

January 15, 2010

Senator Ann Rest  
Chair, State and Local Government Operations  
and Oversight Committee  
Capitol Building, Room 205

Representative Phyllis Kahn  
Chair, State Government Finance Division  
365 State Office Building

Representative Bill Hilty  
Chair, Energy Finance and Policy Division  
559 State Office Building

Representative Gene Pelowski, Jr.  
Chair, State and Local Government Operations  
Reform, Technology and Elections Committee  
491 State Office Building

Senator Don Betzold  
Chair, State Government Budget Division  
Capitol Building, Room 111

Senator Ellen Anderson  
Chair, Environment, Energy and Natural  
Resources Budget Division  
120 Capitol

Dear Colleagues,

Enclosed is the first annual report for the two-year Technology Accessibility Implementation Project as required by 2009 Minnesota Laws, Chapter 131, Section 12, Subdivision 2. The new law requires improvements and standards for state technology so they are accessible and usable to persons with disabilities and all persons. This first annual report provides the background and activities to date.

Sincerely,

Betsy Hayes  
Chair of the Technology Accessibility Advisory Committee  
Department of Administration

CC:

Senator Claire Robling, Ranking Member, State Government Budget Division  
Senator Chris Gerlach, Ranking Member, State and Local Government Operations and Oversight Committee  
Senator Dennis Frederickson, Ranking Member, Environment, Energy and Natural Resources Budget Division  
Representative Joyce Peppin, Ranking Member, State Government Finance Division  
Representative Tom Emmer, Ranking Member, State and Local Government Operations Reform, Technology and Elections  
Representative Torrey Westrom, Ranking Member, Energy Finance and Policy Division  
Mr. Peter Wattson, Secretary of the Senate

Mr. Albin Mathiowetz, Chief Clerk, House of Representatives  
Legislative Reference Library

Enclosure

# The Technology Accessibility Implementation Project

## Report to the Legislature

---

**January 15, 2011**

*Prepared by the Advisory Committee for Technology Standards for Accessibility  
and Usability*

## Contents

Executive Summary.....	3
Overview of Accessibility Law .....	3
Activity and Progress to Date.....	3
Recommendations .....	4
Current Environment/Business Need .....	4
Background .....	5
Project Overview.....	5
Related Activities .....	6
Technology Accessibility Activity Update .....	8
Adoption of State of Minnesota Accessibility Standards.....	8
Implementation of the Accessibility Standards .....	9
IT Purchasing Standards.....	10
Procurement .....	11
IT Development.....	12
Funding and Project Expenditures .....	13
Next Steps .....	14
ASL Video Content and Technical Assistance .....	15
Streaming Video Captioning Pilot Project.....	16
Summary .....	16
2010 pilot .....	16
Assessment .....	17
Technical analysis.....	17
Survey.....	18
Post-Production Speech Recognition Software .....	18
Next steps: Phase II.....	18
Recommendations to the Legislature .....	19
Funding Options for Captioning.....	19
Funding and Legislation that Support Technology Accessibility Going Forward .....	19
Change to Existing Legislation.....	21
Advisory Committee for Technology Standards for Accessibility and Usability .....	21

## Executive Summary

In 2009, the Minnesota legislature passed, and the governor signed into law a statute and funding to advance the accessibility of State of Minnesota information technology systems used by both citizens and employees (: <https://www.revisor.mn.gov/laws/?id=131&doctype=Chapter&year=2009&type=0>).

The implementation of the law will affect state information technology procurement and agency web and software application development going forward. The accessibility of state information technology systems will significantly impact citizens seeking information or services from the state, regardless of disability.

## Overview of Accessibility Law

The 2009 technology accessibility legislation provided specific direction and funding to multiple entities. Key components of the legislation include:

- The State CIO must adopt standards that “incorporate Section 508 of the Rehabilitation Act, United States Code”, and “the Web Content Accessibility Guidelines 2.0,” unless any standard poses an undue burden to the State.
- The Office of Enterprise Technology (OET) must implement the adopted standards including working with the Department of Administration to help the state purchase accessible hardware, software, and online applications.
- Creation of the Advisory Committee for Technology Standards for Accessibility and Usability to assist OET.
- Establishment of a pilot program to provide captioning of live streaming of legislative proceedings, led by the Legislative Coordinating Commission (LCC).
- Creation of videos and training related to captioning by the Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans.

## Activity and Progress to Date

Significant progress has been made in achieving the objectives set forth in the 2009 legislation.

1. **September 1, 2010** The State adopted the Accessibility Standards into the Enterprise Technical Architecture. The Accessibility Standards incorporate the following standards from the Federal government and the World Wide Web Consortium, respectively: (1) the technical, functional and information, documentation and support standards of Section 508 of the Rehabilitation Act, and (2) Web Content Accessibility Guidelines 2.0 at level AA.
2. As of September 1, OET and the Department of Administration have begun incorporating these standards into procurement processes for both products and professional/technical services contracts.
3. OET has begun providing guidance to agencies on how to transition internal software and web development efforts to include the Accessibility Standards.
4. The Legislative Coordinating Commission completed and analyzed a pilot to test the viability of voice-to-text/echo captioning technology for the Minnesota Legislature’s online broadcast.

5. The Commission for Deaf, DeafBlind, and Hard of Hearing Minnesotans has produced, in conjunction with the Department of Health, five captioned videos on H1N1. The Commission has also released two training videos: “Making Your Case,” and “Video Captioning Essentials.”

