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DIGITAL DIVIDE DISABILITIES TRIP BRIEFING BOOK (9/21/2000) [2]

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Divider Title: _____ **P**

REHABILITATION SERVICES AND DISABILITY RESEARCH

National Institute on Disability and Rehabilitation Research

National Institute on Disability and Rehabilitation Research

(Rehabilitation Act of 1973, Title II)

FY 2001 Authorization (\$000s): Indefinite

Budget Authority (\$000s):

<u>2000</u>	<u>2001</u>	<u>Change</u>
\$86,462	\$100,000	+\$13,538

PROGRAM DESCRIPTION

The activities of the National Institute on Disability and Rehabilitation Research (NIDRR) are intended to maximize the full inclusion and integration into society and employment of individuals of all ages with disabilities. NIDRR activities are also designed to improve the economic and social self-sufficiency of these individuals, with particular emphasis on improving the effectiveness of services authorized under the Rehabilitation Act. The purposes of NIDRR are to:

- provide for a comprehensive and coordinated program, consistent with its long-range plan, of research, demonstration projects, training, and related activities that promote:
 - full inclusion and integration into society;
 - employment;
 - independent living;
 - maintenance of health and function for individuals of all ages with disabilities; and
 - the transfer of rehabilitation technology to individuals with disabilities;
- ensure the widespread distribution of practical scientific and technological information related to rehabilitation and disability, in usable formats to appropriate user populations; and
- increase opportunities for disabled individuals, including those who are members of underserved minority groups.

To address these purposes, NIDRR supports rehabilitation research and development, demonstration projects, and related activities, including the training of persons who provide rehabilitation services or who conduct rehabilitation research. In addition, NIDRR supports projects to disseminate and promote the use of information concerning developments in rehabilitation procedures, methods, and devices. Information is provided to rehabilitation professionals, persons with disabilities, and their representatives. NIDRR also supports data

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analyses on the demographics of disability and provides that information to policymakers, administrators, and other relevant groups. Awards are competitive, with applications reviewed by panels of experts, including rehabilitation professionals, rehabilitation researchers, and persons with disabilities.

NIDRR supports the following centers and projects:

Rehabilitation Research and Training Centers (RRTCs) -- RRTCs conduct coordinated, integrated, and advanced programs of research in rehabilitation targeted toward the production of new knowledge to improve rehabilitation methodology and service delivery systems, to alleviate or stabilize disabling conditions, and to promote maximum social and economic independence of individuals with disabilities. RRTCs also provide training, including graduate, pre-service, and in-service training, to assist rehabilitation personnel to more effectively provide rehabilitation services to individuals with disabilities. The RRTCs must serve as centers of excellence and national resources for providers and individuals with disabilities and their representatives. Awards are for 5 years, except that grants to new recipients or to support new or innovative research may be made for less than 5 years.

Rehabilitation Engineering Research Centers (RERCs) -- RERCs focus on issues dealing with rehabilitation technology, including rehabilitation engineering and assistive technology devices and services. Types of activities supported by RERCs include: 1) the development and dissemination of innovative methods of applying advanced technology, scientific achievements, and psychological and social knowledge to rehabilitation problems and the removal of environmental barriers; 2) demonstrations and dissemination of scientific research to assist in meeting the employment and independent living needs of individuals with severe disabilities; 3) service delivery systems change projects; and 4) the stimulation of the production and distribution of equipment in the private sector, as well as clinical evaluations of equipment. Each RERC must provide training opportunities to individuals, including individuals with disabilities, to become researchers and practitioners of rehabilitation technology. Awards are for 5 years, except that grants to new recipients or to support new or innovative research may be made for less than 5 years.

Disability and Rehabilitation Research and Related Projects -- These projects are quite varied, though all are aimed at fulfilling NIDRR's overarching goals of inclusion, integration, employment, and self-sufficiency. Projects may support short-term research relating to the development of methods, procedures, and devices to assist in the provision of rehabilitation services, particularly to persons with severe disabilities. Others support information utilization and dissemination, including state-of-the-art assessments and diffusion centers, to ensure that knowledge generated from research is available and can be fully used to improve services, opportunities, and conditions for persons with disabilities. Projects that provide technical assistance and training to State and local governments and private businesses regarding the Americans with Disabilities Act (ADA) and facilitate implementation of the ADA without litigation or undue difficulty are also included under this activity, as are the Traumatic Brain Injury (TBI) Model Systems and the Burn Injury Model Systems.

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Disability and Business Technical Assistance Centers (DBTACs) -- The DBTACs are responsible for: (1) providing technical assistance, disseminating information, and providing training to individuals or entities with responsibilities and rights under the Act on the requirements of the ADA and developments in ADA case law, policy, and implementation; (2) increasing the capacity of organizations at the State and local level to provide technical assistance, disseminate information, provide training, and promote awareness of the ADA; and (3) promoting awareness of the ADA and the availability of services provided by the DBTACs, other NIDRR grantees working on ADA issues, and other Federal information sources on the ADA.

Small Business Innovative Research -- These projects support the development of ideas and products that are useful to persons with disabilities by inviting the participation of small business firms with strong research capabilities in science, engineering, or educational technology. The program takes an idea through two phases - from development to market readiness.

Field-Initiated Projects -- This program supports research and development projects that address important activities that are not included in NIDRR's announced priorities, thereby allowing NIDRR to expand the scope of its research activities as needed, to be responsive to emerging developments in the field.

Mary E. Switzer Fellowships -- This program supports 1-year fellowships to highly-qualified individuals to carry out discrete research activities that are related to NIDRR's research priorities or to pursue studies in areas of importance to the rehabilitation community.

Advanced Rehabilitation Research Training Projects -- This program supports grants to institutions providing advanced training in research to physicians, nurses, engineers, physical therapists, and other professionals.

Model Spinal Cord Injury Systems -- This program supports model projects that provide innovative and effective approaches to the delivery and evaluation of comprehensive medical, psychological, vocational, and other rehabilitation services and conduct site specific and collaborative research to meet the wide range of needs of individuals with spinal injuries.

Funding levels for the past 5 fiscal years were:

	(\$000s)
1996	\$69,984
1997	69,990
1998	76,800
1999	81,000
2000	86,462

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Assistive technology

Assistive Technology

(Assistive Technology Act of 1998)

FY 2001 Authorization (\$000s):

Title I: Indefinite ¹

Title III: Indefinite ²

Budget Authority (\$000s):

<u>2000</u>	<u>2001</u>	<u>Change</u>
\$34,000	\$41,112	+\$7,112

¹ The AT Act requires that funds appropriated for Title I of the Act be distributed as follows: 87.5 percent for the Assistive Technology State grant program; 7.9 percent for Protection and Advocacy for Assistive Technology; and 4.6 percent for technical assistance activities.

² The GEPA extension applies through September 30, 2001.

PROGRAM DESCRIPTION

By enhancing access to assistive technology devices and services, the Assistive Technology program empowers individuals with disabilities to have greater control over their lives and more fully participate in their home, school, and work environments, and in their communities. Assistive technology is products, equipment, and related services that are used by individuals with disabilities to increase, maintain, or improve their functional capabilities. Assistive technology devices include such items as communication devices, adapted appliances for accessible living, environmental control devices, modified housing, adapted computers, and specialized software.

The Assistive Technology program supports States in sustaining and strengthening their capacity to address the assistive technology needs of individuals with disabilities. Title I of the Assistive Technology Act of 1998 (AT Act) authorizes the Assistive Technology State grant program, a State grant program for protection and advocacy services related to assistive technology, and a program of technical assistance for grantees under the Act and for individuals with disabilities. Title III of the AT Act authorizes an alternative loan financing program for States to establish programs for individuals that wish to purchase assistive technology devices or services.

Title I- Assistive Technology State grant program

Prior to fiscal year 1999, the Assistive Technology (AT) State grant program was authorized by the Technology-Related Assistance for Individuals with Disabilities Act of 1988 (Tech Act). The

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AT Act extended the AT State grant program, along with the authority to carry out many activities previously authorized under the Tech Act. Under the AT State grant program States are required to continue to carry out all assurances made in applying for the AT State grant program under the Tech Act, and to carry out four mandatory activities—a public awareness program, interagency coordination, technical assistance and training, and outreach.

The purpose of the AT State grant program is to increase the availability of, funding for, access to, and provision of assistive technology devices and assistive technology services for individuals with disabilities of all ages through changes in laws, regulations, policies, practices, procedures, and organizational structures.

Since fiscal year 1989, the AT State grant program has supported grants to States to assist them in developing and implementing a consumer-responsive comprehensive Statewide program of technology-related assistance for individuals with disabilities. This program was based on the premise that States can significantly enhance the access of individuals with disabilities to assistive technology by changing their service delivery systems. Systemic activities have been primarily geared towards the following: education (infant and toddler services, preschool and school-age services, and postsecondary services); accommodation/accessibility issues (Americans with Disabilities Act, and sections 504 and 508 of the Rehabilitation Act); vocational rehabilitation services; medical assistance services; and private insurance programs.

The AT Act authorizes continued support for States that received a second extension grant under the Tech Act but have not completed 10 years of funding. It also authorizes an additional 3 years of level funding for States that have completed 10 years of funding under the Tech Act or the AT Act. As provided for under the Tech Act, Federal funding is reduced in the ninth and tenth years of the grant.

Title I-Technical Assistance

The AT Act authorizes the provision of technical assistance, through grants, contracts, or cooperative agreements on a competitive basis, to individuals with disabilities of all ages, AT State grant program grantees, and to protection and advocacy systems. The Act requires the establishment and maintenance of a national public Internet site and technical assistance to entities funded under Title I of this Act.

In designing the technical assistance activities, the Department must consider the input of individuals with disabilities who use assistive technology, family members, and protection and advocacy service providers, among others. The technical assistance must respond to State-specific requests for information and disseminate information to States, entities funded under Title I of the AT Act, and any other public entities that seek information about AT. The technical assistance must provide model approaches for the removal of barriers to accessing assistive technology, examples of effective program coordination, and practices that increase funding for assistive technology devices.

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Title I- Protection and Advocacy for Assistive Technology

The AT Act provides for formula grants to protection and advocacy (P&A) systems established under the Developmental Disabilities Assistance and Bill of Rights Act. Funds support protection and advocacy services to assist individuals with disabilities of all ages in the acquisition, utilization, or maintenance of assistive technology services or devices. Funds are distributed on the basis of State population, with a minimum annual grant of \$50,000. Outlying areas may each receive up to \$30,000 annually.

Title III- Alternative Loan Financing

Title III of the AT Act authorizes the Secretary to award 1-year grants to States to pay for the Federal share of the cost of the establishment and administration of, or the expansion and administration of, an alternative financing program. Such a program must feature one or more alternative financing mechanisms that would allow individuals with disabilities and their family members, guardians, advocates, and authorized representatives to purchase assistive technology devices and assistive technology services. These alternative financing mechanisms could include a low-interest loan fund, an interest buy-down program, a revolving loan fund, or a loan guarantee or insurance program.

Funding levels for the past 5 fiscal years were as follows:

	(\$000s)
1996	\$36,109 ¹
1997	36,109 ¹
1998	36,109 ¹
1999	34,000
2000	34,000

¹ Amounts shown in fiscal year 1998 and earlier were appropriated for Title I of the Technology-Related Assistance for Individuals with Disabilities Act.

FY 2001 BUDGET REQUEST

The Administration requests \$41.112 million for assistive technology activities under the AT Act in fiscal year 2001, an increase of \$7.112 million from the fiscal year 2000 appropriation. The request includes \$26.112 million for the three required components of Title I of the AT Act and \$15 million for the State alternative loan financing program authorized under Title III of the AT Act.

Title I

Section 105 of the AT Act requires that 87.5 percent of the funds appropriated for Title I of the Act be used for the AT State grant program, 7.9 percent of Title I funds be used for Protection and Advocacy (P&A) for AT, and 4.6 percent of Title I funds be spent on technical assistance activities. The AT Act also prescribes the amount each State is to receive under the AT State

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grant program, and sets a minimum allotment for grantees under the P&A program. In order to provide each State its prescribed amount in fiscal year 2001 under the AT State grant program, to provide the minimum allotment for grantees under the P&A program, and to maintain the four ongoing technical assistance activities at the fiscal year 2000 level, the Department is proposing language to override the provisions in Section 105 of the AT Act. The request of \$26.112 million for Title I would be distributed as follows: \$22.069 million for the AT State grant program; \$2.680 million for the AT P&A program; and \$1.363 million for the technical assistance activities.

Title I- Assistive Technology State grant program

The AT Act provides funding for States for a maximum period of 13 years. Funding for States during years 11 through 13 is at the same level of support as each State received in its tenth year. In fiscal year 2001, \$3.447 million would support the 9 States in their thirteenth and final year of funding, \$5.055 million would support the 14 States in their twelfth year, and \$3.155 million would support the 8 States in their eleventh year. As required under the statute, 20 States in their ninth and tenth years are reduced 25 percent and 50 percent, respectively, from the level of funding in their eighth year--\$9.44 million would be needed to support those 20 States and one outlying area. The remaining four grantees, one State and three outlying areas, are between their seventh and eighth year of participation in the AT State grant program. The AT Act provides \$105,000 each year for each of the four outlying areas.

Title I-Technical Assistance

At the request level, \$1.363 million would be allocated for technical assistance to continue activities that began in fiscal year 1999. The Department has awarded grants to support the following activities: 1) technical assistance to the AT State grant program grantees; 2) technical assistance to protection and advocacy systems; 3) AT Act data collection activities; and 4) the establishment of a national public Internet site.

Title I- Protection and Advocacy for Assistive Technology

The fiscal year 2001 Title I request includes \$2.68 million for grants to eligible protection and advocacy systems (P&As) for services related to assistive technology. At this level, protection and advocacy systems established under the Developmental Disabilities Assistance and Bill of Rights Act would receive \$50,000, the minimum amount allowed under the AT Act and the same amount provided to the P&As in fiscal year 2000. Outlying areas would receive \$20,000. Funds would be used to assist individuals with disabilities in the acquisition, utilization, or maintenance of assistive technology services or devices.

Title III- Alternative Loan Financing

The request includes \$15 million, an increase of approximately \$11 million over the amount available in fiscal year 2000, to support grants to States to establish or maintain alternative loan financing programs to increase access to assistive technology for individuals with disabilities. Currently, major service programs such as Medicaid, Medicare, special education, and vocational rehabilitation cannot meet the growing demand for assistive technology. Most people with disabilities do not have the private financial resources to purchase the assistive technology they need. Loan programs offer individuals with disabilities attractive options that significantly

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enhance their access to assistive technology.

To better enable States applying for a grant in fiscal year 2001 to take advantage of the opportunities provided by this program, the Department is proposing changes to the current statutory matching requirements and funding provisions. First, the Department believes that States should have the flexibility to request less than the minimum amount of \$500,000 specified in the statute and that States should be able to receive as much money as they can match. Second, the Department believes States should be allowed to request more than the 1 year of funding authorized by the statute. Third, the Department believes that limiting the Federal share in the first year of the program to 50 percent may discourage State participation.

Therefore, the Department proposes to eliminate the minimum allotment of \$500,000 and to make the formula provisions inapplicable. The Department proposes that States be permitted to request up to 3 years of funding and that the Federal share be increased to 75 percent in the first year but decline in the next 2 years to 50 percent and 25 percent. With this flexibility, States would be able to apply for the grant amount that would best meet their matching capability. Elimination of the formula also would enable the Department to more effectively manage the requested funds.

