with the technical provisions. For example, it may be feasible to provide a trail with a 1:20 slope or less up a 1,500 foot tall mountain using heavy construction equipment, but the trail would be at least 5.8 miles long (rather than 2 miles long under a traditional back-country layout), and may cause inappropriate environmental and visual impacts. The intent of this conditional departure is to recognize that the effort and resources required to comply would not be disproportionately high relative to the level of access created. Although technically feasible, the effort and resources required are not "reasonable."

Trail construction practices vary greatly, from the use of volunteer labor and hand tools, to professional construction with heavy, mechanized equipment. For alterations to an existing trail, the "prevailing construction practices" are defined as the methods typically used for construction or maintenance of the trail. For new trails, it is recognized that the land manager determines the construction practices to be used on each trail. However, the "choice" of construction practices are primarily determined by the available resources (e.g. machinery, skilled operators, finances) and the environmental conditions (e.g., soil type and depth, vegetation, natural slope). The intent of this conditional departure is to ensure that compliance with the technical provisions does not require the use of construction practices which are above and beyond the skills and resources of the trail building organization. It is not intended to automatically exempt organization from the technical provisions simply because of a particular construction practice, (e.g. the use of hand tools or to suggest that hand tools should be used to avoid compliance) when more expedient methods and resources are available.

## Trails

### Definitions.

**Trail.** A route that is designed, designated, or constructed for recreational pedestrian use or provided as an pedestrian alternative to vehicular routes within a transportation system.

A trail designed, designated, or constructed for pedestrian use may also have other uses, such as bicycling or in-line skating. It is recognized that pedestrians use all trails. However, these guidelines apply only to trails where travel on foot is one of the designated uses for which the trail was created. For example, a trail designated for mountain biking will not be considered a "pedestrian trail" whether or not pedestrians actually use the trail. However, a multi-use trail specifically designed and designated for hiking and bicycling would be considered a pedestrian trail. Trails include (but are not limited to) a trail through a forested park, a shared-use path, or a back country trail. Trails do not include pathways such as sidewalks, pathways in amusement parks, commercial theme parks, carnivals, or between buildings on college campuses. These exterior accessible routes are already covered by ADAAG 4.3.

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, ORVs, 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 manager. Rather, it was developed to specifically define the scope of these guidelines. Additionally, it is intended that trails and side trails leading to elements related to the trail, such as campsites and restrooms should meet the accessibility guidelines for trails not outdoor recreation access routes.

## **Accessible Trails**

The proposed accessibility guidelines apply to all newly constructed and altered trails connected to accessible trails or designated trailheads. Since departures from certain technical provisions are permitted, it is important to clarify what is considered an "accessible trail." "Accessible trails" include those newly constructed and altered trails that meet all of the provisions of section 16.2. This includes the exceptions provided within each provision. It does not, however, include those exceptions within some provisions that allow for the provision to not apply due to one of the conditions in 16.1.1. Furthermore, only those trails that meet the provisions are required to be signed, indicating that they are accessible.

**Designated Trailhead.** A designated point of access that may contain a parking area, information kiosks, restrooms, water hydrants, and may be reached by vehicular or pedestrian access.

A designated trailhead is a "point of access" to a trail intended for public use where information may be provided. It may include a parking area, water hydrant, restroom, information kiosk, or other outdoor recreation elements. The designated trailhead may include vehicle a parking area for the public to access the trail or may connect from a sidewalk, or from a street or road in an area where pedestrian access from a nearby neighborhood may be expected. It does not include a junction between trails where there is no other access or a location where a trail crosses a road and public access from the road is not expected or is discouraged. It also does not include an access point not open to the public.

**Tread Width.** The clear tread width of the trail is the width of the useable trail tread measured perpendicular to the direction of travel and on or parallel to the surface of the useable trail tread. The

minimum clear tread width is the narrowest measurement on the useable trail tread with respect to a specific trail segment. Clear tread width differs from clear width in that the latter is the amount of land potentially available for the trail.

## **Background on Approach to Trail Accessibility**

The committee considered many different approaches to developing accessibility guidelines for newly constructed and altered trails. Each approach balanced accessibility with the uniqueness of the outdoor environment. The following are examples of the approaches considered for trails throughout the committee's deliberations.

Requiring a percentage of the miles of trails provided to be accessible. Using this approach, it was agreed that some trails, such as paved urban and suburban transportation routes, should usually be accessible. But the committee could not agree on the types of trails, other than the type mentioned above, that should be accessible and to what percentage. The committee determined that this approach would be too arbitrary and too difficult to follow.

Requiring a percentage of the total number of trails to be accessible. The committee could not agree on a percentage. A significant issue was the difficulty in separating existing trails and new trails when determining the total number of trails.

Dividing trails into different categories (i.e. front country, back country) and requiring certain accessibility guidelines to be followed. The committee could not agree on the categories, nor could it agree that a trail in one category would always be different than a trail in another category. A fear in this regard was that only "easy" trails would be accessible, thereby eliminating the option for people with disabilities who can use more difficult trails, the opportunity to do so.

Requiring a certain level of access dependent on the location (i.e. highly developed, moderately developed, minimally developed) of the trail in terms of the type of setting. Definitions must be agreed to and understood by the trails community, people with disabilities, and land management agencies that are a part of the Federal government, States, and local entities. The committee could not find acceptable definitions for a "settings" approach.

Committee members evaluated each approach through extensive discussion and analysis. Within each proposal, the committee weighed the balance between accessibility and the uniqueness of the outdoor environment. Trails are often designed for a certain experience, or for the user or types of use within the setting. Primitive or back country trails for example, are usually found in remote locations or in a natural state with limited development. Throughout the discussions, committee members were concerned that providing access would change the experience or result in a significant environmental impact. Even providing accessible trails in a highly developed setting raised concerns that all trails would begin to look alike. Committee members did not want the proposed guidelines to impede the creativity of planners or designers.

As this discussion evolved, some concerns common to each approach arose regarding the potential impact on the natural environment. The committee attempted to clarify and define these concerns so that all involved (land managers, groups representing people with disabilities, and the trails community) could agree on these concerns. The result in 16.1.1 defines four specific conditions where trail construction projects can depart from the technical provisions. This departure is allowed for the duration of the existence of the condition, or unless that condition is such that it makes it impractical to make the remainder of the trail accessible.

When designed and constructed, an accessible trail is a trail that meets the technical provisions included within these proposed guidelines. It is also considered accessible where it one of the exceptions within the technical provisions are used to address a specific condition. This is limited to certain exceptions, and does not include those that allow for departure from the entire provision based on the conditions in 16.1.1

## Conditional Departures

Where specified, the presence of these conditions included in 16.1.1 may also prevent full compliance with some of the technical provisions for elements in picnic, camping, and beach facilities. While the conditions for departures may be more limited with these outdoor elements, the committee included the option for departure in several provisions. In most cases, these are limited to technical provisions for clear space, surface slope, and accessible surfacing.

Where designers or operators depart from a specific technical provision because of one or more of the conditions previously identified, the other technical provisions should be applied. For example, a significant cultural feature may prohibit a 36 inch trail tread width. However, all other provisions could be met because they would not be affected by the condition.

The committee realized that there may be situations where the combination of factors and conditions may make it impractical to make the entire portion of the trail to be constructed accessible according to the technical provisions. The two general exceptions of 16.2 were developed to address these situations.

While the proposed accessibility guidelines address the special circumstances where designers and operators may not be able to achieve accessibility, they are encouraged to always provide access to the greatest extent possible.

Proposed 16.2 includes two general exceptions. First, where one or more of the conditions in 16.1.1 applies and where one or more of the conditions in this general exception applies, 16.2 shall not apply after the first point of departure. The segment of the trail between the designated trailhead and the first point of departure is required to comply with 16.2 unless the trail segment is 500 feet or less in length. If the trail segment connects to a prominent feature less than 500 feet from the designated trailhead, it is required to comply with 16.2 between the trailhead and the prominent feature.

The general exceptions are based on these parameters:

- (a) The combination of running slope and cross slope exceeds 40 percent for over 20 feet; or,
- (b) A trail obstacle 30 inches or more in height across the full tread width of the trail; or,
- (c) The surface is neither firm nor stable for a distance of 45 feet or more; or,
- (d) A clear trail width is less than 12 inches for a distance of 20 feet or more.

Second, where one or more of the conditions in 16.1.1 are met resulting in departures from the technical provisions in 16.2 for over 15 percent of the length of the trail, 16.2 shall not apply after the first point of departure. The segment of the trail between the designated trailhead and the first point of departure is required to comply with 16.2 unless the trail segment is 500 feet or less in length. If the trail segment connects to a prominent feature less than 500 feet from the designated trailhead, it is required to comply with 16.2 between the trailhead and the prominent feature.

The 15 percent threshold is a compromise, negotiated to balance the resources and environmental impact with the practicality of providing meaningful access on trails. The committee recommends that trail designers and managers attempt compliance with all technical provisions throughout the full length of the trail.

Proposed 16.2 also requires elements provided on trails to comply with these provisions. For example, if a bench is provided along a trail complying with 16.2, the bench shall meet the applicable provisions of 16.12. Where elements are provided along trails, they are not required to be connected by an outdoor recreation access route.

Question 4: Where pedestrian trails are not accessible, the committee could not agree on whether elements such as; benches, picnic tables, toilet rooms, etc., located on the trail, should be required to be accessible. For example, an element such as a picnic table may be located on a trail too steep to be accessible. The committee considered how future and existing technology will allow assistive devices to get

over more difficult terrain. If required, they discussed options to minimize scoping (e.g. one of each element) requirements or limit the requirement to certain elements such as sanitary facilities. The committee is requesting comment and/or options on this issue and whether elements located on inaccessible trails should be required to be accessible.

## **Trail Technical Provisions**

Proposed 16.2.1 requires the surface of accessible trails to be firm and stable. The "slip resistance" requirement was dropped from the accessible surface requirements of ADAAG 4.5 because slip resistance cannot be guaranteed in the outdoor environment. Weather conditions (rain, snow, ice) will affect slip resistance. For example, natural or non-hardened surfaces may not be slip resistant. Slip resistance may also be difficult to control when leaves and other surface debris caused by natural erosion accumulate on the surface.

The means and materials used to establish accessible exterior surfaces are plentiful. Crushed stone, fines, packed soil, and other natural materials can provide a firm and stable surface. Natural materials bonded with synthetic materials can provide the required degree of stability and firmness. An appendix note has been added to provide designers and operators with additional information concerning accessible exterior surfaces. An exception permits departure from this provision where one or more of the conditions in 16.1.1 exists.

Proposed 16.2.2 requires the clear trail tread width to be 36 inches minimum. This is consistent with the clear width requirements for an accessible route in ADAAG 4.3.3. Exception 1 permits the clear trail tread width to be reduced to 32 inches minimum where one of the conditions in 16.1.1 applies. Exception 2 permits departures from 16.2.2 where a 32 inch minimum width can not be provided because one of the four conditions in 16.1.1 exists.

Proposed 16.2.3 requires openings in trail surfaces to be of a size that does not permit the passage of a « inch diameter sphere. Elongated openings shall be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel. Exception 1 permits elongated openings to be parallel to the dominant direction of travel where the opening does not permit passage of a 1/4 inch diameter sphere. This is necessary to allow trail managers to place boards lengthwise along a boardwalk trail to reduce the environmental impact such as on a wetland area. Exception 2 permits openings that do not permit passage of a 3/4 inch diameter sphere where at least one of the conditions in 16.1.1 apply. Exception 3 allows departure from the provisions of 16.2.5 where openings that do not permit passage of 3/4 diameter sphere are not feasible because at least one of the four conditions in 16.1.1 apply.

A 3/4 inch spacing is permitted through an exception since many trails use wood plank decking or boardwalks to cross wet, sandy, rocky, or environmentally sensitive areas. The planks expand and contract because of weather conditions. The boardwalks may need more than « inch spacing between the planks to permit expansion and to allow water to drain.

Proposed 16.2.4 requires protruding objects on trails to comply with ADAAG 4.4.1 and shall have 80 inches minimum clear head room. Where the vertical clearance of a trail is reduced to less than 80 inches because one of the four conditions specified in 16.1.1 applies, an exception provides that a barrier to warn blind and visually impaired persons shall be provided. This allows a trail to pass through narrow, winding corridors, under ledges or through caves to provide these experiences. This provision represents a compromise reached by committee members, and is essentially what is required by ADAAG 4.4.2. Some committee members saw the need for a departure from a minimum 80 inches overhead clearance, while others felt that permitting this could present barriers to people with visual impairments.

Question 5: The committee could not reach consensus on allowing a complete departure from this provision if the minimum overhead clearance could not be provided along a trail. After some debate, the committee agreed to propose the requirements of ADAAG 4.4.2. Providing such a warning along a trail in

the outdoor environment may have the effect of creating a barrier for all trail users. The committee is requesting comment and/or other options available on trails, specifically where there is a lack of sufficient space to move around an obstruction without significantly impacting the natural environment or setting.

Proposed 16.2.5 replaces ADAAG 4.5.2 (changes in level) and requires that any tread obstacles shall not to exceed 2 inch maximum in height. Exception 1 permits a 3 inch obstacle where the running and cross slopes are 1:20 or less. Exception 2 permits obstacles greater than 3 inches where at least one of the conditions in 16.1.1 apply. The committee recognized that natural features such as rocks, roots, and ruts may require a greater obstacle height than what is permitted in the indoor environment. Some wheelchairs used in an outdoor environment are designed to handle obstacles of these heights. However, trails used by bicyclist or in-line skaters or which serve as alternate transportation routes for sidewalks should be smooth with no abrupt changes in level.

Proposed 16.2.6 requires passing space where the clear tread width of the trail is less than 60 inches. Passing space is required at intervals of 1000 feet maximum. Either a T-shaped or a turning circle is permitted. An appendix note states that the passing space may be located to one side of the trail. An exception permits departure from this provision where passing space cannot be provided because at least one of the four conditions in 16.1.1 exists.

The committee negotiated various intervals for passing space, ranging from 200 feet (current ADAAG 4.3.4) to no requirement. Those favoring longer intervals or no requirement explained that the outdoor environment often allows users to move off the trail tread without involving trail construction (as opposed to being restricted by walls within a building). There was concern about having an unrealistic construction requirement in a natural setting, and concern that requiring a constructed passing space at more frequent intervals may be unnecessary where few users are on the trail at the same time. An appendix note is added recommending that trails expected to have higher use and trails with long sections where it is not possible to move off the trailhead (e.g. boardwalk in wetland) should consider more frequent passing spaces, especially close to the trailhead.

Proposed 16.2.7 addresses both the cross slope and the running slope of the trail. This provision was the result of significant compromise among committee members. Exception 1 addresses open drainage structures. For open drainage structures, a running slope of 14 percent is permitted for 5 feet maximum with a cross slope of 1:20 maximum. Cross slope is permitted to be 1:10 at the bottom of the open drain, where the clear tread width is 42 inches minimum. Exception 3 permits departure from 16.2.7 where one or more conditions of 16.1.1 exists.

Proposed 16.2.7.1 requires that the maximum cross slope of trail segments not exceed 1:20. Committee members recognized that cross slopes, or the side-to-side slope of a trail, can be difficult to traverse. At the same time, trails need to be designed to provide sufficient drainage to prevent ponding and water damage to the trail. Non-paved surfaces generally require more than a minimum of 1:50 cross slope.

Proposed 16.2.7.2 addresses the maximum running slope of trail segments. Proposed 16.2.7 permits no more than 30 percent of the total trail length to exceed a 1:12 slope. The committee debated various slope ratios for this provision. Committee members advocating steeper slopes were concerned that requiring unrealistic slopes in natural areas which could significantly alter the natural terrain. Members advocating less slopes were concerned that steeper slopes would not be accessible, and could be a potential safety hazard.

Proposed 16.2.7.2 requires that trails comply with one or more of four separate provisions. Designers may choose which provision to apply. Proposed 16.2.7.2.1 permits running slope at 1:20 or less for any distance. Proposed 16.2.7.2.2 permits a running slope of 1:12 maximum for 200 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 200 feet apart. Proposed 16.2.7.2.3 permits running slope to be 1:10 maximum for 30 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 30 feet apart. Proposed 16.2.7.2.4 permits

running slope to be 1:8 maximum for 10 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 10 feet apart.

Because the terrain in outdoor environments is often steep, the committee realized that applying current ADAAG slope and ramp requirements was not feasible. The proposed running slopes and maximum distances represent a compromise reached among committee members and balances accessibility with the constraints imposed by natural topography.

Question 6: Proposed 16.2.7 permits departure from the technical provisions for cross slope with open drainage structures. A cross slope up to 10 percent is permitted at the bottom of the open drain, where the clear tread width is 42 inches minimum. Are open drainage structures the only drainage structures where cross slopes up to 10 percent should be permitted? If not, what other areas should be identified.

This section also modifies existing ADAAG with respect to the use of handrails, since trail slopes are addressed in this section and not by ADAAG 4.8. Handrails are not required on trails. The committee believed that handrails were impractical in this environment. In addition, steeper grades on trails are usually contiguous with the surrounding terrain rather than elevated above it as with a ramp to a building. Instead, the committee has limited the length of steep portions of trail segments and required resting intervals. It was believed that this was more practical in the outdoor environment.

Proposed 16.2.8 requires resting intervals to be 60 inches in length to accommodate wheelchair users, and at least as wide as the widest portion of the trail segment leading to the resting interval. The slope of the resting interval shall not exceed 1:20 in any direction. An appendix note recommends that the resting interval may be located to one side of the trail to allow other users to pass. An exception permits departure from this technical provision where one of the conditions in 16.1.1 exists.

Proposed 16.2.9 does not require edge protection on accessible trails, however, where it is provided, the height shall be a minimum of 3 inches. Natural trail surfaces are likely to have variations in the trail surface, and a 2 inch edge protection may not be obvious or detectable in the outdoor environment. In the outdoor environment, many people with limited vision who use canes will search higher than in an indoor environment to distinguish between the edge and variations within the trail.

Proposed 16.2.10 requires signs on newly constructed and altered trails and trail segments that comply with all the technical provisions of 16.2 to be designated with a symbol at the trail head or designated access points. An example of a potential sign to be used at accessible trails is included in the appendix. 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.

Signs for trails were extensively debated by the committee. While certain trail information is critical for users, there was concern about requiring too many signs with too much information. There were also concerns that the requirement may be too onerous in terms of providing detailed information about trail characteristics. As a compromise, the committee agreed to include a requirement for a symbol to identify those trails that are accessible. Additionally, where the symbol is used to identify accessible trail segments, the total distance of the accessible trail segment to the location of the first point of departure from the technical provision must be provided.

An extensive appendix note has been provided on the issue of trail information. The appendix note includes recommendations for the types of information which should be provided and examples of different formats for providing the information to users. Where trails are provided and conditions have required departure from some of the technical provisions, it is recommended that more detailed signs be provided to help users make informed decisions about trail use.

Question 7: Some examples of proposed signs designating accessible trails are included in the appendix of this report. The committee did not reach a consensus on a particular sign and is requesting specific comment on these signs and/or other options. The proposed guidelines for trails require a sign on trails that meet the provisions and exceptions of 16.2.

## Outdoor Recreation Access Routes

### Definitions.

**Outdoor Recreation Access Route.** The outdoor recreation access route is a continuous unobstructed path designated for pedestrian use that connects accessible elements within a picnic area, camping area, or designated trailhead. Examples include the paths connecting parking spaces to a picnic or camp unit, or a picnic unit to a toilet building, or those connecting accessible picnic tables to other accessible camping elements. Outdoor recreation access routes do not include pathways such as sidewalks, pathways in amusement parks, visitor center, commercial theme parks, or carnivals and between buildings on college campuses already addressed by ADAAG 4.3.

