WestVirginiaUniversity.
VMC®/ Homeland Security Programs

Handbook
on
Disability
and
Emergencies

CENTER FOR EXCELLENCE IN DISABILITIES

"Commitment To Excellence"

WestVirginiaUniversity.

WestVirginiaUniversity.
VMC®/ Homeland Security Programs

VMC®/Homeland Security Programs and the Center for Excellence in Disabilities at West Virginia University, in cooperation with Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services, are engaged in a project to study and make planning recommendations for special needs populations in bioterrorism events and other disasters. This handbook is intended to be used by course designers, emergency planners and related groups to provide a basic level of knowledge on disability and special needs.

W3C validator - checks HTML and XHTML code for conformance to W3C recommendations and other standards
http://validator.w3.org/

LIFT Online - tests for usability and accessibility, including Section 508
www.usablenet.com/

Web Design Group (WDG) - HTML validator
www.htmlhelp.com/tools/validator/

A-Prompt - Web accessibility verifier
http://aprompt.snow.utoronto.ca/

Handbook *on* Disability *and* Emergencies

1. Special Needs and Emergencies

One of the most important roles of local government is to protect their citizens from harm including helping people prepare for and respond to emergencies. Making local government emergency preparedness and response programs accessible to people with disabilities is a critical part of this responsibility. Making these programs accessible is required by the Americans with Disabilities Act of 1990 (ADA).

If you are responsible for your community's emergency planning or response activities, you should involve people with disabilities in identifying needs and evaluating effective emergency manage-ment practices. Issues that have the greatest impact on people with disabilities include: **notification, evacuation, emergency transportation, sheltering, access to medical care and medications, access to their mobility devices or service animals while in transit or at shelters and access to information.**

In planning for emergency services, you should consider the needs of people who use mobility aids such as wheelchairs, scooters, walkers, canes or crutches, or people who have limited stamina. Plans also need to include people who use oxygen or respirators, people who are blind or who have low vision, people who are hard of hearing, people who have a cognitive disability, people with mental illness and those with other types of disabilities.

Although employers are not required to have emergency evacuation plans under the Americans with Disabilities Act (ADA), if employers covered by the ADA opt to have such plans they are required to include people with disabilities. Further, employers who do not have emergency evacuation plans may have to address emergency evacuation for employees with disabilities as a reasonable accommodation under Title I of the ADA. In addition, employers in certain industries may have obligations to develop emergency evacuation plans under the Occupational Safety and Health Act (OSHA Act) or under state and local law.

5. Web Accessibility Validators

MAGpie - a free tool for creating captions and audio descriptions for rich media
http://ncam.wgbh.org/webaccess/magpie/index.html#magpie2

Web Accessibility Toolbar – free tool can help you examine Web pages for many aspects of accessibility. It currently works only with Internet Explorer.
www.nils.org.au/ais/web/resources/toolbar/index.html

Visicheck - checks images and web pages for all types of color blindness
http://vischeck.com/index.php3

AnyBrowser - check out your site in different screen sizes.
www.anybrowser.com/ScreenSizeTest.html *(caps sensitive)*

WebSite Optimization - calculates page size, composition, and download time
www.websiteoptimization.com/services/analyze/

Illinois Accessible Web Publishing Wizard - converts PowerPoint presentations, Word documents, and Excel spreadsheets to accessible HTML
http://cita.disability.uiuc.edu/software/office/

Wave - from WebAIM, this tool checks for accessibility based on Section 508 compliance.
www.wave.webaim.org

Cynthia Says - identifies errors related to Section 508 standards
www.cynthiasays.com

HiSoftware Site Tester - identifies errors related to Section 508
www.hisoftware.com/accmonitorsitetest/

Watchfire WebXACT (formerly Bobby) - check one page at a time for quality, accessibility and privacy issues
http://webxact.watchfire.com/

Creating Accessible Online Courses and Web Sites:
Penn State University tutorial
http://tlt.its.psu.edu/suggestions/accessibility/

Dive into Web Accessibility - self-paced online tutorial where material
can be arranged by type of disability, design principle, web browser, or
publishing tool
http://diveintoaccessibility.org/

Web Accessibility: Making your Web Site Accessible to the Blind.
www.nfb.org/tech/webacc.htm

Making the Web Accessible for the Deaf, Hearing and Mobility Impaired
www.samizdat.com/pac2.html

Disabilities, Opportunities, Internetworking, and Technology (DO-IT)
– links to many resources related to accessible information technology
www.washington.edu/doit/Brochures/Technology/

National Center on Accessible Information Technology in Education
(AccessIT)
www.washington.edu/accessit/

National Center for Accessible Media (NCAM)
http://ncam.wgbh.org/

Web Accessibility in Mind (WebAIM)
www.webaim.org/

Section 508 Technical Training Course
www.sps-va.com/train/content/page2.shtml

Methods for Designing Usable Web Sites
www.usability.gov/methods/index.html

Guild of Accessible Web Designers (GAWDS)
www.gawds.org/

If you are a person with a disability, know how to reduce the impact of a disaster on yourself.

What can you do to reduce the effects of the disaster and to develop a personal disaster plan?
Start by considering the following actions:

- Create a personal support network.

- Complete a personal assessment of your needs.