Consistent with current law, alternative loan financing programs must be designed to allow individuals with disabilities and their family members, guardians, advocates, and authorized representatives to purchase assistive technology devices and assistive technology services. Alternative financing mechanisms could include a low-interest loan fund, an interest buy-down program, a revolving loan fund, or a loan guarantee or insurance program.

States that participate must enter into a contract with a community-based organization (including groups of such organizations) that has individuals with disabilities involved in decisionmaking at all organizational levels to administer the alternative financing program. The alternative loan program must have procedures to review and process in a timely manner requests for financial assistance for immediate and potential technology needs. Such procedures must include consideration of methods to reduce paperwork and duplication of effort, particularly relating to need, eligibility, and determination of the specific assistive technology device or service to be financed through the program. States must have policies and procedures to ensure that access to the alternative financing program shall be given to consumers regardless of type of disability, age, income level, location of residence in the State, or type of assistive technology device or assistive technology service for which financing is requested through the program. States also must implement procedures to ensure consumer-controlled oversight of the program.

Some States have been successful in establishing loan programs under the Assistive Technology (AT) State grant program. States may participate in this alternative loan program even if they have begun loan activities under the AT State grant program. In fact, the success of loan activity under the AT State grant program is the basis for initiating funding for this program.

A total of 29 States have operated loan programs under the Assistive Technology State grant

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program. Individuals receive loans ranging from \$250 to \$50,000. It has been estimated that the average loan nationally is \$5,000 to \$7,500. These loan programs can be described as either revolving, guaranteed, interest buy-down, traditional, or some combination of those. A revolving loan program is one in which an individual borrows money, and loan repayments are dedicated to the re-capitalization of the loan fund, and are then recycled into future loans. A guaranteed loan program provides loans that are backed by a promise or 'guarantee' that if the borrower defaults, the loan will be paid back. An interest buy-down program involves an organization using its funds to reduce the interest rate of a loan made by a lending institution to a borrower. A traditional loan program provides loans directly from the lending institution to individual applicants using the lending institution's own funds.

Exemplary State examples of each loan model follows:

Revolving: Maine (Adaptive Equipment Loan Program)

Since 1989, the Alpha One Center for Independent Living, in partnership with the Finance Authority of Maine (FAME), has administered the Adaptive Equipment Loan Program (AELP). This program operates as a consumer-driven partnership financed by State bond monies totaling over \$6.5 million. Loans are made from and paid back into a revolving account that earns interest and is managed by FAME. This program offers loans to individuals with disabilities to purchase AT and to start their own businesses, and also to small businesses for accessibility modifications. Interest rates and terms are determined based upon the individual loan. AELP has provided nearly 1,000 loans with a 2 percent default rate.

Loan Guarantee with Interest Buy-Down: Virginia (Virginia Assistive Technology Loan Program)

The Virginia Assistive Technology Loan Authority in partnership with Crestar Bank operates this AT loan program specifically for individuals with disabilities and their families. It has been operating since 1997, providing over 100 loans with only a single default. The program was established with a general assembly appropriation of \$500,000 and supported by \$20,000 in Assistive Technology State grant funds to ensure interest buy-down. There is a guaranteed and non-guaranteed component to the program that makes it much more inclusive to all Virginians regardless of income. Interest rates are bought down by the Authority by 4 percent from Crestar's rate, to a current rate of 4 percent.

Loan Guarantee: New Hampshire

This program is a partnership between the New Hampshire Assistive Technology State grant program, the Bank of New Hampshire, and a private foundation. A \$100,000 investment of Assistive Technology State grant funds provides the loan guarantees with only a 60 percent guarantee requirement made by the bank. Interest rates are just over 1 percent and over \$750,000 in loans have been provided. No defaults have been reported in the 7 years of operation. This program has a consumer advisory group but is administered primarily by the bank.

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Divider Title: _____ Q

Rehabilitation Engineering Research Center on Information Technology Access

The Trace R&D Center serves as the Rehabilitation Engineering Research Center (RERC) covering the area of disability access to information technologies. Funding for the RERC is provided by a five-year grant from the National Institute on Disability and Rehabilitation Research (NIDRR), U. S. Dept. of Education, and runs from June 12, 1998 through June 11, 2003. This RERC is part of a network of 15 Centers provided for in the Rehabilitation Act of 1973, as amended. Each RERC focuses on a different topic or disability area (e.g., prosthetics and orthotics, wheeled mobility, telerehabilitation). For more information about the RERCs and other NIDRR-funded programs, please visit the [National Center for the Dissemination of Disability Research \(NCDDR\) web site](#).

This RERC covers access by individuals with all types, degrees, and combinations of disabilities to a wide range of new and emerging information technologies, including:

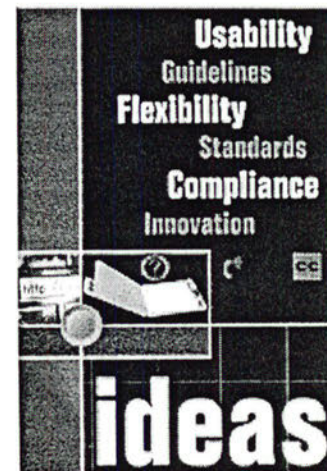
- computers
- information transaction machines (e.g., ATMs, kiosks, fare machines, point-of-sale devices and smartcards)
- home and pocket information appliances (e.g., PDA's)
- internet technologies (XML, XSL, DHTML, CSS, SMIL, etc.)
- intranets
- 3-D and immersive environments

To address all these areas, the RERC works cooperatively with other researchers, consumers, and industry to change the way information technologies are designed and deployed. The major focus is on creating techniques and approaches that can be incorporated into standard products from the outset of their development process, and then to provide the guidelines, bulk materials, encouragement, and support necessary to make it actually happen.

The goal is standard products that are both directly usable by a much broader range of individuals who have disabilities and compatible with the assistive technologies used by others. The RERC has in the past been successful with this approach in connection with the personal computer industry, but now faces a much greater challenge in the larger and more diverse industries involved in information technology today.

The RERC is a component in a larger system of consumers, researchers, industry, and policy and public agencies. As such, the program is designed to work within this structure, supporting other components and coordinating its efforts to best address the functioning of the whole. For example, in the area of access to internet technologies, the RERC is collaborating extensively with the W3C's [Web Accessibility Initiative](#) to formulate guidelines and strategies for improving access to web content and development tools. Other collaborators in this area include the University of Toronto's [Adaptive Technology Resource Centre](#), the [Center for Accessible Special Technology \(CAST\)](#), and [WGBH's Center for Accessible Media](#).

At the core of the RERC's program is the development of flexible, multi-modal interface techniques that



can adapt to a very wide range of individuals with disabilities without altering (except for the better) the interface as experienced by people without disabilities. The RERC has been successful in doing this with commercial touchscreen kiosks, and is extending this research to a much broader class of technologies and devices.

Finally, while looking to the future, this RERC is also grounded in the present. The core of our information resource program is to provide information to consumers regarding their options, and providing support to both consumers and others who support consumers regarding issues and problems they face today with today's technologies.

Trace R&D Center Project Areas and Activities:

Underlying Technologies Research

This area of activity within the RERC is focused on **research into the basic concepts, models, and approaches** for access that act as the **theoretical and conceptual underpinnings** of all of the rest of the work of the Center. In most of these projects, there is a focus on developing cross-technology and cross-user strategies that is, strategies that will work across a wide range of technologies (from hardware to software, from open systems to closed systems, from small appliances to large international information systems), and across a wide range of users (people with and without disabilities, novices and experts, people who have assistive technologies and people who do not).

Underlying Technologies Research Projects

Projects in this area include:

- Development of interface technologies which allow individuals with all of the different types, degrees, and combinations of disabilities to operate a single product as well as interface strategies that work across a broad range of products (in particular, strategies which enhance the usability of products for all users),
- Interface work looking at the effects of voice variation on speech recognition and identification,
- Examination of access issues around object languages and architectures,
- Development of solutions to the access issues posed by the increasingly dynamic and interactive web page and document technologies,
- Identification of issues, opportunities and potential strategies for access to immersive environments.

Applied Research and Development



The objective of the previously described Underlying Technology Research program is to develop the underlying, cross-technology principles and strategies for providing access for people with disabilities. The objective of the RERC, however, is not to generate theories and models, but rather to change the way our technical environment is designed. The purpose of the Applied R&D program is to take developed theories and models and apply them to the different technologies that users actually encounter in daily life.

Applied Research and Development Projects

Applied R&D projects cover the wide range of topics represented by information technologies, including developing:

- New access strategies for object oriented operating systems,
- New interface techniques for hand held and mobile information devices,
- Access techniques for all verbal interfaces,
- Access techniques for all types of information transaction machines including ATMs, kiosks, fare machines, point of sale devices, voting machines, etc.

Transfer & Industry Support

The focus of the activities in this area is on taking proven ideas and moving them out to industry. This includes proven ideas from this RERC, but also from any other investigators, programs, or companies that develop ideas that would contribute to making information systems more accessible to people with disabilities.

This activity area is the culmination (though in actuality it is more of an 'ongoing parallel process') of the research and development activities of the RERC. In conducting transfer activities, the key is to be flexible enough to address and adapt to the changing needs of industry, where consumer demand and the continual shift in the state-of-the-art are what drive product development.

Transfer and Industry Support Projects

RERC efforts are focused on the development of resources, materials, and information which facilitate the transfer of universal/accessible design to industry including the development of :

- On-line (internet) based resource collections,
- On-line databases of specific strategies and example products/designs, guidelines and other documents that provide practical strategies for complying with federal laws and guidelines,
- Voluntary industry compatibility standards to provide interconnection between mass market and assistive technology products,
- Model implementations and disseminable prototypes useful for evaluating ideas, and
- User testing product review program and design tools.

Dissemination, Education & User Support

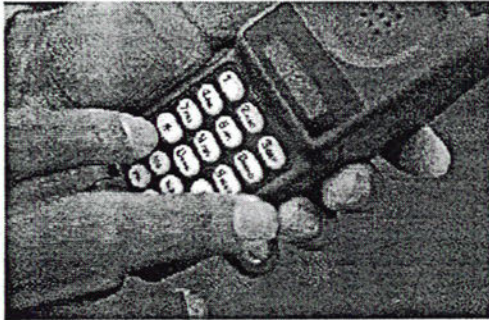
Taking research results and making them into informational materials that can be understood and acted upon, or utilized, by our target audiences is the primary goal of the RERC's dissemination program. The

focus of this program is on creating appropriate informational products that support the larger goals of the Trace Center: developing technological solutions and promoting access for individuals with disabilities to current and emerging information technologies and technology interfaces. Dissemination and utilization activities include:

- conference presentations,
- hands-on exhibits at conferences,
- articles in professional journals,
- information and demonstration videos,
- key resource and reference materials available via the web,
- information response line for our research focus areas,
- workshops and seminars on universal design of telecommunication and information technologies, and
- undergraduate, graduate, and post doctoral education.

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Rehabilitation Engineering Research Center on Access to Telecommunications



The National Institute on Disability and Rehabilitation Research (NIDRR) of the U.S. Department of Education, awarded a five-year, Rehabilitation Engineering Research Center (RERC) grant to the Trace Research & Development Center, University of Wisconsin - Madison, working in partnership with the Technology Assessment Program at Gallaudet University in Washington, D.C. The RERC program consists of 15 Centers focused on different topic or disability areas. For more information about the RERCs and other NIDRR-funded programs, please visit the National Center for the Dissemination of Disability Research (NCDDR) web site.

The focus of this RERC is to identify telecommunication access barriers in current and future technologies, work with others in the field to identify solution strategies, test them, implement any necessary standards, and assist industry in transferring the ideas into commercial products. The RERC's primary mission is to find ways to make standard systems directly usable by people with all types and degrees of disability, and to work with industry and government to put access strategies into place. The overall program can be viewed as consisting of four interrelated areas, 1) Research, 2) Applied Research and Development, 3) Transfer and Technical Assistance, and 4) Dissemination, Education, and User Support.

Technologies being addressed by the RERC include:

- customer premises equipment of all types including phones, video phones, pagers, and messaging systems,
- telecommunication systems and services including voice mail, interactive voice response systems,
- network topologies
- telecommunications standards
- next-generation multimedia telecommunication systems.

Research Program

The main goals of our research program are to evaluate technologies and solutions regarding specific pressing access issues, and to develop the underlying cross-technology principles and strategies that provide access for people with disabilities to telecommunications. Our work addresses the most significant problems faced by people using today's technologies as well as next generation technologies currently under development.

Current Generation Research Projects include:

- Testing industry solutions to the problem faced by individuals trying to use TTY's over digital wireless systems,
- Examining the problems faced by people using digital wireless products with hearing aids,
- Investigating the intelligibility effects of voice compression on people with hearing loss, and
- Developing strategies that would allow individuals with severe motor disabilities to access standard phones



Future Generation Research Projects include:

- Exploring the process that might be used to allow individuals who are deaf to migrate off of the current TTY technologies and on to next generation digital messaging systems,
- Examining technologies that might allow individuals who are deaf to communicate transparently with anyone else including individuals who are blind and those who have no disability at all, and
- Exploring, in conjunction with other researchers, strategies for capitalizing on and changing the architecture of future telecollaborative systems so that they would be usable by individuals with all disabilities simultaneously and near equally.

Applied Research and Development

The purpose of the Applied Research and Development Program is to apply research results to the implementation of telecommunications technologies that users encounter, or will encounter, in daily life. The applied research and development program consists of two types of activity, 1) proof-of-concept projects which are designed to take what we believe are solutions to telecommunication accessibility problems and test and refine them as a proof-of-concept for use by both industry and consumer organizations and 2) pre-standards research development projects which are aimed at carrying out research which would support various standards activities.

Proof-of-Concept Projects include:

- Developing a strategy for re-mapping keys on a product to allow complete non-visual access to the product,
- Developing and refining a technique for using the existing displays on products to provide access to key labels that would otherwise be too small to be seen by individuals with low vision,
- Developing techniques that can be built into any phone and which could turn it into a phone that was operable by individuals with severe cognitive disabilities,
- Creating variations of a cross-disability set of features developed for information technologies and converting them into a form that is suitable for use on button-based telecommunication technologies (phones, faxes, etc.).

Pre-Standards Research Projects include:

- Creating a tool for evaluating digital video products, compression techniques, and transmission techniques to see if they can support American Sign Language and/or lip reading,
- Examining the accessibility of interactive voice response systems,
- Creating a signal specification and test method to determine whether or not a transmission mechanism could support TTY signals,
- Creating a standard for connecting TTYs to wireless phones,
- Extending previous work on a remote console protocol to allow individuals with all types of disabilities to connect assistive technologies to telecommunication products, and

- Identifying infrastructure standards needed to support cross disability collaborative systems.
-

Transfer and Technical Assistance

The focus of the activities in the Transfer and Technical Assistance area is on taking proven ideas and moving them out to industry. This includes proven ideas from our RERC, but also from other investigators, programs, or companies that develop ideas that would contribute to making information systems more accessible to people with disabilities. The transfer and technical assistance program is designed to move ideas and concepts out into the field in the form of standards or commercial products.

