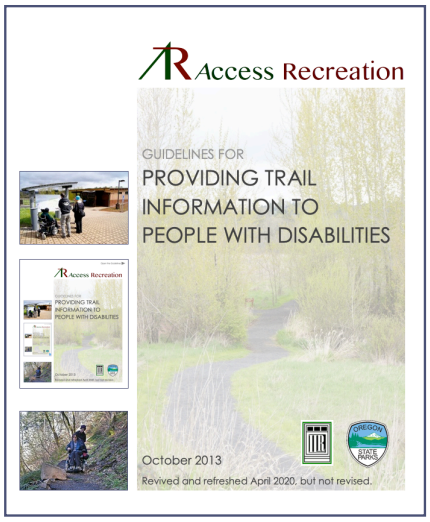
Access Recreation



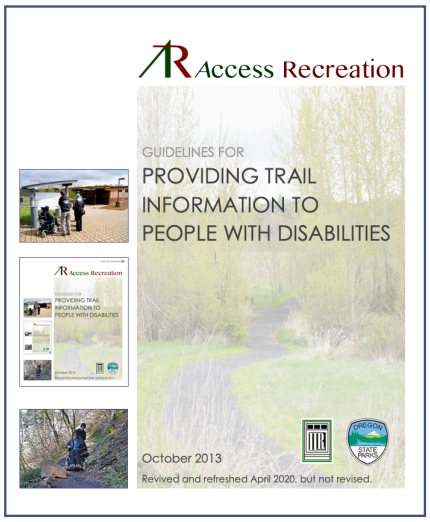
GUIDELINES FOR

PROVIDING TRAIL INFORMATION TO PEOPLE WITH DISABILITIES

October 2013

Revived and refreshed April 2020, but not revised.

Access Recreation



GUIDELINES FOR

PROVIDING TRAIL INFORMATION TO PEOPLE WITH DISABILITIES

A project of the
Access Recreation Committee and
Independent Living Resources

Funded through a generous grant from the
Recreational Trails Program of the
Oregon Parks and Recreation Department

October 2013

Revived and refreshed April 2020, but not revised.

Access Recreation

Credits and acknowledgements

As with any complex document, this project represents the effort of many people and entities, a short list of whom and which is provided here.

Georgena Moran, Access Recreation project coordinator, for providing the original vision of what would enable people with disabilities to enjoy outdoor recreation in the Pacific Northwest.

The Access Recreation Committee of public agencies and non-profit entities that have supported this effort from the start.

A generous Grant, in 2011, from the Recreational Trails Program of the Oregon Parks and Recreation Department.

Independent Living Resources for its support and guidance.

The core subcommittee that developed the structure and the text of these Guidelines, consisting of:

- Danielle Bailey, Oregon Health Sciences University
- Richard Bosch Architect, accessible design specialist
- Angela Butsch, US Fish and Wildlife Service
- Nickole Cheron, City of Portland
- Chuck Frayer, US Forest Service
- Greg Hawley, Portland Parks and Recreation, Hoyt Arboretum
- Erin Hesby, Access Recreation project facilitator [emeritus]
- Patricia Kepler, Independent Living Resources
- Sharon Mitchell, Access Recreation project facilitator
- Georgena Moran, Access Recreation project coordinator
- Dana Perez, US Fish and Wildlife Service
- Eric Rosewall, The Intertwine
- Debbie Timmins, Portland Parks and Recreation [emeritus]
- Richard Walkoski, Oregon Parks and Recreation Department

Tualatin River National Wildlife Refuge, Tryon Creek State Park, Metro, Independent Living Resources, and the City of Portland for providing meeting space and presentation facilities.

Richard Bosch and Eric Rosewall for their hard work to further develop these Guidelines and their expertise to publish these Guidelines as a web-document.

Additional support from:

- Barry Fox-Quamme, Independent Living Resources, director, for his indefatigable energy to administer the Grant
- May Altman, Independent Living Resources, project liaison
- Bret Westwood, Oregon Vocational Rehabilitation Services, past director
- Roslyn Farrington, All About Community, project consultant

"It's been a long time coming but there should be no remaining reason not to implement such a simple and elegant solution to information sharing!"

"Excellent presentation and such a huge asset to our field. Thank you!"

"...very informative presentation/appreciate methodical organized thinking that was presented"

"As a local park agency manager, who has followed this work from the beginning, I find the information from this document to be embarrassingly simple!"

recent comments from ORPA and WSTC attendees

Access Recreation

A message from Georgena Moran, Access Recreation Project Coordinator

Living in Portland, Oregon, I feel fortunate to be surrounded by so much natural beauty and to have such great hiking and outdoor resources all around me. But, as a wheelchair user, I also feel the frustration of not having access to reliable and meaningful information about those hiking opportunities. I feel that printed materials and online resources vary greatly in the information provided and often are offered with little understanding of what is most useful to people with different types of disabilities.

My belief is that there are actually many trails that could be used by people with disabilities, but what is lacking is the information to make an informed decision. The concept is simple and empowering – people can make their own determinations if they are just provided the right information. Conversely, it is frustrating to make the effort to visit a site only to discover that it is unusable and perhaps for the most inconsequential reason.

Several years ago, I decided to improve that situation and convened a team that included representatives from federal, state and local parks departments to develop common standards for providing information that would better inform people with disabilities. This Access Recreation Committee developed Guidelines based on its collective experience and with the expectation that public agencies in the region would strive for a common standard of trail description and information sharing.

A generous grant in 2011 from the Recreational Trails Program of the Oregon Parks and Recreation Department has now made it possible to further develop these Guidelines and to publish this web-document. These Guidelines do not propose to alter existing trails as much as to improve the quality of information that is provided about them. The team is sensitive to the difficulty public agencies have to implement many new programs, so the underlying premise was to divide the Guidelines into two phases: 1) primary information that can be provided readily and at no cost to the respective agency; and, 2) additional information that can be added over time as funding becomes available.

I hope you will find as much benefit from our effort as the enthusiasm we have felt in assembling this document for you.

Sincerely,

Georgena Moran

Georgena Moran
Access Recreation Project Coordinator

Table of Contents

Summary 1

What is this document all about?
This web-document provides guidelines and additional information that public agencies and other non-profit entities should follow to share information about the use of their trail systems and recreational facilities, and information that should be considered during the design of new trails and features.

These Guidelines **do not propose** to define the terms "ADA accessible" or "inaccessible" as they apply to trails, but to share information about trails and amenities so that potential trail users can make their own informed decisions.

Who is Access Recreation?
Access Recreation is a Portland, Oregon based, non-profit committee that has been working for several years to develop these uniform informational guidelines.

When put in place, these guidelines will provide the public with easy access to better information on the accessibility of parks and recreation trails in the states of Oregon and Washington and beyond. This information will increase opportunities and safety by allowing trail users to make a more-informed decision as to which trails may best suit their needs and ability levels without being limited solely to designated ADA accessible trails.

Who are its committee members?
The Access Recreation Committee is comprised of representatives from federal, state and local park agencies and other organizations involved in public recreation and accessibility. A list of Access Recreation Committee members and their websites is available by clicking here.

How is this document organized?
Before this **Executive Summary**, there is a **Table of Contents** which provides links to all the sections that follow. They are divided into **Primary** topics that are essential and common to all trail descriptions; **Secondary** topics that may be useful over time as budgets allow; a prototypical **webpage**; a series of **special topics**, such as Interacting with Persons with Disabilities; **excerpts** from the ADA Standards for Accessible Design 2010 and Guidelines for Outdoor Developed Areas; an extensive **Glossary** of terms; and a list of additional **Resources**.

Summary 2

Methodology - how did we develop these guidelines?
The topic of disability can be overwhelming and intimidating, even to people with disabilities, because the very nature of disability is so diverse and the needs of the individual are so personal. Therefore, even though the Committee is comprised both of people with disabilities and people who are able-bodied, it determined that it was imperative to solicit additional input to its proposed guidelines to validate or challenge its conclusions and to gain further understanding in how people use trails.

Proposed guidelines which had been developed by the Committee were presented in a public forum and trail walk-through on June 10, 2011 at the Tualatin River Wildlife Refuge.

A substantial number of comments was received which were sorted into their respective topics and which suggested new topics altogether. By assimilating those comments, this document is now the final draft version of those guidelines and will be presented to public agencies and other non-profit entities during two other forums to be held during 2012.

Comments from previous presentations
- Comments from June 10, 2011, and how they were sorted into similar categories, can be viewed as a separate webpage. [No longer available.]
- Comments from the May 10, 2012 presentation, can be viewed as a separate webpage. [No longer available.]

Why did we choose this format for this document?
When this project was first considered, it was envisioned to create a printed document - a book of guidelines. With the prevalence of web-based publication and the realization that most people who are blind or visually impaired now use computers to read, the Committee opted to focus on a web-based publication and one that is computer-reader aware.

This single-page format was chosen, so that anyone wishing to print this document could do so on a conventional home printer using Letter-size paper.

Need a five-minute, three-page tour of this document?
Just click **Primary** topics; **Secondary** topics; and **More topics**.

How did we conserve resources?
All committee meetings were conducted without dependence on paper by using a central display and web-based access to meeting materials and by sharing of meeting minutes and communications via the AccessRecreation.org website.

How are the pages organized?

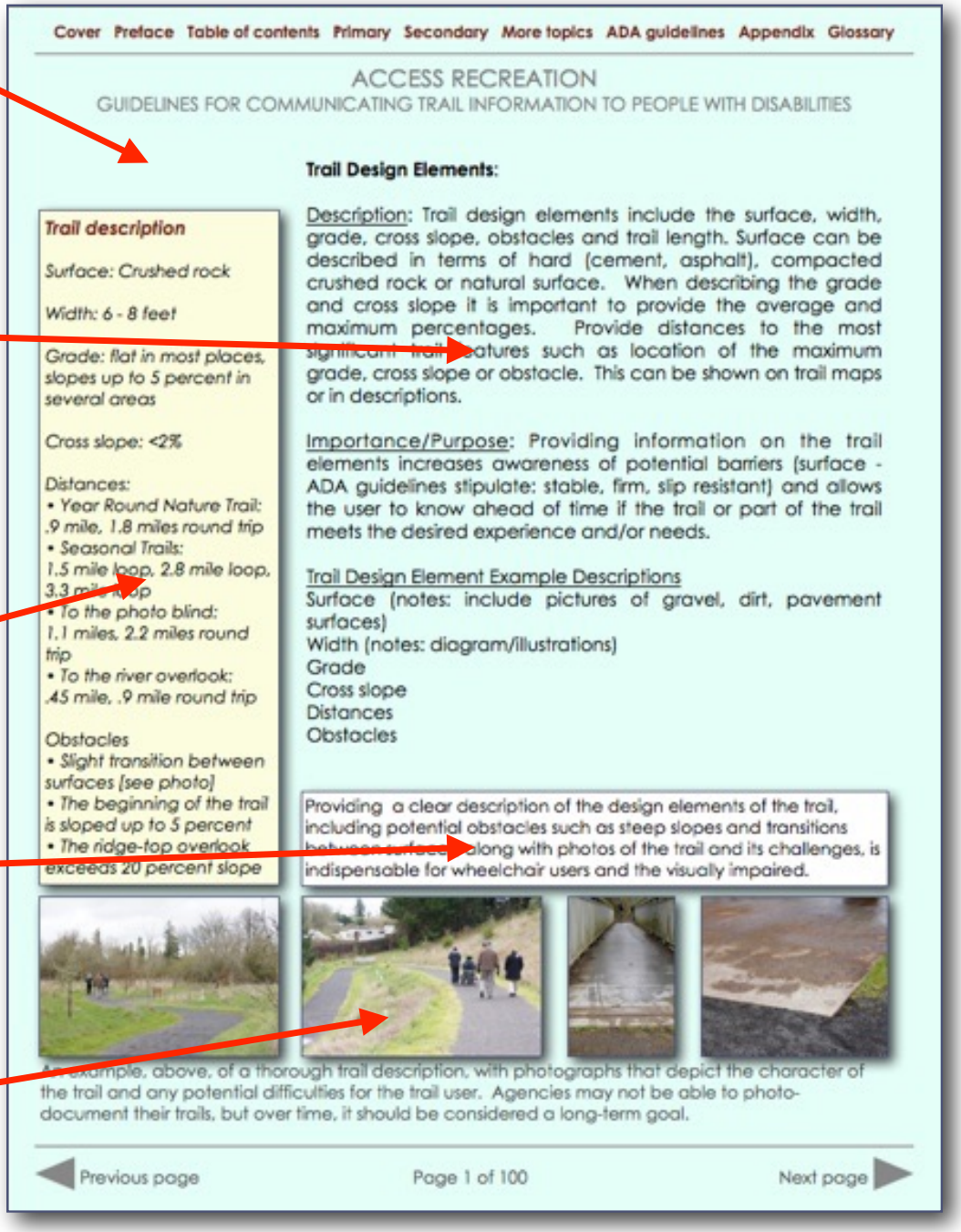
Hidden text provides a brief description of the page for people using a computer webpage reader

This area contains the primary text from Guidelines that were developed by the Access Recreation committee and augmented by comments and input from the June 10, 2011 workshop and site visit

This section contains hypothetical text and descriptions intended as an example to be used on future webpages and printed materials

This section contains additional insights into and clarification about the topic of the respective page

Photos are used for two reasons: to help illustrate the Guidelines text, and to suggest illustrations that could be used on future webpages and printed materials



Summary 4

Recent and upcoming presentations

May 10, 2012

This document, in its Final Draft form, was presented at an event held at the City of Portland on May 10, 2012. Whereas last-year's event of June 10, 2011 was directed primarily at people with various types of disabilities, to determine if these Guidelines were considered beneficial, the May 10 event was attended mostly by representatives from various public agencies, at all levels of government, and included a number of their web masters - those responsible for creating agency websites and disseminating public information.

We were pleased at how well received this document was at the presentation. Conversely, many attendees were surprised at how basic and simple the information was and offered that they could easily adjust their current webpage content to accommodate these recommendations at little or no cost.

We were reminded, yet again, to consider people with visual impairments and not to focus solely on mobility impairments, especially in the section on Ratings - an easy trail for wheelchair users may be difficult for those with limited vision or vice versa.

Similarly, we were reminded that agencies need to clarify their policies on the use of service animals - true all the more with wilderness area trails where concern about safety of the service animals and interacting with wildlife needs to be considered.

Finally, we reminded attendees that these Guidelines do not propose to define the terms "ADA accessible" or "inaccessible", but to share information about trails and amenities so that trail users can make their own informed decisions.

Additional presentations

- September 10, 2012: ORPA Annual Conference, Medford, OR
- October 26, 2012: WSTC 2012 Washington State Trails Conference, Vancouver, WA
- November 2, 2012: Access Recreation is Celebrating Completion of the Guidelines City of Portland, Portland, OR
- April 15, 2013: American Trails International Trails Symposium, Fort McDowell Yavapai Nation, AZ
- May 4, 2013: Blinded Veterans Association, Newport, Oregon
- September 17, 2013: ORPA Annual Conference, Welches, OR

Section 1
Primary Guidelines

Section 1

See **Examples 1 and 2** for a prototype webpage where all these topics have been assimilated.

Basic location information starts with the point of arrival

An example of 3 accessible feature symbols

An example of a moderate to difficult wooded trail

Primary Information about trails – overview

This first part of the Guidelines identifies information that is considered minimal and mandatory for all information sharing whether on a webpage, on published materials or at the site itself. This information is descriptive of the existing conditions and therefore is obtainable and can be applied without cost. The categories described in greater detail include:

Contact information - whom does one contact to find out the latest **condition** of the trail or recreational features; whom does one contact to arrange for **assistance**; whom does one contact in case of an **emergency**.

