

Malibu Parks Public Access Enhancement Plan

Park and Trail Accessibility Design Guidelines



CORRAL CANYON PARK



ESCONDIDO CANYON PARK



RAMIREZ CANYON PARK

Prepared by:



Moore Iacofano Goltsman, Inc.
800 Hearst Avenue
Berkeley, California 94710
www.migcom.com

June 2006

TABLE OF CONTENTS

INTRODUCTION.....	1
TRAIL DEFINITIONS	2
General Definitions	2
Accessibility Terms	2
Social Trails	3
PARK AND TRAIL ACCESSIBILITY GUIDELINES.....	4
Accessible Park Facilities	4
Doors and Gates.....	4
Drinking Fountains.....	5
Parking Areas	5
Restrooms.....	6
Telephones and Text Telephones	6
Walks	7
Accessible Trails and Trail Facilities.....	8
Hiking Trails	9
Multiuse Trails.....	11
Outdoor Recreation Access Routes	12
Beach Access Routes.....	13
Trailheads	14
Benches	15
Camping Facilities	16
Equestrian Facilities at Trailheads.....	18
Grills	19
Overlooks.....	19
Picnic Tables	20
Storage Facilities for Assistive Devices	22
Telescopes and Periscopes.....	22
Toilet Facilities	23
Trail Signs	23
Trash and Recycling Containers	24
Utilities	24
Utility Sinks	24
BEST PRACTICES FOR DESIGNING ACCESSIBLE TRAILS	25
Drainage Control and Trails.....	25
Trails in Wet Areas	28
Trails on Steep Cross Slopes.....	30
Trails on Flat Grades.....	31
Eroding and Hazardous Trail Edges	32
Trails on Sandy Soils	33
Trails in Proximity to Sensitive Resources.....	34
Trails Damaged by Maintenance Vehicle Use.....	35

REFERENCES	36
Visitor Use and Experience	36
Accessibility	36
Bicycling.....	37
Equestrian Facilities.....	37
Resource Management.....	37
Sustainable Design and Construction	37
Trail Construction.....	37
Multiuse Trails.....	38
General Trail Information.....	38
APPENDIX: RECREATION PROGRAM AND FACILITY ACCESSIBILITY	
GUIDELINES, STANDARDS AND RESOURCES	39
Introduction.....	39
Federal Accessibility Standards and Regulations	39
U.S. Department of Justice.....	39
U.S. Access Board.....	40
State of California Accessibility Standards and Regulations	44
Title 24, California Building Code	44
Division of State Architect.....	45
Resources for Providing Accessible Programs and Facilities.....	45
Resources for Assistive Technologies (General).....	48
ABLEDATA	48
California Assistive Technology System (CATS).....	49
International Commission on Technology and Accessibility.....	49
Alternative Format Communications.....	50
American Sign Language Interpreters	50
Assistive Listening Systems and Devices.....	51
Closed Caption Machine.....	51
Text Telephone (TDD)	51
Transportation	52
Guide to Disabilities and Disability Etiquette	52
Lending Library of Assistive Technology Equipment.....	53

INTRODUCTION

Trails are an important component of outdoor recreation. They provide the means for one of the primary activities offered by State Parks....

People with disabilities seek out park activities such as camping, hiking, sightseeing, exploring exhibits and taking tours with the same interest and enthusiasm as other visitors. There are two kinds of accessibility that must be addressed in order to allow all visitors equal access to park activities: *physical accessibility* and *program accessibility*. Physical accessibility requires an integrated network of facilities, including routes of travel, to be barrier free. Program accessibility includes physical accessibility, but also requires non-discriminatory policies, procedures and communication methods that allow people with hearing, visual or learning disabilities to receive the full benefit of a park program.

California State Parks Transition Plan, June 2001

The following accessibility design guidelines for park facilities and trails and the best practices for accessible trail design incorporate the *Malibu Parks Public Access Enhancement Plan* policies related to providing equal access to park and trail activities. An important goal of this Plan is to provide integrated recreational experiences for all visitors—with and without disabilities—employing the principles of universal design that are incorporated into these accessibility design guidelines. Where full compliance with these accessibility guidelines is determined to be infeasible, trails and trail facilities will incorporate those accessible features described here that can be reasonably accommodated in order to provide the greatest degree of accessibility for the widest range of abilities.

The design guidelines are intended to supplement, not replace, the joint agency standards of the National Park Service, California State Parks, the Mountains Recreation and Conservation Authority and the Santa Monica Mountains Conservancy, which are currently being finalized for environmental review (draft *Santa Monica Mountains National Recreation Area Trails Management Plan* or TMP). In particular, the TMP will provide common standards for multiuse trails; signage for trail uses, wildlife and degree of difficulty; and access for mountain bicycles.

The appendix contains additional resources to aid park staff in the delivery of accessible recreation programs as well as the construction and maintenance of accessible park facilities.

TRAIL DEFINITIONS

General Definitions

- **Trails** refer to routes that are designed, designated or constructed for recreational hiking use or provided as a pedestrian alternative to vehicular routes within a transportation system. In this Plan trail is used as a general term that includes hiking trails, multiuse trails, walks that are part of the trail system, outdoor recreation access routes and beach access routes.
- **Accessible trails** refer to newly constructed and altered trails that meet the technical requirements of federal accessibility guidelines discussed in the next section and in the guidelines section of this chapter.
- **Multiuse trails** (sometimes called shared use paths) refer to trails designated for pedestrian, equestrian and mountain bicycle or other non-motorized wheeled use, such as wheelchairs (with or without motors). Multiuse trails can also include accessible trails. Multiuse trails are the basic components of the *Malibu Parks Public Access Enhancement Plan*.
- **Walks** refer to exterior pathways (including sidewalks) with a prepared surface intended for pedestrian use. Although federal regulations make a distinction between trails and walks, portions of some trails at developed sites are classified as walks and are included under the general classification of trails.
- **Social trails** are informal, unofficial paths or shortcuts that have been created over the years by consistent human use. While these may appear no different than other trails to users, social trails tend to impact natural, cultural and historic resources more than other routes that were designed and constructed as trails. Although not a classified trail, social trails are also described so that guidance is provided when renovating or closing them is proposed as part of the Plan.
- **Overlooks and viewing areas** are trail features that are specifically designed and constructed to provide unobstructed observation of a vista or a specific point of interest.
- **Trailheads** are points of access to trails intended for public use, which may be reached by pedestrian or vehicular access, including bicycles and public transit.

Accessibility Terms

Four types of accessible routes have been defined by federal regulatory committees or federal legislation. These include trails and walks (which are defined in the previous section), outdoor recreation access routes and beach access routes. Outdoor recreation and beach access routes refer to portions of trails that are intended to provide access to specific outdoor recreational activities for people with disabilities.

- **Outdoor recreation access routes** refer to continuous unobstructed paths designed for pedestrian use that connect accessible elements within a picnic area, camping unit or designated trailhead.
- **Beach access routes** are continuous unobstructed paths designated for pedestrian use that cross the surface of a beach.

These routes and other features associated with trails, including designated overlooks, designated trailheads and trail signs, have specific design criteria that are described in the Access Board recommendations on accessibility and in the following sections of this chapter (Regulatory Negotiation Committee 1999).

Social Trails

Many sensitive areas of the California coastline are adversely affected by the ad-hoc creation and use of social trails by both hikers and bicyclists. Recommendations for social trails include:

- Upgrading the trail to an official multiuse trail, including making improvements to increase visitor safety and enjoyment and to increase accessibility for persons with disabilities.
- Closing the trail in order to increase visitor safety and/or protect natural, cultural and historic resources. Suggested techniques for social trail closures are included in the Best Practices section of these guidelines.
- Replacing the trail in the same general area with a designed trail in a better location (one that does not pose threats to human use or natural resources).

PARK AND TRAIL ACCESSIBILITY GUIDELINES

One of the goals of the *Malibu Parks Public Access Enhancement Plan* is to provide greater access to trails and their associated cultural, historic and natural resources to all visitors, including persons with disabilities, by incorporating the following accessibility guidelines for trails and trail facilities.

Accessible Park Facilities

Portions of trails in this Plan that would be considered walks and park facilities such as restrooms and parking lots would be improved or constructed under the current requirements specified in the Uniform Federal Access Standards (UFAS), Americans with Disabilities Act Design Guidelines (ADAAG), the California Code of Regulations, Title 24, Part II, California Building Code (CCR) and the California State Historical Building Code (SHBC).

Currently the accessibility guidelines associated with these regulations, the ADA Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS) are being updated and integrated into a single, consistent set of guidelines. When the final guidelines establishing new ADA Accessibility Guidelines are published, those portions of new trails that are considered walks and other park facilities will be designed to the revised standards.

All new construction of and renovations to existing park features that are subject to ADAAG, ABA and Title 24 requirements for accessibility (such as drinking fountains, parking areas, restrooms, telephones and walks) will meet those requirements.

Doors and Gates

The following accessibility guidelines apply to doors and gates at trailheads and in more developed areas in the *Malibu Parks Public Access Enhancement Plan*.

Clear Width: Doorways and gateways should have a minimum clear opening of 815 mm (32 inches) with the door open 90 degrees, measured between the face of the door and the opposite stop.

Maneuvering Clearances at Doors and Gates: All doors and gates that are not automatic or power-assisted require level and clear maneuvering spaces, which vary in size and location depending on how the door is approached by the user. The technical requirements for accessibility found in ADAAG and Title 24 should be consulted when designing new doorways or gateways or when remodeling existing facilities.

Two Doors in a Series: The minimum space between two hinged or pivoted doors or gates in a series should be 1220 mm (48 inches) plus the width of any door swinging into the space. Doors in series should swing either in the same direction or away from the space between the doors.

Thresholds at Doorways and Gateways: Thresholds at doorways should not exceed 13 mm (1/2 inch). Raised thresholds and floor level changes at accessible doorways need to be beveled with a slope no greater than 1:2 (50 percent).

Door and Gate Hardware: Handles, pulls, latches, locks and other operating devices on accessible doors and gates should be shaped so that they are easy to grasp with one hand and do not require tight grasping, pinching or twisting. Lever-operated mechanisms, push-type mechanisms and U-shaped handles are acceptable designs. Door and gate hardware should be mounted no higher than 1220 mm (48 inches) above the finished floor.

Door and Gate Closers: If a door has a closer, then the sweep period of the closer should be adjusted so that the door will take at least 3 seconds to move from an open position of 70 degrees to a point 75 mm (3 inches) from the latch, measured to the leading edge of the door.

Door and Gate Opening Force: The maximum force for pushing or pulling open a door or gate should not exceed 22.2 N (5 lbf).

Drinking Fountains

The following accessibility guidelines apply to drinking fountains at trailheads and in more developed areas in the *Malibu Parks Public Access Enhancement Plan*. Drinking fountains should be located on an accessible route and should have a clear level space 760 mm by 1220 mm (30 by 48 inches) in front of the fountain.

Spout Position: Since two spout heights allow for greater accessibility for people who have difficulty bending over, each drinking fountain will have a high and low spout. In order to be accessible for persons who use wheelchairs, the low spout needs to be no higher than 915 mm (36 inches), measured from the ground surfaces to the spout outlet. The spouts will be located within 150 mm (6 inches) of the front of the fountain with a water flow substantially parallel to the front in a stream that is at least 100 mm (4 inches) high.

Controls: Operating mechanisms will be located on the front of the fountain or within 150 mm (6 inches) of the front. In order to be easily operable with one hand, the controls must not require tight grasping, pinching or twisting. The force required to activate controls will be no greater than 22.2 N (5 lbf).

Parking Areas

The technical requirements for accessibility found in ADAAG and Title 24 apply to parking areas at trailheads and in more developed areas in the *Malibu Parks Public Access Enhancement Plan*. Parking areas meeting the combined technical requirements for stall and van parking signs, stall markings, stall widths and lengths, access aisles, vertical clearance at van spaces, level spaces and access aisles, ramps and other parking area features should be located on an accessible route. Reserved accessible spaces in these lots should be located as near as possible to accessible building and site entrances. Table 1 summarizes recommendations for the minimum number of accessible parking spaces and van accessible parking spaces that should be provided based on the overall number of available parking spaces at each site.

TABLE 1 ACCESSIBLE PARKING SPACES	
Spaces in Parking Lot	Number of Accessible Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
Required Number of Van Accessible Spaces	
1 out of every 8 accessible spaces	

The guidelines for parking at campsites are included in the following section on **Accessible Trails and Trail Facilities**. Parking areas at trailheads should be connected to other trailhead features by an outdoor recreation access route, which is also described in the following section.

Restrooms

The technical requirements for accessibility found in ADAAG and Title 24 apply to single-user restrooms at trailheads and in more developed areas in the *Malibu Parks Public Access Enhancement Plan*. Although accessible prefabricated restroom units may meet ADAAG requirements, it may be necessary to request custom alterations so that they also meet additional California Title 24 requirements. Restrooms meeting the combined technical requirements for signage, clear floor space inside the restroom and around the toilet, lavatory sinks, urinals, switches and controls, electrical outlets, grab bars and doors should be located on an accessible route. A continuous roll of paper (rather than single sheets) is recommended where toilet paper is provided. The guidelines for trailside or campsite restroom facilities (for example, pit toilets) are included in the following section on **Accessible Trails and Trail Facilities**.

Telephones and Text Telephones

The following accessibility guidelines apply to telephones at trailheads and in more developed areas in the *Malibu Parks Public Access Enhancement Plan*. Telephones should be located on an accessible route and should have a clear level space 760 mm by 1220 mm (30 by 48 inches) in front of them. Care should be taken that telephones or their enclosures are not protrusion hazards on an accessible route. Although an outlet and a shelf for portable text telephones (TDDs) should be included with each pay telephone, access to permanently installed TDDs or portable units provided by the Conservancy/MRCA may only be available at more developed park sites, such as Ramirez Canyon Park.

Controls: The telephone cord length should be a minimum of 735 mm (29 inches) long. In general, telephones should be hearing aid compatible, with volume controls, capable of a minimum of 12 dbA and a maximum of 18 dbA above normal (phones with volume controls should be identified with the appropriate symbol of accessibility). Touch-tone controls are accessible to many people with disabilities, so they should be provided where service for such equipment is available.

Text Telephones (TDDs): Pay telephones designed to accommodate a portable text telephone need to be equipped with a shelf (having a vertical clearance of 152 mm or 6 inches) and an electrical outlet within or adjacent to the telephone enclosure. The pay telephone handset must be capable of being placed flush on the surface of the shelf.

Walks

The following accessibility guidelines apply to those portions of trails that may be considered to be walks in the *Malibu Parks Public Access Enhancement Plan* (Figure 1: Ramirez Canyon Walk).

Surface: In order to make walks accessible to persons with disabilities, surfaces must be firm and stable. Generally, walks in developed areas in this Plan will have hard surfaces including resin-based soil stabilizers, asphalt, concrete or boardwalk (wood, recycled wood or plastic lumber).

Width: In order to be accessible for persons with disabilities, walks need to be at least 1.2 meters (4 feet) wide, although 1.5 meters (5 feet) is the preferred width since it allows passing space for wheelchair users. When walks greater than 61 meters (200 feet) have less than 1.5 meters (5 feet) of clear tread width, passing spaces would be provided at least every 61 meters (200 feet) to make them accessible.

Grade: In order to be considered accessible to persons with disabilities, the running slope of a walk would be 1:20 (5 percent) or less with a cross slope no greater than 1:50 (2 percent).



FIGURE 1: RAMIREZ CANYON WALK

Accessible Trails and Trail Facilities

Most trails and trail facilities in the *Malibu Parks Public Access Enhancement Plan* would be improved or constructed under the current recommendations from the U.S. Architectural and Transportation Barriers Compliance Board (*Outdoor Developed Area Guidelines*, Federal Access Board Regulatory Negotiation Committee 1999). When these recommendations are adopted, they will become a part of the revised ADA Accessibility Guidelines (ADAAG). Since the Access Board is currently in the process of preparing a proposed rule based on the Regulatory Negotiation Committee's report, no specific regulations applying the Americans with Disabilities Act (ADA) to trails were in effect at the time this Plan was prepared. However, this Plan proposes to make improvements to existing trails to enhance their accessibility and construct new accessible trails using the current Access Board recommendations.