Transfer and Technical Assistance Projects include:

- Participating in industry standards programs,
 - Developing disseminable models that can be replicated and provided to both industry and consumers for evaluation,
 - Developing tools that provide resources to designers who are trying to create accessible products, including a bibliography of accessible design resources, a tool for allowing designers to explore different access strategies, a tool for evaluating designs or products to identify accessibility issues, and a collection of example designs and products that have built in accessibility features, and
 - Providing technical assistance to all who are working in this area including those in industry trying to implement universal / accessible design, consumer groups working to advocate for or support more universal design, the Access Board and the FCC.
-

Dissemination, Education, and User Support

The key objective of the dissemination, education, and user support program is to get the knowledge gained from our work out to people in a usable form, as quickly as possible. The second major objective is to increase the information experience level of consumers and professionals so that we have a broader base of individuals in the field, knowledgeable in the area of universal accessible design of telecommunications. Our program targets people with disabilities, disability advocates, government, telecommunications industry, assistive technology companies and service providers, researchers and potential researchers, employers, and the general public.

Dissemination Activities include:

- conference presentations,
 - hands-on exhibits at conferences,
 - articles in professional journals,
 - information and demonstration videos,
 - key resource and reference materials available via the web,
 - information response line for our research focus areas,
 - workshops and seminars on universal design of telecommunication and information technologies, and
 - undergraduate, graduate, and post doctoral education.
-

Source: All Sources : News : News Group File, Most Recent Two Years
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IIE Solutions November 1, 1999

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HEADLINE: Better designs for all people.

BYLINE: O'Briant, Erin

BODY:

While researchers strive to make products that are more accessible to the disabled, they're also creating things that are easier for everyone to use.

When you ask industrial engineers why they enjoy their jobs, they're likely to tell you it's because their work has a positive impact: they make businesses more productive and people's lives more convenient. But a small band of IEs are taking it a step further. They're making sure that the conveniences and technologies most of us take for granted are available to as many people as possible - including those who have trouble seeing, hearing, reading, even moving. They call their goal universal access.

The Trace Research and Development Center at the University of Wisconsin-Madison is a hub for universal access design and research. The center's work is based on a simple premise: Technological designs that are accessible to people with disabilities also work better for people who aren't physically challenged. And the research comes with an important reminder - that many of us will be disabled at some point in our lives. As the baby boomer generation ages, the general population will include an increasing number of people who have low vision, hearing loss, and limited mobility. So we'd better start designing for the future.

The Trace Research and Design Center

Gregg Vanderheiden, a professor of industrial engineering at UWM, is the founder and director of the Trace Center. "The focus of our center is on how to design things so that they can be used by everyone - or as many people as practical - and how to design them so that they can be compatible with the system technologies that people use," he explains. "The bottom line for us is not how accessible you can make things, but how accessible and usable you can make standard, mass-market, attractive, money-making, profitable products. If the last string of adjectives isn't true, then we're not interested because it has no relevance to manufacturing or sales of standard products. There are centers that focus on designing assistive technologies - things that are designed for sale to people who have disabilities. The focus of our center is entirely on how to design standard products so that they can be sold to people who may or may not have disabilities, or may or may not acquire them. And how you design them so that people who don't have disabilities would say, that's the one I want to buy." In other words, Trace researchers are showing companies financially sound - and even profitable - ways to make life easier for people with disabilities and without.

Like most good ideas, the Trace Center began with an inspiration. It came in the form of a boy who suffered from cerebral palsy and was unable to speak or write.

"Twenty-nine years ago I was tricked into going to see this young lad," Vanderheiden recalls. "I was an undergraduate student at the time. A fellow came around looking for someone else to check out some technology. The person he was looking for wasn't around, so I spoke with him and started talking with him about the ideas I had on how to make things accessible. He kept saying, 'I don't really understand what you're talking about, explain it to me again.' I think he was really just trying to keep me talking so I would go visit this boy with cerebral palsy. He ended up convincing me to go out to the

we have not done a whole lot to accommodate them with respect to **information technology**.

"One of the things we did was to develop some custom software that allows us to manipulate specific features of the graphic user interface. It includes a whole host of different magnification levels and color manipulations that go beyond what is typically provided on Microsoft Windows. The software also allows us to manipulate how many items are present on the screen at one time.

"We decided to look at visual icon identification because so much of the interaction between a human and GUI concern visual icon use. We collaborated with a professor at Florida International University and did some very interesting eye movement analyses. We have some hardware that allows us to use infrared sensors to detect corneal and pupil reflection, and it allows researchers to actually record someone's eye movement across the screen at any given time. That way we can figure out when there is a collection of icons on the screen, where somebody with a particular degree of impairment looks, and what strategies they use to identify and select visual icons on the screen." Though her research is still in progress, Jacko hopes that ultimately she will be able to make recommendations to companies about how to design software so that it can be used by people with a wide variety of low vision problems.

Better access to more products

Researchers at the Trace Center are also interested in making other widely used technologies available. They've developed and deployed a touch-screen public kiosk that can be used by people with a variety of **disabilities**. According to Vanderheiden, "There's an extra button on them, and if you press it, it can move into a mode in which you can use it if you have low vision or are blind, hard of hearing, deaf, or have a physical **disability**, even a severe one. You can use it if you have trouble reading or are completely illiterate. And yet it looks and acts like a regular kiosk. The difference in manufacturing costs is less than 1 percent."

Vanderheiden is also piggybacking research on some existing industry designs, since innovations that are an extra convenience to average consumers can mean a new level of access for people with **disabilities**. Some manufacturers are beginning to design appliances so that they can respond to voice commands and communicate with other appliances.

"For example, if you buy such an appliance and bring it into your house, it would know it was in your house, it would know what other appliances were around, and they would know it was there," he explains. "So when you set your alarm clock, it would ask you, do you want me to reset your coffeepot for the same time?" For people who are unable to move, this technology allows unprecedented autonomy - and it doesn't cost manufacturers much. "We have speech in greeting cards now," Vanderheiden points out. "It costs less than the cardboard box an appliance comes in."

A bright future

Despite the industrial engineering profession's focus in recent years on ergonomics and human factors, there aren't many IEs pursuing universal access applications and research today. But Jacko and Vanderheiden agree that the field of **disabilities** research is in its infancy. "I think people are just now developing a heightened awareness of **disabilities**," notes Jacko. "People are just now recognizing that if we focus on what we call 'lead' users, it will shed a lot of light on how we can better design for 'normal' populations of users. To date, people have not really recognized the value of focusing on specialized populations. I think it's part of an evolutionary process."

Vanderheiden says, "It's traditionally been very, hard to have this as your whole focus. But that's changing rapidly, partly because of legislation, and partly because everybody's getting older. The way we used to design stuff was never very usable, and pretty soon there's going to be a huge chunk of the customer population that will need products to be designed differently for them." And that's why the Trace Center exists.

A cell phone that's better for everyone

The Trace Center's cellular phone reference design shows how features that are useful to people with **disabilities** also work better for people without them.

Infrared port allows wireless connection to **assistive technologies**. Mass-market appeal: wireless connection to computer modem.

Volume range meets FCC specifications for those who are hard of hearing: phone is hearing aid-compatible. Mass-market appeal: phone can be used in noisy environments (crowds, subway, airports, etc.).

Speakerphone function (optional) facilitates use by people who have difficulty handling the phone. Mass-market appeal: hands-free use.

Matrix display allows use of graphics and multiline text messages including TTY conversations. Mass-market appeal: text messaging and paging.

Headset jack allows connection of neckloops, silhouettes, assistive listening devices, TTYs, and headsets. Mass-market appeal: headsets and hands-free use.

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TAP Bulletin - January 1999

ASSISTIVE TECHNOLOGY ACT OF 1998 P.L. 105-394

On Friday, November 13, 1998, President Clinton signed into law the Assistive Technology Act of 1998 (P.L. 105-394). This new law builds on its predecessor, the Technology-Related Assistance for Individuals with Disabilities Act of 1988 (Tech Act), and affirms that technology is a valuable tool that can be used to improve the lives of Americans with disabilities. It also affirms the federal role of promoting access to assistive technology devices and services for individuals with disabilities.

The Assistive Technology Act of 1998 (ATA) is the result of a bipartisan effort in Congress. It extends funding to the 50 states, the District of Columbia, Puerto Rico, and outlying areas (Guam, American Samoa, U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands) that receive support under the Tech Act. The law provides flexibility to states in responding to the assistive technology needs of their citizens with disabilities and builds on the accomplishments achieved by states over the past decade through assistive technology programs funded under the Tech Act. Under the new ATA, all states and outlying areas are eligible to receive 10 years of federal funding for their state assistive technology program. States that have completed 10 years may receive 3 additional years of federal funding.

Background

The Technology-Related Assistance for Individuals with Disabilities Act of 1988 (P.L. 100-407) was passed by Congress to increase access to, availability of, and funding for assistive technology through state efforts and national initiatives. The Technology-Related Assistance for Individuals with Disabilities Act Amendments of 1994 (P.L. 103-218) reauthorized the Act through September 30, 1998. With the end of the Tech Act in sight, efforts were launched to continue and expand federal support for assistive technology for individuals with disabilities, with the Senate Committee on Labor and Human Resources taking the lead.

On April 29, 1998, Senator Jim M. Jeffords of Vermont, the Chair of the Senate Committee on Labor and Human Resources, held a hearing on assistive technology. At this hearing, the Committee heard testimony from more than a dozen witnesses. A Technology Expo, coordinated by the RESNA Technical Assistance Project, was held in conjunction with the hearing. More than 20 exhibitors showcased assistive technology devices that could be used across the life span of an individual with a disability.

Legislative Actions

On September 2, 1998, a bill (S. 2432) was introduced in the Senate that would support programs of grants to states to address the assistive technology needs of individuals with disabilities. Senator Jim M. Jeffords sponsored the bill. Co-sponsors included Senators Tom Harkin of Iowa, Kit Bond of Missouri, J. Robert Kerrey of Nebraska, Mitch McConnell of Kentucky, Susan M. Collins of Maine, Edward M. Kennedy of Massachusetts, Jack Reed of Rhode Island, and Bill Frist of Tennessee. The bill was reported out of committee favorably by unanimous vote on September 9, 1998.

On September 15, 1998, the Committee Report (105-334) was filed and the bill was placed on the legislative calendar under general orders. On October 5, 1998, the Senate passed the bill by unanimous consent. The bill then went to the House and on October 9, 1998, the House passed an amended version of the Senate bill. On October 14, the Senate agreed to the changes made by the House, and thereafter the bill was sent to the President for his signature.

Overview of the Assistive Technology Act of 1998

The purposes of the ATA are the following:

- * Support states in sustaining and strengthening their capacity to address the assistive technology needs of individuals with disabilities.
- * Support the investment in technology across federal agencies and departments that could benefit individuals with disabilities.
- * Support micro-loan programs to individuals wishing to purchase assistive technology devices or services.

Title I - State Grant Programs

Section 101 provides continuity grants to states for a limited period. The purpose is to support capacity building and advocacy activities designed to assist the states in maintaining permanent, comprehensive, consumer responsive, statewide programs of technology-related assistance.

The Assistive Technology Act of 1998 requires states and outlying areas to do the following:

- * Support a public awareness program that is designed to provide information related to the availability and benefits of assistive technology devices and services and that is linked to a proposed national public internet site.
- * Promote interagency coordination that improves access to assistive technology devices and services for individuals of all ages who have disabilities.
- * Provide technical assistance and training including the development and implementation of laws, regulations, policies, practices, procedures, or organizational structures that promote access to assistive technology devices and services.
- * Provide outreach support to statewide community-based organizations that provide assistive technology devices and services to individuals with disabilities or that assist individuals in using assistive technology, including focusing on individuals from underrepresented and rural populations.

States and outlying areas funded under the ATA may also perform optional activities such as establishing an alternative state-financed system for assistive technology devices and services, providing technology demonstrations, distributing information about how to finance assistive technology devices and services, operating a technology-related information system, participating in interstate activities, and creating public-private partnerships pertaining to assistive technology.

This statute expires September 30, 2004. The ATA treats 1999 as a transition year for current grantees. The Act provides the Secretary of Education with discretion to continue funding states that have received 10 years of federal funding. Those states will submit applications for new 3-year grants.

Section 102 of Title I authorizes funding for state protection and advocacy systems to assist individuals with disabilities in accessing assistive technology devices and services. A grant shall be made from the U. S. Department of Education, National Institute on Disability and Rehabilitation Research (NIDRR) directly to the entity in each state to support protection and advocacy services through the systems established under the Developmental Disabilities Assistance and Bill of Rights Act. Federal assistance shall be provided for 6 years.

Section 103 authorizes a technical assistance program. The scope of technical assistance will include a national public internet site and other technical assistance efforts that are targeted primarily at entities funded

under the Act.

The legislation authorized \$36 million for all grants and activities under Title I for fiscal year 1999.

Title II - National Activities

Title II provides for increased coordination of federal efforts related to assistive technology and universal design. It authorizes funding for multiple grant programs from fiscal years 1999 through 2004.

Title II strengthens the mandate of the Interagency Committee on Disability Research (ICDR) to include assistive technology and universal design research, and it authorizes funding for joint research projects by ICDR members. It also provides for increased cooperation between NIDRR, which administers the assistive technology program, and the Federal Laboratory Consortium. Title II also authorizes funding to support the following:

- * Small Business Innovative Research grants related to assistive technology.
- * Grants to commercial or other organizations for research and development related to universal design concepts.
- * Grants or other mechanisms to address the unique assistive technology needs of urban and rural areas, of children and of the elderly.
- * Grants or other mechanisms to improve training of rehabilitation engineers and technicians.
- * The President's Committee on the Employment of People with Disabilities to work with the private sector to promote the development of accessible information technologies.

The legislation authorized \$10 million to carry out activities under Title II for fiscal year 1999.

Title III - Alternative Financing Mechanisms

Title III requires the Secretary of Education to award grants to states and outlying areas to pay for the federal share of the cost of the establishment and administration of, or the expansion and administration of, specified types of alternative financing systems for assistive technology for people with disabilities. The alternative funding

mechanisms may include the following:

- * A low-interest loan fund.
- * An interest buy-down program.
- * A revolving loan fund.
- * A loan guarantee or insurance program.
- * A program operated by a partnership among private entities for the purchase, lease, or other acquisition of assistive technology devices or services.
- * Another mechanism that meets the requirements of this title and is approved by the Secretary.

The legislation authorized \$10 million to carry out activities under Title III for fiscal year 1999.

For fiscal year 1999, \$30 million has been appropriated to carry out activities under Title I of the ATA. No money was appropriated for Titles II or III.

The RESNA Technical Assistance Project, Grant #H224A50006, is an activity funded by the National Institute on Disability and Rehabilitation Research (NIDRR), U.S. Department of Education (ED), under the Technology-Related Assistance for Individuals with Disabilities Act of 1988, as amended. The information contained herein does not necessarily

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Technical Assistance Project

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Accessibility & Microsoft

About Accessibility

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How Computers Are Accessible

[Text-only](#)

The computer needs of people with disabilities are being met in a number of ways.