## Recommendations

Fully implementing the Accessibility Standards throughout state agencies requires implementation planning, training for nearly all employees, and a cultural change that includes both an awareness of why accessibility is important and the changes in processes and skills to support that change. Without a central resource and leadership to assist agencies, the results will be inconsistent at best and will likely fall significantly short of what could have been accomplished by the 2009 legislation and resulting two-year efforts.

The recommendations by the Advisory Committee for Technology Standards for Accessibility and Usability fall into three categories:

1. Funding recommendations to support captioning of live videoconferencing, live Webcasts, Web streaming, podcasts, and other emerging technology
2. Creation of a short-term program to assist agencies in the implementation of the adopted standards
3. Change to existing legislation

## Current Environment/Business Need

The evolving state of information technology is reflected in the way Minnesota state government serves the public. Taking advantage of continuously changing technology, state government is increasing its use of technology to offer citizens a host of services. These services may include corresponding online with elected officials, providing information about government services, renewing licenses, providing tax information and filing returns, and applying for jobs or benefits.

Likewise, state government employees increasingly depend on information technology to support state government services. Employees use technology to manage email, documents, and schedules. Software applications may be used by all employees (e.g., the HR/payroll system), a significant number of employees (e.g., the procurement/accounting application), or may be agency or role specific (e.g., a case management application). The use of information technology doesn't end with software applications. Printers, copiers, LCD projectors, training webinars, and even voice over internet protocol (VOIP) telephones are widely used and connected to the information technology infrastructure.

As government is constantly being asked to do more with less, information technology is playing a vital role in allowing government to better serve all of its citizens. Promoting the accessibility and usability of state government systems is critical to all citizens and employees.

Attention to technology accessibility becomes increasingly important as the population ages. Disability statistics rise significantly by age group (seven percent of the population at 18-24 years, 37 percent of

the population at 65–74 years, and 59 percent of the population at 75+ years). And as people age, they will likely require more state government services and will look online to find them.

A recent report to the Minnesota legislature notes that improved body armor and rapid emergency response allows troops injured in the field to consistently survive injuries which would formerly have been fatal (eight injuries for every one death, compared to three injuries per death in Vietnam). Increased technology accessibility will have an impact on both employment opportunities and access to needed programs and services for these survivors. ("Defining the mental health needs of returning Operation Enduring Freedom/Operation Iraqi Freedom troops in Minnesota: A clinical survey, with special emphasis on Traumatic Brain Injury and Post-Traumatic Stress Disorder and with reference to a Veterans facility under planning by the Minnesota Veterans Homes Board in Kandiyohi County." Commissioned by 2007 Minnesota State Legislature)

And finally, we are all aware of the current environment of high unemployment and the impact that this economy has had on individuals and families. For individuals with disabilities, the rate of unemployment is significantly worse. The rise of technology tools (many of which are inaccessible) in every work place is the new barrier to employment, not unlike a building without an elevator.

In October 2010, the number of people with disabilities in the labor force was 21.4 percent. By comparison, the number of persons with no disability in the labor force was 69.8 percent. The unemployment rate for those with disabilities was 14.8 percent, compared with 8.8 percent for persons with no disability, not seasonally adjusted. (U.S. Department of Labor <http://www.dol.gov/odep/>)

## Background

In 2007, a small group of agencies initiated discussions regarding ongoing issues with making hardware, software, and online applications within state government accessible to individuals with a disability. These agencies included State Services for the Blind, the Minnesota STAR Program (STAR=System of Technology to Achieve Results), and the Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans ("Commission"). The group later expanded to include other disability-related state agencies, other agencies that had an interest in improving accessibility, and legislative staff. Ultimately, Administration Commissioner Dana Badgerow agreed to formalize and champion an interagency team of nineteen founding members focused on improving the accessibility and usability of Minnesota e-government services.

After two years of hard work and limited results, the Commission engaged Senator Ann Rest and Representative Bill Hilty to introduce legislation establishing accessibility standards. The Commission led a group of advocates testifying on the legislation's behalf. Representative Torrey Westrom, himself blind, the National Federation of the Blind, the American Council of the Blind and the Minnesota Association of Deaf Citizens related how the lack of access through technology to government services prevented citizens with disabilities from gathering and reviewing vital public information, and diminished their opportunity for employment in state government. The legislation passed with minimal opposition and was signed into law by Governor Pawlenty in May, 2009.

## Project Overview

The Office of Enterprise Technology launched the Technology Accessibility Standards Implementation project in response to a new law (2009 Minnesota Laws, Chapter 131). The purpose of the project is to define and implement standards and supporting processes that improve equal access to the State of Minnesota's services delivered through information technology. According to the legislation, the standards developed by the chief information officer "must incorporate Section 508 of the Rehabilitation Act, United States Code," and "the Web Content Accessibility Guidelines 2.0," unless any standard poses an undue burden to the state. The legislation provides that an "undue burden" means "significant difficulty or expense determined and documented by the funding agency, including but not limited to difficulty or expense associated with technical feasibility." (2009 Minnesota Laws, Chapter 131, Section 10, Subdivision 9)

The federal Section 508 standards cover the full range of electronic and information technologies, including those used for communication, duplication, computing, storage, presentation, control, transport and production. This includes computers, software, networks, peripherals and other types of electronic office equipment. The Web Content Accessibility Guidelines 2.0 (WCAG 2.0) is part of the international standards and best practices for accessibility and usability recommended for web developers by the World Wide Web Consortium.