The Access Board's guidelines for outdoor developed areas also include recommendations for the provision of outdoor recreation and beach access routes and for designing overlooks, camping and picnic facilities and trail signs, which are described more fully below.

In general, when considering the feasibility of constructing a new accessible trail, making improvements to increase accessibility on an existing trail, providing accessible trail features or constructing outdoor recreation or beach access routes, the following conditions would be considered as exceptions to these guidelines:

- Where compliance would cause substantial harm to cultural, historic religious or significant natural features or characteristics;
- Where compliance would substantially alter the nature of the setting or the purpose of the trail;
- Where compliance would require construction methods or materials that are prohibited by law; or
- Where compliance would not be feasible due to terrain or prevailing construction practices.

The intent of this Plan is to provide accessible park and trail facilities. Where a trail cannot meet all of the guidelines due to any of these exceptions, efforts will be made to improve or construct as much of the trail as feasible to be accessible and to provide trail facilities that meet the accessibility guidelines. For example, if the construction of steps, which are a barrier to some people with mobility disabilities, is the only feasible alternative in a particular trail alignment, those steps will be designed to meet ADAAG and Title 24 technical requirements. The portions of the trail that precede and follow the steps will be designed to meet the trail accessibility guidelines to the maximum extent possible. In addition, trail signs at designated trailheads will provide information about actual trail conditions to help visitors determine the expected levels of difficulty. Fully accessible trails will be identified using the International Symbol of Accessibility (*Figure 2*).

These exceptions would also allow the development of challenging trails in some areas where existing conditions might prohibit the construction of accessible hiking trails.

Hiking Trails

Increased trail experiences can be provided to persons with disabilities by following recommended trail construction guidelines for accessibility. The degree of accessibility, either fully or partially accessible, is usually dependent on resource, topographic or other constraints. Fully accessible trails are those that meet the minimum recommended guidelines as described below. Some trails may not be fully accessible in that they cannot meet all of the guidelines along the entire length of the trail. However, improvements could be made to any trail to expand the range of visitor use it can accommodate.



FIGURE 2: INTERNATIONAL SYMBOL OF ACCESSIBILITY

Surface: In order to make trails accessible to persons with disabilities, trail surfaces must be firm and stable. Depending on the intended use of the trail, underlying soil and nearby resources, trail surfaces could be soft (permeable) or, in limited circumstances, hard (with varying degrees of permeability). Generally, natural or soft surfaces are preferred in this Plan. Surfaces may be stabilized to provide increased accessibility and increased trail longevity. Means of stabilizing trails include using amendments of crushed rock to strengthen and improve the natural surface, wood chips, fine granular stone (also referred to as crusher fines or decomposed granite) or recycled materials. Hard surfaces include resin-based soil stabilizers, asphalt, concrete or boardwalk (wood, recycled wood or plastic lumber).

Width: Hiking trails could vary in width. (*Figure 3: Typical Trail Profile*). Typically, clear tread widths of trails could range from 600 mm to 1.8 meters (2 feet to 6 feet). However, the minimum width of accessible trails is generally 900 mm (3 feet) or 815 mm (32 inches) in those areas considered exceptions to the guidelines. When trails have less than 1.5 meters (5 feet) of clear tread width, passing spaces would be provided at least every 300 meters (1000 feet). Boardwalks would have a minimum clear tread width of 1525 mm (5 feet).

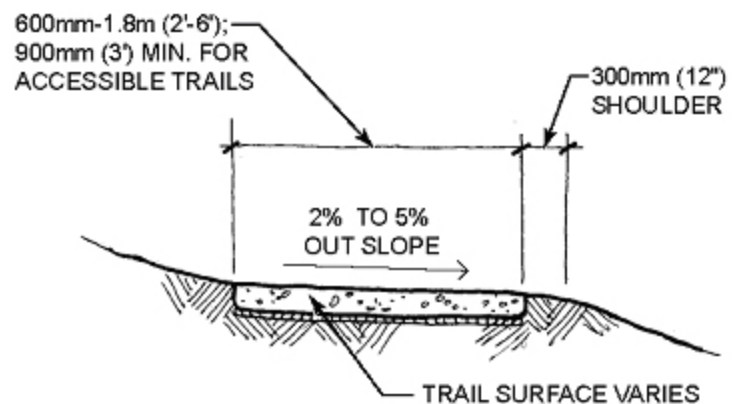


FIGURE 3: TYPICAL TRAIL PROFILE

Grade: Hiking trails could be designed with a range of grades from flat to steep in order to provide trail users a variety of challenges. In general boardwalks would have easy grades. No more than 30 percent of the total length of a designated accessible trail can exceed a running slope of 1:12 (8.3 percent) or have a cross slope greater than 1:20 (5 percent). In general, the running slope of an accessible trail would be 1:20 (5 percent). However, steeper trails could be considered accessible in the following conditions:

- Maximum running slope of 1:12 (8.3 percent) for 60 meters (200 feet) with resting intervals.

- Maximum running slope of 1:10 (10 percent) for 9 meters (30 feet) with resting intervals.
- Maximum running slope of 1:8 (12.5 percent) for 3 meters (10 feet) with resting intervals.

Resting Intervals: Due to the steepness of much of the coastside terrain, it is anticipated that many new trails constructed under this Plan would have running slopes close to the maximums for accessible trails. Resting intervals, properly spaced, provide a greater degree of accessibility for persons with disabilities. These resting areas should be at least 1.5 meters (5 feet) long and as wide as the trail with a cross slope of 1:20 (5 percent) or less in order to be accessible.

Edge Protection: Edge protection is often provided on trails to increase safety. When it is provided, it should be at least 75 mm (3 inches) high since a lower surface might not be obvious or detectable to people with limited vision who use canes.

Obstacles: The following are considered obstacles to trail users and should be minimized in trail construction. The presence of any of these obstacles would prevent a hiking trail from being a fully accessible trail:

- **Openings in trail surfaces** that allow the passage of a 13 mm (½ inch) diameter sphere or elongated openings that are parallel to the dominant direction of travel that allow the passage of a 6.5 mm (¼ inch) diameter sphere.
- **Protruding objects** that are lower than 2030 mm (80 inches) above the trail surface. Where vertical clearance of a trail is reduced to less than 2030 mm (80 inches), a barrier to warn blind and visually impaired persons will be provided.
- **Tread obstacles** greater than 50 mm (2 inches) high. On trails with running slopes and cross slopes less than 1:20 (5 percent), tread obstacles, even those with beveled edges, should not be greater than 75 mm (3 inches) high.

Multiuse Trails

Multiuse trails in the *Malibu Parks Public Access Enhancement Plan* will be designed to accommodate hikers, mountain bicyclists and equestrians—with and without disabilities (*Figure 4: Typical Multiuse Trail Profile*). The guidelines for accessible multiuse trails are, in general, the same as those for accessible hiking trails. However, the following recommendations for designing safe and enjoyable trails for bicyclists and equestrians should also be considered when designing multiuse trails in this Plan.

Width: Typically, multiuse trail corridors could range from 3.6 meters to 4.2 meters (12 feet to 14 feet) wide. The optimum trailbed width is 2.5 meters to 3 meters (8 feet to 10 feet).

Grade: Multiuse trails for use by hikers, mountain bicyclists and equestrians should be designed with more moderate grades than challenging hiking trails might have. The recommended maximum sustained running slope for multiuse trails with equestrian use should be 1:10 (10 percent), with a maximum slope of 1:5 (20 percent) for stretches of trail less than 50 yards long. The cross slope for equestrian trails should not exceed 1:25 (4 percent).

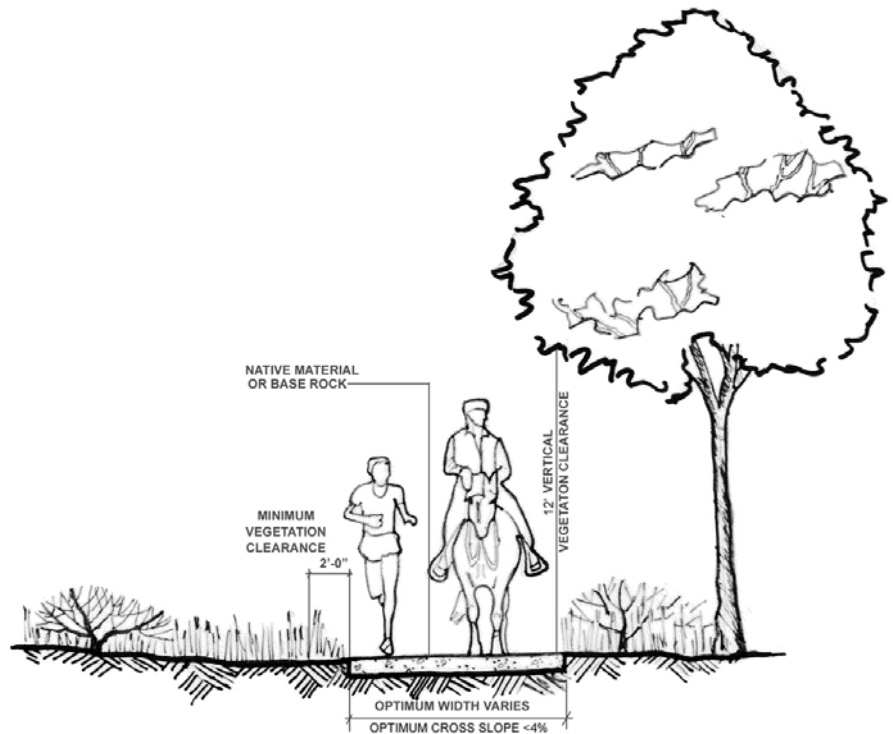


FIGURE 4: TYPICAL MULTIUSE TRAIL PROFILE

Edge Protection: Some types of edge protection may be hazardous to bicyclists, particularly raised surface elements, curbs or rails that are located immediately adjacent to the paved surface. Multiuse trails proposed in this Plan should consider the special safety needs of these users. If guardrails are desired for safety reasons, they should be at least 1100 mm (42 inches) high.

Obstacles: Bicyclists and equestrians tend to have a higher vertical profile than do other trail users. For this reason, the *Malibu Parks Public Access Enhancement Plan* recommends that vertical clearance on multiuse trails would be a minimum of 4.2 meters (12 feet) to accommodate equestrian trail users or 3.1 meters (10 feet) to accommodate mountain bicycles. While tread obstacles are often barriers to trail users in wheelchairs, they are hazardous to bicyclists and should be avoided on multiuse trails. Similarly, the number of openings in multiuse trail surfaces should be minimized and openings large enough to permit a bicycle wheel to enter would be avoided. Vegetation should be cleared between 600 mm and 1525 mm (2 to 5 feet) on either side of the trail.

Outdoor Recreation Access Routes

The *Malibu Parks Public Access Enhancement Plan* would provide outdoor recreation access routes (ORAR) at picnic areas (such as Corral Canyon), campgrounds (such as Escondido Canyon), designated trailheads and designated overlooks to connect accessible elements such as overlooks, restrooms, interpretive signs and parking. For example, an outdoor recreation access route would connect an accessible parking space at a designated trailhead to the trail sign. The trail beginning at the trail sign could or could not be an accessible trail depending on other considerations.

Outdoor Recreation Access Routes may also incorporate the following elements, which are described in this section:

- camping facilities such as camping spaces, accessible camping space parking and tent pad and tent platforms
- fixed picnic tables
- fixed pit toilets
- grills
- mobility device storage facilities
- fixed trash and recycling containers
- utility sinks
- utilities

In general, the recommendations for outdoor access routes are identical to those for accessible trails, with the following exceptions:

Width: When trails have less than a 1.5 meters (5 feet) clear tread width, passing spaces would be provided at least every 60 meters (200 feet).

Grade: In general the cross slopes of these routes would not exceed 1:33 (3 percent). In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes would not exceed 1:20 (5 percent). The maximum running slope of this type of trail would also be 1:20 (5 percent). However, steeper trails would be considered accessible in the following conditions:

- Maximum running slope of 1:12 (8.3 percent) for 15 meters (50 feet) with resting intervals
- Maximum running slope of 1:10 (10 percent) for 9 meters (30 feet) with resting intervals

Tread Obstacles: Obstacles on the surface of a trail that are greater than 25 mm (1 inch) high are barriers to access. However, if the edges of the obstacle are beveled, they do not create a barrier if they are 50 mm (2 inches) or less.

Beach Access Routes

Beach access routes will link main trail routes to the high-tide line at adjacent coastal beaches and the mean high-water level at rivers and creeks (*Figure 5: Beach Access Route*).

A minimum of one beach access route, which allows visitors the opportunity to play, swim or participate in other shoreline activities, should be provided at every 1/2-mile of linear feet of new beach. In general, the recommendations for beach access routes are identical to those for outdoor access routes, with the following exceptions:

Surface: The surface of the beach access route must be firm and stable. Temporary beach routes are permitted. See *Beach Access Study Results: Surfaces* (Hamilton, Burgess, Hepfer 2002).

Maneuvering/Resting Space: Spaces for viewing, resting or changing direction would be provided at the high-tide level, normal recreation water level or at the end of each beach access route. These spaces would be at least 1.5 meters by 1.5 meters (5 feet by 5 feet) and would not overlap with the route.

Changes in Level: Obstacles in the beach access route would be no higher than 25 mm (1 inch).

Edge Protection: If the drop-off from the route to the beach is greater than 150 mm (6 inches), curbs, walls or railings at least 50 mm (2 inches) high would be provided to prevent people from falling off the route. If the drop-off is less than 150 mm (6 inches), but greater than 25 mm (1 inch), the edge must be beveled.

Storage Facilities for Beach Assistive Devices: Beach assistive devices, such as all-terrain or aquatic wheelchairs, can often provide the most integrated and independent experience for people with mobility disabilities. Storage facilities for assistive devices provided by the Conservancy/MRCA should be located along an accessible outdoor recreation or beach access route and should meet the technical requirements for storage facilities described in ADAAG and the accessibility recommendations described for storage facilities in this section.

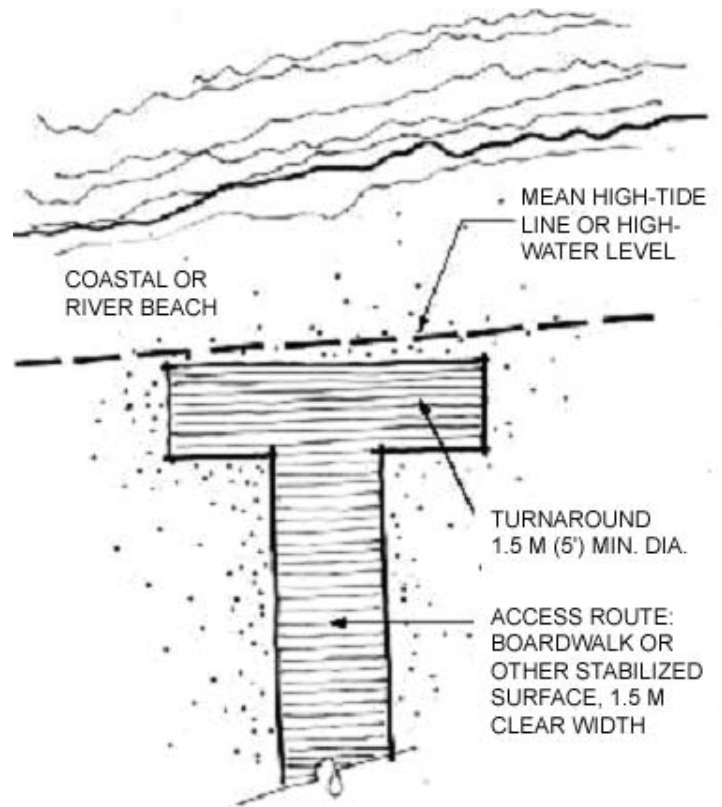


FIGURE 5: BEACH ACCESS ROUTE

Trailheads

In addition to providing access to trails, trailheads provide information, orientation and amenities for the comfort and convenience of the trail user. Trailheads are essentially multi-modal transfer points, facilitating change from, for example, transit or auto to bicycle or from bicycle to foot. Trailheads (see *Figure 6: Corral Canyon Trailhead*) may incorporate the following elements:

- convenient access to transit or Recreational Transit Program (RTP) shuttle stops
- an outdoor recreation access route (see ***Outdoor Recreation Access Routes*** in this section)
- automobile parking, including parking spaces reserved for persons with disabilities (see ***Parking Areas*** in the **Accessible Park Facilities** section above)
- bicycle parking (racks or lockers) to facilitate alternative means of transportation to park areas
- wayfinding kiosks, with orientation and interpretive information
- accessible trail signs with information regarding trail conditions and degrees of difficulty (see ***Trail Signs*** in this section)
- drinking water (see ***Drinking Fountains*** in the **Accessible Park Facilities** section above)
- restrooms (see ***Restrooms*** in the **Accessible Park Facilities** section above)
- scenic viewpoints or overlooks (see ***Overlooks*** and ***Telescopes and Periscopes*** in this section)
- places to sit or picnic (see ***Benches*** and ***Picnic Tables*** in this section)
- equestrian facilities (see ***Equestrian Facilities at Trailheads*** in this section)
- staging or gathering spaces
- wayside or interpretive signs
- trash and recycling containers (see ***Trash and Recycling Containers*** in this section)



FIGURE 6: CORRAL CANYON TRAILHEAD

Benches

Where only one fixed bench is provided in an area, the bench will comply with the recommendations for accessibility (*Figure 7: Fixed Bench*). At trails or picnic areas that are not considered fully accessible, accessible benches are recommended but not required. Where there are multiple benches provided, at least 50 percent will comply with the following recommendations.

