State of California
Department of Technology

IT Accessibility Resource Guide

SIMM Section 25

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REVISION HISTORY

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Initial Release	**July 2016**	**Policy/Statewide Strategic Planning**	
Revision	**October 2017**	**Policy/Statewide Strategic Planning**	Revised Government Code section references from 11135 to 7405.
Revision	**March 2019**	**Policy/Statewide Strategic Planning**	Corrected hyperlinks.

INTRODUCTION TO
INFORMATION TECHNOLOGY ACCESSIBILITY RESOURCES

Overview

Under existing federal and state laws and policies, Agencies/state entities, as well as any contractors working for them, are responsible for ensuring that their Agency/state entity's public websites are accessible to the general public and that their internal electronic and information technology systems are accessible by state employees, including persons with disabilities (State Administrative Manual (SAM) 4833). The California Government Code section 11135 (now GC Section 7405)[1] directs that: "state governmental entities, in developing, procuring, maintaining, or using electronic or information technology, either indirectly or through the use of state funds by other entities, shall comply with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Code of Federal Regulations."

As government continues to provide more services and information to citizens by expanding access to online services, each Agency/state entity has the responsibility to comply with federal and state laws forbidding discrimination against persons with disabilities. Meeting the goals of accessibility include making assistive tools available to employees who require them to perform their jobs, ensuring accessibility is built into an IT project during its earliest planning and requirements stages, and overall awareness of accessibility in developing or retrofitting electronic and information technology. All these steps lead to increased productivity, rework and costs are reduced, and critical information, such as public health and safety, employment, or tax law is available to all who need it.

The California Department of Technology, within the Government Operations Agency, together with the Health and Human Services Agency and the Department of Rehabilitation, has created this resource guide to assist Agencies/state entities in meeting requirements for accessible web, information technology (IT) projects, and digital content creation. This guideline aligns with Web Content Accessibility Guideline (WCAG) 2.0 Level AA Standards in addition to the requirements of Section 508 (29 U.S.C. 794d).

[1] The provision of GC section 11135 that incorporated Section 508 was moved to new GC Section 7405, effective January 1, 2017.

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IT ACCESSIBILITY RESOURCE GUIDE

This resource guide is intended to provide an overview of digital accessibility, drawing from and identifying the extensive information already available. Federal and state governments, as well as the higher education communities, have been working to improve the accessibility of electronic and information technology for persons with disabilities for decades.

The resource guide references excerpted quotes applicable to the topics discussed, along with links to the source materials for further reference. In many cases, additional links to specific language on accessibility requirements or policies are also included for individuals interested in pursuing the topics further.

1.0 Accessible IT Goals

1.1 Accessible IT Goals, Initiatives, and Benefits

The main goal is to address the needs of all individuals. With advancements in technology, more information and services are being provided through state government websites and electronic systems. Consequently, Agencies/state entities have the responsibility for ensuring that "online" information and services are available in formats that are accessible to all the constituents served.

Include everyone

A major goal in state public websites, state intranets and internal electronic systems is to include all potential users. Integrating accessibility into the design, development, testing and maintenance of websites and electronic and information technology (EIT) increases the ability of all citizens to use them.

- "Accessibility is about designing your website so that *more people* can use it *effectively* in *more situations*." "Accessibility in User-Centered Design: Background, "*Just Ask: Integrating Accessibility Throughout Design*

Improve the ability of 6 to 9 million Californians with disabilities to access state digital information and services

Implementing accessible IT means improving the ability of Californians to access state online information and services, including individuals dealing with one or more disabilities such as:

- Blindness
- Visual impairment
- Color blindness
- Hearing problems
- Manual dexterity limitations

- Speech difficulties
- Developmental disabilities
- Seizure disorders

Individuals with disabilities use the state web and online resources for the same purposes as people without disabilities: to find jobs, file taxes, renew a motor vehicle license, find and compare schools, get a fishing license, or take a tour of state parks. These resources expand their world, increasing their opportunities for education, careers and employment, better health care, independent living, and personal fulfillment. The following sources demonstrate how people use assistive technology (AT) together with accessible IT.

- How People with Disabilities Use the Web (World Wide Web Consortium (W3C) Web Accessibility Initiative)
- Accessibility Resources: Knowledgebase for web accessibility. (University of Wisconsin – Madison)
- Video Demonstrations of Adaptive Technology – Screen Magnification and Refreshable Braille (Stanford Online Accessibility Program)
  DO-IT (Disabilities, Opportunities, Internetworking and Technology) Streaming Video Presentations (University of Washington)
  - Access to Technology in the Workplace: In Our Own Words - Testimonials from employees with disabilities that support the use of accessible technology in the workplace.
  - Access to the Future: Preparing Students with Disabilities for Careers - a College career development staff share ideas for making services and programs accessible to students with disabilities.

While considerable progress to improve accessibility has been achieved, further improvements are still possible to broaden access to everyone. For example:

Use of Captcha visual tests using distorted letters which may not be viewable by visually impaired individuals.

- Uncaptioned videos, such as public service announcements or training programs do not convey information to persons with hearing impairment.

- Scanned pages placed in a PDF (Portable Document File) without further processing cannot be read by screen reading software.

- Entry forms with required fields marked by color code challenge persons with color blindness.

California's Commitment to Accessibility

As a technological leader, California continues efforts to ensure all of our citizens can fully participate in the electronic offerings of their government.

State government is responsible for providing all citizens and employees, including those with disabilities, the right to access California information resources and online services important for their personal well-being, commerce, recreation, and independence. The state's web presence must be designed in a manner that is accessible to all citizens, and compatible with commonly used assistive technologies.

Technology provides government the ability to reach its citizens through digital means. Citizens and the businesses that serve them, can access government services with the help of assistive technologies. These principles apply to both public facing and internal applications, as all state employees require effective access to the same information and services available to their fellow employees.

Additional information regarding accessibility can be found on the Webtools website. Webtools is an online resource for California Agency/state entity webmasters that helps support the efforts of implementing standards, functionality and look and feel into state websites. Specifically, Webtools provides necessary tools, resources, and implementation guidelines for webmasters to implement state standards for usability, accessibility, and separation of presentation.

2.0 Digital Accessibility Law

Federal and state laws have been established to ensure that electronic and information technology (EIT) systems are accessible to persons with disabilities. This section focuses on the various aspects of the federal and state laws, the regulations and standards developed to enforce them, and the permitted exceptions.

The following are federal and state websites/resources where the full text of the relevant laws and regulations are located. Key excerpts are provided for a 'quick read' and to assist in locating the reader's areas of interest:

- **Federal**
  - Americans with Disabilities Act
  - Rehabilitation Act of 1973, as amended
    - Section 504 Nondiscrimination Under Federal Grants and Programs
    - Section 508 Electronic and Information Technology Accessibility Guidelines
  - For information on other federal laws:
    - A Guide to Disability Rights Laws (U.S. Department of Justice)

- **California**

  - Fair Employment and Housing Act (Government Code sections 12900-12951 & 12927-12928 & 12955 - 12956.1 & 12960-12976)
  - Unruh Civil Rights Act (Civil Code section 51)
  - Disabled Persons Act (Civil Code section 54.1)

  - For information on other federal and California laws:
    - Disability Laws and Regulations – Federal and State (California Department of Rehabilitation)

In addition, Agencies/state entities are also charged with providing equal employment opportunity to persons with disabilities (Government Code sections 19230-19237 and Executive Order S-6-04). Accessible information technology is an important aspect in Agencies/state entities enabling and supporting these laws and policies.

2.1 Implications of Federal and State Law

The assemblage of federal and state laws, policies and regulations, as well as court decisions, provides a simple key message:

> **All Agencies/state entities are required to have their electronic and information technology accessible.**

California Government Code section 7405 includes the requirement that "state governmental entities, in developing, procuring, maintaining, or using electronic or information technology, either indirectly or through the use of state funds by other entities, shall comply with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Federal Code of Regulations."

- Section 508 (29 U.S.C. Sec. 794d): Electronic and Information Technology
- Section 508 Standards: Part 1194 of Title 36 Federal Code of Regulations

The following sections provide key points and information from the laws and regulations, with links provided to enable access to the full context for each:

2.2 Government Code Section 7405 Basics

- **What is Government Code Section 7405?**

  - State law that provides protection from discrimination from any program or activity that is conducted, funded directly by, or receives any financial assistance from the State of California.

- Directs that Agencies/state entities follow Section 508 of the federal Rehabilitation Act requiring accessibility of electronic and information technology.

- **Key Points**:

  - **Why:** “The Legislature finds and declares that the ability to utilize electronic or information technology is often an essential function for successful employment in the current work world” [… and passed the act in order to] … “improve accessibility of existing technology, and therefore increase the successful employment of individuals with disabilities, particularly blind and visually impaired and deaf and hard-of-hearing persons …]”

  - **Who must comply**: Agencies/state entities are required to comply with Government Code section 7405.

  - **What is required**: Agencies/state entities “in developing, procuring, maintaining, or using electronic or information technology, either indirectly or through the use of state funds by other entities, shall comply with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Federal Code of Regulations.”

2.3 Section 508 Basics

To better serve both the public and state staff, and to improve their own efficiency in the creation of content, Agencies/state entities are encouraged to establish policies, standards, guidelines, templates and training to support those creating content so that they can make their documents and files accessible from the beginning when the document or file is first created.

In 1998, Congress amended the Rehabilitation Act of 1973 to require Federal agencies to make their electronic and information technology (EIT) accessible to people with disabilities. The law (29 U.S.C. § 794 (d)) applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Under Section 508, agencies must give disabled employees and members of the public access to information that is comparable to access available to others. The United States Access Board discusses the Section 508 law and its responsibility for developing accessibility standards for EIT to incorporate into regulations that govern Federal procurement practices.

