CHAPTER SEVEN: Requirements for Effective Communication

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In order to have an equal opportunity to participate in programs, services, and activities, individuals with disabilities must have access to communication that is as effective as communication provided to individuals without disabilities. This chapter reviews federal requirements for effective communication.

The chapter begins with an overview of the requirement to provide effective communication, followed by a discussion of the requirement to provide auxiliary aids and services. Examples of technologies and devices that can provide alternatives to print, oral, and aural communication are offered. The chapter continues with a discussion of other requirements concerning communications--interpreter services, Teletypewriters or Telecommunication Devices for the Deaf (TTY/TDDs), emergency telephone services, and information and signage. The chapter concludes with an examination of the fundamental alteration/undue burden exception and a brief description of structural communication features.

At the end of the chapter, a practical guide to conducting the self-assessment of policies, procedures, and resources with respect to communication is presented. Resources are provided that can be used to conduct an initial self-assessment, to conduct periodic reviews to remain in compliance, or to prepare an action plan to provide auxiliary aids and services.

AN OVERVIEW OF COMMUNICATION REQUIREMENTS

Under the federal disability regulations, One-Stop Operators and partners are required to ensure that program beneficiaries, registrants, applicants, eligible applicants/ registrants, participants, applicants for employment, employees, and members of the general public with disabilities are able to experience communication that is as effective as that provided to people without disabilities [29 CFR §37.9 (a)]. People with visual, hearing, and speech disabilities must all have the opportunity to receive and present communication in a manner that is appropriate and effective [28 CFR §35.160(a)]. People with disabilities must be able to obtain information regarding the existence and

29 CFR §37.9

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What are applicant's responsibilities to communicate with individuals with disabilities?

(a) Individuals with disabilities must be provided the opportunity to receive and present communications with beneficiaries, registrants, applicants, eligible applicants/registrants, participants, applicants for employment, employees, and members of the general public with disabilities as effective as communications with others.

location of accessible services, activities, and facilities of One-Stop entities [29 CFR §37.9 (d)]. Communication support must be provided in a manner that enables people with disabilities to participate on an equal basis with all others, unless to do so would result in a fundamental alteration in the nature of a service, program, or activity [29 CFR §37.9 (f)], or in an undue financial or administrative burden [28 CFR §35.164]. Such exceptions rarely apply.

In addition, the regulations require the use of telecommunications devices (TDDs/TTYs for telephone communication with persons who have hearing impairments [29 CFR §37.9 (c)]; that inaccessible facilities be equipped with appropriate signage directing users to a location where they can obtain information about accessible facilities; and that the international symbol for accessibility must be used at each primary entrance of an accessible facility [29 CFR §37.9 (e)].

29 CFR §37.9 (e)
What are a applicant's responsibilities to communicate with individuals with disabilities?
(1) A recipient must provide signage at a primary entrance to each of its inaccessible facilities, directing users to a location at which they can obtain information about accessible facilities.

The self-assessment must include a complete review of policies, procedures, and resources that will ensure that people with disabilities are not unlawfully excluded, segregated, or restricted in any way as the result of communication barriers. Section 504 regulation and Section 188 of WIA also contain a number of nondiscrimination requirements that result in an obligation to provide effective communication.

Providing Auxiliary Aids and Services

In order to provide equal access to public services, One-Stop Operators and partners are required to make appropriate auxiliary aids and services available whenever they are necessary to ensure effective communication [29 CFR §37.9(b)]. Upon the request of a qualified person with a disability, One-Stop Operators and partners must provide access to communication through appropriate auxiliary aids and services. Auxiliary aids and services include a wide range of services, equipment, and devices that provide effective communication to people with visual, hearing, mobility, or speech disabilities. For example, providing a qualified sign language interpreter for an individual who is deaf is an auxiliary service under the regulations. Other examples of auxiliary aids and services appear in the lists that follow.

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(b) A recipient must furnish appropriate auxiliary aids or services where necessary to afford individuals with disabilities an equal opportunity to participate in, and enjoy the benefits of, the WIA Title I--financially assisted program or activity. In determining what type of auxiliary aid or service is appropriate and necessary, such recipient must give primary consideration to the requests of the individual with a disability.

Auxiliary aids and services for people who are ***hearing impaired:***

- note takers
- computer-aided real-time transcription services (CART)
- amplified and hearing-aid compatible telephones,
- assistive listening systems
- open or closed captioning, and caption decoders
- sign language interpretation through the use of video conferencing technology
- teletypewriters or telecommunication devices for the deaf (TTY/TDDs)
- flashing alarms.

for people with ***visual*** **disabilities:**

- large print materials
- audio recordings
- computer disks or CD-ROMs
- brailled materials
- refreshable braille display
- screen reading
- screen magnification
- voice recognition software
- use of qualified readers
- providing verbal descriptions of action and visual information to enhance the accessibility of performances and presentations
- making a staff member available as a guide to enable a person with limited vision to find his or her way along an unfamiliar route
- Jobline (a toll-free telephone service that provides access to both America's Job Bank and participating state job banks)

for people with ***cognitive*** **disabilities:** (a diverse category that includes people with general processing difficulties, such as mental retardation and brain injury; and people with very specific types of deficits, such as poor short term memory, inability to remember names, learning disabilities, language delays, and more)

- readers
- writers
- communications assistants
- use of clear and concise language
- repetition
- screen readers
- tape recorders

- calculators
- voice recognition software
- audiotape recordings
- pictograms
- word prediction software
- Optical Character Recognition (OCR) system with speech synthesis/screen review capability
- voice-activated organizers (for recording facts, memos, telephone numbers, and reminders)
- graphical presentation of information. (for example, pictorial signage can assist people with cognitive disabilities to differentiate between a men's rest room and a women's rest room)

for people with ***mobility*** **disabilities:**

- adjustable workstations
- alternative keyboards
- keyboard filters that compensate for erratic movement, tremors, or slow response times
- word prediction and spell checker software programs
- keyboard macros (both software and hardware) that allow a few keystrokes to be automatically translated into multiple keystrokes
- non keyboard dependent input devices, such as "sip and puff" systems and infrared links
- mouse alternatives, such as trackballs
- word prediction software
- speech recognition software
- keyguards that increase keyboard accuracy by stabilizing the user's hand movements
- Optical Character Recognition (OCR) to convert printed documents to PC-based documents

In addition to auxiliary aids and services that are available for use today, many other technologies will undoubtedly emerge in the future that will also constitute appropriate auxiliary aids and services.

Under federal disability regulations, recipients must provide appropriate auxiliary aids and services for programs and activities whenever necessary to ensure effective communication for program participants and the public, unless providing the auxiliary aids result in an undue burden or in a fundamental alteration of the program [28 CFR §35.102 (Preamble)]. For example, upon request, One-Stop Operators

and partners may have to provide qualified sign language interpreters for members of the public at job fairs and for program participants taking part in training.

Guidelines for Determining Which Types of Auxiliary Aids and Services to Provide

29 CFR §37.9 (b)
What are a applicant's responsibilities to communicate with individuals with disabilities?
In determining what type of auxiliary aid or service is appropriate and necessary, such recipient must give primary consideration to the requests of the individual with a disability.

The regulations include a requirement that recipients must give "primary consideration" to the requests of the individual with disabilities in determining what type of auxiliary aid or service is necessary [29 CFR §37.9(b)]. This means the recipient must give each person with a disability an opportunity to request the auxiliary aid or service of his or her choice. Further, a recipient must honor this request unless they can demonstrate that another aid or service will be effective for the individual requesting the service, that the proposed action would fundamentally alter the service, program, or activity, or that the action would result in undue financial and administrative burdens [28 CFR §35.164]. Even where a recipient can demonstrate a fundamental alteration or an undue burden, the recipient must take other measures to ensure that it does not discriminate against individuals with disabilities.

Deference to the request of the individual with a disability is crucial because of the range of disabilities, the variety of auxiliary aids and services, and the various circumstances requiring effective communication. It is important to consult with the individual to determine the most appropriate auxiliary aid or service because the individual with a disability is most familiar with his or her disability and is in the best position to determine what type of aid or service will be effective.

Thoughtful planning is required to handle requests for auxiliary aids and services expeditiously. Factors that may influence whether a particular auxiliary aid or service provides effective communication include:

- **The particular needs of the person requesting the auxiliary aid or service.** As mentioned earlier, when an auxiliary aid or service is requested, primary consideration should be given to the aid or service requested by the person with a disability; otherwise, the particular individual's needs may not be adequately met in spite of the recipient's efforts, and effective communication may not be achieved.

For example, Jan, a dislocated worker who is deaf, wishes to attend a job club meeting at her local One-Stop Center. Jan is a native user of American Sign Language and knows little English. In advance of the meeting, Jan requests that the Center provide her with an interpreter who is qualified to interpret into American Sign Language. However, the school provides an interpreter who is qualified to interpret into Signed English. The Center has not provided Jan with communication that is equally effective to that provided to persons without disabilities.

- **The duration and complexity of the communication.** Longer, more detailed exchanges often require more powerful and faster modes of communication [28 CFR §35.160 (Preamble)]. For example, an exchange of handwritten notes might suffice for a deaf person who wishes to be directed to the computers in the resource room. But if that person is participating in a computer skills training class, an interpreter or other effective means of communication may be needed.

- **The context of the communication.** Environmental conditions, such as the difference between a structured office setting and an outdoor recreational setting, influence the effectiveness of various devices and techniques [28 CFR §35.160 (Preamble)].

- **The number of people involved.** Communication techniques that are effective between two people might not work well in a group context. For example, a person who has limited hearing may be able to understand one-to-one conversation in a quiet office setting, but may not be able to do so in a group setting [28 CFR §35.160 (Preamble)].

- **Importance and potential impact.** Some communications--such as those involving legal, financial, health, and safety issues--are particularly important and must be provided in ways that guard against errors, omissions, and misunderstandings [28 CFR §35.160 (Preamble)]. For example, if a person is in a discussion with a counselor to determine income-based eligibility for a program or service, it is particularly important that the person have a clear understanding of what the counselor is saying.

Recipients are obligated to respond to requests from individual members of the public for auxiliary aids and services that will enable them to benefit from the recipient's programs. However, recipients should provide certain widely distributed information in predictable alternative formats even without a specific request in order to ensure timely availability of important material. For example, a recipient might want to have its informational brochure routinely available in large print, audiotape, Braille, and computer disk formats.

Given the short time span from the awareness of an individual's need for an auxiliary aid or service to the occurrence of some programs and activities, requests may occasionally be made that cannot be met in a timely fashion. This Guide recommends that when One-Stop Centers inform individuals of upcoming programs, activities and services, they suggest that individuals with disabilities provide reasonable advance notice of their need for auxiliary aids and services. Plans should also be in place for providing acceptable alternatives to requested auxiliary aids and services. In many instances, an alternative to the original request may be appropriate. Clear communication with the person making the request is essential to finding a suitable accommodation.