Outdoor recreation access routes are required to connect elements required to be accessible in this section. For example, where a cooking grill and a picnic table are provided in an accessible campsite, the outdoor recreation route is required to connect these elements. Elements such as benches, picnic tables, etc. located along a trail, however, are not required to be connected by an outdoor recreation access route.

Proposed 16.3.1 requires the surface of the outdoor recreation access route to be firm and stable. This is consistent with the surface provision proposed for trails and other outdoor elements.

Proposed 16.3.2 requires the clear tread width of the outdoor recreation access route to be 36 inches minimum. An exception permits the width to be the minimum necessary or 32 inches for a distance of 24 inches where one or more of the conditions in 16.1.1 exists.

Proposed 16.3.3 addresses openings and does not permit passage of a ¼ inch diameter sphere. Elongated openings shall be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel. An exception permits the openings to run parallel so long as the opening does not permit passage of 1/4 inch diameter sphere.

Proposed 16.3.4 requires protruding objects on outdoor recreation access routes to comply with ADAAG 4.4.

Proposed 16.3.5 requires that tread obstacles not exceed 1 inch high maximum. Exception 1 permits a 2 inch high obstacle where it is beveled and where at least one of the conditions in 16.1.1 applies. Tread obstacles may occur where surface material changes, such as asphalt surfaces leading up to a concrete slab.

Proposed 16.3.6 requires passing space where the clear width of the outdoor recreation access route is less than 60 inches. Passing space are required at intervals of 200 feet maximum. This is consistent with ADAAG. Committee members determined that outdoor recreation access routes were more like an indoor accessible route than a trail. The passing space shall be either a 60 inch by 60 inch space or an intersection of two walking surfaces which provide a T-shaped spaces complying with ADAAG 4.2.3, provided that the arms and stem of the T-shaped space extend at least 48 inches beyond the intersection. An exception permits the passing spaces to be at intervals not to exceed 300 feet. This was added to address settings where it may not be possible to provide passing space within a 200 feet minimum interval, such as environmentally sensitive areas.

Proposed 16.3.7 addresses both the cross slope and the running slope of the outdoor recreation access route. Proposed 16.3.7 permits a 1:33 maximum cross slope for outdoor recreation access routes. An exception permits a 1:20 cross slope where necessary to ensure proper drainage. Natural or naturally appearing surfaces often require greater than 1:50 cross slopes to ensure proper drainage. Committee members agreed that water ponding on an outdoor recreation access routes may make the route inaccessible, therefore a greater cross slope than permitted by ADAAG is proposed.

Proposed 16.3.7.2 addresses running slope. Designers have a choice of applying one or more of the technical provisions in this section. Proposed 16.3.7.2.1 permits running slope to be 1:20 or less for any

distance. Proposed 16.3.7.2.2 permits running slope to be 1:12 maximum for 50 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 50 feet apart. Proposed 16.3.7.2.3 permits running slope shall be 1:10 maximum for 30 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 30 feet apart.

Question 8: The committee was unable to decide whether there should be an option to depart from the technical provisions for outdoor recreation access routes. Currently, departures from the technical provisions are permitted for specific elements, (e.g., picnic tables, camp sites) but not for the outdoor recreation access routes that connect those elements. Specific comment is requested on whether the departures permitted for specific elements should also be permitted on the outdoor recreation access routes leading to those elements.

Question 9: The committee also discussed potential departures from the provisions for slope on an outdoor recreation access route, unrelated to whether or not the elements themselves complied with the technical provisions. The committee considered two options. One option provided a maximum for the total length of the outdoor recreation access route that could exceed a 1:12 slope. The committee considered that either 10 percent or 15 percent of the total length of the outdoor recreation access route could exceed a 1:12 slope. The second option was to apply the use of the departures in 16.1.1 to the technical provisions for the slope of an outdoor recreation access route. Specific comment is requested on this issue.

Proposed 16.3.8 requires resting intervals to be 60 inches minimum in length and have a width of at least as wide as the route connecting it. The slope shall not exceed 1:33 in any direction. Where the surface conditions require slopes greater than 1:33 for proper drainage, a 1:20 slope is permitted.

Proposed 16.3.9 requires edge protection, where provided, to be 3 inches minimum in height. This is consistent with the proposed provision for trails.

## **Beach Access Routes**

Definition.

**Beach Access Route.** The term "beach access route " has been defined as a continuous unobstructed path designated for pedestrian use that crosses the surface of the beach. Beaches can be found in three general aquatic environments; coastal areas, along rivers, and along lakes and ponds. Although the term "beach" is not defined, the committee broadly considered this to include designated areas along a shore of a body of water providing pedestrian entry for the purposes of water play, swimming, or other water shoreline activities. A beach access route is a designated path and different from an area where entry into the water is possible, but not provided.

A beach access route is a pathway over the surface of the beach itself, not the route leading to the edge of the beach surface. When a beach is fronted by a park or other outdoor developed area, the route over the surface to the edge and beginning of the beach surface may be considered an outdoor recreation access route addressed by 16.3.

The proposed accessibility guidelines for beaches include two scoping provisions. Proposed 16.4.1.1 addresses new beaches and proposed 16.4.1.2 addresses existing beaches. Proposed 16.4.1.1 addresses a new beaches. A "new beach" refers to sites where a man-made beach is created through the importation of sand or other beach surface to create a new beach where none previously existed. The proposed guidelines treat "new beaches" differently from "existing beaches". A beach access route is required in new construction. The committee agreed that the opportunity to provide access is greater with a newly constructed beach. The committee also considered the option of a scoping requirement based upon the volume of new beach created, but due to the difficulty in measuring a changing volume of sand, did not include that option.

Proposed 16.4.1.1 requires that where a new beach is constructed, a minimum of one beach access route complying with 16.4.2 through 16.4.10, shall be provided for every « mile of linear feet of new beach.

The committee believed that the number of beach access routes required by 16.4, however, should be linked to the size of the new beach and based upon linear feet of new beach created. The committee considered that « mile was a reasonable distance between beach access routes on a new beach.

Question 10: Public comment is specifically requested on the impact of constructing a beach access route for every « mile along a new beach. If this distance is not appropriate, other specific distances are requested.

The proposed rule requires that a beach access route extend to the high tide level, mean riverbed level, or the normal recreation pool level. The committee believed that different lines of "demarcation" would vary depending upon the location of the beach. The committee selected the high tide level for coastal beach, the mean riverbed level for river beaches, and the normal recreation water level for lakes and reservoirs. Beach access to the water will vary considerably between geographic locations under this definition because the tidal difference between high and low tides varies from place to place. For example, a beach in Alaska may experience tidal differences of tens or even hundreds of feet; beaches in Florida will have much smaller differences between low and high tides. The high tide mark is a reasonable location to terminate permanent structures as built facilities, below this point it is much more likely to wash out. The mean river bed level and the normal recreation water level are comparable for rivers and lakes, respectively.

Question 11: The committee is interested in the appropriateness of those markers and the ability to determine those level at most beaches.

Question 12: The committee outlined several exceptions to the application of these technical provisions. The committee requests information about whether there are any other situations for which site infeasibility would preclude compliance with the minimum requirements for a beach access route. If so, are there specific technical provisions (16.4.2 through 16.4.10) where departures may be necessary due to site constraints?

Proposed 16.4.1.2 addresses new construction of a beach access route for an existing beach. Where a pedestrian route is provided from a developed site to the edge of an existing beach surface, a beach access route complying with 16.4.2 through 16.4.10 shall be provided and extend to the high tide level, mean river bed level, or to the normal recreation water level. This provision addresses a situation when an entity decides to construct a pedestrian route which is used by everyone to access the beach. In that situation, the action will trigger an obligation to address access for persons with disabilities. The committee did not limit the obligation to only when an entity constructs a path perpendicular to a beach edge because few such paths are developed. The committee also intended to include pedestrian sidewalks or boardwalks along the beach as "pedestrian routes to the edge of an "existing beach."

Question 13: The committee considered beach sites where constructed parking spaces or a parking lot is provided adjoining the beach. Should the provision of constructed parking spaces adjoining the beach, trigger a beach access route? If so, should the trigger be based on the number of parking spaces or some other measure?

The committee discussed several options and decided that the obligation to provide a beach access route over the surface of the beach would be triggered when a pedestrian access route to the edge of the beach surface is provided. The committee recognized that this would obligate an entity to extend a path further than they might have originally intended with their developed pedestrian path. However, the committee felt strongly that a developed path which ends at the edge of the beach surface would be of little use to a person with a disability who wishes to traverse the beach itself. They also believed that this requirement was reasonable since the provision allows the beach access route to be either temporary or permanent. Designers and operators can decide the type of route appropriate given the different environments. The committee determined that the beach route would be required to the same point appropriate for either an ocean, river, lake, or reservoir, (see same discussion as 16.4.1.1 for high tide level, mean river bed level, or the normal recreation water level.)

Several exceptions are permitted for routes on existing beaches. Proposed exception 1 permits the use of a "temporary" beach access route where one is required. The committee believed that requiring a permanent structure was far too restrictive from a design or environmental perspective. In particular, constraints of the environment may limit or preclude the construction of permanent structures. Permanent structures may also require additional permits in coastal and shoreline areas. Wave action can also cause significant erosion which can shortly turn a permanent structure into a hazard. Therefore, entities can choose to use a temporary structure for administrative and operational reasons. Vehicular access or access provided by an assistive device would not meet the technical provisions of a beach access route. While these options may enhance access to the beach for persons with disabilities, these are not considered "temporary structures." The committee intended that temporary structures be in place during all hours where the public has access to the beach.

Proposed exception 2 exempts routes created solely for shoreline maintenance from complying with 16.4.1.2. The committee recommended exempting those routes which are strictly established for shoreline maintenance personnel, particularly if accessed by a vehicle.

Proposed exception 3 exempts routes created solely as undeveloped public easements from complying with proposed 16.4.1.2. The committee recommended an exemption if a "route" is merely an open public easement and right of way, an undeveloped space or opening created between developments where a developer leaves space open under the requirements of state or local laws for shoreline access.

Proposed exception 4 exempts a beach access route from being required where another beach access route exists within ¼ mile and is within the beach of the same jurisdiction. The committee recommended that if a beach access route already exists to the beach in close proximity, there would be no requirement to create another beach access route. The committee considered one half mile, to be a reasonable distance, so long as the existing beach route is served by the same beach. This is similar to the philosophy that all entrances into the same building do not have to be accessible. The ¼ mile is also consistent with the requirement for scoping for a second route with construction of a new beach.

Proposed exception 5 distinguishes beach replenishment from alterations. Nourishment is the process of replenishing a beach. While it can occur naturally with the depositing of sand from wave action, it is more commonly accomplished artificially by mechanically depositing sand on the beach. A beach may completely erode before it is artificially nourished, or it may be nourished on a periodic schedule to maintain the desired amount of beach for use or to act as a barrier for adjoining buildings and facilities. Proposed exception 6 permits the process of beach nourishment without triggering alteration provision. The committee did not believe that such activities should trigger any obligations for a beach access route over the surface of the beach.

Question 14: The committee asks whether there is a need to distinguish between certain beach nourishment projects. In particular, the committee is concerned about those projects where there is a substantial increase in the volume of the beach area. Should certain beach nourishment activities/projects trigger the requirements of a beach access route? If so, how should these projects be identified or defined?

Proposed exception 6 provides an exception where the pedestrian route which is developed along the edge of an existing beach is elevated higher than 6 inches above the beach surface. This exception is intended to address those situations where a lengthy pedestrian route such as a sidewalk fronts the length of the beach and the route is elevated higher than 6 inches. The committee recognized that those areas would be drop-offs where the creation of a beach access route would require 6 feet of ramp to be constructed to meet the beach surface.

Proposed 16.4.2 requires the surface of the required beach access route to be firm and stable. This deviates from current ADAAG in that it does not require slip resistance. Given the existence of loose material natural to a beach environment such as sand, algae, and barnacles, the committee decided that slip resistance is not an appropriate requirement for a beach access route. This is consistent with the provisions for other outdoor elements. Where a temporary route is provided, it must also meet this provision.

Proposed 16.4.3 requires the clear tread width of the beach access route to be 36 inches minimum. This requirement is consistent with ADAAG and the proposed technical requirement for the clear tread width of other outdoor accessible routes. Unlike other requirements for the clear width of trails and outdoor recreation access routes, no reduction in the width is permitted. Since the beach access route will most likely be adjacent to sand, maintaining the 36 inch width is critical to avoid being caught off the path on a nontraversable sandy surface. The need for additional space for passing and resting has been included in other provisions.

Proposed 16.4.4 requires openings in the surfaces of the beach access route shall be of a size that does not permit passage of a 6 inch diameter sphere. Elongated openings shall be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel. This is consistent with ADAAG and the proposed technical provisions for other outdoor recreation access routes. An exception permits the elongated openings to run parallel to the dominant direction of travel, where the opening does not permit passage of a 1/4 inch sphere.

Proposed 16.4.5 requires protruding objects shall comply with ADAAG 4.4. This is consistent with ADAAG and the proposed technical specification for protruding objects on outdoor recreation access routes.

Proposed 16.4.6 requires passing space where the clear width of the beach access route is less than 60 inches, passing space shall be provided at intervals of 200 feet. Passing space shall be either a 60 inch by 60 inch minimum or an intersection of two walking surfaces which provide a T-shaped space complying with ADAAG 2.3, provided that the arms and stem of the T-shaped space extend at least 48 inches beyond the intersection. This is consistent with ADAAG 4.2.3 and the proposed technical provision for passing space on an outdoor access route.

Proposed 16.4.7 requires a maneuvering space/resting space at the end of the beach access route or at the high tide level, mean river bed level, normal recreation water level. Maneuvering space shall not overlap the beach access route and shall be either a 60 in minimum by 60 in 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 beyond the intersection.

A resting or maneuvering space allows a person with a disability to be out of the route of travel, to leave his/her chair while transferring into a beach terrain vehicle, or simply to wait in a place outside the flow of traffic. The location of this resting or maneuvering space should be in an area which is dry. If the route extends further than the minimum distance required, the resting or maneuvering space may be placed at the end of the beach access route, although the location may not always remain dry.

Proposed 16.4.8 address both cross slope and running slope of beach access routes. Proposed 16.4.8.1 requires the maximum cross slope of a beach access route to not exceed 1:33. An exception permits cross slopes of 1:20 maximum for drainage. This deviates from ADAAG, but is consistent with the proposed technical requirements for cross slope of an outdoor recreation route. The deviation is necessary for drainage in the outdoor environment with outdoor surfaces.

Proposed 16.4.8.2 addresses running slope. Designers have a choice of applying one or more of the technical provisions in this section. Proposed 16.4.8.2.1 permits running slope to be 1:20 or less for any distance. Proposed 16.4.8.2.2 permits running slope to be 1:12 maximum for 50 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 50 feet apart. Proposed 16.4.8.2.3 permits running slope shall be 1:10 maximum for 30 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 30 feet apart. The rationale for requiring a resting interval is the same as for trails or outdoor recreation access routes. The running slope provisions are the same as those for an outdoor recreation access route.

ADAAG 4.8 does not apply to this section and thus there are not provisions for handrails. The committee believed that providing handrails in this environment was not realistic, nor desirable. Therefore, the committee decided to depart from ADAAG by permitting greater slopes for a limited distance without

triggering the requirement for handrails. The committee felt that the handrails would be a hazard for perpendicular traffic and a barrier for beach vehicles such as emergency ambulances, etc. Furthermore, the handrails would limit a person's ability to get off the beach route until end of the route, which in many cases would be more restrictive.

Proposed 16.4.9 limits the obstacles in the beach access route to be 1 inch high maximum. This departs from ADAAG but is consistent with the proposed technical requirements for tread obstacles for an outdoor access route. This departure is necessary due to the uniqueness of the outdoor environment.

Proposed 16.4.10 requires edge protection where drop-offs from the beach access route to the beach are 6 inches or higher. The edge protection shall include curbs, walls, or projecting surfaces that prevent people from falling off the route. Edge protection must be a minimum of 2 inches high. If the drop-off is greater than 1 inch, but less than 6 inches, then the edge must be beveled.

While a raised edge may be considered a tripping hazard in some instances, the committee recognized that in some locations, an elevated route such as that created by a boardwalk might necessitate a raised edge for safety. Where these locations occur, the elevation of the route is already an impediment to the perpendicular traffic and the addition of edge protection would not create any more of a tripping hazard than that already created by the elevated route itself. Therefore, the committee recommended that those elevated routes, defined as 6 inches or above, the beach surface, have a requirement for edge protection equivalent to the edge protection requirement in current ADAAG for ramps. If the height of the route is greater than 1 inch but less than 6 inches, the committee felt that edge protection was not required, although the edge should be beveled. If the height of the route is 1 inch or less, then there is no requirement for beveling, as an inch or less elevation is virtually a flat route and is a reasonable to expect in a beach environment given the shifting of sand.

Question 15: The committee did not require a beach access route to extend beyond the high tide level, mean river bed level, or normal recreation water level. If an entity decides to provide the route into the water, the committee asks whether technical specifications should be required, if so, the committee seeks input as to whether the technical provisions for sloped entry into pools should be applied in these cases.

### **Fixed Picnic Tables**

Proposed section 16.5.1.1 requires that where one fixed picnic table is provided in a picnic area, it shall be accessible and comply with 16.5. The table shall also be located along an outdoor recreation access route complying with 16.3. This section is included in order to ensure that a picnic area with only one table is accessible to and usable by people with disabilities. If only one table is provided, and it is not accessible, people with disabilities would not have the option of choosing another table.

Proposed section 16.5.1.2 requires that where two or more fixed picnic tables are provided in a picnic area, at least 50 percent, but no less than two, shall comply with 16.5. Of the picnic tables required to be accessible, 40 percent, but never less than two, shall be located along an outdoor recreation access route. For example, if ten tables are provided in a picnic area, this provision would require five tables to be accessible. In addition, of the five required to be accessible, 40 percent, or two, would need to be located along an outdoor recreation access route.

This provision applies only to picnic tables that are "fixed" to the ground, (i.e. permanently attached such as by a chain from the table to a concrete footing below ground). Some committee members initially proposed 100 percent scoping, requiring all tables to be accessible. Other members considered 100 percent too high and more than what is currently required in ADAAG for the built environment. After much debate, committee members agreed that 50 percent scoping would adequately accommodate the demand for accessible tables. Committee members considered this to be realistic and feasible for most outdoor recreation providers, and would result in a higher number of accessible tables in smaller picnic areas.

In the outdoor recreation environment, the natural terrain often presents a real obstacle. Although this would not affect the accessibility of the table itself, it could impact getting to the table. The committee realized that in many picnic areas, it might not be possible to locate all accessible tables along an outdoor recreation access route. Rather than decreasing the number of accessible tables, the decision was made to reduce the scoping for accessible route connections. While some committee members wanted all accessible tables to be located along an access route, other committee members felt that would be unrealistic in the outdoor environment given constraints of the natural terrain. The committee finally reached consensus on requiring 40 percent of the accessible tables to be located along the outdoor recreation access route.

The proposed scoping provision addresses picnic tables located in an "area." An "area" refers to a designated location where picnic related elements are located. For instance, a picnic "area" is a designated location where picnic related elements are located. Areas may be separated and include different settings on the same site. For example, a picnic area located next to a lake in a park is considered a separate picnic area from a pavilion with numerous picnic tables within the same park. Picnic "areas" may also be separated and designated by a name or connected to a separate entrance road.

Proposed 16.5.2 requires accessible tables to be dispersed among the various types of picnic settings or opportunities provided. For example, a particular picnic area may offer picnic sites near the lake, in the woods, and in the open, sunny portion of the area. This provision requires that the number of accessible tables be distributed throughout the area, so that people with disabilities would have a choice of picnic locations similar to what other visitors to the area have. This section would not increase the total number of accessible tables required in 16.5.1.2.