- Collect information and take actions that will help you meet your needs during evacuations and after the disaster happens.

- Gather essential supplies you will need during and after a disaster, and especially those specific to your disability.

- Make your home or office safer.

1a. Community Planners' Roles

Include People with Disabilities in All Levels of Emergency Preparedness

The Emergency Preparedness Initiative (EPI) and other programs include a focused educational and awareness effort to ensure that:

- People with disabilities take measures to prepare themselves for emergencies.

- Preparedness officials across the country are including people with disabilities in the planning, training exercises and the response activities being undertaken at the community level.

- People with disabilities are taking an active role in participating alongside preparedness officials before, during and after an emergency.

In most cases of emergency planning (including evacuations and sheltering during natural disasters, attacks of terrorism, industrial and highway accidents) the communication, transportation and medical needs of persons with disabilities and other special populations have not been taken into consideration.

Know Your Community Members

- Identify the concentrations of people with disabilities who live in the community. This includes large-scale senior housing developments, residential care facilities and schools with large populations of students with disabilities.

- Work with local disability organizations to identify clusters of people with disabilities who either live or work in the community.

- Work with primary and specialty care providers for patients with special needs to identify their roles in disaster planning for their patients with special needs.

- Partner with community organizations, Children with Special Health Care Needs (CSHCN), families and agencies.

4d. Accessibility and Universal Design

University of Washington DO-IT Disabilities, Opportunities, Internetworking & Technology. This site contains many links to developing accessible video presentations and online courses.
www.washington.edu/doit/Resources/accessdl.html

Distance Learning: Universal Design, Universal Access
www.aace.org/pubs/etr/issue2/burgstahler.cfm

Courseware Accessibility – Links from SNOW (Special Needs Opportunity Windows)
http://snow.utoronto.ca/access/courseware/

IMS Guidelines for Developing Accessible Learning Applications
http://ncam.wgbh.org/salt/guidelines/

Creating Video and Multimedia Products that are Accessible to People with Sensory Impairments
www.washington.edu/doit/Brochures/Technology/vid_sensory.html

Accessibility in Distance Education: A Resource for Faculty in Online Teaching
www.umuc.edu/ade/

EASI - Equal Access to Software and Information – online training for persons with disabilities
www.rit.edu/~easi/dislearn.htm

GRADE - online tutorial that explains how to create accessible distance learning materials
www.catea.org/grade/

Introduction to Accessible Information Technology in Education
www.washington.edu/accessit/webcourse.php

IRS Training on Section 508 for Software Development
www.section508.gov/IRSCourse/

U.S. Legal Activities on Web Accessibility
www.uiaccess.com/us-legal.html

Americans with Disabilities Act of 1990
www.usdoj.gov/crt/ada/adahom1.htm

Section 508 Standards of the Access Board
www.access-board.gov/sec508/guide
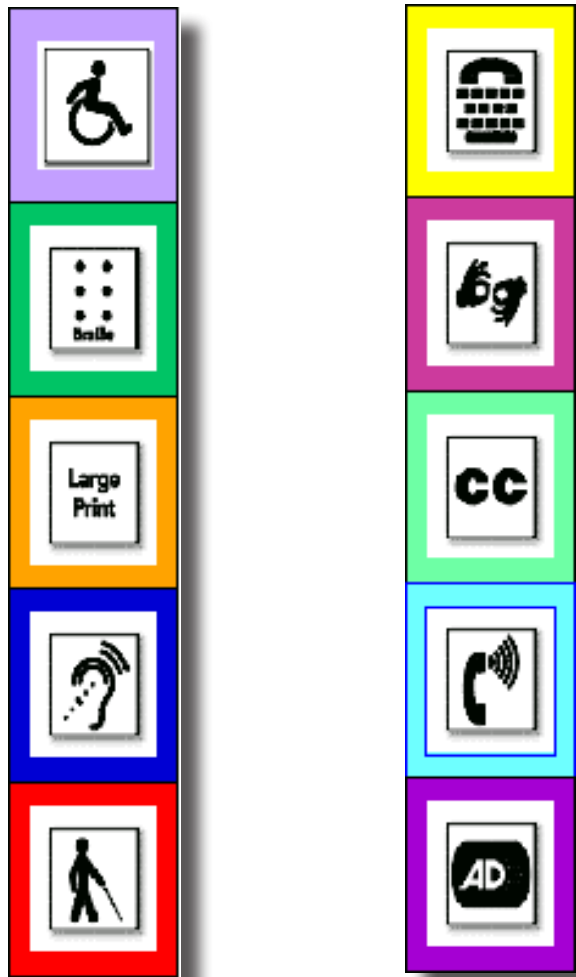
- Help families of children with special needs prepare disaster shelter plans.

- Collect and analyze data on specific resource availability before, during and after community-wide disasters.

- Identify provision of resources and funding by public and private healthcare funding agencies based on the impact of disasters.