In addition to Section 508, the Rehabilitation Act of 1973 has several other sections related to federal disability policy.

    - Sections 501 and 505 prohibit federal employers from discriminating against qualified individuals with disabilities.
    - Section 503 prohibits employment discrimination based on disability by federal contractors or subcontractors.
    - Section 504 prohibits federal agencies, programs, or activities from discriminating and requires reasonable accommodation for qualified individuals with disabilities.

- **Key Points:**

    - **Why:** Section 508 generally requires Federal agencies to ensure that, when developing, procuring, maintaining, or using electronic and information technology, they take into account the needs of all end users. By doing so, all persons are able to have access to and use of information and data and most importantly access to services.

    - **Who must comply:** Section 508 was written for federal agencies. Government Code section 7405 extends Section 508 to state governmental entities and that extension should be understood in interpreting the Section.

    - **What is required: "**Section 508 generally requires federal agencies [and California state governmental entities] to ensure that their procurement of EIT takes into account the needs of all end users – including people with disabilities."

        Section 508, M-16-20 (Section508.Gov)

- **Accessible Means Comparable Access for the Public and State Employees**

    - The Public: Individuals with disabilities, who are members of the public seeking information or services from an Agency/state entity, have access to and use of information and data that is comparable to that provided to the public who are not individuals with disabilities.

    - State Employees: State employees with disabilities have access to and use of information and data that is comparable to the access and use by state employees who are not individuals with disabilities.

        [Based upon Section 508 Standards Section 1194.1 Purpose.]

- **Key Elements of Section 508**

The following briefly describes the major elements of Section 508. Complete descriptions are available from Section 508.gov.

- Definition of EIT / E&IT / ICT

  In Section 508. “Electronic and information technology (EIT or E&IT) is defined to include information technology and any equipment or interconnected system or subsystem of equipment that is used in the creation, conversion, or duplication of data or information.” EIT is also referred to as Information and Communication Technology (ICT).

  The state definition of IT is “all computerized and auxiliary automated information handling, including systems design and analysis, conversion of data, computer programming, information storage and retrieval, voice, video, data communications, requisite systems controls, and simulation. The term 'information technology' is commonly abbreviated as 'IT'." (State Administrative Manual (SAM) 4819.2 Definitions)

  Although the definitions appear similar, EIT in Section 508 for federal agencies extends to video and multimedia products as well as self-contained, closed products with embedded software such as copiers, printers, and fax machines. The focus in this document is upon EIT and IT as defined by the State Administrative Manual.

  While this Reference Guide addresses IT as defined by the state, Agencies/state entities are reminded that Government Code 7405 incorporates the accessibility requirements of Section 508 and, therefore, departments must ensure accessibility of EIT as covered by the broader federal definition. They are required to follow Section 508 standards in developing, procuring, maintaining, or using EIT, including those dealing with copiers, printers and fax machines.

  Note: Federal documents, as well as other sources, use both EIT and E&IT as abbreviations for “electronic and information technology.”

- 508 Standards and Exceptions

  The Architectural and Transportation Barriers Compliance Board (Access Board) is charged with developing technical and functional provisions to establish a minimum level of accessibility.

  “The technology-specific provisions address software applications and operating systems; web-based information or applications; telecommunications products; video or multi-media products; self-contained, closed products such as information kiosks and transaction

machines, and desktop and portable computers. They also address compatibility with assistive technologies that some people with disabilities use for information and communication access."

Current exceptions can be found in the Section 508 website.

- Non-availability

  "An agency may conclude that EIT meeting the applicable technical provisions of the Access Board's standards is not available (and purchase EIT that does not meet those provisions) when it cannot find a commercial item that both meets applicable Access Board's technical provisions and can be furnished in time to satisfy the agency's delivery requirements. If products are available that meet some, but not all, applicable provisions, agencies cannot claim a product as a whole [... is] not available just because it does not meet all of the applicable provisions."

- Equivalent Facilitation

  "Agencies may accept EIT offered by vendors which uses designs or technologies that do not meet the applicable technical provisions in Subpart B but provide substantially equivalent or greater access to and use of a product for people with disabilities. (See 36 CFR 1194.5.) This is referred to as 'equivalent facilitation.'"

- Complaint Procedure

  "This law establishes a complaint procedure and reporting requirements that further promote compliance. Section 508 provides that any individual with a disability may file a complaint alleging that a federal agency fails to comply with Section 508 when procuring EIT."

  Each Agency/state entity is required to include procedures on all its state website home pages, within the "Accessibility" and/or "Contact Us" links, clearly describing how to report problems with accessibility. Receipt of complaint or other issues must be assigned to an individual (e.g., webmaster) or group (e.g., accessibility group) with the responsibility and technical knowledge to respond by either correcting the problem or providing an alternative format for the information sought. (See Management Memo 03-08 Alternative Formats.)

  Additional information regarding ADA compliance, complaint procedures, and sample documents are available from the California Department of Rehabilitation.

- **Section 508 Designed to Evolve**

  Section 508 is intended and designed to evolve with developments in technology and assistive technologies. By 2018, Section 508 will be updated to new guidelines as defined by Telecommunications and Electronic and Information Technology Advisory Committee (TEITAC), formed by the U.S. Access Board, based on the World Wide Web Consortium's Web Content Accessibility Guidelines 2.0.

2.4 Applying Section 508 Standards

There are a variety of resources and expertise available to assist Agencies/state entities in determining the appropriate accessibility standards and requirements and in implementing them. [See the selected resources on Section 508 at the end of this section in Recommended Starting Sources. Additional resources focusing upon implementation will be found in Recommended Starting Sources in the appropriate sections: Accessible Web, Web Accessibility Testing, Accessible IT Projects, and under the specific software authoring tool in Accessible Content Creation.]

2.5 Reviewing Section 508 for State IT Projects

California State IT projects are frequently complex, often have relatively large budgets, and frequently have significant impact on the public and/or state workforce. A review of Section 508 early in the planning phase of an IT project can help Agencies/state entities determine accessibility requirements. As part of the Project Approval Lifecycle (PAL), Agencies/state entities will begin identifying accessibility related requirements as part of the Stage 2 Alternatives Analysis, Section 2.4 Mid-Level Solution Requirements. Accessibility requirements will be further matured as part of the Stage 3 Solution Development Part A, Section 3.6 Solution Requirements. Agencies/state entities will also be required to certify compliance with Section 508 and State Administrative Manual (SAM) Section 4833 requirements as part of the Stage 3 Part A, Section 3.10 Procurement Administrative Compliance Checklist.

- **Determination of Electronic and Information Technology (EIT)**
  - If this is to be an IT project within California state government, then it is likely that the project meets the formal definition of EIT within Section 508.
- **Exceptions from Section 508**
  - See Section 508 for up-to-date exception criteria.

- The three exceptions below are common ones for which a state IT project might possibly satisfy the conditions for an exception. In these three cases, however, the Agency/state entity will likely need to determine functional and technical requirements as well as commercial availability for the IT project before it would be possible to evaluate whether the conditions for those exceptions might be met.

  - **Undue Burden**:

    "Undue burden is a longstanding concept in disability rights law. In the context of section 508, undue burden is **defined as 'a significant difficulty or expense,' considering all agency resources available to the program or component for which the product is being procured** [emphasis added]. This definition is consistent with the use of 'undue burden' and 'undue hardship' in the Americans with Disabilities Act (ADA) and other sections of the Rehabilitation Act. An undue burden determination must be applied on a case-by-case basis.

    "In addition, the statute requires the information and data to be provided to disabled individuals by an alternative means of access (see below). Agencies have additional responsibilities under sections 501 and 504 of the Rehabilitation Act."

    "[W]hen the undue burden exception is invoked, the […] agency shall provide individuals with disabilities with the information and data involved by an alternative means of access." ("Undue Burden Exception" in Section *508.*

    Note: "Alternative means of access" focuses on the provision of the information and data in an accessible manner as opposed to the accessibility of the product itself and may include different ways that the information and technology are made available.

  - **Commercial Non-Availability**:

    The concept of non-availability is recognized in the Access Board's standards and the Federal Acquisition Regulation (FAR) because agencies may find that some of their needs cannot be satisfied with EIT that meets all the applicable technical provisions.

    "An agency may conclude that EIT meeting the applicable technical provisions of the Access Board's standards is not available (and purchase EIT that does not meet those provisions) when it cannot find a commercial item that both

meets applicable Access Board's technical provisions and can be furnished in time to satisfy the agency's delivery requirements. If products are available that meet some, but not all, applicable provisions, agencies cannot claim a product as a whole is non-available just because it does not meet all of the applicable provisions. Agency acquisitions must comply with those applicable technical provisions that can be met with supplies or services that are available in the commercial marketplace in time to meet the agency's delivery requirements."

For more information, see Section 508.

- **Fundamental Alteration:**

  "This section allows the use of designs or technologies as alternatives to those prescribed in this part provided that they result in substantially equivalent or greater access to and use of a product for people with disabilities. This provision is not a 'waiver' or 'variance' from the requirement to provide accessibility, but a recognition that future technologies may be developed, or existing technologies could be used in a particular way, that could provide the same functional access in ways not envisioned by these standards. In evaluating whether a technology results in 'substantially equivalent or greater access,' it is the functional outcome, not the form, which is important."

  For more information, see Section 508.

- **Remaining Obligations even if an Exception Applies**

  "Even if an exception applies, the agency will still have obligations under sections 501 and 504 of the Rehabilitation Act. These sections require, among other things, that the agency provide reasonable accommodation for employees with disabilities and provide program access to members of the public with disabilities."

  "If the undue burden exception applies, an agency is required under section 508 to provide an alternative means of access."

  "Does an agency have any remaining obligations under the Rehabilitation Act if an exception applies?" For more information, see Section 508.