Proposed 16.5.3 addresses wheelchair seating spaces and requires at least one wheelchair seating space at an accessible picnic table. Where the table top perimeter exceeds 24 linear feet, the number of accessible seating spaces shall comply with the table 16.5.3. More accessible seating spaces would be required where the perimeter of the table top (not including the bench) exceeded 24 linear feet. The location of the accessible seating space(s) would be left to the discretion of the designer, although the appendix notes recommend that the accessible spaces be dispersed rather than clustered in one location.

Committee members discussed this issue at length, finally basing the number of accessible seating spaces on an average table dimensioned at ten-foot long by 2-1/2 foot wide. Such a table has a perimeter of 25 linear feet and is designed to accommodate up to ten people. The committee decided tables of that size should provide two accessible seating spaces, while smaller tables should only require one accessible space. Tables with a perimeter of 45 to 64 linear feet, i.e. if at least two but less than three ten-foot long tables were joined together, would require three accessible seating spaces. Tables with 65 to 84 linear feet would require four accessible spaces, and so on.

Proposed 16.5.4 addresses the technical provisions for the wheelchair seating space. Each accessible seating space will provide knee space of at least 30 inches wide, 19 inches deep, and 27 inches from ground/floor to the bottom of the table top. This provision departs from ADAAG in that it also requires a toe clearance of 9 inches above the ground/floor extending for a total depth of 24 inches. This is an additional 5 inches minimum beyond the 19-inch knee space depth in current ADAAG. This ensures that adequate toe clearance is provided at tables that have a solid leg at each end (rather than an A-shape frame or individual legs). A 19-inch deep space at the end of a solid leg table would not allow a person using a wheelchair to be sufficiently close to the table.

Proposed 16.5.5 addresses table clearance. This provision departs from current ADAAG by requiring a 36-inch minimum clear space surrounding the usable portions of a table, measured from the outside edge of the seat, or the outside edge of the table if no seat is provided.

Tables placed in buildings are generally expected to have ample space for moving around. This is not always the case where picnic tables are located in the outdoor environment. For that reason, the committee

recommends a minimum clear space that would provide maneuvering room beyond the accessible seating space to all usable portions of the table to allow for movement around the table.

Proposed 16.5.6 addresses surfaces. This provision requires the surface of the clear space and accessible seating space to be firm and stable. Slip resistance is not required because of the tree leaves and needles, duff (partly decayed organic material on the forest floor), mud, snow, ice, etc. that often cover outdoor areas. Exception 1 permits departure from this requirement where at least one of the conditions of 16.1.1 applies.

Proposed 16.5.7 requires slopes of the required clear spaces not to exceed 1:50 in any direction, which is consistent with current ADAAG. Exceptions are provided to address the unique aspects of the outdoor environment. Natural and natural-appearing surfaces are often used in picnic areas. A 1:50 slope on these surfaces may not be adequate to ensure proper drainage. In these cases, exception 1 allows the slope in any direction to be 1:33 maximum. Exception 2 states that this provision does not have to be met where at least one of the conditions in proposed section 16.1.1 applies.

## **Fire Rings**

Proposed 16.6.1.1 requires that where only one fire ring is provided in a picnic area, it shall comply with 16.6.3 through 16.6.7 and be connected to an outdoor recreation access route complying with 16.3.

Proposed section 16.6.1.2 requires that where two or more fire rings are provided in a picnic area, at least 50 percent, but not less than 2, shall comply with section 16.6. In addition, of the 50 percent required to be accessible, 40 percent shall be located along an outdoor recreation access route. This proposed provision is consistent with other outdoor elements proposed in this section.

Proposed 16.6.2 requires that the accessible fire rings be located throughout the picnic area and dispersed among the types of fire rings, if different styles or designs are provided. For example, a picnic area may provide fire rings without cooking surfaces (i.e. for camp fires only) and some with cooking surfaces. In addition, this picnic area may offer picnic sites nestled in the trees, some near the water, and others in open meadows. This section would require that accessible fire rings be available in both types and distributed among the different picnic sites, affording people with disabilities the same choice of fire ring location that is available to other visitors. This provision does not require an increase in the total number of accessible picnic tables.

Proposed 16.6.3 requires a clear space extending a minimum of 48 inches deep by 48 inches wide be provided at all usable portions of the fire ring. This clear space exceeds what is generally required in current ADAAG to allow both a forward and parallel approach and provide more space to move away from the heat. Exception 1 permits the clear space to be reduced to no less than 36 inches deep by 36 inches wide when one of the conditions of 16.1.1 exists. A clear space of less than 36 inches by 36 inches at accessible fire rings could pose a safety hazard to users. As a result, no exception is provided to further reduce the clear space requirement to less than 36 inches by 36 inches.

Proposed 16.6.4 requires the fire surface height to be 9 inches minimum above the ground/floor and is consistent with the current ADAAG specifications for the dimensions for low side reach.

Proposed 16.6.5 addresses raised edges around fire rings. In this situation, the edge/curb is viewed as the obstruction. Where a raised edge or curb is provided around a fire ring, this proposed section would require that the combined reach over the edge/curb and down to the fire building surface shall comply with ADAAG 4.2.6.

Proposed 16.6.6 requires the slope of the clear space required by 16.6.3 to not exceed 1:50 in any direction. This is consistent with current ADAAG. However, many natural and natural-appearing surfaces used in the outdoor environment require more than 1:50 slope for proper drainage. Exception 1 permits the slope of the clear space to be 1:33 maximum in any direction. In the event that at least one of the conditions of 16.1.1 applies, the slope of the clear space is not required to meet this provision.

Proposed 16.6.7 requires the surface of the clear space at the usable portions of the fire ring to be firm and stable. Consistent with other clear space requirements around outdoor elements, slip resistance is not required. If at least one of the conditions of 16.1.1 applies, the requirements of a stable and firm surface of the clear space is not required.

### **Cooking Surfaces, Grills, Pedestal Grills**

Proposed 16.7.1.1 requires that where only one cooking surface, grill, or pedestal grill is provided in a picnic area, it shall comply with section 16.7. Proposed 16.7.1.2 requires that where multiple cooking surfaces, grills, or pedestal grills are provided in a picnic area, 50 percent, but no less than two, shall comply with 16.7. Of the 50 percent required to be accessible, 40 percent, but no less than two, shall be located along an outdoor recreation access route complying with 16.3. The rationale for this provision is consistent with picnic tables (16.5.1), fire rings (16.6.1) and other outdoor elements.

Proposed 16.7.2 requires accessible cooking surfaces, grills, and pedestal grills to be dispersed throughout the area and among the types provided. For example, if a picnic area offers different types of cooking surfaces, the total number of accessible cooking surfaces is to be distributed among the different types provided. This provision would not increase the number of cooking surfaces, grills, or pedestal grills required to be accessible per 16.7.1.

Proposed 16.7.3 requires accessible cooking surfaces be installed between 15 inches and 34 inches above the ground/floor. This provides a comfortable reach range for cooking. A 34 inch height is consistent with counter tops (ADAAG Appendix 9.2.2(7)). The 15 inches is consistent with current ADAAG 4.2.5 for the minimum low forward reach.

Proposed 16.7.4 requires operating controls and mechanisms to comply with current ADAAG 4.27.1 (General), 4.27.2 (Clear Floor Space), and 4.27.3 (Height). In the outdoor recreation environment, picnic and camping elements must be vandal-resistant, large animal-resistant (i.e., bears) and adaptable to weather conditions of extreme heat, cold, and moisture. While compliance with ADAAG 4.27.4 (Operation) is reasonable and feasible in the indoor/built environment, it is not realistic in the outdoor environment. Therefore, compliance with ADAAG 4.27.4 is not required.

Proposed 16.7.5 requires that a minimum clear space of 48 inches deep by 48 inches wide be provide at all usable portions of the cooking surface, grill, or pedestal grill. This allows both a front and parallel approach. If at least one of the conditions of 16.1.1 applies, exception 1 permits the clear space to be reduced to no less than 36 inches by 36 inches. This proposed provision is also consistent with fire rings (16.6.4).

Proposed 16.7.6 addresses the slope of the clear floor or ground space of cooking surfaces. As with picnic tables and fire rings, this proposed provision requires the slope of the clear space at usable portions of cooking surfaces, grills, and pedestal grills to not exceed 1:50 in any direction. If proper drainage can not be met with a 1:50 slope because of the type of surface used, exception 1 permits the slope of the clear space to be up to 1:33 in any direction. If at least one of the conditions of 16.1.1 exists, exception 2 permits departure from 16.17.6.

Proposed 16.7.7 addresses surface of the clear floor or ground space of cooking surfaces. The surface of the clear space at usable portions of cooking surfaces, grills, and pedestal grills is required to be firm and stable. Exception 1 permits departure from this provision where at least one of the conditions of 16.1.1 exists.

### **Fixed Trash or Recycling Containers**

Proposed 16.8 requires each trash or recycling container to be accessible and comply with ADAAG 4.27. Proposed 16.8.1 requires that each trash or recycling container be accessible. The committee considered this to be a health issue making it imperative that each container meet the provisions for accessibility. This

requirement is compatible with those for other singly occurring elements in an outdoor setting, as well as providing consistency with existing ADAAG. Exception 1 permits 50 percent of the bins in a multi-bin container to be exempt from this provision.

An exemption is provided where the container has one or more compartments. Here, 50 percent of the compartments must be accessible. The committee determined that this requirement would assure the user of finding at least one accessible compartment in a multi-bin container.

Proposed 16.8.2 requires the clear space of fixed trash/recycling containers to comply with ADAAG 4.2.4.1 and 4.2.4.2. This ensures sufficient clear space for use by persons using wheelchairs and other mobility devices.

Proposed 16.8.3 requires the surface of the clear space to be stable and firm. An exception permits departure from this provision where at least one of the conditions of 16.1.1 exists. This provision does not apply where one of the conditions in 16.1.1 exists.

Proposed 16.8.4 requires the slope of the clear space to be no greater than 1:50. An exception permits a 1:33 slope for proper drainage. This provision does not apply where one of the conditions in 16.1.1 exists.

Proposed 16.8.5 requires operating controls for the containers to comply with ADAAG 4.27.3 and 4.27.4. However, an exemption from this requirement is provided where the container has a hinged, sliding or other cover and is situated where it is subject to large animal intrusion, thus dictating animal-resistant controls. Current designs for controls and operating mechanisms preclude providing secure storage of trash or recycled material from large animals, and still meet the reach and operating force requirements of ADAAG 4.27.4. Where problems exist with large animal intrusion, the necessity of protecting the health of the user and the animal populations override accessibility requirements.

## **Wood Stoves and Fireplaces**

Proposed 16.9.1 requires each wood stove and fireplace to comply with this section. Wood stoves and fireplaces are designed and constructed to provide warmth to the user. Secondly, they might also be used for cooking.

Proposed 16.9.2 requires that a clear space 48 inches deep minimum, and 48 inches wide minimum be provided from all usable portions of the wood stove or fireplace. This is consistent with space requirements for other elements in outdoor developed facilities, such as fire rings and grills. The 48 inch dimensional requirement allows for front and side approach. The committee agreed that the extra space required beyond current ADAAG requirement of 30 inches by 48 inches is warranted in this case where safety is paramount. An exception is provided to reduce this requirement to 36 inches minimum depth where one or more of the conditions in section 16.1.1 exists.

Proposed 16.9.3 requires the controls for operation of wood stoves and fireplaces to comply with ADAAG 4.27. This is consistent with existing ADAAG.

Question 16: Are there controls and operating mechanisms for fireplaces available that will meet the requirements of ADAAG 4.27? If not, what modifications will allow for most operating mechanisms of woodstoves and fireplaces to meet this provision.

Proposed 16.9.4 requires the clear space slope in all directions be 1:50 maximum. Exception 1 allows for a 1:33 maximum for proper drainage. This requirement is consistent with other provisions in section 16. It also provides an element of safety for the operator so that the controls may be operated with minimal risk due to design. Exception 2 allows a departure from this provision where one or more of the conditions in 16.1.1 exist.

Proposed 16.9.5 requires the clear space surface to be firm and stable. This is consistent with other provisions of section and provides a safe place from which to operate the wood stove or fireplace. Where one or more of the conditions in 16.1.1 exist, this provision does not apply.

## **OVERLOOKS/VIEWING AREAS**

Proposed 16.10.1 requires each viewing area, where provided, on designated overlooks to comply with 16.10.2 through 16.10.5. Accessible viewing areas are also required to be located on an outdoor recreation access route complying with 16.3 or a trail complying with 16.2.

Overlooks and viewing areas are specifically designed and constructed to provide an unobstructed observation of a vista or to a specific point of interest, such as the view to a mountain range or down into a valley or to a waterfall or geologic formation. As such, they are a destination for the user and should be accessible. An exception permits a minimum of one of each viewing opportunity for distinct points of interest where multiple viewing areas are provided.

Accessible viewing areas are also required to be located on an accessible trail or trail segment (16.2), or on an accessible outdoor recreation access route complying with 16.3. There are some rare configurations where the overlook or viewing area provides only a drive-up approach to the vista or distinct point of interest. As it is impossible to forecast the type of vehicle that would be used in such a place, the committee did not have adequate information to derive appropriate provisions to accommodate this type of area. Exception 2 permits departures from this provision where one or more of the conditions in 16.1.1 exist.

Proposed 16.10.2 requires at least one maneuvering space complying with ADAAG 4.2.3. This requirement is consistent with existing ADAAG and facilitates access to and movement away from the viewing area.

Proposed 16.10.3 requires that each location providing a viewing opportunity to one or more distinct point(s) of interest must have at least one unrestricted viewing area for each viewing opportunity. The committee felt that the attraction of a viewing area is to bring persons to a place where they can enjoy all the aspects of the site and persons with disabilities should have the opportunity to experience the attraction. The committee determined that an arc extending from 32 inches minimum above the level surface of the viewing area to 51 inches maximum above the surface would be sufficient to allow an unobstructed view. Often the overlook or the viewing area has an adjacent drop-off that would present a hazard to the user of the area. Safety barriers are often installed (such as a guardrail, railing and wall) to protect the visitor from the edge and may block the view. This provision requires an unobstructed view to the distinct point of interest. There must be a means by which a field of view in the described arc is obtained. Various designs or recommendations to manage this are provided in the appendix, and include see-through panels in walls or elevated platforms away from the guarded edge. A periscope, complying with 16.11.1, is also an option for a view over a barrier. This provision does not apply where one of the conditions in 16.1.1 exists.

Proposed 16.10.4 requires the slope of the maneuvering space not to exceed 1:50. An exception permits 1:33 maximum slope for drainage. This provision does not apply where one of the conditions in 16.1.1 exists.

Proposed 16.10.5 requires the surface of the clear space to be stable and firm. This provision does not apply where one of the conditions in 16.1.1 exists.

## **TELESCOPES/PERISCOPES**

Proposed 16.11.1 requires at least 20 percent, but never less than one, telescope or periscope to comply with 16.11.2 through 16.11.5, where provided. Where only one is provided, it shall comply with 16.11.2 through 16.11.3 and also be useable from the standing position.

Viewing areas or overlooks are sometimes equipped with mounted telescopes and less often with periscopes. The purpose of these elements is to provide the visitor with an even closer view of a distinct point of interest (rather than a vista). Where only one of either type of viewing device is provided, it shall comply with the technical provisions of this section and also be usable from the standing position. This configuration will provide accessibility and usability. Where more than one of the elements is present, at least 20 percent, but no less than one, shall be accessible.

Many existing sites only provide scopes usable from a standing position. This does not accommodate the needs of people using wheelchairs, children, or people of shorter stature. The committee made specific mention of children when discussing scopes, based on experiences of having to lift children to use scopes. Lifting may not be possible for people with back difficulty or insufficient strength to lift children.

Proposed 16.11.2 requires the controls and operating mechanisms of either the telescope or periscope to comply with ADAAG 4.27.

Proposed 16.11.3 requires the eye piece shall be usable from a seated position so that each distinct point of interest is viewable. This will provide the widest range of viewing opportunities, not only for seated individuals but also children. An appendix note is included with suggestions to accomplish this. Options include an adjustable scope mount, a swivel seat or installing an element that would allow for a high/low option similar to what is offered for water fountains. The requirement for use from the seated position is necessary for people using wheelchairs and other mobility devices. The committee recognized that this may also benefit use by children or individuals of short stature.

Proposed 16.11.4 requires the surface conditions of the clear space adjacent to the telescope/periscope to be firm and stable, along with other clear spaces for elements in section 16. In the interest of safety and the ability to use the elements in unchanging and balanced condition, a dependable surface condition is a necessity.

Proposed 16.11.5 requires the slope of the required clear space to not exceed 1:50 in any direction, unless the surface condition is such that drainage is a problem. Where drainage is of concern, a 1:33 maximum slope is permitted. Drainage from the area adjacent to the elements is essential to preserve the integrity of the surface condition and to provide a comfortable location to use the elements.

## **FIXED BENCHES**

Proposed 16.12.1.1 requires that where only one fixed bench is provided, the bench shall comply with the provisions of 16.12.3 through 16.12.8. The committee felt that it was important that where only a single bench is provided, it must be usable by all visitors. This is generally consistent with ADAAG and with the other elements of this section. The single bench must be connected to an outdoor recreation access route and have at least one armrest complying with ADAAG 4.26.3 to facilitate its use.

The committee recognizes benches, when provided, are key elements in many outdoor settings, such as picnic areas or day use areas. They are used for a variety of purposes, including places of rest or relaxation, meeting spots, and places from which to view events such as sporting activities. Whatever the use, the committee determined that the bench or benches, where provided, should conform to the provisions stated. However, the benches that are parts of an assembly area are not addressed and need not conform to the provisions [see 4.1.3(19)].

Proposed 16.12.2.2 requires that where multiple fixed benches are placed in an area, at least 50 percent shall meet the proposed provisions in this section. This assures the visitor that there will be at least one bench available which meets ADAAG. Further, of the benches that are required to be accessible, 50 percent of those shall provide an armrest complying with 4.26.3. The committee felt that the visitor should be provided with a choice of bench configurations that would accommodate different needs. An armrest would not only provide support when occupying the bench, it would assist in transfer from the bench.

Proposed 16.12.2 requires dispersal of accessible benches. This provision does not require an increase in the total number of accessible benches. The dispersion of accessible benches throughout the area provides for a variety of settings and is consistent with other provisions in ADAAG.

Proposed 16.12.3 requires that the front edge of the bench seat to be between 17 inches minimum and 19 inches maximum above the ground or floor space to facilitate transfer. This provision is consistent with other ADAAG provisions where a height is required for transfer.

Proposed 16.12.4 requires the clear space for benches to comply with ADAAG 4.2.4, be located at one end of the accessible bench, and not overlap other clear space requirements. The committee debated the location of the clear space, recognizing that many different configurations could exist. The requirement of a clear space at one end without intruding into other clear spaces provides the users with the same perspective as the occupant of the bench, no matter which direction the bench is facing and avoids obstructing the outdoor recreation access route. Shoulder-to-shoulder alignment of the clear space enhances the opportunity for and ease of interaction conversation with someone seated on the bench.

Proposed 16.12.5 addresses back support. Back support is required to be provided, extending the full length of the bench.

Proposed 16.12.6 requires the surface of the clear space for the bench to be firm and stable. The provisions of 16.12.6 do not apply where at least one of the conditions in 16.1.1 exists.

Proposed 16.12.7 requires the slope of the clear space not to exceed 1:50 in any direction. An exception to the slope requirement permits a 1:33 maximum slope where the 1:50 slope does not allow proper drainage. It is important for the stability of the occupant of the clear space that the surface condition provides adequate support. The provisions of 16.12.7 do not apply where one of the conditions in 16.1.1 exists.

Where required by 16.12.2, at least one armrest is required on a single bench. All armrests must comply with ADAAG 4.26.3. This will facilitate transfer to the bench and provide support to maneuver to or from the bench seat.