The implementation of the new law is a project that is intended to support the Office of Enterprise Technology's (OET) statutory mandate to lead in managing technology accessibility standards and establishes the processes needed to put them into effect. Further, the project will work with both OET's Information Technology Standards and Resource Management Division (ISRM) and the Department of Administration's Materials Management Division (MMD) to help the state purchase accessible hardware, software, and online applications under Minnesota Statutes 2008, Chapter 16C.

The scope of the project is to develop and implement the standards and processes necessary to enhance end user accessibility to State of Minnesota information technology systems and delivery of services utilizing information technology systems. The final outcome of this project will benefit both citizens and state employees.

## Related Activities

The legislation provides specific guidelines for setting up an advisory committee. The Advisory Committee for Technology Standards for Accessibility and Usability consists of ten members representing Office of Enterprise Technology, State Services for the Blind (Department of Employment and Economic Development), Department of Administration, STAR Program, Commission of Deaf, DeafBlind, and Hard of Hearing Minnesotans, Department of Health, Department of Education, Department of Human Services, the Judicial Branch, and the Legislative Branch. The Advisory Committee has specific statutory responsibilities, including:

- Recommend review processes to be used for the evaluation or certification of accessibility of technology against accessibility standards—**Ongoing**
- Recommend an exception process and thresholds for any deviation from the accessibility standards—**Completed**

- Identify, in consultation with state agencies serving Minnesotans with disabilities, resources for training and technical assistance for state agency staff, including instruction regarding compliance with accessibility standards—**Ongoing**
- Convene customer groups composed of individuals with disabilities to assist in implementation of accessibility standards—**Ongoing**
- Review customer comments about accessibility and usability issues collected by State Services for the Blind—**Ongoing**
- Develop proposals for funding captioning of live videoconferencing, live Webcasts, Web streaming, podcasts, and other emerging technology—**Completed**
- Report to the chairs and ranking minority members of the legislative committees with jurisdiction over state technology systems by January 15 of each year regarding the findings, progress, and recommendations made by the advisory committee. The report shall include a draft legislation necessary to implement the committee’s recommendations—**Completed**

The two- year effort (scheduled to sunset June 30, 2011) provides funding to both the Office of Enterprise Technology and the Department of Administration to conduct the Technology Accessibility Standards Implementation Project.

Also provided for in the legislation was funding for:

- The Commission of Deaf, DeafBlind, and Hard of Hearing Minnesotans to provide information on their web site in American Sign Language and to provide technical assistance related to captioning to state agencies
- The Legislative Coordinating Commission for a pilot program to provide captioning of live streaming of legislative sessions on the commission’s website

Funding sources for the two-year accessibility effort included:

- Telecommunications Access Minnesota (TAM) Fund; \$600,000, \$300,000 for both FY10 and FY11
- American Recovery and Reinvestment Act (ARRA) of 2009; \$276,000

As required by Statute, the Committee for Technology Standards for Accessibility and Usability is to report to the legislature by January 15, 2011 on the findings, progress, and recommendations of technology accessibility efforts described in the above paragraphs. Therefore, the purpose of this required legislative report is to:

- Provide an update on all technology accessibility efforts funded by the 2009 legislation
- Propose funding options for captioning of live videoconferencing, live Webcasts, Web streaming, podcasts and other emerging technologies
- Propose legislation and funding options that support technology accessibility efforts going forward

## Technology Accessibility Activity Update

### Adoption of State of Minnesota Accessibility Standards

The official adoption of Accessibility Standards is the fundamental work of the Technology Accessibility Standards Implementation project. All other project deliverables are tied to the successful adoption of standards. Implementing accessibility as a technical architecture standard for the executive branch results in:

- Consistent awareness of the need for accessible technology
- Consistent knowledge of what is required to implement accessible technology
- Consistent, objective assessments of IT procurement or development efforts related to accessibility of systems
- An ability to measure the level of current accessibility or progress toward improving accessibility

Enterprise Architecture establishes the comprehensive technical, business, information, and service architecture for state information systems. When implemented effectively, this framework will highlight the interrelationships among agency business operations and the underlying technology that supports operations. Without this, agencies run the risk of buying and building systems that are duplicative, incompatible, and unnecessarily costly to maintain and integrate.

The State of Minnesota Accessibility Standards was officially adopted into the State's Enterprise Technical Architecture on September 1, 2010, by State CIO, Gopal Khanna. The adopted accessibility standards incorporate the technical, functional and information, documentation and support standards of Section 508 of the Rehabilitation Act, United States Code, and the Web Content Accessibility Guidelines 2.0 at the AA Level.

The announcement of the Accessibility Standard on September 1, capped an extensive standards adoption process spanning seven months of work.

The Office of Enterprise Technology determined that the Accessibility Standards should be adopted as part of the Enterprise Technical Architecture. Using architecture to establish accessibility standards is a unique approach which has a number of inherent benefits:

- The enterprise architecture standards adoption process allowed for a full review and vetting of Section 508 and the WCAG 2.0 by the state's technology community
- The enterprise architecture standards process includes methodology for maintaining and revising standards, meaning, a separate process for maintaining the Accessibility Standards does not need to be created
- Enterprise architecture provides a baseline for all IT procurement; oversight and approval channels already exist and will be leveraged for accessibility
- The Information Technology Standards and Resource Management (ISRM) group in the Office of Enterprise Technology use the Enterprise Architecture Standards to develop standards for IT Master contracts

- Application and web development activities undertaken by state agencies should be aligned with the Enterprise Architecture standards. The placement of the Accessibility Standards in the technical architecture aligns accessibility with other standards used by developers.