Seat Height: Bench seats will be 430 to 485 mm (17 to 19 inches) above the ground.

Back Support: Benches will have back support that is 1065 mm (42 inches) minimum in length and that extends from a point 51 mm (2 inches) maximum above the seat to a point 455 mm (18 inches) minimum above the seat. At least one armrest should be provided on accessible benches to assist people who have difficulty moving between a seated and standing position.

Clear Ground Space: At least one clear ground space that is at least 760 mm by 1220 mm (30 by 48 inches) will be provided at one end of the bench and positioned to allow wheelchair users to be seated shoulder-to-shoulder with an individual seated on the bench. The surface of the clear space will be firm and stable.

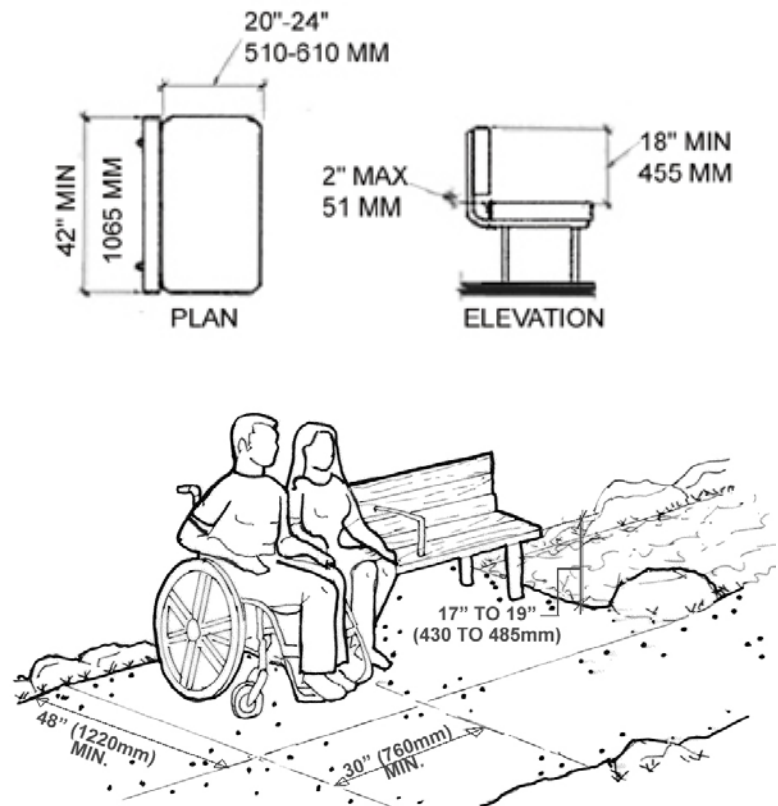


FIGURE 7: FIXED BENCH

Camping Facilities

Camping Spaces

Table 2 summarizes recommendations for the minimum number of accessible camping spaces that should be provided based on the overall number of available camping spaces at each site. In order to be considered an accessible camping space, all the facilities provided should meet the accessibility recommendations and the campsite should be identified with the International Symbol of Accessibility (unless all sites are accessible or available only by reservation).

TABLE 2
ACCESSIBLE CAMPING SPACES
Number of Accessible
Camping Spaces
(Tent, RV, Shelters)

Number of Camping Spaces	Number of Accessible Camping Spaces (Tent, RV, Shelters)
1	1
2 to 25	2
26 to 50	3

Dispersal of Accessible Camping Spaces: In order to provide integrated recreation experiences for campers, accessible camping spaces should be dispersed among the different types of camping experiences provided. Some campers—with and without disabilities—may choose locations that are close to developed amenities such as parking and comfort stations while others prefer more secluded camp sites. It is recommended that all camping spaces include accessible features such as tent pads or tent platforms in order to facilitate socialization among campers with varying abilities and to provide the greatest degree of site choices for all campers.

Tent Pads and Tent Platforms

Clear Ground Space: To provide the greatest degree of accessibility for people with mobility disabilities, tent pads and platforms should include a clear ground space surrounding the tent that is at least 1220 mm (48 inches) wide. For those campsites located on trails that are not considered fully accessible, the clear space around the tent can be reduced to 915 mm (36 inches).

Surface: The tent pad or platform space should have a firm and stable surface and be designed to allow the use of tent stakes and other means of securing a tent. For those campsites on trails that are not considered fully accessible, a firm and stable surface is recommended but not required.

Grade: Tent pads and platforms should have a slope that does not exceed 1:50 (2 percent) in any direction. In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes should not exceed 1:33 (3 percent).

Connections: Elevated tent platforms provide a greater degree of accessibility for some people with mobility disabilities. A ramp or transfer system—such as a log or wall 430 mm to 485 mm (17 to 19 inches) high—needs to be provided for access to the surface of the tent platform.

Edge Protection: Tent platforms should have curbs, walls, railing or projecting surfaces to prevent people from slipping off. These barrier restraints should be consistent with the natural setting of the campsite. When curbs are provided, they should be at least 75 mm (3 inches) high.

Accessible Camping Space Parking

Providing parking at camping spaces increases accessibility for many people with mobility disabilities. Campsite parking for recreational camping vehicles and trailers should have a minimum width of 6100 mm (20 feet). Parking spaces at tent campsites should be at least 4880 mm (16 feet) wide with a slope that does not exceed 1:50 (2 percent) in any direction. In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes should not exceed 1:33 (3 percent).

Equestrian Facilities at Trailheads

Mounting ramps provide a greater degree of independent use for riders with mobility disabilities. The decision to provide a permanent equestrian mounting ramp at a trailhead depends on the programs offered at a park site or trail (or that have the potential of being offered), the population served and the types of wheelchairs and adaptive equipment used by park visitors. If it is not feasible to provide a permanent mounting ramp at a trailhead, consideration should be given to providing adequate space for the use of portable ramps and mounting blocks. The following accessibility guidelines apply to permanently installed equestrian mounting ramps:

Handrails: The handrail gripping surface should be continuous and have a diameter or width between 24.1 mm and 39.4 mm (0.95 to 1.55 inches). The top of handrail gripping surfaces should be between 865 mm and 965 mm (34 to 38 inches) for adults with a second handrail mounted between 510 mm to 710 mm (20 to 28 inches) above the ramp surface for use by children.

Surface: The surface of the ramp must be stable, firm and slip-resistant.

Slope and Rise: The least possible slope shall be used for any ramp. The maximum slope of a ramp should be 1:12 (8.3 percent), with a maximum rise for any run of 760 mm (30 inches).

Width: The minimum clear width of a ramp should be 915 mm (36 inches).

Landings: Ramps must have level landings at the bottom and top of each ramp and each ramp run. Landings must be at least as wide as the ramp run leading to it, with a minimum length of 1525 mm (60 inches).

Figure 8 describes some of the additional requirements for accessible equestrian mounting ramps, which include an emergency exit ramp that exceeds the maximum slope of the ADAAG and Title 24 accessibility requirements. A mounting block (or assistant's landing) placed between 710 mm to 915 mm (28 to 36 inches) from and parallel to the mounting ramp also provides an offside barrier to prevent a horse from swinging away from the ramp.

Mounting blocks should be about 455 mm (18 inches) high, have handrails and steps on either side with closed risers that do not exceed 205 mm (8 inches) high and be wide enough for two adults to use at the same time. The surface of the stairs and landing should be firm, stable and slip-resistant.

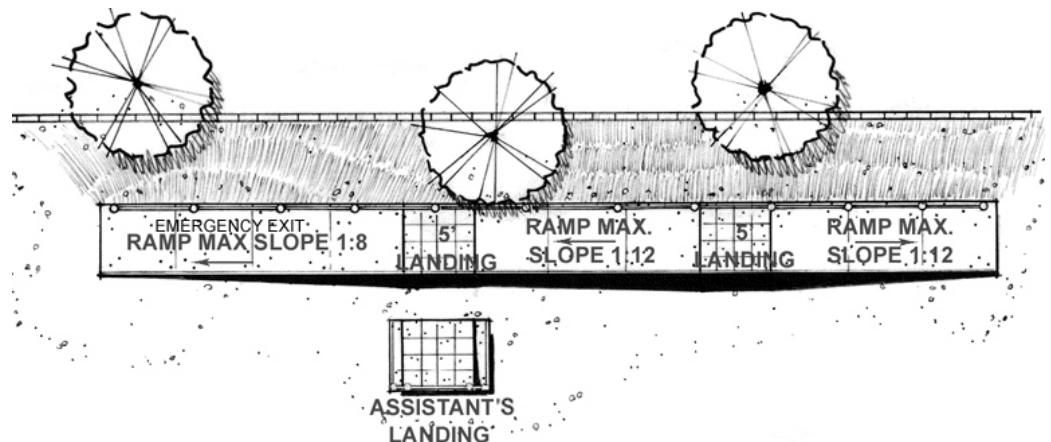


FIGURE 8: LAYOUT OF TYPICAL ACCESSIBLE EQUESTRIAN MOUNTING RAMP

Grills

Where only one grill is provided in an area, it will comply with the recommendations for accessibility. At campsites or picnic areas that are not considered fully accessible, accessible grills are recommended but not required. Where there are multiple grills provided, at least 50 percent (but not less than two) will comply with the following recommendations.

Cooking Surface Height: The cooking surface should be between 380 mm and 865 mm (15 to 34 inches) above the ground surface.

Controls: In order to be easily operable with one hand, the controls must not require tight grasping, pinching or twisting.

Clear Ground Space: To provide the greatest degree of accessibility for people with mobility disabilities, grills at campsites and picnic areas should include a clear ground space surrounding the grill that is at least 1220 mm (48 inches) wide. For those grills located on trails that are not considered fully accessible, the clear space around the grill can be reduced to 915 mm (36 inches). The surface of the clear ground space should be firm and stable with a slope that does not exceed 1:50 (2 percent) in any direction.

Overlooks

Overlooks provide opportunities for trail users to pause and enjoy spectacular scenery, observe wildlife or special natural features.

Some overlooks in this Plan would be located along roadways. They may include automobile parking, including parking spaces reserved for persons with disabilities, interpretive signage and places to sit.

Many overlooks would occur on trails without auto access. These overlooks would be designed to take advantage of unique viewpoints resulting from trail alignment and topography. They may be small in size and contain a single bench and a telescope or periscope (described in this section).

Since overlooks are important visitor destinations, they should be accessible to persons with disabilities. This Plan would consider, where feasible, constructing new overlooks to meet current Access Board recommendations (Regulatory Negotiation Committee 1999).

Clear Ground Space: Where viewing areas are provided on designated overlooks, each viewing area will have at least one wheelchair maneuvering space with a firm and stable surface with a minimum dimension of a 1.5 meters (5 feet) diameter and maximum 1:50 (2 percent) slope in any direction. In areas where a steeper slope is necessary to ensure proper drainage, a 1:33 or 3 percent slope would be permissible.

Viewing Opportunities: Each location providing viewing opportunities for distinct points of interest would provide at least one unrestricted viewing opportunity for each distinct point of interest at eye levels between 815 mm (32 inches) and 1295 mm (51 inches).

Picnic Tables

Where two or more fixed picnic tables are provided in a picnic area or campsite, at least 50 percent, but never less than two, will meet the accessibility recommendations. In addition, at least 40 percent, but never less than two, of the accessible picnic tables will be connected to an outdoor recreation access route. Table 3 summarizes recommendations for the minimum number of accessible picnic tables that should be provided based on the overall number of available tables at each site as well as the number of accessible tables that should be connected to an outdoor recreation access route (ORAR).

TABLE 3 NUMBER OF ACCESSIBLE TABLES		
Fixed Table Total	Number of Accessible Tables	Number of Accessible Tables Connected to an ORAR
1	1	1
2-4	2	1
5-6	3	2
7-8	4	2
9-10	5	3
11-12	6	3
13-14	7	3
15-16	8	4
17-18	9	4
19-20	10	4

Dispersal of Accessible Tables: In order to provide integrated recreation experiences for park visitors and hikers, accessible picnic tables should be dispersed among the different types of picnic areas provided. It is recommended that some accessible picnic sites be located in the shade for persons who may be photosensitive.

Wheelchair Seating Spaces: Accessible picnic tables will have at least one wheelchair seating space, although it is recommended that some tables have space for more than one wheelchair to offer a choice of where each person may sit. Large tables with a tabletop perimeter exceeding 24 linear feet should provide the number of wheelchair seating spaces described in Table 4. Accessible picnic tables need not be rectangular. Round tables, for example, allow the center of the table to be within reach range of everyone seated at the table. Placing wheelchair seating spaces in the middle of picnic tables provides for a more integrated experience and increased opportunities for social interaction.

TABLE 4 WHEELCHAIR SPACES AT FIXED PICNIC TABLES	
Table Top Linear Feet	Number of Wheelchair 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

Each wheelchair seating space should provide:

- **knee clearance** that is at least 685 mm (27 inches) high, 760 mm (30 inches) wide and 485 mm (19 inches) deep;
- **toe clearance** that is at least 230 mm (9 inches) minimum high and that extends an additional 5 inches minimum from the knee clearance; and
- **a clear ground space** that is at least 760 mm by 1220 mm (30 by 48 inches) wide.

These clearances are minimums that accommodate an average size wheelchair. It is recommended that additional leg space and knee clearance be provided to meet the needs of a wider range of people who use wheelchairs.

Table Clearance: To provide accessibility for people with mobility disabilities, tables at campsites and picnic areas should have at least 915 mm (36 inches) minimum clearance around the useable portion of the table, measured from the seat. The preferred layout for picnic tables (*Figure 9: Typical Picnic Table Layout*) includes a 1220 mm (48 inches) minimum clearance around the table and a 915 mm (36 inches) minimum radius at all the corners of the hardened ground surface under the table. The surface of the clear ground space should be firm and stable with a slope that does not exceed 1:50 (2 percent) in any direction.