Location information - where is the trail or recreational feature; where are parking and other amenities available; where are trailheads or points of arrival.

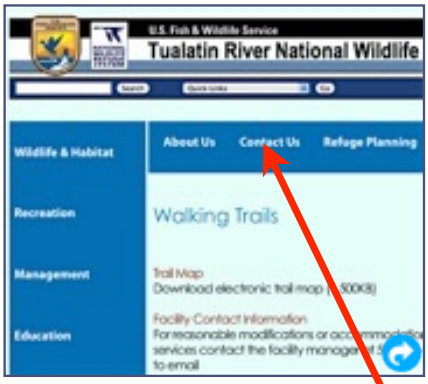
Considerations about the use of **symbols** on a webpage, on published materials or on signage at the site itself, taking into account that differences of color may not be suitable for all users. A combination of color, shape and readily comprehensible symbol design will provide the most universal application.

A **rating system** that presents relative levels of difficulty and the degree of exertion that may be required, applicable primarily for people with mobility impairments.

Identifying the **amenities** along a trail or recreational feature that may be useful in deciding whether to pick a particular trail or not, such as special views, benches or resting areas, *toilets, a *visitor center and available water. *Built facilities such as toilets and visitor centers need to conform to the ADA Accessibility Guidelines, and in the case of visitors centers, should incorporate the Smithsonian Guidelines for Accessible Exhibition Design.

A **description** of the overall trail itself as a continuous experience - a virtual tour - so that the potential user can decide whether to pick a particular trail or not.

A discussion about specific **design elements** and constraints such as typical and extreme slopes, cross slope and seasonal obstacles in the path.



An example of contact information presented in the upper lefthand corner of a document

An example of trail signage with QR code that can be read by a smartphone

Contact Information

Summary – It is essential to provide **contact information** – how to reach the facility manager and staff and emergency phone numbers – both on published materials and at appropriate locations at the facility. These Guidelines place this requirement first because it is so crucial to persons with a disability and yet it is so easy to achieve.

Importance/Purpose – Users with disabilities have many ways of obtaining information, and what works for some may not work for others. Therefore, information should be provided in a variety of formats to accommodate the greatest number of users possible. Section 508 Standards, the federal standards for accessible technology and website design, address many of these needs, but an important example of what is not covered is placement of contact information on a webpage. If that information is located at the bottom of a very extensive webpage a person using a reader will have difficulty finding it.

Location – Contact information should be provided at the top, left-hand corner of webpages, and in a prominent location on printed publications and trail signage. This information should make clear how to contact the facility manager and/or staff for additional information and to check for the latest conditions. Another type of contact information essential to trail users is how to reach emergency services if something were to occur along the trail. Emergency contact information may be even more important on trail signage than on published materials.

Contact information may already be provided but may be hard to find, especially for web users with vision impairments using a reader. Location is the key factor in satisfying this requirement, making sure this information is easily accessible to all users. Users with vision impairments need a way to get information such as Braille. For information provided on site the use of new technology may be helpful, such as the use of QR [quick response] codes to provide information directly to smart phones.

Example

- 'For up-to-date facility and trail information, please contact...'

The bus stop including bus number, in this case #12

The sloped pathway from the bus stop to the entry

Map showing point of arrival and path to entry

Location

Summary – Provide locational and context information including: facility address, the location of trailheads, parking facilities, and public transportation routes.

Description – Describe the path of travel in its entirety, to and from point-of-arrival to the facility, including information about trailheads and restrooms at the site, and considering the various ways a visitor might arrive at the site, such as pedestrian access, public transportation, and/or automobile.

Importance/Purpose – Information on facilities often does not include a description of the relationship of the various parts of the facility to one another. For users with disabilities this information is essential to determine if the overall site is usable to them. For example, if a restroom and the primary view area are not connected by an accessible route, that information needs to be provided. When describing location of facilities, one most often assumes visitors will arrive by car. Many sites do offer pedestrian access, so a description of that access is important. If users can arrive at the site in other ways, a description of those alternatives is also important.

Examples – If there is a drop-off area near a facility that information is crucial to disabled users. If parking is provided, a description of what kind of parking is available and what its relationship to the facilities at the overall site is important. Maps can be a key way to satisfy this requirement, although they do not work well for users with vision impairments.

The three images to the left present essential information about **Location** and point-of-arrival. Other information might describe:

Parking Accommodations, for instance:

- There are two ADA accessible parking spaces available at the Wildlife Center.

Public Transportation, for instance:

- Trimet bus #12 offers frequent service, and stops in front of the facility on highway 99W. A 500 foot crushed rock path, with slopes up to 5 percent, connects the bus stop with the Wildlife Center.

Symbols

The example above is all too common - amenity symbols, without differentiation of shape or color to denote accessibility and without descriptions.

<u>Summary</u> – Use international symbols as a simple way of identifying the different amenities available at a site. Code **accessible** facilities and trail features with a **blue circle**.

<u>Description</u> – When providing information graphically the use of standard symbols, such as the **NPS Standard Cartographic Symbols**, can provide an easy way to communicate accessibility information. By using both color and different shapes to denote accessible facilities, this information can easily be added to existing maps.

<u>Importance/Purpose</u> – Complex webpages often have accessibility information included, but it may be difficult to locate. By giving visual clues, such as shape and color, it is easy to focus on accessibility without compromising content. The use of color alone does not satisfy all purposes, as for people who are color blind, so **shape and color** in combination is the key.

The example below uses color and shape to differentiate accessible features from those that are inaccessible and adds useful descriptions.

<u>Examples</u> – Converting a standard brown square restroom symbol into a blue circular restroom symbol is an example of how this can be readily achieved.

Parking at the Wildlife Center is ADA compliant.

Restrooms are ADA compliant and located at the trailhead entrance and inside the Wildlife Center.

Picnic areas located at the trailhead adjacent to the restrooms are covered, with two accessible tables.

Although not a requirement, these Guidelines propose using blue circles to designate accessible features, which is becoming universally accepted.

The examples to the left compare the common practice of using one shape and color to denote amenities at a site, versus the recommended practice of using **both shape and color** and to further explain the meaning of each symbol for each location. Symbols that denote an **accessible amenity** should be clearly differentiated from those that denote inaccessible amenities.

Color provides an immediate cue, but a different shape is useful to people who are color blind. Pairing useful symbols with clear descriptions of their specific location is also helpful. For example, not every parking lot may be accessible to the same degree, even though technically they are ADA compliant.

Use a **key** to differentiate the meaning of symbols, for instance:

 **Accessible feature**

 **Non-accessible feature**

Easy - a shared flat bikeway

Moderate - a paved path but steep with handrail

Moderate to difficult - crushed rock but steep

Rating Systems - for people with mobility impairments

Summary – A rating system is an easy way to provide users with mobility impairments a method to select a route that may be safe and usable by them. [See **People who are blind or have visual impairments** for insights into other forms of disability.]

Description – A rating system is determined by the primary elements that affect the ability to use a trail, including: type of surface, grade, cross-slope, and distance between features. Each rating is first defined using these base definitions, but may need to be adjusted to reflect unusual conditions.

Examples of Rating Descriptions

- **Easy** – Hard/paved surface, minimum 5 feet wide, grades 5 percent or less, cross slopes 2 percent or less. Individuals using mobility devices should be able to use this trail with little or no assistance.
- **Moderate** – Hard/paved or compacted, crushed-rock surface, minimum 3 feet wide, grades 5 to 8 percent, cross slopes 2 percent or less, with resting areas a maximum of every 200 feet. Some individuals using mobility devices may require assistance.
- **Difficult** – Compacted, crushed-rock or natural surface, minimum 3 feet wide, grades sustained at 8 to 10 percent, cross slopes 3 percent or less, with resting areas a maximum of every 100 feet. Constructed or natural barriers exist. Most individuals using mobility devices may need assistance.
- **Most difficult** – Natural surface, 3 feet minimum wide path, no resting areas, uneven rocky or natural barriers exist, sustained grades 10 percent and greater, cross slopes 3 to 5 percent. Most individuals using mobility devices will need assistance.

Moderate to more difficult - loose rock and steep

Difficult - loose dirt and with rock obstruction

Impossible - railroad tie steps

Two good bench solutions

A forlorn bench - unusable and unused

A water fountain as reminder of the need for water

Amenities at the outdoor facility

Summary – Briefly describe the availability and usability of facility amenities, perhaps as a bulleted list, keeping in mind that, for people with disabilities, most **amenities** are actually **necessities**.

Description – In describing the available amenities use descriptors on location and accessibility. In addition, location and travel distance to the available amenities can easily be added to existing maps.

Importance/Purpose – Knowing about available amenities, where they are located, the travel distance to and between them will provide users with basic information about what is available at the park site and enabling them to make informed decisions about whether the trails and site meet their needs.

Examples – Amenities, starting from the highest priority, include:

- parking - where and how much; if none, indicate that, too
- restrooms - where; if none, indicate that, too
- drinking water - how reliable; if none, indicate that, too
- a visitor center - how accessible; if none, indicate that, too
- benches and resting areas - where and how accessible
- covered shelters and other structures - where
- open picnic areas - where and how accessible
- viewpoints - where and relative merit
- interpretive opportunities - what kind and relative merit
- availability of guides [human or printed] or published materials
- other special services, such as mobility devices available to loan out, or shuttle transportation within the site

For people with disabilities most "amenities" are actually "necessities". Water may be crucial for all people, but for people with disabilities it is essential to plan an excursion around the availability of water, since dehydration is a constant danger. If no water is available that is equally important to share.

If water is one prime concern, then, obviously, the availability and reliability of restrooms, is the other prime need. Simply knowing that a restroom is "accessible" may not be descriptive enough. Many people with disabilities travel with attendants, suggesting that larger, private toilets might be more useful than toilet stalls.

Below, a good example of a trail description

Year-Round Nature Trail

A one-mile long nature trail meanders through a variety of refuge habitats, past wildlife viewpoints and interpretive stops and ends in an expansive view at the wetland observation deck.

Along the trail one may see or hear native and migrating birds. This trail surface is made up of compacted small gravel.

From the parking lot to the wetland observation deck, the grade of the year-round nature trail does not exceed 5%, and is steep only at the entrance to the trail.

There are five resting and wildlife viewing areas with benches along the path. The path passes over several bridges and has wide open views of the wetlands. There are no services along the path.

Trail Description 1 – describing the experience of the trail

Summary – Provide potential users with the information to help them **decide** if a particular trail would meet their **expectations**.

Description – A description of the trail would start with the overall experience, but include some physical descriptions such as trail surface, width and grade. Provide the trail length and distances between points of interest. Challenging aspects of the trail, points of interest and features such as places to rest and shaded areas can be included in the description and located on a map.

Importance/Purpose – Providing a trail description that includes aspects of the trail experience as well as its physical condition allows users to make a more informed and safe decision as to whether the experience would meet their individual expectations. This knowledge is of great importance to those who use wheeled devices and those with walking, visual or hearing impairments.

Examples

- Describe the experience of what one might hear along the trail (useful for people with visual impairments) and other features one will find (bridges, views, places to rest, water, wildlife, etc).
- Highlight the most difficult aspects of the hiking trail in the description and on maps.
- Describe obstacles and where they are located on the trail.
- Provide distances between features, to the trailhead and points of interest, including benches, shaded and covered areas, viewpoints and interpretive displays along the trail.
- Provide details about other uses - dogs, horses, and multi-use.
- Indicate what interpretive opportunities are available and in what format.

Audubon - Location and Arrival

Champoeg - Trail characteristics

A comprehensive overview of the experience along the trail will help prepare visitors of all abilities. Providing photos of the trail, especially the challenging sections, is an easy way to help inform people.
Click on the sample photo albums to the left, borrowed from the AccessTrails project, to view a good method for displaying and describing photos on a webpage.

Trail Description 2 – its physical characteristics

Trail description

Surface: Crushed rock

Width: 6 - 8 feet

Grade: flat in most places, slopes up to 5 percent in several areas

Cross slope: <2%

Distances:
• Year Round Nature Trail: .9 mile, 1.8 miles round trip
• Seasonal Trails: 1.5 mile loop, 2.8 mile loop, 3.3 mile loop
• To the photo blind: 1.1 miles, 2.2 miles round trip
• To the river overlook: .45 mile, .9 mile round trip

Obstacles
• Slight transition between surfaces [see photo]
• The beginning of the trail is sloped up to 5 percent
• The ridge-top overlook exceeds 20 percent slope

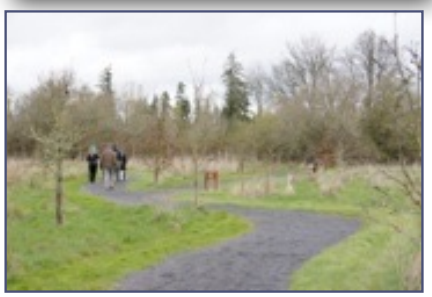
Summary – Now that a trail has been selected, provide users with information to help them **plan** better for its **challenges**.

Description – Trail design elements include the surface, width, grade, cross slope, obstacles and trail length. Surface can be described in terms of hard (concrete, asphalt, wood), compacted crushed rock or natural surface. When describing the grade and cross slope it is important to provide the average and maximum percentages. Provide distances to the most significant trail features including locations of maximum grade, cross slope or obstacles. This can be included in the description and located on a map.

Importance/Purpose – Providing information on the trail elements increases awareness of potential barriers and allows the user to know ahead of time if the trail or part of the trail meets the desired experience and/or needs.

Examples of Descriptions
- Surface - include pictures of gravel, dirt, pavement surfaces
- Width - diagram/illustrations if appropriate and available
- Grade
- Cross slope
- Distances
- Obstacles

Providing a clear description of the design elements of the trail, including potential obstacles such as steep slopes and transitions between surfaces, along with photos of the trail and its challenges, is indispensable for wheelchair users and the visually impaired.




An example, above, of a thorough trail description, with photographs that depict the character of the trail and any potential difficulties for the trail user. Agencies may not be able to photo-document their trails, but it should be considered a long-term goal, and where user feedback may be useful.

Section 2
Secondary Guidelines

Section 2

See **Examples 1 and 2** for a prototype webpage where all these topics have been assimilated.

Secondary Information about trails – overview

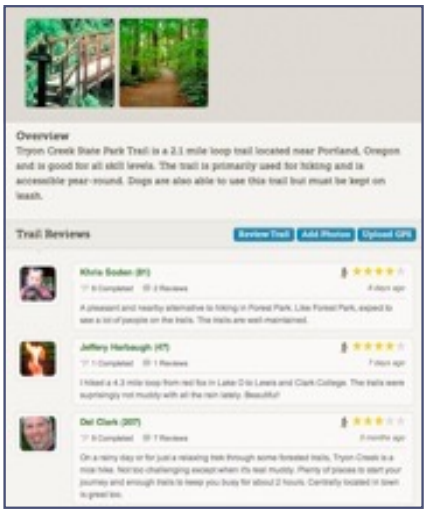
If the first part of the Guidelines provides information that is considered minimal and mandatory, then it follows that this second part of the Guidelines proposes information that is considered additional and discretionary, and which can be assimilated when opportunity and budget allow. The categories include:

Keeping **information current** and indicating to the prospective user when that information was last updated. Get help to keep information current by taking advantage of **user feedback** through devices such as blogs and wikis.