For example, a One-Stop Center sponsors evening classes in computer technology. At the beginning of the semester, Jennifer, who is blind, enrolls in an introductory class and requests that the One-Stop Center provide her the training manual in Braille. The One-Stop Center does not have the training manual available in Braille. However, the Center finds the book available on CD-ROM. Jennifer accepts the accommodation offered by the Center.

TECHNOLOGIES AVAILABLE FOR ALTERNATIVE COMMUNICATION

Persons with varieties of disabilities experience varieties of barriers to effective communication. In a world of rapidly advancing technologies, alternative means of communication are becoming available to correspond to the major types of disabilities:

- visual (seeing)
- aural (hearing)
- oral (speaking)

- cognitive (a diverse category that includes people with general processing difficulties, such as mental retardation and brain injury; and people with very specific types of deficits, such as poor short term memory, inability to remember names, learning disabilities, language delays, and more)
- mobility (including the full range of motor skills and abilities)

This section reviews some of the technologies currently available to provide effective communication and suggests possible applications for One-Stop Centers. However, this description of technologies is not exhaustive. New technologies are constantly emerging.

Alternatives for Visual Communication

Materials presented in a visual format can inhibit communication with persons who are blind or partially sighted. Print materials, visual displays, signage, and computer graphics may present barriers to people with vision impairments. The following are some of the auxiliary aids and services that may be used to overcome such barriers.

Alternative Formats. It is essential that information be available in a variety of formats in order to be accessible to users with a variety of disabilities. For example, One-Stop Centers should ensure that persons who are blind or have low vision have access to materials in Braille, on audiotapes or computer disks, large print, and other formats.

Braille is a tactile representation of written or printed language. It consists of characters made up of arrangements of raised dots. Not all blind persons read Braille, but many prefer it to tapes because it is easier to scan, easier to refer back to for information, and easier to reference. Braille is sometimes the only alternative form of visual information that a deaf-blind person is able to access since tapes and large print may be inaccessible.

Many people who have limited vision are able to read large print. Print is measured in "point" size. Standard print is usually 12 point. Large print is print that is larger than 16 point, usually 18 to 22 point. Personal computers provide the option of printing enlarged documents or formatting text in various font sizes. Large print can also be produced at low cost by using a

photocopier that can enlarge. Making audiotapes or CD-ROMs of such program material as textbooks and course listings is often a good alternative to written information.

A Sans Serif type, such as Arial, is easily read by any user; however, a Serif type, such as Courier, is very difficult for low vision readers to distinguish. Bold type is not recommended because the letters have smaller centers and may appear blurred to low vision readers and because ASCII type does not recognize bold codes.

When preparing printed material, it is advisable to always provide a sharp contrast between the typeface and the background and not to prepare documents with watermarks or photographs. Upper and lower case type is easier to read than type set in all capital letters -- although a few capitalized words will generally not present a problem. Extra spaces between lines is very helpful to low vision readers, as is the practice of avoiding fully justified margins.

There are many people who are blind or visually impaired who do not read Braille or large print, and who do not own a personal computer or are not comfortable with computers. These individuals will often find audiotapes more useful. Tapes are also sometimes helpful to people with learning disabilities such as dyslexia. Tapes can be prepared in-house or by a professional taping service.

Adaptations for Computers. Many individuals who have low vision or are blind, are computer literate and use computers every day as a way of accessing information. Transmitting information by providing a computer diskette or using e-mail may be good ways to overcome the barriers created by information presented in a visual format.

Video description (also known as descriptive narration) provides viewers who are blind or have low vision with additional narrative that often enables their comprehension of a video or an electronic document containing multimedia features. Descriptive narration of key visual elements, such as settings, sounds, graphics, and actions can be inserted into a video or electronic document to enhance the blind or visually impaired viewer's comprehension of the video event. Video description is generally provided through the Secondary Audio Programming (SAP) channel that is audible only when the

channel is activated through a television or a VCR with SAP capability. More information on Video Description, is available on the Descriptive Video Service web page of The Corporation for Public Broadcasting/WGBH National Center for Accessible Media (NCAM). The website address is http://www.wgbh.org/wgbh/access/dvs/

Accommodating Computer Users With Low Vision. Computer software and hardware, assistive devices, and also simple strategies and practices, are available to facilitate input and output by computer users with low vision:

- Computers should not require user visual acuity better than 20/70

- Computers should be operable with little or no color perception.

- Software is available that controls key input acceptance rates and allows the cursor to be controlled from the keyboard instead of from the mouse.

- Screen reader software packages (also called speech synthesizers and voice output) are available to create "talking computers" that read computer screens. The process used to achieve voice output on a computer requires both a screen reader software package and appropriate speech synthesizer hardware to produce speech. Earphones can be used by speech synthesizer users in order to avoid disturbing other individuals in the same area.

- Screen magnification software or hardware can increase the size of characters on the screen up to 16 times.

- Glare Protection Screens minimize visual fatigue associated with glare on the monitor.
- Large Monitors with High Resolution (19"-25") increase character size in proportion to monitor dimensions and provide a crisp, sharp image.

- Hardware exists that can magnify any item placed under its camera; documents, drawings, phone messages, etc. can be seen enlarged on an attached monitor.

- Large print software packages are available that will print large, bold text.

- Copy machines with enlarging and reducing capability provide enlarged print copies for persons with impaired vision who find magnification helpful and small print copies for persons with visual impairments such as tunnel vision, which narrowly restricts the field of view.

- Color, contrast, and brightness can be selected by individuals to facilitate their use.

- Keyboard orientation aids, such as a raised dot can be added to certain keys such as the home row keys or the number five on the numeric keypad to give a tactile orientation to the keyboard to augment visual orientation.

- Other keyboard aids, such as adhesive backed labels that have large, bold letters can be applied to the standard keyboard keys. These labels can be purchased in either white on black background or black on white background.

Accommodating Computer Users Who Are Blind. For blind users, other accommodations have been developed:

- Screen reader software packages (also called speech synthesizers and voice output) are increasingly common and inexpensive.

- Braille printers/embossers are operated like non-Braille printers and produce hard copy that can be read and kept for reference. Transcription software is readily available to convert the word-processed text into symbols the printer can recognize.

- Refreshable braille screens translate text from a computer monitor to a device with a row of braille cells that change as each new line is presented. The individual reads the screen contents using the dynamically changing braille display.

- Optical character recognition (OCR) enables a person who is blind to independently access print material by converting printed documents to speech output or directing them to a PC equipped with a braille input mechanism.

- Keyboard enhancements such as a raised dot, or a braille marker can be added to the standard keycaps on selected keys such as the home row keys, control, or alt keys to provide tactile keyboard orientation. In addition, auditory status indicators for toggle keys, such as "shift lock" or "number lock," can often be provided by software.

- Braille translation software enables the user to enter text in standard print, translate it into a Braille hard copy for review or modification by a blind person, and then retranslate it to standard print for return to a sighted individual.

- Braille portable note taking devices consist of a keyboard with six keys and a space bar, which are used to enter Braille code for note taking, editing and storage of information. The output display can be a refreshable 20-cell display that can be connected to a Braille or standard printer, or to a personal computer for file transfers.

- Voice recognition software enables computer users who are blind or have mobility impairments, including mild to severe carpal tunnel syndrome, to give voice commands and/or mouse movements rather than use the keystroke equivalent. This application has become so popular both among people with disabilities and people without disabilities that word processing software manufacturers are beginning to add the application without charge, to their word processing packages.

- Tactile output of images, also known as tactile graphics, such as raised line drawings, may be useful for some blind individuals. Several braille printers and wax jet printers have the capability of producing raised line drawings. There are also handheld devices that use an array of vibrating pins to present a tactile outline of the characters or text under a viewing window.

- CD ROM format offers a more easily manipulated, less bulky format than braille for accessing large amounts of information, such as training manuals, guides, dictionaries, encyclopedias, and magazines.

- Telephone light pens enable individuals who are blind to use a multi button phone set and recognize which telephone line is ringing, on hold, or not in use. A light pen gives an

auditory signal when it is held next to the phone set button that is lit or blinking.

Formatting Computer Disks For People Who Are Visually Impaired. People with low vision may access documents contained on computer disks or transmitted via e-mail by using screen magnification software (e.g., Zoom Text). It is helpful to provide such documents to low vision computer users in a large font (at least 16 point type), which may negate the need for further magnification, and will improve image quality in the event that additional magnification is required. Avoid the use of color to convey information or to provide a cue (i.e., red =stop, green=go). The layout of documents will be greatly enhanced with the use of bullet points and distinct headings to separate sections of the document. Text that moves on the screen (also referred to as a banner) is very difficult to read - even for those with mild visual impairment - and should be avoided.

Documents created in electronic format present special challenges for people who are blind. Computers users who are blind can read computer documents by using a refreshable braille display or by listening to speech output. Screen reader software reads text from a word processing program or Internet browser, and can provide either braille display or a speech synthesized reading of the words on the screen. People employing this technology typically use tab and arrow controls to move through menus, buttons, icons, text areas and other elements on the screen.

ASCII text (also known as plain text) is the format that is readable by any software used by blind and visually impaired people. ASCII text has 75-80 characters per line and is free of codes such as bold, underlining, page breaks, tabs, indents, centering and bullet points.

Columns, Charts and Graphics. In documents that are accessible to persons with visual impairments, columns, charts and graphics are eliminated in favor of vertical presentation of information. Newspaper style columns are replaced with paragraph-style text, with at least two hard returns between different sets of information. Graphics, such as embedded images, should be eliminated and replaced with a text description of the graphic. Information from complex charts should be reformatted as text-based summaries in which different batches of information are separated by two or more

hard returns. Information contained in simple charts can be presented in a more concise format. Column headings should be listed on one line and separated with commas. Subsequent lines will contain related data, separated from one another by semicolons. Reformatting charts and graphs may require some experimentation to arrive at the representation that most effectively communicates the data.

The following is an example of how information from a three-column chart might be conveyed:

> In the chart below, column headings are as follows:
>
> State (in Region 1), Year of Grant, Number of Centers
>
> Connecticut; Final; 11
> Massachusetts; Final; 7
> Vermont; First; 12
>
> Total Number of Centers: 30

Graphically Based Computer Presentations. Graphics-based presentations, such as Power Point and Presentations are popular tools for producing resources that can be displayed as a slide show, on a computer screen, or printed as handouts. The graphics that are available in such programs, however, present enormous challenges. When projected on a screen, these presentations are inaccessible to a wide range of people with visual impairments. When distributed on disk, their graphic codes cannot be read by screen reader software. Although screen reader software can read the text contents of buttons, menus, and other control areas, screen readers cannot read the contents of an icon or image.