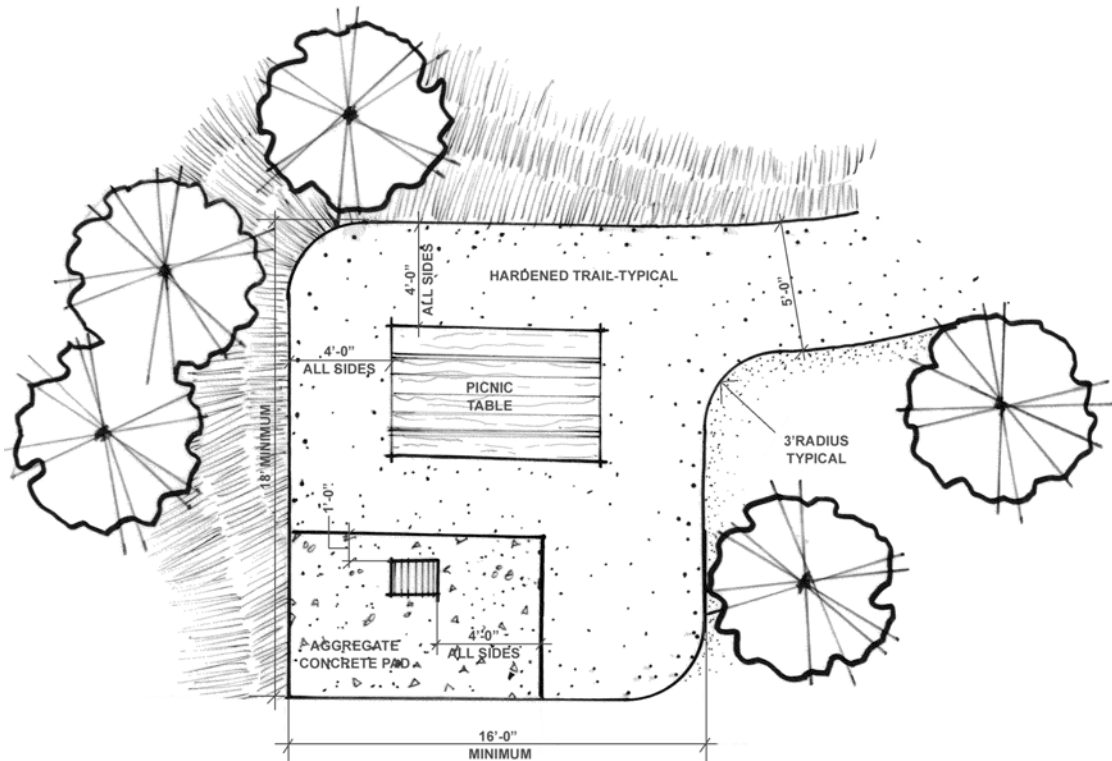


FIGURE 9: TYPICAL PICNIC TABLE LAYOUT

Storage Facilities for Assistive Devices

Storage for assistive devices should be provided when park visitors who use wheelchairs or other assistive devices must transfer to another device or vehicle to participate in the services or programs offered at a recreation area (for example, beach or all-terrain wheelchairs). Storage facilities should be located on an outdoor recreation access route.

Size: Storage facilities designed for mobility devices should be a minimum of 965 mm (38 inches) high, 710 mm (28 inches) wide and 1015 mm (40 inches) long.

Controls: In order to be easily operable with one hand, controls and operating mechanisms must not require tight grasping, pinching or twisting.

Clear Ground Space: At clear ground space that is at least 760 mm by 1220 mm (30 by 48 inches) will be provided in front of each accessible storage facility. The surface of the clear space will be firm and stable with a slope that does not exceed 1:50 (2 percent) in any direction. In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes should not exceed 1:33 (3 percent).

Telescopes and Periscopes

Where only one telescope or periscope is provided in an area, it will comply with the recommendations for accessibility and be usable also from a standing position. When this equipment is not connected to an outdoor recreation access route, accessible equipment is recommended but not required. In areas where multiple units are provided, at least 20 percent will comply with the following recommendations:

Controls: In order to be easily operable with one hand, controls must not require tight grasping, pinching or twisting.

Eye Piece: Eye pieces need to be usable from a seated position for viewing each point of interest.

Clear Ground Space: A clear ground space that is at least 760 mm by 1220 mm (30 by 48 inches) will be provided in front of the equipment. A turning space at least 1525 mm (60 inches) in diameter should also be provided at all accessible telescopes and periscopes so that someone using a wheelchair or other assistive device can approach and move around them. The surface of the clear space and turning space will be firm and stable with a slope that does not exceed 1:50 (2 percent) in any direction. In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes should not exceed 1:33 (3 percent).

Toilet Facilities

Vault toilets, flush toilets and composting toilets are all common in developed recreation areas. They are not considered pit toilets, which are generally located in remote, undeveloped areas and are provided primarily for resource protection, rather than for visitor convenience and comfort. Regardless of the waste disposal system or design, outdoor toilet facilities with a least one riser must meet the ADAAG requirements for toilet buildings (see the previous section on **Accessible Park Facilities**) as well as the following recommendations:

Clear Floor Space: Outdoor toilet facilities should have a minimum interior clear floor space of 1525 mm by 1525 mm (60 by 60 inches).

Grade: The toilet facility should be located on a surface with a slope that does not exceed 1:50 (2 percent) in any direction. In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes should not exceed 1:33 (3 percent).

Trail Signs

Accessible trail signs, which would be located at the starting points of all trails and at key intersections of primary trail corridors (*Figure 10: Accessible Trail Sign*). The Access Board recommends that objective information about actual trail conditions be provided on signs for all trails, whether they meet the guidelines for accessible trails or not (Regulatory Negotiation Committee 1999). Such objective information would assist trail users to determine whether the trail meets their own abilities. Examples of the types of useful information on standard trails signs include:

- running slope
- cross slope
- clear tread width
- trail surface characteristics
- distance to points of interest
- change in elevation on the trail

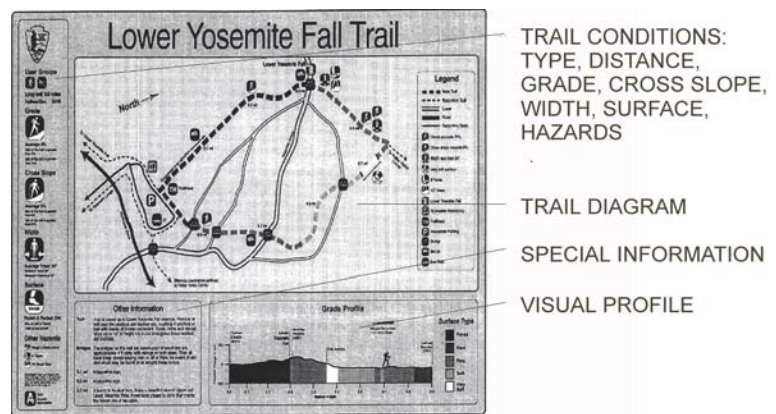


FIGURE 10: ACCESSIBLE TRAIL SIGN

In addition to this information, signs for designated accessible trails would also display an accessible trail symbol. The Access Board is currently considering specific designs for a standard symbol of accessibility.

Trash and Recycling Containers

Trash and recycling containers should be located on an outdoor recreation access route.

Controls: In order to be easily operable with one hand, controls must not require tight grasping, pinching or twisting. This does not apply to hinged lids and controls that are designed to keep out large animals such as bears.

Clear Ground Space: At clear ground space that is at least 760 mm by 1220 mm (30 by 48 inches) will be provided in front of the containers. The surface of the clear space will be firm and stable with a slope that does not exceed 1:50 (2 percent) in any direction.

Utilities

Electric, water, sewage and other utilities serving accessible elements should meet the following requirements.

Water Spouts: Fixed water spouts should be located between 710 mm to 915 mm (28 to 36 inches) above the ground surface and centered at the edge of a clear space at least 1525 mm by 1525 mm (60 by 60 inches).

Controls: In order to be easily operable with one hand, controls must not require tight grasping, pinching or twisting. This does not apply to sewage hookups and hand pumps.

Clear Ground Space: A clear ground space that is at least 760 mm by 1220 mm (30 by 48 inches) will be provided in front of the containers. The surface of the clear space will be firm and stable with a slope that does not exceed 1:50 (2 percent) in any direction. In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes should not exceed 1:33 (3 percent).

Utility Sinks

Where only one utility, clean-up or deep sink is provided in an area, it will comply with the recommendations for accessibility and be connected to an outdoor recreation access route. In areas where multiple sinks are provided, at least 5 percent will comply with the following recommendations.

Sink Dimensions: The counter or rim should be no more 865 mm (34 inches) above the ground or floor surface. The bottom of the bowl should be at least 380 mm (15 inches) above the ground or floor surface.

Controls: In order to be easily operable with one hand, controls must not require tight grasping, pinching or twisting.

Clear Ground Space: At clear ground space that is at least 760 mm by 1220 mm (30 by 48 inches) will be provided in front of the sinks and positioned so that it allows a parallel approach by users. The surface of the clear space will be firm and stable with a slope that does not exceed 1:50 (2 percent) in any direction. In areas where steeper cross slopes are necessary to ensure proper drainage, cross slopes should not exceed 1:33 (3 percent).

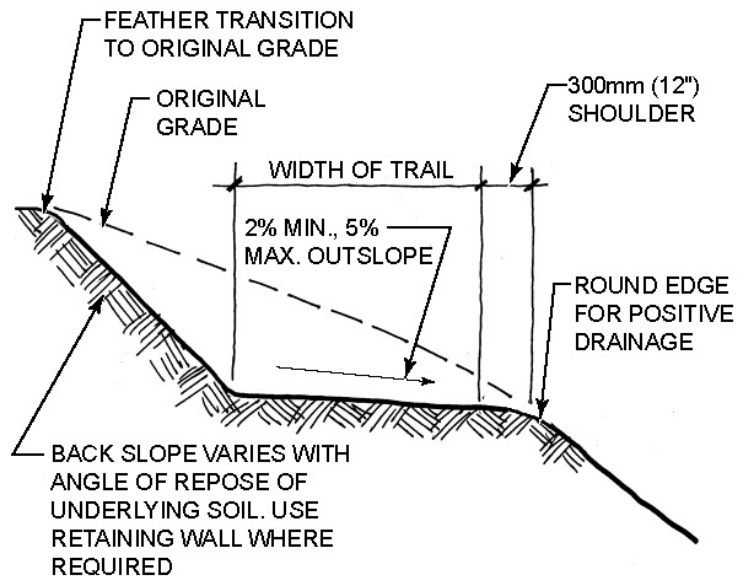
BEST PRACTICES FOR DESIGNING ACCESSIBLE TRAILS

Many agencies throughout the state and the nation are in the process of taking a fresh look at established trail construction and maintenance practices in order to better incorporate principles of sustainable and accessible design. A major goal in developing a set of best practices for trail and bikeway construction and maintenance is to supplement current practices with specific techniques to improve trail conditions that maximize protection of resources without constructing barriers to access for visitors with disabilities. Another goal is to provide increased opportunities for safe and enjoyable trail use.

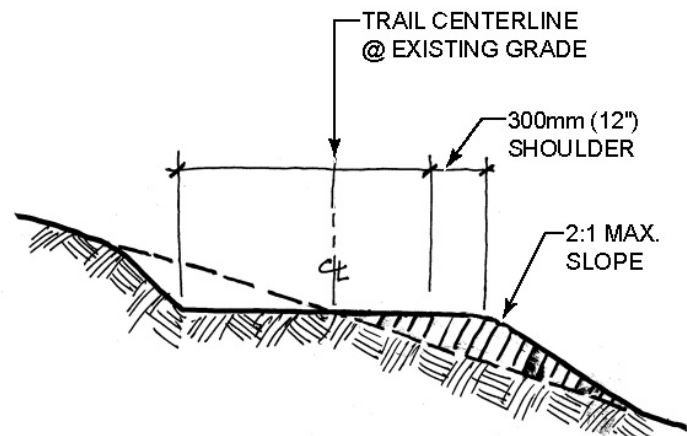
The following set of best practices addresses typical site conditions in the *Malibu Parks Public Access Enhancement Plan* and recommends standard corrective actions for identified problems and some specific trail cross-sections and recommendations for preventive actions to create low-maintenance, safe, accessible and sustainable trail conditions.

Drainage Control and Trails

Trails in hilly terrain are particularly subject to erosion caused by water movement. Design and construction errors are often responsible for the trail damage caused by allowing water to build up volume and velocity. There are several methods to improve drainage control. However, basic trail design strategies such as using alignments perpendicular to sheetflow direction, full bench construction and outsloping would reduce the need for additional drainage control measures (*Figure 11: Typical Trail Construction*).



TYPICAL FULL BENCH CONSTRUCTION
USE FOR ALL TRAILS WHERE SIDE SLOPE EXCEEDS 30%.



TYPICAL HALF BENCH CONSTRUCTION
USE ONLY WHERE SIDE SLOPE IS LESS THAN 30%.

NOTE:
FOR FILL MATERIAL USE ONLY COMPACTABLE MINERAL SOIL.

FIGURE 11: TYPICAL TRAIL CONSTRUCTION

Outsloping (or slightly elevating the uphill edge of a trail) encourages water to flow across the trail surface and reduces the potential for erosion. All trail designs in this Plan include outsloping.

Best Practices

Installing waterbars to redirect the flow of water over trail surfaces.

Waterbars, which are obstructions on the trail surface to channel water off the trail, may be constructed of salvaged logs (from vegetation management practices), stone, compacted soil or rubber water deflectors. They are typically installed at a 30-degree angle to the trail's edge and extend beyond both sides of the trail. Table 5 depicts recommendations for spacing waterbars along trails with varying degrees of steepness. Waterbars, although effective, are not the preferred method of controlling trail erosion since they are also obstacles that may limit accessibility for persons with disabilities and may pose hazards to bicyclists on multiuse trails.

TABLE 5
WATERBAR SPACING

Percent Grade	Spacing (feet)
2	250
5	130
10	80
15	50
25+	40

(Rathke and Baughman 1997)

Providing drainage dips (short sections of trail that channel water off the trail surface).

Drainage dips (Figure 12) work best on trails with slow, steady grades and are optimally placed at naturally occurring drainage ways. Mid-slope is usually the best location for intercepting significant amounts of drainage. They should also be placed frequently to prevent water from building up volume and scouring a trail surface.

Typically trails are outsloped more at the point of the grade dip to provide better drainage. Drainage dip backslopes should be about 1.2 meters to 1.8 meters (4 feet to 6 feet) long in order to eliminate abrupt grade changes that may be barriers to access. For this reason, they are preferable to both waterbars and open culverts. They also may require less maintenance than covered culverts, which can easily become clogged with leaves or other debris.

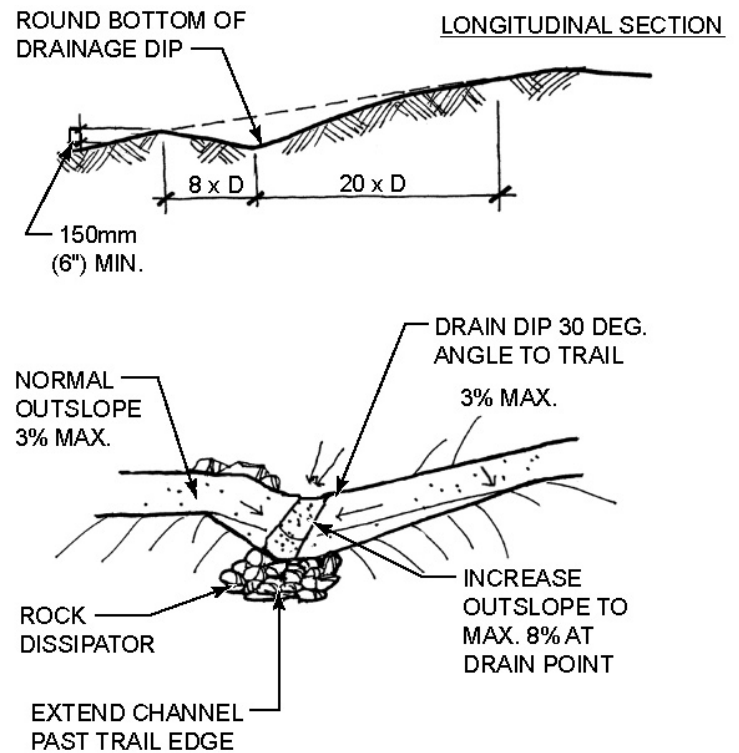


FIGURE 12: DRAINAGE DIP

Providing armored drainage dips (Figure 13). In conjunction with trailbeds that are outsloped, reinforced or armored drainage dips are perhaps the best alternative in terms of accessibility and ease of maintenance. Armored drainage dips are constructed similarly to a waterbar, with a reinforcing bar of rocks placed so that their top edges are flush with the tread surface, which is then backfilled.