General Improvements

- **Hardware or operating system adaptations.** Options and features that refine mouse and keyboard control, add sound, or increase visual contrast are being built into the Microsoft Windows operating systems and hardware. Microsoft Windows 98 and Windows 2000 include an [Accessibility Wizard](#) to help people adapt various operating system features to their needs. These same options can be accessed from the Windows operating system Control Panel.
- **Features in software.** Features such as customizable color and the ability to zoom in on text and screen images can help make software readily accessible. Many of these [features are built into many software programs](#) and may be accessed from the Format or View menus. However, most people with disabilities need to use mainstream software programs to take advantage of the latest features and to facilitate working or sharing information with their friends and coworkers.
- **Assistive technology.** Assistive technology, or "accessibility aids," work with a computer's operating system to accommodate specific impairments, such as a limited range of motion or blindness. Products include larger keyboards, eye-gaze-operated keyboards, voice input utilities, on-screen keyboards, and products that can convert text to speech or to a dynamic Braille display.
- **Specialized software.** Some software is created specifically to meet the needs of people with disabilities. For example, some word processing programs are being designed to integrate voice and text to help individuals with limited abilities read or type.

Examples of What's Being Done

- **For visual impairments.** Some software and operating system features can be adjusted to satisfy the needs of people with low vision impairments. For instance, text and images can be made larger or higher in contrast and the appropriate use of color can accommodate color-blindness. For people with severe visual impairments, computers can be made accessible with screen review aids that translate on-screen text to speech or to a dynamic, refreshable, Braille display.
- **For hearing impairments.** Programs can use visual cues, like a flashing toolbar, or display spoken messages as text. For instance, when turned on, the SoundSentry feature (an accessibility option in the Control Panel) provides a visual warning whenever the system makes an alarm sound.
- **For movement impairments.** Controls that refine or

What Is Accessibility?

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- ▶ [Understanding Disabilities](#)
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- [How Computers Are Accessible](#)
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eliminate keyboard and mouse use can improve computer accessibility. The Control Panel offers some assistance. For instance, one alternative is to use the numeric keypad for navigation instead of the mouse. Another option (StickyKeys) allows people who are unable to hold down two or more keys at one time (like CTRL+P), to get the same result by typing one key at a time.

- **For cognitive and language impairments.** Software programs can be designed to better accommodate the needs of people with mild cognitive and language impairments. For instance, using very apparent or cued sequencing, uncomplicated displays, fewer words, and a reading level targeted to elementary school standards would benefit people with these disabilities.
- **For seizure disorders.** Software programs can be designed to eliminate trigger-provoking patterns.

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Accessibility & Microsoft

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Assistive Technology for Computers

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Assistive technology, also called accessibility aids, are added to computers by people who use them to make computers more accessible.

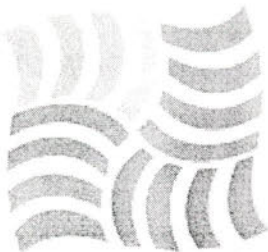
Microsoft manages a [catalog of accessibility aids](#) for Microsoft Windows® operating systems.

Some common aids include:

- **Screen enlargers** help people with low vision. Also called screen magnifiers or large print programs, these utilities are like a magnifying glass. People using them are able to control what area of the computer screen they want enlarged, and can move that focus to view different areas of the screen.
- **Screen reviewers** are for people who are blind. These aids make on-screen information available as synthesized speech or a refreshable Braille display. Also called blind access utilities or screen readers, they can only translate information that is text. Graphics can be translated if there is alternative text describing the visual images.
- **On-screen keyboards** are used by people who are unable to use a standard keyboard. An on-screen keyboard lets people select keys using a pointing method such as pointing devices, switches, or Morse-code input systems.
- **Keyboard enhancement utilities** are used by people who have trouble typing, or who want to increase typing speed. The filters built into Microsoft® Windows® and Microsoft® Windows NT® compensate somewhat for erratic motion, tremors, slow response time, and similar conditions. Other types of keyboard filters include typing aids, such as word prediction utilities and add-on spell checkers.
- **Voice input aids** assist people with mobility impairments. Also called speech recognition programs, these enable people to control computers with their voice instead of a mouse or keyboard.
- **Alternative input devices** allow individuals to control their computers through means other than a standard keyboard or pointing device. Examples include smaller or larger keyboards, eye-gaze pointing devices, and sip-and-puff systems controlled by breathing.

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Product Record 1 of 1

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EYEGAZE COMPUTER SYSTEM

Description

The Eyegaze Computer System is a cursor control interface for computers that is controlled by the use of one eye; nothing is attached to the user's body. Using a camera and an infrared light source, the computer interprets where the eye is focused on a computer screen. Various options (extra) permit the user to turn on lights and appliances, dial and receive telephone calls, and run most IBM software. The Basic System includes Eyegaze tracking software, an applications software package, a 486DX computer with a manual keyboard, 3.5 inch and 5.25 inch floppy drive, a 200 MB hard disk drive, an infrared-sensitive camera, a VGA color applications monitor, eye-image monochrome video monitor, a surge protector, a monitor support arm, cables, connectors, installation, training, and one years' technical support. OPTIONS: Telephone program, speaker phone and modem for \$500. TV/VCR control program, programmable remote control for \$350. Lights and appliance control program for \$350. Ink jet printer for \$350. Phrases program with DECTalk speech synthesizer for \$1200. Phrases program with Prose 4000 speech synthesizer for \$1750. DOS keyboard emulation program, monochrome monitor for \$1000. Second computer program, T-TAM interface for \$1500. Transportable system includes two of all components and one computer for \$3000. Portable computer alone for \$1200.

Price

Contact manufacturer

Price Date

DEC 1999

Available from

Manufacturer

Manufacturer Information

LC Technologies Inc
9455 Silver King Court
Fairfax, VA 22031
703-385-7133, 800-393-4293, 703-385-7137 F

Comments

Shipping and handling charges are not reflected in the price. ** Installation charges will apply.



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IBM.
Independence Series
Screen Magnifier/2



IBM Screen Magnifier/2

Now reading your computer screen is a BIG, BIG DEAL

If you have a difficult time reading the small print on your computer, Screen Magnifier/2 will change what you see - in a **BIG WAY!**

Imagine, your computer screen could display all of your information in an easy to read size like this or even bigger!

This easy to learn computer-access program is designed for people who are visually impaired and want to see everything in a big way. Screen Magnifier/2 enlarges text and images two to 32 times their normal size. For the first time, words and graphics practically jump off the screen, whether you're using an OS/2, DOS, or Windows application. **Increases speed and productivity**

Using a feature called Focus Tracking, your mouse pointer automatically moves to the area of interest on your screen - saving time and enhancing productivity. Screen Magnifier/2 can reverse colors on the screen - sharpening the clarity of your text and images.



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IBM Screen Readers

A software tool so smart it speaks for itself

Imagine running a computer so smart, it talks to you! That is what IBM Screen Reader does by converting screen information into speech. This powerful software tool enables blind or visually-impaired individuals to operate a computer with greater ease and efficiency.

There are two versions of Screen Reader (DOS or OS/2) that work with a wide range of popular applications from word processors to spreadsheets. Screen Reader/2 even works with Microsoft Windows applications! These easy-to-use tools give you all the control you need to be up and running, at home and at work.

The tool that converts screen information to speech

Screen Reader enables users to hear - rather than read - words on a computer screen. For individuals who have a vision impairment, this software innovation opens up new worlds of opportunities.

Screen Reader can benefit many others as well, including people who have a reading dysfunction or who simply do not like to read text on a computer screen and prefer listening to reading.

**Developing
Technology**Need for Accessible
Design

Articles

Software Guidelines

Hardware Guidelines

Web Guidelines

Active Accessibility

Closed Captions

Testing

User Documentation

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**Synchronized Accessible
Multimedia Interchange****Closed Captions for Web Multimedia**Text-only**Introduction**

Authors of Web pages and multimedia software titles can now add closed captioning for users who are deaf or hard of hearing.

Microsoft® Synchronized Accessible Media Interchange (SAMI) simplifies captioning for developers, educators, and multimedia producers and designers who will now find it easier to make their work more universally accessible. The SAMI file format specification is available to the public as an "open" (no licensing fees) standard.

Familiar to television viewers, closed captioning was initially developed by WGBH, the public TV station in Boston, for the estimated 20 million Americans who are deaf or hard of hearing. Now, the new SAMI technology expands the ability to provide closed captioning to a wide range of multimedia products.

Resources:

- Understanding Closed Captions
- Adding Closed Captions to Multimedia
- Downloads & Demos

**Closed Caption
Contents**

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MOTOROLA DEBUTS NEW HEARING AID COMPATIBLE CELLULAR PHONES

MicroTAC Lite™ II/XL Models Provide Self-Contained Solution For Hearing Aid Users

ATLANTA, - February 23, 1998 -- Today, Motorola's Cellular Subscriber Sector continues its commitment to providing accessible communications products by announcing the availability of new cellular telephone models designed specifically to provide improved communications for hearing aid users. Externally, the new MicroTAC Lite II/XL phone models appear as typical Motorola cellular phones; internally, however, they have been designed with a speaker that provides compatibility with Telecoil (T-coil) hearing aids.

The new MicroTAC Lite II/XL phone models provide this segment of the population with a cellular solution that compliments, not intrudes, on their lifestyle. There is no longer the need to carry and connect external accessories; Motorola has incorporated an internal speaker that helps eliminate background noise when the hearing aid user selects the T-coil setting on their hearing aid.

A T-coil works by picking up on the magnetic field generated by Motorola's unique speaker inside the MicroTAC Lite II/XL phone models. Setting the hearing aid to the T-coil position helps eliminate any acoustic background noise, thus, the hearing aid can now only "hear" magnetic fields from the phone's speaker. With this design, Motorola's new hearing aid compatible phones can be shared seamlessly by both hearing aid users and non-hearing aid users. Previously, an external device had to be disconnected and then reconnected to continue the conversation.

"Accessibility to communications is something that many of us take for granted," said Denise Gibson, Director of Business Operations for Motorola's U.S. Markets Division, Cellular Subscriber Group. "However, people communicate in different ways and have different needs, and that's why Motorola felt it important to provide hearing aid users with an easy and unobtrusive way to stay in touch with the office and friends. These new Motorola cellular phones offer that freedom and flexibility in a convenient and lightweight package."

Key features of Motorola's MicroTAC Lite II/XL phones include: VibraCall™ alert feature, 99 alphanumeric memories, multi-language capabilities, selectable ringer tones, a two-line, 14 character display, headset jack, and active keypad cover. Standard package includes a nickel metal hydride battery, offering up to 90 minutes of talktime up to 24 hours of standby time.



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SERVICES

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SERVICE

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INVESTOR RELATIONS
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Our Company

Wireless Solutions for People with Disabilities

AT&T Wireless Services offers people with disabilities:

- Individualized assessment to better understand a customer's needs so that we can make the best recommendations regarding to equipment and accommodations.
- Customer support materials in alternate format upon request.
- Individualized orientation to equipment for people who need extra support.
- Customized installation of phones on wheelchairs and in accessible cars/vans.
- TRS (telephone relay services) access to customer service for people who are deaf, hard of hearing, or speech impaired.



Safety - Your
most important call.

The following wireless products and services are offered by AT&T Wireless Services for people with disabilities:

Wireless Phones

- **Voice activated dialing.** In many of our markets, AT&T Wireless offers VoiceTouch, a voice activated dialing service. VoiceTouch allows a person to say the name of a pre-programmed calling destination or the individual numbers of a phone number and *dial* the phone without actually touching it. VoiceTouch can be helpful for people who are blind or partially sighted and people who are physically unable to dial a phone.
- **Raised dots.** Many wireless phones have raised dots or nubs on the "5" key and function keys and provide tactile orientation for people who are blind.
- **Wheel chairs and accessible vans.** Our installation representatives can mount wireless phones on both electric and non-electric wheelchairs. Some customers prefer to have a portable phone with cradles installed on both their chair and in their van so they can transfer the phone back and forth. In addition, the phones can be positioned so that people with limited mobility in their arms and hands are more able to use the keypad.
- **TTY's.** A variety of analog cellular phones can be used with many TTYs. For effective coupling, the phone needs to be a standard length (ear-piece to mouth-piece). Many wireless phones are smaller than traditional landline handsets, and there is a greater instance of background noise interference. Better transmission occurs when a phone is directly connected to a TTY through an external jack. At this time, TTYs are not compatible with digital phones. For more information, click here to see our [Hearing Disabilities Fact Sheet](#).
- **Vibrating alert.** Persons with hearing disabilities may benefit from a variety of devices that vibrate to alert them that their phone is ringing. Some wireless phones are available with built-in vibrating alerts. Vibrating batteries and add-on external devices are also available.
- **Hearing aids, t-coils, and amplifiers.** AT&T Wireless offers a variety of choices to people who are hard of hearing and use hearing aids. Some digital phones interfere with some hearing aids and cause a "buzz." Analog phones are usually a better choice for people who use hearing aids. Customers may also use portable amplification devices to increase volume. Many cellular phones have external jacks and can be combined with other assistive listening devices. For more information, click here to see our [Hearing Disabilities Fact Sheet](#).

Messaging

- **Alphanumeric messaging.** Alphanumeric messaging service can be an effective tool for people with hearing disabilities. Worded messages are sent to the pager through a voice dispatch, a standard TTY via an AT&T Wireless special dispatch, or standard messaging software. The pager vibrates to alert the user of an incoming message and the message is displayed on its screen.
- **Alphanumeric messaging as a memory tool.** People who have difficulty with short term memory or sequencing tasks due to head injuries, seizure disorders, and learning disabilities may use an alphanumeric pager with electronic calendar dispatch to set up a reminder system that alerts them to job tasks and appointments, as well as daily life tasks, medication, and independent living skills.

Aviation

- **Hearing aids.** The majority of AT&T Wireless air-to-ground phones are t-coil compatible.

Contact:

For more information regarding wireless technology for people with disabilities, please contact:

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AT&T Wireless
External Affairs Manager
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Hardware	Description	Specification
Braille 'n Speak 2000 	Innovation In Action Since 1987 the Braille 'n Speak has been the overwhelming choice of note-taker and personal organizer for blind and visually impaired children and adults around the world. Now in its third generation, Braille 'n Speak 2000 weighs well under one pound and is about the size of a video cassette – so you can take Braille 'n Speak 2000 with you anywhere. With 25-30 hours of battery life, it's always ready to go whenever and wherever you are. Blazie Engineering's original talking notetaker offers you the exciting combination of speech access and a standard Perkins's style, Braille keyboard. Braille 'n Speak 2000 holds over 2.5mb of memory, so you can store more than 2,500 pages of Braille information! The built-in speech synthesizer lets you input and edit directly into the memory of the Braille 'n Speak 2000 and instantly read the information back at the press of a single command. In combination with peripherals like our disk drive accessory, you'll also use Braille 'n Speak 2000 to read information you've imported from other computers, floppy disks, or the Internet. A six-key input mode lets you input information in either grade I or grade II Braille, whichever you prefer. Braille 'n Speak 2000 Features and Benefits:	Size: 8" x 5" x 1-1/4" Weight: About 1 pound Power: A nickel-cadmium that will power unit for 25 between charges. Also run standard household current adaptor Warranty: One year from receipt Service Contract: Available \$99.00 per year, renewable Accessories: Soft simulation case; battery charger/AC earphone; serial cable; interface including Twiddle Dump print and audio cassette; Braille quick-reference guide; a manual (optional for \$15). Major Features: Braille's a six-key Perkins-style keyboard Please indicate desired language on order form. Select from the list below: - English - Croatian - Danish* - French - French (Quebecois) - German - Italian

- Portable—Slightly more than 1 pound and nearly indestructible.
- Bilingual option – Operates two different languages if desired. Choose from among 15 languages, and switch between them at the touch of a key!
- Easy to operate – Simple, proven command structure. Both children and adults master the key features in no time at all.
- Word processing – Complete capabilities, including a complete spell checker.
- Speech synthesizer – Fully adjustable to allow you to control parameters such as tone, rate, pitch, and volume.
- Grade 2 Braille translation – Create documents in grade II Braille and have them automatically spoken and printed in fully translated and formatted text.
- External software – Our large selection of inexpensive notetaker software lets you add capabilities like personal money management, scientific graphing, and spreadsheet production to your Braille 'n Speak 2000.
- Time and Date functions – Talking clock, appointment calendar, alarm and stopwatch. Plus, a phone book organizer and scientific calculator.
- Accessories – Protective carrying case, easy-to-follow documentation and interface cables are all included.
- Self-service – Install software updates yourself, quickly and easily.
- Warranty – All Blazie Engineering products come with a 30-day money-back guarantee of satisfaction. Braille 'n Speak 2000 carries a full one-year warranty against manufacturing defects.
- Customer support – We offer extensive customer care including our highly trained technical support staff, company website with on-line manuals and other product information and e-mail user forums.