When providing graphically based information, such as maps, charts, photographs and illustrations via the Internet or on computer disk, trainers or developers should complement the information with a text description. Including text descriptions of images also accommodates computer users who have slow modems and must use text only browsers to access information on the Internet. When utilizing graphics-based presentations at conferences, workshop coordinators and other individuals making presentations can ensure that these presentations are accessible to blind and visually impaired attendees by providing the information on a computer disk formatted as ASCII text. Given adequate lead time and guidelines for preparing accessible electronic documents, presenters can generally

develop two distinct presentations: a graphics-based presentation and a plain text version. Presenters should also be instructed to provide text descriptions for audio clips used in multimedia presentations.

Portable Document Format (PDF). Portable Document Format (PDF) from Adobe is very popular on the World Wide Web because it enables the publisher to retain the look and layout of the original publication. PDF documents may be accessed using Acrobat Reader, which may be downloaded free of charge from Adobe. However, both PDF and Acrobat Reader are graphics-based; hence, inaccessible to blind computer users who read text using a screen reader or operate in text mode.

Adobe has developed methods to make PDF and Adobe Acrobat products accessible to the visually impaired. PDF documents on the Internet can be converted "on-the fly" by Adobe and read as HTML documents, which are generally accessible. This service is available through the Adobe website at *http://access.adobe.com*. Though many have had success utilizing this service on simple documents, others have experienced a much lower success rate converting documents with complex graphics. Content is lost or mislocated in the converted document. Rather than require readers to convert web-based PDF documents on an individual basis, Web page authors should provide the converted (and re-edited) document, saving their readers the time and frustration inherent in this process.

Alternatively, users can e-mail the URL of any PDF document on the web directly to Adobe at pdf2txt@adobe.com (for plain text) or to pdf2html@adobe.com (for HTML). The document will be converted to HTML or ASCII text, and returned in a matter of minutes. This option allows users to submit multiple URLs in a single e-mail message.

The Adobe e-mail option also allows users to convert documents that originate from sources other than the web, such as an individual's PC or a CD-ROM. PDF documents located on local media, such as a hard drive, CD-ROM, or internal server, can be submitted as a MIME attachment to an e-mail message. All converted PDF documents will be sent back to the sender as MIME attachments. Users who would like to receive a plain text version of their document may email the attached PDF

to pdf2txt@adobe.com. Users who would like to receive HTML versions, may email the attached PDF to pdf2html@adobe.com. Additional information on the access.adobe.com email conversion service is available at: http://access.adobe.com/access_email.html.

Another option for conversion of PDF documents is the Trace Research Center at the University of Wisconsin, which provides a translation service similar to Adobe's. Users can mail the URL of the PDF or attach the PDF document to an email message and send it to pdf2txt@sun.trace.wisc.edu (for plain text) or to pdf2html@sun.trace.wisc.edu (for HTML). The convertor will mail back the translation of the PDF file.

If PDF files are not on the Internet and the user does not want to submit a file as an e-mail attachment, Adobe offers the option of an Acrobat Access plug-in. Adobe Acrobat Access 4.0 for Microsoft Windows software is a plug-in for Adobe Acrobat software that converts PDF files on a user's local system into plain text, which can then be read by screen reading programs. This option is available to users of Windows 95, 98, or NT. Directions for installing and using the Acrobat Access plug-in are available at http://access.adobe.com/access_plugin.html

Current tools from Adobe do not provide full accessibility to PDF forms. Adobe has set up a technology demonstration of accessible PDF forms that are available for Acrobat 4.05 for Windows. Adobe cautions users that the demonstration is not intended to be a full solution but provides an illustration of future plans to enhance Acrobat accessibility. Additional components must be downloaded and installed in order to enable the PDF forms accessibility demonstration. More information on Adobe's technology demonstration is available at http://access.adobe.com/forms_demo.html

Adobe has released PDF 1.3 that contains enhancements to the PDF format for Logical Document Structure, including such elements as title page, chapters, sections, and subsections. For users who are visually impaired, access to longer, more complex documents, such as newspapers, is greatly enhanced by an understanding of the document's logical structure. A full description of current services and additional information on the upcoming version of PDF is available through the Adobe website at *http://access.adobe.com/access_whitepaper.html* .

Alternatives to Aural/Oral Communication

Aural/oral: "Aural" refers to information that is heard; "oral" refers to spoken communication. A person who is hearing-impaired experiences barriers related to aural communication. However, the same person may be able to communicate orally. A person who has a speech impairment, or a cognitive impairment that affects speech, may experience barriers in communicating orally, but have no difficulty receiving information aurally. Each person will require different auxiliary aids and services in order to be provided equally effective communication. The following are some of the most widely used devices that can assist with verbal communication.

Writing may serve as an alternative to spoken communication. Pen and paper may be an effective form in situations where communication is simple. In a more complicated situation other methods should be considered.

Computer-Aided Real-Time Reporting (CART) is a translation service for deaf or hard of hearing people who read English fluently. It has proven quite effective in training, meeting or conference settings. A trained court stenographer records the proceedings of a meeting. With computer link and translation software, the stenotype report is translated into English text on the deaf or hard of hearing person's computer with less than a one-second delay. Additional technology such as display panels and overhead projectors allow the text to be read by many persons at the same time. CART allows a person with hearing impairments to read the verbatim proceedings of a meeting or class in "real-time" and thus become an active participant. The information entered by the reporter can also be saved on a disk and printed for use as notes or a record of meeting activities. For assistance in obtaining this service, contact a local court stenotypist organization, agencies that provide interpreters, or other organizations serving people who are deaf or hard of hearing.

Assistive Listening Devices, also called assistive listening systems, can be used to enhance hearing in one-on-one situations. They may be fixed or portable. In one type of system, a speaker's microphone is connected to an FM transmitter. The listener wears a portable headset that can be used anywhere in the room and is able to receive the amplified sound. Multiple listeners can benefit simultaneously from this

type of system. It is important to note that with respect to new construction, both the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities and the Uniform Federal Accessibility Standards contain scoping and technical requirements for assistive listening systems in assembly areas [4.1.3(19)(b) and 4.33, *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* (1991) and 4.1.2(18)(b) and 4.33, *Uniform Federal Accessibility Standards* (1985)].

Text Telephone/Telecommunication Devices for the Deaf (TTY/TDDs), or equally effective telecommunication systems, are required by federal disability regulations for recipients that communicate by telephone with program beneficiaries, registrants, applicants, eligible applicants/ registrants, participants, applicants for employment and/or employees, or the general public, for communication with individuals who have impaired hearing or speech. TDDs are surprisingly inexpensive. The requirements regarding TTY/TDDs are discussed in greater detail later in this chapter.

29 CFR §37.9 (c)
What are a applicant's responsibilities to communicate with individuals with disabilities?
Where a recipient communicates by telephone with beneficiaries, registrants, applicants, eligible applicants/registrants, participants, applicants for employment, and/or employees, the recipient must use telecommunications devices for individuals with hearing impairments (TDDs/TTYs), or equally effective communications systems, such as telephone relay services.

Telephone Relay Services are required by Title IV of the ADA for use with individuals who rely on TTYs or TDDs. A TRS enables telephone conversations between individuals with hearing or speech disabilities who are using a TTY/TDD and individuals who may or may not have such disabilities, and are using traditional handsets (voice users). TRS relies on an intermediary (also called a Communications Assistant) to relay the content of telephone calls between users of TTYs/TDDs and voice users. The intermediary verbalizes the TTY/TDD message and translates the verbalized message into the TTY/TDD. The Federal Communications Commission has issued regulations specifying standards for the operation of these services.

Telephone Amplification. Many hearing aids have a telephone setting that can amplify sound if an appropriate handset is used. The telephone company can provide a handset with the appropriate magnetic field intensity to be compatible with this type of hearing aid setting. Battery-powered, portable handset amplifiers are also available. The amplifier can slip over the handset of most telephones.

Hearing aid compatible phones. When a person wearing a hearing aid attempts to use a telephone that is not hearing aid

compatible, they often hear a very loud, high pitched squeal. This can be quite uncomfortable, and often precludes using the telephone to carry on a conversation. Individuals with hearing aids should be provided with hearing aid compatible phones. The Hearing Aid Compatibility Act (Public Law 100394) required that by August 1989, all essential telephones and all telephones, manufactured in the United States or imported, "provide internal means for effective use with hearing aids that are designed to be compatible with telephones which meet established technical standards for hearing aid compatibility." Some individuals who wear hearing aids may still need an additional phone amplification device.

With respect to new construction, both the ADA Accessibility Guidelines for Buildings and Facilities and the Uniform Federal Accessibility Standards contain scoping and technical requirements for accessible public telephones equipped with volume controls [§§4.1.3(17)(b) and 4.31.5, *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* (1991) and §§4.1.2(16)(b) and 4.31.5, *Uniform Federal Accessibility Standards* (1985)]. With respect to new construction, the ADA Accessibility Guidelines for Buildings and Facilities also specifically requires hearing-aid compatible telephones [§4.31.5(1), *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* (1991)].

Signaling system. For a person who is hard of hearing or deaf, the normal sounds and tones that alert one to take action, such as a phone ringing, may not be heard. A transmitter can be attached to a phone that will cause a light to be flashed or a personal alerting device to vibrate when the phone rings. Transmitters can be used to activate a visual signaling system for fire alarms and door buzzers in addition to telephones. For some individuals, tone ringer devices that convert the ring of telephones into a frequency range more easily heard are beneficial.

Adaptations for Computers. Since operating a personal computer is essentially a visual task, users who are deaf generally do not experience significant difficulties with computer technology. However, One-Stop Centers will want to ensure that important information conveyed by beeps or speech during computer-related tasks is also displayed visually for the user unable to benefit from the auditory information. Computer operating systems often have built-in options for visually

displaying auditory alerts. If necessary, a flashing light signal should be installed that echoes the beeps.

Electronic Speech Aids. A number of devices are available that support the exchange of information electronically. Among them is a small device that accepts and displays typed text. Such a device could be kept in a One-Stop Center's resource room for ready use with customers who are deaf. Speech synthesizers may also be used to facilitate communications with persons who have speech impairments.

Captioning Television and Videotape Programming. Audio portions of television and videotape programming produced by public entities are subject to the requirement to provide equally effective communication for individuals with hearing impairments. Captioning of such programs is sufficient to meet this requirement [28 CFR §35.160 (Preamble)]. In addition to displaying spoken dialogue and music lyrics, captions may identify speakers, sound effects, background music, and laughter. "Open" captions are inherent to the actual film footage and always appear directly on the television screen; "closed" captions are hidden as encoded data within the television signal and are displayed only when activated by the viewer who is using a television or projection system that has a decoder chip. Since 1992, all televisions with screens 13"or larger are required to be equipped with the technology to display captioning, and are described as "caption-ready." Older televisions can be adapted for closed-captioning through the connection of a separate decoder box (cost under $100) to the television.

