

COMMONWEALTH OF VIRGINIA



Information Technology Resource Management

VIRGINIA INFORMATION TECHNOLOGY ACCESSIBILITY STANDARD

Virginia Information Technologies Agency (VITA)

ITRM PUBLICATION VERSION CONTROL

ITRM Publication Version Control: It is the user's responsibility to ensure they have the latest version of this ITRM publication. Questions should be directed to the Associate Director for Policy, Practice and Architecture (PPA) at VITA's Strategic Management Services (SMS). SMS will issue a Change Notice Alert, post it on the VITA Web site, and provide an email announcement to the Agency Information Technology Resources (AITRs) at all state agencies and institutions as well as other parties PPA considers to be interested in the change.

This chart contains a history of this ITRM publication's revisions.

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PREFACE

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Virginia Information Technology Accessibility Standard

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See Subsection 3.1.1 “Application” (c), Subsection 3.3.1 “Application” (c), and Section 4 “Agency Implementation Plan”

Supersedes

None

Scheduled VITA Review

One (1) year from the effective date, then every two years thereafter.

Value Statement

Accessible technologies serve all users regardless of their ability to use them. A recent study conducted by Forrester Research, Inc in 2003 for Microsoft found that 101.4 million working-age adults (ages 18 to 64) in the United States have a mild or severe difficulty/impairment. The study notes that accessible technology helps businesses keep great employees, recruit from a larger pool of candidates, and enhance team collaboration and communication among all employees—including those with disabilities. Providing accessible technology facilitates collaboration and communication among all employees in an organization—whether they have a disability or not. It accommodates employees with visual, hearing, mobility, learning, and language impairments, and helps to retain talented employees who develop temporary or permanent disabilities. Accessible technology broadens an Agency’s potential audience and makes technology much more usable for everyone.

Authority

Code of Virginia, § 2.2-2012

(Procurement of Information Technology and Telecommunications Goods and Services; Computer Equipment to be based on Performance-based Specifications)

Code of Virginia, § 2.2-3500 et seq.

(Information Technology Access Act: Assurance of Non-visual Access for the Blind and Visually Impaired)

Code of Virginia, § 51.5-1 et seq.

(Virginians with Disabilities Act)

Code of Virginia, §2.2-2007

(Powers and duties of the CIO)

Code of Virginia, §2.2-2005 et seq.

(Powers and Duties of the Virginia Information Technologies Agency; “VITA”)

Code of Virginia, §2.2-2457; §2.2-2458

(Powers and Duties of the Information Technology Investment Board; the “Board”)

Scope

This standard is applicable to all State Executive Branch agencies and institutions of higher education (collectively referred to as “Agency”) that manage, develop, purchase, and use information technology resources in the Commonwealth of Virginia.

Purpose

The purpose of this Standard is to provide Agencies with the minimum accessibility requirements for the procurement, development, or maintenance of electronic and information technology systems. This Standard requires that Commonwealth employees with disabilities have access to and use of information and data comparable to the access and use by Commonwealth employees who do not have disabilities, unless an undue burden would be imposed on the Agency.

This Standard also requires that individuals with disabilities, who are members of the public seeking information or services from an Agency, have access to and use of information and data comparable to that provided to the public who do not have disabilities, unless an undue burden would be imposed on the Agency.

Responsibilities

In accordance with the Code of Virginia, the following provisions apply with respect to Commonwealth

Information Technology Resource Management (ITRM): The Virginia Information Technologies Agency (VITA)

VITA is responsible for the development and adoption of policies, standards, and guidelines for the:

- management of information technology by state agencies and institutions; and
- procurement of information technology and telecommunications goods and services of every description for state agencies.

The Chief Information Officer of the Commonwealth (CIO)

The CIO’s responsibilities include directing the formulation and promulgation of policies, guidelines, standards, and specifications for the purchase, development, and maintenance of information technology.

**The Information Technology Investment Board
(the Board)**

The Board approves policies, standards, and guidelines recommended by the Chief Information Officer for the use of information technology by state agencies in the Executive Branch of state government.

All State Agencies

Agencies are required to:

- Cooperate with the Secretary of Technology, the CIO, and the Virginia Information Technologies Agency in the performance of their powers and duties.
- Comply with the Virginia Information Technologies Agency's policies, standards, and guidelines for

information technology resources in the Commonwealth.

***Related ITRM Policies, Standards,
and Guidelines***

ITRM Policy GOV105-00: Web Site Policy

ITRM Standard GOV106-00: Web Site Standard

ITRM Guideline GOV107-00: Web Site Guideline

TABLE OF CONTENTS

ITRM PUBLICATION VERSION CONTROL.....	ii
ACKNOWLEDGEMENTS.....	ii
PREFACE.....	iv
INTRODUCTION	3
1.1 How to Use this Standard	3
1.2 General Considerations.....	3
1.3 Tactical Considerations.....	3
1.3.1 <i>Software Applications and Operating Systems</i>	4
1.3.2 <i>Web-based Internet and Intranet Information and Applications</i>	4
1.3.3 <i>Telecommunications Products</i>	4
1.3.4 <i>Video or Multimedia Products</i>	4
1.3.5 <i>Self-contained, Closed Products</i>	5
1.3.6 <i>Desktop and Portable Computers</i>	5
1.3.7 <i>Functional Performance Criteria</i>	5
1.3.8 <i>Information, Documentation, and Support</i>	5
2 DEFINITIONS.....	6
3 STATEMENT OF ITRM ACCESSIBILITY STANDARD	9
3.1 General Accessibility Standard for Procurement.....	9
3.1.1 <i>Application</i>	9
3.2 Technical Standard for Procurement	11
3.2.1 <i>Software Applications and Operating Systems</i>	11
3.2.2 <i>Web-based Intranet and Internet Information and Applications</i>	12
3.2.3 <i>Telecommunications Products</i>	14
3.2.4 <i>Video and Multimedia Products</i>	15
3.2.5 <i>Self-Contained, Closed Products</i>	15
3.2.6 <i>Desktop and Portable Computers</i>	17
3.2.7 <i>Functional Performance Criteria</i>	17
3.2.8 <i>Information, Documentation, and Support</i>	18
3.3 General Accessibility Standard for Development and Maintenance	18
3.3.1 <i>Application</i>	18