Communication is the Key

Communication with members of the disability community must be viewed differently depending on the point at which it is initiated. This can be done:

- Well before an event as part of a preparedness outreach effort

- Before an event as an emergency warning or notification

- During an event as emergency information and instruction

- Following the event as recovery information

Develop a Special Needs Registry

Consider developing a special needs registry for the jurisdiction if one does not yet exist. Include people meeting specified criteria who voluntarily list themselves to make local emergency authorities aware of their presence. Recognize that no matter how comprehensive a registry may be, *not all people with disabilities will register*. Therefore any registry should be considered only as a guide in an emergency, and not as a definitive or exhaustive list. Also, it should be updated periodically (e.g., once a year).

Develop a Disability Phone Tree

Another communication tool is a phone tree patterned after existing internal notification and call-down systems. This can be a particularly effective way to reach membersof the disability community. Community emergency managers should be responsible for initiating communication to the top-level contact persons on each branch of a phone tree.

Develop Evacuation Plans

There are several types of facilities and structures where special consideration is required in connection with the evacuation of people with disabilities.

Buildings, Residential Facilities and Other Tall or Large Structures with Relatively Permanent Residents

As part of emergency planning efforts, it is important to work with the administrators of these facilities to ensure that each structure has a workable evacuation plan in place. Administrators should undertake regular drills so residents or employees within their structures are familiar with these plans.

Large Facilities, Such as Stadiums, Arenas and Museums with No Permanent Residents

In these facilities, full-scale evacuation drills are usually not feasible (with certain exceptions such as schools). It is critical to ensure that the managers of these facilities have effective evacuation procedures in place for people with disabilities.

Entire Communities

Community evacuation plans should be designed to allow the necessary time, consideration and assistance for people with disabilities to be adequately notified of evacuation plans. They also must be able to bring special equipment with them. (e.g., wheelchairs, dialysis machines, and ventilators) and guide animals.

Include Disability Needs in the Recovery Phase

The recovery phase of an emergency typically is the longest and most difficult aspect of a disaster for a community's residents. This phase can be especially traumatic for people with disabilities. In addition to coping with any personal losses or injuries that they may have suffered, people

4c. Legal Requirements

WebABLE has links to many disability-related Internet resources that ensure accessibility for people with disabilities. This section lists and defines all 16 Section 508 accessibility requirements for web sites.
www.webable.com/508_guidelines.html

Section 508: The Road to Accessibility
www.section508.gov/

FCC – Section 255 of the Communications Act-
Telecommunications access for people with disabilities
www.fcc.gov/cgb/dro/section255.html

Usability.gov - Section 508 accessibility, including validators, tips, and assistive technologies
http://usability.gov/accessibility/index.html#tips

Evaluating Web Site Accessibility
www.webaim.org/techniques/evaluating/?templatetype=3

WebAIM Section 508 Checklist
www.webaim.org/standards/508/checklist

508 Web Accessibility Tutorial
www.jimthatcher.com/webcourse1.htm

Section 508 of the Rehabilitation Act:
electronic and information technology accessibility standards.
www.access-board.gov/508.htm

AccessIT - Accessible University (AU) mock site developed as a tool for demonstrating Section 508 and other web accessibility principles
www.washington.edu/accessit/AU/index.html

ITTATC Web Accessibility Course - free, self-paced, online course for creating accessible web sites that comply with Section 508 standards
www.ittatc.org/training/webcourse/

Web Accessibility 101 - free, self-paced, online course focusing on web accessibility policy, 508 standards, and design
**www.doit.wisc.edu/accessibility/online-course/start.htm**

Disability Basics - disability etiquette guidelines, attitudinal barriers and positive language suggestions by the National Collaborative on Workforce and Disability (NCWD)/Youth
www.ncwd-youth.info/resources_&_Publications/disability_Basics/index.html

The Disability Etiquette Page - general disability, blind, deaf and wheel-chair user etiquette tips
www.onsighttraining.com/etiquette.html

Ten Commandments Of Communicating With People With Disabilities - 26-minute training video or DVD that can be purchased for disability awareness training
www.trainerstoolchest.com/show_product.php?idnum=369

Disability Etiquette: Farm Safety News
www.peifa.ca/farmsafety/news/etiquette.html

National Business and Disability Council (NBDC)
The NBDC web page contains links to a number of fact sheets and tip sheets related to disability etiquette and workplace issues.
www.business-disability.com/members/fact.asp
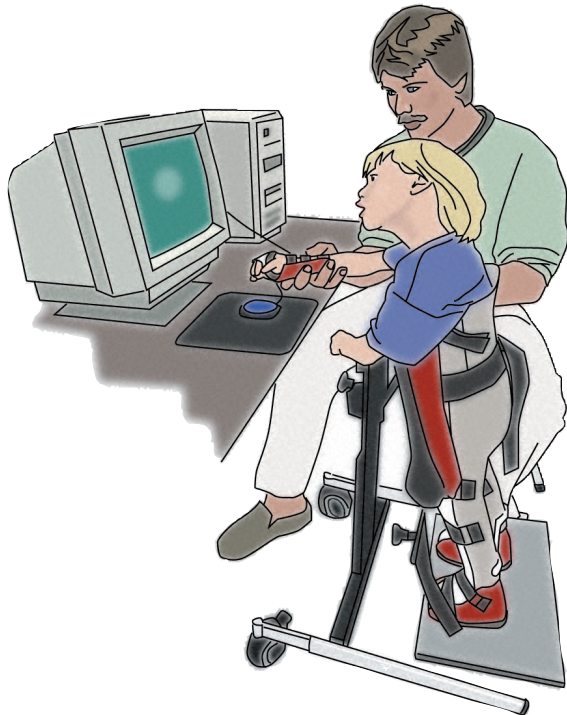
with disabilities who experience a disaster may be deprived of vital connections to attendants, guide animals, neighbors and even family members. They may no longer be able to follow their accustomed routines. Emergency planners can do little to counter some of these effects. What can be done is to ensure that those services and special needs most critical to people with disabilities are restored or addressed as a priority during the recovery phase.