The process to adopt Minnesota's Accessibility Standards began with an architecture subject matter expert (SME) group that proposed the original draft. The SME group included both technology and accessibility experts. This group received input from a vendor survey and a project workgroup made up of state agency application and web developers. Input and review of the standards draft included 49 vendors and 34 agency subject matter experts.

Once drafted, the proposed standard moves through a governance process that includes the Architecture Technical Domain Group, the Enterprise Architecture Board and the All-CIO Team. The final step is a recommendation to the State CIO who then approves and issues the state architectural standard.

All future changes to the Accessibility Standards (for example, resulting from an update to Section 508 or WCAG) will follow the same governance process.

Exceptions, thresholds, processes, and definitions related to IT commodities and professional/technical services procurement were developed by a project procurement workgroup. The entire procurement exception process was presented to the Advisory Committee for Technology Standards for Accessibility and Usability. This group in turn recommended the exception process, without changes, to the State CIO for incorporation into the Accessibility Standard.

The Architecture SME group is currently drafting an exception process consistent with the definitions and thresholds, as outlined in the procurement exception process, but focused on internal IT development efforts. This exception process will follow the architecture governance process outlined above and will finally be presented to the Committee for Technology Standards for Accessibility and Usability, for review and recommendations.

## **Implementation of the Accessibility Standards**

Minnesota has undertaken an aggressive, coalition-based effort to not only set standards but implement them across state agencies and IT layers so they're embedded into the different processes for purchasing, developing and enhancing technology in state government. In short, we are weaving the accessibility standards into the current fabric of relevant processes rather than managing accessibility compliance through separate activities and processes.

Implementation of the Accessibility Standards is accomplished by embedding accessibility into these key processes:

- IT Purchasing Standards
- Procurement
- IT Development

### *IT Purchasing Standards*

The Department of Administration and OET's IT Standards and Resource Management Program (ISRM) collaboratively administer a collection of state purchasing and contracting programs that streamline the purchasing process for IT products and services, and helps the public sector complete critical IT projects faster, and for less money.

The programs, referred to as BUY-IT, work to help governmental agencies obtain standards-based IT products and services at best value prices. IT standards are established through an inter-agency group of IT experts who analyze IT needs. Then these experts work with IT manufacturers to make available appropriate IT product and service packages.

State, local, educational, and nonprofit entities (Cooperative Purchasing Venture members) are all eligible and encouraged to purchase products and services through the BUY-IT program.

As of January 2010, the BUY-IT program has begun to incorporate Section 508 standards into its review process. As products reach their refresh cycle, the BUY-IT program requests Voluntary Product Accessibility Templates (VPATs) from manufactures and vendors. The VPAT is a tool used to document a product's conformance with the accessibility standards under Section 508 of the Rehabilitation Act. According to the [Information Technology Industry Council](#), the purpose of the VPAT is to assist government contracting officials in making preliminary assessments regarding the availability of commercial "Electronic and Information Technology" products and services with features that support accessibility.

ISRM has been collecting VPATs from vendors to best understand how their products meet or do not meet accessibility requirements, starting with personal computers available through OET. Now, all personal computers offered through the BUY-IT program meet 100 percent of applicable Section 508 standards.

Additional IT procurement programs include:

**ASAP-IT** or the "**Accelerated Staff Augmentation Program**" helps to get individual specialists on-site and on-task within as little as 48 hours. Individual IT professionals with a range of expertise are pre-selected for the program through negotiated statewide contracts. Areas of specialization include architecture, business analysis, Java and .NET programming, project management, security analysis, quality assurance, and system analysis. Special low rates for these professional services were negotiated as part of this program, even for seasoned experts.

**The Master Contract Program** helps government IT projects acquire a range of professional services from the state's approved vendors list. By managing the contracting and approval process, the Master Contract program provides a shortcut on the time it takes to bring consultants on board.

The State of Minnesota Accessibility Standards will be included where appropriate in each set of product and service standards. This approach ensures that nearly all IT purchases made from these programs will be accessible.

Vendor proposals for a new master contract, ACCESS-IT, are currently being reviewed. Like the ASAP-IT contract, ACCESS-IT will enable agencies to quickly acquire accessibility related services such as testing, captioning, training, and document conversion. This contract will provide a resource to agencies during the transition time when agencies are learning about the skills needed to develop and maintain accessibility technology, but do not yet have the resources in place to ensure accessibility.

### *Procurement*

The most significant impact to implementing accessibility will come through the procurement processes put in place during this project. Most of the IT tools the State has in place are acquired as goods or services through the procurement process. Once again the focus in this effort was to weave accessibility into the current procurement processes and tools, leveraging approval roles already in place. In effect, accessibility will not be an external add-on, but rather a part of an already well established procurement process.

The implementation of the Accessibility Standards into the State of Minnesota procurement processes was found to be complex because of factors such as:

- Balancing accessibility with other procurement statutory requirements
- The market maturity and availability of accessible IT products

These factors had an impact on how accessibility would be weighed. For example, a simple pass/fail in every instance would result in a disruption of state business if agencies were not allowed to purchase any IT product that did not fully meet accessibility standards.