3.4	Technical Standard for Development and Maintenance	19
3.5	Equivalent Facilitation	20
4.	AGENCY IMPLEMENTATION PLAN.....	20
4.1	Information Technology Software Applications Conversion Questions	20
4.1.1	<i>Plan Strategy</i>	20
4.1.2	<i>Plan Milestones</i>	21
4.2	Web-based Internet and Intranet Information Applications Conversion Questions	21
4.2.1	<i>Plan Strategy</i>	21
4.3	Existing Web Page Count	23
4.4	Staff Resources	23
4.5	Information Technology Products	23
4.5.1	<i>Who is responsible for replacing/upgrading non-compliant products?</i>	23
4.5.2	<i>To whom does that person report?</i>	23
4.5.3	<i>Who will ensure that newly procured products are compliant?</i>	23
4.5.4	<i>Who will educate the Agency on the need to comply with this Standard? (name, title, phone & email)</i>	23
4.5.5	<i>Plan Milestones:</i>	23
4.6	Equivalent Facilitation	24
4.7	Signature	24
4	REQUESTING EXEMPTION TO REQUIREMENTS	24
	APPENDIX A: Procurement of Information Technology Goods and Services; Computer Equipment to be based on Performance-Based Specifications (§ 2.2-2012).....	25
	APPENDIX B: Information Technology Access Act (§ 2.2-3500 et seq.)	26
	APPENDIX C: Voluntary Product Accessibility Template (VPAT)	28
	APPENDIX C: Voluntary Product Accessibility Template (VPAT)	29

INTRODUCTION

1.1 How to Use this Standard

This Standard is written to be read from front to back. Its requirements are interrelated. If you try to consider just one area and skip others, you risk overlooking important requirements and may be unaware of areas in which you do not comply with the Standard.

1.2 General Considerations

This Standard covers technology procured, developed, or maintained by Agencies, as follows:

- (a) In the case of technology procurement, this Standard applies only to those products directly relevant to the contract and its deliverables. Procurement of technology shall not exceed the requirements of the regulations that implement the electronic and information technology accessibility standards of the Rehabilitation Act of 1973 (Section 508 standards of 36 CFR Part 1194), as amended.
- (b) In instances of development, maintenance, or use of technology covered by this Standard, Agencies shall comply with all the applicable requirements of this Standard, unless an undue burden would be imposed. The Standard provides direction for documenting and requesting undue burden exemptions in Section 5.

An exception clarifies that this Standard does not apply to technology that is incidental to a Commonwealth contract. Thus, those products that are not specified as part of a contract with an Agency would not need to comply with this Standard. For example, a firm that produces a report for an Agency under a contract would not have to procure accessible computers and word processing software even if they were used exclusively for the contract. However, compliance would be required if such products were to become the property of the Agency as contract deliverables or if the Agency purchased the products to be used by the contractor as part of the project.

1.3 Tactical Considerations

This Standard identifies criteria specific to various types of technologies, including:

- software applications and operating systems;
- Web-based Internet and intranet information and applications;
- telecommunication products;
- video and multimedia products;
- self-contained, closed products;
- desktop and portable computers;

- functional performance criteria; and
- information, documentation, and support.

1.3.1 Software Applications and Operating Systems

Most of the requirements for software pertain to usability for people with vision impairments. For example, one provision requires alternative keyboard navigation, which is essential for people with vision impairments who cannot rely on pointing devices, such as a mouse. Other provisions address animated displays, color and contrast settings, flash rate, and electronic forms, among others.

1.3.2 Web-based Internet and Intranet Information and Applications

The requirements in this section are designed to make Web content and functionality accessible to people with disabilities. They make use of a wide body of research and studies. This includes the Web Access Initiative (WAI) guidelines established by the World Wide Web Consortium (W3C) and Section 508 guidelines from the Architectural and Transportation Barriers Compliance Board (Access Board) of the U.S. Federal Government. The Web Accessibility and Template Guide (WATG) is located at <http://www.vadsa.org/watg> and is available to assist developers in implementing these requirements.

1.3.3 Telecommunications Products

The requirements of this section are designed primarily to ensure access to people with hearing impairments. This includes compatibility with hearing aids, cochlear implants, assistive listening devices, and teletypewriters (TTYs). TTYs are devices that enable people with hearing or speech impairments to communicate over the telephone. They typically include an acoustic coupler for the telephone handset, a simplified keyboard, and a visible message display. One requirement calls for a standard non-acoustic TTY connection point for telecommunication products that allows voice communication but also provides TTY functionality. Other specifications address adjustable volume controls for output, product interface with hearing technologies, and the usability of keys and controls by people who may have impaired vision or limited dexterity or motor control.

1.3.4 Video or Multimedia Products

Multimedia products involve more than one media and include, but are not limited to, video programs, narrated slide production, and computer-generated presentations. This Standard address caption decoder circuitry (for any system with a screen larger than 13 inches) and secondary audio channels for television tuners, including tuner cards for use in computers. This Standard also require captioning and video description for certain training and informational multimedia productions developed or procured by Commonwealth agencies in accordance with a time schedule. This Standard also provides that viewers are able to turn captioning or video description features on or off.