## **UTILITY SINKS (DEEP)**

A utility sink (deep) is a sink that has a vertical dimension deeper within the confines of the sink than the standard lavatory basin, and allows the user of a picnic area or campground setting to clean large pots or equipment. It has the general configuration of a sink found in a custodial maintenance area.

Proposed 16.13.1 requires that where utility sinks are provided, at least 5 percent, but not less than one, shall be accessible. An accessible utility sink or sinks shall also be located in an accessible room or space. This is consistent with ADAAG.

Proposed 16.13.2 requires a clear space complying with 4.2.4 be provided for the sink for adequate reach and maneuvering spaces. This is consistent with ADAAG. Proposed 16.13.3 requires that the clear space not have a slope greater than 1:50. An exception permits the slope of the clear space to be 1:33 maximum to provide proper drainage. Proposed 16.13.4 requires that the surface of the clear floor space be firm and stable.

Proposed 16.13.5 height and 16.13.6 depth refer to the reach ranges of ADAAG. The committee recognizes that there may be some difficulty in providing a deep enough sink to accomplish the purposes of cleaning larger pots or pans used given current reach range requirements. However, the committee believed that adhering to the established reach ranges was important. The controls and operating mechanisms for utility sinks are required to comply with ADAAG 4.27.3 and 4.27.4.

## **MOBILITY DEVICE STORAGE FACILITIES**

The committee addressed the need for storage space for mobility devices primarily in the setting where an individual using a wheelchair or other mobility assistive device must transfer from that to another device or vehicle in order to take advantage of the services or programs offered at the outdoor facility. A ski facility where individuals may use an adaptive ski to participate, is an example where this type of element may be provided. The committee believed that where storage facilities are provided for protecting personal assistive devices from environmental effects or theft/vandalism, at least one storage facility must meet the technical provisions of this section. Proposed 16.14 requires that where storage facilities are provided, at least one shall comply with 16.14.2 through 16.14.6.

Proposed 16.14.2 requires the size of the storage space be 38 inches minimum in height, 28 inches minimum inches in width and 40 inches minimum in length. These dimensions are based on the space needed for a collapsed standard adult wheelchair. The committee agreed that a wheelchair would be the most commonly occurring device which would require storage and based the requirements accordingly.

Proposed 16.14.3 through 16.14.4 requires the clear space (complying with ADAAG 4.2.4 for a parallel approach). Proposed 16.14.4 requires the required clear space surface to be firm and stable. This is consistent with other requirements of section 16. These requirements provide the minimum spaces necessary to facilitate use of the provided storage space.

Proposed 16.14.5 addresses the slope of the clear space. This provision relates to the usability of the storage area, especially as the element is associated with transfer. Thus the requirement is for a 1:50 slope maximum, unless the surface condition is such that proper drainage requires a 1:33 maximum slope.

Proposed 16.14.6 requires controls and operating mechanisms for accessible mobility storage facilities to comply with ADAAG 4.27.3 and 4.27.4.

## **FIXED PIT TOILETS**

Pit toilets are very primitive outhouses, and may consist simply of holes dug in the ground covered by a toilet riser. The riser may or may not be surrounded by walls and a roof. Pit toilets are generally located in remote, undeveloped areas, and are provided primarily for resource protection rather than visitor convenience and comfort. Pit toilets may be permanent installations, or may be moved from one location to another as the hole is filled or the area becomes overly impacted from use. These provisions apply to fixed pit toilets.

Proposed 16.15.1 requires each fixed pit toilet to comply with the technical provisions of 16.15, since usually only one pit toilet is provided in an area. This scoping is consistent with what would be required for other singly occurring elements.

Proposed 16.15.2 requires a minimum clear space of 60 inches by 60 inches adjacent to the toilet. Where one of the conditions of 16.1.1 applies, exception 1 permits the size clear space to be reduced to 48 inches by 48 inches. Where a 48 inch by 48 inch clear space can not be provided because at least one of the conditions of 16.1.1 applies, exception 2 permits departure from 16.15.2.

Proposed 16.15.3 requires the height of the pit toilet riser to comply with current ADAAG 4.16.3. No departures for the outdoor environment were necessary.

Proposed 16.15.4 is consistent with current ADAAG, and requires the slope of the clear space at pit toilets to be 1:50 maximum in any direction. As with other picnic and camping elements, exception 1 would permit the slope to be 1:33 maximum to ensure proper drainage. In exception 2, this provision would not apply where at least one of the conditions of 16.1.1 is present.

Proposed 16.15.5 requires grab bars complying with current ADAAG 4.16.4 only where the pit toilets are provided with walls. Since many pit toilets consist of a riser placed on the ground, the committee agreed that the requirement for grab bars should only be triggered if a structure (i.e., walls) surrounds the riser.

Proposed 16.15.6 requires the surface of the clear space to be firm and stable. This provision would not be required where at least one of the conditions of 16.1.1 applies.

## **UTILITIES**

Proposed 16.16.1 requires utilities such as electric, water, sewage and other similar type utilities serving accessible elements to comply with 16.16.2 through 16.16.5. Proposed 16.16.2 requires controls and operating mechanisms associated with utilities to comply with ADAAG 4.27. Exception 1 does not apply 4.27.3 and 4.27.4 to sewage hookups.

Exception 2 permits departure from ADAAG 4.27.4 for hand pumps. Because of the way a hand pump works and is designed, technology does not yet exist that will allow hand pumps to be operated at a force that would be considered accessible. The rationale for not requiring sewer hook ups to meet height and reach range provision is based on their ground level location necessary for gravity drainage. Most are foot drains or have a small handle at the ground level to open the connection to the system.

Proposed 16.16.3 requires fixed water spouts to be located 28 inches minimum to 36 inches maximum above the ground or floor surface and shall be centered at the edge of a 60 inches minimum by 60 inches minimum clear space.

Proposed 16.16.4 requires the slopes of clear spaces required by 16.16.2 and 16.16.3 to have a 1:50 maximum slope in any direction. Where surface conditions require a slope greater than 1:50 for proper drainage, an exception permits a 1:33 maximum slope.

Proposed 16.16.5 requires the surface of the clear space required by 16.16.2 and 16.16.3 to be stable and firm.

## **CAMPING FACILITIES**

Proposed 16.17 requires camping spaces (e.g. RV spaces and trailer spaces, tent spaces, camping shelters or tent pads and tent platforms), where provided, to be accessible according to section 16.17. Proposed 16.17.1 requires accessible camping spaces to be provided in accordance with table 16.17. Table 16.17 requires the number of accessible campsites and is based on the total number of spaces provided. This table was developed as a result of the deliberations of the committee, using existing ADA scoping for transient lodging as a reference.

Modifications to the existing transient-lodging scoping were made to create higher numbers of accessible campsites in the low range and more accessible campsites in each of three basic camping styles (i.e. RV, tent, and cabin/shelter). Each camping style category must achieve the proper scoping independently of the others.

The proposed scoping provisions require higher accessibility where lower numbers of features are provided. This was extensively debated among committee members and intended to address the higher probability of utilization where low numbers of elements are provided. As an example, the chance of two picnic tables being occupied at the same time and place is much higher than five picnic tables being occupied at the same time, even though the demand may increase proportionately to the number of tables offered.

The other departure from ADAAG scoping for accessible transient lodging is the division of campsites into three categories: RV and Trailer Spaces, Tent Spaces, and Camping Shelters or Cabins. Campsite use requires specific equipment and a specially designed area may not be suitable for every use. An example might be if someone comes prepared to use a tent, they may not be able to use a paved RV site. This was also a way to increase the number of accessible sites provided.

Proposed 16.17.1 also addresses other camping elements provided in accessible camping spaces. To ensure usability, all elements that are provided as a part of an accessible campsite must meet the technical requirements as outlined in this section. Elements provided in campgrounds are only required to be accessible in the accessible campsites.

Proposed 16.17.1.1 requires RV spaces and trailer spaces required to be accessible to comply with the technical provisions of 16.17.2.1. An exception is included where camping spaces are designed for both tent camping and recreational vehicle or camping trailer use. In this case, at least 50 percent of the accessible multi-use spaces shall comply with 16.17.2.1 and the remainder are permitted to be reduced to 16 feet minimum.

Proposed 16.17.1.2 requires that where camping spaces are designed for use for tent camping and camping shelters, accessible tent and camping shelters shall comply with 16.17.2.2.

Proposed 16.17.1.3 address identification. Identification of accessible campsite by an International Symbol of Accessibility (ISA) was determined to be necessary where campsite occupancy and site selection is made by user and is based on a first come, first served basis. To accommodate campground operations that assign sites either through a reservation service or upon arrival, the ISA is not required and an exception was created to accommodate this distinction. It was determined that site assignment would create better utilization of accessible sites than the use of ISA signage. Signage is also not required where all sites are accessible.

Proposed 16.17.2 addresses accessible camping space parking. Proposed 16.17.2.1 requires accessible RV camp vehicle spaces and trailer camping spaces to be 20 feet minimum in width. This was determined to be necessary to accommodate existing equipment manufactured by the RV industry and lifts required to gain access out of and into this equipment. The extra width associated with this site is necessary to provide a 3 foot access on the driver's side for access to utilities. The parking space is 9 foot to allow for vehicle width and an 8 foot space on the passenger side for deployment of lift with room to exit conveniently. An exception permits one space to 16 feet minimum ins width, where only two accessible parking spaces are required. The exception allows a smaller parking pad (van size) for the second accessible campsite on very small remote campgrounds. This deviation will limit impact on the environment and the user's experience.

Proposed 16.17.2.2 addresses tent camping spaces and shelter camping spaces. Where parking is provided, a tent camping and camping shelter parking space of 16 feet is required and follows the current guidelines for ADAAG van accessible parking spaces which would accommodate the maximum size vehicle used for this type of campsite. A "shelter" also includes cabin accommodations.

Proposed 16.17.2.3 requires the slope of the accessible parking space does not exceed 1:50 in any direction. Where surface conditions require a greater slope for proper drainage, an exception permits a 1:33 maximum slope.

Proposed 16.17.3 addresses tent pads and tent platforms. Proposed 16.17.3.1 addresses clear ground space. A 48 inch clear space around the tent pad is required to allow both side and front approach access to assembling equipment. Exception 1 allows the clear ground space to be reduced to 36 inches where at least one of the conditions in 16.1.1 applies.

Proposed 16.17.3.2 requires the tent pad surface to be firm and stable, consistent with other provisions in section 16. An exception permits departure from 16.17.3.2 where at least one of the four conditions specified in 16.1.1 exist.

Proposed 16.17.3.3 requires the tent platform surface to be stable and firm.

Proposed 16.17.3.4 requires the slope of the tent pad or platform to be 1:50 maximum and is consistent with other ADAAG requirements. An exception allows slope to be a 1:33 maximum in any direction to accommodate drainage on a packed surface. This exception is consistent with other outdoor recreation elements.

Proposed 16.17.3.5 requires edge protection to be 3 inches minimum where the raised tent platform is provided. The 3 inch minimum is necessary to ensure visibility and to prevent wheelchairs and other mobility devices from rolling off the raised platform.

Proposed 16.17.3.6 addresses the connection where a tent platform is raised above grade to provide a level surface to pitch a tent. Access is provided in a similar fashion to playground equipment by a transfer system of a platform and transfer steps. The need for mobility equipment on the platform surface was not deemed to be necessary for use, as the surface area is the same size as the tent.

Proposed 16.17.4 address additional campground parking. Where RV spaces or trailer spaces are provided, at least one shall comply with 16.17.4.1 through 16.17.4.3 Accessible recreational vehicle spaces in general parking are necessary to accommodate short-term parking needs. The exception separates campsite parking from general parking. This requirement provides a special RV parking space in addition to current ADAAG scoping for parking areas.

Proposed 16.17.4.1 requires accessible recreational vehicle parking spaces to be minimum width of 12 feet.

Proposed 16.17.4.2 addresses access aisles. A parking space of 12 feet allows for 9 feet wide vehicle with 3 feet access on driver side, and extend the full length of the space. Access aisle of 8 feet allows for lift deployment and egress from lift.

Proposed 16.17.4.3 requires the slope of the accessible parking spaces to not exceed 1:50 in any direction. An exception permits a 1:33 maximum slope where necessary for proper drainage.

## **WARMING HUTS**

Proposed 16.18 addresses warming huts. Proposed 16.18 requires each warming hut to have a turning space complying with ADAAG 4.2.3. Doors and other elements associated with a warming hut are already addressed by ADAAG. ADAAG 4.2.3 requires a maneuvering space inside the warming hut.

## **OUTDOOR RINSING SHOWERS**

Proposed 16.19 addresses outdoor rinsing showers. Section 16.19 addresses the scoping and technical provisions for outdoor rinsing showers. The committee recognized that current ADAAG references shower stalls in 4.21. However, the description and provisions are clearly for indoor facilities. Although certain portions of ADAAG 4.21 are applicable, other parts would not be applicable for an outdoor shower stall or rinsing shower, typically found at a beach or at camping facilities, since the current ADAAG requires both grab bars and a seat for these shower stalls designated as accessible. Current ADAAG references shower stalls and not showers and reflects a design where walls are present. This is not always the case in outdoor showers. Therefore, the committee recommended that specifications for an outdoor shower should be developed, with reference to current ADAAG where appropriate. In order to distinguish this type of shower from those already addressed in ADAAG, the committee used the term "outdoor rinsing shower". An appendix note has been added to further identify what is considered a rinsing shower.

Proposed 16.19 addresses the minimum number for outdoor rinsing showers. The committee examined several ways to scope showers, considering a percentage formula, a chart similar to parking or telephones, and a minimum number. Because the committee ultimately recommend two types of outdoor rinsing showers, a low and high version, the committee recommended that a minimum number, one of each type, where rinsing showers are provided at a location. If only one is provided, it must be a dual shower.

Proposed 16.19.1 addresses the requirements for a low outdoor rinsing shower. The appropriate height for a low rinsing shower is taken from the current requirements for indoor showers. ADAAG 4.21.6 for indoor showers provides that in unmonitored facilities where the threat of vandalism is a

consideration, a fixed shower head mounted at 48 inches above the shower floor may be used in lieu of a hand-held shower head. In order to provide flexibility and a range, rather than an absolute mounting height, the committee recommended a range of 48 inches to 54 inches. A hand-held shower spray unit is permitted, although the committee realized that this would be an infrequent choice in an outdoor environment due to vandalism concerns.

Proposed 16.19.1.2 to 16.19.1.5 addresses the requirements for grab bars. Grab bars are typically not found in outdoor showers, primarily because the majority of the showers are free-standing poles and there is no place to mount a grab bar which conforms with current ADAAG. Nonetheless, the committee believed that a grab bar was essential for stability in a wet environment, but not for transfer. The committee also recommended providing three options for the grab bar: vertical, circular (if the shower is on a pole), and horizontal, (if the shower is on a wall). If a vertical grab bar is chosen, outlined in 16.19.1.3, it would be permitted only on a post. There is no comparable current ADAAG provision. The committee recommended a length which would be provided 33 inches above the floor, the lowest height currently for a grab bar, and extend the length of the pole within 3 inches below the shower head. If a circular grab bar is chosen, outlined in 16.19.1.4, it would also be permitted only on a post. This type of grab bar would resemble a spoked wheel mounted perpendicular to the post. The committee recommended that the grab bar be provided 33 to 36 inches above the floor, consistent with a horizontal grab bar in an indoor shower. If a horizontal grab bar is chosen, outlined in 16.19.1.5, the committee recommended a 33 inches to 36 inches mounting height for horizontal grab bars, consistent with the mounting height for horizontal grab bars in indoor showers.

Proposed 16.19.1.6 addresses the requirements for controls. In order for controls to be usable, they must be within reach ranges and be operable. Since there is nothing to suggest that the current reach ranges in ADAAG are inappropriate, the committee recommended that controls comply with 4.27. Although some people suggested a 48 inch maximum regardless of approach, the current ADAAG would appear to be practical if a turning radius is permitted. Many showers have a twist-type knob outdoors because those controls are less subject to vandalism. Although vandalism is a legitimate concern in outdoor settings, the members agreed that accessible controls could be vandal-proofed, particularly if push controls are used. The current requirement need not be changed. The committee recommended that controls and operating mechanism comply with ADAAG 4.27. If self-closing controls are used, the controls shall remain open for at least 10 seconds, the minimum time needed for rinsing.

Proposed 16.19.1.7 addresses the requirement for clear space. A clear floor space which would permit a front or parallel approach is necessary in order to make the shower usable. For most elements, such as a telephone or drinking fountain, a 30 by 48 inch clear floor space would suffice. Committee members agreed that only providing a front nor parallel approach without the 5 foot turnaround space would not allow someone in a wheelchair to turn 360 degrees to rinse off under all angles of the water. For ease and convenience of use for people using wheelchairs, the full turn around space must be provided.

Proposed 16.19.1.8 addresses the requirement for slope. The committee recommended that the slope of the clear space not exceed 1:33 in all directions. This deviates from current ADAAG but is consistent with recommendations by the committee for other outdoor elements where drainage is a concern. Many park maintenance managers indicated that a 1:20 slope is required for the floors of outdoor toilets to ensure proper drainage. The committee believed that the increase to 1:33 would suffice and allow for a reasonable tolerance.

Proposed 16.19.2 addresses the requirement for the height of a high outdoor rinsing shower. 16.19.2.4 requires the height of the shower head to be 72 inches minimum, the standard height for all showers. A hand-held shower spray is permitted.

Proposed 16.19.2.2 to 16.19.2.5 addresses the requirements for grab bars. The requirements options for installing grab bars in a high rinsing shower are identical to those for a low rinsing shower.

Proposed 16.19.2.6 addresses controls 4.27.4 and proposed 16.19.2.7 addresses drainage for the high rinsing shower. These provisions are consistent with requirements for low rinsing showers.

The committee also discussed shower seats. Indoor showers which are designated as accessible require a seat. This requirement would not be reasonable for an outdoor shower. An adjacent bench might be conveniently located for the placement of items, but not in conjunction with showering itself. In an outdoor shower, there is no adjacent wall to which to mount a fold-down seat. In an outdoor shower mounted to a wall, a fold-down bench would likely be vandalized. Therefore, the committee recommended no requirements for a shower seat for an outdoor rinsing shower.

## **OTHER ISSUES**

The committee did not complete its discussions and recommendations on several outdoor elements. In some cases, they were awaiting the proposed changes for ADAAG prior to addressing the elements. Unfortunately, this work was not published prior to the completion of their work. These elements included drinking fountains, assembly areas (exterior facilities), exterior public telephones, scoping for toilet rooms, self-service fee depositories, and kiosks and interpretive displays.

## **16. OUTDOOR DEVELOPED AREAS**

Outdoor developed areas covered by this section shall comply with the applicable requirements of section 4 and the special application sections, except as modified or otherwise provided in this section.

16.1 General. All newly designed and constructed pedestrian trails or altered portions of existing pedestrian trails connecting to designated trailhead or accessible trails shall comply with 16. All newly designed and constructed camping facilities, picnic areas, and beach access routes or altered portions thereof shall comply with 16.

16.1.1 Extent of Application. Departures from specific technical provisions of this section shall be permitted where specified, and where at least one of the following conditions is present. The conditions in this section do not obviate or limit in any way obligations to comply with 16 at any point that the conditions are not present.

1. Where compliance would cause substantial harm to cultural, historic, religious, or significant natural features or characteristics; or,
2. Where compliance would substantially alter the nature of the setting or the purpose of the facility, or portion of the facility; or,
3. Where compliance would require construction methods or materials that are prohibited by Federal, state, or local regulations or statutes; or,
4. Where compliance would not be feasible due to terrain or the prevailing construction practices.

### **Definitions.**

**Trail.** A route that is designed, constructed, or designated for recreational pedestrian use or provided as an pedestrian alternative to vehicular routes within a transportation system.