Include Major Considerations in the Recovery Phase

- Make allowances at blockades, shelters and other impacted areas for access by attendants, home health aides, visiting nurses, guide animals and other individuals crucial to the immediate health care needs of people with disabilities.

- Identify the impact (on the disability community) of an interruption in utility services.

- Plan for accessible shelter and appropriate temporary housing needs.

- Address how people with disabilities who are employed will get to work shortly after the disaster.

- Involve representatives of the disability community in "after action reviews" in order to capture the true impact of the disaster and to improve plans for the future.
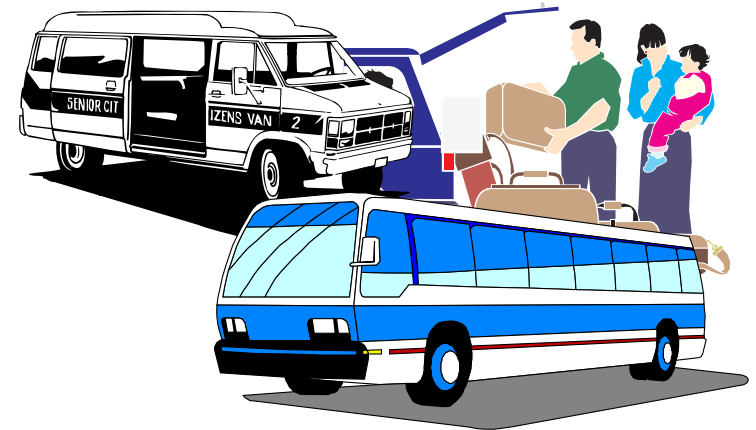
Consider Other Factors

- Train volunteers ahead of time in the basics of helping their fellow residents with disabilities.

- Federal, state and local regulatory codes address special needs issues, and it is important to understand when such codes can help in the context of emergency planning.

- If no regulatory codes are in place, lobby for changes that can strengthen the ability of emergency professionals to incorporate special needs issues into plans and response capabilities.

- Shelters must meet minimal accessibility levels so that all members of a community can find safety. The level of medical oversight to be provided must be determined well in advance of an emergency.

- Make accessible transportation available during and after a disaster.

- During the planning and preparedness phase, make sure that groups providing services to the disability community are informed about the importance of proper business continuity planning to ensure ongoing services to people with disabilities after a disaster.

- There are many types of emergency equipment for use by people with disabilities during a disaster. These include specialized evacuation chairs, transfer-height cots, communication boards and reverse 911 notification systems. To ensure the use of only the highest quality equipment, emergency professionals should rely on appropriate members of the disability community to help research and "test drive" equipment before such items are written into plans or purchased by municipalities.

Above excerpts are from sources listed on pages 22-23.

Assisting People with Disabilities in a Disaster
www.fema.gov/plan/prepare/specialplans.shtm

Disaster Resources for People with Disabilities and Emergency Managers
www.jik.com/disaster.html

FCC - requirement that all video programming distributors who provide emergency information do so in a format that is accessible to people who are deaf or hard of hearing, or blind or have low vision.
www.fcc.gov/cgb/consumerfacts/closedcaption.html

4b. Disability Etiquette

Disability Etiquette Tips for Speaking Engagements - Job Accommodation Network (JAN):
www.jan.wvu.edu/media/etipresent.html

Disability Etiquette - Section 504 Handbook contains many etiquette tips related to (a) blindness and visual impairments and (b) speech disabilities
www.fcc.gov/cgb/dro/504/disability_primer_4.html

Disability Etiquette: Using Words with Dignity - Guidelines by the Community Resources for Independence (CRI)
www.crinet.org/dignity.php

Disability Training - contains lists of many videos, CDs, DVDs and training courses that can be ordered to assist with disability awareness **www.disabilitytraining.com/disaw.html**

Accessible Attitudes: Disability Etiquette for One-Stop Staff - Employ-ABILITY Handbook
www.employ-ability.org/one-stop/begnoblequest2.asp
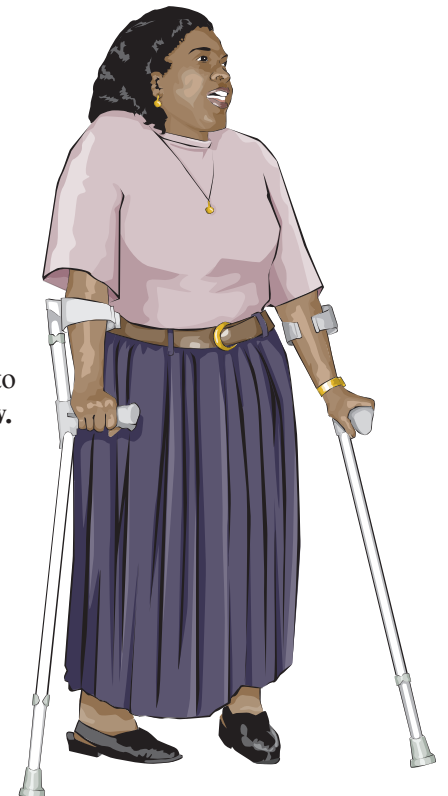
Preparing Emergencies for the Special Needs Population:
A Checklist for People with Mobility Problems
(Downloadable PDF Emergency checklist)
**www.co.marin.ca.us/depts/HH/main/ss/Disaster_Services_Program/
SpecialNeeds.pdf**