Video conferencing technologies can be an effective tool in reducing the communication barriers and lost employment opportunities faced by deaf and hard of hearing individuals. Video conferencing technologies may be used to provide remote sign language interpreting services to people who are deaf and hard of hearing. Users dial up a sign language interpreting service and a two-way audio-video hookup provides the linkage over the telephone line. Generally, the sign language interpreting service bills only for the time in which services were provided, rather than the usual two hour minimum. Higher transmission speeds through ISDN or DSL lines help minimize blurring of the images, so that the interpreter and the Deaf/Hard of Hearing user can understand one other's signs. One-Stop Centers nationwide may use this technology

for interviewing employment candidates, for mediated services, and for training deaf and hard of hearing job seekers in the use of the self-service area.

Sign Language Interpreter Services. When sign language interpretation is necessary, Title II requires that it be provided by a "qualified interpreter," that is an individual who is "able to interpret effectively, accurately, and impartially, both receptively and expressively, using any necessary specialized vocabulary" [28 CFR §35.104]. To satisfy this requirement, the interpreter must have the proven ability to effectively communicate the type of information being conveyed.

28 CFR §35.104 Definitions
Qualified interpreter means an interpreter who is able to interpret effectively, accurately, and impartially both receptively and expressively, using any necessary specialized vocabulary.

The interpreter qualifications most appropriate in each instance will vary. Certified interpreters are not required; in some cases, experienced interpreters familiar with the subject area will do a better job of capturing the content than a certified interpreter who lacks subject area expertise. It is generally not appropriate to use a family member or companion as an interpreter. The deaf or hard of hearing person has the right to request an impartial interpreter.

One commonly asked question is ***when*** an interpreter is required. Although a notepad and pen for written communication may be sufficient for simple conversations, an interpreter may be necessary when the information is complex or the exchange is lengthy. For example, a conference, training session, or public lecture should be interpreted for members of the audience who are deaf. Factors to consider in determining whether an interpreter is required include:

- Size of the conference;
- Duration of the conference;
- Number of sessions and whether they are concurrent or consecutive;
- Subject complexity;
- Number of participants requiring interpreting services; and
- Type(s) of interpreting services requested (i.e., ASL, PSE, Tactile Sign, Oral).

Depending on the cause and age at onset of hearing loss, the type of interpretation required can vary greatly. The following information may aid in understanding various types of communication modalities and interpreting services needed.

American Sign Language (ASL) is the language of the deaf in the United States. It is a unique language in and of itself, complete with its own lexicon, grammar and syntax.

English-Based Sign commonly referred to as PSE for Pidgin Sign English, is a form of manual communication in which characteristics of both English and ASL are combined.

Sign Language Interpreting is the process by which a spoken (hearing person's) or a signed language's (deaf/hard of hearing person's) message elements are linguistically analyzed and cultural and linguistic transitions are made to produce the message into the target language.

Oral/Oral Tactic Transliterating is the process by which a spoken English message is heard, then re-phrased into clearly speech-readable form for a deaf/hard of hearing (or deaf/blind person who uses speech and speech reading as primary forms of communication) to place his/her hands(s) on the interpreters mouth/face to "read" the message produced orally.

Tactile Interpreting/Transliterating is the process by which a spoken language (hearing person) or signed language (deaf/deaf/blind/visually impaired) message is produced in a manual form utilizing sign language and finger spelling, where linguistic and environmental information elements are analyzed, incorporating cultural and linguistic transitions to produce the message into the target language. A person who is deaf/blind/low vision (VI) deaf physically "reads" the communication by placing his/her hand(s) on the interpreters hand(s) and/or mouth/face, tactilly reading the communication rendered through the signs/finger spelling produced.

"Staging" issues should be considered in planning meeting forums which will take place during a conference. Five criteria for effective interpreting are:

1. Reasonable proximity to the speaker and to the consumer receiving the services;
2. A clear visual line of sight from the consumer to the interpreter to the speaker;
3. Sufficient lighting (especially during video, overhead or any presentation requiring low-level lighting);
4. Sufficient standing room (preferred minimum of 4 square feet for platform interpreting) or seated setting; and

5. Ability to hear the speaker or sound system clearly from the designated interpreting location.

Seating should be reserved for participants who are deaf/hard of hearing and deaf/blind that provides an unobstructed view of the proceedings and meets the criteria stated above.

For assistance in obtaining and scheduling interpreting services, local area resources may include a State's Department for the Deaf and Hard of Hearing (or equivalent agency), or agencies that specialize in Sign Language Interpreter Services. A referral for local sign language interpreter services can often be obtained through a State Vocational Rehabilitation Office. In addition, The Registry of Interpreters for the Deaf, a national organization of professional sign language interpreters/transliterators, can provide information on interpreting resources in a local area. It can be reached by phone at 301-608-0050.

Accommodations for People with Cognitive Impairments

Cognition includes all of the brain's mental input and output. People with cognitive impairments experience symptoms that affect the ability to think, perceive, act, or react. Cognitive limitations of varying degrees can be found in people who have been classified as having a learning disability, mental retardation, autism, or brain injury. People who have been diagnosed with a mental illness, such as severe depression and schizophrenia may also experience cognitive limitations. Research has shown that a significant percentage of welfare program beneficiaries often described as "hardest to serve," have previously undiagnosed, cognitive limitations, including learning disabilities.

Effective communication requires the cognitive ability and skill to use language and other processes such as attention, memory, self-awareness, organization, and problem solving. Although the need for reasonable accommodations may seem less obvious, people with cognitive impairments often benefit from the same solutions and technology that assist people with visual and aural/oral communication limitations. In general, software that is designed to be user friendly can facilitate self-service access for people with cognitive impairments. Increase the accessibility of computers and software by:

- Utilizing a Multimedia/multi sensory approach that combines auditory and visual elements to provide reinforcement of the information presented

- Ensuring that all messages and alerts remain on the computer screen until they are dismissed by the user

- Using simple and consistent screen layouts

- Using easily interpreted icons with accompanying text description

- Using on-screen language targeted at elementary school levels

- Avoiding blinking or scrolling objects or text, which can be highly distracting for some people

Examples of computer hardware and software available to assist people with cognitive impairments include:

Screen reader software packages provide auditory reinforcement of the information on the screen.

Optical Character Recognition (OCR) system with speech synthesis can scan and convert printed materials into computer documents that can be read by a speech synthesizer. This technology can improve comprehension for a person with poor reading skills.

Voice recognition software enables the user to operate the computer by giving voice commands. This technology may assist people who have good oral language skills but experience limitations in their written language skills.

Captioning television and videotape programming can aid people with certain cognitive impairments by focusing their attention and enhancing their ability to process information.

Video description can contribute to increased understanding of the visual elements of television, videotape, or computer-based programming.

Word processing software enhancements, such as spell checkers, word prediction capability, grammar check,

dictionaries and thesauruses, proofreading, and word echo functions all assist persons with various cognitive impairments.

FM amplification devices can enhance an individual's ability to concentrate on a speaker and ignore distracting noises.

CART is very effective in group meetings, such as workshops, and on-the-job training. The information entered by the reporter can be saved on a disk and printed out for users with cognitive impairments.

Accommodations for People with Mobility Impairments

Even the most sophisticated technology will not help One-Stop customers with mobility impairments if it is not physically accessible to them. If a customer using a wheelchair can not get close enough to reach the mouse, the computer is not accessible regardless of other accessibility features it may have. Listed below are factors to keep in mind when evaluating the technology in a One-Stop Center for accessibility for people with mobility impairments:

- Computers should be operable with limited reach and strength

- Computers should be operable with limited manual dexterity (functions should not require fine motor control or simultaneous actions).

- Sticky keys are an accommodation that allows people who are unable to hold down two or more keys simultaneously (e.g., CTRL+ALT+ DEL) to get the same result by typing one key at a time.

- Voice input software (e.g., DragonDictate) allows the user to give oral commands that the computer types on the screen.

- A form of track ball may be easier to operate than a mouse.

- Alternative input devices can allow individuals to control their computers through means other than a standard keyboard or mouse. Examples include alternative keyboards, eye-gaze, and head pointing devices that operate via infrared links.

- Headmaster8 is an alternative input device that attaches to the user's head and controls the on-screen keyboard via an infrared link. Individuals using the Head Master sip and puff through a plastic straw-like device to activate keys on the screen.

TELEPHONE COMMUNICATIONS

Section 188 regulations require that where the grant recipient communicates by telephone with beneficiaries, registrants, eligible applicants/registrants, participants, applicants for employment, and /or employees, the recipient must use telecommunications devices for individuals with hearing impairments (TDDs/TTYs) or equally effective communications systems, such as telephone relay services [29 CFR §37.9 (c)].

29 CFR §37.9 (c)
What are a applicant's responsibilities to communicate with individuals with disabilities?
Where a recipient communicates by telephone with beneficiaries, registrants, applicants, eligible applicants/registrants, participants, applicants for employment, and/or employees, the recipient must use telecommunications devices for individuals with hearing impairments (TDDs/TTYs), or equally effective communications systems, such as telephone relay services.

Sometimes called text telephones (TTs), teletypewriters (TTYs), or telecommunications device for the deaf (TDD), these devices provide a printout or digital display that enables a person who is deaf or hard of hearing to hold a two-way conversation through the written word. TTY/TDD users type and read messages over the telephone lines rather than talking and listening to telephone conversations. A personal computer can be configured to function as a TTY/TDD by adding a compatible modem that supports both the Baudot code of older TDDs and the ASCII code of the personal computer. PC-based TTY/TDD delivery should allow for call announcement and pickup without exiting other applications. There are PC based TTY/TDD options available with a vertical or horizontal split-screen feature, enabling a person who is deaf to have a more natural conversation with a person who is not deaf. There is also networking software available that enables organizations to use their existing computer network to provide deaf clients, customers, and employees using TTY/TDD with communications access to everyone within the organization.

TTY/TDD with refreshable braille display enables deaf/blind individuals to communicate with sighted individuals by accessing the telephone system in the same way a standard TDD user would. Instead of reading the text displayed visually, the deaf/blind individual reads the refreshable braille display unit.

Where communication by telephone is a major function of a particular component within a One-Stop delivery system, TTY/TDDs should be available [28 CFR §35.161 (Preamble)]. Also, if a recipient does not presently make any public pay telephones available to program participants, employees, employment applicants, or the public, but does allow people without disabilities to use an office telephone to communicate with their staff, the recipient may be specifically required to provide a TTY/TDD so that people with hearing or speech impairments have a similar ability to communicate effectively with others. Where TTY/TDDs are installed, recipients should ensure that all employees who would use the TTY/TDDs are trained in their proper use.

It is important to note that, with respect to new construction and alterations to existing buildings and facilities, the *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* contains scoping and technical requirements for TTY/TDDs [§§4.1.3(17)(c), 4.1.6(1)(e), and 4.31.9, *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* (1991)]. The *Uniform Federal Accessibility Standards* do not contain specific requirements regarding TTY/TDDs.