The use of **site photos** and other illustrations that can augment descriptive text and give the prospective trail user a better sense of what may be experienced.

The creation of **trail maps**, both for online use and for possible printing or for posting at trailheads. The development of **interactive or enhanced maps** may add to the map experience by providing features such as aerial photos, street views and other features that may help better to understand basic map information. Those features may be contributed live by trail users.

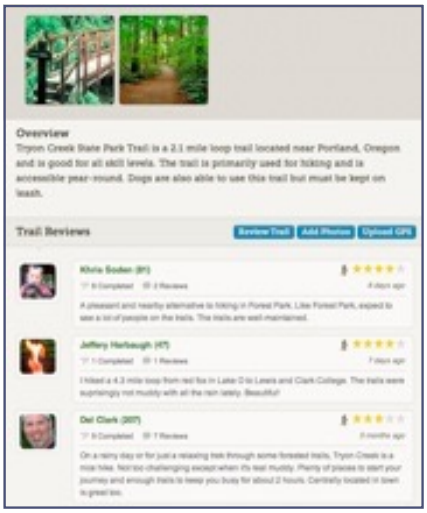
The incorporation of **global positioning system** [GPS] data to locate specific points along the trail or at the recreational facility. The inclusion of **markers**, such as distance markers, both located on printed and web materials as well as along the trail itself, so that users that have limitations - such as knowing how far an electric wheelchair can travel on one charge - may plan better and monitor their progress.



Considerations about how people who are **blind or visually impaired** benefit from certain types of information. That topic leads logically to issues of **signage and wayfinding**, which although important for all users, is particularly of concern to those who have visual impairments.

Considerations about how **Operational and maintenance issues** can impact the quality and usability of a trail. And finally some general **Reminders** about how to consider one's role in this process.

Use trail-user feedback to keep information current



The two linked images above are examples of how other trail users can provide live feedback on the condition of trails and other insights

Summary – Although it may be cost-prohibitive for agencies to constantly visit and monitor their trail systems, it is essential to keep information current and updated. Trail users can provide that valuable information if there is a method of reporting back.

Description – Way too much information is posted on the internet without indicating its date, undermining the credibility and relevance of the information. Especially, for people with disabilities, it is essential to understand the current condition of published materials and the facilities themselves. To receive valuable information directly from the site, there is great potential and benefit of receiving and assimilating user feedback from trail users. Therefore, encourage feedback by installing comment opportunities on the website.

Importance/Purpose – Updated and current information lets the user know when the information was posted and whether that information reflects current conditions. Current conditions could be influenced by weather, natural disasters, or other unforeseen influences that could impact or prevent usability, such as fallen trees, flooding, ice and snow, and trail washout.

Examples

- Indicate when the publication or webpage was last updated or signage was posted. The placement of this information, is less crucial than contact information and therefore can be located on published materials, at the discretion of the webpage designer or the facility provider.
- Utilize community input through on-line feedback mechanisms to provide user reviews: social networks, wikis, "Friends of" type groups, etc.
- Link a website to other websites with more current conditions on trails or make this statement "for latest conditions contact …."
- Link to accessibility information ("accessible programs, activities and facilities" or it can say "trails" and have the international symbol of accessibility next to the ones that are accessible).
- When a site links to another, care should be taken to ensure the quality of information remains true.

Site photos

Summary – Generic trail descriptions are not as beneficial to people with disabilities as actual images of what can be expected. As shown in the examples, the photos should depict both the character and amenities of the trail and the worst-case conditions, to help the potential user to determine if the trail is suitable, or not.

Description – Site photos should reflect the overall character, unique areas and the difficult sections of the trail. Site photos need to be accompanied by a caption informing the user of what is presented in the photo, otherwise computer reading programs, for people who are blind, will simply call out "image".

Importance/Purpose – Choosing the right photo can increase public interest and use of the trail. Selecting photos that reflect the character and unique features of the trail lets users know what kind of experience they can expect. Photos depicting the difficult sections of the trail will let users know if the trail is suitable for their use. Marking locations on the trail map where the photos were taken can also enhance interest in the trail.

Examples

- Photos of accessible features of the trail.
- Photos depicting overall character of the trail.
- Photos of the trailhead and destination.
- Photos of unique features of the trail.
- Photos highlighting difficult sections of the trail.
- Photos depicting accessibility concerns along the trail, such as the transition from trail to bridge, will confirm for the user whether the trail meets their ability levels.

Trail maps

The photo above shows a trail map, at a trail head, that includes flora and fauna

The example above is a part of a well-developed trail map - click to see full map

A trail profile may be as useful as the trail map itself

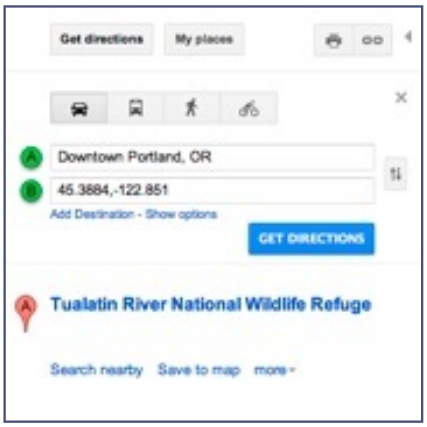
Summary – Trail maps, whether posted on the web, available as printed materials, or available on site, are indispensable for people with disabilities to better plan for, and anticipate the hike.

Description – Trail maps can be used to convey information in a variety of ways. They can be used to pinpoint features, obstacles and amenities along the trail. While maps generally provide a visual reference, alternative formats, such as tactile maps should be considered; even then, mapping alone will not satisfy all users.

Importance/Purpose – The disabled community is made up of a variety of sub-groups; each group receives and processes information in different ways. It is important to show maps in a variety of formats and provide enough information about the trail to allow users to choose trails that meet their needs and abilities. Providing access to trail maps/information along the trail as well as at the trailhead gives users basic information as they are experiencing the trail. Knowing potential challenges in advance enables users to determine whether the trail meets their needs and desired experience. Maps provide a way to convey to users the distance between points, such as the trailhead and an obstacle. Incorporating elevation changes or trail profiles into the map is extremely useful.

Examples

- Accessible amenities such as restrooms, picnic areas, parking lots and viewpoints can be indicated on a trail map with the universal blue (accessible) symbol. Amenities should not be considered accessible if they are not linked by an accessible route. The universal blue symbol would not be used in this case.
- Distances between amenities or significant features should be indicated on a trail map.
- Trail elevation and degree of difficulty can be shown using a variety of methods such as color coded trail segments, elevation profiles or tactile maps.
- Color coding can be used effectively in mapping, but it should not be relied on as the only means of communicating information, as some users, for instance, people who are color-blind, will not be able to differentiate the colors.



Example of GPS coordinates for downtown Portland

Google map in aerial view with user photo as a pop-up

Enhanced maps showing facility location [upper] and trail as custom overlay [lower]

Interactive or enhanced maps

Summary – For people with disabilities, interactive or enhanced trail maps, that would be posted on line, may be even more useful than regular trail maps, to better prepare for, and anticipate the conditions of the hike. As a benefit, some interactive maps are easier to prepare than conventional maps and could save low-budget entities staff time and cost and yet provide more useful and current resources.

Description – Interactive or enhanced mapping can be achieved through the utilization of online mapping resources, such as Google Maps and MapQuest, that provide a variety of views which include street views and aerial photos. They also can create custom-made trail maps by incorporating GPS or smartphone tracking methods, by which the trail and its specific features can be highlighted. User-contributed photos and video can be added, and, if appropriate, even audio can be inserted.

Importance/Purpose – People planning hikes will often look at websites for information. The type of information that can be presented on websites is substantially more diverse and interactive than printed material. In addition, the disabled community may use one of several assistive devices that would benefit from the use of mapping enhancements such as GPS coordinates and smartphone tracking. Either way, the additional perspective gained by the use of interactive maps provides the user with another source of information about the trail. Diversity is important since some users may find one type of map easier to understand than another.

Examples

- An aerial view with interactive components may be more beneficial to some users than a conventional trail map.
- Allowing users to contribute their comments and perspective to maps can provide a way to update conditions and provide a variety of insights on the usability of a trail.
- Mapping applications allow user contributed photos, videos and descriptions of the trail experience.
- Mapping applications allow overlay of trails and features.

A GPS device, such as this Garmin, receives signals from up to 24 satellites and uses the data to establish a 3-dimensional position on earth

Devices, such as the iPad [upper] and iPhone [lower], receive signals from cellphone data towers and require no coordinates

Navigation using GPS or "smartphone" technology

Summary – In recent years, navigation systems, using GPS [global positioning system], and more recently, "smartphone" technology, have emerged as a reliable and inexpensive way for hikers to determine their precise location. This is particularly useful to people who enjoy outdoor recreation where more conventional navigation, such as street names or building landmarks, would be unavailable.

Description – Up to only a few years ago GPS was the best and only way to determine one's location. More recently with the rapid popularizaton of smartphone technology, such as the iPhone and iPad, another form of navigation has emerged that is even easier to use, when it is available. Both types of navigation presuppose access to their respective service: a GPS device needs to communicate with at least four [of 24] satellites to obtain its positioning data. Smartphone navigation requires access to a cellphone data service. Therefore GPS may be more appropriate for remote areas where cellphone data service is not available.

In more developed areas, with reliable cellphone data service, GPS may be avoided, which is of benefit both to the trail map producer and the hiker. Where GPS is the only option, coordinates can be provided locating primary facilities, such as trailheads and intersections, significant features, and amenities. This information should be added to websites, printed materials and trail signage.

Importance/Purpose – More people are using navigational tools such as GPS or smartphone technology. These are particularly useful to people with visual impairments. At remote trails, adding GPS coordinates to the trailhead and significant features or amenities provides users with essential information.

Examples – apply to GPS locations, only

- Provide GPS coordinates for beginning and end of a trail.
- Provide GPS coordinates for amenities such as restrooms, picnic areas, visitor center, water, etc.
- Provide GPS coordinates to indicate where there are significant features of the trail such as surface changes, changes to trail width, stairs, steep grades, etc.

Distance markers

Summary – Knowing the total length of a trail, the distance to crucial services, and being able to determine how far one has come along a trail, are crucial information for people with disabilities to participate in outdoor recreation.

Description – Providing information about where a person is on the trail is essential to some users. Clear and legible distance markers can indicate points along the trail and on trail maps. When providing information on distance, markers are most effective every quarter mile along the trail. Markers can be used to designate trailheads, loops and dead-end trails.

They can be used also to indicate direction and distance to parking, restrooms, picnic areas and other amenities. For complex trail systems, providing maps at major trail junctions is helpful. When markers are used along the trail, their location should also be indicated on the trail map.

Importance/Purpose – Distance markers provide helpful information for everyone, but especially for those who use mobility devices and those with limited physical stamina. Well-placed distance markers can help users determine how far they can go on a trail before it is necessary to turn back to conserve energy or to preserve battery life in mobility devices.

Distance is also a factor in the battery life of power wheelchairs. Knowing the distance between the trailhead and segments of the trail provides valuable information for power-chair users.

Examples

- Provide distances and distance markers both along trails and published materials such as web-based and printed maps.
- Provide distances and distance markers every quarter mile.
- Provide distances and distance markers between significant points such as parking, trailheads and features of the trail.

These distance markers show a diversity of height and style so that they can integrate with the outdoor environment. It is important that they are low enough to be seen by wheelchair users and that regular maintenance prevents their becoming overgrown with vegetation.

Signage and wayfinding

Wayfinding encompasses all of the ways in which people orient themselves in physical space and navigate from place to place.

Summary – Signage is useful to all trail users to provide essential information about distance, location and amenities; it is essential, also, to all users to avoid getting lost in the outdoor environment. For people with disabilities predictable signage is indispensable to better monitor their hike and resource consumption and thereby maintain their level of confidence.

Description – Trail signage comes in all kinds of types and levels of sophistication, from the simplest color swatch on a tree to mark the trail, to mileage markers, to informational kiosks at trail heads and major intersections. It is useful for the potential hiker to understand beforehand the quality of signage that can be expected and its frequency. Ironically, too much signage may detract from the outdoor experience and may dissuade a potential user from choosing a particular site, therefore finding a balance is important.

Importance/Purpose – For a person with a disability to venture into an outdoor environment requires a certain amount of knowledge beforehand, as discussed under Trail Maps, to better plan for their hike and to determine if a particular trail is of interest. Knowledge about the quality and availability of signage will provide the user a comfort level that they can succeed at their hike and safely.

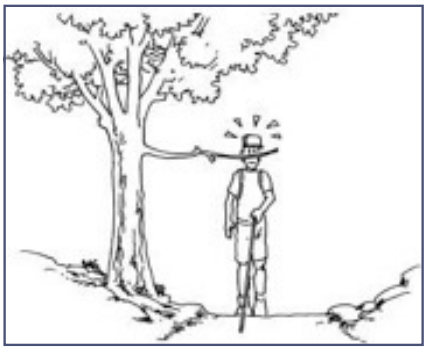
Signage has many of the same concerns as the topic of Trail Maps: don't rely on color alone; wherever possible include a tactile equivalent; make sure the information is low enough to be visible with people in wheelchairs, but not so low that signs are readily hidden by plant materials, snow or covered with mud.

Examples

- If using color coding to identify trails, provide trail numbers as well, especially at intersections where two color-coded trails cross.
- On trail signs, don't rely on color alone to identify the trail or accessible features – use shapes, as well. See the Symbols page.
- Place signage along the trail low enough that it can be read by people using mobility devices, for instance between 30" and 36" for signage with text, but different heights for various markers.
- Indicate on the website if an audio guide or a smart phone app is available and from where, to provide a possible substitute.
- See Section 3, More topics, for information about wayfinding.

Using a cane to negotiate a path and identify obstacles.

Definition of edges is essential for people who are blind.



Branches across a path can be hazardous.

People who are blind or have limited sight

Summary – The predominance of accessibility guidelines is focused on mobility impairments. Hikers who are blind will have different concerns and needs from wheelchair users. Therefore, be descriptive; describe trail features and their surroundings, especially obstacles and hazards. Make graphic materials comprehensible.

Description – Hikers who are blind rely on various techniques to orient themselves, generally referred to as wayfinding. Wayfinding encompasses all of the ways in which people and animals orient themselves in physical space and navigate from place to place.

For people who are blind, a common method of wayfinding relies on using a "long cane" to locate the edge of a trail and to identify obstacles. Therefore, describing the quality of the path and identifying prominent landmarks is extremely beneficial. Other considerations that may benefit the hiker who is blind, include sensory experiences such as sound, shade or sun, and even smell.

People who are blind are quick to point out that they are good at wayfinding – *just remove the obstacles, we can figure out the rest...* – but anxious about obstacles that are outside the sweep zone of the cane, and other hazards, such as twigs and branches.

Examples

- Consider implications of trail use for people with low vision or who are blind. How does one find a trailhead or a major intersection?
- Explain what is the nature and condition of the trail edge and what is done to maintain the edges.
- Explain what is the policy about service animals.
- What is the likelihood to find obstacles and/or branches that hang over the path. What is done to prevent those problems?
- Provide information on the website and printed materials about the availability [or lack] of tactile maps or audio descriptions.
- On published materials, don't rely on color alone to identify accessible features – use shapes, as well. See the Symbols page.
- Many people who are blind rely on reader programs on a personal computer that are capable of reading text, but not graphic images. When designing a webpage make sure that graphics are identified with a caption or other explanation.
- See Section 3, More topics, for information about wayfinding, accessible website considerations and how a reader works.