Providing a correctly configured outlet is important—it should be outsloped and at least 500 mm (18 inches) wide.



FIGURE 13: ARMORED DRAINAGE DIPS AT CHINA CAMP STATE PARK

Trails in Wet Areas

Trails through areas with seasonal or permanent soft and water-saturated soils pose problems related not only to visitor use and enjoyment but to resource protection and maintenance as well. Such trails are often responsible for the destruction of adjacent vegetation and surface soil horizons as trails users walk to the sides to avoid wet patches. However, relocating these trails to higher or drier ground may not be desirable from either a visitor use or resource protection standpoint. The benefits to users of providing a trail through a particular environment or the disadvantages of disturbing additional areas of sensitive habitat with a new trail alignment may mean that providing a hardened trail surface in the current trail alignment is the optimal choice. The techniques below allow greater access for users with disabilities.

Best Practices

Surface reinforcing (Figure 14). Flat stones or cobbles placed on the trail surface, used in combination with geotextile, geonet or sheet drain materials, may provide an aesthetically pleasing means of providing a stable trail surface in wet areas. This solution offers the additional advantage of minimal disruption to existing drainage patterns, since water is able to pass through the entire structure. An alternative would be to construct a short concrete paved section that may be more accessible for people using wheelchairs.

Boardwalk bridge (Figure 14).

Other options for maintaining existing drainage patterns are trail structures such as bridges, which may be constructed of timber or recycled plastic lumber. In order to maximize accessibility for people with disabilities, bridge entrances and exits should be at-grade rather than elevated or ramped. Additional maintenance might be required to ensure that surfaces that adjoin the entrances and exits do not vary more than 50 mm (2 inches), in general, from the level of the bridge.

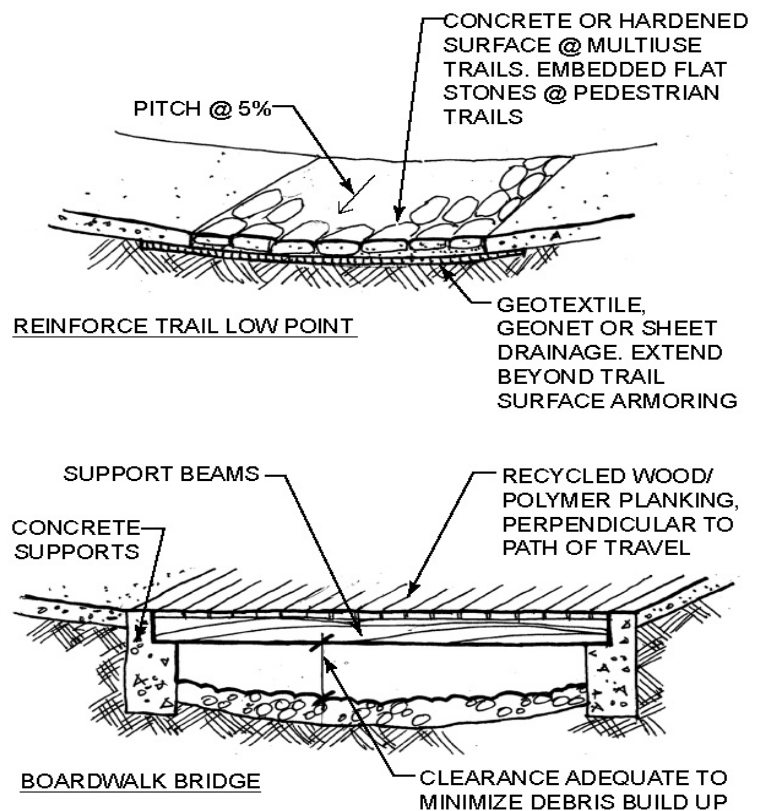


FIGURE 14: SURFACE REINFORCING AND BRIDGE

Drainage lens (Figure 15). The low-volume water flow caused by ephemeral springs or seeps can often be managed with a drainage lens. The wet trail section should be excavated to the depth of the saturated soils and should extend beyond the trailbed. The void should then be filled with progressively smaller quarry rock and then capped with fine aggregate or suitable native fill. In some instances, sandwiching the rock lens between two layers of geotextile material would provide a more stable base.

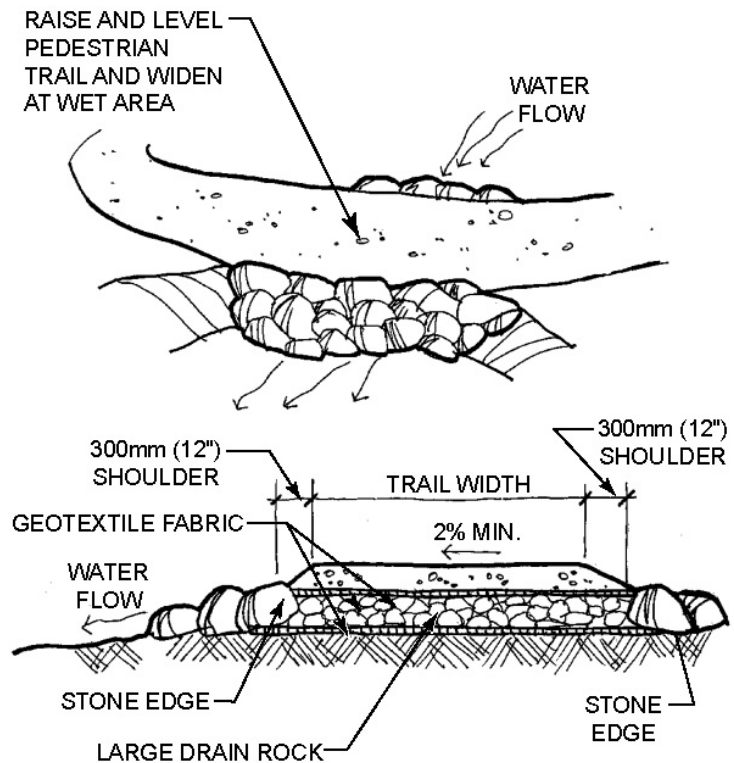


FIGURE 15: DRAINAGE LENS

Trails on Steep Cross Slopes

Steep slopes present many challenges to providing accessible, safe and sensitive trail design. Trail cuts on steep slopes increase the visual impact and the area of disturbance and often require special measures such as slope protection or retaining walls to stabilize the slope. In some cases trail structures or stairways may also be required. Trail structures and retaining walls, when required, should be designed to have the minimum impact on natural environments and should use appropriate and sustainable materials. However, retaining walls may provide an accessible trail experience in an otherwise inaccessible environment and should be considered where appropriate.

TABLE 6
BACKSLOPE CUT RATIOS

Soil Type	Ratio (horiz. to vert.)
Sand	3 or 4 : 1
Moist clay	2 or 3 : 1
Loose, gravelly soil	1.5 or 2 : 1
Loose rock	0.5 : 1
Stable rock	0.25 : 1

(Rathke and Baughman 1997)

Best Practices

Avoiding or relocating trails on steep slopes. When possible, avoid locating trails on steep slopes. If unavoidable, consider minimum width trail in these locations.

Reinforced backslope or retaining wall.

Backslope cuts into hillsides may require protection depending on soil type in order to prevent severe erosion and slope destabilization (*Table 6: Backslope Cut Ratios*). Backslope reinforcing and protection can be provided by a permanent structure or by temporary measures during revegetation. Retaining devices (*Figure 16*), may be as simple as a log curb or they may require design by a structural engineer. Retaining materials may be concrete (either poured-in-place or precast segments), stones, timber, recycled wood/polymer or salvaged timber (from vegetation management practices). A key element of any retaining structure is that water must be allowed to drain around, beneath or through the wall and not accumulate behind it. Stepped-back wall construction may allow opportunities for more planting. Green walls systems may be an acceptable alternative to retaining walls in some areas.

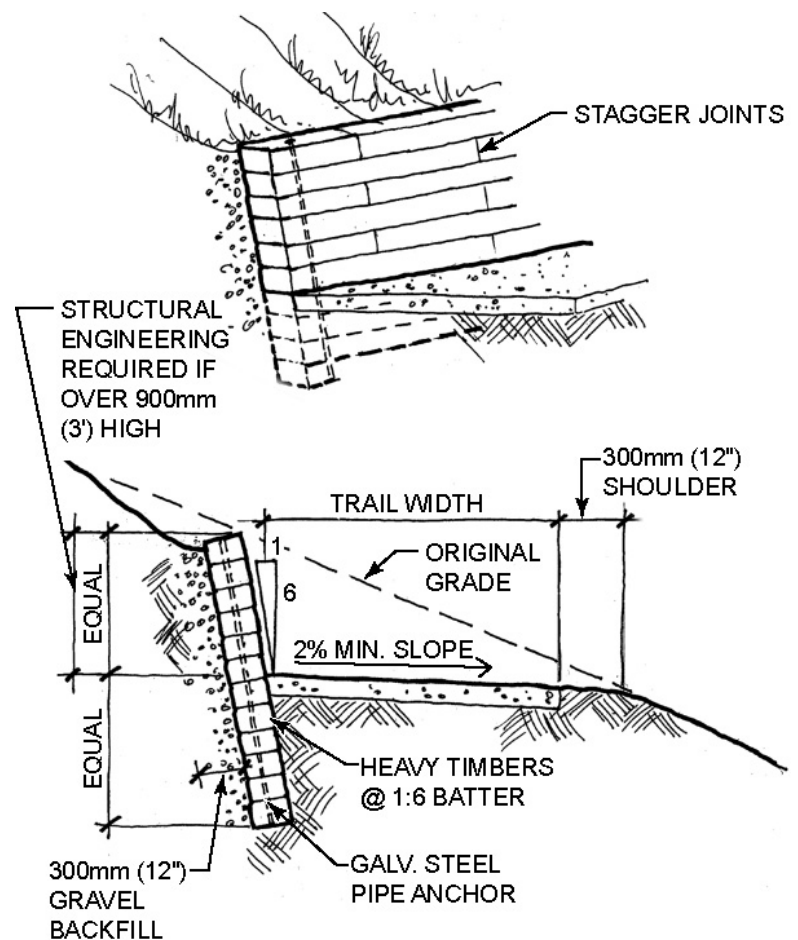


FIGURE 16: RETAINING DEVICES

Trail structures. Boardwalks, stairways and decks may be used where standard cut-and-fill techniques are inappropriate. Stairways are recommended in places where steep, eroding slopes make standard sustainable design impractical. When stairways are necessary, they will be constructed according to ADAAG requirements for accessibility.

Trails on Flat Grades

Since trails exist, by nature, in dynamic environments, it is not possible to keep them clean and dry. Proper trail design can help mitigate this problem, which is exacerbated when trails are located on primarily level terrain. Without proper drainage, trails on level ground tend to pond and collect debris, creating obstacles for users with and without disabilities and increasing trailbed settlement.

This creates a cycle that further degrades the trail. There are several approaches to providing proper drainage. The goal in all cases is to maintain a firm, stable, slip-resistant surface that is free of ponding.

Best Practices

Building the trail surface slightly above grade. One technique is to elevate a trail slightly, about 75 mm to 150 mm (3 inches to 6 inches) and provide drainage swales on each side (Figure 17: *Elevated Trailbed*). Using a gravel trailbed to elevate the trail would provide additional subsurface drainage. Raised trailbeds are often used in conjunction with drainage lenses to facilitate the movement of water. An elevated trail offers a more convenient pathway for users during wet periods, provides the greatest degree of accessibility for persons with disabilities and may require less maintenance.

Using boardwalks to elevate trails on erodible soils such as sand. This approach, which is described in the best practices for trails in proximity to sensitive resources, also provides an accessible trail surface.

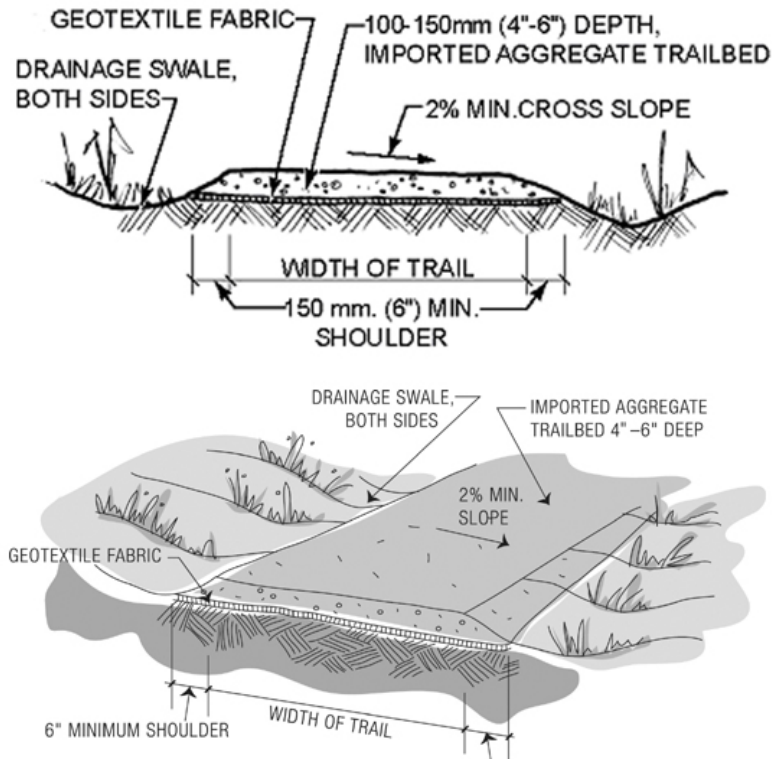


FIGURE 17: ELEVATED TRAILBED

Eroding and Hazardous Trail Edges

Clearly defined and protected edges help keep users of all types on the established trail surface and contribute to resource protection. Properly constructed edges also protect trails from water damage and erosion. Since trails may pass through many different environments, including areas of sensitive natural habitat or historically significant landscapes, care should be taken to ensure that edge protection is consistent with the setting. In order to maximize resource protection, edge protection should only be provided when conditions warrant it. In addition, different types of edge protection provide additional trail safety for various user groups. For example, a raised curb at least 75 mm (3 inches) high or a guardrail may help a person using a wheelchair keep on track. However, some types of edge protection may be hazardous for bicyclists. Care must be taken to ensure that any edge protection is installed to facilitate water flow across the trail and with openings large enough to allow organic material to pass through.

Best Practices

Edge protection appropriate to the setting (Figure 18). Trails or walks in more developed areas would use more traditional materials such as curbs and railings; however, most trails included in the *Malibu Parks Public Access Enhancement Plan* will have edge protection provided by using native materials, including plantings, salvaged logs (from vegetation management practices) or stones.

Edge protection appropriate to the trail user group. Hiking trails require a different approach to edge protection than do multiuse trails. Edge protection and barriers that may be hazardous to bicyclists should not be used on multiuse trails. For example, to maximize the safety of bicyclists, guardrails or elevated barriers on multiuse trails would need to have a minimum height of 1100 mm (42 inches).

Reducing hazards at drop-offs.

An effective strategy for reducing hazardous conditions on hillside trails, with or without additional edge protection, is to widen the trail and plant vegetation at the trail's edge.