The Emergency Preparedness Initiative Guide for Emergency Managers,
Planners & Responders – Disability Specific Resources
Many detailed online guides are available and can be downloaded
in PDF or HTML format.
www.nod.org/index.cfm?fuseaction=Page.viewPage&pageId=11

Emergency Preparedness Initiative: Guide on the Special Needs of People
with Disabilities
For Emergency Managers, Planners and Responders (PDF)
www.nod.org/resources/PDFs/epiguide2005.pdf

Preparing for Emergencies: A Checklist for People with Mobility Prob-
lems (PDF)
www.fema.gov/pdf/fima/fema320.pdf

Emergency Evacuation Preparedness: Taking Responsibility for Your
Safety: A Guide for People with Disabilities and Other Activity Limita-
tions (PDF)
www.cdihp.org/evacuation/emergency_evacuation.pdf

Evacuation Preparedness Guide – Center for Disability Issues in the
Health Professions (CDIHP)
Focuses on people with disabilities and activity limitations successfully
evacuating buildings.
www.cdihp.org/evacuation/toc.html

DisabilityInfo.gov – links to many resources related to emergency pre-
paredness.
**www.disabilityinfo.gov/digov-public/public/DisplayPage.
do?parentFolderId=5150**

The NBDC Yellow Pages: National Business & Disability Council -
Emergency Evacuation Procedures to Assist Employees with Disabilities
www.business-disability.com/Services/links.asp

1b. Individuals With Special Needs

Evacuation Preparedness Tips

- Evaluate your need to be identified as someone who requires assistance during an evacuation.

- Master the skill of giving quick information on how to best assist you. Establish a personal support network or self-help team.

- Do an ability self-assessment. Evaluate your capabilities, limitations, needs and surroundings to determine what type of help you will need in an emergency.

- Understand your emergency evacuation options. Use your judgment, given your specific situation and the information you have available during an emergency. If you will need evacuation assistance, your options could include:
  - Being carried
  - Using evacuation chairs
  - Identifying an area of refuge/rescue assistance
  - Sprinkling buildings
  - Using an elevator
  - Establishing an emergency plan for your home

Personal Support Network
Organize a network for your home, school, or workplace – any place where you spend a lot of time. A personal support network is made up of individuals who will check with you and assist when needed. These people are usually located in the same area as you.

Include at least three people for each location and give each of them a copy of any disaster preparedness lists you have created, such as:

- Your personal needs assessment, medical information, disability-related supplies and special equipment, evacua-tion plans, and relevant emergency documents.

- A plan of how and when you and your network will contact each other during an emergency.

Also, consider doing the following activities with your network team:

- Show them how to operate and safely move the equipment you use.

- Make sure your service animal knows the people in your network.

- Have network members practice your evacuation plan during a simulated emergency.

Disability-Related Items You Use
Make a list of all special items you use, including a description of each. Options could include:

- Disability-related supplies and special equipment (such as wheelchair, walker, crutches, cane, glasses, hearing device, writing device, eating utensils, dentures, medical equipment, prescriptions, or supplies)

- Service animals and pet supplies (such as food, extra water, leash/harness/collar, ID tags, medications)
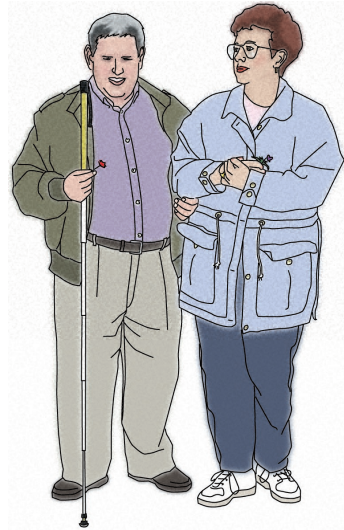
Personal Needs Assessment
Make a list of your personal needs and how you are currently meeting them. Then, make an additional list to include resources or additional assistance you would need in each area during a disaster. Include these items on your lists:

Getting Around
- Transportation (such as specially-equipped vehicle or accessible transportation)

- Errands (such as getting groceries or medications)

4. Resources and Links

4a. Special Needs and Emergencies

Disaster Preparedness for People with Disabilities –
American Red Cross Disaster Services
This detailed 48-page booklet can be downloaded in PDF or WordPerfect format.
www.redcross.org/services/disaster/beprepared/disability.wpd

An ADA Guide for Local Governments – Making Community Emergency Preparedness and Response Programs Accessible to People with Disabilities - U.S. Department of Justice
www.ada.gov/emergencyprep.htm