1.3.5 Self-contained, Closed Products

This section deals with products that generally have embedded software and are commonly designed in such a fashion that a user could not easily attach or install assistive technology. These products include, but are not limited to, information kiosks and information transaction machines, copiers, printers, fax machines, and voting machines.

1.3.6 Desktop and Portable Computers

This section focuses on keyboards and other mechanically operated controls, touch screens, use of biometric forms of identification, and ports and connectors.

1.3.7 Functional Performance Criteria

This section deals with requirements ensuring products and systems contain modes of operation that enable access by people with varying disabilities (for example a mode of operation for people who are visually impaired, a mode of operation for people who are deaf or hard of hearing, etc.).

1.3.8 Information, Documentation, and Support

This Standard addresses access to all information, documentation, and support provided to end users for covered technologies. This includes user guides, installation guides for end-user installable devices, customer support and technical support communications. Such information must be available in alternate formats upon request at no additional charge. Alternate formats or methods of communication, can include Braille, cassette recordings, large print, electronic text, Internet postings, TTY access, and captioning and audio description for video materials.

2 DEFINITIONS

The following definitions apply to this Standard¹:

- Access (††). The ability to receive, use, and manipulate data and operate controls included in information technology.
- Accommodation. Accommodations are changes in the way things are customarily done that enable individuals with disabilities to enjoy equal access and benefits. Most often in this Standard the term refers to the provision of effective communication through delivery of auxiliary aids and services such as:
 - qualified interpreters,
 - note takers,
 - transcription or captioning,
 - qualified readers,
 - Braille,
 - video description, and
 - assistive devices.
- Alternate Formats (†). Alternative formats usable by people with disabilities may include, but are not limited to:
 - Braille,
 - ASCII text,
 - large print,
 - recorded audio, and
 - electronic formats.
- Alternate Methods (†). Alternate methods are different means of providing information, including product documentation, to people with disabilities. Alternate methods may include, but are not limited to:
 - voice,
 - fax,
 - relay service,
 - TTY,
 - Internet posting,
 - captioning,
 - text-to-speech synthesis, and
 - audio description.

¹ The sources of these definitions when accompanied by the following symbols are: (†) Sub-part A of Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794d) and (††) The Information Technology Access Act, §2.2-3501 of the *Code of Virginia*

- Assistive Technology Device (†). Any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.
- Captioning. Captions are a written representation of audio or dialogue that accompanies video information. Captions are similar to subtitles but also convey non-dialogue auditory information that is important to the video, such as laughter.
- Electronic and Information Technology (†). Includes information technology and any equipment or interconnected system or subsystem of equipment that are used in the creation, conversion, or duplication of data or information. The term electronic and information technology includes, but is not limited to:
 - telecommunications products (such as telephones),
 - information kiosks and transaction machines,
 - World Wide Web sites,
 - multimedia, and
 - office equipment such as copiers and fax machines.

The term does not include any equipment that contains embedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information (for example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature-control devices, and medical equipment where information technology is integral to its operation).

- Equivalent Facilitation: Equivalent facilitation is that which provides the same level of access as that provided to non-disabled individuals. Equivalent facilitation is required for all non-compliant, inaccessible content of Web sites, and all non-compliant products, services, and devices.
- Heading Elements: The six heading elements, *H1* through *H6*, denote section headings. Although the order and occurrence of headings is not constrained by the [HTML DTD](#), documents should not skip levels (for example, from H1 to H3), as converting such documents to other representations is often problematic.

Example of use:

```
<H1>This is a heading</H1>  
Here is some text
```

```
<H2>Second level heading</H2>  
Here is some more text.
```

Typical renderings are:

H1 Bold, very-large font, centered. One or two blank lines above and below.

H2 Bold, large font, flush-left. One or two blank lines above and below.

H3 Italic, large font, slightly indented from the left margin. One or two blank lines above and below.

H4 Bold, normal font, indented more than H3. One blank line above and below.

H5 Italic, normal font, indented as H4. One blank line above.

H6 Bold, indented same as normal text, more than H5. One blank line above.

(For further information see the XHTML Quick Reference Guide:

<http://www.mit.edu/~ddcc/xhtmlref/heading.html>)

- Individual with Disabilities: Any individual who is considered to have a disability for the purposes of any Federal or Virginia law.
- Non-visual Access (††): Synthesized speech, Braille, and other output methods not requiring sight.
- Operable Controls (†): A component of a product that requires physical contact for normal operation. Operable controls include, but are not limited to, mechanically operated controls, input and output trays, card slots, keyboards, or keypads.
- Self-Contained, Closed Products (†): Products that generally have embedded software and are commonly designed in such a fashion that a user couldn't easily attach or install assistive technology. These products include, but are not limited to:
 - information kiosks and information transaction machines,
 - copiers,
 - printers,
 - fax machines,
 - voting machines, and
 - other similar types of products.
- Telecommunications (†): The transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.
- Television Broadcast: Pertains to any video production distributed via an FCC regulated television station, but not including the same video production distributed or redistributed via the Internet or an internal intranet.
- Teletypewriter (TTY) (†). An abbreviation for teletypewriter. Machinery or equipment that employs interactive text-based communications through the transmission of coded signals across the telephone network. TTYs may include, for

example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. TTYs are also called text telephones.

- **Undue Burden** (†): Significant difficulty or expense. In determining whether an action would result in an undue burden, an Agency shall consider all Agency resources available to the program or component for which the product is being developed, procured, maintained, or used.

(NOTE: For a further explanation of Section 508 Undue Burden rule, see <http://cpcug.org/user/houser/section508/undueburdenreg.html>)

- **Video Description**: Video description is the insertion of verbal descriptions about the setting and/or action in a video program when information about these visual elements is not contained in the audio portion of the program. These descriptions supplement the regular audio track of the program. Video descriptions are a way to let people who are blind or have low vision know what is happening on screen. Note: In this Standard the term video description is used rather than audio description. The term audio description is reserved for verbal descriptions of live events.