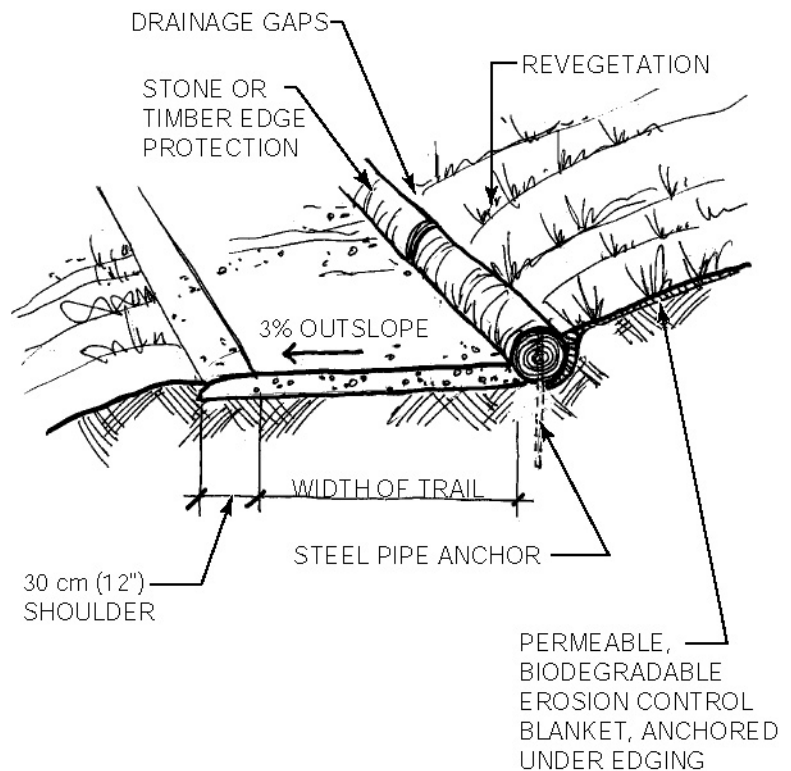


FIGURE 18: EDGE PROTECTION

Trails on Sandy Soils

Maintaining a stable and accessible trail surface can be particularly challenging in areas with sandy soils. Solutions to this problem are dependent on factors such as the relative sensitivity of the habitat surrounding a trail and continuing maintenance costs.

Best Practices

Subsurface geogrids (Figure 19).

Geogrids or geocells, when used in combination with geotextiles, provide a relatively unobtrusive means of stabilizing sandy trails. The geogrid confinement chambers distribute trail tread loads over a greater area and reduce settling, both of which help keep trail surfaces intact, in place and dry. The geotextile material provides separation between saturated soil and the tread fill. Permeable tread fill provides drainage if the trail is built with a grade or on a sideslope. Imported soils should not be used for tread fill in areas of sensitive natural habitat (Monlux and Vachowski 2000).

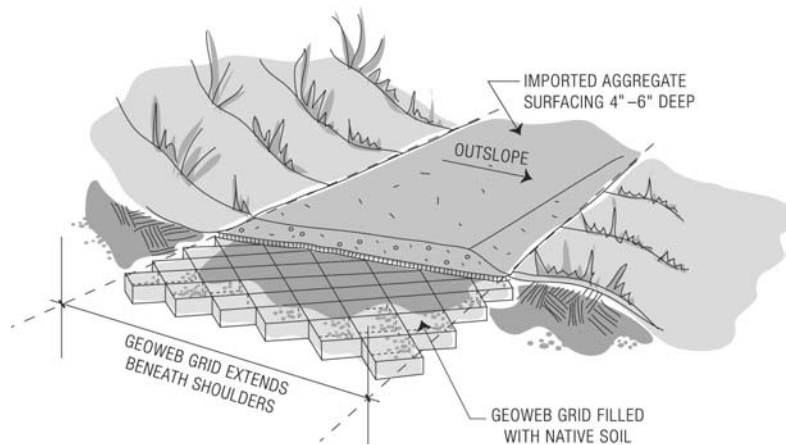


FIGURE 19: SUBSURFACE GEOGRID

Permanent and moveable above-grade trail structures. Boardwalks, which are permanent trail structures, are described in the *Best Practices* section for trails in proximity to sensitive resources. Another option for trails in sandy areas is the use of textured panels with drain holes, which are installed directly upon the surface without excavation (Figure 20). These panels meet current accessibility standards and also provide the option of more easily relocating trails in the future. They may require additional maintenance, such as sweeping, in areas where wind-blown sand might accumulate on trail surfaces. Sand ladders, a series of logs connected by cable are an option for sandy trails with a steep linear grade. Sand ladders do not provide an accessible route for people with disabilities and they require periodic maintenance to restore them to grade level after sand accumulates on their surfaces.

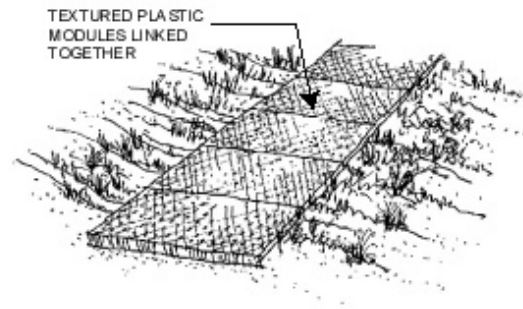


FIGURE 20: TEXTURED PANEL

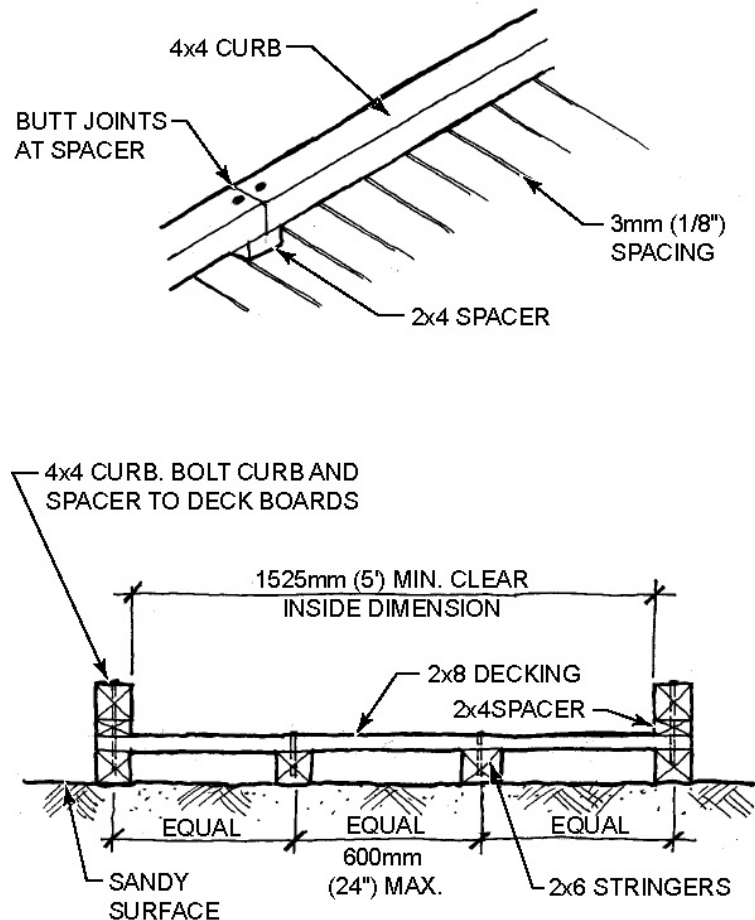
Temporary or moveable beach access routes are permitted, although there are currently no recommendations for products that meet the technical federal requirements for accessibility. A study by the National Center on Accessibility has evaluated a range of temporary beach surfaces (Hamilton, Burgess, Hepfer 2002).

Trails in Proximity to Sensitive Resources

In order to provide visitor access to the coastside's many natural, cultural and historic resources, trails must be constructed to provide as much protection as possible to these sensitive resources.

Best Practices

Boardwalk (Figure 21). Boardwalks, which are permanent trail structures often used in sensitive areas, are more easily constructed with minimum impact to the environment. In addition, they encourage people to stay on the designated trail. An important consideration in boardwalk design is to insure that the walkway is wide enough to allow two people using wheelchairs to pass each other. Providing pullouts or overlook alcoves is another way to increase accessibility by allowing resting or observation without impeding the movement of other trail users. Boardwalk decking should be installed perpendicular to the direction of travel.



MATERIALS:

- RECYCLED WOOD/ POLYMER
- STAINLESS STEEL SCREWS AND BOLTS

FIGURE 21: BOARDWALK CONSTRUCTION

Trails Damaged by Maintenance Vehicle Use

The concentrated loads delivered by maintenance vehicles can damage trails that were not designed to support vehicular traffic. This unintended damage can transform a correctly designed and constructed trail into a trail that is no longer accessible to people with disabilities. Therefore, trail structural stability and strength should be increased on trails where maintenance vehicle use is expected. Trails are located in areas where sub-grades have a low bearing strength or are poorly drained will need to have thicker sub-bases and trail surfaces in order to support these greater loads.

Best Practices

Geotextile underlayment and deeper sub-base. The use of geotextiles can promote trail structural stability and increase the strength of trail cross sections. Wherever maintenance vehicle use is expected, geotextiles should be used to keep trail sub-bases intact and reinforce the structural qualities of trail sub-grades. In some cases the depth of trail sub-bases should be increased to 200 mm (8 inches) as well.

REFERENCES

Visitor Use and Experience

Accessibility

Access Board

- 1984 *Uniform Federal Accessibility Standards (UFAS)*. Washington, DC: U.S. Architectural and Transportation Barriers Compliance Board. (Note: UFAS is currently being updated and integrated with ADAAG).
- 2002 *ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)*. Washington, DC: U.S. Architectural and Transportation Barriers Compliance Board
- 2005 *ADA and ABA Accessibility Guidelines for Buildings and Facilities*. Washington, DC: U.S. Architectural and Transportation Barriers Compliance Board (Published in the *Federal Register* July 23, 2004 and amended August 5, 2005)

Axelson, Peter W., Denise A. Chesney, Dorothy V. Galvan, Julie B. Kirschbaum, Patricia E. Longmuir, Camille Lyons, and Kathleen M. Wong

- 1999 *Designing Sidewalks and Trails for Access, Part 1: Review of Existing Guidelines and Practices*. Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

Forest Service

- 2006 *Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG)*. Washington, DC: U.S.D.A. Forest Service. Available online at www.fs.fed.us/recreation/programs/accessibility.
- 2006 *Forest Service Trail Accessibility Guidelines (FSTAG)*. Washington, DC: U.S.D.A. Forest Service. Available online at www.fs.fed.us/recreation/programs/accessibility.

Goltsman, Susan M., Timothy A. Gilbert, and Steve D. Wohlford

- 1993 *The Accessibility Checklist: An Evaluation System for Buildings and Outdoor Settings*. Berkeley, CA: MIG Communications.

Hamilton, Edward J., F. Melissa Burgess, and Paul C. Hepfer

- 2002 *Beach Access: Assistive Devices and Surfaces (A Research Report of the National Center of Accessibility)*. National Center on Accessibility. Available online at www.ncaonline.org/beaches/93study.shtml.

Regulatory Negotiation Committee

- 1999 *Recommendations for Accessibility Guidelines: Outdoor Developed Areas*. Washington, DC: U.S. Architectural and Transportation Barriers Compliance Board.

Wilderness Inquiry, Inc.

- 1999 *Access Board Cost Analysis of Outdoor Developed Areas: A Research Report Studying the Cost Implications of Proposed Americans with Disability Act Accessibility Guidelines on Trails, Picnic Areas, Camping Areas, and Beaches*. Washington, DC: U.S. Bureau of Public Debt.

Bicycling

- American Association of State Highway and Transportation Officials (AASHTO)
1999 *Guide for the Development of Bicycle Facilities*. Washington, DC: AASHTO Task Force on Geometric Design.
- California Department of Transportation (Caltrans)
2001 Chapter 1000: Bikeway Planning and Design. *Highway Design Manual*. Sacramento, CA: California Department of Transportation. Available online at www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm#download.
- Pedestrian and Bicycle Information Center (PBIC)
2000 *Bicyclinginfo.org*. Available online at www.bicyclinginfo.org.

Equestrian Facilities

- North American Riding for the Handicapped Association (NARHA)
2005 “Ramp Information” from the *NARHA Start-Up Package*. Available online at www.narha.org.

Resource Management

- Axelson, Peter, and Don Beers
2000 “Maximizing Trail Accessibility and Protecting Park Resources.” Presentation at the 15th National Trails Symposium, September 21-24, at Redding, California.
- Hultsman, Wendy, and John Hultsman
1996 *Pathways for People—Trail Design to Minimize Environmental Damage and Enhance User Enjoyment*. West Lafayette, IN: Purdue University, Cooperative Extension Service, Outdoor Recreation FNR-121. Available online at www.agcom.purdue.edu/AgCom/FNR/FNR-121.
- Palmisano, Terry
1999 “Wildlife 101: So You Want to Build a Trail” Presentation at the 16th California State Trails Conference, April 17 at Monterey, CA.
- Sky Island Alliance
1999 “Closure and Ecological Restoration of the Slavin Gulch Road, Dragoon Mountains, Arizona.” Available online at www.skyislandalliance.org/roadrip.htm.
- Trails and Wildlife Task Force, Colorado State Parks, and Hellmund Associates
1998 *Planning Trails with Wildlife in Mind: A Handbook for Trail Planners*. Denver, CO: Colorado State Parks, Trails Program.

Sustainable Design and Construction***Trail Construction***

- California Department of Parks and Recreation
1990 *Trail Construction and Maintenance Handbook*. Sacramento, CA: Department Trail Training Program.

Hesselbarth, Woody, and Brian Vachowski

- 2004 *Trail Construction and Maintenance Notebook*. Washington, DC: U.S. Department of Transportation, Federal Highway Administration, Recreational Trails Program. Available online at www.fhwa.dot.gov/environment/Fspubs/.

Monlux, Steve, and Brian Vachowski

- 2000 *Geosynthetics for Trails in Wet Areas*. Washington, DC: Forest Service Technology and Development Program.

Rathke, David M., and Melvin J. Baughman

- 1997 *Recreational Trail Design and Construction*. St. Paul, MN: University of Minnesota Extension. Available online at www.extension.umn.edu/distribution/naturalresources/DD6371.

Multiuse Trails

Flink, Charles A., Kristine Olka, and Robert M. Searns

- 2001 *Trails for the Twenty-First Century*, 2nd ed. Washington, DC: Island Press.

Moore, Robert L.

- 1994 *Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of the Practice*. Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

Pedestrian and Bicycle Information Center (PBIC)

- 2000 *Bicyclinginfo.org*. Available online at www.bicyclinginfo.org.

General Trail Information

Coe, Peter J.

- 1996 *Best Practices for Parks Canada Trails*. Hull, Quebec: National Parks, Parks Canada.

Colorado Asphalt Pavement Association

- 1998 *A Guideline for the Design and Construction of Asphalt Pavements for Colorado Trails and Paths*. Englewood, CO: Colorado Asphalt Pavement Association.

Flink, Charles A., and Robert M. Searns

- 1993 *Greenways: A Guide to Planning, Design, and Development*. Washington, DC: Island Press.

Pedestrian and Bicycle Information Center (PBIC)

- 2000 *walkinginfo.org*. Available online at www.walkinginfo.org.

Schmid, Jim

- 2001 *Trails Primer: A Glossary of Trails, Greenway, and Outdoor Recreation Terms and Acronyms*. Columbia, SC: South Carolina Department of Parks, Recreation and Tourism.

APPENDIX: RECREATION PROGRAM AND FACILITY ACCESSIBILITY GUIDELINES, STANDARDS AND RESOURCES

Introduction

These program and facility accessibility guidelines, standards and resources are provided to help design and maintain parks and trails so that they are accessible by all citizens—with and without disabilities. This section also contains the accessibility standards of care that govern new construction and alterations to facilities. Although some guidelines do not directly relate to parks and trails planned in the current project, they are included to help guide decisions about future projects, which may incorporate some of the recreational activities mentioned (for example, beach access or children's play areas).

Federal Accessibility Standards and Regulations

U.S. Department of Justice

The U.S. Department of Justice provides many free ADA materials including the Americans with Disability Act (ADA) text. Printed materials may be ordered by calling the ADA Information Line [1.800.514.0301 (Voice) or 1.800.514.0383 (TDD)]. Publications are available in standard print as well as large print, audiotape, Braille and computer disk for people with disabilities. Documents, including the following publications, can also be downloaded from the Department of Justice website (www.ada.gov).