**Designated Trailhead.** A designated point of access that may contain a parking area, information kiosks, restrooms, water hydrants, and may be reached by vehicular or pedestrian access.

**Tread Width.** The path or visible trail surface perpendicular to the direction of travel. The clear tread width of the trail is the width of the useable trail tread, measured perpendicular to the direction of travel and on or parallel to the surface of the useable trail tread. The minimum clear tread width is the narrowest measurement on the useable trail tread.

16.2 Trails. Where trails are provided, the trail shall comply with 16.2. Where provided, elements located on accessible trails shall comply with 16.5 through 16.21. Elements are not required to be connected by an outdoor recreation access route.

EXCEPTIONS: 1. Where one or more of the conditions in 16.1.1 exists, and where one or more of the conditions in this exception exists, the provisions of 16.2 shall not apply after the first point of departure. The segment of the trail between the trailhead and the first point of departure shall comply with 16.2 unless the trail segment is 500 feet (150 m) or less in length. Where there is a prominent feature less than 500 feet (150 m) from the trailhead, the trail segment between the trailhead and the prominent feature shall comply with 16.2. The conditions of this exception are: (a) the combination of running slope and cross slope exceeds 40 percent for over 20 feet (6100 mm); or (b) a trail obstacle 30 inches (760 mm) or more in height across the full tread width of the trail; or (c) the surface is neither firm nor stable for a distance of 45 feet or more; or (d) the clear width is less than 12 inches (305 mm) for a distance of 20 feet (6100 mm) or more. 2. Where one or more of the conditions in 16.1.1 are met resulting in departures from the technical provisions in 16.2 for over 15 percent of the length of the trail, 16.2 shall not apply after the first point of departure. The segment of the trail between the trailhead and the first point of departure is required to comply with 16.2 unless the trail segment is 500 feet (150 m) or less in length. Where there is a prominent feature less than 500 feet (150 m) from the trailhead, the trail segment between the trailhead and the prominent feature shall comply with 16.2.

16.2.1 Surface. The trail surface shall be firm and stable. EXCEPTION: The provision shall not apply where a firm and stable surface cannot be provided because at least one of the four conditions specified in 16.1.1 applies.

16.2.2 Clear Tread Width. The clear tread width of the trail shall be 36 inches (915 mm) minimum. EXCEPTIONS: 1. The clear tread width shall be permitted to be reduced to no less than 32 inches (815 mm) minimum where at least one of the four conditions specified in 16.1.1 apply. 2. The provision shall not apply where 32 inches (815 mm) minimum clear tread width cannot be provided because at least one of the four conditions specified in 16.1.1 applies.

16.2.3 Openings. Openings in trail surfaces shall be of a size that does not permit passage of a 1/4 inch (6.5 mm) diameter sphere. Elongated openings shall be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel. EXCEPTIONS: 1. Elongated openings are permitted to be parallel to the dominant direction of travel where the opening does not permit passage of a 1/4 inch (6.5 mm) diameter sphere. 2. Openings shall be permitted to be of a size that do not permit passage of a 3/4 inch (19 mm) diameter sphere where at least one of the conditions in 16.1.1 apply. 3. Where openings that do not permit passage of a 3/4 inch (19 mm) diameter sphere are not feasible, because at least one of the conditions in 16.1.1 applies, the provisions of 16.2.3. shall not apply.

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.

EXCEPTION: Where vertical clearance of a trail is reduced to less than 80 inches (2030 mm) where one of the four conditions specified in 16.1.1 applies, a barrier to warn blind and visually impaired persons shall be provided.

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

EXCEPTIONS: 1. Tread obstacles shall be permitted to be 3 inches (75 mm) maximum where running and cross slopes are 1:20 or less. 2. The provision shall not apply where tread obstacles greater than 3 inches (75 mm) exist, because at least one of the four conditions specified in 16.1.1 applies.

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.

EXCEPTION: The provision shall not apply where passing space cannot be provided because at least one of the four conditions specified in 16.1.1 applies.

16.2.7 Slopes. Slopes shall comply with 16.2.7.1 and 16.2.7.2.

EXCEPTIONS: 1. For open drainage structures, a running slope of 14 percent is permitted for 5 feet maximum (1525 mm) with a cross slope of 1:20 maximum. Cross slope is permitted to be 1:10 at the bottom of the open drain, where clear tread width is 42 inches (1065 mm) minimum. 2. The provisions of this section do not apply where one or more conditions in 16.1.1 applies.

16.2.7.1 Cross Slope. The cross slope shall not exceed 1:20 maximum.

16.2.7.2 Running Slope. Running slope of trail segments shall comply with one or more of the provisions of this section. No more than 30 percent of the total trail length shall exceed a running slope of 1:12.

16.2.7.2.1 Running slope shall be 1:20 or less for any distance.

16.2.7.2.2 Running slope shall be 1:12 maximum for 200 feet (61 m) maximum.

Resting intervals complying with 16.2.8 shall be provided at distances no greater than 200 feet (61 m) apart.

16.2.7.2.3 Running slope shall be 1:10 maximum for 30 feet (9150 mm) maximum.

Resting intervals complying with 16.2.8 shall be provided at distances no greater than 30 feet (9150 mm) apart.

16.2.7.2.4 Running slope shall be 1:8 maximum for 10 feet (3050 mm) maximum.

Resting intervals complying with 16.2.8 shall be provided at distances no greater than 10 feet (3050 mm) apart.

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.

EXCEPTION: The provision shall not apply where resting spaces cannot be provided because at least one of the four conditions specified in 16.1.1 applies.

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.

## **OUTDOOR RECREATION ACCESS ROUTES**

Definition.

Outdoor Recreation Access Route. A continuous unobstructed path designated for pedestrian use that connects accessible elements within a picnic area, camping area, or designated trailhead.

16.3.1 Surface. The surface of the outdoor recreation access route shall be firm and stable.

16.3.2 Clear Tread Width. The clear tread width of outdoor recreation access routes shall be 36 inches (915 mm) minimum.

EXCEPTION: The minimum width shall be permitted to be no less than 32 inches (815 mm) minimum for a distance of 24 inches (610 mm) maximum where at least one of the conditions in 16.1.1 applies.

16.3.3 Openings. Openings in the surfaces of outdoor recreation access routes shall be of a size that does not permit passage of a 1/4 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.

EXCEPTION: Openings are permitted to run parallel to the dominant direction of travel so long as, the opening does not permit passage of a 1/4 inch (6.5 mm) diameter sphere.

16.3.4 Protruding Objects. Protruding objects on outdoor recreation access routes shall comply with ADAAG 4.4.

16.3.5 Tread Obstacles: Where tread obstacles exist, obstacles on the outdoor recreation access route shall be 1 inch (25 mm) high maximum.

EXCEPTION: Tread obstacles of 2 inches (50 mm) high maximum shall be permitted where beveled with a slope no greater than 1:2 and where at least one of the conditions in 16.1.1 applies.

16.3.6 Passing Space. Where the clear tread width of outdoor recreation access route is less than 60 inches (1525 mm), passing spaces shall be provided at intervals of 200 feet (61 m) maximum. Passing spaces shall be either 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.

EXCEPTION: Passing spaces shall be permitted at intervals of up to 300 feet (91 m) maximum where at least one of the conditions in 16.1.1 applies.

16.3.7 Slopes. Slopes shall comply with 16.3.7.1 and 16.3.7.2.

16.3.7.1 Cross Slope. The cross slope of outdoor recreation access routes shall be 1:33 maximum.

EXCEPTION: Cross slopes of 1:20 maximum shall be permitted to ensure proper drainage.

16.3.7.2 Running Slope. Running slope of trail segments shall comply with one or more of the provisions of this section.

16.3.7.2.1 Running slope shall be 1:20 or less for any distance.

16.3.7.2.2 Running slope shall be 1:12 maximum for 50 feet maximum. Resting

16.3.7.2.3 intervals complying with 16.2.8 shall be provided at distances no greater than 50 feet apart.

16.3.7.2.4 Running slope shall be 1:10 maximum for 30 feet (9150 mm) maximum.

16.3.7.2.5 Resting intervals complying with 16.2.8 shall be provided at distances no greater than 30 feet (9150 mm) apart.

16.3.8 Resting Intervals. Resting interval 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 1:33 in any direction.

EXCEPTION: Where the surface conditions require slopes greater than 1:33 for proper drainage, a 1:20 slope is permitted.

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

## **BEACH ACCESS ROUTES**

Definition.

Beach Access Route. A continuous unobstructed path designated for pedestrian use that crosses the surface of the beach.

16.4 Beach Access Route.

16.4.1 Beach Access Route. Beach access routes shall be provided according to section 16.4 and shall coincide with or be located in the same area as the general circulation path to the maximum extent feasible.

16.4.1.1 New Beach. Where a beach is newly constructed, a minimum of one beach access route complying with 16.4.2 through 16.4.12, shall be provided for every « mile of linear feet of new beach. The beach route shall extend to the high tide level, mean river bed level, or the normal recreation pool level.

16.4.1.2 Existing Beach. Where a pedestrian access route is constructed from a developed site to or along the edge of an existing beach, a beach access route complying with 16.4.2 through 16.4.12 shall be provided and extend to the high tide level, mean river bed level, or to the normal recreation water level.

EXCEPTIONS: 1. A temporary beach access route is permitted. 2. Routes which are created solely for shoreline maintenance shall not be required to comply with 16.4. 3. Routes provided solely as undeveloped public easements shall not be required to comply with 16.4. 4. A beach access route shall not be required, provided that another beach access route exists within « mile and is within the beach of the same jurisdiction. 5. When existing beaches are replenished for beach nourishment, the alterations provisions shall not apply. 6. A beach access route is not required when the pedestrian route along the edge of an existing beach is elevated 6 inches (150 mm) or higher above the beach surface.

16.4.2 Surface. The surface of the beach access route shall be firm and stable.

16.4.3 Clear Tread Width. The clear tread width of a beach access route shall be 36 inches (915 mm) minimum.

16.4.4 Openings. Openings in the surfaces of the beach access route shall be of a size that does not permit passage of a « 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.

EXCEPTION: Elongated openings are permitted to run parallel to the dominate direction of travel, where the opening does not permit passage of 1/4 inch (6.5 mm) sphere.

16.4.5 Protruding Objects. Protruding objects shall comply with ADAAG 4.4.

16.4.6 Passing Space. Where the clear width of the beach access route is less than 60 inches (1525 mm), passing spaces shall be provided at intervals of 200 feet (61 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.

16.4.7 Maneuvering Space/Resting Space. Maneuvering space shall be provided at the high tide level, mean river bed level, normal recreation water level, or end of the beach access route. Maneuvering space shall not overlap with the beach access route and shall be either a 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum space, or an intersection of two walking surfaces which provided 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.

16.4.8 Slopes. Slopes shall comply with 16.4.8.1 and 16.4.8.2.

16.4.8.1 Cross Slope. The cross slope of the beach access route shall be 1:33 maximum.

EXCEPTION: Cross slopes of 1:20 maximum shall be permitted to ensure proper drainage.

16.4.8.2 Running Slope. Running slope of trail segments shall comply with one or more of the provisions of this section.

16.4.8.2.1 Running slope shall be 1:20 or less for any distance.

16.4.8.2.2 Running slope shall be 1:12 maximum for 50 feet maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 50 feet apart.

16.4.8.2.3 Running slope shall be 1:10 maximum for 30 feet (9150 mm) maximum. Resting intervals complying with 16.2.8 shall be provided at distances no greater than 30 feet (9150 mm) apart.

16.4.9 Changes in Level. Obstacles in the beach access route shall be 1 inch (25 mm) high maximum.

16.4.10 Edge Protection. If the drop-off from the beach access route to the beach is 6 inches (150 mm) or higher, the beach access route shall have curbs, walls, railings, or projecting surfaces that prevent people from falling off the route. Edge protection shall be a minimum of 2 inches (50 mm). If the drop-off is greater than 1 inch (25 mm), but less than 6 inches (150 mm), then the edge must be beveled.

## **PICNIC ELEMENTS**

### **16.5 Fixed Picnic Tables**

#### **16.5.1 Minimum Number.**

16.5.1.1 Single Picnic Tables. Where one fixed picnic table is provided in a picnic area, the picnic table shall comply with 16.5.4 through 16.5.6, and shall be connected to an outdoor recreation access route complying with 16.3.

16.5.1.2 Multiple Picnic Tables. Where two or more fixed picnic tables are provided in a picnic area, at least 50 percent, but never less than two, shall comply with 16.5.4 through 16.5.6. In addition, at least 40 percent, but never less than two, of the accessible picnic tables shall be connected to an outdoor recreation access route complying with 16.3.

16.5.2 Dispersal. Accessible picnic tables shall be dispersed among the types of picnic areas provided. This provision shall not require an increase in the total number of accessible picnic tables required in 16.5.1

16.5.3. Number of Wheelchair Seating Spaces. An accessible picnic table shall have at least one seating space. Where the table top perimeter exceeds 24 linear feet, the number of wheelchair seating spaces shall comply with the following table:

Table 16.5.3

Table Top Perimeter  
Number of Spaces

25 lf - 44 lf  
2 spaces

45 lf - 64 lf  
3 spaces

65 lf - 84 lf  
4 spaces

85 lf - 104 lf  
5 spaces

16.5.4 Wheelchair Seating Space Size. The seating space shall contain knee space at least 27 inches (685 mm) high, 30 inches (760 mm) wide, and 19 inches (485 mm) deep. Toe clearance 9 inches (230 mm) minimum in height shall extend an additional 5 inches minimum from the knee clearance. (Figure to be developed). Clear floor or ground space complying with ADAAG 4.2.4.1 and 4.2.4.2 shall be provided at each seating space required to be accessible.

16.5.5 Table Clearance. A 36 inches (915 mm) minimum clear floor or ground space surrounding the useable portion of the table, measured from the seat shall be provided.

16.5.6 Surface. The surface of clear spaces required by 16.5.4 and 16.5.5 shall be stable and firm.

EXCEPTION: The provisions of 16.5.6 shall not apply where at least one of the conditions in 16.1.1 applies.

16.5.7 Slope. The slope of clear spaces required by 16.5.4 and 16.5.5 shall not exceed 1:50 in any direction.

EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.5.7 shall not apply where at least one of the conditions in 16.1.1 applies.

## **FIRE RINGS**

### **16.6 Fire Rings.**

#### **16.6.1 Minimum Number.**

16.6.1.1 Single Fire Ring. Where one fire ring is provided in a picnic area, the fire ring shall comply with 16.6.3 through 16.6.7, and shall be connected to an outdoor recreation access route complying with 16.3.

16.6.1.2 Multiple Fire Rings. Where two or more fire rings are provided in a picnic area, at least 50 percent, but never less than two, shall comply with 16.6.3 through 16.6.7. In addition, at least 40 percent, but never less than two, of these accessible fire rings shall be connected to an outdoor recreation access route complying with 16.3.

16.6.2 Dispersal. Accessible fire rings shall be dispersed among the types provided. This provision does not require an increase in the total number of accessible fire rings required in 16.6.1.

16.6.3 Clear Floor or Ground Space. All usable portions of the fire ring shall be provided with a clear floor or ground space extending 48 inches (1220 mm) minimum in depth from the fire ring and 48 inches (1220 mm) minimum wide.

EXCEPTION: The minimum depth shall be permitted to be reduced by the minimum necessary, but shall not be permitted to be less than 36 inches (815 mm) minimum where at least one of the conditions in 16.1.1 applies.

16.6.4 Fire Surface Height. The fire building surface shall be 9 inches (230 mm) minimum above the ground or floor surface.

16.6.5 Raised Edge. Where a raised edge or curb is provided on a fire ring, the combined distance over the edge or curb down to the fire building surface shall be 24 inches (610 mm) maximum. (Figure to be developed).

16.6.6 Slopes. Clear spaces shall have slopes no greater than 1:50 in all directions.

EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.6.6 shall not apply where at least one of the conditions in 16.1.1 applies.

- 16.6.7 Surface. The surface of the clear space required by 16.6.4 shall be stable and firm.  
EXCEPTION: The provisions of 16.6.7 do not apply where at least one of the conditions in 16.1.1 applies.

## **COOKING SURFACE, GRILLS, PEDESTAL GRILLS**

### **16.7 Cooking Surfaces, Grills, Pedestal Grills**

#### **16.7.1 Minimum Number.**

16.7.1.1 Single Cooking Surface. Where one cooking surface, grill, or pedestal grill is provided in an area, the cooking surface, grill, or pedestal grill shall comply with 16.7.3 through 16.7.7 and shall be connected to an outdoor recreation access route complying with 16.3.

16.7.1.2 Multiple Cooking Surfaces. Where two or more cooking surfaces, grills, or pedestal grills are provided in an area, at least 50 percent, but never less than two, shall comply with 16.7.3 through 16.7.7. In addition, at least 40 percent, but never less than two, of these accessible cooking surfaces shall be connected to an outdoor recreation access route complying with 16.3.

16.7.2 Dispersal. Accessible cooking surfaces shall be dispersed among the types provided. This provision does not require an increase in the total number of accessible cooking surfaces required in 16.7.2.

16.7.3 Cooking Surface Height. The cooking surface shall be 15 inches (380 mm) minimum and 34 inches (865 mm) maximum above the ground or floor surface.

16.7.4 Controls. Controls and operating mechanisms shall comply with ADAAG 4.27.1, 4.27.2, and 4.27.3.

16.7.5 Clear Floor or Ground Space. All usable portions of the cooking surface shall be provided with a clear floor or ground space which is 48 inches (1220 mm) minimum in depth measured from the cooking surface and 48 inches (1220 mm) minimum in width. (Figure to be developed).

EXCEPTION: The minimum depth shall be permitted to be reduced by the minimum necessary, but shall not be permitted to be less than 36 inches (815 mm) minimum where at least one of the conditions in 16.1.1 applies.

16.7.6 Slopes. Clear spaces shall have slopes no greater than 1:50 in all directions.

EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.7.6 shall not apply where at least one of the conditions in 16.1.1 applies.

16.7.7 Surface. The surface of the clear space required by 16.7.5 shall be stable and firm.

EXCEPTION: The provisions of 16.7.7 do not apply where at least one of the conditions in 16.1.1 applies.

## **FIXED TRASH AND RECYCLING CONTAINERS**

### **16.8 Trash and Recycling Containers.**

16.8.1 Trash and Recycling Containers. Each trash or recycling containers provided shall comply with 16.8.2 through 16.8.5 and shall be connected by an outdoor recreation access route complying 16.3.

EXCEPTION: 50 percent of the bins in multi-bin containers are exempt from this provision.

16.8.2 Clear Floor or Ground Space. Clear space shall comply with ADAAG 4.2.4.1 and 4.2.2.2.

16.8.3 Surface. The surface of the clear space required by 16.8.2 shall be stable and firm.

EXCEPTION: The provisions of 16.8.3 do not apply where at least one of the conditions in 16.1.1 applies.

16.8.4 Slopes. Clear spaces required by 16.8.2 shall have slopes no greater than 1:50 in all directions. EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.8.4 shall not apply where at least one of the conditions in 16.1.1 applies.

16.8.5 Controls and Operating Mechanisms. Controls and operating mechanisms shall comply with ADAAG 4.27.3 and 4.27.4.

EXCEPTION: The requirements of 4.27.4 do not apply to hinged lids and controls designed for large animal exclusion.

## **WOOD STOVES AND FIREPLACES**

16.9 Wood Stoves and Fireplaces.

16.9.1 Wood Stoves and Fireplaces. Each fireplace and wood stove shall comply with 16.9.2 and 16.9.5 and shall be connected by an outdoor recreation access route complying with 16.3.

16.9.2 Clear Floor or Ground Space. All useable portions of the wood stove or fireplace shall be provided with a clear floor or ground space with a minimum depth of 48 inches (1220 mm) measured from the wood stove or fireplace and minimum of 48 inches (1220 mm) wide.