To understand how to best address this complexity the procurement workgroup, which was made up of representatives from the Material Management Division, agency procurement professionals, and representatives from the disability community, began their work by agreement on a set of guiding principles:

1. Accessibility should be maximized to the extent possible within the parameters of business and legal constraints;
2. Processes must be created that move us toward inclusion and do not build discrimination on the backend of the acquisition process. The processes should provide increased accessibility for employees and the public with disabilities;
3. Agency procurement staff must be equipped with guidelines such as a matrix to enable the choice of the most appropriate procurement tool available from a “tool kit” of options;
4. Processes and procedures must comply with applicable state statutes and rule and balance the interests of accessibility and fair and open competition;
5. We cannot throw out “better” in pursuit of “best” because in all cases “best” (most accessible) may not be possible due to cost, functionality etc;
6. Procurement processes related to accessibility should not be so complex that agency purchasing staff cannot understand how to comply or be inclined to bypass the rules;

7. Exceptions should not be so broad or other loopholes exist that the goal of maximizing accessibility is compromised; and
8. Overly rigid mandates can have negative ramifications. We would prefer many largely accessible products over a few completely compliant products.

The procurement guiding principles, in turn, led to a number of innovative procurement tools. For example, the Accessibility Matrix recommends solicitation techniques that will result in the most accessible solution based on the market maturity of accessibility for a specific group of products. In addition to decision-making tools, the procurement workgroup developed definitions, modified processes, modified solicitation and contracting documents, and an exception process.

The guiding principles also became a way to test and refine the recommended exception process. The Committee for Technology Standards for Accessibility and Usability group agreed with the final results, recommending the draft exception process to the State CIO unanimously and without changes.

The Materials Management Division and OET are also working with the developers of the federal government's buyaccessible.gov tool for use by procurement staff. The BuyAccessible Wizard can help with market research, and provides tools to assist in writing solicitation language. We can use this tool at no charge, and Minnesota will be the first state to do so.

And finally, the procurement implementation of accessibility has made every effort to minimize the decision-making by individuals who don't understand the nuances of choosing accessible products and services.

### *IT Development*

The implementation and oversight of the Accessibility Standards into the development of websites and software by state employees requires a fundamentally different approach than the one taken by the procurement workgroup. The review and approval processes built into state procurement simply do not exist for software and web development. Each agency builds, tests, and approves their own applications and websites using the tools and methodologies of their own choosing. This is further complicated by the iterative approach of these efforts which technically put many applications out of reach of the Accessibility Standards, because the standards look forward to new implementations and not back to revise existing technologies.

For these reasons, the implementation approach for internal IT development is focused on communication, training, and resources to help agencies succeed with accessibility efforts. This effort began with the adoption of the Accessibility Standards. The process involved representations from 12 different state agencies and boards, including small, medium and large organizations. The application workgroup is made up of web and application developers who will ultimately be responsible for implementing the new standards as a part of their everyday work. In fact, these individuals were involved in reviewing and recommending the final version of the adopted standards.

Currently under development is one of the key deliverables of the Technology Accessibility Standards Implementation project: a website that will provide information, resources, tools, and training information to the various audiences affected by the new Accessibility Standard. The website design will focus on different audiences: vendors, procurement professionals, IT development, and end users. Tools, training, and information will be appropriately organized by audience. The site will also be used to communicate changes to the standards and related news and activities.

A comprehensive training plan has been developed to understand and plan for the short term and long term training needs related to Accessibility. In addition to the training plan, training and related resources are already developed or are under development, including:

- An agency accessibility implementation planning guide and template, which will be included with the Accessibility Standards Guidelines
- White papers and case studies that provide a high level approach to implementing accessibility
- End-user classes on creating accessible Word documents and PDFs
- Classes for developers and business analysts on understanding the WCAG 2.0 standards and how to build them into software development processes
- FAQs, tips and tricks, and procedures on a variety of accessibility topics
- Plans to convert most of these classes and related materials to computer-based training or recorded webinars that can be launched by agency learning management systems as well as the accessibility website.

The OET/Department of Administration project team takes every opportunity offered to provide training and present at conferences and special interest groups. Members of the advisory committee worked with the 2010 Minnesota Government IT Symposium Planning Committee to create an entire program track dedicated to accessibility. Department of Administration and Office of Enterprise Technology presented one half-day workshop and six different accessibility sessions at the Symposium.

### *Funding and Project Expenditures*

The Office of Enterprise Technology received \$276,000 for the two year implementation effort. (\$200,000 was received from the TAM fund; and \$76,000 was received from ARRA funds.) OET has budgeted and spent those funds in the following way:

- **Internal labor** – including part time project manager and project sponsor; full time analyst hired specifically for the project; and technical staff as needed  
**\$219,318.00**
- **External labor** – including testing and training consultants from other state agencies, facilitation services for advisory meetings  
**\$15,627.00**
- **Other expenses** – including staff training, accommodations for advisory and work group meetings, accessibility testing software  
**\$18,108.00**

The Department of Administration received \$200,000 (ARRA funds) for the two-year implementation effort. The funds have been budgeted and spent primarily on internal labor, including an analyst hired specifically for the project. The distribution of the funds is as follows:

- **Internal labor** – including one full time analyst and other Materials Management Division staff who are dedicating time to the project.  
**\$122,356.10**
- **Other expenses** – including supplies, and other project-related operating costs.  
**\$5,106.83**

### *Next Steps*

Implementation of the Accessibility Standards is a process that requires planning, training, and organizational change. We acknowledge that at the conclusion of this project, June 30, 2011, the Accessibility Standards will not be fully implemented throughout state government. Creating accessible technology systems for Minnesota government will likely take several years and the effort will never be completely done, as systems, technologies, and the standards themselves are always evolving. Our assumption however, is that careful planning will result in meaningful and continuous progress to meeting the Accessibility Standards.