Users of this trail in northern Italy benefit from a high level of confidence, because of excellent and predictable maintenance

Two examples of obstructions that could interrupt trail use for wheelchair hikers

Operational and maintenance issues

Summary

For people with disabilities, knowledge of operational and maintenance procedures is essential to determine if the trail experience will be reliable and feel safe.

Description

Especially in the United States, too much emphasis is placed on *capital* improvements and their costs, and not enough on ongoing *maintenance* once a capital project has been completed. Seeing the two photos to the left, of routine trail maintenance in Italy, is a reminder that the regularity and quality of maintenance is essential to all users, but especially people with disabilities who need to plan their excursion in advance.

For people with disabilities, knowledge of operational procedures, along with maintenance, is essential to determine if the trail experience will be reliable and feel safe. Posting that information along with other trail information would be extremely useful, and in some cases, as described in the examples below, is essential.

Examples

Operational

- Closing hours - what are the hours of operation?
- Closing hours - is there a pre-closing "sweep", so that people will not get trapped if a facility is locked?
- Are there shared uses that should be of concern to the user, such as dog off-leash areas or bridle paths.
- What are the security concerns and measures, so that a user may feel safe?
- What are the options in case of an accident or a crime?

Maintenance

- What is done to remove obstacles?
- What is done to prune branches that cross over the path? This is one of the primary concerns of people who are blind.
- What is done to maintain [compact] crushed rock paths?
- What is done to maintain edge protection? This is another primary concern of people who are blind.

Wheelchair user on top of rock overlooking canyon. Photo by Loren Worthington

General reminders - remove the obstacles; be yourself

I'd like to help, but what can I do?

- The entire preceding document could be summarized in two words: **be descriptive**. The information that people with disabilities need is out there and is readily available.
- It may not be possible to get everything to be code-perfect now, but, in the meantime, at least **remove the obstacles**. It is better to have incremental change than none at all.
- Rather than focus solely on mobility impairments, develop information that is useful to people with various forms of disability.

What do I need to know about people with disabilities?

- Take a look at the article **Interacting with Persons with Disabilities**. That article can be summarized in two word: **be yourself**.
- Assume everybody has the same aspirations: to work, to recreate, to get out and do things - to enjoy the natural environment.
- The nature of disability may be complex and diverse; but our responsibility is simple and direct - help **remove the obstacles**.
- People who have visual and auditory limitations will still enjoy the natural environment and outdoor recreation.
- Don't feel uncomfortable with legal aspects about disability. "People with disabilities" is not a protected class, but, as defined by the Americans with Disabilities Act [ADA], are entitled to access the same programs and opportunities as all other people.
- Don't assume that there are any limitations to what people with disabilities can accomplish. Just remove the obstacles.

What do you mean by obstacles?

- Obstacles are not only physical barriers, but include barriers such as lack of information, or perception about difficulty of use.
- Since the majority of people who have a disability are **not** wheelchair users, what are considered obstacles will vary greatly.

What has been the guiding philosophy of Access Recreation?

- To encourage people with disabilities to enjoy the natural environment and not be hindered by a lack of information.
- To provide trail users with sufficient information so they can make their own decision about whether a trail is suitable or not.
- To steer away from strict definitions such as "ADA accessible" and to allow the user to determine if a trail may be "usable" for them.

Example web pages

Prototype webpage part 1

Prototype webpage - bringing it all together

With permission from the Tualatin River National Wildlife Refuge, we have created an expanded version of their current webpage to include many of the considerations presented in the previous 16 sections. This may be considered a prototype webpage for other agencies to follow.

For comparison click on the current webpage, and then the image below, for a full-size mockup of the prototype webpage.

Contact Us and **About Us** at top left of webpage

Availability of downloadable **Trail Map**

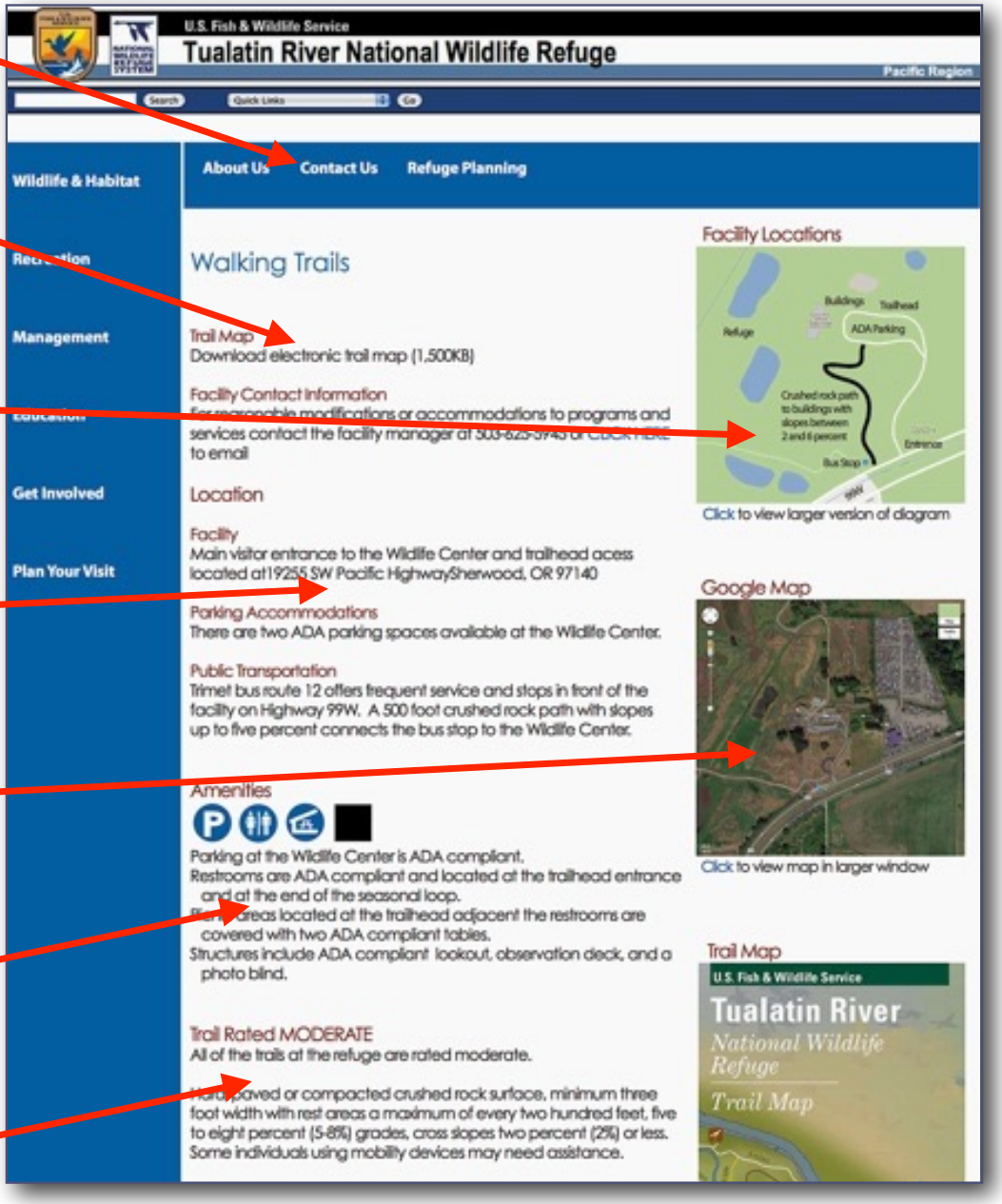
Description of how to get from bus stop to entrance

Description of **Location** including visitor center, parking and arrival by bus

Interactive Map

Description of primary **Amenities**

Trail difficulty **Rating**



Prototype webpage part 2

Prototype webpage - bringing it all together, continued

With permission from the Tualatin River National Wildlife Refuge, we have created an expanded version of their current webpage to include many of the considerations presented in the previous 16 sections. This may be considered a prototype webpage for other agencies to follow.

For comparison click on the current webpage, and then the image below, for a full-size mockup of the prototype webpage.

Trail Description

Interactive **photo gallery**

Additional **Trail Description**

Trail Design Elements

Photos showing character of the site

Operational and Maintenance issues

Opportunity to provide **Feedback**

Last updated information is crucial for reliable trip planning.

This concludes the Guidelines that were developed by the Access Recreation Committee. The next section provides more topics concerned with accessibility and people with disabilities.

Section 3
Additional topics

Section 3

More topics

This section presents some extraneous topics of potential use to a public agency to better understand the nature of disability and to incorporate third-part information that the AR Committee considers vital, but was not developed as part of their own Guidelines.

Of the people attending the June 10 walk-through, those who had mobility impairments generally felt that the Guidelines were headed in the right direction. The majority of new comments, therefore, came from people who are blind or with other forms of visual impairments. It was these comments that generated new sections: People who are blind and Signage and wayfinding, and underscored the need for additional information about the nature of disability, and, therefore, this third section.

We begin with Section 3a, a general topic: **Interacting with Persons with Disabilities**, adapted from a fact sheet developed by the Disability and Communication Access Board [DCAB] of the State of Hawaii, our most distant AR Committee member.

We follow with Section 3b, **Wayfinding**, adapted from an article by the Royal National Institute of Blind People, which expands on the topic dealing with Signage and wayfinding in the Guidelines.

For those who wish better to understand the confusion surrounding the current federal regulations, and their applicability to trail design and outdoor facilities, we have attached Section 3c, a comparison of the two outdoor **Trail Design Guidelines**.

For those responsible for creating websites and published materials we have attached Section 3d, **Accessible Website Considerations** and **How a reader works**.

In addition, we created three **Self-evaluation Checklists** dealing with broad topics of Websites and published materials, Trails and facilities, and Operations and procedures that agencies can use as a reminder tool of the concerns that are most important to people with disabilities and to initiate steps to remedy those concerns.

Finally we close, with a list of all of the **AR Committee** members with links to their websites; an extensive **Glossary** of terms commonly used in the creation of published materials and the design of trails; and a list of online **Resources** for additional and related topics.

Section 3a

Interacting with Persons with Disabilities

The article on this page and the following three pages have been adapted, with permission, from a fact sheet entitled **Interacting with Persons with Disabilities** prepared by the Disability and Communication Access Board [DCAB] of the State of Hawaii.

The DCAB is the most distant of all the Access Recreation committee members.

General etiquette

People with disabilities prefer that you focus on their abilities, not their disabilities. Always emphasize the person first. Avoid the terms "handicapped," "physically challenged," and other similar references. The preferred usage is "people with disabilities" or "persons with disabilities." The term "disabled people," although used, may be offensive because this term defines people as disabled first and people second. Language is powerful, but attitudes and behaviors are the most difficult barriers for people with disabilities to overcome.

Be Yourself

Treat people with disabilities with the same respect and consideration that you have for everyone else. Treat each person as an individual, not as a disability. Engage in small talk, the way you would with anyone. Use a normal voice when extending a verbal welcome. Don't raise your voice unless requested. As in any new situation, everyone will be more comfortable if you relax.

Helping

Don't automatically give assistance. Ask first if the person wants help. Follow the person's cues and ask if you're not sure. Assistance with doors, as long as you're clear of the path, is usually very much appreciated. If your offer of assistance is accepted, listen or ask for instructions. Don't be offended if someone refuses your offer. It's his or her choice to be as independent as possible.

Communication

People are considered to have communication disabilities when their ability to receive, express, or process information is limited.

Talk directly to the person, not to an aide or interpreter. It's important to make eye contact. If you don't understand someone, ask the person to repeat. If the person doesn't understand you when you speak, try again. Sometimes it takes several attempts at listening or speaking for communication to be successful. Let the person know that your communication with him or her is worthwhile to you. When appropriate, offer to make public information available in alternate formats such as Braille, audiotape, large print, or Web pages.

Environments
Be sensitive about the setting in which you're communicating. A noisy or dark environment, or many people talking at the same time, may make it difficult for people with vision, speech, hearing, or some other hidden disabilities to fully participate in a conversation. Be aware of clear paths of travel for people who are blind or use wheelchairs or other mobility aids. Realize that a person with chemical sensitivity may have a reaction to smoke, perfume, or toxins in the environment.

Socializing
Don't leave persons with disabilities out of a conversation or activity because you feel uncomfortable or fear that they'll feel uncomfortable. Include them as you would anyone else. They know what they can do and what they want to do. Let it be their decision whether to participate.

Touching
You may gently touch people with disabilities to get their attention. Touch them when appropriate, such as when shaking hands in greeting or if they request your assistance. If you meet people with AIDS, shake their hands as you would with anyone else; you can't get AIDS by touching.

Don't touch someone's cane, wheelchair, or other assistive device. It's a part of that person's personal space. If you're interested in a demonstration of someone's electronic aid, ask. Don't try to use such equipment unless invited to do so. Guide dogs and other service animals are working animals; don't pet or touch them without specific permission.

Persons with specific disabilities

Persons with Mobility Disabilities
A person in a wheelchair is a "wheelchair user" or a "person using a wheelchair." Talk directly to the person, not to an aide, and don't assume a companion is an aide. When having an extended conversation with someone in a wheelchair or scooter, try sitting or crouching down to his or her approximate height. It's okay to invite a person in a wheelchair to "go for a walk." Never touch or lean on a person's wheelchair unless you have permission - it's that person's personal space.

Persons with specific disabilities, continued

Give a push only when asked. Enable people who use crutches, canes, walkers, wheelchairs, or scooters to keep their mobility aids within reach, unless they request otherwise. Be aware of what is and isn't accessible to people who use mobility aids such as wheelchairs and walkers.

People who use wheelchairs may have a variety of disabilities. Some have use of their arms, and some don't. When you meet such a person, extend your hand to shake if that's what you normally do. A person who can't shake your hand will let you know, and he or she will appreciate being treated in a normal way.

Persons with Speech Disabilities

Listen patiently and carefully. Address persons with speech disabilities as you would anyone else in the same situation. Don't complete sentences for a person with a speech disability unless he or she specifically asks you for help. Don't pretend you understand what he or she says, just to be polite. Go to a quiet room if necessary. Don't let able-bodied people interrupt a person with a speech disability simply because they talk louder. If you don't understand what's said to you, ask the person to repeat it or to say it a different way.

Keep good eye contact. If a person with a speech disability is using a trained speech interpreter or relayer, speak to and keep eye contact with the person, not the person interpreting what's being said. If the person uses an amplifier or other device, don't touch it, as that's part of his or her personal space.

Persons Who Are Deaf or Hard of Hearing

If you need to attract the attention of a person who is deaf or hard of hearing, touch him or her lightly on the shoulder or arm. When you speak to people who use sign language interpreters, speak to them, not to their interpreters. Face them so that they can see your lips. Slow your rate of speech, speak your words clearly, and increase your volume, if requested. Shouting usually doesn't help.

Persons with specific disabilities, continued

Not all people who are deaf or hard of hearing can read lips. For those people, other forms of communication may be necessary. Some may offer to write messages back and forth. For some, American Sign Language (ASL) is their first language, and they may require a sign language interpreter to understand proceedings or join in a conversation.

Persons Who Are Blind or Have Low Vision

Be descriptive. Describe goings-on and surroundings, especially obstacles. You may need to help orient people who are blind or have low vision and let them know what's coming up. Be the assistant, not the director. If you're asked for assistance, let a person who is blind hold your arm as a guide. If they're walking, tell them when they have to step up or step down; let them know if the door is to their right or left; and warn them of possible hazards.