EXCEPTION: The minimum depth shall be permitted to be reduced to no less than 36 inches (815 mm) where at least one of the conditions in 16.1.1 applies.

16.9.3 Controls. Controls shall comply with ADAAG 4.27.

16.9.4 Slopes. Clear spaces shall have slopes no greater than 1:50 in all directions. EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.9.4 shall not apply where at least one of the conditions in 16.1.1 applies.

16.9.5 Surface. The surface of the clear space required by 16.9.2 shall be stable and firm. EXCEPTION: The provisions of 16.9.5 do not apply where at least one of the conditions in 16.1.1 applies.

## **OVERLOOKS AND VIEWING AREAS**

16.10 Overlooks and Viewing Areas.

16.10.1 Number of Accessible Viewing Areas. Where viewing areas are provided on designated overlooks, each viewing area shall comply with 16.10.2 through 16.10.5 and be located on an outdoor recreation access route complying with 16.3 or a trail complying with 16.2.

EXCEPTIONS: 1. Where multiple viewing areas are provided, a minimum of one of each viewing opportunity for distinct points of interest shall be accessible. 2. The provisions of 16.10.1 do not apply where at least one of the conditions in 16.1.1 applies.

16.10.2 Maneuvering Space. The viewing area shall have at least one maneuvering space complying with ADAAG 4.2.3.

16.10.3 Unrestricted Viewing Opportunities. Each location providing viewing opportunities for distinct points of interest shall provide at least one unrestricted viewing opportunity for each distinct point of interest. Viewing opportunities shall accommodate eye levels between 32 inches (815 mm) minimum to 51 inches (1295 mm) maximum.

EXCEPTION: The provisions of 16.10.3 do not apply where at least one of the conditions in 16.1.1 applies.

16.10.4 Slope. The maneuvering space required by 16.10.2 shall have a slope which does not exceed 1:50 in any direction.

EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.10.4 do not apply where at least one of the conditions in 16.1.1 applies.

16.10.5 Surface. The surface of clear space required by 16.10.2 shall be stable and firm.

EXCEPTION: The provisions of 16.10.5 do not apply where at least one of the conditions in 16.1.1 applies.

## **TELESCOPES AND PERISCOPES**

16.11 Telescopes and Periscopes.

16.11.1 Minimum Number.

16.11.1.1 Where telescopes or periscopes are provided in an area, at least 20 percent, but never less than one, shall comply with 16.11.2 and 16.11.5. Where only one is provided, it shall comply with 16.11.2 and 16.11.5 and be also usable from the standing position. Telescopes and periscopes required to comply with this provision shall be connected by an outdoor recreation access route.

16.11.2 Controls. Controls and operating mechanisms shall comply with ADAAG 4.27.

16.11.3 Eye Piece. The eye piece shall be usable from the seated position for viewing each point of interest.

16.11.4 Surface Conditions. The surface conditions of the clear space required by ADAAG 4.27.2 shall be firm and stable.

16.11.5 Slope. The clear space required by ADAAG 27.2 shall have a slope which does not exceed 1:50 in any direction.

EXCEPTION: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

## **FIXED BENCHES**

16.12 Benches.

16.12.1 Minimum Number.

16.12.2.1 Single Bench. Where one fixed bench is provided in an area, the bench shall comply with 16.12.3 through 16.12.8.

16.12.2.2 Multiple Benches. Where fixed benches are provided in an area, at least 50 percent shall comply with 16.12.2, through 16.12.7. Of those required to be accessible by 16.12.2.2, at least 50% shall also comply with 16.12.8. At least 40 percent of fixed benches required to comply with 16.12.2.2 shall be connected to an outdoor recreation access route complying with 16.3.

EXCEPTION: The requirements of 16.12.1 do not apply to benches provided in assembly areas covered by ADAAG 4.1.3(19).

16.12.2 Dispersal. Accessible benches shall be dispersed among the types provided. This provision does not require an increase in the total number of accessible benches required in 16.6.1.

16.12.3 Height. The front edge of the seat shall have a height between 17 inches (430 mm) minimum to 19 inches (485 mm) maximum above the ground or floor space.

16.12.4 Clear Floor or Ground Space. At least one clear floor or ground space complying with ADAAG 4.2.4 shall be provided at one end of the bench and the space shall not overlap with other clear space requirements. The clear space shall be positioned to allow wheelchair users to be seated shoulder-to-shoulder with an individual seated on the bench.

16.12.5 Back Support. Back support shall be provided the full length of the bench.

16.12.6 Surface Conditions. The surface conditions of the clear space required by 16.12.5 shall be firm and stable.

EXCEPTION: The provisions of 16.12.6 do not apply where at least one of the conditions in 16.1.1 applies.

16.12.7 Slope. The clear space required by 16.12.5 shall have a slope which does not exceed 1:50 in any direction.

EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.12.7 do not apply where at least one of the conditions in 16.1.1 applies.

16.12.8 Armrest. Where required by 16.12.2, at least one armrest shall be provided on the bench and shall comply with ADAAG 4.26.3.

## **UTILITY SINKS (DEEP)**

16.13 Utility Sinks.

16.13.1 Utility Sinks (Deep). Where utility sinks are provided, at least 5 percent, but not less than one of each type provided, in each accessible room or space shall comply with 16.13.2 through 16.13.7 and shall be connected by an outdoor recreation access route complying with 16.3.

16.13.2 Clear Floor or Ground Space. Clear space complying with ADAAG 4.2.4 for a parallel approach shall be provided.

16.13.3 Slope. The clear space required by 16.13.2 shall have a slope which does not exceed 1:50 in any direction.

EXCEPTION: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

16.13.4 Surface. The surface of clear space required by 16.13.2 shall be stable and firm.

16.13.5 Height. The counter or rim shall be 34 inches (865 mm) maximum above the ground or floor surface.

16.13.6 Depth. The bottom of the bowl shall be 15 inches (380 mm) minimum above the ground or floor surface.

16.13.7 Controls. Controls and operating mechanisms shall comply with ADAAG 4.27.3 and 4.27.4.

## **STORAGE FACILITIES**

16.14 Mobility Device Storage.

16.14.1 Mobility Device Storage. Where storage facilities are provided and individuals using wheelchairs or other individual mobility devices transfer from one individual mobility device to another individual mobility

device, at least one storage facility shall comply with 16.14.2 through 16.14.6 and shall be connected by an outdoor recreation access route complying with 16.3.

16.14.2 Size. Storage facilities designed for mobility devices shall be 38 inches (965 mm) minimum in height, 28 inches (710 mm) minimum in width and 40 inches (1015 mm) minimum in length.

16.14.3 Clear Floor or Ground Space. Clear space complying with ADAAG 4.2.4 shall be provided.

16.14.4 Surface Conditions. The surface conditions of the clear space required by 16.14.3 shall be firm and stable.

EXCEPTION: The provisions of 16.14.4 do not apply where at least one of the conditions in 16.1.1 applies.

16.14.5 Slope. The clear space required by 16.12.3 shall have a slope which does not exceed 1:50 in any direction.

EXCEPTION: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

16.14.6 Controls and Operating Mechanisms. Controls and operating mechanisms shall comply with ADAAG 4.27.3 and 4.27.4.

## **FIXED PIT TOILETS**

### **16.15 Pit Toilet**

16.15.1 Pit Toilet. Where fixed pit toilets are provided, each pit toilet shall comply with 16.15.2 through 16.15.6.

16.15.2 Clear Floor or Ground Space. Clear floor or ground space shall be provided and shall comply with ADAAG 4.16.2.

EXCEPTIONS: 1. The clear floor or ground space required by ADAAG 4.16.2 shall be permitted to be reduced to 48 inches (1220 mm) by 48 inches (1220 mm) where at least one of the conditions in 16.1.1 applies. 2. The provision shall not apply where 48 inches (1220 mm) by 48 inches (1220 mm) clear floor or ground space can not be provided because at least one of the four conditions specified in 16.1.1 applies.

16.15.3 Height. The height of pit toilets shall comply with ADAAG 4.16.3.

16.15.4 Slope. Clear space required by 16.15.2 shall not have a slope exceeding 1:50 in any direction.

EXCEPTIONS: 1. Where surface conditions require slopes greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed. 2. The provisions of 16.15.4 do not apply where at least one of the conditions in 16.1.1 applies.

16.15.5 Grab Bars. Where the pit toilet is provided with walls, grab bars complying with ADAAG 4.16.4 shall be provided.

16.15.6 Surface. The surface of the clear space required to comply with 16.15.2 shall be stable and firm.

EXCEPTION: The provisions of 16.15.6 do not apply where at least one of the conditions in 16.1.1 applies.

## UTILITIES.

16.16.1 Utilities. Electric, water, sewage and other similar type utilities serving accessible elements, shall comply with 16.16.2 through 16.16.5.

16.16.2 Controls and Operating Mechanisms. Controls and operating mechanisms shall comply with ADAAG 4.27.

- EXCEPTIONS: 1. ADAAG 4.27.3 and 4.27.4 do not apply to sewage hookups.  
2. ADAAG 4.27.4 does not apply to hand pumps.

16.16.3 Water Spouts. Fixed water spouts shall be located 28 inches (710 mm) minimum to 36 inches (915 mm) maximum above the ground or floor surface and shall be centered at the edge of a 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum clear space.

16.16.4 Slopes. Clear spaces required 16.16.2 and 16.16.3 shall have a 1:50 maximum slope in any direction.

EXCEPTION: Where surface conditions require a slope greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

16.16.5 Surface. The surface of the clear space required by 16.16.2 and 16.16.3 shall be stable and firm.

## CAMPING FACILITIES

16.17 General. Where camping spaces (e.g. RV spaces and trailer spaces, tent spaces, camping shelters, or tent pads and platforms) are provided, accessible camping spaces shall comply with 16.17.

16.17.1 Camping Spaces - Minimum Number. Where camping spaces are provided, accessible camping spaces shall be provided in accordance with table 16.17. Where other camping elements are provided in accessible camping spaces, picnic tables, grills, fire rings, utilities, and other elements shall comply with the applicable sections of 16.

Table 16.17

Number of  
Camping Spaces  
Number of Accessible  
Camping Spaces (Tent, RV, Shelters)

1  
1

2 to 25  
2

26 to 50  
3

51 to 75  
4

76 to 100

5

101 to 150  
7

151 to 200  
8

201 to 300  
10

301 to 400  
12

401 to 500  
13

501 to 1000  
2 percent of total

1001 and over  
20 plus 1 for each 100  
over 1000

16.17.1.1 RV and Trailer Spaces. Where recreational camping vehicle or trailer spaces are provided, such spaces shall required to be accessible by table 16.17 shall comply with 16.17.2.1

EXCEPTION: Where camping spaces are designed for both tent camping and recreational camping vehicle or camping trailer use, at least 50 percent of the accessible multi-use spaces shall comply with 16.17.21 and the remainder shall be permitted to be reduced to 16 feet (mm) minimum.

16.17.1.2 Tent Spaces and Camping Shelters. Where camping spaces are provided which are designed for use for tent camping and camp shelters, accessible tent camping and camping shelter spaces shall comply with 16.17.2.2.

16.17.1.3 Identification. Accessible camping spaces shall be designated by the international symbol of accessibility complying with ADAAG 4.30.

EXCEPTIONS: 1. Signage shall not be required where all sites are accessible.

2. This provision does not apply where sites are assigned upon arrival or through a reservation system.

16.17.2 Accessible Camping Space Parking. Parking provided at camping spaces required to be accessible shall comply with the applicable sections of 16.17.2.

16.17.2.1 Recreational Camping Vehicle and Trailer Camping Spaces. Recreational camping vehicle spaces and trailer camping spaces shall have a width of 20 feet (6100 mm) minimum.

EXCEPTION: Where two accessible RV camping spaces are required by 16.17.1, one space is permitted to have a width of 16 feet (4880 mm) minimum.

16.17.2.2 Tent Camping Space and Shelter Camping Space. Where parking is provided within the tent camping space or shelter camping space, the parking space shall be a width of 16 feet (4880 mm) minimum.

16.17.2.3 Slope. Accessible parking spaces shall have a slope which does not exceed 1:50 in any direction.

EXCEPTION: Where surface conditions require a slope greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

## **TENT PAD AND TENT PLATFORMS**

16.17.3 Tent Pads and Tent Platforms. Tent pads and tent platforms required to be accessible shall comply with 16.17.3.1 through 16.17.3.6.

16.17.3.1 Clear Floor or Ground Space. The tent pad and platform shall include a 48 inches (1220 mm) minimum wide clear floor or ground space surrounding the tent.

EXCEPTION: The clear space shall be permitted to be reduced by the minimum necessary, but shall not be permitted to be less than 36 inches (915 mm) where at least one of the four conditions specified in 16.1.1 apply.

16.17.3.2 Tent Pad Surface. The tent pad shall have a surface which is firm and stable and designed to allow use of tent stakes and other securement devices.

EXCEPTION: The provisions of 16.17.3.2 do not apply where at least one of the four conditions specified in 16.1.1 apply.

16.17.3.3 Tent Platform Surface. The surface of the tent platform shall be stable and firm.

16.17.3.4 Slope. The tent pad and platform shall have a slope which does not exceed 1:50 in any direction.

EXCEPTION: Where surface conditions require a slope greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

16.17.3.5 Edge Protection. Curbs, walls, railing, or projecting surfaces that prevent people from slipping off the tent platform shall be provided and curbs shall be 3 inches (75 mm) high minimum.

16.17.3.6 Connection. The surface of the tent platform shall be accessed by either a ramp, by transfer, or directly from the adjacent ground surface.

16.17.4 Additional Campground Parking. In campgrounds with recreation camping vehicle or trailer camping spaces, at least one recreation camping vehicle parking space complying with 16.17.4.1 through 16.17.4.3 shall be provided in each general use parking area.

EXCEPTION: This section does not apply to recreation camping vehicles parking provided within individual camping spaces.

16.17.4.1 Parking Space. The space for the vehicle shall have a width of 12 feet minimum.

16.17.4.2 Access Aisle. An access aisle adjacent to the parking space shall be 8 feet wide minimum and extend the full length of the parking space.

16.17.4.3 Slope. Accessible parking spaces shall have a slope which does not exceed 1:50 in any direction.

EXCEPTION: Where surface conditions require a slope greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

## WARMING HUTS

### 16.18 Warming Huts

16.18.1 Warming Huts. Each warming hut shall comply with the applicable provisions of section 16 and shall contain a turning space complying with ADAAG 4.2.3.

## OUTDOOR RINSING SHOWERS

### 16.19 Outdoor Rinsing Showers.

16.19. Minimum Number. Where one or more rinsing showers are provided at a location, at least one will be a low shower complying with 16.19.1 and at least one shall be a high shower complying with 16.19.2. Where only one rinsing shower is provided, it shall comply with 16.9.1 and 16.19.2.

#### 16.19.1 Low Outdoor Rinsing Shower.

16.19.1.1 Height. A fixed shower head shall be provided and located 48 inches (1220 mm) minimum to 54 inches (1370 mm) maximum above the ground or floor.

EXCEPTION: A hand held shower spray unit complying with ADAAG 4.21.6 is permitted.

16.19.1.2 Grab Bar. Grab bars shall be provided and shall comply with ADAAG 4.26. In addition, at least one grab bar shall comply with one of the following provisions.

16.19.1.3 Vertical Grab Bar. Where the shower head is mounted on a post, a vertical grab bar shall be provided under the shower head and shall start 33 inches (840 mm) maximum above the floor and extend to within at least 3 in (75 mm) of the shower head.

16.19.1.4 Circular Grab Bar. Where the shower head is mounted on a post, a grab bar that surrounds the usable part of the post shall be provided. The grab bar shall be provided 33 inches (840 mm) minimum to 36 inches (915 mm) maximum above the floor.

16.19.1.5 Horizontal Grab Bar. A horizontal grab bar extending 18 inches (455 mm) minimum in both directions from the center line of the shower head shall be provided under the shower head. The grab bar shall be provided 33 inches (840 mm) minimum to 36 inches (915 mm) maximum above the floor.

16.19.1.6 Controls. Controls shall comply with ADAAG 4.27. If self-closing controls are used, the controls shall remain open for at least 10 seconds.

16.19.1.7 Clear Floor or Ground Space. A clear floor or ground space of 60 inches (1525 mm) diameter minimum shall be provided and shall be located so that the water from the shower head is directed toward the center of the clear space.

16.19.1.8 Slope. Where surface conditions require a slope greater than 1:50 for proper drainage, a 1:33 maximum slope is allowed.

#### 16.19.2 High Outdoor Rinsing Shower

16.19.2.1 Height. A fixed shower head shall be provided and shall be located a minimum of 72 inches (1830 mm) above the ground or floor.

EXCEPTION: A hand held shower spray unit complying with ADAAG 4.26.1 is permitted.

16.19.2.2 Grab Bar. Grab bars shall be provided and shall comply with ADAAG 4.26. In

addition, at least one of the grab bars shall comply with the following provisions.

16.19.2.3 Vertical Grab Bar. Where the shower head is mounted on a post, a vertical grab bar shall be provided under the shower head and shall be provided 33 inches (840 mm) maximum above the floor and extend to within at least 3 inches (75 mm) of the shower head.

16.19.2.4 Circular Grab Bar. Where the shower head is mounted on a post, a grab bar surrounding the usable part of the post shall be provided. The grab bar shall be provided 33 inches (840 mm) minimum to 36 inches (915 mm) maximum above the floor.

16.19.2.5 Horizontal Grab Bar. A horizontal grab bar extending 18 inches (455 mm) minimum in both directions from the center line of the shower head shall be provided under the shower head. The grab bar shall be provided 33 inches (840 mm) minimum to 36 inches (915 mm) maximum above the floor.

16.19.2.6 Controls. Controls shall comply with ADAAG 4.27.4. If self-closing controls are used, the controls shall remain open for at least 10 seconds.

## APPENDIX

This appendix contains material of an advisory nature and provides additional information that should help the reader understand the proposed minimum requirements of the guidelines or design buildings or facilities for greater accessibility. The paragraph numbers correspond to the sections or paragraphs of the guidelines to which the material relates and therefore are not consecutive (for example A16.1.1 contains additional information relevant to 16.1.1). Sections of the guidelines for which additional material appears in this appendix have been indicated by an asterisk. Nothing in this appendix shall in any way obviate any obligation to comply with the requirements of the guidelines themselves.

### A16.1 GENERAL

It is recognized that compliance with the provisions of section 16 may not necessarily result in an accessible facility for all persons with disabilities. The intent is to ensure that accessibility is considered for all newly constructed and altered trails and other outdoor elements, recognizing that natural environments may not always be compatible with fully accessible facilities.

### TRAILS

These technical provisions apply only to newly designed and constructed pedestrian trails, and altered portions of existing pedestrian trails that connect to an accessible trail or designated trailhead. Where new trails connect to existing inaccessible trails or do not connect to a designated trailhead, the technical provisions do not apply. However, trails should not be intentionally separated from an accessible trail or designated trailhead with the aim of avoiding the technical provisions. Accessible elements complying with 16.5 through 16.21 located along a trail are not required to be connected by an outdoor recreation access route.

### MAINTENANCE AND ALTERATIONS

The following guidance is provided to assist designers and operators distinguish between actions considered "maintenance or repair" and those considered an "alteration." Where actions are considered an "alteration," certain technical provisions from section 16 will apply. Routine or periodic maintenance activities do not trigger the technical and scoping provisions of section 16. For example, if an entirely new bridge were installed to replace a step stone crossing, the bridge would be required to comply with the relevant provisions of Section 16. The trail on either side of the new bridge, however, would not require modification.