Individuals with Disabilities in Emergency Preparedness - U.S. Department of Labor
www.dol.gov/odep/programs/emergency.htm

Employers Guide to Including Employees with Disabilities in Emergency Evacuation Plans
Job Accommodation Network
www.jan.wvu.edu/media/emergency.html

Emergency Preparedness and Individuals with Disabilities - U.S. Department of Transportation
www.dotcr.ost.dot.gov/asp/emergencyprep.asp

16 Specific Section 508 Standards for Web Accessibility

(a) Images	Provide text equivalents for all non-text elements.
(b) Multimedia	Provide equivalent alternatives for multimedia presentations.
(c) Color	Ensure that all information conveyed with color is also available without color.
(d) Readability	Organize pages so they are readable without requiring an associated style sheet.
(e) Server-side image maps	Provide redundant text links for each active region of a server-side image map.
(f) Client-side image maps	Provide client-side image maps instead of server-side image maps when possible.
(g) Data tables	Identify row and column headers for data tables.
(h) Row and column headers	Use the headers attribute for complex data tables that have two or more logical levels of row or column headers.
(i) Frames	Provide text titles for frames.
(j) Flicker rate	Avoid animated images or other features that cause the screen to flicker with high frequency.
(k) Text-only	Provide a text-only web site alternative only if you cannot meet 508 standards in any other way.
(l) Scripts	If you use scripting languages (such as JavaScript) to display content or create interface elements, make sure the scripts are accessible.
(m) Applets and plug-ins	Specify links to accessible applets and plug-ins.
(n) Electronic forms	Design accessible forms with logical tab order.
(o) Navigation	Provide a way for users to skip repetitive navigation links.
(p) Timed response	Alert users whenever timed responses are required and let them request more time.

Daily Living
- Personal care (such as adaptive equipment for getting dressed or shower chair or tub-transfer bench)
- Water service
- Adaptive feeding devices (special utensils)
- Electricity-dependent equipment (such as dialysis or electrical lifts)

Evacuating
- Building exits (such as other exits if elevator isn't working)
- Getting help (how to get help leaving the building)
- Mobility aids (such as service animals, equipment)
- Ramp access (such as other options if ramp is broken or separated from building)
- Service animals/pets (how to provide food, shelter and veterinary attention after a disaster)

Above excerpts are from sources listed on pages 22-23.

2. Disability Etiquette

If you saw a person in a wheelchair, unable to get up the stairs into a building, would you say, "there is a handicapped person unable to find a ramp?" Or would you say, "there is a person with a disability who is handicapped by an inaccessible building?"

Person First

In speaking or writing, remember that children or adults with disabilities are like everyone else – except they happen to have a disability. Therefore, here are a few tips for improving your language related to disabilities and handicaps.

1. Speak of the person first, then the disability.

2. Emphasize abilities, not limitations.

3. Do not label people as part of a disability group – don't say "the disabled." Say "people with disabilities."

4. A "disability" is a functional limitation that interferes with a person's ability to walk, hear, talk or learn. A "handicap" is a situation or barrier imposed by society, the environment or oneself.

• Accept persons with disabilities as individuals, entitled to the same respect and treatment you would want for yourself.

• Treat adults with disabilities as adults. Do not patronize them by telling them how courageous they are, patting them on the back, or talking to them like children.

• Extending to shake hands is appropriate for greeting all individuals regardless of disability.

• Speak directly to the person with a disability rather than through a companion.

• While it is rude to stare or ask personal questions, do not pretend the disability does not exist.

• Offer assistance, but wait until your offer is accepted before you help. If your offer to help is declined, do not insist. Listen to any instructions the person may want to give you.

• Be considerate of the extra time a person with a disability may need. Let the person set the pace in talking or walking.

• **Validation -** Make use of accessibility testing software such as accessibility toolbars and validators. *(see pages 30-31)*

Other Ways To Provide Accessibility and Usability Support

• **Printed Materials -** Be prepared to convert them to Braille, large print, audiotape or electronic format as needed.

• **Updates -** Assign someone to be responsible for updating disability-related program access policies and guidelines and for assuring compliance.

• **Training and Support -** Be prepared to provide training and support regarding accessibility issues.

3c. 508 Chart of "16 Standards"?

Section 508 required that the Access Board establish standards for accessibility. To do that the Board empaneled the Electronic and Information Technology Access Advisory Committee (EITAAC) in October of 1998. The EITAAC was composed of representatives from industry, academics, government and disability advocacy organizations. The group proposed standards for accessible electronic and information technology.

The final Section 508 rule (§ 1194.22) states that your web site has to satisfy 16 specific items for web accessibility. These standards are summarized on the following page.

• As of June 2001, all government web sites must conform to these standards.
• Any company doing business with the federal government or with states receiving technical assistance funds need to have an accessible web presence.

- **Make sure tables are organized properly.**
  Use appropriate tags to ensure that layout and data tables make sense when read left to right, top to bottom by screen readers

- **Use frames sparingly and consider alternatives.**
  Some screen reader programs read from left to right, jumbling the meaning of information in frames. When frames are used, ensure that frames are titled.