Telephone Relay Services

A telephone that is not equipped with a TTY/TDD device can be enabled to receive a call from a TTY/TDD user if a relay system is used to provide a spoken interface. Telephone Relay Services (TRS) employ a Communications Assistant as an intermediary to relay the content of telephone calls between TTY/TDD users and voice users. The Communications Assistant verbalizes the TTY/TDD message and translates the verbalized message into the TTY/TDD.

Title IV of the ADA requires all common carriers that provide telephone voice transmission services (i.e., telephone companies) to provide telecommunications relay services (TRS) throughout the area in which they provide service. Telephone relay services required by Title IV generally may be used to meet the disability requirement that recipients provide TTY/TDDs or equally effective telecommunication systems. Toll-free TRS services are available 24 hours a day, seven days a week.

The Section 188 regulations require that where such relay services are available, a recipient may use these services to meet the requirements for equally effective communication. However, where the grant recipient has extensive telephone contact with the public, or where the provision of telephone services is a major function of the recipient, the recipient should use TDDs/TTYs to ensure more immediate access [29 CFR §37.9 (c)].

Toll-free TRS services are now available round the clock in every state, including the District of Columbia, Puerto Rico, and all US territories. TRS also provides telephone access between standard voice telephone users and people who can hear clearly but have difficulty speaking over the telephone and prefer to use a TTY/TDD, or people whose speech is difficult to understand and prefer to communicate through a trained Communications Assistant who repeats the caller's words. This type of relay, called speech-to-speech relay services (STS), is not available in all States at this time; however, the FCC will require STS in all relay programs by March 1, 2001.

On July 21, 2000, the FCC required all telecommunications carriers nationwide to implement three-digit, 711 dialing access to all TRS services, and mandated an implementation period of one year. TRS users will no longer have to search for the relay numbers of the other states or dial a 7 or 10 digit number to initiate relay calls. To learn more about the TRS and to access information on your state's relay service, visit the Federal Communications Commission's (FCC) website at: http://www.fcc.gov/cib/dro/trs.html.

EMERGENCY TELEPHONE SERVICES

28CFR §35.162
Telephone emergency services. Telephone emergency services, including 911 services, shall provide direct access to individuals who use TDDs and computer modems.

Many public entities provide telephone emergency services by which individuals can seek immediate assistance from police, fire, ambulance, and other emergency services. These telephone emergency services--such as "911" services--are clearly an important public service whose reliability can be a matter of life and death.

Under Title II of the ADA, public entities that operate telephone emergency services must provide direct access to individuals who use TDDs and computer modems for telephone communication [28 CFR §35.162]. This provision affects all

One-Stop delivery systems that provide such services. "Direct access" means that emergency telephone services are able to receive calls from TTY/TDDs and computer modem users *without* relying on outside relay services or third-party services. A public entity may, however, operate its own relay services within its emergency system, provided that the services for non-voice calls are as effective as those provided for voice calls in terms of time response.

ELECTRONIC AND INFORMATION TECHNOLOGY

Computers and other electronic and information technologies are present in almost all workplaces and are an integral part of daily living. At the same time, the pace of advancement in electronic and information technology is rapid and the level of innovation is high. Given the accelerated pace of change, public entities purchasing new computer programs or electronic equipment either for their workplaces or for the delivery of program services, run the risk that these new purchases will be inaccessible to people with disabilities.

One-Stop Operators, partners, and other public entities will have access to additional guidance on providing accessible electronic and information environments when the Access Board publishes revised ADAAG standards in the year 2000. The Access Board will define the term “electronic and information technology,” and will likely include: computers (such as hardware, software, and accessible data such as web pages), fax machines, information/transaction machines (such as ATM's, kiosks, and fare card machines), copiers, telephones, voice-mail systems, pagers, facsimile machines, and related technology), and other equipment used for transmitting, receiving, using, or storing information.

The Access Board’s standards will be helpful to any public or private entity seeking to provide an accessible electronic and information technology environment to people with disabilities, but will specifically address compliance with Section 508 of the Rehabilitation Act of 1973. Section 508 requires that electronic and information technology developed, procured, maintained, or used by the Federal government be accessible to people with disabilities. The Workforce Investment Act of 1998 includes Amendments to the Rehabilitation Act that significantly expand the technology access requirements of Section 508.

Section 508 of the Rehabilitation Act

Section 508 requires that any electronic and information technology developed, maintained, procured, or used by Federal agencies' be accessible to people with disabilities, including employees and members of the public, unless it would pose an undue burden to do so.

Section 508 regulates only the federal government; however, the Department of Education interprets the Assistive Technology Act (AT Act) to require States receiving assistance under the AT Act to comply with section 508, including the standards established by the Access Board. In other words, though Section 508, on its face, is "limited to the Federal sector," recipients of Federal funds under the AT Act must also comply with Section 508. The Department of Education, which is the agency responsible for administering the AT Act, is developing guidance to explain how the proposed standards will be applied to the States for purposes of the AT Act. In the interim, the guidelines that are available to assist federal government agencies with compliance are valuable as a technical assistance tool for all state and local government entities (including WIA Title I grant recipients) seeking to provide accessible electronic and information technology-dependent services to people with disabilities.[1]

Additionally, the US Attorney General distributed a memorandum on April 2, 1999, to the heads of all Federal agencies advising them of Section 508 and its implications, and requiring all federal agencies to conduct a self-evaluation of their current electronic and information technology. The US Department of Justice has prepared a packet of materials to assist with Section 508 compliance. It includes the document, "Information Regarding Section 508 of the Rehabilitation Act;" a list of resources that could be consulted in developing accessible electronic and information technology; and a questionnaire, including accessibility checklists for computer hardware, software, web pages, Information/Transaction

[1]On July 13, 2000, President Clinton signed into law an appropriations bill that includes an amendment to section 508 of the Rehabilitation Act. The amended language delays the effective date for the enforcement provisions of Section 508 to 6 months from publication of the Access Board's final standards. Additional information on Section 508 is available at the Federal Information Technology Accessibility Initiative's website at: http://www.section508.gov/ .

Machines (ITM's) such as kiosks, and other Information Technology Equipment, such as computer printers, and fax machines. The Justice Department's 508 package, including accessibility checklists may be obtained at http://www.usdoj.gov/crt/508/508docs.html. The accessibility checklists are also included in Appendix **XXX**.

The Department of Justice Civil Rights Division has prepared a first report of the Executive Branch-wide section 508 evaluation. The report, entitled ***Information Technology and People with Disabilities: The Current State of Federal Accessibility,*** also recommends specific inexpensive, cost-effective, and easily accomplishable measures to improve the extent to which federal agencies' technology is accessible to people with disabilities. By following these recommendations, agencies will facilitate their compliance with the general nondiscrimination and reasonable accommodation requirements of sections 501 and 504 of the Rehabilitation Act. The Report may be viewed at: http://www.usdoj.gov/crt/508/report/content.htm.

Universal Design

The issue of access to technology is critically important in the purchase of computer hardware and software as One-Stop customers are increasingly seeking information and services through the computer. Technology-dependent self-service enables One-Stop Centers to provide quality services to job-seekers and employers. One-Stop Centers can ensure that technologies are accessible to people with disabilities by designing information environments and products that provide benefits usable by all people, to the greatest extent possible, without the need for adaptation.

Universal design has been defined as "the process of creating products (devices, environments, systems, and processes) which are usable by people with the widest possible range of abilities, operating within the widest possible range of situations (environments, conditions, and circumstances). It involves designing products so that they are flexible enough to be directly used (without requiring assistive technologies or modifications) by people with the widest range of abilities and circumstances as is commercially practical given current materials, technologies, and knowledge; and designing products so that they are compatible with the assistive technologies that might

be used by those who cannot efficiently access and use the products directly.[2]

An example of universal design in the physical environment is the presence of curb cuts that enable people with mobility impairments, parents pushing baby strollers, and travelers pulling luggage carts to navigate safely and easily across city streets. An example of universal design in the electronic environment is the presence of closed-caption decoders in all television sets over 13 inches. This technology was initially developed to provide access to people who are hard of hearing or deaf, and has become a widely used feature by people with a range of abilities, and under a variety of environments, including people for whom English is a second language, by adults who are working to improve their literacy skills, and by people who are working or socializing in noisy environments. Another example is a voice controlled computer that enables users with visual impairments, users with learning disabilities, and users performing other tasks with their hands to access information through the computer.

Assistive Technology

One-Stop Operators and partners can often use adaptive or assistive technology as an auxiliary aid or service to make existing information technology accessible to people with disabilities. Assistive technology is defined as "any item, piece of equipment, or product, whether acquired commercially, off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities" [29 USCA §3002 (a)(3) the Assistive Technology Act of 1998]. Examples include refreshable braille display, screen magnifiers, screen readers, voice recognition, amplification devices, and alternative mouse devices and keyboards. In many cases, the added technology tools will enhance ease of operation by other users, such as people who access information better by hearing than by seeing. With contemporary information technology advancements, many assistive technology devices are available at very low prices.

[2](Dr. Gregg Vanderheiden, Trace Research and Development Center, University of Wisconsin-Madison, "Universal Design, What it is and Isn't", 5/6/96)."

Software Enhancements or Adjustments

It is important that all of the computer software in the Center be compatible with any assistive devices that are commonly used by people with disabilities. This allows persons with disabilities to navigate the One-Stop Center and resources without having to request special assistance.

The following provisions can be used as guidelines by information technology specialists when assessing software for compatibility:

- All information and control mechanisms should have external electronic access

- Information needed for the operation of products (e.g., output; alerts; icons; on-line help; documentation) should be available in a standard electronic text format on a cross-industry standard port[3]

- Input to and control of products should allow for real time operation by electronic text input into a cross-industry standard external port and in cross-industry standard format

- The cross-industry standard port should not require, but should provide for, manipulation of a connector by the user

- The software should allow for use without time-dependent controls, or allow the user to modify the timing parameters of any required timed responses

The Government Services Administration, Information Technology Accommodation Division (CITA), has developed a handbook that provides guidance to Federal managers and other personnel on making information resources accessible to users with disabilities. This document is available at http://www.itpolicy.gsa.gov/cita/front.htm. Although the guidelines are targeted to federal agencies, they are useful by any agency or group that must provide an information environment that is accessible to its employees and to the general public.

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[3]On a computer, ports are those locations where information goes into and/or out of the computer. Internally, computers have ports for connecting disk drives, display screens, and keyboards. Externally, computers have ports for connecting modems, printers, mouse, and other peripheral devices.

Website Accessibility

While the most commonly used method of ensuring access to web-based information is to provide both graphic-based and text-based versions of documents, a common complaint among blind computer users is that text versions of documents are often neglected and rarely updated after initial dissemination. Provide web masters with a reminder to update **both** versions of a website. Descriptive text should be provided in conjunction with any graphics used on web-based documents. HTML 4.0 provides the alternative text tag (also know as an "ALT Text" or “ALT Tag”) for graphics, and some authoring tools such as HotMeTal Pro, HotDog Pro, and Corel Web Designer have built-in prompts for alternative text.