- Norwegian*
- Polish
- Portuguese
- Portuguese (Brazilian)
- Russian
- Slovak
- Spanish
- Turkish

* Denotes language available in Braille'n Speak and Braille

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Ordering Information:

BNS-2000 (English)
(cash, credit card, or check)
\$1,299.00 [Add To Cart](#) 

BNS-2000 (English)
(with purchase order)
\$1,349.00

BNS-2000-O (dual language: English-plus-one)
(cash, credit card, or check)
\$1,399.00 [Add To Cart](#) 

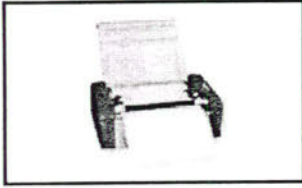
BNS-2000-O (dual language: English-plus-one)

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PB-80 (with purchase order)
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Check Out

Braille Blazer Embosser



Forget any preconceived notions about big, loud or immobile Braille embossers. The 12 lb. Braille Blazer is different! This combination of portability and unique engineering is so advanced, maybe we should have named it the Trailblazer.

YOU GET "TWO FOR THE MONEY"

When you purchase a Blazer, you actually get two machines in one. First, of course, you get a dependable, carry-along Braille embosser that handles paper up to 8-1/2" wide, in any length. It does an excellent job on regular computer paper, Braille paper, and even on smaller items such as tractor-fed index cards and labels.

Secondly, the Blazer functions well as a speech synthesizer for use with any desktop or portable computer. Just combine your favorite screen access and Braille translation software with the Blazer...and that quick, you've got a very capable speech system

The result? A very capable speech system to see you through almost any workday situation.

The Blazer's built-in synthesized speech keeps the configuration of your embosser a quick and simple process. You can even instruct the Blazer to print "sideways" for spreadsheets and screen dumps.

You'll easily produce crisp, clear Braille graphics using the Blazer and a software program such as ETgraphX. Using the Graph-it program, you can produce mathematical graphs, too!

Three Material Weights to Match Your Needs

Select among three embossing modes:

- Light paper mode gives you quality Braille on standard paper. It's the choice you'll make for lists, proofreading, memos, and other "throwaway" applications.
- Regular mode is for Braille paper.
- Plastics mode was developed for the production of Braille signs and labels on lightweight polymer materials.

The Braille Blazer accommodates many sizes of paper and plastics. It is extremely versatile, because we know your needs and applications probably change from day to day.

The economical Braille Blazer may be the only embosser you will ever need. It was built with

Size: 13-1/2" x 8" x 5" (w closed)

Weight: About 12 pound

Power: Standard househo

Warranty: One year from receipt

Service Contract: Availa \$250.00 per year, renewa annually.

Accessories: Print manua cassette tutorial

Major Features: Synthes speech output; prints on l paper, Braille paper, and from 1" to 8-1/2" wide; p in 6 or 8 dot Braille; print spreadsheets; extremely li compact, and portable; ca available

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For Immediate Release

Adobe Enhances Accessibility of Adobe Acrobat Software for the Disability Community

Adobe Works with Leading Screen Reader Vendors to Make Acrobat and Adobe PDF Documents More Accessible; Supports Microsoft Active Accessibility API

FOSE, WASHINGTON, DC., (April 18, 2000) Building on its efforts to deliver software solutions to the disability community, Adobe Systems Incorporated (Nasdaq:ADBE) today announced plans to make Adobe® Acrobat® software more accessible with support from Microsoft Corporation, GW Micro and Henter-Joyce. As part of today's news, Adobe also announced its intention to support the Microsoft® Active Accessibility (MSAA) Application Programming Interface (API) in future releases of Adobe Acrobat software for the Windows® platform.

By enhancing the accessibility of Adobe Acrobat software and the Adobe Portable Document Format (PDF), Adobe is enabling businesses and government agencies to easily distribute a wide range of web-based content such as forms, newsletters and other documents to the broadest number of users, even those with disabilities. The ability to access everything from IRS tax forms to consumer catalogs narrows the gap for members of the disability community to easily tap the wealth of information available on the Internet.

"Adobe's support for accessibility in Acrobat software extends the value of Adobe PDF as a web standard for electronic documents and opens up the vast amounts of information available in Adobe PDF to a much larger audience," said Sarah Rosenbaum, group product manager at Adobe. "Now users with disabilities can more easily use the Internet to collaborate and exchange information critical to their work and everyday lives."

Microsoft Active Accessibility is an API that allows programs to expose information about their content and user interface to assistive technologies. Through support of MSAA and relationships with the assistive technology vendors such as GW Micro and Henter-Joyce, Adobe will enable users with disabilities to not only more easily use Adobe Acrobat software, but to easily access documents in PDF.

"It is great news for the disability community when popular mainstream programs like Adobe Acrobat become more accessible," said Gary Moulton, group product manager for the Accessibility and Disabilities Group at Microsoft. "By taking advantage of MSAA, Adobe has made it much easier for individuals with disabilities to tap into the full benefits of the Windows platform."

Technology Demonstration at FOSE

Adobe will be demonstrating Adobe Acrobat software working with GW Micro's Window-Eyes screen reader at the Adobe booth #1550 at FOSE this week in Washington, DC. For this technology demonstration Adobe Acrobat software developers utilized the MSAA API to make Adobe Acrobat and PDF files accessible via the Window-Eyes screen

reader. The demonstration illustrates how blind or vision-impaired people can use Adobe Acrobat in a Windows environment.

Current Adobe Solutions for the Disability Community

Since 1997, Adobe has offered web-based services at <http://access.adobe.com> that enable sight-impaired users to convert Adobe PDF files into formats, including HTML and plain text, that screen readers can understand. Adobe has also developed a plug-in for Acrobat for Windows that provides similar functionality on a user's local system.

About Adobe Systems Incorporated

Founded in 1982, Adobe Systems Incorporated (www.adobe.com) builds award-winning software solutions for Web and print publishing. Its graphic design, imaging, dynamic media, and authoring tools enable customers to create, publish and deliver visually rich content for various types of media. Headquartered in San Jose, California, Adobe is the fourth largest U.S.-based personal software company, with annual revenues exceeding \$1 billion.

This press release contains forward-looking statements that involve risks and uncertainties that could cause actual results to differ materially. Factors that might cause or contribute to such differences include, but are not limited to, delays in shipment of the Company's new products and major new versions of existing products; lack of market acceptance of new products, introduction of new products by major competitors, and dependence on third parties. For further discussion of the risks and uncertainties, readers should refer to the Company's SEC filings including the 1998 annual report on Form 10K and the quarterly reports on Form 10Q available at <http://www.adobe.com/aboutadobe/invrelations/main.html>.

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The Telecommunications Act of 1996 (Section 255)

The Telecommunications Act of 1996, a comprehensive law overhauling regulation of the telecommunications industry, recognizes the importance of access to telecommunications for people with disabilities in the Information Age. Section 255 of the Act requires telecommunications products and services to be accessible to people with disabilities. This is required to the extent access is "readily achievable," meaning easily accomplishable, without much difficulty or expense. If manufacturers cannot make their products accessible then they must design products to be compatible with adaptive equipment used by people with disabilities, where readily achievable. What is "readily achievable" will be different for each manufacturer based on the costs of making products accessible or compatible and their resources.

Guidelines and Enforcement

Manufacturers must ensure that products are "designed, developed, and fabricated to be accessible to and usable by individuals with disabilities" when it is readily achievable to do so. The Access Board was given the job of developing guidelines that spell out what makes telecommunications products accessible. The Board's final guidelines, published in February 1998, were developed with help from an advisory committee the Board created for this purpose. The Telecommunications Access Advisory Committee included product manufacturers, service providers, disability groups, and experts in communication access. The final guidelines are based on this committee's recommendations. The Federal Communications Commission is responsible for rules and policies to enforce the law.

What's Covered

Telecommunications products covered include:

- wired and wireless telecommunication devices, such as telephones (including pay phones and cellular phones), pagers, and fax machines
- other products that have a telecommunication service capability, such as computers with modems
- equipment that carriers use to provide services, such as a phone company's switching equipment.

The possible functions of a product are key in determining coverage. If a product can provide telecommunication services, then that portion is covered. For example, televisions generally are not covered by section 255, except where a set-top-box enables e-mail communication or Internet access, and then only that device is covered.

Section 255's Likely Effect

Because section 255 applies only to products designed, developed and fabricated after the law took effect on February 8, 1996, and does not require changes to existing products, its overall impact likely will not be immediate. It certainly stands to improve access and the number and range of accessible products. Still, not every new product or service will be accessible to all persons with disabilities. Manufacturers and service providers, however, are finding that as they make products easier to use by people with disabilities, they often make them easier to use by everyone; some access features, such as vibrating alerts on pagers and talking caller ID, have benefits for all users.

Questions and Answers on Provisions in the Telecommunications Act of 1996 with regard to disability access and assistive technologies for communications

- 1) What are the major provisions of the Telecommunications Act focus entirely on access by persons with disabilities?

Section 255 of the Act requires all manufacturers of telecommunications equipment and providers of telecommunications services to ensure that such equipment and services are designed and developed to be accessible to and usable by individuals with disabilities, if readily achievable. The FCC undertook a rulemaking proceeding to implement this provision. In 1999, the FCC released rules to implement this provision.

Section 713 aims to ensure that video services are accessible to individuals who are hearing impaired and/or visually impaired. It requires the FCC to study the level at which video programming is closed-captioned, and then to establish a timetable for closed captioning requirements. Section 713 also directs the FCC to study the use of video description in order to assure the accessibility of this service to persons with visual impairments.

- 2) What are other provisions of the Act aimed to promote access to telecommunications by all Americans, including those with disabilities.

Section 706 requires the FCC to encourage deployment of advanced telecommunications to all Americans, and to elementary and secondary schools and classrooms in particular. This provision could significantly benefit children with disabilities as well as children without disabilities and adults

Section 254 concerns universal service, and directs the FCC and a Federal-State Joint Board to define what services should be made universally available and to take other actions as needed to further the Act's universal service principles. Section 254 also revises the definition of universal service to include schools, libraries, and health care facilities. It says that telecommunications companies must provide services to these public institutions at affordable rates, upon request. The FCC and the States must decide what constitutes affordable rates, what telecommunications services should be covered, and how discounts should be made available to public institutions.

Section 256 directs the FCC to establish procedures for oversight of telecommunications network planning and states that the FCC may participate with the industry in developing standards for "interconnectivity". Such standards would promote access to telecommunications networks by people with disabilities.

- 3) What are Assistive Listening Devices?

Assistive listening devices (ALDs), also known as auditory assistance devices (AADs), are forms of telecommunications equipment designed to enhance the ability of people with hearing disabilities to hear in various settings, including theaters, classrooms, lecture halls and meeting rooms.

4) What is a TTY ?

TTY stands for teletypewriters, but are also called text telephones. TTY's were originally invented in the 1930's as a way to send text messages over telephone wires, and were often used by journalist when submitting a story to their editor. In the 1960's, a scientist who was deaf, modified a teletypewriter so that people who are deaf could use the telephone network. Looking much like a typewriter keyboard with a text screen, a TTY allows persons with hearing and/or speech loss to make or receive telephone calls by typing their conversations, via two-way text. The conversation is read on a lighted display screen and/or a paper printout in the TTY

5) What is Telecommunications Relay Services (TRS)?

Telecommunications Relay Services, or TRS, enables telephone conversations between people with and without hearing or speech disabilities. TRS relies on communications assistants (CAs) to relay the content of calls between users of text telephones (TTYs) and users of traditional handsets (voice users). For example, a TTY user may telephone a voice user by calling a TRS provider (or "relay center"), where a CA will place the call to the voice user and relay the conversation by transcribing spoken content for the TTY user and reading text aloud for the voice user.

6) What is Closed-Captioning?

Closed-captioning is the display of audio portions of television and video programming as printed words on the television screen. In addition to displaying spoken dialogue and music lyrics, captions may identify speakers, sound effects, background music, and laughter. "Open" captions 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. Since 1992, all televisions with screens 13" or larger are required to be equipped with the technology to display captioning, and consumers may purchase set-top decoders for older TV models.

7) What is Video Description?

Video description is an auditory depiction of a television or video program's visual elements for persons who are blind or visually impaired. Video description is inserted in the natural pauses of a program's dialogue, and may be used to describe visual elements such as body language, settings, and actions. In order to receive video description, an audience member must have a stereo television or VCR that is capable of receiving the Second Audio Program (SAP) "channel." The SAP feature is available on most new TVs and VCRs, and consumers may also purchase receivers for converting TV sets to stereo with SAP.

8) What are volume control telephones?

Volume control telephones allow the user to amplify the sound output level of the telephone receiver. In addition to benefiting persons with hearing loss and persons losing their residual hearing later in life, volume control can also benefit persons who must use telephones in noisy environments.

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Questions and Answers on the 1998 Amendments to Section 508 of the Rehabilitation Act of 1973 Included in the Workforce Investment Act of 1998

1) What is Section 508?

Section 508 is a part of the Rehabilitation Act of 1973 which requires that electronic and information technology developed, procured, maintained, or used by the Federal government be accessible to people with disabilities. On August 7, 1998, the President signed into law the Workforce Investment Act of 1998, which includes the Rehabilitation Act Amendments of 1998. Section 508 was originally added to the Rehabilitation Act in 1986; the 1998 amendments significantly expand and strengthen the technology access requirements in Section 508.

2) How do these changes to Section 508 improve upon the earlier version?

The old version of Section 508 established non-binding guidelines for technology accessibility, while the new version will create binding, enforceable standards and will incorporate these standards into Federal procurement regulations. Federal agencies will use these standards in all their electronic and information technology acquisitions. Consistent government-wide standards will make it easier for Federal agencies to meet their existing obligations to make their technology systems accessible to people with disabilities, and will promote competition in the technology industry by clarifying the Federal market's requirement for accessibility in products intended for general use. The new version of Section 508 also establishes a complaint procedure and reporting requirements, which further strengthen the law.

3) To whom does Section 508 apply?

Section 508 applies to Federal departments and agencies.