3 STATEMENT OF ITRM ACCESSIBILITY STANDARD

3.1 General Accessibility Standard for Procurement

3.1.1 Application

- (a) When procuring electronic and information technology products (either directly or through administration of contracts), each Agency shall ensure that the products comply with the Section 508 requirements of the Standard, unless an undue burden would be imposed on the Agency.
 - (1) Electronic and information technology products are any electronic information equipment or interconnected system that is used in the:
 - acquisition,
 - storage,
 - manipulation,
 - management,
 - movement,
 - control,
 - display,
 - switching,
 - interchange,
 - transmission, or
 - reception of data or information, including audio, graphic, and text.

- (2) When procuring a product, if an Agency determines that compliance with any provision of this Standard imposes an undue burden, the documentation by the Agency supporting the procurement shall explain why, and to what extent, compliance with each such provision creates an undue burden. A request including this documentation must be submitted to VITA and will be maintained in the Agency's official procurement file. (See Section 5. Requesting Exemption from Requirements for procedures.)
- (3) When compliance with this Standard is deemed to impose an undue burden, Agencies shall provide individuals with disabilities the information and data involved by an alternative method of access. That alternate method of access shall allow the individual to use the information and data in accordance with other applicable Commonwealth and Federal laws such as Title I and Title II of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act.
- (b) When procuring electronic and information technology and telecommunication goods and services, the accessibility determination will be conducted as part of the subjective evaluation and will be subservient to the general, technical and functional requirements of the product. At a minimum, it will be done through review of vendor provided information submitted in the form of the Voluntary Product Accessibility Template (VPAT) (See Appendix C: for a copy of the VPAT² form) or a comparable document. The accessibility determination review must include judgments made regarding how the product conforms to this Standard and the degree of conformance. The relative accessibility weight may be adjusted for due cause based on the specific procurement. The rating and relative weight of ratings for accessibility, functional performance, and cost in the bid review process shall be specified in all Requests for Proposals and Invitations for Bids issued for the purchase of commercial, off-the-shelf electronic and information technology products. At a minimum, vendors will be provided with specific standards and will certify and describe how their product is compliant with this Standard.
- (c) This Standard applies to all electronic and information technology procurements initiated sixty-days (60) after the effective date of this Standard and whose corresponding Request for Proposal or Invitation for Bid was issued on or after that date. Electronic and information technology procurements initiated before 60 days after the effective date of this Standard shall implement the Standard on a timetable as outlined in Section 4 "Agency Implementation Plan."

² For additional information on VPAT, please review the material available at the Information Technology Council's web site: <http://www.itic.org/policy/508/Sec508.html>

3.2 Technical Standard for Procurement

This Technical Standard section has been adopted from the Guide to the Section 508 Standards for Electronic and Information Technology of the Rehabilitation Act of 1973. It specifies what electronic and information technology is covered by this Standard. For example, a computer and its software programs would be required to comply with Subsection 3.2.6 Desktop and Portable Computers, and 3.2.1 Software Applications and Operating Systems (See: <http://www.access-board.gov/sec508/guide/index.htm>)

3.2.1 Software Applications and Operating Systems

- (a) When software is designed to run on a system that has a keyboard, product functions shall be executable from a keyboard where the function itself or the result of performing a function can be discerned textually.
- (b) Applications shall not disrupt or disable activated features of other products that are identified as accessibility features, where those features are developed and documented according to industry standards. Applications also shall not disrupt or disable activated features of any operating system that are identified as accessibility features where the application programming interface for those accessibility features has been documented by the manufacturer of the operating system and is available to the product developer.
- (c) A well defined on-screen indication of the current focus³ shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that assistive technology can track focus and focus changes.
- (d) Sufficient information about a user interface element, including the identity, operation, and state of the element, shall be available to assistive technology. When an image represents a program element, the information conveyed by the image must also be available in text.
- (e) When bitmap images are used to identify controls, status indicators, or other programmatic elements, the meaning assigned to those images shall be consistent throughout an application's performance.
- (f) Textual information shall be provided through operating system functions for displaying text. The minimum information that shall be made available is text content, text input caret location, and text attributes.

³ The position on a screen where an action will take place is referred to as the "focus". For example, when a menu item in a program is highlighted - meaning that if the user clicks the mouse or presses the enter key - the feature will activate and that item has the focus. Providing a visual indication of the focus allows someone who is viewing the screen to accurately access the program's features.

- (g) Applications shall not override user selected contrast, color selections, and other individual display attributes.
- (h) When animation is displayed, the information shall be displayable in at least one non-animated presentation mode at the option of the user.
- (i) Color-coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
- (j) When a product permits a user to adjust color and contrast settings, a variety of color selections capable of producing a range of contrast levels shall be provided.
- (k) Software shall not use flashing or blinking text, objects, or other elements having a flash or blink frequency greater than 2 Hz and lower than 55 Hz.
- (l) When electronic forms are used, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

3.2.2 *Web-based Intranet and Internet Information and Applications*

All Agency Web sites and Web-based applications, including intranet, extranet sites, and internal Web-based applications must comply with the accessibility and usability requirements in this Standard as they pertain to procurement. Specific validation tools can be obtained from the Virginia Department of Rehabilitative Services (VDRS) through the Web Accessibility Template Guide (WATG) at <http://www.vadsa.org/watg/>. Accessibility and usability shall be validated with automatic tools and human review. Automated methods are generally rapid and convenient but cannot identify all accessibility and usability issues. Human review can help ensure clarity of language and ease of navigation.