> “Alternative means of access” focuses on the provision of the information and data in an accessible manner as opposed to the accessibility of the product itself and may include different ways that the information and technology are made available.

2.6 Obligations for Agencies/State Entities

The emphasis in the IT Accessibility Resource Guide is on future compliance. However, Agencies/state entities should also review the accessibility of electronic and information technology created or procured in the past.

Agencies/state entities are responsible for complying with federal and state laws forbidding discrimination against persons with disabilities. Any electronic or information technology created or procured by Agencies/state entities or their contractors subsequent to the enactment of these requirements should have complied with the accessibility standards of Section 508. Agencies/state entities may find that they have existing documents or online applications that are not currently accessible. To address noncompliance, Agencies/state entities should review the accessibility of all of their electronic and information technology, identify any problems, and incorporate resolving those problems into their Agency Information Management Strategy (AIMS) and web planning to include accessibility, with priority given to agency information and services that the agency considers valuable to the people it serves. In addition, as agencies/state entities continue to update, renew and enhance their web presence, documents or software which need to be modified or updated should be made accessible during the upgrading process.

It should also be noted that Agencies/state entities have additional responsibilities within Section 501 and Section 504 of the Rehabilitation Act, the Americans with Disabilities Act, and other federal and state laws. These laws require that Agencies/state entities provide reasonable accommodation to employees with disabilities and provide program access to members of the public with disabilities and take other actions necessary to prevent discrimination on the basis of disability in their programs.

Thus, even where Section 508 may not apply, Agencies/state entities have an obligation to ensure that persons with disabilities have access to the information and services that they provide to the public and their employees regardless of the original date when that information or service was first published on the web.

2.7 Recommended Starting Sources

These selected sources focus upon the primary sources detailing the law, standards and regulations; major resources created by the federal government to support Section 508; and training materials to learn more. Resources focusing upon implementation will be found in Recommended Starting Sources in the appropriate sections: Accessible

Web, Accessible IT Projects, and under the specific software authoring tool in Accessible Content Creation.

- **Primary Sources**
  - Section 508 Website

    On the Section 508 website, search for specific sections of the Section 508 code for accessibility and its application:
    - (29 U.S.C. Sec. 794d): Electronic and Information Technology
    - Section 508 Standards: Part 1194 of Title 36 Federal Code of Regulations
    - Federal Acquisition Regulations (FAR): Final FAR for Implementing Section 508
    - BuyAccessible: Procurement and contracting information
    - *New to the Site* section provides tips on how to use the site

  - The United States Access Board provides information about accessible design and the development of accessibility guidelines and standards for many areas including information technology.

  - The World Wide Web Consortium (W3C) develops open standards to ensure the long-term growth of the web. Among their web content accessibility standards are the following:
    - Web Content Accessibility Guidelines (WCAG) 2.0
    - How to Meet WCAG 2.0
    - Understanding WCAG 2.0
    - Techniques and Failures for WCAG 2.0

  - Federal Communications Commission released orders including the "Second CVAA Order" to implement the accessibility goals established in the Twenty-First Century Communications and Video Accessibility Act ("CVAA").

- **Secondary Sources, Government and Educational**
  - State of California Government
    - California Webtools.ca.gov
    - California Department of Rehabilitation
    - California Department of Education

  - Federal Government websites with Section 508 and accessibility information
    - U.S. General Services Administration website
    - DigitalGov, by the Office of Citizen Services and Innovative Technologies (search for accessibility)

        - Accessibility Guide from 18F, a digital services agency based within the United States' General Services Administration
        - Department of Health and Human Services (search for Digital Communications Accessibility)
        - Disability.gov for information about the following:
            - Assistive and accessible technologies
            - Accessible technology guidelines and standards
            - Making technology accessible

- Universities and Colleges
    - University of California (UC) Office of the President (search for web accessibility) at individual campuses in the University of California system - such as UC Berkeley
    - California State University Accessible Technology Initiative
    - University of Washington Accessible Technology
    - Michigan State University (search for web accessibility) provides a link to central web accessibility guidelines, tutorials, and services
    - Stanford University (search for Stanford Online Accessibility Program) provides resources for Stanford web designers, developers and content creators

- Non-profit
    - Web Accessibility in Mind (WebAIM) is a non-profit organization based at the Center for Persons with Disabilities and Utah State University
    - International Association of Accessibility Professionals (IAAP)
    - Nonprofit Technology Network (search for accessibility)
    - Diagram Center, includes image description, math and publishing resources

- For-profit and Commercial
    - Search engines: search for “accessibility” to find resources and courses to learn about accessibility
    - Software vendors: search for accessibility information and also for accessibility in their specific products, such as Microsoft Office, browsers and operating systems
    - Other companies, including technology providers. Add more terms to search queries to find better results, for example,
        - Accessibility Testing
        - Accessible Documents, PDFs
        - Assistive Technology, Screen Readers

- **Accessibility Policy Resources**

- The California Department of Health and Human Services HHS Policy for Section 508 Electronic and Information Technology (EIT)
    - HHS Interim Section 508 Acquisition Policy Guidance Memo – Information for buying an EIT system [A software or web application, telecommunications device, printer, etc.] (U.S. Department of Health and Human Services)
    - HHS Section 508 Acquisition of Communications Products Interim Guidance – Information for buying a communication product [a video, an HTML page, a document or report in other format such as PDF] (U.S. Department of Health and Human Services)
    - Enterprise Performance Life Cycle Framework Overview Document (PDF) (U.S. Department of Health & Human Services)
    - Best Value and Other Section 508 Acquisition Q&As (Accessible Technology Initiative (ATI) of the California State University)

- **Standards and Testing**

    - Accessibility Guide (.pdf) (Word) (U.S. Social Security Administration)
    - Section 508 Reference Guide 1194.21 Software Applications and Operating Systems Checklist (U.S. Patent and Trademark Office)

- **Voluntary Product Accessibility Template / Government Product / Service Accessibility Template (VPAT / GPAT)**

    - HHS Guide to Completing the Section 508 Product Accessibility Template (U.S. Department of Health and Human Services)
    - Section 508 Evaluation Template (U.S. Department of Health and Human Services)

3.0 Digital Accessibility in State Government

Ensuring successful accessible IT in state government requires that accessibility be incorporated in IT policies and requirements and that each Agency/state entity take actions, with appropriate roles and responsibilities assigned throughout the Agency/state entity.

3.1 Digital Accessibility Policies and Requirements

California state government incorporates the requirements for digital accessibility in its policies, procedures, and provisions.

State Administrative Manual (SAM)

- **4833 Information Technology Accessibility Policy**

  "It is the policy of the State of California that information and services on California State Government's electronic and information technology be accessible to people with disabilities."

- **5230 Uniform Standards (Procurement of Goods and Services)**

  Includes: "Acquisitions and projects shall comply with Americans with Disabilities Act (ADA) requirements."

State Information Management Manual (SIMM)

- **Special Project Report (SPR)**

  - Accessibility Certification**:** The IT Accessibility Certification page must be completed to certify that the project meets Government Code section 7405 (Federal Section 508 of the Rehabilitation Act of 1973), or that the project meets one or more of the exceptions.

- **Procurement Documents**

  - In addition to language provided by the Department of General Services (DGS) with regard to the purchase of IT goods and services, it is the responsibility of Agencies/state entities to ensure that requirements take into account accessibility. The earlier accessibility requirements are addressed, the less likely the need for rework and higher costs.

  - Refer to DGS' Provisions – Information Technology GSPD-401IT

    Compliance with Statutes and Regulations

    "Contractor warrants and certifies that in the performance of this Contract, it will comply with all applicable statutes, rules, regulations and orders of the United States and the State of California and agrees to indemnify the state against any loss, cost, damage or liability by reason of the Contractor's violation of this provision." … "To the extent that this contract falls within the scope of Government Code Section 7405, Contractor hereby agrees to respond to and resolve any complaint brought to its attention, regarding accessibility of its products or services."

    Americans with Disabilities Act

"Contractor assures the state that Contractor complies with the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq)."

3.2 Integrating Digital Accessibility

Agencies/state entities, as well as any contractors working for them, are responsible for ensuring that their Agency/state entity public websites are accessible to both the general public and their internal Agency/state entity electronic and IT systems are accessible by state employees, including persons with disabilities. Here are basic steps to begin integrating digital accessibility.

- **First Steps for an Agency**

  - Charge the Chief Information Officer, or designee, as the lead for the Agency/state entity's IT accessibility.
  - Establish internal structures to ensure IT accessibility for the public and state staff.
  - Involve all sections of the Agency/state entity in the responsibility for the effort – programs and services, information technology, procurement and business services, administration and human relations.
  - Evaluate and determine accessibility of the Agency/state entity's website, including mobile web elements, by persons with disabilities and compliance with Section 508 requirements, and remediate those pages identified as not being accessible.
  - Incorporate appropriate accessibility elements into all stages of the IT development and procurement processes.
  - Require digital content to be accessible by the public and by state staff; Develop and provide guidelines and templates to make content accessible from the beginning when the document or file is first created.

- **Reaching Out through Social Media**

  "Agencies and departments are encouraged to use Social Media technologies to engage their customers and employees where appropriate." (Social Media Standard SIMM 66B). However, some social media channels present challenges for persons with disabilities. The following principles are recommended:

    - Any information, services, or programs offered by an Agency/state entity on social media, or other non-state website, should also be available through other accessible channels.

- Any information, services, or programs offered by an Agency/state entity on social media should be accessible. Web pages, documents, multimedia, and other files created by the Agency/state entity and published on the social media, or other non-state website, should themselves be accessible, meeting the state IT accessibility standards.