4) Does Section 508 apply to the private sector?

No, it does not regulate the private sector and does not apply to recipients of Federal funds.

5) What does Section 508 require of Federal agencies and departments?

Section 508 requires that when Federal agencies develop, procure, maintain, or use electronic and information technology, they must ensure that it is accessible to people with disabilities, unless it would pose an undue burden to do so. Federal employees and members of the public who have disabilities must have access to and use of information and services that is comparable to the access and use available to non-disabled Federal employees and members of the public.

6) How will Federal agencies and departments know whether the electronic and information technology is accessible?

New standards will be established to help Federal agencies determine whether or not a technology product or system is accessible. Federal agencies must comply with these technology

accessibility standards for all electronic and information technology acquired on or after six months from the date the Access Board issues final standards. Technology developed or acquired for a Federal agency by a contractor must also comply with the standards. If a Federal agency determines that it would pose an undue burden to comply with the standards, it must still provide information and data to individuals with disabilities through an alternative means of access that can be used by the individuals.

7) How will these technology accessibility standards be developed?

The Architectural and Transportation Barriers Compliance Board (Access Board) is required to issue standards that define which electronic and information technology is covered by Section 508, and describe what is meant by 'accessible technology' by setting forth the technical and functional performance criteria necessary to implement the accessibility requirements. The Access Board is required to consult with the Departments of Education, Commerce, and Defense, the General Services Administration, the Federal Communications Commission, the electronic and information technology industry, and disability organizations in developing its standards. The Access Board created an Electronic and Information Technology Access Advisory Committee (EITAAC) to advise it on the standards. The Committee's final report was delivered to the Board May 11, 1999. On March 31, 2000, the Board published a Notice of Proposed Rulemaking based on the Committee's recommendations. The Access Board intends to submit the final standard to OMB for review by the end of September 2000. OMB will release the new accessibility standards roughly a month after it receives them.

8) How will the standards be applied to federal procurement?

Six months after the Access Board publishes the final standards, the Federal Acquisition Regulatory Council will revise the Federal Acquisition Regulation and each Federal department or agency shall revise the Federal procurement policies and directives under their control to incorporate the standards. The Access Board will periodically review and update the standards as necessary.

9) What are Federal agencies required to do in the short term to comply with Section 508?

Agencies must evaluate their current electronic and information technology systems for accessibility to individuals with disabilities, and submit a report to the Attorney General containing the results of the evaluation.

10) What other reporting requirements does Section 508 create?

The Attorney General must submit a report to the President on the extent to which the electronic and information technology of the Federal Government is accessible to individuals with disabilities. The Department of Justice issued its report April 19, 2000. In addition, every two years thereafter the Attorney General must report to the President and the Congress on Federal agency compliance with the requirements of the law and on any actions on individual complaints.

11) Where can Federal agencies go for technical assistance?

The General Services Administration and the Access Board will provide technical assistance on the requirements of Section 508. Agencies and individuals may also seek information from the many public, non-profit, educational, or private institutions and organizations that specialize in making technology accessible to people with disabilities. These organizations, along with companies in the electronic and information technology industry, can assist agencies in identifying innovative technology or in developing accessible technology solutions.

12) Are there any exemptions to the technology accessibility standards?

A Federal agency does not have to comply with the technology accessibility standards if it would impose an undue burden to do so. This is consistent with language used in the Americans with Disabilities Act (ADA) and other civil rights legislation, where the term 'undue burden' has been defined as "significant difficulty or expense." However, the agency must explain why meeting the standards would pose an undue burden for a given procurement action, and must still provide people with disabilities access to the information or data that is affected.

Section 508 contains a limited exemption for national security systems as defined by the Clinger-Cohen Act of 1996. These are systems used for military command, weaponry, intelligence, and cryptologic activities. The exemption does not apply to routine business and administrative systems used for other defense-related purposes or by defense agencies or personnel.

13) How will Section 508 be enforced?

Because the Section 508 standards will be incorporated into the Federal Acquisition Regulation (FAR), agencies' procurement of accessible technology will be subject to the same stringent compliance and enforcement mechanisms as other parts of the FAR.

There is an administrative complaint process which becomes effective six months after the Board issues final standards. It enables any individual with a disability to file a complaint alleging that a Federal department or agency has not complied with the accessible technology standards in a procurement made after that date. The complaint process is the same as that used for Section 504 of the Rehabilitation Act, for complaints alleging discrimination on the basis of disability in Federally-conducted programs or activities. It provides injunctive relief and attorney's fees to the prevailing party, but does not include compensatory or punitive damages.

Individuals may also file a civil action against an agency.

14) What is meant by "electronic and information technology"?

The Access Board will set forth in its standards a definition of 'electronic and information technology' consistent with the Clinger-Cohen Act of 1996. That Act defines 'information technology' to include "any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control,

display, switching, interchange, transmission, or reception of data or information." It includes computer hardware, software, networks, and peripherals as well as many electronic and communications devices commonly used in offices.

15) Does Section 508 apply to Web sites of federal agencies?

Yes. Federal agencies which provide information to the public or to their employees through Web sites must ensure that such sites are available to all persons with internet or intranet access, including persons with disabilities.

16) Does this requirement also apply to commercial or private sector Web sites?

No. Section 508 does not apply to the private sector Web site unless such site is provided under contract to a covered entity. For example, a Federal agency might contract with a consulting firm to collect and analyze some demographic data and make that information available to the public on a Web site. In that case, the Web site or portion devoted to fulfilling the contractual obligation would be subject to Section 508. The firm's general Web site, or the portion not devoted to the contracted study, would not be subject to Section 508.

17) Does this mean Web sites can't have graphics?

Not at all. Actually, designing an accessible Web site is not as difficult as most people believe. Often it is a matter of identifying graphics, elements, frames, etc. For example, HTML code already provides the "Alt Text" tag for graphics which some designers simply forget or ignore.

18) Won't accessible Web sites be less appealing?

On the contrary, accessible sites have several advantages. For one thing, some people turn off graphics so sites will load faster. Without "alt" tags, graphics-intensive sites may be unusable. Also, with the growth of PDAs, and even Web site content delivered to cell phones, having text-based content is becoming more important. Because the screens on such devices are so small, graphics will probably never be a viable option. So the busy executive, waiting in an airport, who wants to check her stock portfolio on her cell phone isn't going to turn to the graphics-only site. Furthermore, with the growth of voice technology the harried commuter can have the headlines from his favorite news site read to him, but only if there is a text-based content. Finally, if a digitized video has synchronized captions, the text can be searched. Did you ever try to find a particular scene from your favorite video? If you want to find the famous restaurant scene from the captioned version of "When Harry met Sally" search on "I'll have what she's having" and you're there.

19) What does the law mean by "accessible"?

The standards developed by the Access Board will explain the detailed technical and functional performance criteria that will determine whether a technology product or system is 'accessible.'

Congress Amends Section 508 Enforcement Provisions

On July 13, 2000, President Clinton signed into law an appropriations bill that includes an amendment to section 508 of the Rehabilitation Act. Under this amendment, the effective date of section 508's enforcement provisions are delayed to allow more time for compliance with the Board's final standards. As originally written, section 508 would take effect August 7, 2000. This date was based on final standards being completed last February, which would have allowed six months before enforcement provisions took effect.

The amended language (below) revises the effective date to 6 months from publication of the Board's final standards, consistent with the law's intent. The amendment was included in a military appropriation's bill (Military Construction Appropriations Act for Fiscal Year 2001, P.L. 106-246) which Congress passed the previous week. This action is responsive to industry concerns about sufficient time for compliance with the new standards. However, it does not effect the Board's work in finalizing the standards, which the Board plans to complete as quickly as possible.

**from the *Military Construction Appropriations Act for Fiscal Year 2001*
(HR. 4425; P.L. 106-246; July 13, 2000)**

SEC. 2405. Section 508(f)(1) of the Rehabilitation Act of 1973 (29 U.S.C. 794d(f)(1)) is amended--

(1) in subparagraph (A), by striking 'Effective' and all that follows through '1998,' and inserting 'Effective 6 months after the date of publication by the Access Board of final standards described in subsection (a)(2),'; and

(2) in subparagraph (B), by striking '2 years' and all that follows and inserting '6 months after the date of publication by the Access Board of final standards described in subsection (a)(2).'

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Accessibility & Microsoft

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Policy and Strategy

In July 1995 Microsoft adopted a corporate policy that takes responsibility for making accessible software.

Microsoft Accessibility Policy

As a leader in the software industry, Microsoft Corporation recognizes its responsibility to develop products and information technologies that are accessible and useable by all people, including those with disabilities.

We will devote the time and resources necessary to ensure that all users enjoy access to our products, technologies, and services.

It is the responsibility of everyone at Microsoft to deliver on this commitment.

To realize this vision, Microsoft will address the needs of people with disabilities during all phases of product planning, development and support. This includes:

- Establishing accessibility guidelines for use internally and by third-party developers,
- Working with the disability community to solicit and incorporate feedback when planning and developing products and services,
- Supporting developers of disability access technologies,
- Continuing to recruit qualified people with disabilities to contribute to product development efforts, services and corporate culture, and
- Addressing known accessibility issues with products and services as they are updated.

Microsoft's Strategy and Examples of Efforts and Initiatives

Microsoft is taking a four-pronged approach to making computers more accessible.

1. Making our products accessible

Develop products, technologies, and services that are accessible and usable by all people. This includes normal usability issues such as supporting keyboard usage and different appearances schemes, and accessibility-specific features such as closed-captions and compatibility with accessibility aids.

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Microsoft's Efforts

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Related Resources

[Microsoft's Accessibility Policy Announcement](#)

- **We educate and motivate our employees** through classes, training materials, and events such as Accessibility Day 98.
- **We enforce our approach** by holding our product groups accountable for the accessibility of their products. For example, product group managers must report specifically about accessibility progress to our executive managers. Product groups also are expected to use our Accessibility Development Checklist during the product development process.
- **We set up an internal team** dedicated to assisting our product groups with their accessibility efforts.
- **We established external Access Review Boards** to focus on a specific types of disabilities and to evaluate our products to help us identify ways to make them more accessible.

2. Building relationships with the disability community

Build relationships with the disability community to help us better understand and respond to customer needs, and so that they can understand what we're doing.

- We established an external Accessibility Advisory Council to provide high-level strategic advice about our accessibility efforts. The first meeting was held in February 1999, and the Council will continue into 2000.
- **We're reaching out to more organizations world-wide** to better understand our customers' needs. We do this through our subsidiaries in countries such as Japan, the United Kingdom, and Italy, and through organizations that reach educators, students, trainers, and consumers.

3. Equipping the development community

Equip and motivate the development community to produce great accessibility solutions. We promote accessible design to application developers, and create new technologies that make it possible to create accessibility aids that are more robust, effective, and timely, and require less work.

- **We produce technologies** that make it easier for developers to build accessible software programs and assistive technology.
- **We promote accessible design** through our Designed for Windows Logo program, articles in the trade press, and presentations at mainstream developers' conferences.
- **We develop strong working relationships** with companies that produce accessibility aids so that we can help make them successful.

4. Empowering customers with information

Empower customers with information to make informed choices about what to use, and make the best use of the products they have.

- We document the accessibility of our products.
- We make all of our documentation accessible, or when that's not possible, we provide a separate accessible version.

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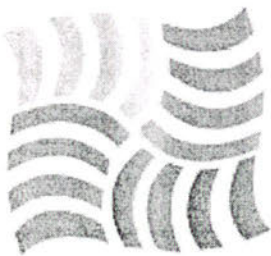
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Community Involvement

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In addition to developing more accessible technologies, Microsoft is involved in a number of activities and organizations that help put technology into the hands of people with disabilities. Here are a few.

Able to Work Consortium: Broadening Job Opportunities for People with Disabilities

Microsoft has joined the National Business and Disabilities Council and 21 North American companies to form the Able to Work Consortium, a new initiative aimed at sharing tools and strategies for recruiting and hiring people with disabilities.

Conferences and events

Microsoft is an active participant in numerous annual conferences and events such as the California State University, Northridge (CSUN) Center on Disabilities annual conference, Closing the Gap (CTG), and the Federal Office System Exhibition (FOSE). Microsoft counts on the interaction in these conferences to learn more about what others need or are doing, and to share information about its own successes and progress.

Technology and disabilities grants

Microsoft supports a number of programs focused on improving computer accessibility as well as putting technology in the hands of people with disabilities. For instance, Microsoft awarded \$150,000 in grants to non-profit and education institutions to do research in computer accessibility. Among other things, Microsoft's \$1 million grant to Easter Seals will help train and equip children with disabilities. And, as part of Microsoft's Connected Learning Community grant program, three Microsoft regional offices have awarded cash, software, and technical assistance to local non-profit organizations that promote technology use for people with disabilities.

Increasing workplace opportunities

Microsoft is involved in several efforts to increase workplace opportunities for people with disabilities.

Technical Improvements and Projects

Besides becoming actively involved in understanding the needs of people with disabilities and in representing those needs to others, Microsoft is developing technical improvements to its products and providing guidelines and resources to others.

Pass*IT*On

This three-year program recruits, trains, and supports individuals with disabilities to make a career in information technology. Launched in November 1998, Microsoft is a partner in this Plan for Achieving Self Support with Information Technology Opportunities Nationwide (Pass*IT*On) program. Other partners are Community Options Inc. and the Information Technology Association of America (ITAA). In the first year, the program is being rolled out to approximately 100 people at four community colleges in Colorado, Texas, Virginia, and New Jersey.

Accessibility in the Workplace Seminars

Microsoft's Efforts

- ▶ Introduction
- ▶ Policy and Strategy
- ▶ Technical Projects
- **Community Involvement**
- ▶ History of Our Commitment

Accessibility in the Workplace Seminars

This seminar provides human resource, marketing, and information technology professionals with accessibility information about Microsoft products and other assistive technologies. The seminar is sponsored by Microsoft and conducted by the National Business and Disabilities Council (NBDC) at Microsoft field offices across the US.

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Survey Program on Participation and Attitudes

The 2000 N.O.D./Harris Survey of Americans With Disabilities

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EXECUTIVE SUMMARY

Overview

The 2000 N.O.D./Harris Survey of Americans with Disabilities, a survey of 997 adults with disabilities and 953 adults without disabilities conducted in May and June 2000, found that while overall people with disabilities lag somewhat or very far behind people without disabilities on 10 key measures of quality of life, the past decade has seen notable improvements for people with disabilities. These gaps provide a benchmark for measuring progress in the next century.

Large gaps exist between people with and without disabilities with regard to: employment, education, household income, access to transportation, health care, entertainment/going out, frequency of socializing, attendance at religious services, political participation/voter registration, and life satisfaction.¹

However, it is quite misleading to think of people with disabilities as a homogenous group because the nature of disabilities vary in type and severity. People with slight or moderate disabilities have dramatically different needs than people with somewhat or very severe disabilities, and the gaps are even more striking when comparing people with severe disabilities to the general population. People with slight or moderate disabilities are less likely than the general population to fare well on all of the 10 quality of life indicators, but they still fare significantly better than people with somewhat or very severe disabilities do.

It is also important to note that while significant gaps still exist between people with and without disabilities, certain social and economic indicators demonstrate improvement for people with disabilities. Most notably, over the past fourteen years since Harris and N.O.D. have been conducting this research, education has shown signs of improvement for all people with disabilities, and employment has shown signs of improvement for those people with disabilities who say they are able to work. These improvements are most likely a result of many things including: the implementation of the Americans with Disabilities Act of 1990 (ADA), the Individuals with Disabilities Education Act (IDEA), a robust economy, and growth in technology.