The remaining months of this two year effort will focus on the implementation of the Accessibility Standards in two key ways:

- **Short Term** - Accessibility communication and training to various stakeholder groups
- **Long Term** - Create tools, training, and resources that will assist agencies in their efforts to implement the Accessibility Standards

### *Implementation Planning*

Creating a culture where the need for accessibility is individually and collectively understood and where processes and tools are modified to ensure progress to accessible technology, requires planning. An implementation guide and planning templates are being prepared for distribution to state agencies. The Accessibility Implementation Guide will walk agencies through a decision-making process to identify roles and responsibilities, training needs, and goals and metrics that demonstrate progress.

### *Training*

Throughout the project, project team members have been identifying accessibility resources and tools. Instructor-led classes have been developed for web/application development teams, procurement professionals and for end-users. These classes have been piloted and continue to be refined. During the last six months of this project, accessibility instructor-led training will be available to agencies.

In order to address training needs beyond June 30, 2011, some of the key instructor-led classes will also be converted into computer-based training or archived webinar classes that will be available on the OET website or made available to agency learning management systems for ongoing training.

In addition to training developed by the Technology Accessibility Standards Implementation project, accessibility training will be available through the ACCESS-IT Master Contract, and through links to selected resources on the OET website.

### ***ACCESS-IT Web Page***

The Accessibility Standards and implementation materials, including tools, training, and resources, will be available in one central location on the OET website. Having a single place where all information related to the Accessibility Standards can be found, is key to the long term implementation of the standards.

## **ASL Video Content and Technical Assistance**

### **Report Content Prepared by Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans**

The State offers key content in languages used by Minnesotans who speak Spanish, Hmong and Somali. The WCAG 2.0 Level AAA requires that equivalent access is provided to the estimated 50,000 Minnesotans whose first language is American Sign Language. (The State of Minnesota Accessibility Standards incorporates the WCAG 2.0 at Level AA, but “encourages” compliance at Level AAA.)

During FY2010 MCDHH spent the \$100,000 allocated for ASL video content and implementation of the Usability and Accessibility Act in the following ways:

- 1) Production of six videos in American Sign Language on H1N1 produced by DeafMD. The content was developed by the Minnesota Department of Health.
- 2) Creation of the online course “Video Captioning Essentials” that teaches learners how to caption videos. The course is free, can be used by state agencies, the private sector, the nonprofit sector, and individuals. It was developed by a national expert on captioning who had it reviewed by the National Captioning Institute and WGBH in Boston and Caption Max. It is posted on the MCDHH Website and will eventually be part of the Office of Enterprise Technology’s accessibility implementation web content. The Minnesota Council of Nonprofits has a link on its website to the course. We will make the course available to agency training departments for posting on their learning management systems. The course will continue to be updated as technology changes and funding allows.
- 3) Creation of “Making Your Case,” an online course in American Sign Language that teaches citizens how to make their case to legislators. The eight-hour course is accessible to people who are deaf, hard of hearing and deafblind. The course has been acclaimed by the Minnesota Association of Deaf Citizens, the National Association of the Deaf, PEPNet (a federally funded program that provides support for deaf and hard of hearing students in postsecondary settings) and the local and national chapters of Hands and Voices, a parent organization, and the Hearing Loss Association of America.

In FY2011, the Commission has extended its contract with Zenmation and plans to create at least one online course that will assist state agencies with the implementation of the State of Minnesota Accessibility Standards.

# Streaming Video Captioning Pilot Project

## Report Content Prepared by Legislative Coordinating Commission

### Summary

The Legislative Coordinating Commission (LCC) was charged with conducting a pilot project to provide captioning of live streaming video of the 2010-2011 legislative sessions on the Legislature's website. This project is required in Minnesota Session Law 2009, Chapter 131, Sec 16(a) (3). The LCC, after conducting research and with consultation and input from Senate Media Services and House Public Information Services, decided to test the viability of voice-to-text/echo-captioning technology for the Minnesota Legislature's online broadcast. This webcasting has not had captioning offered in the past. Our objective was to assess the technology of echo-captioning in addition to considering accuracy, efficiency and cost.

The pilot project has been divided into two phases with the first phase occurring during the 2010 legislative session and the second phase occurring during the 2011 legislative session. We committed to evaluating results at the conclusion of each phase.

### 2010 pilot

**Operational Summary.** The LCC received one proposal in response to its RFP for echo captioning services. Ultimately, the LCC executed a contract with Tom Schultz Captioning (Schultz, contractor). Schultz hired four employees, and the LCC provided office space to enable better coordination with House and Senate media during this phase of the pilot program. The LCC also provided the necessary hardware and software. House and Senate media provided the audio and video signal, the contractor repeated the audio they just heard into a computer loaded with the specialized software, which then converted that audio to text that was captioned on the webcast.

The contractor successfully captioned webcasts of House and Senate floor sessions, committee hearings, interviews with legislative leaders and members, and Capitol Reports. In all, the contractor captioned approximately 800 hours of web streaming. Schultz Captioning functioned similarly to legislative staff, providing services during long evenings, and on weekends near committee deadlines and the end of session.

Throughout the 2010 legislative session, the LCC committed some of its staff to evaluating the accuracy of the echo captioning. LCC staff reviewed the webcast audio and compared it to the captioning provided by Schultz, literally counting discrepancies between the spoken words and the captioned text. We found a wide range in accuracy, from hearings where a viewer could easily follow the captioned legislative proceedings to occasions where the text was unfathomable.