Following these recommendations would further position an Agency/state entity to meet some proposed requirements (Draft Information and Communication Technology (ICT) Standards and Guidelines):

- "Electronic content procured or developed by an agency shall be covered by this part, even if the content is not located on a federal website or at a federal location." (E103.3.1.1 Location)

  The Advisory comments: "A federal video posted on a social media website is required to conform to this part. For example, under this part, a video developed by a federal agency must be compliant without regard to whether it is posted on the agency's website or on a non-federal third party site, without charge to the agency."

- **Resources for Implementing**:

  The California Department of Technology, together with the Health and Human Services Agency and the Department of Rehabilitation, has created this resource to provide information to support Agencies/state entities in achieving digital accessibility in each of the following areas:

  - Accessible Web
  - Accessible IT Projects
  - Accessible Content Creation

3.3 Roles and Responsibilities

All areas of an Agency/state entity need to be involved in digital accessibility and have appropriate responsibilities in that effort – programs and services, information technology, procurement and business services, administration and human resources. The following identifies roles and responsibilities for the Agency/state entity Director, CIO, and select others who need to be involved. These recommendations are guidelines, recognizing that they may need to be modified by individual agencies/state entities in response to their own environment.

- **Agency Director**

- Provides leadership to ensure Agency/state entity compliance with federal and state laws and applicable policies relating to digital accessibility.
- Supports and encourages Agency/state entity-wide cooperative responsibility from programs and services, information technology, procurement and business services, administration and human relations to be accessible electronically.
- Develops and maintains appropriate internal Agency/state entity structures to support accessibility for the public and for staff to the Agency/state entity's website and electronic and information technology systems.
- Communicates the importance of ensuring access to the Agency/state entity's web and electronic resources by persons with disabilities to all Agency/state entity managers and staff.

- **Chief Information Officer**

  - Remains knowledgeable and current with federal and state laws and applicable policies relating to digital accessibility.
  - Incorporates digital accessibility into IT from strategic planning through procurement and development to ongoing operations and maintenance, in particular:
    - Web design, development and maintenance
    - Mobile Web
    - Procurement and development of accessible electronic and information technology projects
    - Creation of digital content
  - Creates and coordinates internal structures that support accessibility for the public and for state staff to the Agency/state entity's website and electronic and information technology systems.
  - Maintains information on assistive technologies, both hardware and software, used by employees and prospective employees, within the Agency/state entity.
  - May designate a Digital Accessibility Coordinator and establish an Accessibility Team to facilitate Agency/state entity efforts.

- **IT Managers**

  - Incorporate digital accessibility into the determination of IT needs, and system and software development.
  - Include appropriate accessibility elements from analysis of user needs and assistive technologies to accessibility testing requirements/demonstrations in developing IT procurements and developments.
  - Evaluate and determine accessibility of the Agency/state entity website, including mobile web elements, by persons with disabilities

and compliance with Section 508 requirements, and remediate those pages identified as not being accessible.
  - Make resources, such as information and tools, available and accessible to employees via the Agency/state entity's intranet.
  - Work with software and hardware developers to support accessibility by persons with disabilities, including the validation of IT against Section 508 standards.

- **IT Procurement and Contracts Managers**

  - Develop procurement procedures that include appropriate accessibility elements, from analysis of user needs and assistive technologies to accessibility testing.
  - Write standard language addressing accessibility to include in every applicable Agency/state entity contract so that participants in all stages of the procurement process validate whether the product or service complies with Section 508.
  - Determine how the Agency/state entity documents compliance, non-availability, and undue burden.
  - Prepare and process all electronic and information technology procurements and contracts in accordance with digital accessibility requirements and Section 508 standards.
  - Perform market research to determine the commercial availability of products and services that meet the technical provisions availability of compliant products; identify which technical provisions, if any, do not apply due to an exception, such as commercial non-availability or undue burden.

- **Human Resources, Equal Employment Opportunity and Related Managers**

  - Remain knowledgeable and current with federal and state laws and applicable policies relating to digital accessibility.
  - Establish and implement a complaint process for digital accessibility and Section 508 issues.
  - Provide expertise on accessibility gained through accommodations to identify assistive technology solutions and to identify electronic and information technology deficiencies impacting the performance of people with disabilities.
  - Require digital accessibility in training for staff related to electronic and information technology and creation of digital content.
  - Incorporate digital accessibility awareness where appropriate into existing training programs.

- **Public Information Officers and Content Creation Managers**

- Recognize the rights of persons with disabilities to access content developed for state websites and other state electronic systems.
- Develop appropriate Agency/state entity systems, techniques, templates and guidelines wherever possible to create accessible content from the beginning.
- Provide training and support resources to content creators within the Agency/state entity on both the need for and the means to create accessible content.
- Ensure captioning for videos and transcripts for audio-only presentations and materials.

Information on how the federal government is developing roles and responsibilities for digital accessibility may be found in "Roles and Responsibilities," in Section 508.

4.0 Accessible Web

Agency/state entity websites are critical sources of information for the public and state employees. They need to be accessible. There are state standards, and accessible web templates provided by the Department of Technology to assist agencies/state entities in making their websites accessible.

4.1 Accessibility Issue Reporting

Each Agency/state entity is required to include procedures on all its state website home pages, within the “Accessibility” and/or “Contact Us” links, clearly describing how to report issues with accessibility. Receipt of a comment or other issues must be assigned to an individual (e.g., webmaster) or group (e.g., Accessibility Group) with the responsibility and technical knowledge to respond by either correcting the issue or providing an alternative format for the information sought. (See Management Memo 03-08, Alternative Formats.)

4.2 Accessible IT Projects

Information Technology accessibility is most effective and least expensive when it is addressed at the outset, rather than appended onto a development effort after its inception. Architects and contractors know well the expense and challenges of retrofitting accessibility into existing buildings as opposed to designing the building to be accessible at the beginning. The same is true for software and web development.

Integrating accessibility into the procurement or development of IT projects doesn’t have to be difficult or expensive – if it is a factor at the front end of design and is integrated throughout the development process. Think of accessibility as a component of all development activities, rather than as isolated components of the development project.” IBM Human Ability and Accessibility Center

Procurement or development of accessible IT does require an understanding of: accessibility in IT project development, different aspects of the Rehabilitation Act and the Americans with Disabilities Act, the types of IT projects required to be accessible, what standards or mix of standards are to be met, and how to include accessibility requirements in the various project documentations for state IT procurements.

4.3 Key Steps in Addressing Accessibility in IT Projects and Procurement

- **Review the General Exceptions for Section 508 initially to determine if the project qualifies for an exception, which include:**

  - The IT project meets the definition of a national security system.
  - The IT project will be located in spaces frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment (Back Office Exception).
  - Meeting the accessibility requirements would constitute an "undue burden" (i.e., a significant difficulty or expense considering all agency resources).
  - No commercial solution is available to meet the requirements for the IT project that provides for accessibility.
  - No solution is available to meet the requirements for the IT project that does not require a fundamental alteration in the nature of the product or its components.

  See Reviewing Section 508 Exceptions in State IT Projects for specific details.

- **Identify who will be the users of the proposed IT project.**

  Even as ideas are being discussed and the project is being conceptualized, an Agency/state entity should have identified whom the proposed IT project is designed to serve. Identifying and understanding who will be using the system and how they will be using it is a major step in determining whether accessibility is required and how it needs to be addressed. In identifying the users, the Agency/state entity should consider past, current, and likely future users. The intent is to understand the users in the broadest sense, not just the current population.

- **Identify user characteristics with current and future needs, including those for persons with disabilities and related assistive technology.**

  Accessibility is required, unless there is an exception to Section 508, regardless of whether or not there are or have been users of the proposed project who are persons with disabilities. Someone with disabilities may be hired in the future, or someone currently using the system may acquire a

disability. Understanding who will be using the new system(s), including those with disabilities, is important in creating a successful IT project. Key questions to consider include: how people will use the new system; how it will affect their work and process flows; and what changes and challenges it will present. These considerations affect the project from its planning through implementation.

There are summary statistics on the percentage of persons with disabilities, both for state government overall and for many departments, in the Annual Census of Employees in the State Civil Service at the State Personnel Board website. Each Agency/state entity, however, will need more specific data on persons with disabilities from the Agency/state entity's Equal Employment Opportunity Officer and on assistive technologies and software being used from the IT unit.

- **Identify the accessibility standards and requirements.**

  There are a variety of resources and expertise available to assist agencies/state entities in determining the appropriate accessibility standards and requirements for IT projects. See the Recommended Starting Sources at the end of this section.

  One of most detailed is a Guide to Applying Section 508 Standards located at the Social Security Administration (SSA) website, which contains:

  - The official language for each Section 508 standard
  - SSA's plain English interpretation of most standards
  - Specific requirements describing the actual characteristics which SSA requires for determining compliance with each standard

  The standards and requirements should be integrated into the requesting document, addressing accessibility in the appropriate segments.

- **Determine the commercial availability of application.**

  "An agency may conclude that EIT meeting the applicable technical provisions of the Access Board's standards is not available (and purchase EIT that does not meet those provisions) when it cannot find a commercial item that both meets applicable Access Board's technical provisions and can be furnished in time to satisfy the agency's delivery requirements."

  "If products are available that meet some, but not all, applicable provisions, agencies cannot claim a product as a whole in non-available just because it does not meet all of the applicable provisions. Agency acquisitions must comply with those applicable technical provisions that can be met with supplies or services that are available in the commercial marketplace in time

to meet the agency's delivery requirements." Revised 508 Coordinators Reference Manual 1.4 Non-availability.

If commercial non-availability is determined, the Agency/state entity should document the specific exception in the project documents submitted to the Department of Technology using the *IT Accessibility Certification in the Executive Approval Transmittal* or the *IT Accessibility Certification For Delegated IT Projects* (SIMM Sections 30A or 25A).