You don't have to speak loudly to people with visual disabilities. Most of them can hear just fine. When appropriate, offer to read written information. It's okay to ask people who are blind if they "see what you mean." If you're meeting a person who is blind, identify yourself. If you've met before, remind the person of the context because he or she won't have the visual cues to jog the memory. See also separate discussion on service animals.

Persons with Learning Disabilities

Don't assume the person isn't listening merely because you're not getting any verbal or visual feedback. Instead, ask whether they understand or agree. Don't assume you have to explain everything to people with learning disabilities. They don't necessarily have a problem with general comprehension. When necessary, offer to read written material aloud.

Persons with Hidden Disabilities

Not all disabilities are apparent. A person may have difficulty following a conversation, may not respond when you call or wave, or may say or do something that seems inappropriate. The person may have a hidden disability such as poor vision, a seizure condition, a hearing loss, a learning disability, a brain injury, a mental disability, or a health condition. These are just a few of the many different types of hidden disabilities. Don't make assumptions about the person or the disability. Be open-minded.

Section 3b

Adapted from an article by tiresias.org a project of RNIB [Royal National Institute of Blind People]

Wayfinding

Traditionally, a person who is blind has relied on a guide dog or a long cane to navigate the environment.

With the introduction of new technologies such as real-time passenger information systems, there are an increasing number of ways to help travelers who are blind for which the additional cost is not prohibitive.

What is wayfinding?

Wayfinding encompasses all of the ways in which people orient themselves in physical space and navigate from place to place.

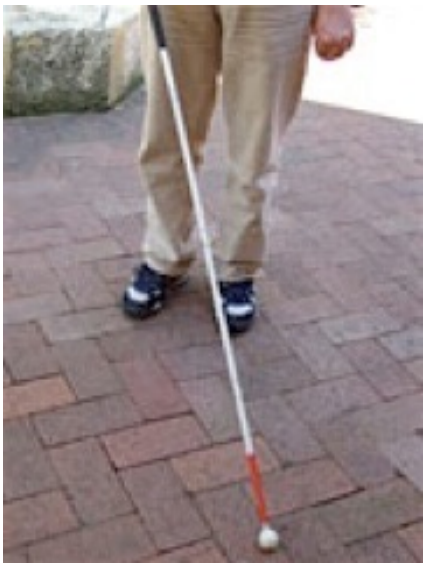
A typical journey for a traveller may involve more than one mode of transport. For example, it might involve walking to the bus stop, a bus to the train station, walking from the bus to the train platform, a train to another town, walking from a train to the taxi stand and a taxi to the final destination.

Working out the optimum combination may not be a simple task since it may be a function of price, times of public transport and accessibility aspects. At present there is no generally available information service which provides a comprehensive service for journey planning including accessibility aspects.

The environment in which we live is becoming increasingly complex; even a bus journey across a city requires a range of skills including:

- Being able to avoid obstacles on the pavement
- To walk in the right direction
- To safely cross the street
- To know when you have reached a destination (e.g. found the correct bus stop)
- To know which is the right bus
- To pay the correct fare
- To find a vacant seat
- To know when to get off the bus

These tasks may seem trivial, but for someone with no useful vision they are skills which have to be learned. Even for someone with low vision, all these tasks are less easy than for someone who is sighted.



What is some of the technology to improve Wayfinding?

Over the last thirty years, engineers have devoted considerable resources to developing electronic systems to help a person who is blind avoid obstacles; these use technology such as ultrasonics, lasers and infra-red.

Many of the devices just provided information about the range of the nearest object; a 'picture' could be built up by moving the sensor from side to side. Other devices have attempted to give a more complete image of the environment but at the expense of providing an excessive amount of information to the user who is blind.

The capacities of the senses of hearing and touch are very small compared to that of the visual channel for a human. Selecting and processing the information to make best use of the non-visual channels is not a simple task. The sensors in future devices are likely to involve more than one modality (e.g. both a video camera and an ultrasonic transceiver) in order to obtain the necessary data which can be processed to produce an accurate image of the immediate environment.

For a person who is blind, the problem of getting about is not just that of not walking into objects. One problem is that of knowing the layout of the environment; here, an embossed map can help. However, embossed maps are not easy to produce or interpret since just embossing a sighted map seldom leads to an intelligible embossed map.

Even with an embossed map and a mobility aid, it is still very easy for a person who is blind to get lost. A number of electronic orientation aids have been developed, but few have been widely used because of the cost of modifying the environment.

One type of system uses infra-red transmitters mounted at street corners; the infra-red signal is modulated so that a receiver, held by the person who is blind, gives out an audible message. These systems can also be used to indicate the status of traffic lights. Similar radio-based systems have been used in some countries, and the advent of Bluetooth is likely to dramatically reduce the cost of installing such systems.

A GPS device, such as this Garmin, receives signals from up to 24 satellites and uses the data to establish a 3-dimensional position on earth

Devices, such as the iPad [upper] and iPhone [lower], receive signals from cellphone data towers and require no coordinates

The technology of Wayfinding, continued

A different concept is for the person who is blind to carry a tag similar to the ones used in shop security systems. Thus, machines can detect the presence of a person who is blind within a few feet and modify their behavior (e.g. give out a speech message). The tag or smart card can be pre-coded, which could indicate that the person would prefer messages in an alternative language.

Satellite navigation systems, such as GPS, can be used to determine one's position within a few feet. However, this requires line-of-sight to three or four satellites, which means being outdoors and not close to tall buildings. This position is just given as latitude and longitude, so it needs to be integrated with a detailed digital map of the area.

The availability of sufficiently detailed digital maps has proven to be a significant problem. Digital maps designed for car drivers do not give the detail needed by a pedestrian who is blind. Ideally the map should not just show the bus stop, but also provide information about which buses stop there.

Numerous wayfinding systems have been proposed, and many have been successfully developed to demonstrate the technical feasibility of the system. However, what is lacking is a clear plan for implementing systems and services so that users who are blind do not have to cope with different systems in each area.

Service animals

Service animals has *recently been redefined as dogs that are individually trained to perform tasks for people with disabilities such as guiding people who are blind, alerting people who are deaf, pulling wheelchairs, alerting and protecting a person who is having a seizure, or performing other special tasks. Service animals are working animals, not pets. *See this federal fact sheet.

Section 3c

Trail Design Guidelines - enough confusion to go around

There is enough confusion to go around about the difference between:

1) the new chapter on Recreation Facilities that are now part of the ADA Standards for Accessible Design 2010; and,

2) the Guidelines for Outdoor Developed Areas [GODA] which are still in draft mode [2007], and may still be a few years away from being published in the Federal Register.

The chapter on Recreation Facilities deals with specific design elements such as fishing piers and amusement parks and golf courses. Other than accessible routes, it does not deal with hiking trails.

The Guidelines for Outdoor Developed Areas **will deal** with trails and beaches, etc. when they get adopted. Note that even then, the first set of the Guidelines will apply to **federal** properties only. There is no known date when non-federal sites will go into effect. Therefore we have provided the relevant sections from The Guidelines for Outdoor Developed Areas on the next four pages.

The first excerpt, **Chapter T203** of the Guidelines, deals with *scoping* - the **applicability** of trail conditions and their corresponding guidelines.

The subsequent excerpt, **Chapter T303** of the Guidelines, provides the specific design guidelines, but should not be referenced until one has read Chapter T203, to verify that they are applicable to one's specific situation.

Please note:

Final Guidelines for Outdoor Developed Areas were published in the Federal Register on September 26, 2013, but *after* AR had written and published these Trail Guidelines. The GODA went into effect on November 25, 2013.

As of April 2020, the GODA still apply only to federal agencies, although local governments would be wise to adopt these excellent guidelines.

AR Team

T203 Trails Scoping

Excerpt from the Guidelines for Outdoor Developed Areas

T203.1 General. Where trails connecting to designated trailheads or accessible trails are provided, they shall comply with T303. Where elements or spaces are provided on trails complying with T303, they shall comply with the applicable requirements of Chapter T2 and Chapter T3.

Advisory T203.1 General. These technical provisions apply only to newly designed and constructed trails, and altered portions of existing pedestrian trails that connect to an accessible trail or designated trailhead. Where new trails connect to existing inaccessible trails or do not connect to a designated trailhead, the technical provisions do not apply. However, trails should not be intentionally separated from an accessible trail or designated trailhead to avoid the technical provisions. Accessible elements complying with T306 through T322 located along a trail are not required to be connected by an outdoor recreation access route.

Trails include, but are not limited to, a trail through a forested park, a shared use path, or a back country trail. Trails covered by section T203 do not include pathways such as sidewalks, pathways in amusement parks, commercial theme parks, carnivals, or between buildings on college campuses. These exterior accessible routes are covered by the revised ABA accessibility guidelines.

A trail designed, designated, and constructed for pedestrian use may also have other uses, such as bicycling or in-line skating. Section T203 applies only to trails where travel on foot is one of the designated uses for which the trail was created. For example, a trail designed specifically for mountain biking would not be considered a "pedestrian trail" whether or not pedestrians actually use the trail. However, a multi-use trail designated for both hiking and mountain biking would be considered a pedestrian trail and subject to these provisions.

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

T303 Trails Design

Excerpt from the Guidelines for Outdoor Developed Areas

T303.1 General. Trails shall comply with T303.

T303.2 General Exception. Where applying the specific exceptions to the technical provisions in T303 results in any of the conditions in T303.2, the trail shall not be required to comply with T303 beyond the first point where the specific exceptions apply. The segment of the trail between the trailhead and the first point where the specific exceptions apply shall comply with T303 unless the trail segment is 500 feet (150 m) or less in length. Where there is a prominent feature less than 500 feet (150 m) from the trailhead, the trail segment between the trailhead and the prominent feature shall comply with T303.

Conditions:

1. The combination of running slope and cross slope exceeds 40 percent for over 20 feet (6100 mm).
2. A trail obstacle 30 inches (760 mm) high or more runs across the full tread width of the trail.
3. The trail surface is neither firm nor stable for a distance of 45 feet (14 m) or more.
4. The tread width is less than 12 inches (305 mm) wide for a distance of 20 feet (6100 mm) or more.
5. The trail is not required to comply with any of the technical provisions in T303 for more than 15 percent of the length of the trail.

T303.3 Surface. The trail surface shall be firm and stable.

Exception:
Where a firm and stable surface cannot be provided because any of the conditions in T302 applies, the surface shall not be required to comply with T303.3.

Advisory T303.3 Surface. Trail surfaces are required to be firm and stable. There is a spectrum of surfaces considered firm and stable and appropriate surfaces are not limited to surfacing materials such as asphalt and concrete. Many naturally occurring surfaces, such as crushed aggregate or soils containing some clay and a spectrum of sieve sizes, are considered firm and stable. Other natural surfaces may also become firm and stable when combined with a stabilizing agent. Wood planks, stone, grass, and packed dirt may also be considered firm and stable. The degree of firmness and stability may vary depending on the intended use and the expected direction and length of travel.

T303 Trails Design

Excerpt from the Guidelines for Outdoor Developed Areas

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

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

Table A Calculation and Classification
Firmness Classification - Amount of Penetration
Very Firm
0.3 inches or less
Moderately Firm
Greater than 0.3 inches and less than 0.5 inches
Not Firm
Greater than 0.5 inches
Stability Classification - Amount of Penetration
Very Stable
0.5 inches or less
Stable
Greater than 0.5 inches and less than 1.0 inch
Not Stable
Greater than 1.0 inch

Surfaces that are moderately firm or stable may be appropriate in areas where a cushioned surface is preferred (e.g., for a multi use trail that includes equestrians). Surfaces that are moderately firm and stable may also be appropriate on trails for winter use only because most trail surfaces are firm and stable when frozen.

T303 Trails Design

Surfaces with a high degree of firmness and stability are critical for long distance trails so users may expend a minimum amount of energy over a given distance. A high degree of stability would be desirable for areas with multi-directional traffic.

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

The recommended test equipment for determining firmness and stability on outdoor surfaces is the rotational penetrometer, a device consisting of three main components: penetrator, frame, and reference base. The penetrator consists of an 8 by 1 inch (20 cm by 3 cm) pneumatic caster and a means to press the caster into the surface with a known force. The frame is an attachment to the reference base that provides a means for allowing the penetrator to move freely, perpendicular to the reference base. The reference base is a flat, rigid, surface used to position and anchor the testing equipment relative to the test surface. It has an area through which the penetrator can pass and rotate freely without hindering the movement of the surface material being tested or interfering with the test results. The reference base may also provide a platform for the device operator during testing. The rotational penetrometer is instrumented with a method to measure the amount of vertical displacement of the penetrator into the test surface.

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

Section 3d

Accessible website considerations

Bobby was a comprehensive web accessibility tool designed to increase the accessibility of a website. **Bobby** tested webpages using guidelines established by the World Wide Web Consortium (W3C) Web Access Initiative (WAI), and Section 508 guidelines from the Architectural and Transportation Barriers Compliance Board (Access Board).

The original **Bobby** was a free online tool which launched in 1995 and became well known for the use of the ***Bobby Approved*** icon that website authors could use to indicate they successfully passed the **Bobby** online test.

The slightly-dated article to the right was prepared by the Oregon Institute on Development and Disability at Oregon Health & Science University [OHSU] in 2002 and provides additional insights.

Currently, WAVE provides a Web Accessibility Evaluation Tool at wave.webaim.org free of charge and in several browser-compatible versions.

What 'Bobby' Didn't Tell You - 1

Oregon Institute on Development and Disability
Oregon Health & Science University [OHSU]

Being "Bobby Approved" does not necessarily mean that the site is "User Approved." Striving to go Beyond Bobby addresses the needs of the user, not just what's "Legal". Some of the items that we encountered in our quest to design a premier Accessible web site are listed below:

- Build an accessible Website as part of the development process. Afterthoughts involve additional programming costs and time.
- Use Web testers during and after development to complement electronic validators.
- When testing for accessibility, review pages with more than one browser and using more than one operating system. Consider outlining technical recommendations. For example, "Best viewed using Firefox 11 and higher."
- Organization of content into meaningful categories is paramount. e.g. long lists are more useful if broken down into shorter ones in outline format.
- Hidden links, e.g. "Skip to Content," are very useful and much appreciated so that a screen reader skips recurring "global links" at the top of every page and drives right down to the content.
  To create hidden links, simply match the text color to the background color so that the link is invisible to the eye, but still there for screen readers. Also, make sure to place the link on the top left of the page, as screen readers move from top left to right.
- Appropriate use of headers makes it very intuitive to a screen reader. Users are able to quickly tab to a header section to locate items of interest.
- Intuitive and Descriptive naming of headers – Many people like to scroll through a list of headers with their screen readers to browse the content, so naming headers as descriptively as possible will help direct users to the content they are seeking. For example, placing a header titled "Location" over a field where you want people to enter location information is not as effective as a header that says "Enter Location."

Accessible website considerations

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Currently, WAVE provides a Web Accessibility Evaluation Tool at wave.webaim.org free of charge and in several browser-compatible versions.