Web pages should be tested using different combinations of screen reading and web browsing software. Screen reading software includes JAWS for Windows, Window-Eyes from Henter-Joyce, and Win Vision from Arctic Technologies. Web browsers typically used by people who are blind include Mosaic, Lynx for Unix, PWWebspeak, and Internet Explorer (preferably version 5). Although Internet Explorer works well with the latest versions of screen reading software, many blind computer users reported that Netscape Navigator at the time of version 4.05 did not work as well. However, the IBM web browser, Home Page Reader 2.5, functions in conjunction with Netscape Navigator and has the capability to speak web-based information just as it is presented on the computer screen. Home Page Reader provides the user with audible descriptions of graphics, tables, text in column format, and data input fields. Home Page Reader does not yet support JavaScript, which is frequently used to create complex, interactive websites, and users are advised that a screen reader program is still needed in order to use Home Page Reader successfully.

When investigating their information technology, One Stop Access Teams should remain cognizant of the fact that the pace of innovation and development remains rapid and that by the time a team is convening, all of the products mentioned in the preceding or other paragraphs may have been completely superseded by more accessible ones. Teams should conduct the necessary research to find the best products that have become available to facilitate website access as well as other information technology access.

Web pages that activate Java applets remain problematic for blind people using screen access technology. Applets written in the Java programming language can be included in an HTML page, in much the same way as images are included. Since Java is a versatile language that runs virtually everywhere, it has been widely adopted for Web and Internet applications. The accessibility problem arises because once a Java applet has been activated, screen access technology has great difficulty keeping track of what the applet is doing. Although Java creator Sun Microsystems has developed Java accessibility features to make Java-based software compatible with assistive technologies, many products have not yet incorporated these into their designs. Users should be given the option to access a service without having to run the Java applet. For an overview of Java Accessibility features from Sun Microsystems, visit their website at http://java.sun.com/products/jfc/jaccess-1.2.2/doc/guide.html. To see guidelines developed by IBM for writing accessible applications using Java, visit the website: http://www.austin.ibm.com/sns/snsjavag.htm

Website Accessibility Guidelines

The National Federation of the Blind (NFB), has produced guidelines that ensure maximum accessibility and usability of Web pages by people who are blind. Please refer to Attachment **XXX** or the full list of guidelines.

In 1997, the World Wide Web Consortium (W3C) launched an Initiative to achieve Web Accessibility for people with disabilities. The W3C's guidelines for web content, authoring tools, and browsers are included in the Department of Justice Section 508 packet mentioned above; they are also available at the W3C website: http://www.w3.org/TR/WAI/.

Cascading Style Sheets

W3C developed a language called Cascading Style Sheets (CSS), which allows web page authors to separate or apply stylistic information (e.g., fonts, spacing, color, and aural cues) to the content of documents written in HTML or XML. CSS2 supports media-specific style sheets so that web page designers may tailor the presentation of their documents to a variety of visual browsers, aural devices, printers, braille devices, and handheld devices. An added advantage of CSS

is that designers who use it no longer have to develop both graphics-based and text-only versions of their website. Information on CSS and W3C activities is available at their website: http://www.w3.org/TR/CSS-access.

Bobby

While Cascading Style Sheets represent the future of Web page authoring, Web designers can ensure that their current web pages are accessible to persons with visual impairments by utilizing Bobby, a free, graphical web-based program. Bobby will perform a series of tests to determine the ways in which a web site is inaccessible to people with a range of disabilities. In order to earn Bobby accessibility approval, web page designers must incorporate elements of HTML 4.0. Bobby can be accessed at http://www.cast.org/bobby.

Web Access Symbol

The Corporation for Public Broadcasting/WGBH National Center for Accessible Media (NCAM) has developed a Web Access Symbol that may be pasted into documents in electronic or printed form. The symbol, which is free of charge, may be used by web designers to signal that their site contains accessibility features to accommodate the needs of computer users with disabilities. The image, which consists of a globe, marked with a grid, tilted at an angle, and with a keyhole cut into its surface, should also be accompanied by its description and the following alt-text tag: Web Access Symbol (for people with disabilities). It is available at: http://www.wgbh.org/wgbh/pages/ncam/webaccess/symbolwinner.html. ; or ftp.wgbh.org.

Kiosks and Information/Transaction Machines (ITMs)

Kiosks are interactive public terminals that are classified as Information/Transaction Machines (ITMs). Other examples of ITMs are automatic teller machines (ATMs), fare machines, ticket vending machines, and electronic building directories.

Kiosks have become an increasingly popular option for State and Local One-Stop delivery systems that must either serve One-Stop customers over large, remote geographic areas, or that wish to enhance service delivery by placing the kiosks in high volume locations, such as shopping malls. Like computers

and websites, kiosks can be made accessible to individuals with disabilities. The Trace Center at the University of Wisconsin works directly with computer companies, software engineers, and government agencies to integrate access features and enhancements into standard kiosks and other devices to make them operable by people who would not otherwise be able to use them.[4] These features do not add substantially to the cost of each kiosk. Information on making kiosks and other ITMs accessible can be found on the Trace Center's website at www.trace.wisc.edu/world/kiosks.

Kiosks and other types of ITMs are covered under the ADA. Specifications for ATMs have generally been held to apply to all types of ITMs. One-Stop Operators and their partners should provide their kiosk developers both the ADAAG guidelines on ATMs and the Trace Center's guidelines included in "Making Information/ Transactions Machines (ITMs) Accessible." The ADAAG guidelines on ATMs are located in section 4.34 of the ADAAG at http://www.access-board.gov/adaag/html/adaag.htm#4.34. The Trace Center's guidelines can be found at http://trace.wisc.edu/world/kiosks//itms. It is generally the case that, when kiosks are designed to be accessible to people with disabilities, they are made more accessible or user-friendly to all people.

Information from kiosks should be made available in more than one format to accommodate individuals with disabilities. For example, oral information should also be provided in alternative text format to accommodate individuals who are Deaf/Hard of Hearing. Likewise, text information should also be provided through a voice output mechanism integral to the kiosk or accessible by means of an external connector or infrared link. An accessible kiosk has the capability to present information in a variety of formats (graphic, verbal, braille, etc.) through connection to an assistive device.

Touch Screen Kiosks

Touch screens have historically been difficult to use by individuals who are blind, since the number and location of the keys or "hot spots" on the touch screen continually change

[4]The Trace Center has been funded as a Rehabilitation Engineering Research Center through the National Institute on Disability and Rehabilitation Research (NIDRR), at the US Department of Education.

during use, and there are no tactile indicators of the number or location of such keys.

The Trace Center's "EZ Access Features" provide a means to access virtually all of the information and varieties of interfaces on touch screen-based kiosks. The Center's "EZ Access Features" can be built into standard commercially available kiosks–and also computer workstations–making them accessible to a wide range of people, including people with low vision, blindness, reduced hearing, deafness, physical disabilities, and people who have difficulty or are unable to read. EZ Access Features options include: Talking Touch and Confirm, Speed List, Auto Scan, hearing aid compatible handsets or a headphone jack, and an infrared link. For example, the Talking Touch and Confirm feature enables the kiosk to speak information that appears on the screen, including descriptions of icons or graphics. Users activate selections by touching a "confirm" button. The Talking Touch voice can be regulated to adjust speed, pitch, or volume; and, an on-screen QWERTY keyboard accommodates a range of additional disabilities. The Speed List feature provides people who are blind with easy access to information in the form of a vertical list on the touch screen. The items are read aloud when a finger runs down the list. Selections are activated by pressing a separate confirmation button. Blind users are frequently able to select the same information as sighted users at a faster rate. Finally, an infrared link enables people with a wide range of disabilities to use their own assistive device in conjunction with the kiosk. Like remote controls used for televisions and stereos, the device is not physically connected to the kiosk, yet all buttons and actions are controllable via the infrared link. The Trace Center has additional information on the EZ Access features, including guidelines on implementation of their EZ Access(tm) accessible user interface on their website at: http://trace.wisc.edu/world/ez/.

PROVIDING ASSISTANCE AT MEETINGS

Registration

One-Stop Operators and partners can also ensure that individuals with disabilities who will be attending meetings, training sessions, and conferences sponsored by the One-Stop delivery system are provided access to communication that is

as effective as the communication all participants receive by utilizing registration forms that include assistive service request options to help identify the needs of participants with disabilities and allow for the arrangement of accommodation prior to events. The example on the following page suggests language that can be included on a registration form.

Meeting Planning

Conference and meeting planners can more easily accommodate a diverse audience by knowing in advance which accessible formats should be provided. Walk-ins can easily be accommodated by having a few additional copies of the conference binder on computer disks in ASCII text format, and large print and braille versions of selected documents, such as the conference agenda. Because brailled documents are quite voluminous, blind conference attendees will frequently prefer a copy of the agenda in braille, and the remainder of the conference or meeting binder on computer disk in ASCII text format. As an additional accommodation, electrical outlets should be available at the conference site, so that attendees who are blind/visually impaired can plug in laptop computers and browse through the disk copy of the conference binder, rather than having to return to their hotel rooms to review conference materials and select conference sessions.

Accessibility Assistance for Persons with Disabilities

If you have a disability, please specify which, if any, of the following services and/or formats you prefer to have available at the conference.

Interpreting and other services for the Deaf/Hard of Hearing (please chose one):

Interpreting:	**9** ASL	**9** Signed English	**9** Tactile	**9** FM Loop
Transliteration:	**9** Sign	**9** Tactile	**9** Oral	
	9 Other (Please specify): _____			

Alternative Formats for the blind or visually impaired (please choose one):

Alternative Formats:	**9** Large Print	**9** Regular Print	**9** Braille
	9 3.5" Disk	**9** Audiotape	
	9 Other (Please specify): _____		

If you plan to bring a personal assistant (e.g., attendant, interpreter, etc.) please provide the name as it should appear on the name badge. (Registration fees will be waived for this individual.)

Name of Assistant: _____

More frequent breaks, good lighting, and quiet areas for reflection, and "decompressing" are good ways of accommodating conference or meeting attendees with cognitive disabilities, and are beneficial to all attendees. These accommodations will ensure that all participants remain fresh, focused and productive. Once the meeting planner is certain that procedures are in place to make events accessible to as wide an audience as possible, contact key disability consumer groups and keep them informed of all upcoming conferences and events. (This is an effective tool for reaching potential attendees with disabilities.)

The President's Committee on Employment of People with Disabilities (PCEPD) has produced guidelines on how to communicate with and about people with disabilities. PCEPD points out that "we must look beyond the disability and look at the individual's ability and capability -- the things that make each of us unique and worthwhile." Refer to Attachment **XXX** for the full list of guidelines.