Note that even If there is a commercial non-availability exception, the Agency/state entity must still provide information to persons with disabilities in an alternate format if proposed noncompliant products or services are purchased.

- **Review the General Exceptions for Section 508 for a final determination.**

  Having determined the functional and technical requirements, including those for accessibility as well as commercial availability for the IT project, it should be possible to evaluate whether conditions for any remaining exceptions might be met.

  - Undue Burden
  - Fundamental Alteration:

  "Undue burden is defined as 'a significant difficulty or expense,' considering all agency resources available to the program or component for which the product is being procured". This definition is consistent with the use of 'undue burden' and 'undue hardship' in the Americans with Disabilities Act (ADA) and other sections of the Rehabilitation Act.

  "Section 508 provides that if a federal agency determines that meeting the applicable technical provisions would impose an undue burden, any documentation by the agency supporting procurement shall explain why procuring an item that meets all of the applicable Access Board technical provisions would impose an undue burden."

  "Additionally, when the undue burden exception is invoked, the federal agency shall provide individuals with disabilities with the information and data involved by an alternative means of access."

  If so determined, the Agency/state entity should document the specific exception of the project in project documents submitted to the Department of Technology using the *IT Accessibility Certification in the Executive Approval Transmittal* or the *IT Accessibility Certification For Delegated IT Projects* (SIMM Sections 30A, or 25A).

- **Ensure that there is specific language in the RFP that the proposed IT project will be accessible to users with disabilities and how that accessibility will be determined.**

  The accessibility language in the California General Provisions – Information Technology is relatively general regarding Americans with Disabilities Act, Section 508 and Government Code section 7405.

  For clarity, the language should specifically inform prospective vendors that digital accessibility is required, that relevant Section 508 standards will be applied, and that testing of accessibility will occur.

- **Determine whether the application includes requirements for each standard, the relevant assistive technologies, and the testing criteria.**

  One of most detailed resources available is Social Security Administration's Guide to Applying Section 508 Standards which contains: the official language for each Section 508 standard; a plain English interpretation of most standards; specific requirements describing the actual characteristics which SSA requires for determining compliance with each standard; the Assistive Technology (AT) pertinent to each requirement; and the testing methods, and recommended evaluation criteria SSA uses to evaluate products to determine requirement satisfaction. This guide also includes the SSA's Accessibility Requirements, which are used to validate compatibility in the SSA's technical environment for disabled users and current software versions of the assistive technology used.

  For information from a vendor about accessibility, one of the sources is a Voluntary Product Accessibility Template, or VPAT. The VPAT is the product of a partnership between the Information Technology Industry Council and the U.S. General Services Administration to develop an industry-standard rubric for documenting the extent to which EIT products conform to Section 508 accessibility standards. For example, the California State University requires that vendors complete a VPAT for all EIT products covered under the Section 508 standards CSU Product Accessibility Documentation Guidelines. The U.S. General Services Administration has also developed BuyAccessible.Gov for "resources and tools to help […] meet Section 508 requirements."

- **Require that the application's information, documentation and support be accessible**

- **Require that the vendor will make appropriate expertise in accessibility available**

4.4 Accessibility Responsibilities for Development of a California IT Project

California Project Management Framework

A key to successful IT project management is a solid project management methodology that incorporates best practices through a consistent and repeatable process, and provides a standard structure for planning, managing and overseeing IT projects during their entire life cycle. The State of California has adopted the California Project Management Framework (CA-PMF) (SIMM Section 17) to provide Agencies/state entities guidance and insight on project management methods and an approach with accompanying templates. The phases of the CA-PMF are identified below.

- **Concept Phase:** The Concept Process Phase is the first phase of the CA-PMF. This process phase outlines the activities that should take place before formally initiating a project and developing a Project Charter. A key focus is confirming the business drivers, problems, and opportunities for the project along with aligning the project's objectives with the sponsoring organization's strategic direction. The major output of this phase is the Stage 1 Business Analysis Assessment.

- **Initiating Phase:** The purpose of the Initiating Phase is to begin defining the overall project parameters. This includes aligning the Stakeholders' expectations with the project's purpose and establishing the project management and quality environment needed for a successful outcome. Some of the activities undertaken in this stage include developing the scope statement, identifying a project manager and project sponsorship.

  - **Responsibilities**

    Critical Partners: The Critical Partners may participate by providing input, guidance in this process phase.

    - **Section 508:** Validate the Section 508 requirements are identified and included in the Project Approval Lifecycle, Stage 2 Alternatives Analysis, Mid-Level Solution Requirements section.

- **Planning Phase:** The purpose of the Planning Phase is to begin defining processes and activities necessary to successfully deliver the project outcomes. The processes and activities are documented in a comprehensive set of plans known as the Project Management Plan (PMP) which supports all aspects of the project such as scope, duration, cost, quality, communications, resources, risk, procurement, and stakeholder engagement.

- **Responsibilities**

  Critical Partners: Critical Partners assess completeness of Planning Phase activities, robustness of the plans for the next life cycle phase, availability of resources to execute the next phase, and acceptability of the acquisition risk of entering the next phase. .

  - **Section 508:** Validate the Section 508 requirements are matured and included in the Project Approval Lifecycle, Stage 3 Solution Development - Part A, Solution Requirements section. Verify that applicable Section 508 standards are defined and included in project planning processes and activities.

- **Executing Phase** – The purpose of the Executing Phase is to perform the processes of the Project Management Plan. This involves coordinating people and resources, managing stakeholder expectations, monitoring project performance, and making any needed course corrections.

  - **Responsibilities**

    Critical Partners: The Critical Partners provide input, guidance and oversight during this phase.

    - **Section 508**: Establish that requirements identified for Section 508 compliance are incorporated into the project.

- **Closing Phase** – The Closing Phase is the last phase of the Project Management Lifecycle and begins once the project's product is accepted and transferred to the support organization, or a decision is made to suspend or cancel the project. The purpose of the Closing Phase is to confirm custody of the project's products, deliverables, and documentation, and to document lessons learned for future reference. In multi-phase projects, this process phase may be applied at various project stages, such as upon a deliverable or phase completion. The completion of all project closing activities signifies the formal ending of all project work.

  - **Responsibilities**

    Critical Partners: The Critical Partners provide input, guidance and oversight during the Maintenance and Operations Phase.

    - **Section 508**: Ascertain that ongoing change requests incorporate requirements for Section 508.

Typical System Development Life Cycle (SDLC)

In addition to the CA-PMF there are a number of different System Development Life Cycles (SDLC) from which to choose when developing a new project. Typical phases of most SDLCs are identified below along with actions and critical partners. The recommendations should be considered flexible to fit with any particular IT project.

- **Procurement** – Develop solicitation documents for all planned purchases (goods and services), including detailed requirements. (See Requirements Analysis below.) The solicitation document must take into account all phases of the SDLC.

  - **Responsibilities**

    Critical Partners: The Critical Partners provide oversight, advice, and counsel to the Project Manager to ensure the relevant accessibility policies and standards are included in the solicitation document.

    - **Section 508:** Make certain that the requirements for applicable Section 508 standards have been identified.

- **Analysis Phase**– Develop detailed functional and non-functional requirements and the Requirements Traceability Matrix (RTM) and award contracts if needed. The outcome of the Requirements Analysis Phase is award of required contracts and approval of the requirements.

  - **Responsibilities**

    Critical Partners: The Critical Partners provide oversight, advice and counsel to the Project Manager to ensure that the Requirements Document addresses relevant standards. Additionally, Critical Partners provide information, judgments, and recommendations during the Requirements Review.

    - **Section 508:** Make certain that the requirements for applicable Section 508 standards have been identified.

- **Design Phase** - Develop the Design Documents. The outcome of the Design Phase is completion of the Business Product design and successful completion of Preliminary and Detailed Design Reviews.

  - **Responsibilities**

    Critical Partners: The Critical Partners participate in a Design Review to ensure compliance with policies in their respective areas and to make any necessary tradeoff decisions if conflicting goals have arisen during the Design.

- **Section 508:** Establish that any new or further requirements that have been discovered that are necessary to accommodate individuals with disabilities have been added to the Requirements Document and the Design documents. Confirm that there are test cases which incorporate Section 508 standards.

- **Development Phase -** Develop code and other deliverables required to build the Business Product and conduct an Independent Verification & Validation Assessment. The outcome of the Development Phase is completion of all coding and associated documentation; user, operator and maintenance documentation, and test planning.

  - **Responsibilities**

    Critical Partners: The Critical Partners provide oversight, advice and counsel to the Project Manager on the conduct and requirements of the Development Phase.

    - **Section 508**: Establish that requirements identified for Section 508 compliance are incorporated into the system.

- **Test Phase -** Thorough testing and audit of the Business Product's design, coding and documentation. The outcome of the Test Phase is completed acceptance testing and readiness for training and implementation.

  - **Responsibilities**

    Critical Partners: The Critical Partners review test procedures and outcomes in their areas.

    - **Section 508:** Verify that test plan results for Section 508 testing are satisfactory. The best methodology for ensuring the project is accessible is to identify the right standards, develop good testing protocols, and include as testers individuals representing various types of disabilities.

- **Implementation Phase** – Conduct user and operator training, determine readiness to implement, and execute the Implementation Plan, including any phased implementation. The outcome of the Implementation Phase is successful establishment of full production capability and completion of the Post-Implementation Review.

  - **Responsibilities**

    Critical Partners: The Critical Partners provide oversight, advice, and counsel to the Project Manager on the conduct and requirements of the Implementation Phase. Additionally, they provide information, judgments, and recommendations to the Business Manager and IT

governance organization during investment reviews and in support of Investment Baselines.

- **Section 508:** Establish that implementation has maintained the integrity of Section 508 compliance.