What 'Bobby' Didn't Tell You - 2

Oregon Institute on Development and Disability
Oregon Health & Science University [OHSU]

- The use of dashes or bullets can be very annoying to users of a screen reader, especially with a lengthy list, because the reader will repeat the word "bullet." The other challenge occurs when using a dash used as a bullet in a lengthy pull-down menu, as keyboard shortcuts will allow users to go directly to the letter they are looking for by keying that letter. If a dash is in front of the word, the alphabetical shortcut will not work.
- The naming of spacer images is required for Bobby certification, but remains a challenge, as there are many who feel that it is unnecessary and the repetition of the word "spacer" can be annoying.
- Use brief alt tags that are descriptive and intuitive. Be sure they are accurate. Provide enough information to make the word "image" unnecessary.
- Links should be descriptive of their destination or purpose. Avoid links that say "Click Here".
- Appropriate use of color contrast and neutral colors that create a schema, that is visually appealing, and is intuitive for individuals with low vision. Consider investigating "Web Approved Colors."
- Don't rely on visual design elements to convey meaning. (e.g. use of colored text or different size to represent items.)
- Design for the lowest resolution. Not everyone has full spectrum capability.
- Screen readers give easy options for navigating frames. Add titles to frames. Provide the option of "No Frames".
- Tables are more challenging for screen readers. Apply correct table markup for proper table layout and structure.
- Provide alternate content and formats of information (e.g. captioning and transcripts of audio and video information, dynamic JavaScript).
- Make navigation scheme consistent. Use simplest layout scheme possible.
- Make sure templates are keyboard-accessible.
- All forms should have a "submit" button so that non-mouse users can activate them. Apply correct form markup.

Accessible website considerations

The website usereffect.com offers useful considerations about website design. This chart provides a quick-reference checklist, while the website itself provides a more detailed discussion.

25-point Website Usability Checklist

Accessibility	Rating	Comments
1. Site load-time is reasonable	✓ ✓ ✗	
2. Adequate text-to-background contrast	✓ ✓ ✗	
3. Font size/spacing is easy to read	✓ ✓ ✗	
4. Flash & add-ons are used sparingly	✓ ✓ ✗	
5. Images have appropriate ALT tags	✓ ✓ ✗	
6. Site has custom not-found/404 page	✓ ✓ ✗	
Identity		
7. Company logo is prominently placed	✓ ✓ ✗	
8. Tagline makes company's purpose clear	✓ ✓ ✗	
9. Home-page is digestible in 5 seconds	✓ ✓ ✗	
10. Clear path to company information	✓ ✓ ✗	
11. Clear path to contact information	✓ ✓ ✗	
Navigation		
12. Main navigation is easily identifiable	✓ ✓ ✗	
13. Navigation labels are clear & concise	✓ ✓ ✗	
14. Number of buttons/links is reasonable	✓ ✓ ✗	
15. Company logo is linked to home-page	✓ ✓ ✗	
16. Links are consistent & easy to identify	✓ ✓ ✗	
17. Site search is easy to access	✓ ✓ ✗	
Content		
18. Major headings are clear & descriptive	✓ ✓ ✗	
19. Critical content is above the "fold"	✓ ✓ ✗	
20. Styles & colors are consistent	✓ ✓ ✗	
21. Emphasis (bold, etc.) is used sparingly	✓ ✓ ✗	
22. Ads & pop-ups are unobtrusive	✓ ✓ ✗	
23. Main copy is concise & explanatory	✓ ✓ ✗	
24. URLs are meaningful & user-friendly	✓ ✓ ✗	
25. HTML page titles are explanatory	✓ ✓ ✗	

Used with permission from User Effect, Inc.

Accessible website considerations

How a reader interprets a webpage

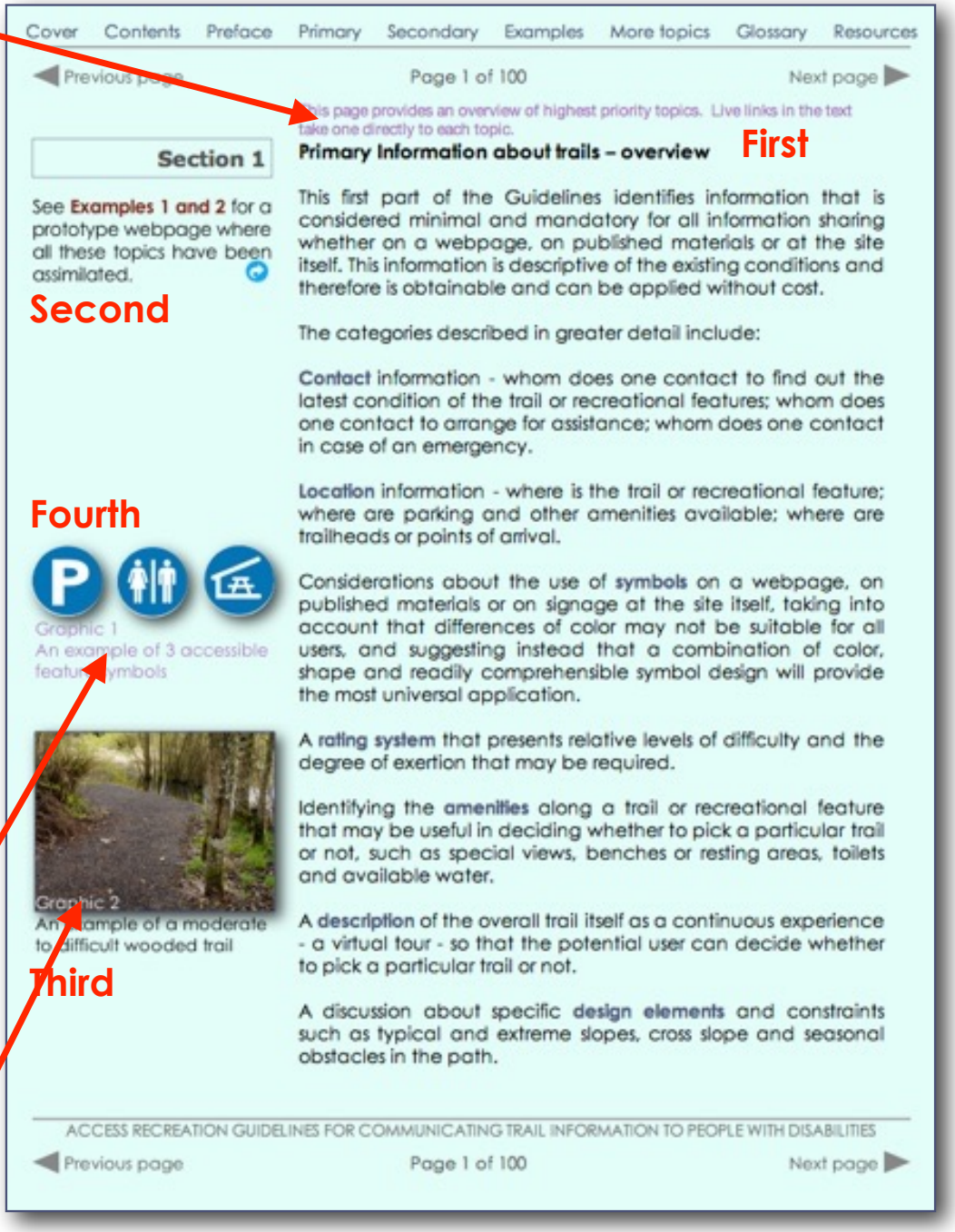
After conducting tests on our own web-document we discovered that the default way a computer reader, such as JAWS, reads a webpage is not from left to right and top to bottom, but by determining which is the primary block of text, then the next largest and so on. Based on this we reconsidered where and how we placed invisible text to approximate the flow of the document.

We placed invisible text [colored here for clarity], that we wanted to have read first, at the beginning of the body of main text.

Setting the color wheel to **zero opacity** is another way to create invisible text.

Some images require no captions, so the entire description is invisible.

Where we do have a caption we added only the invisible words Graphic or Image or Photo.



Use these checklists to determine where your organization needs to put its emphasis

Web and printed materials	Yes	No	Action to be taken
1. Is contact information easy to find?	☐	☐	
2. Are all facility locations described?	☐	☐	
3. Do symbols use both color and shape?	☐	☐	
4. Do ratings reflect unique conditions?	☐	☐	
5. Are basic amenities listed?	☐	☐	
6. Are accessible amenities described?	☐	☐	
7. Is the trail described thoroughly?	☐	☐	
8. Are photos used to describe the trail?	☐	☐	
9. Is the trail's physical design clear?	☐	☐	
10. Are challenges along the trail noted?	☐	☐	
11. Are trail use & user details noted?	☐	☐	
12. Is the date of last revision noted?	☐	☐	
13. Is there a means for user feedback?	☐	☐	
14. Do trail photos include obstacles?	☐	☐	
15. Did you provide a photo gallery?	☐	☐	
16. Do maps have descriptions & photos?	☐	☐	
17. Are maps usable for the vision impaired?	☐	☐	
18. Did you use an online mapping tool?	☐	☐	
19. Are GPS resources made available?	☐	☐	
20. Are distances noted on maps & on site?	☐	☐	
21. Are wayfinding elements accessible?	☐	☐	

Use these checklists to determine where your organization needs to put its emphasis

Trails and facilities	Yes	No	Action to be taken
22. What are the means of arrival?	☐	☐	
23. What are routes to visitor center?	☐	☐	
24. What are the routes to trailhead?	☐	☐	
25. Is there accessible parking?	☐	☐	
26. Is the trail at least 32" wide?	☐	☐	
27. Are passing pullouts along trail?	☐	☐	
28. What is the rating of the trail?	☐	☐	
29. Are the steepest sections identified?	☐	☐	
30. Is cross-slope gentle: less than 3%?	☐	☐	
31. Is trail surface stable and firm?	☐	☐	
32. Is trail free from obstructions?	☐	☐	
33. Are there changes in materials?	☐	☐	
34. Is trail free from overhead objects?	☐	☐	
35. Are the edges well defined?	☐	☐	
36. How is the trail maintained?	☐	☐	
37. Is there signage at crucial points?	☐	☐	
38. Is main signage also in tactile form?	☐	☐	
39. Are distance markers along trail?	☐	☐	
40. Are resting areas along the trail?	☐	☐	
41. Are there amenities along the trail?	☐	☐	
42. Is color augmented by shapes?	☐	☐	

Use these checklists to determine where your organization needs to put its emphasis

Operations and procedures	Yes	No	Action to be taken
43. Is the site staffed or wild?	☐	☐	
44. Is Visitor Center staff trained?	☐	☐	
45. Availability of printed materials?	☐	☐	
46. Availability of tactile formats?	☐	☐	
47. Availability of audio/MP3 formats?	☐	☐	
48. Is there a shuttle to remote areas?	☐	☐	
49. How is the trail maintained?	☐	☐	
50. Is trail free from overhead objects?	☐	☐	
51. Are edges well defined?	☐	☐	
52. Are crushed rock trails compacted?	☐	☐	
53. Are dirt trails properly drained?	☐	☐	
54. Are closing hours defined?	☐	☐	
55. Are closing procedures defined?	☐	☐	
56. Do gates get locked?	☐	☐	
57. Is there a closing sweep?	☐	☐	
58. Is a contact number posted?	☐	☐	
59. What kind of security is there?	☐	☐	
60. Is an emergency number posted?	☐	☐	
61. Is the trail multi-use?	☐	☐	
62. Are any uses incongruous with PWD's?	☐	☐	
63. Is there a policy about service animals?	☐	☐	

AR Committee

Access Recreation Committee websites

- Columbia River Gorge National Scenic Area
- Forest Grove Parks & Recreation
- Gresham Parks and Regional Recreation
- Hawaii Disability and Communication Access Board
- Hillsboro Parks & Recreation
- Hoyt Arboretum
- Independent Living Resources
- The Intertwine: Public Information
- The Intertwine: Group Site
- Lake Oswego Parks & Recreation
- West Linn Parks & Recreation
- Metro: Regional trails and greenways system
- North Clackamas Parks & Recreation District
- Office of Neighborhood Involvement, Disability Program
- Oregon City Parks & Recreation Department
- Oregon Department of Forestry
- Oregon Parks and Recreation Department: State Parks
- Oregon Department of Fish and Wildlife
- Portland Parks & Recreation
- Tualatin Hills Park & Recreation District
- US Fish & Wildlife Service
- US Forest Service
- Vancouver-Clark Parks & Recreation
- Washington State Recreation and Conservation Office
- Washington Trails Association
- Wheelchair Destinations

Glossary

Glossary of terms
A

A B C D E F G H I J K L M N O P Q R S T U V W

The **terms** for this **Glossary** have been selected from two primary sources: **Glossary of Disability-Related Terms** published by DO-IT, a program of the University of Washington College of Engineering, Technology Services and the College of Education [UW]; and, **Section 106 Definitions** from the Americans with Disabilities Act Accessibility Guidelines [ADAAG].

UW grants permission to copy their materials for educational, non-commercial purposes provided the source is acknowledged.

The UW terms are in **regular font**; *the ADAAG terms are in* ***Italic font***.

Additional terms have been added by the Access Recreation committee and are indicated in ***Italic blue***.

Accessible: In the case of a facility, readily usable by a particular individual; in the case of a program or activity, presented or provided in such a way that a particular individual can participate, with or without auxiliary aid(s); in the case of electronic resources, accessible with or without adaptive computer technology.

Access barriers: Any obstruction that prevents people with disabilities from using standard facilities, equipment and resources.

Accessible route: *A continuous, unobstructed path connecting all accessible elements and spaces of a building or facility that meets the requirements of ADAAG.*

Accessible Web design: Creating World Wide Web pages according to universal design principles to eliminate or reduce barriers, including those that affect people with disabilities.

Accommodation: An adjustment to make a program, facility, or resource accessible to a person with a disability.

Adaptive technology: Hardware or software products that provide access to a computer that is otherwise inaccessible to an individual with a disability.

ALT attribute: HTML code that works in combination with graphical tags to provide alternative text for graphical elements.

Alteration: *Modification made to an existing building or facility that goes beyond normal maintenance activities and affects or could affect usability.*

Alternative keyboard: A keyboard that is different from a standard computer keyboard in its size or layout of keys.

American Sign Language (ASL): *The linguistically complete and distinct language of the American Deaf community, also used in parts of Canada. ASL has its own syntax and grammar. While it does borrow some words from English (which are spelled with the 26 different finger shapes) it has its own vocabulary and does not use English word order. Motions of the hands and arms, shapes of the hands, the locations of the arms and hands in the space around the body, and expressions on the face (which are not mouthed English words) form the building blocks of ASL. See also:* ***Sign Language***, ***Deaf***, ***Interpreter***.

American Standard Code for Information Interchange (ASCII): Standard for unformatted plain text which enables transfer of data between platforms and computer systems.

Glossary of terms
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Americans with Disabilities Act Accessibility Guidelines (ADAAG): *Provide scoping and technical specifications for new constructions and alterations undertaken by entities covered by the ADA.*

Americans with Disabilities Act of 1990 (ADA): A comprehensive federal law that prohibits discrimination on the basis of disability in employment, public services, public accommodations and services operated by private entities, and telecommunications.

Applet: Computer program that runs from within another application.