As a general rule, alterations are performed to change the original purpose, intent, or design of a facility. Examples of actions that would be considered alterations include, but are not limited to:

- Installation of a new trail tread surface, bridge, boardwalk, railing, safety barrier, signage, and/or puncheon;
- Construction, reconstruction, or installation of a new trail segment, new built features such as restrooms or picnic areas, bridges, gates, benches, safety barriers, and/or steps;
- Removal of existing features;
- Hardening of trail surfaces; and
- Rerouting or widening a significant portion of an existing trail

Maintenance and repair are performed to return a facility to the standards or conditions to which it was originally designed and built. This type of work is not an alteration because it does not change the original purpose, intent, or design of the facility. It is recognized that in outdoor environments, the ability to maintain the facility is usually much more limited than in the built environment. Except in highly developed areas, maintenance and repair occurs relatively infrequently. Examples of actions that would be considered maintenance and repair includes, but are not limited to:

Removal of debris and vegetation such as downed trees or broken branches in the trailway, clearing the trail of encroaching brush or grasses, and/or removing rock slides;  
Maintenance of the trail tread such as filling of ruts and entrenchments, reshaping the trail bed, repairing the trail surface and washouts, installing rip rap (rock placed to retain cut and fill slopes), and/or constructing retaining walls or cribbing to support the trail tread;  
Replacing or installing necessary drainage structures such as drainage dips, water bars, or culverts, and/or realigning sections of trail to deter erosion or avoid boggy/marshy areas; and  
Repair of trail and/or trailhead structures, including painting, removing graffiti, and/or replacement of deteriorated, damaged, or vandalized parts of structures such as sections of bridges, boardwalks, information kiosks, fencing, and/or railings.

Although not required, resource managers are encouraged to maximize the opportunity to improve the accessibility of outdoor facilities through maintenance and repair activities. Every time a facility is maintained, the opportunity to improve access is present.

#### A16.1.1 EXTENT OF APPLICATION

The departures outlined in 16.1.1 are applied technical provision by technical provision and do not provide an overall exemption for the entire trail or outdoor element. When a departure is permitted, a specific exception to the respective technical provision can be applied only on that portion of the trail where the condition for departure exists. For example, a condition for departure allows the width of a trail to be reduced where a significant natural feature is located. However, the width of the trail before and after the significant area must meet the technical provision, and all other technical provisions (except width) will apply throughout the full length of the trail.

A16.1.1.1 Where compliance would cause substantial harm to cultural, historic, religious, or significant natural features or characteristics.

Examples of this condition include areas protected under Federal, State, or local laws, with species designated as threatened or endangered, or with designated wetlands that could be threatened or destroyed by full compliance with the technical provisions. Significant cultural features may include areas such as archaeological sites, sacred lands, burial grounds and cemeteries, Indian tribal protected sites, etc. Significant historical features may include properties on or eligible for the National Register of Historical Places or other places of recognized historic value. Significant religious features may include sites sacred to Native Americans and other properties designated or held sacred by an organized religious belief or church. Significant natural features may include a large rock outcrop or a unique water feature.

A16.1.1.2 Where compliance would substantially alter the nature of the setting or the purpose of the facility, or portion, of the facility.

Examples of this condition include a trail intended to provide a rugged experience such as a cross country training trail with a steep grade or a challenge course with abrupt and severe changes in level, where compliance with certain provisions would not provide the intended and desired level of challenge and difficulty to users. Other examples include trails that traverse over boulders and rocky outcrops where the purpose of the trail is to provide people with the opportunity to climb rocks. To remove the obstacles along the way or reroute the trail around the rocks would destroy the purpose of the trail.

Furthermore, compliance is not intended to negatively impact the unique characteristics of the natural setting. People using primitive trails, for example, expect to experience the outdoor environment in a more natural state with limited or no development. Evidence of manufactured building materials or engineered construction techniques in such a setting could change its primitive character, and therefore, the user's experience. In these settings, compliance with specific technical provisions, for example those related to surface and tread obstacles, could destroy the 'natural' or 'undeveloped' nature of the

setting. Actions may also compromise the 'nature of the setting' such as constructing an imported surface on a trail in a remote location or removing ground vegetation in meadows or alpine areas.

A16.1.1.3 Where compliance would require construction methods or materials that are prohibited by Federal, State, or local regulations or statutes.

Restrictions to protect or address environmental concerns imposed by Federal statutes such as the Wilderness Act, Endangered Species Act, and State and local statutes may require departure from one or more of the technical provisions in section 16. For example, Federally designated and some State designated Wilderness Areas prohibit the use of mechanized equipment, limiting construction methods to hand tools. In other areas, imported materials may be prohibited to maintain the integrity of the natural ecosystem. This provision is not intended to automatically exempt organizations restricted under regulations or statutes from the technical provisions specified in Section 16.

Many aquatic features protected under Federal or State laws have limited allowable construction practices. For example, a constructed water crossings required under the technical provisions might not be permitted under certain laws or regulations. Construction methods and materials employed in designated wetlands or coastal areas are also strictly limited.

"Local regulations and statutes" address conditions where "conservation easement" or "development rights" programs prohibit or restrict construction methods and practices. For example, where land is purchased from farms, certain use restrictions may prohibit the importation of surfacing materials. On the other hand, local regulations or statutes may not be developed or initiated with the sole purpose of prohibiting use by people with disabilities. For example, initiating a new local regulation that arbitrarily restricts trail width to a dimension that would not allow passage of wheelchairs or other mobility devices is not permitted under this conditional departure.

A16.1.1.4 Where compliance would not be feasible due to terrain or the prevailing construction practices.

The term "not feasible" is used in this situation to specify what is "reasonably do-able." It does not refer to the technical feasibility with the technical provisions. For example, providing a trail with a 1:20 slope or less up a 1,500 foot tall mountain using heavy construction equipment may be feasible, but the trail would be at least 5.8 miles long (rather than 2 miles long under a traditional back-country layout), and may cause inappropriate environmental and visual impacts. The intent of this conditional departure is to recognize that the effort and resources required to comply would be disproportionately high in relation to the level of access created. Although technically feasible, the effort and resources required are not "reasonable."

For example, complying with the technical provisions, for running slope (16.2.7) in areas of steep terrain may require extensive cuts or fills that would be difficult to construct and maintain, or cause drainage and erosion problems. Also, in order to construct a trail on some steep slopes, the trail may become significantly longer causing a much greater impact on the environment. Certain soils are highly susceptible to erosion. Another example might be in areas where soils expand and dramatically contract with water content. If compliance requires techniques that conflict with the natural drainage or existing soil, the trail would be difficult, if not impossible, to maintain.

This condition may also apply where construction methods for particularly difficult terrain or an obstacle would require the use of equipment other than that otherwise used throughout the length of the trail (i.e., techniques different from prevailing construction practices). One example is requiring the use of a bulldozer to remove a rock outcropping when hand tools are the commonly used method of construction for that trail.

Another example might be where compliance with the provision for a firm and stable surface conflict with the prevailing construction practices by requiring the importation of a new surfacing material that would not otherwise have been used. If the prevailing construction practices would not

include the importation of a new surface material and the natural surface material could not be made firm and stable, the trail would not be required to comply with that specific provision.

Trail construction practices vary greatly, from the use of volunteer labor and hand tools, to professional construction with heavy mechanized equipment. For alterations to an existing trail, the "prevailing construction practices" are the methods typically used for construction or maintenance of the trail. The available resources and the environmental conditions (e.g., soil type and depth, vegetation, natural slope) primarily determine the "choice" of construction practices (e.g., machinery, skilled operators, finances). The intent of this conditional departure is to ensure that compliance with the technical provisions does not require the use of construction practices that are beyond the skills and resources of the trail building organization. It is not intended to automatically exempt an organization from the technical provisions simply because of a particular construction practice, (e.g., the use of hand tools) or to suggest that hand tools can be selected as the tool of choice to avoid compliance when more expedient methods and resources are available.

## A16.2 TRAILS

Trails include, but are not limited to a trail through a forested park, a shared use path, or a back country trail. Trails covered by 16.2 do not include pathways such as sidewalks, pathways in amusement parks, commercial theme parks, carnivals, or between buildings on college campuses. These exterior accessible routes are covered by ADAAG 4.3.

A trail designed, designated, and constructed for pedestrian use may also have other uses, such as bicycling or in-line skating. Sections 16.2.1 to 16.2.10 apply only to trails where travel on foot is one of the designated uses for which the trail was created. For example, a trail designed specifically for mountain biking would not be considered a "pedestrian trail" whether or not pedestrians actually use the trail. However, a multi-use trail designated for both hiking and mountain biking would be considered a pedestrian trail and subject to these provisions.

Many trails are used as non motorized transportation facilities. Users may include bicyclists and skaters as well as pedestrians. The accessibility guidelines for outdoor developed areas apply to these trails. However, bicyclists and skaters have design needs that may exceed the minimum guidelines for trails in some areas. Where there are differences, the more stringent provision should be applied.

The primary design guide for bicycle and shared use facilities is the Guide for the Development of Bicycle Facilities from the American Association of State Highway and Transportation Officials (AASHTO), 1999. The AASHTO Guide defines "Shared Use Paths" as 'facilities on exclusive rights-of-way and with minimal cross flow by motor vehicles. The term is used in the transportation industry for facilities (often referred to as "bike trails") and built with transportation funds for non-motorized uses, such as bicyclist, skaters, and pedestrian ( In areas with heavy snow, shared used paths may be used by cross-country skiers or snowmobilers.) Shared use paths provide non motorized transportation connections between neighborhoods and communities. They may be along old railroad corridors or rivers, or pass through parks. Shared use paths are usually separated from adjoining roadways or streets either by distance or a barrier, and are usually distinct from sidewalks. They generally have relatively few driveways or street crossings. A summary of how the AASHTO Guide relates to the proposed accessibility guidelines for trails is included below. Trails designed for recreational use by mountain bicyclists are not expected to meet AASHTO Guidelines.

Comparison of American Association of State Highway and Transportation Officials (AASHTO) Guidelines for Bicycle Facilities and the Proposed Guidelines for Trails

Outdoor Developed Areas  
Accessibility Guidelines  
AASHTO Guide for the Development of Bicycle Facilities

#### 16.2.1 Surface:

Firm and stable.

Bicycles need the same firmness and stability as wheelchairs; skaters usually require a smooth, paved surface. Most shared use paths are paved, although crushed aggregate surfaces are used on some paths.

#### 16.2.2, Clear Tread Width:

36 inches (3 feet; 915 mm); exception for 32 inches (815 mm).

Shared use paths usually require a minimum 3 meter (10 foot) width, plus a 0.6 meter (2 foot) safety buffers on both sides. A 2.4 m (8 ft) width may be allowed in low use facilities. Posts or bollards installed to restrict motor vehicle traffic should be spaced 1.5 m (5 feet) apart. Posts or bollards should be brightly painted and reflectorized for visibility. When more than one post is used, use an odd number, with one on the centerline to help direct opposing traffic.

#### 16.2.3, Surface Openings (Gaps):

To prevent wheelchair wheels and cane tips from being caught in surface openings or gaps, openings in trail surfaces shall be of a size which does not permit passage of a 1/4 inch (13 mm) diameter sphere, elongated openings must be perpendicular or diagonal to the direction of travel; exception to permit parallel direction elongated openings if openings do not permit passage of a 1/8 inch (6 mm) sphere; second exception to permit openings which do not permit passage of a 1/2 inch (19mm) sphere.

The AASHTO Guide does not specify a maximum dimension for a surface opening, but openings should be minimized. Openings should not permit a bicycle wheel to enter. Grates should be flush with the surface, and elongated openings should be perpendicular to the direction of travel. (Diagonal openings are more difficult for bicyclists to negotiate). Where openings are unavoidable, they should be clearly marked.

#### 16.2.4, Protruding Objects:

ADAAG 4.4; provide a warning if vertical clearance is less than 80 inches (2030 mm).

Protruding objects should not exist within the clear tread width of a shared use path. Vertical clearance on shared use paths should be a minimum of 3 m (10 feet) or the full clear width and the safety buffers. Where vertical barriers and obstructions, such as abutments, piers, and other features are unavoidable, they should be clearly marked.

#### 16.2.5, Tread Obstacles (Changes in level, roots, rocks, ruts):

Up to 2 inches (50 mm); exception up to 3 inches (75 mm).

Tread obstacles are hazardous to bicyclists and skaters. The surface of a shared use path should be smooth and should not have tread obstacles.

#### 16.2.6, Passing Space:

At least 60 inches (1525 mm) width within 1,000 foot (300 m) intervals. Appendix note recommends more frequent intervals for some trail segments.

Shared use paths should have a minimum clear width of 3 m (10 ft), exception for 2.4 m (8 ft).

#### 16.2.7.1 Cross slope:

1:20 (5%) maximum; exceptions for open drains up to 1:10 (10%).

For drainage, shared use paths should have a minimum 2% (1:50) cross slope on a paved surface.

On unpaved shared use paths, particular attention should be paid to drainage to avoid erosion. Curves

on shared use paths may require super elevation beyond 2% (1:50) for safety reasons. The Guide suggests limited cross slope for accessibility reasons.

#### 16.2.7.2 Running Slope:

1:20 (5%) any length 1:12  
(8.33%) for up to 200 feet  
1:10 (10%) for up to 30 feet  
1:8 (12.5%) for up to 10 feet

No more than 30% of the total trail length shall exceed 1:12

Running slopes on shared use paths should be kept to a minimum; grades greater than 5 percent are undesirable. Grades steeper than 3 percent may not be practical for shared use paths with crushed stone or other unpaved surfaces. Where terrain dictates, grade

lengths are recommended as follows:

< 5% (< 1:20) any length  
5-6% (1:20-16.7) for up to 240 m (800 ft)  
7% (1:14.3) for up to 120 m (400 ft)  
8% (1:12.5) for up to 90 m (300 ft)  
9% (1:11.1) for up to 60 m (200 ft)  
10% (1:10) for up to 30 m (100 ft)  
11+% (1:9.1) for up to 15 m (50 ft)

#### 16.2.8, Resting Intervals:

Size: 60 inch (1525 mm) length, at least as wide as the widest trail segment adjacent to the rest area. Less than 1:20 (5%) slope in any direction. Resting areas are required where trail running slopes exceed 1:20 (5%), at intervals no greater than the lengths permitted under running slope (see 16.2.7.2 above).

The Guide does not address resting intervals.

#### 16.2.9, Edge protection:

Where provided, 3 inch (75 mm) minimum height. Handrails are not required.

The Guide does not address edge protection. Some kinds of edge protection may be hazardous to bicyclists and skaters. The Guide has minimum railing height recommendations when needed for safety reasons.

#### 16.2.10, Signs:

Accessible trails require designation with a symbol of accessibility, and information on total length of the accessible segment.

No traffic control sign information.

Guidance on signing and marking is provided in the Manual on Uniform Traffic Control Devices (MUTCD), incorporated by reference as a Federal regulation (23 CFR 655.601). A proposed amendment for Part 9 (Traffic Controls for Bicycle Facilities) was published in the Federal Register on June 24, 1999 (64 FR 33802-33806). A rulemaking is scheduled for March 2000 that will have an update for Part 4 (Signals), that will include provisions for pedestrian signals for people with disabilities.

The Guide for the Development of Bicycle Facilities is available through the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW, Washington, DC 20001, (202) 624-5800, fax (202) 624-5806, [www.aashto.org/bookstore](http://www.aashto.org/bookstore).

## A16.2.1 TRAIL SURFACE

Trail surfaces are required to be firm and stable. There are a spectrum of surfaces considered firm and stable and appropriate surfaces are not limited to surfacing materials such as asphalt and concrete. Many naturally occurring surfaces, such as crushed aggregate or soils containing some clay and a spectrum of sieve sizes, are considered firm and stable. Other natural surfaces may also become firm and stable when combined with a stabilizing agent. Wood planks, stone, grass, and packed dirt may also be considered accessible. The degree of firmness and stability may vary depending on the intended use and the expected direction and length of travel.

Preliminary information obtained through a small research project suggests that surfaces considered "firm" (i.e., does not give way significantly under foot) can range from very firm to moderately firm (defined in table A.) Similarly, surfaces considered stable (i.e., do not shift from side-to-side or when turning) can range from very stable to moderately stable.

The degree of firmness and stability desired or most appropriate is related to the intended use of the trail, the predominant direction(s) of travel, and the overall length of the trail. For example, a surface which is both very firm and very stable, is recommended for trails of more than .5 mile in length due to the duration of travel for a person with a disability. However, it may be acceptable for the surface to be moderately firm (rather than very firm) (using calculations and classifications in Table A below) for trails less than .5 but greater than .1 mile in length, and where the travel pattern is primarily linear. It may also be acceptable for the surface to be both moderately firm and moderately stable for trails less than .1 miles in length, and where the trail is moderately level (<3% slope).

Table A  
Calculation and Classification

### Firmness Classification Amount of Penetration

Firm  
Very Firm  
0.3 inch or less  
Moderately Firm  
greater than 0.3 and less than 0.5 inch

Not Firm  
greater than 0.5 inch

### Stability Classification Amount of Penetration

Stable

Very Stable  
0.5 inch or less

Moderately Stable  
greater than 0.5 and less than 1.0 inch

Not Stable  
greater than 1.0 inch

Surfaces that are moderately firm or stable may be appropriate in areas where a cushioned surface is preferred (e.g., for a multi use trail that includes equestrians.) Surfaces that are moderately firm and stable may also be appropriate on trails for winter use only because most trail surfaces are very firm and stable when frozen. Surfaces with a high degree of firmness and stability is critical for long distance trails so users may expend a minimum amount of energy over a given distance. A high degree of stability would be desirable for areas with multi-directional traffic.

#### Test Method for Firmness and Stability

The following test methodology is based on a preliminary test procedure for the measurement of surface firmness and stability which is one of the ways that firmness and stability can be measured. For more information, consult the "Accessible Exterior Surfaces Technical Report" available through the Access Board.

#### Test Equipment

The recommended test equipment for determining firmness and stability on outdoor surfaces is the rotational penetrometer, a device consisting of three main components: penetrator, frame, and reference base. The penetrator consists of an 8 by 1½ inch (20 cm by 3 cm) pneumatic caster and a means to press the caster into the surface with a known force. The frame is an attachment to the reference base that provides a means for allowing the penetrator to move freely, perpendicular to the reference base. The reference base is a flat, rigid, surface used to position and anchor the testing equipment relative to the test surface. It has an area through which the penetrator can pass and rotate freely without hindering the movement of the surface material being tested or interfering with the test results. The reference base may also provide a platform for the device operator during testing. The rotational penetrometer is instrumented with a method to measure the amount of vertical displacement of the penetrator into the test surface.

#### Test Procedure

To test surface firmness and stability, the rotational penetrometer is placed on the surface to be tested. A person stands on the reference base of the rotational penetrometer to stabilize its position during testing. The penetrator is lowered onto the test surface and an initial vertical displacement measurement is taken. A load of 44 ± 1 lbs. (20 ± 0.5 kg) is applied to the penetrator and then a second measurement of the amount of vertical displacement is completed. Then, with the load still applied, the penetrator caster is rotated through four 90 degree rotations about an axis perpendicular to the surface, alternating the direction of rotation (clockwise, counter-clockwise) after each 90 degree rotation. The final amount of vertical displacement is then measured. This test procedure is repeated on the same surface in a different test area until a total of five trials have been completed.

#### A16.2.2 CLEAR TRAIL TREAD WIDTH

The clear tread width of the trail is the width of the useable trail tread. It should be measured perpendicular to the direction of travel and on or parallel to the surface of the useable trail tread. The clear tread width should be measured at intervals no greater than 100 ft (30.5 m).

The minimum clear width of the trail is the width of the usable trail where obstructions restrict the clear tread width and where there is no alternate route to bypass the narrow area. The minimum clear width should be measured at the narrowest point on the trail or trail segment, perpendicular to the direction of travel and on or parallel to the surface of the useable trail tread.