- **Maintenance and Operations (M&O) Phase** – Operate and maintain the production system and conduct annual operational analyses. The outcome of the M&O Phase is successful operation of the asset against current cost, schedule and performance benchmarks.

  - **Responsibilities**

    Critical Partners: The Critical Partners provide oversight, advice and counsel to the Project Manager during the Operations and Maintenance Phase.

    - **Section 508**: Ascertain that ongoing change requests incorporate requirements for Section 508.

4.5 Accessibility Policy Guidance

The Department of Technology, together with the Health and Human Services Agency and the Department of Rehabilitation, has determined that the intent of Government Code section 7405 is for the state's IT to be accessible. Agencies/state entities should identify the individuals and organizations being served by the IT project and address the need for digital accessibility early. As such, it is the policy of the State of California that information and services on California State Government's electronic and information technology is accessible to people with disabilities. (SAM section 4833)

4.6 Recommended Starting Sources for Accessible Procurement

- **Accessibility Tutorials and Training**

  - Accessible Electronic and Information Technology (E&IT) Procurement Training 101 (Accessible Technology Initiative (ATI) of the California State University)

  - Section 508 Basic Training: Tutorials for Purchasing Accessible Technology (Webinar) (Accessible Technology Initiative (ATI) of the California State University)
    - Introduction to Section 508 - Session One: 508 and Disabilities; Assistive Technologies; Standards; Legal Background
    - Introduction to Section 508 - Session Two: Software Applications and Operating Systems; Web-based Intranet &

Internet Information & Applications; Telecommunications Products; Video & Multimedia Products; Self-Contained & Closed Products, Desktops and Portable Computers
    - Introduction to Section 508 - Session Three: Determining 508 Standards to Products; Buy Accessible Wizard; Exceptions; Introduction to VPATs; Use of VPAT in Procurement with Examples

- **Standards and Testing**

  - Guide to Applying Section 508 Standards (.pdf) (U.S. Social Security Administration)
  - Guide to the Section 508 Standards for Electronic and Information Technology: Software Applications and Operating Systems (1194.21) (U.S. Access Board)

- **Voluntary Product Accessibility Template / Government Product / Service Accessibility Template (VPAT / GPAT)**

  - Understanding Section 508 and the Voluntary Product Accessibility Template (Webinar) (Accessible Technology Initiative (ATI) of the California State University)
    - Background of Section 508: Disability and Accessibility; Accessibility Laws and Trends; Benefits to the CSU Community; Origin of Section 508
    - How the VPAT Got Its Grid: Technical Provisions; Functional Performance Criteria; Information, Documentation, and Support
    - Getting a VPAT: 4 Situations; Searching for VPATs; What To Ask For
    - Evaluating and Comparing VPATs: Walkthrough of Steps; Comparing VPATs
    - Frequently Unasked Questions: Can I Prioritize by Impact? The Vendor is Stonewalling – What Do I Do? Isn't Assistive Technology Good Enough? How Much Paperwork Do I Still Have To Do?

  - BuyAccessible.Gov - To determine if your purchase is subject to Section 508, find companies and do market research to buy Electronic and Information Technology (EIT) products or services and provide documentation for Section 508 compliance

4.7 Example of Accessible State IT Project

An example of an accessible state IT project is the Department of Rehabilitation's (DOR) documentation for a new Electronic Records System. DOR developed its

Feasibility Study Report and Request for Proposal in such a manner to demonstrate to other agencies/state entities and organizations how ADA, Section 508 and Government Code section 7405 compliance can be achieved using modern functionality that is more readily accessible.

The DOR Electronic Records System documentation includes the following accessibility examples:

- RFP has specific accessibility elements in the Mandatory Functional, Technical, and Administrative Requirements in Detailed Requirements.
- RFP requires, in the Project Team Organization, that the Bidder provide a complete resume for each Key Personnel, one of whom must be an Accessibility Subject Matter Expert with required mandatory qualifications.
- RFP has specific accessibility elements in the Mandatory Functional, Technical and Administrative Requirements.
- FSR undertook research activities including:
    - Soliciting vendor input through a comprehensive Request for Information (RFI) process.
    - Assessing other state's efforts in vocational rehabilitation case management.
    - Consulting with systems implementation experts within a consulting firm regarding case management systems and enterprise system replacement projects.
- FSR and RFP addresses accessibility throughout the documents, from objectives to requirements.
- RFP includes selected requirements that should be inherent in the application and not require extensive programming and included a number of requirements to be demonstrated using the top 3 Assistive Technology (AT) applications used by the department.
- RFP requires that the vendor provide information documentation that can be made available to DOR staff in the appropriate alternate formats.
- RFP requires, in the Project Team Organization, that the Bidder provide a complete resume for each Key Personnel, one of whom has to be an Accessibility Subject Matter Expert with required mandatory qualifications.

5.0 Accessible Content Creation

Agencies/state entities must continue to ensure accessibility in the content that they publish on their websites, place on their internal systems, or distribute via email to staff and to the public. Content needs to be readable by all members of the public including

those who rely on assistive technologies. Those responsible for creating much of that content come from throughout the Agency/state entity – the director, public information office, human relations, business services, and various entities providing programs and services, as well as the IT section itself.

Agencies/state entities are not alone in facing this responsibility. Federal and state agencies across the country, as well as most higher education institutions, must do the same. The state Web Standards portal and the Accessible Technology Initiative (ATI from the California State University) have taken a lead in developing and organizing materials to help state staff and CSU faculty in creating accessible content, whether as text or in Word, data tables and Excel, multimedia and captioning, PowerPoint, or Portable Document Format (PDF) files.

5.1 How Persons with Disabilities Use Computers and the Web

More than six million Californians have one or more disabilities. Many use the web and online resources to expand their world, increasing their opportunities for education, careers and employment, better health care, independent living, and personal fulfillment. The following sources demonstrate how people use assistive technology (AT) together with accessible IT.

- How People with Disabilities Use the Web (World Wide Web Consortium (W3C))
- Accessibility Videos and Podcasts: Listening to Learn; Introduction to Screen Readers; Screen Magnification and the Web; Is Your Document Accessible; Etc. (University of Wisconsin – Madison)
- Video Demonstrations of Adaptive Technology – Screen Magnification and Refreshable Braille (Stanford Online Accessibility Program)
- DO-IT (Disabilities, Opportunities, Internetworking and Technology) Streaming Video Presentations (University of Washington)
    - Access to Technology in the Workplace: In Our Own Words - Testimonials from employees with disabilities that support the use of accessible technology in the workplace.
    - Access to the Future: Preparing Students with Disabilities for Careers.

5.2 General Usability Guidance for Content Creators

Usability is closely related to accessibility in enabling people to use websites and web content more easily. In addition to what should be done to make a specific type of document accessible, content creators are encouraged to be aware of the more general resources such as:

- Applying Writing Guidelines to Web Pages (Jakob Nielsen)
- Plain Language (PlainLanguage.Gov)

Selecting and using appropriate file formats for an Agency/state entity's website is a best practice according to Digitalgov.gov which recommends providing access to documents using open, industry standard web formats or using alternative formats that do not impose an unnecessary burden on the intended audience.

5.3 Creating Accessible Content

Like the website, documents and files need to be properly prepared to be accessible. There is no single document format nor commonly used office automation software that generates an accessible file in and of itself.

The best approach is to make content accessible at the beginning when the document or file is first created. Resources for constructing accessible documents are available from the Department of Rehabilitation's Accessibility toolkit.

For information on how to create commonly-used accessible documents and files, see the following:

5.3.1 Text Documents (TXT)
5.3.2 Rich-Text Format Documents (RTF)
5.3.3 Microsoft Word (DOC/DOCX)
5.3.4 Data Tables and Excel Tables
5.3.5 Multimedia and Captioning
5.3.6 Portable Document Formats (PDFs)
5.3.7 PowerPoint
5.3.8 E Mail

5.3.1 Text Documents (TXT)

The simplest format for storing text files in computer files and on the Internet is as plain text (TXT). Text editors are widely available for personal computers and large systems (e.g. Notepad, BBEdit, TextMate, Vi, Vim, and TextPad). Many word processing software programs can also save files as plain text.

A document in text format is limited to combinations of 128 text characters: upper and lower case letters, numbers, and a few punctuation and other characters. The text format does not support any formatting of the characters such as bold, italics, underlining, or different font sizes. A document saved as a text file will be legible but will lose all the formatting apart from line and paragraph breaks, nor will it include any graphics. While a text document may contain web addresses, they may not be presented to users as links. Text documents also do not support the internal navigation capabilities available in HTML and other document types.

Plain text files are generally accessible as long as the content is being read by screen reading software or converted into Braille.

The text format can work well for relatively short simple documents and for longer straight-forward documents in which the content is presented in a clear, linear fashion. The text format can be problematic for some documents, for example when presenting:

- Large, complex documents;
- Links to other resources or information;
- Tables in which there are relationships between data and text.

It is important when converting an existing document to text format to ensure that critical information is not lost in the process. For example:

- The logical flow of the document is preserved;
- Any relationship between data previously shown by tables remains clear;
- No embedded links or URLs are lost; and,
- No information from graphics or alt= tags is lost.

Recommended Starting Sources

- **Manuals / Tutorials:**
  - Making Your Work More Accessible: Notepad and Plain Text (Freedom Scientific - JAWS Screen Reader)

5.3.2 Rich-Text Format Documents (RTF)

Rich-Text Format (RTF) is a file format that permits the exchange of editable files containing both text and graphics between different versions of word processing programs and different operating systems. The portability of an RTF file depends in part upon which version of RTF is being used, as well as the capabilities of the word processing software that creates the document and the software that reads the file. Microsoft Word and a number of other word processing software can save documents in RTF.