Employment

Although employment has improved somewhat over the past fourteen years for people who say they are able to work, employment is still the area with the widest gulf between all people with disabilities and the rest of the population. Only three in ten working-age (18-64) people with disabilities are employed full or part-time, compared to eight in ten working-age people without disabilities (32% versus 81%). The presence of a disability seems to prevent a clear majority of unemployed people with disabilities from participating in the work force. Two out of three unemployed people with disabilities would prefer to be working.

As mentioned, the employment picture is somewhat blurred by the presence of a significant number of people with disabilities who say they are unable to work due to their disabilities. Over the past fourteen years, the disability population has become more severely disabled, and in turn, the population who say they are unable to work due to their disabilities has grown from 29% to 43%. However, among those who say they are able to work despite their disability or health problem, there has been a noteworthy improvement over the past fourteen years. Fully 56% of people with disabilities who say they are able to work are working today, compared to 46% in 1986. The Americans with Disabilities Act of 1990 is undoubtedly responsible for at least part of this progress.

Furthermore, the employment picture for 18-29 year olds indicates even more promise. Among this cohort, 57% of those with disabilities who are able to work are working, compared to 72% of their non-disabled counterparts - a gap of only 15%.²

Income

It is not surprising, given the lower rate of employment for people with disabilities, that a significant income gap exists between people with and without disabilities. People with disabilities are much more likely than people without disabilities to live in poverty³ with very low household incomes of \$15,000 or less (29% versus 10%). Conversely, people with disabilities are much less likely than people without disabilities to live in households that earn more than \$50,000 annually (16% versus 39%).

While the survey data peg the income gap as 19% between people with and without disabilities, by contrast, among people aged 18 to 29, the gap is only 9 percentage points (30% versus 21%).⁴

Education

With regard to education, the pattern is the same. People with disabilities lag far behind their non-disabled counterparts in getting a basic education, with more than one out of five failing to complete high school, compared to less than one out of ten people without disabilities (22% versus 9%). The gap is only slightly less when looking at higher education - slightly more than one out of ten people with disabilities have graduated from college, compared to slightly more than two out of ten of their non-disabled counterparts (12% versus 23%).

This education gap may shed some light on the discrepancies mentioned earlier with regard to employment and income. Since education, employment, and income are inextricably linked together, it is not surprising that people with disabilities who are more likely to lack a basic education are less likely to be employed and less likely to have high incomes.

It is important to note, however, that over the past fourteen years, there has been marked progress in the area of education. In fact, almost 8 out of 10 people with disabilities (77%) have graduated from high school today, compared to 6 out of 10 (61%) in 1986.

Health Care

The income, education and employment gaps also provide some explanation for the gaps in other quality of life indicators. Being employed and having discretionary income often free people from having to worry about an issue like health care, since both enable people to receive necessary and satisfactory medical coverage. It is not unexpected, therefore, since people with disabilities have lower household incomes and are less likely to be employed than people without disabilities, that people with disabilities are more than twice as likely to postpone or put off needed health care because they can not afford it (28% versus 12%).

Transportation

Similarly, having adequate transportation to get to work or school, access entertainment, and socialize with friends and family often depends on having sufficient discretionary funds. It is not surprising, therefore, that people with disabilities are more likely than those without disabilities to consider inadequate transportation to be a

problem (30% versus 10%).

Entertainment and Socializing

Moreover, having discretionary income often enables people to enjoy themselves and take advantage of leisure activities like restaurants, movies, and sporting events. The income gap, therefore, may help to explain the differences between people with and without disabilities in most areas of entertainment.

People with disabilities are less likely to go to restaurants at least once per week than people without disabilities (40% versus 59%). Similarly, people with disabilities are less likely to socialize with friends, family and neighbors at least once per week (70%) and attend religious services at least once per month (47%) than their non-disabled counterparts (85% socializing; 65% religion). They are also less likely to go to supermarkets, stores and malls, movies, theater, live music performances, sporting events, and events related to their hobbies such as dancing, art shows, or events for collectors.

Even when comparing people with and without disabilities at similar income levels, significant gaps still exist between the two populations, implying that other factors such as lack of accessibility, negative public attitudes, or discomfort may be inhibiting people with disabilities from participating in these leisure activities.

Since people with disabilities are much older than their non-disabled counterparts, reason also suggests that age might have an impact on the findings. However, when comparing people of similar age cohorts (aside from those 18-29), people with disabilities are still significantly less likely to participate in leisure activities such as going shopping, seeing movies, and attending sports events. This finding indicates that the presence of a disability is still a factor in impeding access to entertainment.

However, for those 18-29, the outlook for entertainment and socializing is more encouraging. People with disabilities are almost as likely as their non-disabled counterparts to socialize regularly with close friends, relatives, and neighbors (89% versus 90%), and to go out to restaurants at least once per week (59% versus 61%).⁵

Political Participation/Voter Registration

In a presidential election year, one of the most important indicators is the voter registration figures for people with and without disabilities. Since appropriate Census data is only available after presidential elections, the year 2000 percentages used in this report reflect the 1996 election. In that year, approximately 6 out of 10 of people with disabilities (62%) were registered to vote, compared to almost 8 out of 10 people without disabilities (78%) - a gap of 16%, suggesting that the people with disabilities have not been engaged in the political process at the same rate as people without disabilities. However, it will be important to look at this year's figures when they become available in order to explore any valuable trends.

Life Satisfaction and Optimism for the Future

The keystone of the gaps analysis is that all 10 of the quality of life indicators are interconnected. It seems likely that as one indicator improves, others will follow, and conversely, as one declines, others will also decline. All the gaps taken together, therefore, can arguably be used to explain another sizeable and important gap - the gap in life satisfaction. This gap illustrates another clear difference between people with and without disabilities in that half as many people with disabilities say that they are very satisfied with their life in general, when compared to people without disabilities (33% versus 67% respectively). It is important to note, however, that as with a majority of the other indicators, this gap in life satisfaction shrinks for younger people aged 18 to 29. For this youngest cohort, 44% of people with disabilities, compared to 57% of people without disabilities, say they are "very satisfied with life"⁶ - a gap of only 13 percentage points - much less than for people overall where the gap is 34 percentage points.

Despite all of the gaps, 63% of all people with disabilities - and 73% of people with slight disabilities - believe that life has improved for the disabled population over the past decade. Clear majorities feel that overall quality of life, access to public facilities, advertising, media portrayals of people with disabilities, and public attitudes toward people with disabilities have gotten better over the past four years, and no more than 16% say that any of these things have gotten worse. While it is likely that these

improvements stem from a variety of factors such as a strong economy and substantial growth in technology, it is reasonable to attribute at least some of this progress to the implementation of the Americans with Disabilities Act of 1990.

Though less so than their non-disabled counterparts, people with disabilities are optimistic about their future. 41% envision their quality of life improving over the coming four years.

¹To determine what gaps exist and to note changes over time, specific quantifiable measurements or "indicators" have been developed for key life activities. A "gap" is defined as the number of percentage points by which Americans with disabilities lag behind other Americans on a given indicator.

²Caution should be used when drawing conclusions from these percentages as the results are based on small sample sizes.

³The 1999 U.S. Census Bureau Poverty Threshold was \$17,000 for a family of four.

⁴Caution should be used when drawing conclusions from these percentages as the results are based on small sample sizes.

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SUMMARY OF MAJOR FINDINGS (GAPS IN KEY INDICATORS BETWEEN THOSE WITH AND WITHOUT DISABILITIES)

To determine what gaps exist and to note changes over time, specific quantifiable measurements or "indicators" have been developed for key life activities. A "gap" is defined as the number of percentage points by which Americans with disabilities lag behind other Americans on a given indicator. The following illustrates the gaps between people with and without disabilities on each of the 10 indicators of quality of life. For each indicator, the gap has been highlighted in bold, and other data relevant to the gap has been provided.

Employment

- Of all people with working age people with disabilities (aged 18-64), only 3 out of 10 (32%) are employed full or part-time, compared to eight in ten working-age people without disabilities (81%) - a gap of 49 percentage points.
- However, among those who say they are able to work despite their disability or health problem, fully 56% of people with disabilities are working, and the gap between people with and without disabilities is 25%.
- Over the past fourteen years, there has been noticeable improvement in employment among those who say they are able to work. 56% of people with disabilities who say they are able to work are working today, compared to 46% in 1986.
- The employment picture for 18-29 year olds is the most promising. Among this cohort, 57% of those with disabilities who are able to work are working, compared to 72% of their non-disabled counterparts - a gap of 15%.¹
- Among the employed, people with disabilities are somewhat less likely than people without disabilities to say that their jobs require them to use their full talents and abilities (40% versus 48% respectively).
- Among the unemployed, more than 2 out of 3 people with disabilities (67%) would prefer to work.

Income

- People with disabilities are almost three times as likely as people without disabilities to live in poverty², having a household income of \$15,000 or less (29% versus 10% respectively) - a gap of 19 percentage points.
- Likewise, people with disabilities are half as likely than people without disabilities to live in households that earn more than \$50,000 annually (16% versus 40% respectively)
- However, among 18-29 year olds, the gaps are only 9 points in both cases - those with household incomes of \$15,000 or less and those with household incomes of \$50,000 or more.³

Education

- More than 1 out of 5 people with disabilities failed to complete high school (22%), compared to less than 1 out of 10 people without disabilities (9%) - a gap of 13 percentage points.
- Slightly more than 1 out of 10 people with disabilities (12%) have graduated from college, compared to 23% of their non-disabled counterparts.
- However, in the past fourteen years, there has been marked progress in the area of education. In fact, almost 8 out of 10 people with disabilities (77%) have graduated from high school today, compared to 6 out of 10 (61%) in 1986.

Health Care

- People with and without disabilities are equally likely to have health insurance of some kind (90% versus 89% respectively).
- However, people with disabilities are three times as likely to not have gotten needed health care on at least one occasion last year, when compared to people without disabilities (19% and 6% respectively) - a gap of 13 percentage points. Similarly, people with disabilities are much more likely to postpone or put off seeking needed health care because they could not afford it (28% versus 12% respectively).
- People with disabilities are also four times as likely, when compared to people without disabilities, to have special needs that are not covered by their health insurance (28% versus 7% respectively).

Access to Transportation

- People with disabilities are much more likely to consider inadequate transportation to be a problem (30% versus 10% respectively) - a gap of 20 percentage points.

Entertainment/Going Out

- People with disabilities are less likely to go to restaurants at least once per week than people without disabilities (40% versus 59%) - a gap of 19 percentage points.
- Similarly, people with disabilities less likely than people without disabilities to:
 - visit a supermarket or food store at least once per week (55% versus 83%)
 - visit a department store, mall or shopping center at least once per week (23% versus 41%)
 - go to movies or theater 4 or more times per year (22% versus 48%)
 - go to live popular music performances 4 or more times per year (9% versus 16%)
 - go to a sports event 4 or more times per year (15% versus 35%)
 - go to events related to their hobbies such as dancing, art shows, or events for collectors 4 or more times per year (21% versus 36%)
- Again, the most encouraging signs are seen among the youngest cohort of 18-29 years olds. These younger people with disabilities are almost as likely as

their non-disabled counterparts to go out to restaurants at least once per week (59% versus 61%).⁴

Socializing

- Significant majorities of people with and without disabilities socialize with friends, family, and neighbors at least once per week. However, people with disabilities still socialize less than people without disabilities (85% versus 70% respectively) - a gap of 15 percentage points.
- Not surprisingly, similar to entertainment, younger people with disabilities (aged 18-29) are almost as likely as their non-disabled counterparts to socialize with close friends, relatives, or neighbors (89% versus 90%).⁵

Attendance at Religious Services

- Approximately half of people with disabilities (47%) attend religious services at least once per month. However, 65% of people without disabilities do the same - a gap of 18 percentage points.
- This is not an indication of religious faith since religious faith is almost equally important to people with and without disabilities - 84% of people with disabilities and 87% of people without disabilities consider religious faith to be important to them.

Political Participation/Voter Registration

- People with disabilities are less likely to be registered to vote than people without disabilities (62% versus 78% respectively) - a gap of 16 percentage points.⁶

Life Satisfaction

- Half as many people with disabilities say that they are very satisfied with life in general, when compared to people without disabilities (33% versus 67% respectively) - a gap of 34 percentage points.
- However, as with many of the other indicators, this gap in life satisfaction decreases for younger people aged 18 to 29. For this youngest cohort, 44% of people with disabilities, compared to 57% of people without disabilities, say they are "very satisfied with life" - a gap of 13 percentage points.⁷
- People with disabilities expect their quality of life to get better over the next four years, though less so than people without disabilities (41% versus 76% respectively).

Trends

When comparing this 2000 data to earlier research, certain social and economic indicators have gotten better for people with disabilities. Most notably, over the past fourteen years, education has shown signs of improvement for all people with disabilities, and employment has shown signs of improvement for people who say they are able to work. Specifically, among those who say they are able to work despite their disability or health problem, 56% of people with disabilities are working today, compared to 46% in 1986. Moreover, almost 8 out of 10 people with disabilities (77%) have graduated from high school today, compared to 6 out of 10 (61%) in 1986. These improvements most likely stem from multiple causes including: the implementation of the Americans with Disabilities Act of 1990 (ADA), the Individuals with Disabilities Education Act (IDEA), a booming economy, and substantial growth in technology.

When looking more closely at the past two years, it seems that for all of the 10 indicators (except education and attendance at religious services), most things have stayed the same or improved slightly for both people with and without disabilities. This is not surprising in light of the economic growth that has occurred recently in the U.S., which typically leads to higher incomes, lower unemployment rates, better access to health care and more discretionary money. For people with disabilities, the past two years has seen the greatest improvements in access to entertainment, with 40% going to restaurants at least once per week, compared to 33% in 1998. This finding is confirmed by the fact that people with disabilities (77%) overwhelmingly agree that access to

public facilities such as restaurants, theaters, stores, and museums has gotten better over the past four years.

However, while the data shows progress for both people with and without disabilities, the improvements have been much more modest for people with disabilities. It seems that people with disabilities have been less likely to benefit (at least on the 10 indicators) from the economic expansion. This finding is not surprising, given that people with disabilities are more likely to have lower incomes than people without disabilities, and lower income individuals are less likely to benefit from increases in the stock market or an overall economic surge.

¹Caution should be used when drawing conclusions from these percentages as the results are based on small sample sizes.

²The 1999 U.S. Census Bureau Poverty Threshold was \$17,000 for a family of four.

³Caution should be used when drawing conclusions from these percentages as the results are based on small sample sizes.

⁴Caution should be used when drawing conclusions from these percentages as the results are based on small sample sizes.

⁵Caution should be used when drawing conclusions from these percentages as the results are based on small sample sizes.

⁶These numbers are taken from the 1996 Current Population Survey (CPS) as they were in the 1998 N.O.D./Harris Survey of Americans with Disabilities. The CPS only measures voter registration for people without disabilities after a Presidential election. Therefore, we are unable to measure the political participation gap until 2001, at which time we will update this quality of life indicator.

⁷Caution should be used when drawing conclusions from these percentages as the results are based on small sample sizes.