#### A16.2.5 TRAIL TREAD OBSTACLES

Tread obstacles are natural features, such as roots, rocks, and ruts that cannot be avoided. The trail tread corridor is the area on or above the useable trail tread and below the specified design height for the trail. Tread obstacles in the trail tread corridor should comply with 16.2.5. The

dimensions of the tread obstacle within the trail tread corridor are as follows:

Width the size of the obstacle within the trail tread corridor, measured perpendicular to the direction of travel; Length the size of the obstacle within the trail tread corridor, measured parallel to the direction of travel; Height the vertical dimension of the tread obstacle, measured from the trail surface to the top or bottom of the obstacle; and Remaining clear tread width the remaining tread corridor that is available to traverse around or past the obstacle, should also be measured perpendicular to the direction of travel.

#### A16.2.6 TRAIL PASSING SPACE

Passing spaces are required on trails a minimum of every 1000 feet (305 m). However, if a clear tread width less than 60 in (1525 mm) occurs in an area where users cannot easily move off the trail tread, such as a boardwalk or other surface that is not at the same level as the surrounding natural ground surface or where noxious plants are adjacent to the trail tread, passing spaces should be provided at more frequent intervals. The provision of more frequent passing spaces should also be considered in areas with steep or difficult terrain or limited sight lines, so that users do not have to back up long distances to reach a passing space. More frequent passing intervals should also be considered on trails with heavier use, especially closer to trailheads and prominent features. If a bridge less than 60 in (1525 mm) wide is provided, a 60 in by 60 in (1525 mm by 1525 mm) minimum passing space should be provided at either end of the bridge. Passing intervals may be located to one side of the trail and/or co-located with resting intervals.

#### A16.2.7.1 TRAIL CROSS SLOPE

Trail cross slope is the angle of the trail tread perpendicular to the direction of travel (the side to side slope of the trail). The recommended unit of measurement is percent or rise over run (e.g., 2% or 1:50). Cross slope measurements should be determined across a 24 in (610 mm) width, at intervals not exceeding 100 ft (30.5 m) in length, from the trail head to the destination. Cross slope measurements are taken perpendicular to the path of travel over the most level section of tread at each point. See A16.2.10 for more information on measuring maximum cross slope.

#### A16.2.7.2 TRAIL RUNNING SLOPES

The running slope represents the steepness of individual segments of the trail and should be measured parallel to the direction of travel. The recommended unit of measurement is percent or rise over run (e.g., 2% or 1:50). Uphill and downhill trail segments should be measured separately. The distance measured may be as short as 10 ft. (3.1m), but should not exceed 100 ft (30.5m) in length. The running slope should be measured for each consecutive trail segment, from the trail head to the destination.

Uphill trail segments and downhill trail segments should not be located sequentially. A sudden grade change without a transition creates difficulties for wheelchair users. If there is no transition, there may be insufficient ground clearance. Then the footrests or anti-tip wheels may get caught on the surface. A sudden grade change without enough of a transition may cause a rapid weight transfer, causing an individual using a wheelchair to lose dynamic stability. Therefore, uphill and downhill trail segments should be separated by a relatively level transition segment with a slope no greater than 1:20. See A16.2.10 for information on measuring maximum running slope.

Handrails are not required on trails, even where a maximum running slope occurs. To counterbalance the lack of handrails, the length of steep trail segments permitted is limited and resting intervals are required. Where handrails are provided on a trail, they should comply with ADAAG 4.26.

It is recommended that the use of steps as an alternative route (i.e., in addition to the trail tread surface) be considered for areas where the running slope exceeds 10%, significant changes in elevation are required over a short distance, or significant changes in elevation occur repeatedly along a trail.

Providing steps will improve trail conditions for ambulatory people with disabilities, such as those who use crutches or walkers and those with heart or respiratory conditions.

## Slope and Rise

Slope represents the proportion of vertical rise to horizontal length and can be represented as a ratio, percentage, pitch or in degrees.

Rise: Length  
Percent  
Pitch  
Degree

1:8  
12.50  
.1250  
7.13

1:10  
10.00  
.1000  
5.71

1:12  
8.33  
.0833  
4.76

1:13  
7.69  
.0769  
4.40

1:14  
7.14  
.0714  
4.09

1:15  
6.67  
.0667  
3.81

1:16  
6.25  
.0625  
3.58

1:17  
5.88  
.0588  
3.37

1:18  
5.55

.0555  
3.18

1:19  
5.26  
.0526  
3.01

1:20  
5.00  
.0500  
2.86

1:50  
2.00  
.0200  
1.15

#### A16.2.8 TRAIL RESTING INTERVALS

Resting intervals should be provided between uphill and downhill trail segments if the running slope for either segment exceeds 1:12, as well as at intervals on a continuous slope as specified by 16.2.7.2. Rest intervals should be positioned so that a smooth, gradual transition is provided between running slope segments. Rest intervals may be located within the trail tread. However, locating the rest interval outside of the main path of travel will ensure that users who are resting are not at risk of collisions with other trail users.

More frequent resting intervals should be considered on trails with heavier use, and especially close to trailheads and prominent features. Resting intervals may be located to one side of the trail, and/or co-located with passing intervals.

#### A16.2.9 TRAIL EDGE PROTECTION

If edge protection is provided, a 3 in (75 mm) minimum height is required. The higher edge protection is required because trail surfaces are likely to have natural variations in the height of the surface. As a result, people with limited vision using navigation canes may search or scan at a higher level in natural outdoor environments than they would in an indoor environment. The higher edge protection will assist in its detection and identification and help to distinguish it from variations in the natural surface of the outdoor environment.

Regardless of the orientation or design of the edge protection, the height of edge protection provided on the trail should be measured in the vertical dimension to the highest point on the edge protection. Where edge protection is provided, small openings may be placed at the base of the edge protection close to the trail surface to allow water to drain off the trail. Care should be taken to clear debris that may build up along the edge protection.

#### A16.2.10 TRAIL SIGNS

Trails complying with the technical provisions and exceptions of 16 must be identified by an access symbol. While the committee did not decide on a particular sign, possible designs for considerations follow.

Given the wide variability in the actual trail characteristics that may be encountered on a trail, it is strongly recommended that objective information about the actual trail conditions be provided for all trails, whether or not they are accessible. Objective information about actual trail condition for all trails will assist users in determining whether the trail meets their own abilities. The provision of objective

information regarding the accessibility of the actual trail conditions is strongly recommended for all trails or trail segments that do not fully comply with the ADAAG Technical Specifications for Recreational Trails. The variability of conditions on these trails can be very dramatic, and may range from relatively minor variations from the technical standards to extreme conditions. Objective information about the trail conditions will enhance the accessibility, safety, and satisfaction of all trail users, both with and without disabilities.

It is further recommended that where more extensive trail information is provided (e.g., a top view map of trail and facilities), that the location of specific trail features and obstacles that do not comply with accessibility provisions be identified and that a profile of the trail grade and surface be included. Where more extensive trail information is provided (e.g., a top view map of trail and facilities), a profile of the trail grade and surface should be included, identifying any parts of the trail that are not accessible, along with the location of the accessible trail segments. Recommendations for measurement techniques for the individual trail variables are included at the end of this section.

#### Recommended Information to be Provided for Recreational Trails

Trails or Trail Segments that Comply with the ADAAG Technical Specifications for Recreational Trails (Section 16.2, including the exception levels):

For trails that comply with the ADAAG specifications for recreational trails it is recommended that the following additional information be provided:

Trail Symbol (see A16.2.10)  
Running slope (average and maximum);  
Cross slope (maximum);  
Clear Tread Width (minimum);  
Surface type;  
Trail length;  
Trail elevation (at trailhead); and  
Maximum elevation attained.

Trails that do not comply with one or more provisions of the ADAAG Technical Specifications for Recreational Trails (Section 16.2, including exemption levels):

For trails that do not comply with the ADAAG Technical Provisions for Recreational Trails, it is recommended that the following information be provided:

Running slope (average and maximum);  
Cross slope (average and maximum);  
Clear tread width (minimum and average);  
Surface type, firmness, and stability;  
Tread obstacles (magnitude and frequency);  
Trail length;  
Trail elevation (at trailhead);  
Total elevation change; and  
Maximum and lowest elevation attained

#### Recommended Measurement Techniques for Trail Information Variables

The following definitions describe how measurements should be made in order to provide the recommended information for trail signage:

Surface Information:

The type of material that makes up the majority of the surface should be described (e.g., packed soil, asphalt, crushed rock, wood). The firmness of the surface should be described as "very firm" or "moderately firm". The stability of the surface should be described as "very stable" or "moderately stable". (See Table A in Section A16.2.1 for information on measuring firmness and stability.)

#### Clear Tread Width (Minimum and Average)

Average clear tread width represents the typical clear tread width over the entire length of the trail. Average clear tread width should be determined by averaging the individual clear trail widths for each sequential segment of the trail from the trail head to the destination. (See section A16.2.2 for additional information on measuring clear tread width).

#### Tread Obstacles

See section A16.2.4 for information on measuring tread obstacles.

#### Slope

Average running slope represents the typical steepness of the entire length of the trail. The running slope should be measured for each sequential trail segment, from the trail head to the destination. It is recommended that trail segments be identified in 100 ft (30.5 m) maximum lengths. Calculation of the average running slope should be based on the running slope for each trail segment taking into consideration the interval over which each measurement was made.

Maximum running slope represents the section(s) of the trail with the steepest grade. Maximum running slope should be determined over the best (i.e., most level) path of travel for that segment of the trail. For example, a 10 feet wide trail may have a steep rut on one edge of the trail because that side of the trail has eroded significantly. The rut is 3 feet wide and continues along the trail for 50 feet. The running slope when you walk down into the rut is 20%. The remaining 7 feet on the right-hand side of the trail has a running slope of 10%. The maximum running slope would be measured as 20%.

#### Cross Slope

Average cross slope represents the angle of the tread over the entire length of the trail. The average cross slope should be determined by taking the average of the cross slope measurements taken at intervals of 100 ft (30.5 m) or less from the trailhead to the destination, along the easiest or most level path of travel along the trail. Trail cross slope should be measured over a 24 in (610 mm) width. Calculation of the average cross slope is the average value of all cross slope measurements taking into consideration the length of the interval between each measurement.

Maximum cross slope should be determined over the best (i.e., most level) path of travel for that segment of the trail. For example, a 6 foot wide trail may have a steep side slope on one edge of the trail. This section has an 8% cross slope that extends 2 feet from the edge of the trail tread. The remaining 4 feet on the other side of the trail has a cross slope of 3%. The maximum cross slope would be measured as 8%.

#### Trail Length

The distance from the trailhead to the destination or end of trail should be measured in linear feet along the center line of the trail.

#### Trail Elevation

The elevation should be recorded at the trail head, at the highest point on the trail and at the lowest point on the trail. Total elevation change is the sum of all elevation gains and losses, indicating the total amount of elevation which must be negotiated. The following are examples of generic signage

formats that include the access information recommended in Section A16.2.11.

### A16.3 OUTDOOR RECREATION ACCESS ROUTE

Accessible elements complying with 16.5 through 16.21 located along a trail are not required to be connected by an outdoor recreation access route.

#### A16.3.1 OUTDOOR RECREATION ACCESS ROUTE SURFACE

The degree of firmness and stability desired or most appropriate is related to the intended use of the outdoor recreation access route, the predominant direction(s) of travel and the overall length of the outdoor recreation access route. For example, a surface which is both very firm and very stable, is recommended for outdoor recreation access routes of more than .5 mile in length due to the duration of travel for a person with a disability. However, it may be acceptable for the surface to be moderately firm (rather than very firm) (using calculations and classifications in Section 16.2.1, Table A) in 16.2.1 for outdoor recreation access routes less than .5 but greater than .1 mile in length, and where the travel pattern is primarily linear. It may also be acceptable for the surface to be both moderately firm and moderately stable for outdoor recreation access routes less than .1 miles in length, and where the outdoor recreation access route is moderately level (<3% slope).

#### Test Methods for Surface Firmness and Stability

See section A16.2.1 for test methods related to firmness and stability.

#### A16.3.5 OUTDOOR RECREATION ACCESS ROUTE TREAD OBSTACLES

Beveling is only recommended where prevailing construction practices permit the use of hardened surfaces. Beveling with dirt or other natural surfaces is generally not effective because the beveled surface will quickly erode. For example, if you do not bevel a root or rock with concrete or a similar imported surface, the dirt will quickly erode and the benefit of the beveling will be lost. Tread obstacles should be avoided as much as possible, because they may pose a tripping hazard.

#### A16.3.6 OUTDOOR RECREATION ACCESS ROUTE PASSING SPACE

An outdoor recreation access route less than 60 inches (150 cm) wide may need more frequent passing intervals depending on use, or if the surface is constructed on a boardwalk or other surface that are is at the same level as the surrounding ground surface. More frequent passing intervals may be needed on heavily used outdoor recreation access routes, especially close to higher use elements. Passing intervals may be located to one side of the trail, and/or co-located with resting intervals.

##### A16.3.7.1 OUTDOOR RECREATION ACCESS ROUTE CROSS SLOPE

Cross slope on an outdoor recreation access route is defined as the angle of the route tread perpendicular to the direction of travel (the side-to-side slope of the route). The recommended unit of measurement is percent or rise over run (e.g., 2% or 1:50). Cross slope measurements should be determined across the most level 24 in (610 mm) width of the trail. Cross slope measurements should be taken perpendicular to the path of travel at intervals not exceeding 100 feet (30.5 m) in length.

Maximum cross slopes for outdoor recreation access routes represent the section(s) of the route with the greatest angle of the route tread. Maximum cross slopes should be determined over the most level path of travel along the route. (See A16.2.10 for more information on measuring cross slope.)

##### A16.3.7.2 OUTDOOR RECREATION ACCESS ROUTE RUNNING SLOPE

The running slope of an outdoor recreation access route represents the steepness of individual

segments of the route and should be measured parallel to the direction of travel. The recommended unit of measurement is percent or rise over run (e.g., 2% or 1:50). The distance measured should not exceed 100 ft (30.5 m) in length. The running slope should be measured for each sequential route segment.

Maximum running slope of an outdoor recreation access route represents the steepest section(s) of the route. The maximum running slope is measured over a 24 in (610 mm) distance parallel to the path of travel. (See 16.2.10 for more information on measuring running slope.)

Outdoor recreation access routes are not required to have handrails, even where a maximum running slope occurs. To counterbalance the lack of handrails, the provision for running slope limits the length of steep segments and requires resting intervals. Where handrails are provided, they should comply with 4.26. Uphill trail segments and downhill trail segments should not be located sequentially. A sudden grade change without a transition creates difficulties for wheelchair users. If there is no transition, there may be insufficient ground clearance. Then the footrests or anti-tip wheels may get caught on the surface. A sudden grade change without enough of a transition may cause a rapid weight transfer, causing an individual using a wheelchair to lose dynamic stability. Therefore, uphill and downhill trail segments should be separated by a relatively level transition segment with a slope no greater than 1:20.

#### A16.3.8 OUTDOOR RECREATION ACCESS ROUTE RESTING INTERVALS

More frequent resting intervals may be needed on heavily used outdoor recreation access routes, especially close to higher use elements. Resting intervals should be located to one side of the outdoor recreation access route, and/or co-located with passing intervals.

#### A16.3.9 EDGE PROTECTION

Where edge protection is provided, small openings may be placed at the base of the edge protection close to the trail surface to allow water to drain off the surface. Care should be taken to clear debris that may build up along the edge protection.

#### A16.4.2 BEACH ACCESS ROUTE SURFACE

The degree of firmness and stability desired or most appropriate is related to the intended use of the trail, the predominant direction(s) of travel, and the overall length of the beach access route. For example, a surface which is both very firm and very stable, (using calculations and classifications in Table A in Section 16.2.1) is recommended for beach access routes of more than .5 mile in length due to the duration of travel for a person with a disability. However, it may be acceptable for the surface to be moderately firm (rather than very firm) for beach access routes less than .5 but greater than .1 mile in length, and where the travel pattern is primarily linear. It may also be acceptable for the surface to be both moderately firm and moderately stable for beach access routes less than .1 miles in length, and where the beach access route is moderately level (<3% slope). See section A16.2.1 for test methods related to firmness and stability.

#### A16.5 PICNIC TABLES

This provision applies only to picnic tables that are "fixed" to the ground and includes picnic tables attached to the ground by a chain from the table to a concrete footing below ground.

##### A16.5.1.2 MULTIPLE PICNIC TABLES

Where two or more fixed picnic tables are provided in a picnic area, at least 50 percent, but never less than two, must comply with 16.5.4 through 16.5.6. An "area" refers to a designated location where picnic related elements are located. Areas may be separated and include different settings on the same site. For example, a picnic area located next to a lake in a park is considered a separate picnic

area from a pavilion with numerous picnic tables within the same park. Picnic "areas" may also be separated and designated by a name or connected to a separate entrance.

#### A16.5.4. WHEELCHAIR SEATING SPACE SIZE

The location of the space has not been specified in this provision. Where multiple tables are provided, it is recommended that a variety of space placements be included to provide users with a choice such as locating the space in the center of the seating area of the table or at the ends of the tables.

#### A16.5.9 PICNIC ELEMENTS SURFACE

#### A16.6.7 FIRE RINGS SURFACE

#### A16.7.8 COOKING SURFACES, GRILLS, PEDESTAL GRILLS SURFACE

#### A16.8.3 FIXED TRASH/RECYCLING CONTAINERS SURFACE

#### A16.9.5 WOOD STOVES AND FIREPLACES SURFACE

#### A16.10.4 OVERLOOK/VIEWING AREA SURFACE

#### A16.11.9 TELESCOPES AND PERISCOPES SURFACE

#### A16.12.9 BENCH SURFACE

#### A16.14.4 MOBILITY DEVICE STORAGE SURFACE

#### A16.15.6 PIT TOILETS SURFACE

#### A16.16.5 UTILITY SURFACE

#### A16.17.3.2 TENT PAD SURFACE

#### A16.17.11.3 CAMPING ELEMENTS TENT PLATFORM SURFACE

Ground surfaces in outdoor areas that are level (less than 3% slope in any direction to allow drainage) and where the distances traveled are less than 50 ft (e.g., around a picnic table) should be at least moderately firm and moderately stable. (See Table A in Section 16.2.1. and for more information related to test methods for surface firmness and stability.) See section A16.2.1 for test methods related to firmness and stability.

#### A16.8 TRASH AND RECYCLING CONTAINERS

The USDA Forest Service Technology and Training Center (San Dimas, CA) has issued a document which provides information about animal resistant garbage containers. Suggested designs may be useful in complying with these provisions; #9523 1205 SDTDC 444 East Bonita Avenue, San Dimas, CA 91773.

#### A16.10 OVERLOOK/VIEWING AREAS

Overlooks and viewing areas are specifically designed and constructed to provide an observation of a vista or to a specific point of interest, such as the view to a mountain range or down into a valley or to a waterfall or geologic formation. Each location that provides a viewing opportunity to one or more distinct points(s) of interest must have at least one unrestricted viewing area for each viewing opportunity. Safety barriers, guardrails, and walls used to protect the visitor from an edge or drop off, may not restrict this viewing opportunity. Designs including see-through panels in walls, screened openings or elevated platforms away from the guarded edge will provide the individual seated in a wheelchair or other mobility devices with the same view.

#### A16.11 TELESCOPES AND PERISCOPES

Telescopes and periscopes need to be designed for people of various heights, including children, people seated and those standing. Several options are available at locations where there is only one telescope or periscope, such as providing an adjustable scope, an adjustable seat, or a single base with two viewing scopes located at different heights. Use of swing away seat, small step or ring platform attached to the mounting post of the instrument would be useful for persons of short stature or children.

#### A16.19 RINSE SHOWERS

Outdoor showers are usually rinsing facilities that permit people to wash off sand, water, dirt, debris, etc. They are not designed for bathing, as they generally do not offer privacy and people are usually not permitted to disrobe.