Rich-Text Format allows ready exchange between software and operating systems including formatting, graphs, pictures or other images as well as text.

RTF is sometimes said to be accessible because RTF files can usually be opened by software that users with disabilities already have on their systems, that is, programs with which they are familiar and that work with their assistive technologies. It is important to recognize, however, that RTF files that have not been prepared to be accessible when they were created may present serious problems to persons with disabilities who try to read them. If tabs are used to create the appearance of columns or images convey significant content but lack alternate text, then such problems will continue to render contents of the file inaccessible.

The original document should be properly prepared so that structure, headings, tables, columns, colors, graphics, and other elements are done correctly.

To make documents containing such graphics accessible:

- It is critical that sufficient information on all graphs, pictures and other images be available so that assistive technologies can interpret their content and intent.
- No important information should be conveyed solely by graphics.

Information on what is needed to create an accessible document and, in the case of Microsoft Word, how that can be done are on the following pages where there are checklists, manuals and tutorials, and websites.

5.3.3 Microsoft Word (DOC/DOCX)

Microsoft Word is the most commonly used word processing software. Its DOC/DOCX format has become a common format for documents on the web. Word documents are frequently used, including by people who use assistive technologies. For a Word document to be accessible, however, it needs to be properly prepared, including using the program's Styles to provide structure to documents and such features as Columns for flowing text. Word documents may contain graphs, pictures or other images. To make these documents accessible, all graphs, pictures, or other images must be tagged

or subtitled so that assistive technologies can interpret the content and intent of the graph, picture, or image.

Accessibility support for Word is included in Microsoft Office 2010 including a document Accessibility Checker (like a spell checker, but for accessibility issues) as a core feature of Word, Excel, and PowerPoint. The Accessibility Checker is designed to identify and provide assistance to address some of the major accessibility problems in Word documents. Office 2010: Accessibility Investments & Document Accessibility (Microsoft)

- "For organizations that are concerned about compliance for employees, we've provided several group policy settings that can be used to customize exactly which accessibility violations are checked. Administrators can also increase the visibility and emphasis of the Prepare for Sharing information when there are errors or warnings. Finally, IT departments can leverage Office 2010's UI extensibility to enforce a workflow that requires users to run the checker – this will help many corporations reduce the risk of employees creating inaccessible content and increase the amount of accessible information available to people with disabilities."

Recommended Starting Sources

- **Checklists / Manual / Tutorial:**

  - Guide to Accessible Word Documents (pdf) (U.S. Social Security Administration)

  Creating a Word document to be accessible from the time it is first started is the best practice.

  - Resources for Creating Accessible Content (Department of Rehabilitation)

- **Websites:**

  - CSU's Professional Development for Accessible Technology: Microsoft Word

    Find guides, print and video tutorials, best practices, training guidelines and more – developed by California State University staff and others to support the Accessible Technology Initiative within CSU.

    - Topics include: using styles for accessibility, font selection, color and meaning, and data tables.
    - Versions of Word include: 2007 and 2003 for Windows; 2008 and 2004 for Mac.

Note: A few resources are available only to CSU staff and students.

Additional Resources

- Creating Accessible Documents in MS 2007 (PDF) (California State University AIM Grant)
- Creating Accessible Documents with Microsoft Word 2003 (Word) (Accessible Technology Initiative (ATI) of the California State University)

5.3.4 Data Tables and Excel Tables

Recording, organizing and comparing data are at the heart of spreadsheets, frequently with a number of rows and columns. Microsoft Excel, like its Word counterpart for word processing software, is a commonly used spreadsheet software and XLS is a common format for spreadsheet documents. HTML using data tables is the preferred approach to making data accessible to persons with disabilities who use screen readers.

Microsoft Excel and Excel files (XLS/XLSX) are not as accessible as the HTML data tables; however, if the document is properly prepared, screen reading software allows persons with disabilities who have Excel to navigate the rows and columns in a spreadsheet, to identify row headers and column headers for data cells.

In Excel spreadsheets, the data is often used to generate a chart or graph. Any charts, graphs, pictures or other images must have other ways to convey the information in them. To make these Excel documents accessible, all graphs, pictures, or other images must be tagged or subtitled so that assistive technologies can interpret the content and intent of the graph, picture or image.

More accessibility support for Excel is planned by Microsoft with Office 2010 including "a document Accessibility Checker (like a spell checker, but for accessibility issues) as a core feature of Word, Excel, and PowerPoint." The Accessibility Checker is designed to identify and provide assistance to address some of the major accessibility problems in Excel files. Office 2010: Accessibility Investments & Document Accessibility (Microsoft)

- "For organizations that are concerned about compliance for employees, we've provided several group policy settings that can be used to customize exactly which accessibility violations are checked. Administrators can also increase the visibility and emphasis of the Prepare for sharing information when there are errors or warnings. Finally, IT departments can leverage Office 2010's UI extensibility to enforce a workflow that requires users to run the checker – this will help many corporations reduce the risk of employees creating inaccessible content and increase the amount of accessible information available to people with disabilities."

Recommended Starting Sources

- **Manuals / Tutorials:**

  HTML
  - Accessible Data Tables (Usability.com.au)
  - Accessible Tables (Jim Thatcher)
  - Creating Accessible Tables (WebAIM)

  Excel
  - Best Practices for Creating Accessible Spreadsheets in Microsoft Excel (California Polytechnic State University, San Luis Obispo)
  - Make your Excel documents accessible to people with disabilities (Microsoft)

- **Websites:**

  - CSU's Professional Development for Accessible Technology: Microsoft Excel

    Find guides, print and video tutorials, best practices, training guidelines and more – developed by California State University staff and others to support the Accessible Technology Initiative within CSU.

  - CSU's Professional Development for Accessible Technology: STEM (Science, Technology Engineering, & Math)

    Find guidelines for describing scientific, technical, engineering and mathematical images, including bar charts, line graphs, Venn diagrams, scatter plots, tables, pie charts, flow charts, standard diagrams or illustrations, complex diagrams or illustrations, and math equations.

Additional Resource

- Standard: Accessible (508) Excel Presentations (U.S. Department of Health and Human Services)

  - Comma Separated Value (CSV) File

    A CSV document or file format is simple and supported by most spreadsheets and database management systems.

If the purpose of a spreadsheet or database is to present a data set, the file may be presented as a CSV file and not as an XLS or other file format.

Checklist:

- The link must clearly state that the CSV is a raw data set.
- A separate definition document must accompany all CSV files.
- The file name must end with a .CSV extension.
- Commas must separate all fields. Fields that are blank still require a comma to delimit their position. A comma is not required after the last field of a record.
- A data set that would be presented as a CSV has the following characteristics:
  - A single row of headings in the first row.
  - The data set contains no formulas.

5.3.5 Multimedia and Captioning

Captioning allows people with hearing loss to have comparable access to multimedia presentations. Captioning is also useful to people who need to mute sound in work environments. Section 508 requires an equivalent experience for all users. Users should be able to follow the dialog and action in a multimedia file as it occurs. Captions - whether open (editor: always showing) or closed (editor: only showing when selected) - must be timed to coincide with those events as they occur. (Such timing is not possible with standalone transcripts.) Where multimedia files are visual only and do not contain sound, such as in scientific models, users should be provided with an appropriate description to understand what is occurring.

The requirement is specific: 1194.22 (b) states “Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.” The U.S. Department of Health and Human Services makes this very clear in its guidance: “HHS must caption all videos and multimedia files, including all formats - over the air broadcast, CD or DVD, and web multimedia (such as video podcasts, webcasts, Flash, or other animation), whether produced internally or externally, including video produced by partners if federal funds are used. It is not permissible to provide stand-alone transcripts in lieu of video captioning. … The captioning requirement covers videos intended for training or for public service announcements (PSAs).”

Captioning tools, including some that are freely available, have been improving so that captioning can be done more easily. There are also a number of commercial services that offer captioning including real-time.

Recommended Starting Sources

- **Manual/ Tutorial:**
  - "How do I request auto-captions on a video?" Getting Started: Adding / Editing captions (YouTube)

- **Websites:**
  - CSU's Multimedia Accessibility Captioning Guide

    Note: A few resources are available only to CSU staff and students.
  - Create Section 508-Compliant Videos on Your Government Websites (DigitalGov.Gov)

Additional Resources

- Web Captioning Overview (WebAIM)
- Multimedia Accessibility FAQ (World Wide Web Consortium (W3C))

5.3.6 Portable Document Formats (PDFs)

Portable Document Format (PDF) is a popular format for making documents available over the Internet.

To be accessible, PDF documents need to have the following characteristics:

- A logical structure and reading order
- Alternate text descriptions for figures, form fields, and links
- Navigational aids
- Security that is compatible with assistive technology
- Fonts that allow characters to be extracted to text

Improperly prepared PDF documents may not be accessible to many people with complete or low vision loss.

PDF documents which originate as images, scanned or imported, are particularly problematic. Without additional work using Optical Character Recognition (OCR), and additional editing within PDF authoring tools, such documents cannot be read by screen readers either for voice output or refreshable Braille. If hard copy documents are scanned, OCR technology must be used to create a readable text.

Fill-able forms in PDF have additional requirements and need careful preparation and tools. Some users with disabilities may need alternate formats.

Recommended Starting Sources

- **Checklists:**

  Section 508 accessibility standards currently do not provide specific technical guidance on what constitutes an accessible electronic document, the Social Security Administration provides guides to author and test Word, PowerPoint, Excel and PDF documents for accessibility.

- **Manuals / Tutorials:**

  - Adobe Acrobat Professional: (Section 508 Tagging) Reference Guide (Adobe.com)
  - PDF Accessibility: Creating Accessible PDF Documents (PDF) (Accessible Technology Initiative (ATI) of the California State University)

- **Websites:**

  - CSU's Professional Development for Accessible Technology: Adobe PDF

    Get guides, print and video tutorials, best practices, training guidelines and more – developed by California State University staff and others to support the Accessible Technology Initiative within CSU.