Architectural and Transportation Barriers Compliance Board - ATBCB: *see US Access Board*

Architectural Barriers Act of 1968 (ABA): *A federal law stating that buildings and facilities designed, constructed, or altered with federal funds, or leased by a federal agency, must comply with standards for physical accessibility.*

Arterial road *— A major through route; arterials often provide direct service between cities and large towns.*

ASL - *see* ***American Sign Language*** ***-*** *see also* ***Sign Language***

Assistive Listening Devices (ALD): *Assistive Listening Devices are a class of electronic devices used alone, or in conjunction with hearing aids or cochlear implants, to enhance communication over distance or in background noise for hard of hearing people. These devices usually contain some kind of microphone, amplifier, and receiver. They may use radio waves (usually FM) or infrared light to transmit speech from the microphone used by, for example, a tour guide, to the hard of hearing person who has the receiver and amplifier. In some cases, the tour guide may wear an amplified speaker to enhance communication with listeners, and there are other variations.*

Assistive technology: *Technology used to assist a person with a disability, e.g., wheelchair, hand-splints, computer-based equipment.*

Audible warning: *A warning consisting of words or sounds indicating a potentially hazardous situation.*

Augmentative Communication device: *Hardware that allows a person who has difficulty using one's voice clearly to use words or symbols for communication. This may range in complexity from a simple picture board to complex electronic devices that allow personalized, unique construction of ideas.*

Glossary of terms
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Barrier removal: *Removal, rearrangement, or modification of objects positioned or structured in a manner that impedes access. Can include rearrangement or removal of furniture or equipment, installation of curb cuts or ramps, or repositioning items such as telephone kiosks or newspaper boxes.*

See also ***Architectural Barriers Act of 1968 (ABA)*****.**

Bevel: *A surface that meets another surface at any angle other than 0 or 90 degrees.*

Binary files: Electronic files with formatting information that is software dependent.

Braille: System of embossed characters formed by using a Braille cell, a combination of six dots consisting of two vertical columns of three dots each. Each simple Braille character is formed by one or more of these dots and occupies a full cell or space. Some Braille may use eight dots.

Browser: Software designed to access and display information available on the World Wide Web. Browsers may be graphical or text-based. Text-only browsers cannot display images, sound clips, video and plug-in features that graphical browsers can. Talking browsers are also available for use by people who have difficulty reading text due to a learning disability or visual impairment.

Bulbout: *Another term for a curb extension, which is a section of sidewalk an intersection or midblock crossing that reduces the crossing width for pedestrians and can help reduce traffic speeds.*

Glossary of terms C

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Captioned film or videos: *Transcription of the verbal portion of films or videos displayed to make them accessible to people who are hard of hearing, deaf, or learning disabled. If the captions can be turned on an off, they are called* ***Closed Captions.*** *If they are always visible on the screen, as in subtitles to non-English movies, they are called* ***Open Captions.***

Captioning (Real-Time, CART): *Text that is typed and displayed as an event is in progress, such as at a lecture or theatrical production. This enables hard of hearing or deaf people to have access to the audio portion of the material. Sometimes called* ***CART*** *for Computer Aided Real-time Transcription.*

Caster: *A wheel that can pivot but is not intended to govern the driving direction; typically used for the front wheels of most wheelchairs and strollers.*

Change of cross slope: *An abrupt difference between the cross slope of two adjacent surfaces. A rapid rate of change of cross slope is frequently found on driveway crossing flares and curb ramps without landings. A cross slope that changes so rapidly that there is no planar surface over 0.6 m2 (24 in2) can create a safety hazard.*

Change of grade: *An abrupt difference between the grade of two adjacent surfaces.*

Changes in level: *Vertical height transitions between adjacent surfaces or along the surface of a path. Small changes in level are often caused by cracks in the surfacing material. Changes in level may also result when the expansion joints between elements such as curb ramps and gutters are not constructed at the same time. On trails, ruts caused by weather erosion, tree roots, and rocks protruding from the trail surface are common sources of changes in level.*

Charrette: *An intensive 1-5 day workshop involving members of a community discussing planning issues, interrelationships, and impacts, and creating their own vision for a project, corridor, neighborhood, or community.*

Clear space in crosswalk: *The additional space required to be included in a crosswalk at the corner where the ramp of a diagonal curb ramp meets the street, so that those entering or exiting the base of the ramp can remain within the crosswalk.*

Glossary of terms C

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Closed Circuit TV Magnifier (CCTV): *Device using a camera to capture and magnify books or other printed materials to a display screen for individuals with low vision. Now often called Electronic Magnifiers, they are available in both desktop and portable models.*

Collector road: *A roadway linking traffic on local roads to the arterial road network.*

Commercial facility: *Facilities that are intended for non residential use by private entities and whose operation affects commerce.*

Communication device: Hardware that allows a person who has difficulty using their voice clearly to use words or symbols for communication. May range in complexity from a simple picture board to complex electronic devices that allow personalized, unique construction of ideas.

Compensatory tools: Adaptive computing systems that allow people with disabilities to use computers to complete tasks that they would have difficulty doing without a computer, e.g., reading, writing, communicating, accessing information.

Comprehensive Master Plan: *A broad collection of goals, policies, and objectives adopted by a locality for the purpose of directing the growth of the locality.*

Continuous passage: *An unobstructed way of pedestrian passage or travel that connects pedestrian areas, elements, and facilities to accessible routes on adjacent sites.*

Cross slope: *The slope measured perpendicular to the direction of travel.*

Crushed rock: *A material that may be considered accessible on a case-by-case basis, if it is composed of 1/4 minus rock material and properly compacted. The term "gravel" is often used, but should be avoided, as it is composed of rounded stones that cannot be compacted.*

Curb extension: *A section of sidewalk at an intersection or midblock crossing that reduces the crossing width for pedestrians and can help reduce traffic speeds.*

Curb ramp: *A combined ramp and landing to accomplish a change in level at a curb. This element provides street and sidewalk access to pedestrians using wheelchairs*

Glossary of terms D - E

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Deaf: *Members of the American Deaf community, who use ASL as their primary mode of communication, often prefer capital D spelling. Other deaf people who use residual hearing or a different sign system than ASL may prefer to use small d spelling. See also:* ***American Sign Language, Sign Language, Interpreter***

Design width: *The width specification that a sidewalk or trail was designed to meet. For sidewalks, the design width extends from the curb to any buildings or landscaping that forms the opposite border of the sidewalk. For trails, the design width is the area generally considered part of the trail (the beaten path or tread width).*

Detectable warning: *A standardized surface feature built in or applied to walking surfaces or other elements to warn people with visual impairments of hazards.*

Diagonal curb ramp: *A curb ramp positioned at the apex of an intersection.*

Diagonal technique: *An environmental scanning technique where a visually disabled person holds a cane diagonally across the body in a stationary position, with the cane just above or touching the ground at a point outside one shoulder, and with the handle extending to a point outside the other shoulder. Used primarily in familiar, controlled environments.*

Digital: Computer formatted data or information.

Disability: Physical or mental impairment that substantially limits one or more major life activities; a record of such an impairment; or being regarded as having such an impairment (Americans with Disabilities Act of 1990).

Discrimination: Act of making a difference in treatment or favor on a basis other than individual merit.

Drainage inlet: *A site where water runoff from the street or sidewalk enters the storm drain system; the openings to drainage inlets are typically covered by a grate or other perforated surface to protect pedestrians.*

Driveway crossing: *A ramp positioned where a driveway and the sidewalk meet; designed to ease the transition between the street and driveway.*

Glossary of terms E - F

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Electronic information: Any digital data for use with computers or computer networks including disks, CD-ROMs, World Wide Web resources.

Facility: All or any portion of a physical complex, including buildings, structures, equipment, grounds, roads, and parking lots.

Finished floor elevation: *The elevation at which the building foundation meets the prevailing ground surface.*

Firmness: *The degree to which a surface resists deformation by indentation when, for instance, a person walks or wheels across it. A firm surface would not compress significantly under the forces exerted as a person walks or wheels on it.*

Flare: *A sloped surface that flanks a curb ramp and provides a graded transition between the ramp and the sidewalk. Flares bridge differences in elevation and are intended to prevent ambulatory pedestrians from tripping. Flares are not considered part of the accessible route.*

FM Sound Amplification System: Electronic amplification system consisting of three components: a microphone or transmitter, monaural FM receiver and a combination charger and carrying case. It provides wireless FM broadcast from a speaker to a listener who has a hearing impairment.

Frontage Zone: *A linear portion of the sidewalk corridor, adjacent to the edge of the right-of-way (or property line).*

Furnishings Zone: *A linear portion of the sidewalk corridor, adjacent to the curb, that contains elements such as trees, signal poles, utility poles, street lights, street signs, controller boxes, hydrants, parking meters, driveway aprons, planting strips, or street furniture.*

Glossary of terms
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Global Positioning System (GPS): *A system that identifies latitude, longitude, and elevation; a hand console is used to obtain data from an orbiting satellite.*

Grade: *The slope parallel to the direction of travel that is calculated by dividing the vertical change in elevation by the horizontal distance covered. For example, a trail that gains 2 m in elevation over 40 m of horizontal distance has a grade of 5 percent.*

Grade-separated crossings: *Facilities such as overpasses, underpasses, skywalks, or tunnels that allow pedestrians and motor vehicles to cross a street at different levels.*

Graphical User Interface (GUI): Program interface that presents digital information and software programs in an image-based format as compared to a character-based format.

Grate: *A framework of latticed or parallel bars that prevents large objects from falling through a drainage inlet but permits water and some sediment to fall through the slots.*

Gutter: *A trough or dip used for drainage purposes that runs along the edge of the trail or street and curb or curb ramp*

Glossary of terms H

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Hardware: Physical equipment related to computers.

Hearing impairments: Complete or partial loss of ability to hear caused by a variety of injuries or diseases including congenital defects.

Helper: An external program that can be called up by a Web browser to display specially formatted material, such as word processed documents, spreadsheet documents or video/sound pieces. The Helper program is launched by the Web browser as a separate application to view or play the file.

Host: Any computer which holds Internet resources for access by others, or the computer that maintains your Internet access and electronic mail account.

HTML validation: Process that analyzes HTML documents identifies HTML errors and non-standard codes.

Hyperlink, hypertext: Highlighted word or graphic on a Web page that when selected allows the user to jump to another part of the document or another Web page.

Hypertext Markup Language (HTML): Programming language or code used to create World Wide Web pages.

HyperText Transfer Protocol (HTTP): Communication protocol used by the World Wide Web to transfer text, graphics, audio, and video.

Glossary of terms I - J

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Image map: Picture or graphic on a Web page in which hyperlinks are embedded.

Input: Any method by which information is entered into a computer.

Internet: Computer network connecting government, education, commercial, other organization and individual computer systems.

Intermodalism: *The use of multiple modes of transportation to reach one destination; includes combining the use of trains, buses, automobiles, bicycles, and walking into a given trip.*

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA): *Federal legislation authorizing highway, highway safety, transit, and other surface transportation programs from 1991 through 1997. It provided new funding opportunities for sidewalks, shared-use paths, and recreational trails. ISTEA was superseded by the Transportation Equity Act for the 21st Century (TEA-21).*

Interpreter: *Interpreters translate between two different languages, spoken or signed. In the USA, the Registry of Interpreters for the Deaf (RID) certifies professional interpreters who facilitate communication between deaf and hearing people. The provision of interpreters to provide for "effective communication" is covered under the ADA. Although sometimes deaf people are willing to have a hearing family member or friend who knows sign language interpret for them, they are legally entitled, when providing advance notice (48 hours is usually the minimum) to receive the services of a paid certified professional interpreter in public services.*

Intersection: *An area where two or more pathways or roadways join together.*

Island: *A pedestrian refuge within the right-of-way and traffic lanes of a highway or street; also used as a loading stop for light rail or buses.*

Java: Programming language used to create programs or applets that work with some World Wide Web browsers to include features with animation or other characteristics not available through standard HTML.

Glossary of terms J - K - L

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Joystick: A device consisting of a lever that allows a pointer to move up, right, left, or down and serves as an alternative to a mouse. It usually includes buttons to enable mouse clicks.

Keyboard emulation: A method of having an alternative device and/or software, such as a switch-based system, serve the role of a keyboard.

Keyguard: A plastic or metal shield that covers a keyboard with holes over the keys. It allows use of a keyboard without undesired activation of surrounding keys.

Land management agency: *Includes any agency or private organization that manages recreation and/or wilderness areas. Examples of land management agencies include: national entities such as the USDA Forest Service, the USDI Bureau of Land Management, and the USDI National Park Service, as well as State and local park systems.*

Landing: *A level area of the sidewalk at the top of a curb ramp that faces the ramp path.*

Large print books: Most ordinary print is six to ten points in height (about 1/16 to 1/8 of an inch). Large type is 14 to 18 points (about 1/8 to 1/4 of an inch) and sometimes larger. The format of large print books is also proportionately larger (usually 8 1/ x 11 inches).

Level of Service (LOS): *Qualitative and quantitative measurements of the physical environment for the comfort and efficiency of a mode of travel for pedestrians, bicyclists, or motorists. LOS ratings are A-F, similar to school grading systems. A rating of A (LOS) for one mode may be F for another mode. Balance is needed in order to have a transportation facility that is safe and amenable to all the users.*

Local road: *A road that serves individual residences or businesses and/or distributes traffic within a given urban or rural area.*

Long white cane: *Navigational device used by people with vision impairments to scan the environment for potential obstacles and hazards.*

Low vision, a person with*: a better term for visual impairment.*

Lynx: Text-based World Wide Web browser.

Glossary of terms M

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Mainstreaming, inclusion: The inclusion of people with disabilities, with or without special accommodations, in programs, activities, and facilities with their non-disabled peers.

Major life activities: Functions such as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, working, and participating in community activities (from the Americans with Disabilities Act of 1990).

Maximum cross-slope: *The highest cross-slope of a trail or sidewalk that exceeds the typical running cross slope of the path. The distance over which a maximum cross slope occurs significantly influences how difficult a section of sidewalk or trail is to negotiate.*

Maximum grade: *The steepest grade that exceeds the typical running grade. The distance over which a maximum grade occurs significantly influences how difficult a section of sidewalk or trail is to negotiate.*

Median: *An island in the center of a road that provides pedestrians with a place of refuge and reduces the crossing distance between safety points.*

Metropolitan Planning Organization (MPO): *An urban regional body for areas with populations larger than 50,000, that makes transportation policy and planning decisions as mandated in Federal transportation legislation.*

Midblock crossing: *A crossing point positioned in the center of a block rather than at an intersection.*

Minimum clear width: *The narrowest point on a sidewalk or trail. A minimum clear width is created when significant obstacles, such as utility poles or tree roots, protrude into the sidewalk and reduce the design width.*

Mobility device: see next page for discussion and examples.

Mobility impairment: Disability that affects movement ranging from gross motor skills such as walking to fine motor movement involving manipulation of objects by hand.

Mouse emulation: A method of having an alternative device and/or software, such a switch based system, serve the role of a mouse.

Multimedia: In terms of electronic information, any data which is presented through several formats including text, graphics, moving pictures and sound.

Glossary of terms
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Mobility Devices - discussion and examples

Policies address trail accessibility rule on Power-Driven Mobility Devices

See this webpage for a discussion of the policies, or

See this webpage for basic facts

What IS an "other power-driven mobility device?"

An "other power-driven mobility device" (OPDMD) is defined in the rules as: "any mobility device powered by batteries, fuel, or other engines— whether or not designed primarily for use by individuals with mobility disabilities— that is used by individuals with mobility disabilities for the purpose of locomotion, including golf cars, electronic personal assistance mobility devices (EPAMDs), such as the Segway® PT, or any mobility device designed to operate in areas without defined pedestrian routes, but that is not a wheelchair within the meaning of this section. This definition does not apply to Federal wilderness areas; wheelchairs in such areas are defined in section 508(c)(2) of the ADA, 42 U.S.C. 12207(c)(2).

In short an other power-driven mobility device is anything with a motor that can be driven, regardless of size or horsepower, if it is driven by a person who has a mobility related disability.

What is NOT an "other power-driven mobility device?"

Any device that meets the following DOJ definition of a wheelchair is not an other power-driven mobility device and must be allowed to be used anywhere, with no exceptions.