Information and Signage

As mentioned earlier in the chapter, Section 188 requires appropriate signage at all inaccessible facilities directing users to a location where they can obtain information about accessible facilities; and that the international symbol for accessibility must be used at each primary entrance of an accessible facility [29 CFR §37.9 (e)]. This provision mirrors the Title II provision that covered entities must ensure that interested persons, including persons with impaired vision or hearing, can obtain information about the existence and location of accessible services, activities, and facilities [28 CFR §35.163(a)]. Signs must also be placed at all inaccessible entrances to each of the recipient's facilities directing users to an accessible entrance or to a location where information about accessible facilities can be obtained [28 CFR §35.163(b)]. The international symbol for accessibility must also be used at each accessible entrance of a facility.

28 CFR §35.163
Information and signage.
(a) A public entity shall ensure that interested persons, including persons with impaired vision or hearing, can obtain information as to the existence and location of accessible services, activities, and facilities. (b) A public entity shall provide signage at all inaccessible entrances to each of its facilities, directing users to an accessible entrance or to a location at which they can obtain information about accessible facilities. The international symbol for accessibility shall be used at each accessible entrance of a facility.

Under the Title II regulation, where TTY/TDD-equipped pay phones or portable TTY/TDDs exist, clear signage should be posted indicating the location of the TTY/TDD. Also, the Department of Justice recommends that, in large buildings that have TTY/TDDs, directional signage indicating the location of available TTY/TDDs should be placed adjacent to banks of telephones that do *not* contain a TTY/TDD [28 CFR §35.163 (Preamble)].

Section 504 contains a notice provision similar to the Title II and Section 188 regulations. Recipients of federal financial assistance must adopt and implement procedures to ensure that interested persons, including persons with impaired vision or hearing, can obtain information about the existence and location of services, activities, and facilities that are accessible to persons with disabilities.

29 CFR §37.9 (f)
This section does not require a recipient to take any action that it can demonstrate would result in a fundamental alteration in the nature of a service, program, or activity.
(1) In those circumstances where a recipient believes that the proposed action would fundamentally alter the WIA Title I--financially assisted program, activity, or service, the recipient has the burden of proving

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possible, individuals with disabilities receive the benefits or services provided by the recipient.

FUNDAMENTAL ALTERATIONS OR UNDUE BURDENS

None of the federal disability regulations require a One-Stop Operator or partner to take any action that would result in a fundamental alteration in the nature of a service, program, or activity, or in an undue financial and administrative burden [28 CFR §35.164]. This guide has previously discussed fundamental alterations and undue burdens within the contexts

of policies, employment, and program and facility accessibility. The provision is similar in the case of auxiliary aids and services.

When a One-Stop Operator or partner cites a fundamental alteration in a program or service or an undue burden as a reason for failing to provide a requested auxiliary aid or service, the regulations place the burden of proof on the entity. A decision regarding whether there is a fundamental alteration or an undue burden must be based on *all* of the resources available for use in the funding and operation of the service, program, or activity [29 CFR §37.9 (f); 28 CFR §35.164].

Under Title II, the decision that compliance would result in an undue burden or fundamental alteration must be made by the head of the public entity or his or her designee. This person should be a high level official--no lower than a department head--who has budgetary authority and who customarily makes spending decisions such as the one in question. In addition, the decision must be accompanied by a written statement of the reasons for that decision [28 CFR §35.164; 29 CFR §37.9 (f)(2)].

Claiming that an undue burden or fundamental alteration exists does not relieve a public entity of its obligations to provide access for persons with disabilities. Even if an entity is not able to undertake a particular measure in order to provide equally effective communication, it must still take other measures, to the maximum extent possible, to ensure that it does not discriminate against individuals with disabilities in any of its activities, programs, services, or benefits [29 CFR §37.9 (f)(3); 28 CFR §35.164].

STRUCTURAL COMMUNICATION FEATURES

Communication features that are structural in nature are those that are fixed or built into the facility. These are not considered auxiliary aids; rather, they are part of the review of the facility for program accessibility. Examples of structural communication features include:

- flashing signals to inform people with hearing disabilities of a fire alarm;

- tactile signage with raised letters to enable people with visual disabilities to use an elevator panel or identify rest rooms, specific room locations, and exits;

- sound amplification devices such as public address systems and amplified receivers to increase the audible information that people with limited hearing are able to perceive; and

- FM broadcast systems to transmit amplified sound to people with limited hearing or descriptive information to people with limited vision.

See Chapter Six for a discussion of requirements related to the assessment of program and facility access.

IMPLEMENTING THE REVIEW OF COMMUNICATIONS

Federal nondiscrimination regulations require that public entities provide communications for persons who have disabilities that are as effective as those available to persons who do not have disabilities. To ensure that this requirement is met, One-Stop Operators and partners should review both their written policies and the actual communications practices of all programs, activities, and services. The required level and quality of communication accessibility has increased over the past decade. As a result, a recipient's self- assessment may well result in the development of new policies and procedures and require significant additional resources.

The approach presented here begins with the orientation of the access team to the communications review. Often, the communications review is combined with the review of policies and practices to ensure conformity with nondiscrimination requirements (Chapter Four) and program accessibility requirements (Chapter Six).

The review focuses on communications throughout the One-Stop delivery system to determine areas in which alternative forms of communication are required, but may be currently unavailable. Finally, information obtained from the communications self-evaluation should be summarized and reviewed carefully by the team to identify current procedures that should be modified, to determine purchases and procurements that should be made or planned to facilitate communication, and

to note appropriate sources from which to obtain auxiliary aids and services.

Prepare to Conduct the Review

The review of each recipient's *written policy* may have been conducted in conjunction with the assessments of Chapter Four. A review of One-stop system-wide *communications practices* is also required. This review may be conducted by the access team, by a designated staff, by individuals selected for their expertise regarding communications (including consultants), by trained program staff, or by other appropriate individuals. However, it is the recommendation of this Guide that program staff be actively involved in the review of both policies and practices for the following three reasons:

1. Involving program staff in the early stages of review is often the best way to enlist their understanding and support for implementing change later in the process.

2. The review may identify programs that have communication resources and expertise in place that will be useful to other programs or to the entity as a whole.

3. The process can be used to evaluate the communication functions of each program and to assess the quantity and type of additional communications resources needed.

The team should receive an orientation to the communication issues presented in the present chapter, along with the assessment resources that appear at the end of the chapter.

Review Communication Access

A methodical review of communications support provided in all programs, services, or activities is important, whether a recipient believes they are in full compliance or anticipates some areas of noncompliance. First, through conducting the review, access team members will identify program areas where auxiliary aids and services may be needed in order to provide effective communication. Also, the review process will result in information about the need throughout the One-Stop delivery system for various types and amounts of auxiliary aids and services. The One-Stop Operators and partners will then be able to utilize this information to make system-wide policy

decisions and make necessary purchases and procedural arrangements to obtain auxiliary aids and services from providers.

The communications review should cover the following areas:

Communication in all programs, services, and activities. The self-evaluation should review:

- printed information that may limit the participation of people with visual disabilities;

- aural communication (information that is heard) that may limit the participation of people who are deaf or hard of hearing;

- oral information (information that is spoken) that may limit the participation of people with speech disabilities.

- electronic and information technology equipment–both hardware and software–that are used to carry communication and that may be inaccessible to persons with mobility impairments, in addition to those who have visual, hearing, or speaking impairments.

Telecommunications. The review must determine the current level of compliance with the following key requirements:

- Since staff members communicate over the telephone with the public, applicants, or program participants, a TTY/TDD or equally effective telecommunication system must be provided.

- If the entity provides emergency telephone services, direct access to a TTY/TDD must be provided.

Signage and information. The review must determine compliance with key requirements concerning signage and other means of providing information about accessible communication features. These requirements include the following:

- Accessible entrances must be identified. Signs directing the public to accessible entrances should be provided at all inaccessible facility entrances.

- Information regarding the existence and location of accessible services, activities, and facilities must be provided.

Resource 7-1, Communication Access Assessment, is designed to assess and document the current ability of programs to provide equally effective communication to people with disabilities.

The first part of the resource is completed by filling in charts corresponding to the major categories of communication barriers discussed earlier in the chapter (visual, aural/oral, mobility). On the left-hand side of the charts, list all types of information in each communication category that are involved in the operation of the program. Consider all aspects of the program, including training activities, outreach, advertising, application processes, daily operation, counseling activities, public meetings, and special events. On the right-hand side of the charts are columns with the names of common auxiliary aids and services. Check boxes to indicate auxiliary aids or services that are currently provided or available. Place an X in a box to indicate additional aids or services that may be needed to ensure equally effective communication for persons with disabilities.

The second part of the resource contains questions regarding:
- ***primary consideration (responding to requests for aids and services),***
- ***telephone communications and the use of TTY/TDDs,***
- ***access information and signage, and***
- ***emergency warnings and evacuation procedures.***

Develop Communication Strategies

Information collected should be summarized to facilitate review and analysis by the access team. By assembling information in a format that enables the team to examine the needs of the entity as a whole, needs can be projected more accurately and strategies adopted with greater confidence. Based on its findings, the team should make recommenda-tions to guide the development of system-wide effective communication resources.

The Team should determine whether communications capacity should be developed in-house or purchased through contracts with outside agencies. Some One-Stop Operators or partners may find it more cost-effective to purchase copiers to make large print documents, or tape recorders for creating audiotapes. Many recipients will find it cost-effective to hire

readers and interpreters who can perform other functions as well, on a part-time or even full-time basis depending of the need for these services. Other recipients will find it more cost-effective to contract with other agencies to provide sign language interpreters or to transcribe written documents into Braille.

The analysis of communications resources can target three general types of communications resource development strategies:

1. Local. Establish procedures for optimum sharing of existing or new communications resources at the program or department level, such as magnifying devices and screen reading software.

2. Local Workforce Investment Area. One-Stop Centers can work together to centrally locate resources throughout the local workforce investment area. For example, provide access to a computer with Braille output, a real-time transcription service, or access to video-conferencing.

3. External. Establish standards and procedures for contracting for communications services from sources outside the One-Stop System, such as for sign language interpretation or the production of audio cassettes or CD-ROMs

The access team can also make specific decisions that will be reflected in budgeting and strategic planning. It can, for example, determine the number of TTY/TDDs that must be available and in what locations; the circumstances in which the use of a relay service will be effective; the number of employees who will need training in the use of TTY/TDDs; and the number of readers and interpreters needed. In order to refine these estimates, recipients can track the use of aids and services by people with disabilities over time in order to reflect the actual usage and need. It is recommended that systems be in place to collect this information and to review it periodically by using the expertise of persons with disabilities.