- (a) A Web site procured in accordance with the Virginia Public Procurement Act (§ 2.2-4300 et seq.), must adhere to, but is not required to exceed, the Federal Section 508's rules for Web-based intranet and Internet information and applications.
- (b) A Web site shall ensure that foreground and background color combinations provide sufficient contrast when viewed by someone having color deficits or when viewed on a black and white screen. [WAI WCAG checkpoint 2.2](#)
- (c) The opening of new browser windows should only be done if the user is warned that a new window will open and there may be a possibility of functional difficulties. Developers should refer to the WATG template site for details at <http://www.vadsa.org/watg/>.
- (d) Use style sheets to control layout whenever possible. Do not use tables for layout unless the table makes sense when linearized. If the table does not make sense, provide an alternative equivalent, which may be a linearized version.
- (e) Font sizes should be percentage based instead of fixed.
- (f) A method shall be provided that permits users to skip repetitive navigation links. (See: WATG for more details)
- (g) Content headers shall use the Heading Element (H1 through H6) hierarchy, although style sheets may be used to modify the size and other characteristics of that text. (See 2. Definitions: "Heading Elements")
- (h) The requirements of this Standard apply to all Agency Web sites, with the following exceptions:
 - (i.) Downloadable documents (e.g. Word document, PowerPoint presentation, etc.) per se are exempted, although accessible and equivalent versions of the content must be available. (See: WATG for further details.)
 - (ii.) Sites external to the Executive Branch.
 - (iii.) HTML frames are forbidden when in the visual template. An Agency exempt from using the visual template and that uses frames must:
 - Provide alternative, equivalent content since many screen readers can not access or follow frames.
 - Title the frames with text that facilitates frame identification and navigation.

- (iv.) Other exceptions may be allowed on an individual basis and with written approval of the Virginia Information Technologies Agency.

3.2.3 Telecommunications Products

- (a) Telecommunications products, which include voice communication functionality, shall support all commonly used cross-manufacturer non-proprietary standard TTY signal protocols.
- (b) Voice mail, messaging, auto-attendant, and interactive voice response telecommunications systems shall be usable by TTY users either through direct TTY access or through use of the relay service and by Voice Carry over (VCO), Hearing Carry over (HCO), and Speech To Speech users through the relay service.
- (c) Voice mail, messaging, auto-attendant, and interactive voice response telecommunications systems that require a response from a user within a time interval, shall give an alert when the time interval is about to run out, and shall provide sufficient time for the user to indicate more time is required.
- (d) Where provided, caller identification and similar telecommunications functions shall also be available for users of TTYs, and for users who cannot see displays.
- (e) If the telecommunications product allows a user to adjust the receive volume, a function shall be provided to automatically reset the volume to the default level after every use if the volume is capable of greater than 18 dB of gain.
- (f) Where a telecommunications product delivers output by an audio transducer, which is normally held up to the ear, a means for effective magnetic wireless coupling to hearing technologies shall be provided.
- (g) Products which have mechanically operated controls or keys, shall comply with the following:
 - i. Controls and keys shall be tactilely discernible without activating the controls or keys.
 - ii. Controls and keys shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls and keys shall be 5 lbs. (22.2 N) maximum.

- iii. If key repeat is supported, the delay before repeat shall be adjustable to at least 2 seconds. The key repeat rate shall be adjustable to 2 seconds per character.
- iv. The status of all locking or toggle controls or keys shall be visually discernible and discernible through touch or sound.

3.2.4 Video and Multimedia Products

- (a) Equipment that includes a DTV receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals.
- (b) Television tuners, including tuner cards for use in computers, shall be stereo and equipped with secondary audio program playback circuitry.
- (c) Training and information video and multimedia products, excluding television broadcasts and live Webcasts that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.
- (d) Training and informational video and multimedia products, excluding television broadcasts and live Webcasts that contain visual information necessary for the comprehension of the content, shall be Alternatively Described⁴.
- (e) Display or presentation of alternate text presentation or audio descriptions shall be user-selectable unless permanent.
- (f) Television broadcasts, both live and pre-recorded, are subject to all the rules and regulations as specified by the Federal Communications Commission (FCC) regarding the inclusion of captioning and video descriptions. (See www.fcc.gov)

3.2.5 Self-Contained, Closed Products

- (a) Self-contained products shall be usable by people with disabilities without requiring an end-user to attach assistive technology to the product. Personal headsets for private listening are not assistive technology.
- (b) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.
- (c) Where a product utilizes touch-screens or contact-sensitive controls, an alternative input method shall be provided.

⁴ NOTE: Adding captions and/or video description to video or multimedia products purchased or developed without such access features may be required to meet an individual's needs under the ADA or Section 504.

- (d) When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.
- (e) When products provide auditory output, the audio signal shall be provided at a standard signal level through an industry standard connector that will allow for private listening. The product must provide the ability to interrupt, pause, and restart the audio at any time.
- (f) When products deliver voice output in a public area, incremental volume control shall be provided with output amplification up to a level of at least 65 dB. Where the ambient noise level of the environment is above 45 dB, a volume gain of at least 20 dB above the ambient level shall be user selectable. A function shall be provided to automatically reset the volume to the default level after every use.
- (g) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
- (h) When a product permits a user to adjust color and contrast settings, a range of color selections capable of producing a variety of contrast levels shall be provided.
- (i) Products shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
- (j) Products which are freestanding, non-portable, and intended to be used in one location and which have operable controls shall comply with the following:
 - i. The position of any operable control shall be determined with respect to a vertical plane, which is 48 inches in length, centered on the operable control, and at the maximum protrusion of the product within the 48 inch length.
 - ii. Where any operable control is 10 inches or less behind the reference plane, the height shall be 54 inches maximum and 15 inches minimum above the floor.
 - iii. Where any operable control is more than 10 inches and not more than 24 inches behind the reference plane, the height shall be 46 inches maximum and 15 inches minimum above the floor.
 - iv. Operable controls shall not be more than 24 inches behind the reference plane.