Accurately capturing audio in a legislative setting is extremely challenging:

- On many occasions, the audio signal is weak or muffled, making it difficult for the person repeating the audio to convert those words to text;
- Often times the speaker does not enunciate, speaks very rapidly, or is unclear in expressing their thoughts, making echoing challenging;

- In a legislative setting, there are frequently multiple people speaking at once, or rapid transitions from one speaker to the next;
- The captioner also needs to enunciate clearly, so that the voice to text software can accurately convert the audio to captioned text;
- The software can have difficulty associating the correct text for unique words such as names of testifiers or regional cities or technical terms;
- There are some words that, although they have similar pronunciations, have different meanings such as “two” and “to” or “too”;
- With the variability in legislative session and committee activity, scheduling captioners can be problematic.

Working with Senate and House media, we also decided that for the 2010 session coverage, we would provide “open captioning.” Under this arrangement, the captioning is not optional, and is visible to all viewers. For the Phase II/2011 session of the pilot project, we decided to make captioning “closed,” where the viewer can determine if they want the captioning to be present.

### Assessment

Because of the visible nature of the captioning service, and the level of interest by the deaf and hard of hearing community, the LCC was committed to evaluating this pilot program. We assessed the pilot in two ways: an objective/technical evaluation of accuracy of the captioned text compared to the spoken words; and a survey of deaf and hard of hearing citizens about their experience with the captioning, including an evaluation of sample voice to text captioning.

### Technical analysis

LCC staff randomly selected samples of captioned audio from House and Senate floor sessions and committee hearings, and counted errors for a fixed amount of time. With enough samples, we were able to generate average “error rates” for the Schultz Captioning employees. There was considerable variation:

	<b>Average # of errors/minute</b>	<b>Error rate</b>
<b>Captioner 1</b>	5.09	4.9 percent
<b>Captioner 2</b>	9.65	7.9 percent
<b>Captioner 3</b>	9.60	8.2 percent
<b>Captioner 4</b>	18.34	14.6 percent

After some amount of evaluation, LCC staff concluded that an error rate of less than 6 percent was needed in order for a viewer to be able to generally understand what they were witnessing.

As a point of comparison, we also evaluated the services provided by Paradigm, which uses stenographers to caption text. Paradigm was retained for captioning services for the broadcast television coverage of the Legislature. Our analysis found that Paradigm had an average error rate of 3.9 percent.

## Survey

LCC staff worked closely with staff of the Minnesota Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans (MCDHH) to survey members of that community about this pilot program. In August 2009, an email was sent to 700 persons on the MCDHH's distribution list, resulting in some 90 responses.

Respondents (86 percent of whom reported being deaf, deafblind or hard of hearing) indicated:

- 31 percent watched legislative floor session or committee meetings on the web;
- 33 percent had viewed archived video of legislative sessions or committee meetings on the web;
- Their perception of the accuracy of the captioning was similar to the evaluation by LCC staff (i.e., that an error rate above 6 percent rendered the captioning unreliable)

## Post-Production Speech Recognition Software

We also explored using DocSoft, which is a speech recognition software program that converts voice to text for archived audio files. This software would not provide real-time captioning. Instead, the software converts archived audio files (and the audio from video files) and provides captioning. We tested this software on a sample of legislative proceedings and found an error rate of 25.8 percent. We concluded that DocSoft might work well with a single speaker event, but that the environment of legislative sessions and committees was not conducive to using this software.

## Next steps: Phase II

On completing the analysis and evaluating the survey results, we conferred with staff of the Minnesota Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans. As a result of those discussions, we are planning to:

- Continue to use and evaluate voice-to-text captioning to determine if it is a viable, reliable, accurate and cost effective tool to make legislative proceedings available to Minnesota's deaf and hard of hearing community. The Legislature needs to pursue these options if it wants to comply with the Americans with Disabilities Act and related federal laws. (The Office of Enterprise Technology has adopted these federal laws for state agencies, but they do not apply to the legislative or judicial branches. The standards are available at: [http://www.state.mn.us/mn/externalDocs/OET/Accessibility\\_Standard\\_for\\_Minnesota\\_Executive\\_Branch\\_092710114823\\_Standard\\_OET000\\_Accessibility\\_090110.pdf](http://www.state.mn.us/mn/externalDocs/OET/Accessibility_Standard_for_Minnesota_Executive_Branch_092710114823_Standard_OET000_Accessibility_090110.pdf).)
- Increase our focus on the consultant's plans to ensure that the captioning accurately reflects the legislative proceedings so that viewers are able to understand what they see on the webcast;
- Continue our efforts to evaluate the quality of the captioning, and provide prompt feedback to the consultant.

## **Recommendations to the Legislature**

### **Funding Options for Captioning**

The Technology Accessibility Captioning Committee, an Advisory Committee for Technology Standards for Accessibility and Usability subgroup, explored different avenues for funding captioning of audio content posted on the web. The Captioning Committee recommended that all state agencies incorporate captioning into the budgets for their prerecorded video and audio production. Most productions have scripts and these can be added at a low cost if they are part of the production plan.

The costs that the Committee decided to address were live captions. The state has adopted Level AA WCAG 2.0 as the standard for the State. Level A and AA require that synchronized captions are provided for all live multimedia that contains audio (audio-only broadcasts, web casts, video conferences, flash animations).

Captioning not only makes content accessible to people who are deaf or hard of hearing, but also is of value to those who need to view videos in the workplace in quiet environments. It also makes online video content searchable.

Two major changes in federal law have increased the need to identify a funding source to cover the cost of live captioning. First, in the fall of 2009 the Department of Justice proposed changes to the ADA that will require websites to provide captions online. We anticipate that these will be adopted formally in the spring of 2011. Secondly, in 2010 President Obama signed the 21st Century Communications and Video Accessibility Act of 2010, which requires online video programming to be captioned.