Resource 7-2, Communication Summary and Action Plan, is designed for use at two levels. It may be used to summarize the results of the Communication Access Assessment covering individual programs, services or activities. The same resource can then be used by the team to generate a summary of existing

communications resources of the One-Stop system and communications resources that need to be developed throughout the system. This overall summary should provide a fairly comprehensive picture of the system's communication resources and needs. The resource also documents those situations in which the provision of effective communication would result in a fundamental alteration of the program or in undue financial or administrative burden.

Resource 7-1: Communication Access Assessment

Assess and document the current ability of your program to provide communication for persons with disabilities that is as effective as the communication provided to persons who do not have disabilities.

A. Communication Access

1. Visual Communication

Information that is communicated visually--such as through printed materials or visual displays--must be made accessible to people with visual disabilities through auxiliary aids and services.

Does the program involve information that is communicated visually? " Yes " No

In the chart below, list each type of information that is communicated visually. Consider all aspects of the program, including, but not limited to, interview or counseling activities, outreach, advertising, public meetings or hearings, training or group meetings, ceremonies, and communication with the general public, applicants, and other program participants. Examples may include brochures, forms, handbooks, training manuals, slide shows, videotapes, and visual displays.

For each type of information, place a check below the auxiliary aids or services currently available to people with visual disabilities. Place an X below any additional aids or services that may be necessary to provide effective communication of the information. (More than one auxiliary aid or service may be needed for each.)

Types of information:	large print	Braille	audiotape	readers	verbal description	computer disk	computer adaptations	Accessible Website	Other
brochure (example)	**X**	**T**	**X**	**X**		**X**			

Resource 7-1: Communication Access Assessment

2. Aural/Oral Communication

(Note: ("Aural" refers to information that is heard; "oral" refers to spoken information.) Programs that communicate information aurally to applicants or participants or that require an applicant or participant to use oral communication must make that information accessible to people who have hearing or speech disabilities by providing auxiliary aids and services.

Does the program involve information that is communicated verbally? " Yes " No

In the chart below, list each type of information that is communicated aurally/orally. Consider all communication involved in all aspects of the program, including, but not limited to, interview, training, and resource room activities. Consider all aspects of the program, including, but not limited to, training activities, outreach, advertising, public meetings or hearings, small group meetings, ceremonies, and communication with the general public, applicants, and other program participants. A variety of interpreters may be needed, from American Sign Language interpreters to oral interpreters for people who read lips or special interpreters for deaf-blind persons.

For each type of information, place a check below the auxiliary aids or services currently available to people with hearing or speech disabilities. Place an X below any additional aids or services that may be necessary to provide effective communication of the information. (More than one auxiliary aid or service may be needed for each.)

Types of Information:	Interpreters	assistive listening devices	TTY/TDD	telephone amplification	note takers	paper & pen	CART (real time)	captioning on films/videos	video conferencing
jobs forum (example)		**X**	**X**	**T**	**T**			**X**	**X**

Resource 7-1: Communication Access Assessment

3. Access with Mobility Impairments

Mobility impairments may affect any of the body limbs, gross muscular systems, or neurological control over arms and hands, legs, neck and head. Mobility impairments may be congenital or the result of accident, illness, or injury. Though individuals may be able to read, write, and speak, they may still have difficulty accessing communication on account of a mobility impairment that makes the means of communication inaccessible. Increasingly, information is communicated and response required electronically–via computer, the Internet, or other means. A One-Stop Operator or partner must ensure that persons with mobility impairments are able to receive and to send information by these means.

Does the program involve information that is communicated electronically? ❝ Yes ❝ No

In the chart below, list each type of information that is communicated electronically. Consider all aspects of the program, including, but not limited to, interview or counseling activities, outreach, advertising, public meetings or hearings, training or group meetings, ceremonies, and communication with the general public, applicants, and other program participants. Examples may include announcements, registrations, forms, handbooks, training manuals, slide shows, and visual displays.

For each type of information, place a check below the auxiliary aids or services currently available to people with visual disabilities. Place an X below any additional aids or services that may be necessary to provide effective communication of the information. (More than one auxiliary aid or service may be needed for each.)

Types of Information									

Resource 7-1: Communication Access Assessment

4. Policies and Procedures on Communication Access

Federal regulations require that public entities and grant recipients provide people with disabilities an opportunity to request the type of communication technology and assistance they prefer to use. In the regulations, communication technology and assistance are called auxiliary aids and services.

An entity must give primary consideration to an individual's preference for an auxiliary aid or service and must honor it unless the entity can provide another effective means of communication.

A public entity is not required to provide an auxiliary aid or service if it would result in a fundamental alteration to the program or in undue financial or administration burdens.

Does the program inform people with disabilities that communication aids or services are provided upon request? ❍ Yes ❍ No

If so, please explain.

Does the program have a procedure for deciding which auxiliary aid or service to provide? ❍ Yes ❍ No

Does the procedure provide for consideration of an individual's preferred aid or service? ❍ Yes ❍ No

Does the procedure include a mechanism for determining that an aid or service provided other than the requested aid or service is an effective means of communication? ❍ Yes ❍ No

If the answer to any of these three questions is yes, please describe. (For questions answered no, solutions will be addressed in Resource 7-2).

Resource 7-1: Communication Access Assessment

B. Telecommunications

1. Telephone Communication

When a public entity or federal grant recipient communicates with the public by telephone, nondiscrimination regulations require that TTY/TDDs or equally effective means be used to communicate with people who have hearing or speech disabilities. Title IV of the ADA mandates that telephone companies develop telephone relay systems, which may be effective for short, uncomplicated communications. Public entities should use TTY/TDDs wherever telephone communication is a substantial part of a program's operation. Your answers to the following questions will help you determine whether a TTY/TDD may be essential for your program.

Does the program communicate with the public over the telephone? ❝ Yes ❝ No

If yes, describe the kind(s) of information communicated by phone.

Are telephone communications ever lengthy, complex, or technical? ❝ Yes ❝ No

Does the program have a TTY/TDD? ❝ Yes ❝ No
(If not, solutions will be addressed in Resource 7-2.)

If yes, has the staff been trained in the use of the TTY/TDD? ❝ Yes ❝ No

Describe the training.

2. Telephone Emergency Services

If the program provides telephone access to emergency services, the regulations require that direct access (to the same number(s)) be provided to individuals who use TTY/TDDs; relying on a relay service is not acceptable.

Does the program provide telephone access to emergency services? ❝ Yes ❝ No

If so, does the program provide direct TTY/TDD access to the emergency telephone number(s)? ❝ Yes ❝ No
(If not, solutions will be addressed in Resource 7-2.)

Resource 7-1: Communication Access Assessment

C. Other Communication

1. Emergency Warning and Evacuation

Emergency evacuation procedures for the program, service, or activity must ensure that people with disabilities are made aware of emergencies and are aware of exit procedures.

Is there a means of ensuring that people who are hard of hearing or deaf are made aware of an activated alarm? ❍ Yes ❍ No
(If not, solutions will be addressed in Worksheet 7-3.)

Is there an established emergency evacuation procedure that addresses the needs of individuals with disabilities? ❍ Yes ❍ No

If not, please describe the procedures the program will use in facilities where means of egress are not accessible to provide safety and evacuation for people who cannot use stairs.

Do staff members receive training in emergency evacuation procedures? ❍ Yes ❍ No
If yes, please describe.

2. Access Information

Federal regulations requires that public entities ensure that people with disabilities can obtain information about the availability and location of accessible programs, services, activities, and facilities. Information regarding the location of accessible entrances, program sites, TTY/TDDs, and other access features can be provided in a number of ways, such as in handbooks and listings. Explain how the program, service, or activity provides access information to program applicants, participants, and the general public.

3. Signage

Federal regulations require that signs be placed at all inaccessible entrances to a recipient's facilities, directing users to an accessible entrance or to a location where information about accessible facilities can be obtained. The international symbol for accessibility must also be used at each accessible entrance of a facility. Also, where TTY/TDD-equipped pay phones or portable TTY/TDDs exist, clear signage should be posted indicating the location of the TTY/TDD.

Are signs placed at all inaccessible entrances to each of the facilities, directing users to an accessible entrance or to a location where information about accessible facilities can be obtained? ❍ Yes ❍ No

Is the international symbol for accessibility posted at each accessible entrance of facilities? ❍ Yes ❍ No

Where TTY/TDD-equipped pay phones or portable TTY/TDDs exist, is clear signage posted indicating the location of the TTY/TDD? ❍ Yes ❍ No

(If the answer to any of these questions is no, solutions will be addressed in Resource 7-2.)

Resource 7-2: Communication Summary and Action Plan

After reviewing Resource 7-1, summarize the results of the communication access assessment and identify actions needed to achieve compliance with ADA requirements.

1. Existing Auxiliary Aids and Services	**Where are these now available?**		
Summarize currently available auxiliary aids and services. Categorize by need (vision, hearing, speech, mobility).	**Within Program**	**Central Location**	**Outside sources (list)**

2. Needed Auxiliary Aids and Services	**Where might these be provided?**		
Summarize needed auxiliary aids and services to be purchased or contracted. Place an asterisk (*) next to those that will be provided upon request; all others should be available at all times. (Use additional sheets if necessary.)	**Within Program**	**Central Location**	**Outside sources (list)**

Resource 7-2: Communication Summary and Action Plan

3. Primary Consideration

Public entities and federal grant recipients must give each individual with a disability an opportunity to request the auxiliary aid or service of his or her choice. That choice must be given primary consideration and must be honored unless the entity can demonstrate that another effective means of communication is available or that the auxiliary aid or service requested would result in a fundamental alteration in the program or in undue financial or administrative burdens.

Summarize a standardized process for individuals to express their preferences for a particular type of auxiliary aid or service, and the process to ensure that an effective auxiliary aid or service is provided.

4. TTY/TDD Communications (Existing and Needed)

List programs that now have TTY/TDDs and identify programs for which TTY/TDDs should be provided. Identify those programs that provide emergency services for which TTY/TDDs will be provided.

Summarize plans for training staff in TDD use.

5. Emergency Warning Systems

Describe emergency warning systems and procedures, where they are located, and where they will be added or modified.

Resource 7-2: Communication Summary and Action Plan

6. Access Information

Describe how information on access will be communicated to the public, program applicants, participants, and throughout the One-Stop delivery system.

7. Signage

As appropriate, describe how the international symbol for accessibility will be placed at accessible entrances to facilities, and describe how signs will be placed at inaccessible entrances to facilities, directing users to an accessible entrance or to a location where information about accessible facilities can be obtained. As appropriate, describe how signage will be posted indicating the location of TTY/TDD-equipped pay phones or portable TTY/TDDs.

8. Fundamental Alteration and Undue Burdens

List auxiliary aids or services for effective communications that will not be implemented because to provide them would cause a fundamental alteration to the program or undue financial or administrative burdens. (Use additional sheets if necessary.)

Program	Description of needed auxiliary aids and services, other communication issues	Cost estimate	Explanation of fundamental alteration OR undue financial or administrative burden

CHAPTER SEVEN: Requirements for Effective Communication