3.2.6 Desktop and Portable Computers

- (a) Products which have mechanically operated controls or keys, shall comply with the following:
 - (i) Controls and keys shall be tactilely discernible without activating the controls or keys.
 - (ii) Controls and keys shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls and keys shall be 5 lbs. (22.2 N) maximum.
 - (iii) If key repeat is supported, the delay before repeat shall be adjustable to at least 2 seconds. Key repeat rate shall be adjustable to 2 seconds per character.
 - (iv) The status of all locking or toggle controls or keys shall be visually discernible, and discernible either through touch or sound.
- (b) If a product utilizes touch-screens or touch-operated controls, an alternative input method shall be provided.
- (c) When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.
- (d) Where provided, at least one of each type of expansion slots, ports and connectors shall comply with publicly available industry standards.

3.2.7 Functional Performance Criteria

- (a) At least one mode of operation and information retrieval that does not require user vision shall be provided, or support for assistive technology used by people who are blind or visually impaired shall be provided.
- (b) At least one mode of operation and information retrieval that does not require visual acuity greater than 20/70 shall be provided in audio and enlarged print output working together or independently, or support for assistive technology used by people who are visually impaired shall be provided.
- (c) At least one mode of operation and information retrieval that does not require user hearing shall be provided, or support for assistive technology used by people who are deaf or hard of hearing shall be provided.

- (d) Where audio information is important for the use of a product, at least one mode of operation and information retrieval shall be provided in an enhanced auditory fashion, or support for assistive hearing devices shall be provided.
- (e) At least one mode of operation and information retrieval that does not require user speech shall be provided, or support for assistive technology used by people with disabilities shall be provided.
- (f) At least one mode of operation and information retrieval that does not require fine motor control or simultaneous actions and that is operable with limited reach and strength shall be provided.

3.2.8 Information, Documentation, and Support

- (a) Product support documentation provided to users shall be made available in alternate formats upon request, at no additional charge.
- (b) Users shall have access to a description of the accessibility and compatibility features of products in alternate formats or alternate methods upon request, at no additional charge.
- (c) Support services for products shall accommodate the communication needs of users with disabilities.

3.3 General Accessibility Standard for Development and Maintenance

3.3.1 Application

- (a) When developing and maintaining electronic and information technology systems, each Agency shall ensure that the non-Web based products comply with Section 508 and that Web based products comply with the WAI WCAG Version 1 Level A requirements of this Standard, unless an undue burden would be imposed on the Agency.
 - (1) Electronic and information technology systems are any electronic information equipment or interconnected systems that are used in the:
 - acquisition,
 - storage,
 - manipulation,
 - management,
 - movement,
 - control,
 - display,
 - switching,
 - interchange,
 - transmission, or
 - reception of data or information, including audio, graphic, and text.

- (2) When developing and maintaining a product, if an Agency determines that compliance with any provision of this Standard imposes an undue burden, the documentation by the Agency supporting the development and maintenance shall explain why, and to what extent, compliance with each such provision creates an undue burden. A request including this documentation must be submitted to VITA (See Section 5. Requesting Exemption from Requirements for procedures)
 - (3) When compliance with this Standard is deemed to impose an undue burden, Agencies shall provide individuals with disabilities the information and data involved by an alternative means of access. That alternate means of access shall allow the individual to use the information and data in accordance with other applicable Commonwealth and Federal laws such as Title I and Title II of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act.
- (b) When developing software applications, web pages, or other electronic and information technology systems, each Agency shall require conformance with the applicable technical access Standard unless an undue burden would be imposed. (See Section 5. Requesting Exemption from Requirements for procedures.)
 - (c) This Standard applies to all newly developed electronic and information technology and substantially modified or substantially enhanced technology, sixty-days (60) after the effective date of this Standard. Electronic and information technology developed before 60 days after the effective date of this Standard shall implement the Standard on a timetable as outlined in Section 4 “Agency Implementation Plan.”

3.4 Technical Standard for Development and Maintenance

The development and maintenance of electronic and information technology systems shall comply with both Section 3.2 Technical Standard for Procurement and the WAI WCAG Version 1 Level A requirements.⁵ Specific validation tools can be obtained from the Virginia Department of Rehabilitative Services (VDRS) through the Web Accessibility Template Guide (WATG) at <http://www.vadsa.org/watg/>. Accessibility and usability shall be validated with automatic tools and human review. Automated methods are generally rapid and convenient but cannot identify all accessibility and usability issues. Human review can help ensure clarity of language and ease of navigation.

⁵ WAI – Checklist of Checkpoints for Web Content Accessibility Guidelines 1.0
<http://www.w3.org/TR/WCAG10/full-checklist.html>

3.5 Equivalent Facilitation

Nothing in this Standard is intended to prevent the use of designs or technologies as alternatives to those prescribed in this Standard provided they result in substantially equivalent or greater access to and use of a product for people with disabilities.

Agencies may accept electronic and information technology offered by vendors, which uses designs or technologies that do not meet the applicable technical provisions, but provide substantially equivalent or greater access to and use of a product for people with disabilities. This is referred to as "equivalent facilitation."

Equivalent facilitation is not an exception or variance from the requirement to provide comparable access. Rather, it is recognition that technologies may be developed or used in ways not envisioned by the technical provisions of this document but still result in the same or better functional access. Functional outcome – not form – is the key to evaluating whether a technology results in "substantially equivalent or greater access."