Going forward the committee recommended that a permanent consolidated access fund be created for the purpose covering the costs of live captioning. The federal government provides a service called “Fed Relay” through the Relay Conference Captioning Service (RCC) and covers these costs through the federal phone accessibility phone tax. The committee recommends that a similar service be offered to all branches of state government.

### **Funding and Legislation that Support Technology Accessibility Going Forward**

As stated earlier in this report, implementation of the Accessibility Standards is a process that requires planning, training, and organizational change. At the conclusion of this project, June 30, 2011, the standards and resources needed to implement the Accessibility Standards will be in place; however, technology accessibility will not be fully implemented throughout state government.

We believe that without dedicated support for the accessibility effort during the early stages of implementation, the original intent of the legislation will not be realized. Fully implementing the Accessibility Standards throughout state agencies requires implementation planning, training for nearly all employees, and a cultural change that includes both an awareness of why accessibility is important and the changes in processes and skills to support that change. Without a central resource and leadership to assist agencies, the results will be inconsistent at best and will likely fall significantly short of what could have been accomplished by the 2009 legislation and resulting two-year efforts.

In order to achieve sustainable, measurable progress in the accessibility of State of Minnesota IT systems and applications, The Advisory Committee for Technology Standards for Accessibility and Usability recommends that an accessibility implementation program be put in place and funded to assist agencies in successfully implementing the State of Minnesota Accessibility Standards. This program should be evaluated at the end of two years to determine its effectiveness and the need for continuation. This program should include:

1. A continuation of The Advisory Committee for Technology Standards for Accessibility and Usability
  - Establish new charter
  - Responsible for reporting to legislature on accessibility status
  - Available to monitor, review activities, and advise OET and Admin
  - Meet quarterly, rather than monthly
2. Creation of Chief Information Accessibility Officer (CIAO) position
  - Accountable for ongoing technology accessibility program
  - Convenes Advisory Committee
  - Liaison to All-CIO Team; State CIO
  - Champion for technology accessibility; provides visibility
  - Looks for additional ways to integrate accessibility into IT governance and improve effectiveness of standard
  - Accountable for coordination of key components – architecture, procurement; including changes resulting from updates to standards
  - Participates in procurement approvals and standards setting
3. Accessibility Support Resource
  - Reports to CIAO
  - Provides on-demand accessibility testing and remediation feedback to agencies – including documents, PDF's, applications
  - Consults with application development staff on accessibility requirements and testing strategies
  - Provides or coordinates training; develops new materials; updates ACCESS-IT website
  - Transitional role – we see it as critical as agencies begin to apply the new standards; before state agencies develop skill sets needed to successfully create and maintain accessible technology. Pilot to see if such a resource is needed over time

NOTE: Significant efforts would be made to recruit applicants for the Chief Information Accessibility Officer and Accessibility Support Resource from the disability community.

The estimated cost of the recommended program is \$250,000 annually for salaries, administration costs, and the expense of convening the advisory committee (including accommodations). This recommendation is based on the experience of efforts made to date. We further recommend the continued use of the Telecommunication Access Minnesota funds for this program, based on our understanding that the purpose of this fund is to ensure that all Minnesotans have access to information and supporting technologies.

## Change to Existing Legislation

In 1998, the legislature enacted the “NonVisual Access Standards” now codified at Minnesota Statutes, section 16C.145. The language instructs that standards be included, “in all contracts for the procurement of information technology, by, or for the use of, agencies, political subdivisions, and the Minnesota State Colleges and Universities.” The statute also provides that, “the University of Minnesota is encouraged to consider similar standards.”

The statute requires that the following minimum specifications must be included as part of the standards:

1. that effective, interactive control and use of the technology including the operating system, applications programs, prompts, and format of the data presented, are readily achievable by nonvisual means;
2. that the nonvisual access technology must be compatible with information technology used by other individuals with whom the blind or visually impaired individual must interact;
3. that nonvisual access technology must be integrated into networks used to share communications among employees, program participants, and the public; and
4. that the nonvisual access technology must have the capability of providing equivalent access by nonvisual means to telecommunications or other interconnected network services used by persons who are not blind or visually impaired.

The Advisory Committee discussed this existing legislation and believes that the broad principles articulated in the statute are encompassed and better defined in the new standards adopted in Minnesota on September 1, 2010. However, because the September 1<sup>st</sup> standards apply only to Executive Branch agencies, the NonVisual Access Standards in statute have broader applicability. For this reason, a repeal of this statute is not recommended, however, the Committee does believe that consideration needs to be given to amending the statute to reference and ensure consistency with the newly adopted standards. Minimally, the Committee believes it would be helpful to cross-reference the legislation enacted in 2009 that has been codified in Minnesota Statutes, Chapter 16E regarding the development and enforcement of accessibility standards. Until such clarifications are made legislatively, procurement documents will continue to reference all applicable provisions.

## Advisory Committee for Technology Standards for Accessibility and Usability

David Andrews

State Services for the Blind (DEED)

Joan Breslin-Larson

Education

Julie Dinger

Legislative Branch

Mary Hartnett

Commission of Deaf, DeafBlind, and Hard of Hearing Minnesotans

Betsy Hayes, Advisory Committee Chair	Administration
Bruce Hodek	Human Services, Deaf and Hard of Hearing Services
James Kauth	Office of Enterprise Technology
John Kostouros	Judicial Branch
Cindy Le	Health
Kim Moccia	STAR Program