Additional Resources

- Accessibility (Adobe)
- Preparing Microsoft Word Documents to Create Accessible PDF Files (Adobe)
- PDF Accessibility: Defining Acrobat PDF Accessibility [Word 2000-2007 and Acrobat 7-8] (WebAIM)
- Creating Section 508 Compliant PDF Documents (U.S. Department of Health and Human Services)

5.3.7 PowerPoint

Microsoft PowerPoint is widely used for presentations and can contain text, graphics, audio, video, and animation. Because it is primarily used as a visual tool with such varied and rich content, PowerPoint can present significant challenges in providing an accessible version, particularly for people with screen readers. Graphical images need alternate text. Charts and graphs need summaries or explanations. Also, audio and video need captioning for persons who are deaf or hard of hearing.

These resources include information both on creating accessible PowerPoint presentation and on using other presentation options, such as converting to HTML or using other applications to create a slide show directly in HTML.

Microsoft Office 2010 includes "a document Accessibility Checker as a core feature of Word, Excel, and PowerPoint." The Accessibility Checker is designed to identify and provide assistance to address some of the major accessibility problems in PowerPoint documents. Office 2010: Accessibility Investments & Document Accessibility (Microsoft)

- "For organizations that are concerned about compliance for employees, we've provided several group policy settings that can be used to customize exactly which accessibility violations are checked. Administrators can also increase the visibility and emphasis of the Prepare for Sharing information when there are errors or warnings. Finally, IT departments can leverage Office 2010's UI extensibility to enforce a workflow that requires users to run the checker – this will help many corporations reduce the risk of employees creating inaccessible content and increase the amount of accessible information available to people with disabilities."

Recommended Starting Sources

- **Manuals / Tutorials:**
  - MS PowerPoint 2007: Creating Accessible PowerPoint Presentations (PDF) (Accessible Technology Initiative (ATI) of the California State University)
  - Microsoft PowerPoint Accessibility - Video Tutorials (California State University)
  - Resources for Creating Accessible Content- Learn how to create a slide show in PowerPoint.
- **Websites:**
  - CSU's Professional Development for Accessible Technology: Microsoft PowerPoint

    Locate guides, print and video tutorials, best practices, training guidelines and more – developed by California State University staff and others to support the ATI within CSU.

    Versions of PowerPoint include: 2007 and 2003 for Windows; 2008 for Mac.

- PowerPoint Accessibility (WebAim)

  Learn three options for a slide show presentation on the web: posting the original PowerPoint (PPT) file; converting the original file to HTML and provide this in addition to, or instead of, the PowerPoint file; and creating an original slide show in HTML.

Additional Resources

- Accessible Conversion of PowerPoint Documents To The Web (CSU Northridge)

5.3.8 E-Mail

E-mail is a highly important communication channel including for persons with disabilities. The United States Department of Health and Human Services (HHS) is quite clear in its standard regarding e-mails: “HHS must make e-mail accessible to persons with disabilities. All e-mails—internal or external—as well as their attachments, including graphics, audio, and video must be accessible.” Its rationale is that “Section 508 and HHS policy require electronic information technology to be accessible to persons with disabilities. This requirement applies to e-mail as well as websites, as e-mail is often a means of distributing electronic documents to federal employees and members of the public seeking information and services.”

HHS specifically identifies the importance of accessibility in what are called broadcast e-mails: that is e-mails 1) sent by a federal [or state official] or person acting on their behalf to groups or lists at least some of which are not personally known to the sender, or 2) final documents intended for distribution to federal [or state officials] or to members of the public seeking information and services.

Recognizing the importance of e-mail for its own staff, the U.S. Department of Agriculture in its Web Page and Document Accessibility Policy for Employees (Model Statement) states: “We are also committed to the accessibility of documents and publications distributed for general use within USDA for USDA employees, as well as USDA's departmental regulations, notices, manuals, and Secretary's memoranda, **and also the content of e-mails distributed to employees**.[emphasis added] To facilitate accessibility, we are committed to not only meeting the requirements of Section 508 of the Rehabilitation Act of 1973, amended, but also to ensure that the format and content enhance accessibility.” USDA Section 508 Reference Manual

Agencies/state entities should ensure that their e-mail communications are fully accessible to persons with disabilities. The Americans with Disabilities Act and equivalent state laws require that all programs and activities of state government entities be accessible to persons with disabilities.

Some good general practices include:

- Anticipate that any e-mail may be forwarded to others, with different e-mail settings, accessibility needs, and assistive technologies.
- Use easy-to-read san-serif fonts (such as Arial or Verdana).
- Identify what the message is about in the subject field.
- Avoid using color to convey information; color or textured backgrounds (stationary); special graphic characters like the © (Copyright symbol) or a ☺ (smiley face); fancy fonts such as cursive or graphic signature blocks.
- Recognize that attachments also need to be accessible. Information on creating accessible content for several programs is available elsewhere in this Accessible Content Creation section.
- Include information on how to obtain alternative or accessible formats. These must be made available upon request (See Management Memo 03-08).
- Ensure that graphic elements included in the body of the e-mail are accessible: Images should be tagged via HTML, alt tags appropriately added, or captioned in text beneath the image.
- Do not attach documents which originate as images, scanned or imported, without additional work. These files need Optical Character Recognition (OCR), and further editing within authoring tools; otherwise such documents cannot be read by screen readers either for voice output or refreshable Braille. If hard copy documents are scanned, OCR technology must be used to create a readable text.

Recommended Starting Sources

- **Checklists:**
  - Accessibility (Section 508) and Email (U.S. Department of Health and Human Services)
- **Documents:**
  - Seven Steps to Creating an Accessible Email in Outlook (PDF) (Department of Rehabilitation)

6.0 Web Accessibility Testing

Agency/state entity web developers, designers, programmers, testers, and content providers must become familiar with the standards and guidelines for achieving universal web accessibility. Agencies/state entities must apply the following principles:

Perceivable

- Provide **text alternatives** for non-text content.
- Provide **captions and other alternatives** for multimedia.
- Create content that can be **presented in different ways**, including by assistive technologies, without losing meaning.
- Make it easier for users to **see and hear content.**

Operable

- Make all functionality available from a **keyboard**.
- Give users **enough time** to read and use content.
- Do not use content that causes **seizures**.
- Help users **navigate and find content**.

Understandable

- Make text **readable and understandable**.
- Make content appear and operate in **predictable.**
- Help users **avoid and correct mistakes**.

Robust

- Maximize **compatibility** with current and future user tools.

6.1 Methods for Conducting Accessibility Testing

Accessibility testing is an important component of the system testing process. Accessibility testing needs to be performed initially as part of the IT project and continuously as part of maintenance and operations. At a minimum, developers should develop and test their sites and applications using the following combination of operating systems, browsers, and assistive technologies. The state web template has been tested using these standards.

Desktop:

<u>Operating Systems</u>

- Microsoft Windows 7 SP1 or above (Extended Support runs to 2020)
- Apple OS-X 10.7 (Mountain Lion) or above (Support ran out for Apple OS-X 10.6 and below)

<u>Internet Browsers</u> (State Template)
*Internet browsers must be updated to the two most recent updates/versions, unless otherwise noted.

- Microsoft Edge (part of Windows 10)*
- Mozilla Firefox web browser*
- Google Chrome web browser*
- Apple Safari web browser*

- Microsoft Internet Explorer 11 (Extended Support runs to 2025)

Screen Readers

- Freedom Scientific JAWS 14 or above (Support for Windows 7, Internet Explorer 9)
- AiSquared Window-Eyes 8.0 or above (Support for Windows 8, Internet Explorer 10)
- NonVisual Desktop Access 15.2 or above (Support for Windows 7, Internet Explorer)
- Apple VoiceOver (Built-in screen reader for OS-X)

Voice Recognition Software

- Nuance Dragon NaturallySpeaking 12.5 or above (Support for Windows 8, Internet Explorer 9)

Magnification Software

- AiSquared ZoomText 10.0 or above (Support for Windows7, Internet Explorer 9)
- Freedom Scientific Magic 12 or above (Support for Windows 7, Internet Explorer 10)

Mobile:

There are currently no separate guidelines for mobile accessibility – mobile is addressed in existing Section 508 and W3C guidelines. More information can be found by searching for mobile product accessibility testing resources at digitalgov.gov.

Automated Testing Tools

To conduct accessibility testing, it is possible to start with an automated accessibility testing tool. Automated accessibility testing tools can be expected to discover approximately 25% of accessibility issues that exist on a website. Automated testing tools can be used effectively to find simple accessibility problems, and may serve as an effective means of targeting manual testing efforts that might otherwise be less effective due to checking parts of the system containing no issues. Use of automation should be combined with manual testing performed by experienced assistive technology users for maximum effectiveness.

- A free common automated accessibility testing tool such as WAVE, can be used.

Manual Testing Tools

Manual testing is one of the safest and best methods to determine the accessibility of a website or web application. Manually testing requires a precise systematic overview, especially in the case of larger sites/systems, making sure that all pages and elements are covered. To ensure accuracy, a tester or developer should use a W3C WCAG 2.0 AA checklist. The accuracy of the results solely depends on the knowledge of the tester/developer. Checklists can be found at:

- Webtools Accessibility
- W3C's Web Accessibility Evaluation Tools List
- Health and Human Services (search for HTML 508 checklist)

As part of the process, it is recommended to test, remediate and test again, prior to a final evaluation. Include people with disabilities as part of accessibility and usability testing to complete the evaluation of the website.

Recommended Resources:
Section 508
World Wide Web Consortium (W3C)
WebAIM