4. AGENCY IMPLEMENTATION PLAN

Each Agency must develop a plan, within six months of the effective date of this standard and submit it to VITA's Strategic Management Services (SMS) Directorate. The plan must describe how and when the Agency intends to meet the requirements of this Standard or, if already compliant, how and when the Agency met the requirements of this Standard.

The plan must include, but is not limited to, the following.

4.1 Information Technology Software Applications Conversion Questions

4.1.1 Plan Strategy

- (a) Describe how the Agency addresses each of the following:
 - (i) the Agency's overall effort;
 - (ii) who will lead the overall compliance effort? (name, title, phone & e-mail);
 - (iii) who will lead the Application clean-up effort? (name, title, phone & e-mail);
 - (iv) to whom does that person report? (name, title & email); and
 - (v) who will educate the Agency on the need to comply with the new *Virginia Information Technology Accessibility Standard*.
- (b) Describe the Agency's plans for producing new, compliant applications.

- (i) Who has development access rights to the Agency applications or the number with such access?
 - (ii) How will the Agency avoid adding non-compliant applications while completing the Agency's mission?
- (c) Describe the Agency's plans for checking existing applications for compliance problems.
- (i) How will the Agency check for non-compliant applications?
 - (ii) Who will do the compliancy checking?
 - (iii) How will the Agency prioritize its application work? Possible options to consider:
 - all applications at once,
 - the most critical applications, and;
 - applications that are of most interest/use to your disabled audience.
- (d) Describe the Agency's plans for fixing non-compliant applications.
- (i) How will the Agency prioritize its work?
 - (ii) How will staff be allocated to this phase? (Will they be given production quotas?)

4.1.2 Plan Milestones

Provide information in a table with a column for *Milestones* and a column for *Target Dates*, as illustrated in the example below:

Milestone	Target Date

4.2 Web-based Internet and Intranet Information Applications Conversion Questions

4.2.1 Plan Strategy

- (a) Describe how the Agency addresses each of the following:
- (i) the Agency's overall effort;
 - (ii) who will lead the compliance effort? (name, title, phone & e-mail);

- (iii) who will lead the Web clean-up effort? (name, title, phone & e-mail);
 - (iv) to whom does that person report? (name, title & email); and
 - (v) who will educate the Agency on the need to comply with the new *Virginia Information Technology Accessibility Standard*.
- (b) Describe the Agency's plans for producing new, compliant pages.
- (i) Who has development access rights to the Agency's Web servers and Web site or the number with such access?
 - (ii) How will the Agency avoid adding non-compliant pages to its Web site?
- (c) Describe the Agency's plans for checking existing pages for compliance problems.
- (i) How will the Agency check for non-compliant pages?
 - (ii) Who will do the compliancy checking?
 - (iii) How will the Agency prioritize its Web work? Possible options to consider:
 - the entire site at once,
 - the most popular (highest hit) pages,
 - pages that are of most interest to your disabled audience,
 - by folder or feature,
 - by a specific number of levels deep from your main home page,
 - by file type (HTML, PDF, other), or;
 - any combination of the above.
- (d) Describe the Agency's plans for fixing non-compliant pages.
- (i) How will the Agency prioritize your work?
 - (ii) How will staff be allocated to this phase? (Will they be assigned specific areas of the Web site? Will they be given production quotas?)

(a) **Plan Milestones**

Provide information in a table with a column for *Milestones* and a column for *Target Dates*, as illustrated in the example below:

Milestone	Target Date

4.3 Existing Web Page Count

- (a) Provide the number of Web pages/files on the Agency’s Web site(s) and Web based-applications.
- (b) Explain how and when the Agency obtained the number.

4.4 Staff Resources

Show the amount of staff resources to be assigned to the Agency’s fixing tasks in any of the following manner.

- (a) Number of staff times the number of average hours each will work per month.
- (b) Number of FTE's to be assigned to the fixing effort.
- (c) Indicate any substantial changes to staff resources anticipated over time, and how the Agency’s plan will manage the changes.

4.5 Information Technology Products

4.5.1 *Who is responsible for replacing/upgrading non-compliant products?*
(name, title, phone & email)

4.5.2 *To whom does that person report?*
(name, title, phone & email)

4.5.3 *Who will ensure that newly procured products are compliant?*
(name, title, phone & email)

4.5.4 *Who will educate the Agency on the need to comply with this Standard?*
(name, title, phone & email)

4.5.5 *Plan Milestones:*

Address any non-accessible products. Provide information in a table with a column for *Non-compliant IT Products*, a column for *Locations*, a column for *Replacement Dates*, and a column for *Alternative Access Until Replacements* as illustrated in the example below:

Non-compliant IT Products	Location	Replacement Date	Alternative Access Until Replacement

4.6 Equivalent Facilitation

Pending the plan's full implementation, provide a detailed explanation to demonstrate how the Agency will provide "equivalent facilitation" to the public and Commonwealth employees as required in Subsection 3.5 "Equivalent Facilitation," above. Equivalent facilitation is that which provides the same level of access as that provided to non-disabled individuals. Equivalent facilitation is required for all non-compliant, inaccessible content of Web sites, and all non-compliant products, services, and devices.

4.7 Signature

The Plan must be signed and dated by the Agency head or equivalent. Please print the individual's title.

Submit the Plan to:

Attention: Director
Strategic Management Services Directorate
Virginia Information Technologies Agency
411 E. Franklin Street, Suite 500
Richmond, VA 23219

4 REQUESTING EXEMPTION TO REQUIREMENTS

All Agencies are to implement both accessibility and usability requirements of this Standard. However, there may be unanticipated situations where all or some of this Standard might cause an undue burden (See: 2 Definitions: Undue Burden) on an Agency, such as conflicting with a legislative mandate or a mission goal. Therefore, the affected Agency has the option of applying for an exemption to some or all of this Standard.