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Exhibit 1
A Comparison between People With and Without Disabilities on 10 "Indicator"
Measures (2000)

	People With Disabilities	People Without Disabilities	Gap in Percentage Points
Base:	997	953	
	%	%	
Employment Works either full or part-time (18-64)	32	81	49
Education* Has not graduated from high school	22	9	13
Socializing Socializes with close friends, relatives, or neighbors at least once a week	70	85	15
Attendance at Religious Services Goes to church, synagogue, or any other place of worship at least once a month	47	65	18
Entertainment/Going Out Goes to a restaurant at least once a week	40	59	19
Political Participation** Registered to vote in 1996 Presidential election	62	78	16
Income* Annual household income \$15,000 or less	29	10	19
Access to Transportation* Inadequate transportation considered a problem	30	10	20
Health Care* Did not get needed care on at least one occasion in past year	19	6	13
Satisfaction with Life Very satisfied with life in general	33	67	34

*These variables are "negative", i.e., a high score is "bad"

**Source: 1996 Current Population Survey

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Exhibit 2
Key Indicators by Severity of Disability (2000)

	Very or Somewhat Severe Disabilities	Slight or Moderate Disabilities	All People with Disabilities	People Without Disabilitie
Base:	588	389	997	953
	%	%	%	%
Employment Works either full or part-time (18-64)	19	51	32	81
Education* Has not graduated from high school	26	17	22	9
Socializing Socializes with close friends, relatives, or neighbors at least once a week	68	74	70	85
Attendance at Religious Services Goes to church, synagogue, or any other place of worship at least once a month	44	53	47	65
Entertainment/Going Out Goes to a restaurant at least once a week	33	51	40	59
Political Participation** Registered to vote in 1996 Presidential election	N/A	N/A	62	78
Income* Annual household income \$15,000 or less	34	20	29	10
Access to Transportation* Inadequate transportation considered a problem	35	21	30	10
Health Care* Did not get needed care on at least one occasion in past year	21	13	19	6
Satisfaction with Life Very satisfied with life in general	26	45	33	67

*These variables are "negative", i.e., a high score is "bad"

**Source: 1996 Current Population Survey

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Exhibit 3
Key Indicators for People with Disabilities - Trends 1986-2000

	2000	1998	1994	19
Base:	997	989	1003	98
	%	%	%	%
Employment				
Works either full or part-time (18-64)	32	29	31	34
Education*				
Has not graduated from high school	22	20	24	39
Socializing Socializes with close friends, relatives, or neighbors at least once a week	70	69	68	75
Attendance at Religious Services				
Goes to church, synagogue, or any other place of worship at least once a month	47	54	48	55
Entertainment/Going Out				
Goes to a restaurant at least once a week	40	33	34	34
Income*†				
Annual household income \$15,000 or less	29	34	40	51
Health Care*				
Did not get needed care on at least one occasion in past year	19	21	18	n/
Satisfaction with Life				
Very satisfied with life in general	33	33	35	39

*These variables are "negative", i.e., a high score is "bad"

†Data has not been adjusted for inflation

Note: Only eight "Key Indicators" are represented in this table, since two of the ten indicators were not measured in previous years.

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Exhibit 4
Trends in "Gaps" for Indicator Measures
(Percentage Points)

	2000 Gaps	1998 Gaps	1994 Gaps	1986 Ga
	%	%	%	%
Education*				
Has not graduated from high school	13	11	12	24
Socializing				
Socializes with close friends, relatives, or neighbors at least once a week	15	15	18	10
Attendance at Religious Services				
Goes to church, synagogue, or any other place of worship at least once a month	18	3	10	11
Entertainment/Going Out				
Goes to a restaurant at least once a week	19	27	21	24
Income*				
Annual household income \$15,000 or less	19	22	22	22
Health Care*				
Did not get needed care on at least one occasion in past year	13	10	5	n/a
Satisfaction with Life				
Very satisfied with life in general	34	28	20	11

*These variables are "negative", i.e., a high score is "bad"

Note: Only seven "Key Indicators" are represented in this table, since three of the ten indicators were not measured in previous years. The percentages on this table reflect the "gaps" between people with and without disabilities on these seven of the ten indicators over the past fourteen years in order to note how the gaps have widened, narrowed or stayed the same during this time period.

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Exhibit 5
A Comparison between People With and Without Disabilities on "Indicator"
Measures (1998)

	People With Disabilities	People Without Disabilities	Gap in Percentage Points
Base:	989	905	
	%	%	
Employment Works either full or part-time (18-64)	29	79	50
Education* Has not graduated from high school	20	9	11
Socializing Socializes with close friends, relatives, or neighbors at least once a week	69	84	15
Attendance at Religious Services Goes to church, synagogue, or any other place of worship at least once a month	54	57	3
Entertainment/Going Out Goes to a restaurant at least once a week	33	60	27
Political Participation** Registered to vote in 1996 Presidential election	62	78	16
Income* Annual household income \$15,000 or less	34	12	22
Access to Transportation* Inadequate transportation considered a problem	30	17	13
Health Care* Did not get needed care on at least one occasion in past year	21	11	10
Satisfaction with Life Very satisfied with life in general	33	61	28

*These variables are "negative", i.e., a high score is "bad"

**Source: 1996 Current Population Survey

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Exhibit 6
A Comparison Between People With and Without Disabilities on "Indicator"
Measures (1994)

	People With Disabilities	People Without Disabilities	Gap in Percentage Points
Base:	1003	1115	
	%	%	
Education*			
Has not graduated from high school	24	12	12
Socializing			
Socializes with close friends, relatives, or neighbors at least once a week	68	86	18
Attendance at Religious Services			
Goes to church, synagogue, or any other place of worship at least once a month	48	58	10
Entertainment/Going Out			
Goes to a restaurant at least once a week	34	55	21
Income*			
Annual household income \$15,000 or less	40	18	22
Health Care*			
Did not get needed care on at least one occasion in past year	18	13	5
Satisfaction with Life			
Very satisfied with life in general	35	55	20

*These variables are "negative", i.e., a high score is "bad"

Note: Only seven "Key Indicators" are represented in this table, since three of the ten indicators were not measured in 1994.

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Exhibit 7
A Comparison Between People With and Without Disabilities on "Indicator" Measures (1986)

	People With Disabilities	People Without Disabilities	Gap in Percentage Points
Base:	981	1064	
	%	%	
Education*			
Has not graduated from high school	39	15	24
Socializing			
Socializes with close friends, relatives, or neighbors at least once a week	75	85	10
Attendance at Religious Services			
Goes to church, synagogue, or any other place of worship at least once a month	55	66	11
Entertainment/Going Out			
Goes to a restaurant at least once a week	34	58	24
Income*			
Annual household income \$15,000 or less	51	29	22
Satisfaction with Life			
Very satisfied with life in general	39	50	11

*These variables are "negative", i.e., a high score is "bad"

Note: Only six "Key Indicators" are represented in this table, since four of the ten indicators were not measured in previous years.

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Clinton Presidential Records Digital Records Marker

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This marker identifies the place of a tabbed divider. Given our digitization capabilities, we are sometimes unable to adequately scan such dividers. The title from the original document is indicated below.

Divider Title: XYZ

Appendix

Mission of the National Council on Disability

Overview and Purpose

NCD is an independent federal agency with 15 members appointed by the President of the United States and confirmed by the U.S. Senate.

The overall purpose of NCD is to promote policies, programs, practices, and procedures that guarantee equal opportunity for all individuals with disabilities, regardless of the nature or severity of the disability; and to empower individuals with disabilities to achieve economic self-sufficiency, independent living, and inclusion and integration into all aspects of society.

Specific Duties

The current statutory mandate of NCD includes the following:

- Reviewing and evaluating, on a continuing basis, policies, programs, practices, and procedures concerning individuals with disabilities conducted or assisted by federal departments and agencies, including programs established or assisted under the Rehabilitation Act of 1973, as amended, or under the Developmental Disabilities Assistance and Bill of Rights Act; as well as all statutes and regulations pertaining to federal programs that assist such individuals with disabilities, in order to assess the effectiveness of such policies, programs, practices, procedures, statutes, and regulations in meeting the needs of individuals with disabilities.
- Reviewing and evaluating, on a continuing basis, new and emerging disability policy issues affecting individuals with disabilities at the federal, state, and local levels and in the private sector, including the need for and coordination of adult services, access to personal assistance services, school reform efforts and the impact of such efforts on individuals with disabilities, access to health care, and policies that act as disincentives for individuals to seek and retain employment.
- Making recommendations to the President, Congress, the secretary of education, the director of the National Institute on Disability and Rehabilitation Research, and other officials of federal agencies about ways to better promote equal opportunity, economic self-sufficiency, independent living, and inclusion and integration into all aspects of society for Americans with disabilities.
- Providing Congress, on a continuing basis, with advice, recommendations, legislative proposals, and any additional information that NCD or Congress deems appropriate.
- Gathering information about the implementation, effectiveness, and impact of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.).
- Advising the President, Congress, the commissioner of the

Rehabilitation Services Administration, the assistant secretary for Special Education and Rehabilitative Services within the Department of Education, and the director of the National Institute on Disability and Rehabilitation Research on the development of the programs to be carried out under the Rehabilitation Act of 1973, as amended.

- Providing advice to the commissioner with respect to the policies and conduct of the Rehabilitation Services Administration.
- Making recommendations to the director of the National Institute on Disability and Rehabilitation Research on ways to improve research; service; administration, and the collection, dissemination, and implementation of research findings affecting persons with disabilities.
- Providing advice regarding priorities for the activities of the Interagency Disability Coordinating Council and reviewing the recommendations of this council for legislative and administrative changes to ensure that such recommendations are consistent with NCD's purpose of promoting the full integration, independence, and productivity of individuals with disabilities.
- Preparing and submitting to the President and Congress an annual report titled *National Disability Policy: A Progress Report*.

International

In 1995, NCD was designated by the Department of State to be the U.S. government's official contact point for disability issues. Specifically, NCD interacts with the special rapporteur of the United Nations Commission for Social Development on disability matters.

Consumers Served and Current Activities

While many government agencies deal with issues and programs affecting people with disabilities, NCD is the only federal agency charged with addressing, analyzing, and making recommendations on issues of public policy that affect people with disabilities regardless of age, disability type, perceived employment potential, economic need, specific functional ability, status as a veteran, or other individual circumstance. NCD recognizes its unique opportunity to facilitate independent living, community integration, and employment opportunities for people with disabilities by ensuring an informed and coordinated approach to addressing the concerns of persons with disabilities and eliminating barriers to their active participation in community and family life.

NCD plays a major role in developing disability policy in America. In fact, it was NCD that originally proposed what eventually became the Americans with Disabilities Act (ADA). NCD's present list of key issues includes improving personal assistance services, promoting health care reform, including students with disabilities in high-quality programs in typical neighborhood schools, promoting equal employment and community housing opportunities, monitoring the implementation of ADA, improving assistive technology, and ensuring that persons with disabilities who are members of minority groups fully participate in society.

Statutory History

NCD was initially established in 1978 as an advisory board within the Department of Education (Public Law 95-602). The Rehabilitation Act Amendments of 1984 (Public Law 98-221) transformed NCD into an independent agency.

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Last Updated: June 6, 2000

President's Committee on Employment of People with Disabilities



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About Us

The President's Committee is a small federal agency whose Chairman and Vice Chairs are appointed by the President. The Chairman appoints the other Executive Board members and members of the six standing subcommittees. Directed by the Chairman and Executive Board, the Committee achieves its goals through the work of its subcommittee members and 37-member agency staff, in close cooperation with the Governor's Committees in the states, Puerto Rico and Guam and with Mayor's Committees throughout the United States.

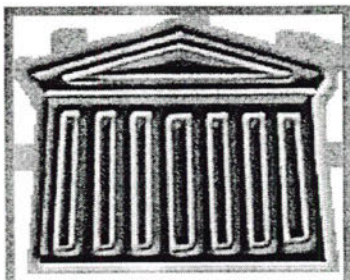
President's Committee's Mission

The President's Committee on Employment of People with Disabilities' mission is to communicate, coordinate and promote public and private efforts to enhance the employment of people with disabilities. The Committee provides information, training, and technical assistance to America's business leaders, organized labor, rehabilitation and service providers, advocacy organizations, families and individuals with disabilities. The President's Committee reports to the President on the progress and problems of maximizing employment opportunities for people with disabilities.

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The Access Board

a federal agency committed to accessible design

About the Board

◀Mission

The Access Board is an independent Federal agency devoted to accessibility for people with disabilities. It operates with about 30 staff and a governing board of representatives from Federal departments and public members appointed by the President. Key responsibilities of the Board include:

- developing and maintaining accessibility requirements for the built environment, transit vehicles, telecommunications equipment, and for electronic and information technology
- providing technical assistance and training on these guidelines and standards
- enforcing accessibility standards for federally funded facilities

More about the Board: [Board Members and Meetings](#), [History of the Board](#), [Board Rulemaking](#), [FY 99 Annual Report](#)

◀Laws

Several different laws are key to understanding the work of the Board, including the:

- **Architectural Barriers Act**, a law requiring access to facilities designed, built, altered, or leased with Federal funds.
- **Rehabilitation Act**, which created the Access Board.
- **Americans with Disabilities Act**, a major civil rights law prohibiting discrimination on the basis of disability in the private and public sectors.
- **Telecommunications Act** (Section 255), which requires access to new telecommunications and customer premises equipment where "readily achievable."
- **Rehabilitation Act Amendments** which amend section 508 of the Rehabilitation Act to ensure access to electronic and information technology in the Federal sector.

◀Services

What can the Access Board do for you? Various services are available on this site:

- **Accessibility Guidelines and Standards** All Board guidelines and standards (including information on those upcoming) are located on this section of the site. To download copies, go to the Publications section.
- **Technical Assistance, Training, and Research** If you have questions about any guideline or standard, get technical assistance at this section of the site. You can also get information here on the Board's training and research programs.



Board's training and research programs.

- **Publications** Board publications, including its guidelines and standards, can be downloaded here. They are provided in text, HTML, and PDF formats.
- **Enforcement** Concerned about access to a facility that may have been federally funded? The Board enforces standards covering such facilities. Find out more on this section of the site. There's also information on other laws and links to enforcing agencies.
- **Links** If we don't have the information you need, we can help you find out who does through our annotated list of resources.
- **Updates** How can you be kept up-to-date on Board activities? Get on our e-mail update list or subscribe to *Access Currents*, the Board's free bimonthly newsletter.

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The Rehabilitation Act of 1973 (Section 502)

Several years after the ABA had become law, Congress observed that compliance had been uneven and that no initiatives to create Federal design standards for accessibility were underway. Clearly, one central agency needed to take charge of enforcing the ABA and ensuring development of design standards. The concept of such an agency began to take shape as Congress considered the Rehabilitation Act of 1973. Section 502 of this law created the Access Board, originally named the Architectural and Transportation Barriers Compliance Board. The Board was charged with ensuring Federal agency compliance with the ABA and proposing solutions to the environmental barriers problems addressed in the ABA. Congress was clear in its intent that compliance be the primary essence of the Board's function.

Section 502 lays out the duties of the Board under the ABA, which include: ensuring compliance with standards issued under the ABA, developing and maintaining guidelines upon which the standards are based, and promoting access throughout all segments of society. This section of the law also outlines the membership and composition of the Board.