- *ADA Regulation for Title II:* This publication describes Title II of the Americans with Disabilities Act, Pub. L. 101-336, which prohibits discrimination by public entities on the basis of disability. Title II of the ADA protects qualified individuals with disabilities from discrimination on the basis of disability in the services, programs or activities of all state and local governments. This rule adopts the general prohibitions of discrimination established under section 504, as well as the requirements for making programs accessible to individuals with disabilities and for providing equally effective communications. It also sets forth standards for what constitutes discrimination on the basis of mental or physical disability, provides a definition of disability and qualified individual with a disability and establishes a complaint mechanism for resolving allegations of discrimination.
- *Title II Technical Assistance Manual (1993) and Yearly Supplements.* This 56-page manual explains in lay terms what state and local governments must do to ensure that their services, programs and activities are provided to the public in a nondiscriminatory manner. Many examples are provided for practical guidance.

- *Accessibility of State and Local Government Websites to People with Disabilities*. A five-page publication providing guidance on making state and local government websites accessible.

U.S. Access Board

The full texts of federal laws and regulations that provide the guidelines for the design of accessible facilities and programs are available from the U.S. Access Board. Single copies of publications are available free and can be downloaded or ordered by completing a form available on the Access Board's website (www.access-board.gov). In addition to regular print, publications are available in large print, disk, audiocassette and Braille. Multiple copies of publications can be ordered by sending a request to pubs@access-board.gov. In addition to the guidelines, guidance material is also available to assist staff in understanding and implementing federal accessibility guidelines.

The following publications are currently available from the U.S. Access Board:

Guidelines and Standards for Facilities

- *ADA Accessibility Guidelines (ADAAG)*: This document contains scoping and technical requirements for accessibility to buildings and facilities by individuals with disabilities under the Americans with Disabilities Act (ADA) of 1990. These scoping and technical requirements are to be applied during the design, construction and alteration of buildings and facilities covered by Titles II and III of the ADA to the extent required by regulations issued by federal agencies, including the Department of Justice and the Department of Transportation, under the ADA. This document must be used in conjunction with Title 24 of the California Building Code (see *State of California Accessibility Standards and Regulations*).
- *State and Local Government Facilities: ADAAG Amendments*: The Access Board is issuing final guidelines to provide additional guidance to the Department of Justice and the Department of Transportation in establishing accessibility standards for new construction and alterations of State and local government facilities covered by Title II of the Americans with Disabilities Act (ADA) of 1990. The guidelines will ensure that newly constructed and altered State and local government facilities are readily accessible to and usable by individuals with disabilities in terms of architecture, design and communication.
- *Building Elements for Children: ADAAG Amendments*: The Access Board is issuing final guidelines to provide additional guidance to the Department of Justice and the Department of Transportation in establishing alternate specifications for building elements designed for use by children. These specifications are based on children's dimensions and anthropometrics and apply to building elements designed specifically for use by children ages 12 and younger.
- *Play Areas: ADAAG Amendments*: The Access Board is issuing final accessibility guidelines to serve as the basis for standards to be adopted by the Department of Justice for new construction and alterations of play areas

covered by the Americans with Disabilities Act (ADA). The guidelines include scoping and technical provisions for ground level and elevated play components, accessible routes, ramps and transfer systems, ground surfaces and soft contained play structures.

- *Recreation Facilities: ADAAG Amendments:* The Access Board has issued final accessibility guidelines to serve as the basis for standards to be adopted by the Department of Justice for new construction and alterations of recreation facilities covered by the Americans with Disabilities Act (ADA). The guidelines include scoping and technical provisions for amusement rides, boating facilities, fishing piers and platforms, golf courses, miniature golf, sports facilities and swimming pools and spas.

Guidelines for Transportation

- *ADA Accessibility Guidelines for Transportation Vehicles:* This publication provides minimum guidelines and requirements for accessibility standards for transportation vehicles required to be accessible by the Americans with Disabilities Act (ADA) of 1990, including over-the-road bus and tram systems.
- *ADA Accessibility Guidelines for Transportation Vehicles; Over-the-Road Buses:* This publication outlines the amendments to the accessibility guidelines for over-the-road buses (OTRB) made by the Architectural and Transportation Barriers Compliance Board and the Department of Transportation to include scoping and technical provisions for lifts, ramps, wheelchair securement devices and moveable aisle armrests. Revisions to the specifications for doors and lighting are also adopted. The specifications describe the design features that an OTRB must have to be readily accessible to and usable by persons who use wheelchairs or other mobility aids.

Guidance Material for Transportation

- *Manuals on ADA Accessibility Guidelines for Transportation Vehicles:* This technical assistance document is one of a series provided to help in understanding the background and underlying rationale of the Americans with Disabilities Act Accessibility Guidelines for Transportation Vehicles (Vehicle Guidelines) and how the guidelines may apply in a particular case. The documents in this series include:
 - Buses, vans and systems
 - Over-the-road buses and systems
 - Automated guideway transit vehicles and systems
 - Trams, similar vehicles and systems
- *Securement of Wheelchairs and Other Mobility Aids:* As a public or private transit authority, the responsibility of safe, efficient service from public agencies who offer transportation services has been enlarged to affording ridership to

people using a wide variety of mobility aids. In considering not only the many types of mobility aid devices, but also the variety and sizes of lifts and the numerous makes of buses and vans, it can be easily seen that there is no single, definitive solution to accessibility on mass transit vehicles. This publication reports on the experience of two transit accessibility leaders who have taken the initiative to involve the ridership in needs assessment and have established policies, educated operators and informed the public in order to achieve greater accessibility in their bus transit systems.

Guidance Material and Advisory Reports for Facilities

The following publications provide additional information on specific aspects of the above guidelines and standards for facilities. Staff members are encouraged to refer to these publications to obtain more detailed and up-to-date information when evaluating and implementing accessibility improvements to facilities.

- *Using ADAAG Technical Bulletin:* This bulletin was developed to serve the specific needs of architects and other design professionals who must apply the ADA Accessibility Guidelines (ADAAG) to new construction and alterations projects covered by Titles II and III of the ADA. It is also intended to clarify accessibility regulations generally, including those that apply to existing facilities covered by the ADA.
- *Visual Alarms Technical Bulletin:* In passing the Americans with Disabilities Act in 1990, Congress specifically directed the Access Board to provide greater guidance regarding communications accessibility. Thus the ADA Accessibility Guidelines (ADAAG) require that where emergency warning systems are provided in new or altered construction, they must include both audible and visible alarms that meet certain technical specifications. This bulletin was developed to provide more technical information about the types of visual fire alarms available and how and where their use is required.
- *Text Telephones Technical Bulletin:* Text telephones are machinery or equipment that employs interactive graphic (i.e., typed) communications through the transmission of coded signals across the standard telephone network. Text telephones can include, for example, devices known as TDDs (telecommunications display devices or telecommunications devices for deaf persons) or computers. This bulletin was developed to provide more technical information about the types of text telephones available and how and where their use is required.
- *Ground and Floor Surfaces Technical Bulletin:* Over twenty-seven million Americans report some difficulty in walking. Of these, eight million have a severe limitation and one-fifth of this population is elderly. Ambulatory persons with mobility impairments—especially those who use walking aids—are particularly at risk of slipping and falling, even on level surfaces. The information in this bulletin is intended to provide designers with an understanding of the variables that affect the measurement and performance

of materials specified for use on walking surfaces and to better describe the requirements of an accessible route.

- *Parking Technical Bulletin:* Accessible parking requires that sufficient space be provided alongside the vehicle so that persons using mobility aids, including wheelchairs, can transfer and maneuver to and from the vehicle. Accessible parking also involves the appropriate designation and location of spaces and their connection to an accessible route. This bulletin was developed to provide more detailed information about the requirements for accessible parking including the configuration, location and quantities of accessible parking spaces.
- *Detectable Warnings Update (March 2003):* Currently, the Access Board is in the process of developing guidelines on public rights-of-ways that, once finalized, will supplement the new ADAAG. While ADAAG covers various features common to public streets and sidewalks, such as curb ramps and crosswalks, further guidance is necessary to address conditions unique to public rights-of-way. Constraints posed by space limitations at sidewalks, roadway design practices, slope and terrain raise valid questions on how and to what extent access can be achieved. Guidance on providing access for blind pedestrians at street crossings is also considered essential. This bulletin outlines the requirements of detectable warnings, a distinctive surface pattern of domes detectable by cane or underfoot, which are used to alert people with vision impairments of their approach to streets and hazardous drop-offs. The ADA Accessibility Guidelines (ADAAG) require these warnings on the surface of curb ramps, which remove a tactile cue otherwise provided by curb faces and at other areas where pedestrian ways blend with vehicular ways. They are also required along the edges of boarding platforms in transit facilities and the perimeter of reflecting pools.
- *Assistive Listening Systems Technical Bulletins:* Assistive listening systems (ALS) are devices designed to help people with hearing loss improve their auditory access in difficult and large-area listening situations. Typically, these devices are used in such venues as movie houses, theaters, auditoriums, convention centers and stadiums, where they are piggybacked onto a public address system. They may also be used in smaller listening locations like courtrooms, museums, classrooms and community centers. This bulletin provides information about the types of systems that are currently available and tips on choosing the appropriate systems for different types of applications.
- *Guide to the ADA Accessibility Guidelines for Play Areas:* The Access Board has developed accessibility guidelines for newly constructed and altered play areas. This bulletin is designed to assist in using the play area accessibility guidelines and provides information regarding where the play area guidelines apply, what a play component is, how many play components must be located on an accessible route and the requirements for accessible routes within play areas.
- *Summaries of Accessibility Guidelines for Recreation Facilities:* The Access Board issued accessibility guidelines for newly constructed and altered recreation

facilities in 2002. The recreation facility guidelines are a supplement to ADAAG. They cover the following facilities and elements: amusement rides, boating facilities, fishing piers and platforms, miniature golf courses, golf courses, exercise equipment, bowling lanes, shooting facilities, swimming pools, wading pools and spas.

- *Accessibility Guidelines for Outdoor Developed Areas:* The Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas was established in June 1997. The accessibility guidelines proposed by the Committee include consideration of the latest information, design and construction practices in existence. Proposed Section 16 of ADAAG 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. This proposed section also provides design guidelines for all newly constructed and altered camping facilities, picnic areas and beach access routes. 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, which are outlined in this publication.

Federal guidelines and standards are subject to periodic revision based on research findings and guidance from advisory committees. The Conservancy/MRCA should have a regular practice of reviewing research materials posted to the U.S. Access Board's website and updating local guidelines and practices as new standards are adopted or existing standards are revised.

State of California Accessibility Standards and Regulations

Title 24, California Building Code

The State of California has also adopted a set of design guidelines for accessible facilities, which can be found in the California Code of Regulations, Title 24, Part II, California Building Code (CCR). CCR contains general building design and construction requirements relating to fire and life safety, structural safety and access compliance. CCR provisions provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures and certain equipment. Although California has adopted most of the ADAAG requirements, there are some differences. In general, the more restrictive requirement (whether federal or state) should be applied when designing accessible facilities. The complete Title 24 or any of its parts is available for purchase from the International Conference of Building Officials (ICBO), 5360 South Workman Mill Road, Whittier, CA 90601, 1.800.423.6587, (website: www.icbo.org) or at various bookstores that carry technical books.

Since the CCR is updated every three years, the Conservancy/MRCA should have an ongoing program of regularly reviewing these changes and updating policies and procedures related to accessibility to keep them current.

Division of State Architect

The Division of State Architect (DSA) also provides information and resources for accessible or universal design. Publications available for downloading at DSA's website (www.dsa.ca.gov) include:

- *DSA's 2003 California Access Compliance Reference Manual:* The purpose of this book of regulations and statutes is to clarify the obligations for architectural accessibility in California.
- *2001 California Historical Building Code, California Code of Regulations, Title 24, Part 8:* The purpose of the State Historical Building Code (SHBC) is to provide regulations for the preservation, restoration, rehabilitation, relocation or reconstruction of buildings or structures designated as qualified historical buildings or properties. These regulations are intended to provide alternative solutions for the preservation of qualified historical buildings or properties, to provide access for persons with disabilities, to provide a cost-effective approach to preservation and to provide for the reasonable safety of the occupants or users.

For further technical assistance contact DSA's Access Compliance Program at 1130 K Street, Suite 101, Sacramento, California 95814 (916.322.4700).

Resources for Providing Accessible Programs and Facilities

- *ADA Document Portal:* This website (www.adaportal.org) provides links to an ADA Collection consisting of more than 7,400 documents on a wide range of topics. The ADA Document Portal is supported by the ten ADA & IT Technical Assistance Centers
- *American Association of Museums:* Accessible exhibit design publications are available for purchase from AAM's website (www.aam-us.org), including *Everyone's Welcome* (available in a variety of formats), which addresses museum programs and the ADA, *The Accessible Museum*, which offers model programs of accessibility for older people and people with disabilities and *What Museum Guides Need to Know* to provide access to blind and visually impaired visitors.
- *Beneficial Design:* Beneficial Designs works toward universal access through research, design and education. Beneficial Designs develops assistive and adaptive technology, performs rehabilitation research, contract design, legal consultation, standards development and serves as a rehabilitation information resource. Contact Beneficial Designs, Inc. at 2240 Meridian Blvd, Suite C, Minden, NV 89423-8628, (775.783.8822), by email at mail@beneficialdesigns.com or online at (www.beneficialdesigns.com).
- *California State Parks Accessibility Guidelines:* This set of guidelines presents principles for providing accessibility in park settings. It is intended for practical use in the field and as a reference manual that can accommodate many situations and settings. The guidelines cover all of the "building blocks of an accessible park" including accessible programs such as guided and self-guided programs and tours, audiovisual programs, campfire centers and

assembly areas, exhibits, historic sites, trails, visitor information and special events. This publication is available for download from the California State Parks website (www.parks.ca.gov). Further information is available from the Accessibility Section by phone (916.4458949) or by email at access@parks.ca.gov.

- *Designing Shared-Use Trails to Include Equestrians* by Anne M. O'Dell, presented at the Rails-to-Trails Conservancy's International Conference, *Trail Link 2003*, June 26-29, 2003, which is available online at www.nttp.net/resources/trailbuilding/index.html.
- *National Center on Accessibility*: The Center (www.ncaonline.org) is a cooperative project between the National Park Service and Indiana University to provide information and technical assistance, primarily on recreation access. An example of the research activities of the NCA is the National Trails Surface Study. This study is primarily the result of questions that NCA has received for many years and continues to receive from organizations, agencies and individuals who desire to make their trails accessible; are interested in an unobtrusive surface that blends and is friendly to the environment; and provides a quality trail experience for people with and without disabilities. NCA also publishes *What is an Accessible Trail?*, which summarizes the federal guidelines for outdoor developed areas and is available for downloading from its website. The NCA website also has information on campground accessibility, accessible picnic tables, access to beaches and inclusion of people with disabilities in aquatic venues.
- *National Park Service*: NPS has many programs that address the issue of providing accessible recreation services to people with disabilities. These include *Wilderness Accessibility for People with Disabilities* (available for downloading at www.planning.nps.gov/wilderness/toolbox3.cfm) and *Director's Order #42, Accessibility*, which establishes the purpose and role of the NPS Accessibility Program, lists applicable laws, standards and authorities, implementation strategies, roles and responsibilities. It also addresses NPS policies and provides links to additional information sources (available for download at www.nps.gov/access/resources_online.htm). The Technical Preservation Services of NPS publishes a series of Preservation Briefs, including *Making Historic Properties Accessible* (Technical Brief 32) by Thomas C. Jester and Sharon C. Park, AIA, and *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes* (Technical Brief 36) by Charles A. Birnbaum, ASLA, which are available for download from the NPS website (www.cr.nps.gov/hps/tps/briefs).
- *National Recreation and Park Association*: NRPA (www.nrpa.org) is a national, non-profit service organization dedicated to advancing parks, recreation and environmental efforts that enhance the quality of life for all people.
- *Santa Monica Mountains National Recreation Area Interagency Trail Management Plan (TMP)*: The National Park Service, California State Parks and the Santa Monica Mountains Conservancy are preparing an interagency regional trail management plan that will establish the overall direction of future

development and completion of the SMMNRA trail network over the next ten to fifteen years. Based on natural, cultural and recreational resources and the public need, the TMP will prescribe policies for the maintenance of existing trails and development of new trails throughout the Santa Monica Mountains National Recreation Area. The TMP will include a trail policy map depicting the planned trail network and proposals for locations of trails and trailheads; trail construction, management and operation guidelines; and allowable uses. For more information on the planning process, contact National Park Service, Santa Monica Mountains National Recreation Area at (805.370.2331).