A wheelchair is: a manually-operated or power-driven device designed primarily for use by an individual with a mobility disability for the main purpose of indoor or of both indoor and outdoor locomotion. This definition does not apply to Federal wilderness areas; wheelchairs in such areas are defined in section 508(c)(2) of the ADA, 42 U.S.C. 12207(c)(2).

Glossary of terms N - P

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New construction: *A project in which an entirely new facility is built from the ground up or where a new facility is added to an existing facility.*

Obstacle: An object that limits the vertical passage space, protrudes into the circulation route, or reduces the clearance width of a sidewalk or trail. On sidewalks, obstacles are most common in retrofit situations, because accessibility was not considered in the original plan. On trails, obstacles can include objects such as boulders, drop-offs, and tree branches.

Onscreen keyboard: See Virtual Keyboard.

Optical character recognition (OCR): Technology system that scans and converts printed materials into electronic text.

Output: Any method of displaying or presenting electronic information to the user through a computer monitor or other device.

Parallel curb ramp: *A curb ramp design in which the sidewalk slopes down on either side of a landing at street level; parallel curb ramps require users to turn on the landing before entering the street.*

Passing space: *A section of path wide enough to allow two users to pass one another or travel abreast.*

Passing space interval: *The distance between passing spaces.*

Pedestrian: *A person who travels on foot or who uses assistive devices, such as a wheelchair, for mobility.*

Pedestrian actuated traffic control: *A push-button or other control operated by pedestrians that is designed to interrupt the prevailing signal cycle to permit pedestrians to cross an intersection.*

Pedestrian/bicycle coordinator: *A position responsible for planning and managing non-motorized facilities and programs, creating safety and promotional materials that encourage bicycle and pedestrian transportation, and serving as the principal liaison between government transportation entities, the press, citizen organizations, and individuals on bicycling and walking issues.*

Glossary of terms P

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Peripheral Neuropathy: A condition caused by damage to the nerves in the peripheral nervous system which includes nerves that run from the brain and spinal cord to the rest of the body.

Perpendicular curb ramp: *A curb ramp design in which the ramp path is perpendicular to the edge of the curb.*

Physical or mental impairment: Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more of the following body systems: neurological; musculoskeletal; special sense organs; respiratory, including speech organs; cardiovascular; reproductive; digestive; genito-urinary; hemic and lymphatic; skin; and endocrine; or any mental or psychological disorder, such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities (Americans with Disabilities Act of 1990).

Places of public accommodation: *Facilities operated by private entities that fall within the following 12 broad categories defined by Congress: places of lodging, food establishments, entertainment houses, public gathering centers, sales establishments, service establishments, transportation stations, places of recreation, museums and zoos, social service establishments, and places of education.*

Plug-in: Separate program written to be launched by a specific Web browser to display or run special elements in Web pages, such as animation, video, or audio.

Private entity: *An individual or organization not employed, owned, or operated by the government.*

Program access: *Access provided to a program, service, or activity conducted or funded by a public entity.*

Prosthesis: *An artificial device that replaces part of the body; includes artificial limbs that serve as assistive devices and enable mobility.*

Public entity: *Any state or local government, department agency, special-purpose district, or other instrumentality of a state or states or local government, and any commuter authority.*

Glossary of terms Q - R

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Qualified individual with a disability: An individual with a disability who, with or without reasonable modification to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services, meets the essential eligibility requirements for the receipt of services or the participation in programs or activities provided by a public entity (Americans with Disabilities Act of 1990).

***QR Code**: abbreviated from **Quick Response Code** — is the trademark for a type of matrix barcode (or two-dimensional code) first designed for the automotive industry. More recently, the system has become popular outside of the industry due to its fast readability and large storage capacity compared to standard UPC barcodes. The code consists of black modules arranged in a square pattern on a white background. The information encoded can be made up of four standardized kinds ("modes") of data (numeric, alphanumeric, byte/binary, Kanji), or by supported extensions virtually any kind of data.*

***Ramp:** A sloped transition between two elevation levels.*

***Reach range:** The three-dimensional space within touching or grasping distance of a pedestrian. As a consequence of their seated position, wheelchair users generally have a more limited reach distance than other pedestrians.*

Reader: Volunteer or employee of an individual with a disability (e.g., visual impairment, learning disability) who reads printed material in person or records to audio tape.

***Readily achievable:** Easily accomplished and able to be carried out without much difficulty or expense; refers to the criterion for barrier removal under Title III of the ADA.*

Reading system: Hardware and software designed to provide access to printed text for people with visual impairments, mobility impairments, or learning disabilities. Character recognition software controls a scanner that takes an image of a printed page, converts it to computer text using recognition software and then reads the text using a synthesized voice.

***Reasonable accommodation:** Modifications or adjustments to a program, work environment, or job description that make it easier for a person with a disability to participate in the same manner as other employees.*

Glossary of terms
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Recreation Access Advisory Committee: *A committee established in 1993 by the U.S. Access Board to develop recommendations for accessible recreation facilities.*

Recreation trail: *A trail that is designed to provide a recreational experience.*

Refreshable Braille Display: Hardware connected to a computer that echoes screen text on a box that has cells consisting of pins that move up and down to create Braille characters.

Rehabilitation Act of 1973: *A federal law requiring nondiscrimination in the employment practices of Federal agencies of the executive branch and Federal contractors; requires all Federally assisted programs, services, and activities to be available to people with disabilities.*

Removable obstacle: *An item that obstructs the clear passage space but is not fixed immovably to the ground. Examples of removable objects include newspaper vending boxes, rocks, vegetation, trash receptacles, and small planters.*

Repetitive Stress Injury (RSI): This disability may be chronic or acute and usually is described as pain caused by overuse of extremities, usually hands and wrists.

Rest area: *A level portion of a trail that is wide enough to provide wheelchair users and others a place to rest and gain relief from the prevailing grade and cross slope demands of the path.*

Rest area interval: *The distance between rest areas.*

Right-of-way: *The rights, title, and interest in real property necessary for the construction and maintenance of the project. Private property rights may be acquired by donation or acquisition and may be fee-simple, easement, or other form of use agreement acceptable to the parties. The property rights must be of sufficient duration to match the design life of the project, and in a form that can be recorded on the land records.*

Running cross slope: *The average cross slope of a contiguous section of a sidewalk or trail. Running cross slope is measured by averaging the values of cross slope measurements taken periodically at different points along a given section of sidewalk.*

Running grade: *The average of many short, contiguous grades.*

Glossary of terms S

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Scanning input: A switch-based method of controlling a computer. Activations of a switch will, in order, bring up a control panel that upon subsequent switch activations, allow a user to focus in on a desired control or keystroke. Custom scanning layouts can be created for a variety of purposes and programs and may also be used in a communication device.

Screen enlargement: Hardware or software that increases the size of characters and text on a computer screen.

Screen reader: Software used to echo text on a computer screen to audio output, often used by people who are blind, with visual impairments, or with learning disabilities.

Screen resolution: Refers to the clarity or sharpness of an image. For computer monitors, this term indicates the number of dots on the screen used to create text and graphics. Higher resolution means more dots, indicating increased sharpness and potentially smaller text.

Section 14 (1994): *Section of the ADAAG containing proposed accessibility guidelines for public rights-of-way (now reserved).*

Section 504 (1973): *The section of the Rehabilitation Act that prohibits discrimination by any program or activity conducted by the federal government.*

Section 508 of the Rehabilitation Act: Legislation that requires federal agencies to develop, procure, and use accessible electronic and information technology.

Sensory impairment: A disability that affects touch, sight, or hearing, or both.

Server: Any computer that stores information that is available to other users, often over the Internet.

Service animals: are *dogs that are individually trained to perform tasks for people with disabilities such as guiding people who are blind, alerting people who are deaf, pulling wheelchairs, alerting and protecting a person who is having a seizure, or performing other special tasks. Service animals are working animals, not pets. *See this federal fact sheet.

Glossary of terms S

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Shared use path: *A trail that permits more than one type of user and that has a transportation and recreation function. An example is a trail designated for use by both pedestrians and bicyclists.*

Shy distance: *The area along a path generally avoided by pedestrians, such as the areas closest to buildings, retaining walls, curbs, and fences.*

Sidewalk: *The portion of a highway, road, or street intended for pedestrians.*

Sidewalk approach: *The section of the sidewalk that flanks the landing of a curb ramp. The approach may be slightly graded if the landing level is below the elevation of the adjoining sidewalk.*

Sight distance: *The length of roadway visible to a driver or pedestrian; the distance a person can see along an unobstructed line of sight.*

Sign language*: This term is used to denote a number of different manual systems of communication used by deaf people. In addition to ASL, each country has its own distinct sign language. There are also a number of invented sign languages, such as Signed Exact English (SEE), Pidgin Signed English, and Cued Speech. There is also an International Sign Language used by some deaf people to communicate with deaf people from other countries. See also:* ***American Sign Language***

Site: *A parcel of land bounded by a property line or a designated portion of public right of way.*

Slip resistant surface: *Slip resistance is based on the frictional force necessary to permit a person to ambulate without slipping. A slip resistant surface does not allow a shoe heel, wheelchair tires, or a crutch tip to slip when ambulating on the surface.*

Specific Learning Disability: Disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in difficulties listening, thinking, speaking, reading, writing, spelling, or doing mathematical calculations. Frequent limitations include hyperactivity, distractibility, emotional instability, visual and/or auditory perception difficulties and/or motor limitations, depending on the type(s) of learning disability.

Glossary of terms S

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Speech impairment: Problems in communication and related areas such as oral motor function, ranging from simple sound substitutions to the inability to understand or use language or use the oral-motor mechanism for functional speech.

Speech input or speech recognition: A method of controlling a computer and creating text by dictation. Speech input software is combined with a microphone.

Standard HTML: Version of HTML accessible by all browsers.

Streaming multimedia: A method of transfer- ring audio and/or video via a network from a server to an end user's computer. During the transmission, the material is displayed or played on the target computer.

Stable surface: *Stability is the degree to which a surface remains unchanged by contaminants or applied force, so that when the contaminant or force is removed the surface returns to its original condition. A stable surface is not significantly altered by a person walking or maneuvering a wheelchair.*

Surface: *The material on which a person walks or wheels in the pedestrian environment. Sidewalk surfaces generally consist of concrete or asphalt, but commonly include tile, stone, and brick. In addition to concrete and asphalt, trails can be surfaced with dirt, rock, gravel, sand, mud, snow, grass, and other substances.*

Surface Transportation Program (STP): *A Federal program that provides grants to States for federally funded roadways and enhancement projects.*

Switch input: A method of controlling a computer or communication device. It is most often used with Morse code or scanning methods, but may also be used for controlling household appliances and related controls. Switches are available in a nearly endless ar- ray of sizes, shapes, and activation methods.

Switchback: *A trail or road that ascends a steep incline by taking a winding course to reduce the grade of the path.*

Glossary of terms
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Tag: HTML code that prescribes the structure and formatting of Web pages.

Telecommunications Device for the Deaf (TDD) or Teletypewriter (TTY): A device which enables someone who has a speech or hearing impairment to use a telephone when communicating with someone else who has a TDD/TTY. TDD/TTYs can be used with any telephone, and one needs only a basic typing ability to use them.

Text to Speech (TTS): Hardware or software that converts print to spoken output. Computer software programs for this purpose are usually called screen readers.

Title II of the Americans with Disabilities Act of 1990: *The section of the Americans with Disabilities Act of 1990 that prohibits State and local governments from discriminating against people with disabilities in programs, services, and activities.*

Title III of the Americans with Disabilities Act of 1990: *The section of the Americans with Disabilities Act of 1990 that prohibits places of public accommodation and commercial facilities from discriminating on the basis of disability. Applies to both private and public entities.*

Touch technique: *An environmental scanning method in which a blind person arcs a cane from side to side and touches points outside both shoulders. Used primarily in unfamiliar or changing environments, such as on sidewalks and streets.*

Trackball: A mouse alternative that is basically an upside-down mouse. Useful for some people with mobility impairments because it isolates pointer movement from button clicking.

Trail: *A path of travel for recreation and/or transportation within a park, natural environment, or designated corridor that is not classified as a highway, road, or street.*

Glossary of terms T

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Transportation agency: *A federal, state, or local government entity responsible for planning and designing transportation systems and facilities for a particular jurisdiction.*

Transportation enhancement: *Projects that enhance the transportation network, including providing bicycle and pedestrian facilities; converting abandoned railroad rights-of-way into trails; preserving historic transportation sites; acquiring scenic easements; and mitigating the negative impacts of a project on a community by providing additional benefits.*

Transportation Equity Act for the 21st Century (TEA-21)*: Federal legislation authorizing highway, highway safety, transit, and other surface transportation programs from 1998 through 2003. It provides funding opportunities for pedestrian, bicycling, and public transit facilities and emphasizes intermodalism, multimodalism, and community participation in transportation planning.*

Traumatic Brain Injury (TBI): Open and closed head injuries resulting in impairments in one or more areas, including cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital, degenerative, or induced by birth trauma.

Truncated domes: *Small domes with truncated tops that are detectable warnings used at transit platforms, curb ramps, and hazardous vehicular ways.*

Glossary of terms U

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Uniform Federal Accessibility Standards: *Accessibility standards that all federal agencies are required to meet; includes scoping and technical specifications.*

Universal design: Designing programs, services, tools, and facilities so that they are useable, without modification, by the widest range of users possible, taking into account a variety of abilities and disabilities.

Universal design of instruction: The design of instructional materials and activities that make learning achievable by students with a wide variety of abilities and disabilities.

Universal Resource Locator (URL): Address used to locate a specific resource on the Internet. For instance, Access Recreation's URL is www.accessrecreation.org.

US Access Board (US Architectural and Transportation Barriers Compliance Board - ATBCB): *The federal agency that is responsible for developing federal accessibility guidelines under the ADA and other laws.*

Glossary of terms V - W

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Vertical clearance: *The minimum unobstructed vertical passage space required along a sidewalk or trail.*

Virtual keyboard: Software used to emulate a keyboard. A picture of a keyboard is displayed on a computer screen and the user points and clicks on the pictures of keys to enter text.

Vision impairments: Complete or partial loss of ability to see, caused by a variety of injuries or diseases including congenital defects. Legal blindness is defined as visual acuity of 20/200 or less in the better eye with correcting lenses, or widest diameter of visual field subtending an angular distance no greater than 20 degrees.

Visual impairment: *Loss or partial loss of vision. See Low vision.*

Vocational Rehabilitation Act of 1973: Act prohibiting discrimination on the basis of disability which applies to any program that receives federal financial support. Section 504 of the Act is aimed at making educational programs and facilities accessible to all students. Section 08 of the Act requires that electronic office equipment purchased through federal procurement meets disability access guidelines.

Water bar: *A bar made of materials such as wood, rubber, or stone that is placed across a trail to divert runoff across rather than down the trail.*

Wheelchair: *Wheeled mobility device used by people with limited or no ability to walk. Wheelchairs can be manually propelled or battery powered.*

Wilderness Act of 1964: *A Federal law that prohibits the use of motorized vehicles and mechanized construction on certain tracts of Federally managed land.*

Word prediction: Software that reduces the number of keystrokes needed to type words and sentences. As characters are entered on either a standard, alternative or virtual keyboard, suggested completions of the word that has been started are provided to the user.

World Wide Web (WWW, W3, or Web): Hypertext and multimedia gateway to the Internet.

Resources

Smithsonian

Accessibility guidelines

Wilderness Inquiry

Accessible Adventures in the Pacific Northwest Video Series