- **Provide alternatives for forms and databases.**
  Some combinations of browsers and screen readers encounter errors with nonstandard or complex forms. Always test forms and databases with a text-based browser. Include an e-mail address and other contact information for those who cannot use your forms or database.

Ways To Test Your Site for Accessibility and Usability by All

- **Browsers -** Test your web site with a variety of standard web browsers. Also, test your pages with at least one text-based browser, and with multi media browsers with graphics and sound-loading features turned off.

- **Computers -** View your site using a variety of computing platforms, monitor sizes, and screen resolutions.

- **Navigation -** Make sure you can access all of the features of your web site with the keyboard alone, simulating the experience of web users who cannot use a mouse. Also, implement a 'skip navigation' strategy for screen reader users.

Say…	Instead of…
child with a disability	disabled or handicapped child
person with cerebral palsy	palsied, C.P., or spastic
person who has	afflicted, suffers from, victim
without speech, nonverbal	mute, dumb
developmental delay	slow
emotional disorder	crazy or insane
person who is deaf or hard of hearing	deaf and dumb
uses a wheelchair	confined to a wheelchair
person with retardation	retarded
has a learning disability	is learning disabled
has a physical disability	crippled
seizures	fits
cleft lip	hare lip
mobility impaired	lame
medically involved, or has a chronic illness	sickly
paralyzed	invalid or paralytic
has quadriplegia	quadriplegic
has paraplegia	paraplegic
born with	birth defect

Disability Acronyms

General disability acronyms:
- ADA – The Americans with Disabilities Act
- ASL – American Sign Language (which is an American language other than English)
- TDD – Telecommunication Device for the Deaf (also referred to as TTY – teletypewriter)

Above excerpts are from sources listed on pages 24-25.

3. Web Sites and Online Courses

Online Barriers Faced By People with Disabilities

Many people with disabilities use "assistive technology" to enable them to use computers and access the Internet. People who cannot see computer monitors may use screen readers – devices that speak the text that would normally appear on a monitor. People who have difficulty using a computer mouse can use voice recognition software to control their computers with verbal commands. People with other types of disabilities may use still other kinds of assistive technology.

Poorly designed web sites can create barriers for people with disabilities, just as poorly designed buildings prevent some people from entering them. Designers may not realize how simple features built into a web page will assist someone who, for instance, cannot see a computer monitor or use a mouse.

3a. Legal Requirements

Section 508 of the Rehabilitation Act

Section 508 refers specifically to Section 508 of the Rehabilitation Act of 1973, as amended by the Workforce Investment Act of 1998. The law requires federal agencies to purchase electronic and information technology that is accessible to employees with disabilities. If those agencies provide information technology to the public, it too shall be accessible by persons with disabilities.

The electronic and information technology includes: software applications and operating systems; web sites, telecommunications

used to create web sites. Tags tell a web browser where to find and how to display information. Using standard HTML will ensure that your content can be accessed by all visitors to your site, including those using text-based browsers. Avoid tags, applets and plug-ins that are available to only one brand or version of a browser. Provide alternative methods for carrying out the functions if you have no other option, such as providing the content in alternative, text-based formats.

- **Include a note about accessibility.**
  Notify site visitors that you are concerned about accessibility. Include a statement about accessibility and encourage them to notify you with their accessibility concerns.

- **Make links descriptive so that they are understood out of context.**
  Visitors who use screen reading software can adjust their software to read only the links on a page. For this reason, use a descriptive phrase as a link. For example, have a link say "resources" instead of "click here."

- **Do not rely on color codes alone to provide information.**
  If you present information using only color, a person who cannot distinguish color will not have access to that information. For example, instead of saying "Click the green button," place the word OK on the button and say: "Click the green OK button."

- **Make audio and video content accessible.**
  If multimedia content on your web site is audio, a person who is deaf or hard of hearing cannot access that content unless provision is made for a visual presentation of the content. Similarly, if the content is video, a person with vision impairments will miss the message unless the information in the video is described. The solution is to provide written transcriptions for all multimedia presentations and add captions to your videos so visitors have an alternative method for accessing the information.

may be considered usable. However, you should provide a way to allow users with screen readers to skip these links and go directly to the content of the page. Otherwise they will have to listen to all of these links being read to them over and over again.

How Do We Make Web Sites and Online Courses Accessible and Usable to All?

For all media, tools and strategies used on web sites or in online courses, develop guidelines using Section 508 standards as an appropriate model. For instance:

- **Maintain a simple, consistent page layout throughout your site.**
  For example, a standard navigation menu or logo for the site should always appear in the same place. A clear, consistent presentation will especially assist people with visual impairments or learning disabilities who have difficulty using disorganized navigation schemes.

- **Keep backgrounds simple. Make sure there is enough contrast.**
  People with low vision or colorblindness, or those using black and white monitors, can have difficulty reading information at sites with busy backgrounds. Some background images and colors obscure text and make reading difficult. Make sure that there is enough contrast between your text and the background of the page. Always test your site by viewing it at different resolutions and color depths.

- **Use standard HTML as much as possible.**
  Hypertext Markup Language (HTML) is the standard code

equipment; desktop and portable computers; video and multimedia; self-contained and stand-alone products; as well as information, documentation and support products.