- *Smithsonian Institution:* The Accessibility Program has developed the *Smithsonian Guidelines for Accessible Exhibition Design* (1996), which are available for download at their website (www.si.edu/opa/accessibility/exdesign/start.htm). Further information is available from the Smithsonian Accessibility Program at the Arts and Industries Building, Room 1239 MRC 426, Washington, DC 20560 (202.786.2942).
- *USDA Forest Service.* Forest Service outdoor recreation accessibility guidelines are currently being developed to provide guidance for the agency to maximize accessibility while at the same time recognizing and protecting the unique characteristics of the natural setting of outdoor developed recreation areas and pedestrian trails managed by the Forest Service. These guidelines include the *Forest Service Outdoor Recreation Accessibility Guidelines* and the *Forest Service Trail Accessibility Guidelines* and are available online at www.fs.fed.us/recreation/programs/accessibility. When the Access Board finalizes its accessibility guidelines for outdoor developed areas, the Forest Service will revise the *Forest Service Outdoor Recreation Accessibility Guidelines* and the *Forest Service Trail Accessibility Guidelines* to incorporate the Access Board's standards, where those provisions are a higher standard, as supplemented by the Forest Service. The supplementation will ensure the agency's application of equivalent or higher guidelines and universal design.
- *Wilderness Inquiry:* Wilderness Inquiry (www.wildernessinquiry.org) is a non-profit organization that focuses on getting people from all walks of life to personally experience the natural world. Wilderness Inquiry conducted a study for the Departments of Agriculture and Interior on ways to improve access for persons with disabilities to outdoor recreational opportunities made available to the public.

Resources for Assistive Technologies (General)

The Conservancy/MRCA should utilize the many disability-related resources available through the Internet.

ABLEDATA

The National Institute on Disability and Rehabilitation Research of the U.S. Department of Education maintains a national web-based service (www.abledata.com), which provides up-to-date links to assistive technologies and disability-related resources.

ABLEDATA's mission is to provide objective information on such assistive products as:

- *Architectural elements:* Products that make the built environment more accessible, including indoor and outdoor architectural elements, vertical lifts, lighting and signs.
- *Blind and low vision:* Products for people with visual disabilities, including computers, educational aids, information storage, kitchen aids, labeling, magnification, office equipment, orientation and mobility, reading, recreation, sensors, telephones, tools, travel, typing and writing (Braille).
- *Communication:* Products to help people with disabilities related to speech, writing and other methods of communication, including alternative and augmentative communication, signal systems, telephones, typing and writing.
- *Computers:* Products to allow people with disabilities to use desktop and laptop computers and other kinds of information technology including software, hardware and computer accessories.
- *Controls:* Products that provide people with disabilities with the ability to start, stop or adjust electric or electronic devices including environmental controls and control switches.
- *Deaf and hard-of-hearing:* Products for people with hearing disabilities, including amplification, recreational electronics, signal switches and telephones.
- *Deaf Blind:* Products for people who are both deaf and blind.
- *Education:* Products to provide people with disabilities with access to educational materials and instruction in school and in other learning environments including classroom and instructional materials.
- *Recreation:* Products to assist people with disabilities with their leisure and athletic activities including crafts, electronics, gardening, music, photography and sports.
- *Seating:* Products that assist people to sit comfortably and safely including seating systems and therapeutic seats.
- *Transportation:* Products to enable people with disabilities to drive or ride in cars, vans, trucks and buses, including mass transit vehicles, facilities and vehicle accessories.

- *Wheeled mobility*: Products and accessories that enable people with mobility disabilities to move freely indoors and outdoors including wheelchairs (manual, sport and powered), wheelchair alternatives (scooters), wheelchair accessories and carts.
- *Workplace*: Products to aid people with disabilities at work including agricultural equipment, office equipment, tools and work stations.

California Assistive Technology System (CATS)

CATS is a statewide project of the California Department of Rehabilitation that promotes access to assistive technologies, related services and information to enable people with disabilities to be successful, independent and productive. CATS maintains several directories on their website (www.atnet.org) including

- On-site and remote real-time captioning services
- American Sign Language (ASL) interpreters
- Ergonomic office equipment vendors
- Augmentative and assistive communications manufacturers and vendors
- Organizations that provide low-cost and donated computers for organizations that provide services to people with disabilities
- Assistive technology vendors and service providers for:
 - Hard of Hearing/Deaf
 - Learning Disabled
 - Mobility/Physical/Orthopedic
 - Speech/Language
 - Visually impaired/Blind

International Commission on Technology and Accessibility

ICTA initiates, facilitates and provides information regarding technology and accessibility through the World Wide Web. This information is available to people with disabilities, advocates and professionals in the field of disability, researchers, legislative bodies and the general community. Information and resources are available at the ICTA website (www.ictaglobal.org).

Alternative Format Communications

Resources to produce standardized publications such as applications and registration forms in Braille, audiotape, large-print text and accessible electronic media will be assembled.

- *American Council of the Blind:* ACB (www.acb.org) is a national organization advocating on behalf of persons who are blind or have low vision. ACB also publishes *A Guide to Making Documents Accessible to People Who Are Blind or Visually Impaired*, which is available online, in regular print, large print, Braille or on cassette tape. ACB is located at 1155 15th St. NW, Suite 1004, Washington, DC 20005 (800.424.8666) or by email at info@acb.org.
- *National Center on Accessibility:* NCA publishes *What are Alternative Formats? How Do They Apply to Programs and Services?*, which is available for download from their website (www.ncaonline.org).
- *National Center for Accessible Media:* NCAM is a research and development facility dedicated to the issues of media and information technology for people with disabilities in their homes, schools, workplaces and communities. Developers of Web- and CD-ROM-based multimedia need an authoring tool for making their materials accessible to persons with disabilities. NCAM has developed two such tools, version 1.0 and 2.01 of the Media Access Generator (MAGpie), for creating captions and audio descriptions for rich media. Media Access Generator (MAGpie) is available for downloading from NCAM's website (www.ncam.wgbh.org).

American Sign Language Interpreters

A pool of on-call American Sign Language interpreters should be developed. This list should be routinely updated to ensure their availability. Some programs may need to have a pool of interpreters who are available on a twenty-four-hour basis to handle emergency procedures.

The required qualifications of these interpreters should be established. Many non-certified interpreters provided by local services may have excellent skills and be qualified to handle most circumstances. However, certain circumstances, such as the provision of emergency medical services, may require interpreters who are approved by the courts and can ensure a level of confidentiality.

- See the online directory of ASL interpreters available at the *California Assistive Technology System* website (www.atnet.org).

Assistive Listening Systems and Devices

Systems and devices to amplify sound for persons with hearing disabilities should be available for public meetings and conferences. Various technologies exist for these devices. Different types of devices are more suitable for different types of hearing disabilities. Devices should be chosen to accommodate the greatest number of individuals.

- See the online directory of augmentative and assistive communications manufacturers and vendors available at the California Assistive Technology System website (www.atnet.org).
- See also the *Assistive Listening Systems Technical Bulletins* available on the U.S. Access Board's website (www.access-board.gov).

Closed Caption Machine

To the extent practical, the Conservancy/MRCA should have access to a device for encoding closed captioning on films and videotapes used for training and other programs.

- See the online directory of on-site and remote real-time captioning services available at the *California Assistive Technology System* website (www.atnet.org).
- *TDI*: TDI's (formerly known as Telecommunications for the Deaf, Inc.) mission is to promote equal access in telecommunications and media for people who are deaf, hard-of-hearing, late deafened or deaf blind. TDI's online resources (www.tdi-online.org) include information about media access such as captioning, Internet, video and more.

Text Telephone (TDD)

To the extent necessary, park facilities should have access to a text telephone or have access to a telephone transfer service as required by the law and offered by public telephone companies.

- *TDI*: TDI's online resources (www.tdi-online.org) also include information about telecommunications access such as TTY, pagers, telephony, VoIP and more.
- See the *Text Telephones Technical Bulletin* available on the U.S. Access Board's website (www.access-board.gov).

Transportation

The Conservancy/MRCA will coordinate with the National Park Service to expand the Recreational Transit Program (RTP) shuttle service area to all park facilities of the Plan area, particularly trailheads, to maximize public access and recreation opportunities and facilitate the use of alternative means of transportation. RTP provides free or low-cost bus transportation for people who otherwise would not have access to a mountain park or beach. Many people often do not have a reliable transportation source and transportation routes usually bypass most natural areas. Each year, RTP provides the critical link for over 35,000 city dwellers in the Los Angeles area to visit the mountains and beaches.

This transit service should include accessible transportation as needed or requested by program participants. The following resources are available to aid these agencies in providing accessible shuttle and vanpool transportation services:

- *American Association of State Highway and Transportation Officials*: AASHTO is the organization that maintains the “Green Book” for design of roads and highways and has begun to address accessibility of pedestrian networks. Several AASHTO publications—which can be ordered from the AASHTO website (www.transportation.org)—address accessible circulation systems, including: AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities, 1st Edition and Guide for the Development of Bicycle Facilities, 3rd Edition.
- *Federal Transit Administration*: FTA regulates and enforces requirements of the ADA covering transportation facilities and systems. FTA maintains a technical assistance line on ADA questions at (888.446.4511) and on their website (www.fta.dot.gov).

Guide to Disabilities and Disability Etiquette

A guide to disabilities and disability etiquette should be assembled and distributed to staff. The guide will ensure that staff members are familiar with a variety of types of disabilities and that they are sensitive to the abilities and needs of people with disabilities in order not to offend or demean them. The guide should be periodically updated to ensure that it includes current acceptable language for talking about disabilities.

- *Disability Etiquette: Interacting with People with Disabilities* is available online at the City of Long Beach’s website (www.ci.long-beach.ca.us/hr/employees/ada/etiquette.htm).

Lending Library of Assistive Technology Equipment

The Conservancy/MRCA should establish a “Resources Toolkit” of adaptive aids and human resources that will be available for use by programs without the means to assemble their own. It is recommended that the Conservancy/MRCA explore local sources of assistive technology.

- *American Association of People with Disabilities:* The American Association of People with Disabilities (www.aapd-dc.org) is the largest nonprofit, nonpartisan, cross-disability organization in the United States.
- *American Foundation for the Blind:* The American Foundation for the Blind is committed to improving accessibility in all aspects of life—from cell phones to ATMs, on web sites and in workplaces. Services include assistance in making products and services accessible to people with visual impairments. AFB offers expert consulting services and accessible media production. AFB provides objective product evaluations of adaptive technologies through its assistive technology product database (www.afb.org). Local assistance is available through the American Foundation for the Blind-West, 44 Montgomery Street, Suite 1305, San Francisco, CA 94040 (415.392.4845) or by email at sanfran@afb.net.
- *Adaptive Environments:* This educational non-profit organization is committed to advancing the role of design in expanding opportunity and enhancing experience for people of all ages and abilities. Adaptive Environments provides education and consultation to public and private entities about strategies, precedents and best practices that go beyond legal requirements to design places, things, communication and policy that integrate solutions to the reality of human diversity (www.adaptenv.org).
- *The Arc:* The Arc (formerly Association for Retarded Citizens of the United States) is the country’s largest voluntary organization committed to the welfare of all children and adults with mental retardation and their families (www.thearc.org). Local information is available from Arc - South Bay, 1735 West Rosecrans Avenue, Gardena, CA 90249 (310.532.6333) or by email at arcsobay-1@lafn.org.
- *California’s AT Network:* California’s AT Network is dedicated to expanding the accessibility of tools, resources and technology that will help increase independence, improve personal productivity and enhance the quality of life for all Californians. For information and assistance, contact the AT Network at 660 J Street, Suite 270, Sacramento, CA 95814-2495 (800.390.2699), by email at info@atnet.org or at their website (www.catsca.org).
- *Center for Independent Living:* The Center for Independent Living (CIL) is a national leader in helping people with disabilities live independently and become productive, fully participating members of society. The staff and board, most of whom have disabilities, are strongly committed to supporting others in their efforts toward self-sufficiency. For assistance with programs

and for information, contact ILC of Southern California, 14402 Haynes St., Suite 103, Van Nuys, CA 91401 (818.785.6934).

- *Disability Resources, Inc.:* Disability Resources, Inc. is a national nonprofit organization that provides information about resources for independent living. DRI maintains an online directory of assistive technology resources (www.disabilityresources.org).
- *Environmental Health Network:* EHN's focus is on issues of access and developments relating to the health and welfare of the environmentally sensitive and to promote public awareness of environmental sensitivities and causative factors. EHN provides information on environmental and chemical sensitivities at EHN, P.O. Box 1155, Larkspur, California, 94977-1155 (415.541.5075) and on its website (www.users.lmi.net/wilworks).
- *National Association of the Deaf:* NAD is a national consumer organization representing people who are deaf and hard-of-hearing. NAD provides information about standards for American Sign Language interpreters and the Captioned Media Program on its website (www.nad.org).
- *National Federation of the Blind:* NFB is a national organization advocating on behalf of persons who are blind or have low vision. NFB provides online resources (www.nfb.org) for technology for the blind, including a technology resource list, a computer resource list, screen access technology, sources of large print software for computers and sources of closed circuit TV (CCTVs).
- *National Organization on Disability:* The National Organization on Disability promotes the full and equal participation and contribution of America's 54 million men, women and children with disabilities in all aspects of life. NOD maintains an online directory of information and links including transportation-related resources (www.nod.org).
- *North American Riding for the Handicapped Association:* NARHA is a national non-profit organization that promotes the benefit of riding horses for individuals with physical, emotional and learning disabilities. NARHA provides online information on therapeutic riding programs and accessible equestrian facilities (www.narha.org). For local formation contact: Hearts Adaptive Riding Program, 4420 Calle Real, Santa Barbara, CA 93110, (805.964.1519) or website (www.heartsadaptiveriding.org).
- *Paralyzed Veterans of America:* PVA is a national advocacy organization representing veterans. PVA's Sports and Recreation Program promotes a range of activities for people with disabilities, with special emphasis on activities that enhance lifetime health and fitness. PVA's website (www.pva.org/sports/sportsindex.htm) provides information on useful sports publications and a list of contacts.
- *State Council on Developmental Disabilities,* 1507 21st Street, Suite 210, Sacramento, CA 95814-5299 (916.322.8481), email: scdd@dss.ca.gov or website (www.scdd.ca.gov).

- *State Office for Deaf Access*, Department of Social Services, 744 P Street, MS 6-91, Sacramento, CA 95814 (916.653.8320), email: deaf.access@dss.ca.gov or website (www.dss.cahwnet.gov/cdssweb/OfficeofDe_189.htm).
- *State Office of Services to the Blind*, California Department of Social Services, 744 P Street, MS 6-94, Sacramento, CA 95814 (916.657.3327), website (www.dss.cahwnet.gov/cdssweb/blindservi_187.htm) or email: BlindAccess@dss.ca.gov.
- *United Cerebral Palsy Association*: UCP's mission is to advance the independence, productivity and full citizenship of people with cerebral palsy and other disabilities, through our commitment to the principles of independence, inclusion and self-determination. UCP's Sports and Leisure Channel is designed for people with disabilities who are interested in sports and other leisure activities and proposes creative ideas for inclusive community recreation programs, including outdoor adventure activities for people with disabilities. Information about the Sports and Leisure Channel is available on UCP's website (www.ucp.org/ucp_channel.cfm/1/15).
- *United Spinal Association*: United Spinal Association is a membership organization that serves individuals with spinal cord injuries or disease. Formerly known as the Eastern Paralyzed Veterans Association, the organization expanded its mission to serve people with spinal cord injuries or disease regardless of their age, gender or veteran status. Information on accessibility training and consulting services and recreational opportunities for people with spinal cord injuries or disease is available on their website (www.unitedspinal.org).
- *World Institute on Disability*: WID is an international public policy center dedicated to carrying out research on disability issues and overcoming obstacles to independent living. WID maintains an online information and resource directory on technology, research, universal design and the ADA (www.wid.org/resources).