Section 508 was included in an amendment to the Rehabilitation Act in 1986, with the requirement that the federal government provide accessible technology to employees and to the public.

But the 1986 version provided no guidance for determining accessibility of information technology, and there were no enforcement procedures.

The 1998 amendment addressed both of these issues. The Access Board (the Architectural and Transportation Barriers Compliance Board) was assigned the task of determining standards for accessible electronic and information technology.

Section 508 requires that functional standards be used. For example, it is required that there be a way for a person who has a mobility impairment or blindness to use your product or web site. In addition, the Section 508 standards say your web site has to satisfy 16 specific items for web accessibility. These 16 items will be discussed in the next chapter.

Section 255 of the Communications Act

The Federal Communications Commission (FCC) has rules requiring telecommunications manufacturers and service providers to make their products and services accessible to people with disabilities, if readily achievable. These rules implement Section 255 of the Communications Act.

Where it is not readily achievable to provide access, Section 255 requires manufacturers and providers to make their devices and services compatible with peripheral devices and specialized "customer premises equipment" (CPE) that are commonly used by people with disabilities, if such compatibility is readily achievable. CPE is telecommunications equipment used in the home or office (or other premises) to originate, route or terminate telecommunications. Examples of CPE are telephones, fax machines, answering machines and pagers.
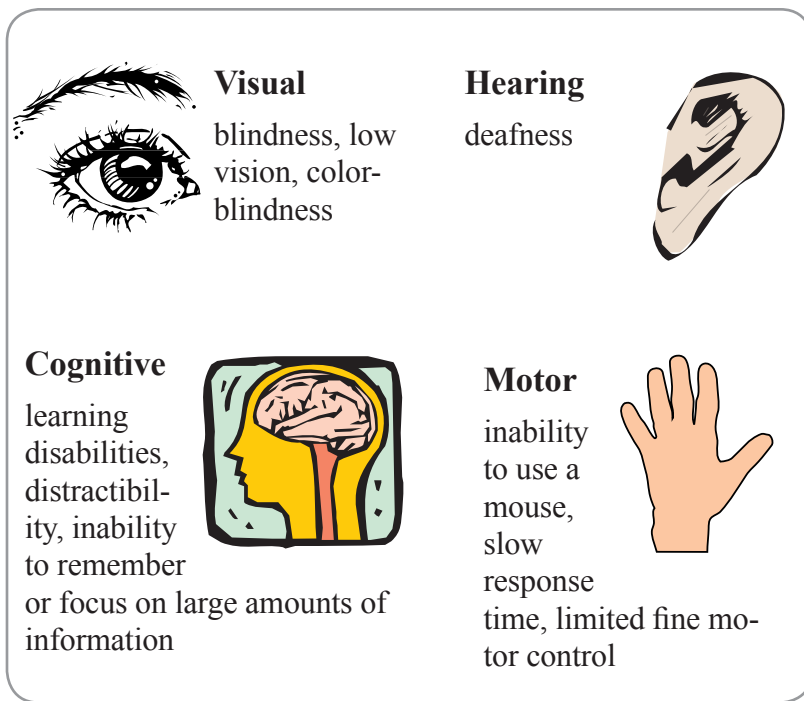
The FCC implements rules that require broadcasters, cable operators and other multichannel video programming distributors to make local emergency information that they provide to their viewers (e.g., pertaining to storms, school closings and other emergencies) accessible to persons with hearing and vision disabilities.

Americans with Disabilities Act (ADA)

The ADA in essence requires accommodation in the provision of public services and employment. The ADA empowers employees to request "reasonable accommodations" throughout the business environment, including intranet sites, software, and hardware. The ADA also is being applied to web sites of organizations and businesses, even though the ADA does not include specific guidelines for web site accessibility.

The major categories of disability types are:

Visual

blindness, low vision, color-blindness

Hearing

deafness

Cognitive

learning disabilities, distractibility, inability to remember or focus on large amounts of information

Motor

inability to use a mouse, slow response time, limited fine motor control

Above excerpts are from sources listed on pages 26-27

3b. Accessibility and Usability

What Does it Mean to be "Accessible?"

Basically, technology is accessible if it can be used as effectively by people with disabilities as by those without them. Because of the multimedia nature of the web combined with the poor design of some web sites, many Internet surfers cannot access the full range of resources this tool provides.
Some visitors:

- Cannot see graphics because of visual impairments

- Cannot hear audio because of hearing impairments

- Cannot use a mouse because of mobility impairments

- Use slow Internet connections and modems or equipment that cannot easily download large files

- Have difficulty navigating sites that are poorly organized with unclear directions because they have learning disabilities, speak English as a second language, or are younger than the average user

- Cannot contribute to audio conferences because of speech impairments

What Does it Mean to be "Usable?"

Usability refers to the ability of average users with the "standard" range of equipment or abilities to navigate and use a web site. From the web developer's standpoint, usability means designing a user interface that is effective, efficient, and satisfying.

What Is the Difference?

It is important to remember that while Section 508 is a set of guidelines to follow, the issue of usability should be given equal attention. Many design aspects that are *good* for general usability are *required* for accessibility.

It is possible for a web site to be considered usable but still not be accessible. For example, if your site provides many navigation links on the left side of every page, that would be consistent layout and