To be considered for an exemption a written request must be completed. As part of the Agency's exemption request a detailed explanation is required to demonstrate how the Agency will provide "equivalent facilitation," to the public and Commonwealth employees. Equivalent facilitation is that which provides the same level of access as that provided to non-disabled individuals. Equivalent facilitation is required for all non-compliant, inaccessible content of web sites, and all non-compliant products, services and devices.

Submit written exemption requests to:

Attention: Director
Strategic Management Services Directorate
Virginia Information Technologies Agency
411 E. Franklin Street, Suite 500
Richmond, VA 23219

VITA's Business Systems Services and the Department of Rehabilitative Services will provide information and technical expertise to assist the Director in making decisions on waiver requests.

APPENDIX A: Procurement of Information Technology Goods and Services; Computer Equipment to be based on Performance-Based Specifications (§ 2.2-2012)

A. Information technology and telecommunications goods and services of every description shall be procured by (i) VITA for its own benefit or on behalf of other state agencies and institutions or (ii) such other agencies or institutions to the extent authorized by VITA. Such procurements shall be made in accordance with the Virginia Public Procurement Act (§ 2.2-4300 et seq.), regulations that implement the electronic and information technology accessibility standards of the Rehabilitation Act of 1973 (29 U.S.C. § 794d), as amended, and any regulations as may be prescribed by VITA. In no case shall such procurements exceed the requirements of the regulations that implement the electronic and information technology accessibility standards of the Rehabilitation Act of 1973, as amended.

The CIO shall disapprove any procurement that does not conform to the statewide information technology plan or to the individual plans of state agencies or public institutions of higher education.

B. All statewide contracts and agreements made and entered into by VITA for the purchase of communications services, telecommunications facilities, and information technology goods and services shall provide for the inclusion of counties, cities, and towns in such contracts and agreements. Notwithstanding the provisions of § 2.2-4301, VITA may enter into multiple vendor contracts for the referenced services, facilities, and goods and services.

B1. The Department may establish contracts for the purchase of personal computers and related devices by licensed teachers employed in a full-time teaching capacity in Virginia public schools or in state educational facilities for use outside the classroom. The computers and related devices shall not be purchased with public funds, but shall be paid for and owned by teachers individually provided that no more than one such computer and related device per year shall be so purchased.

C. If VITA, or any agency or institution authorized by VITA, elects to procure personal computers and related peripheral equipment pursuant to any type of blanket purchasing arrangement under which public bodies, as defined in § 2.2-4301, may purchase such goods from any vendor following competitive procurement but without the conduct of an individual procurement by or for the using agency or institution, it shall establish performance-based specifications for the selection of equipment. Establishment of such contracts shall emphasize performance criteria including price, quality, and delivery without regard to "brand name." All vendors meeting the Commonwealth's performance requirements shall be afforded the opportunity to compete for such contracts.

D. This Section shall not be construed or applied so as to infringe upon, in any manner, the responsibilities for accounting systems assigned to the Comptroller under § 2.2-803.

(1984, c. 746, §§ 2.1-563.16, 2.1-563.17, 2.1-563.18; 1985, c. 265; 1995, c. 357; 1997, c. 858; 1999, cc. 412, 421, 433; 2001, c. 844, § 2.2-1303; 2002, c. 579; 2003, cc. 352, 895, 981, 1021; 2004, cc. 237, 278.)

APPENDIX B: Information Technology Access Act (§ 2.2-3500 et seq.)

§ 2.2-3500. Findings; policy.

A. The General Assembly finds that (i) the advent of the information age throughout the United States and around the world has resulted in lasting changes in information technology; (ii) use of interactive visual display terminals by state and state-assisted organizations is becoming a widespread means of access for employees and the public to obtain information available electronically, but nonvisual access, whether by speech, Braille, or other appropriate means has been overlooked in purchasing and deploying the latest information technology; (iii) presentation of electronic data solely in a visual format is a barrier to access by individuals who are blind or visually impaired, preventing them from participating on equal terms in crucial areas of life, such as education and employment; (iv) alternatives, including both software and hardware adaptations, have been created so that interactive control of computers and use of the information presented is possible by both visual and nonvisual means; and (v) the goals of the state in obtaining and deploying the most advanced forms of information technology properly include universal access so that the segments of society with particular needs (including individuals unable to use visual displays) will not be left out of the information age.

B. It is the policy of the Commonwealth that all covered entities shall conduct themselves in accordance with the following principles: (i) individuals who are blind or visually impaired have the right to full participation in the life of the Commonwealth, including the use of advanced technology that is provided by such covered entities for use by employees, program participants, and members of the general public, and (ii) technology purchased in whole or in part with funds provided by the Commonwealth to be used for the creation, storage, retrieval, or dissemination of information and intended for use by employees, program participants, and members of the general public shall be adaptable for access by individuals who are blind or visually impaired. The implementation of nonvisual access technology under this chapter shall be determined on a case-by-case basis as the need arises.

(1999, cc. 769, 773, § 2.1-807; 2001, c. 844.)

§ 2.2-3501. Definitions.

As used in this chapter, unless the context requires a different meaning:

"Access" means the ability to receive, use, and manipulate data and operate controls included in information technology.

"Blind" or "visually impaired" individual means an individual who has: (i) a visual acuity of 20/200 or less in the better eye with correcting lenses or has a limited field of vision so that the widest diameter of the visual field subtends an angle no greater than 20 degrees; (ii) a medically indicated expectation of visual deterioration; or (iii) a medically diagnosed limitation in visual functioning that restricts the individual's ability to read and write standard print at levels expected of individuals of comparable ability.

"Covered entity" means all state agencies, public institutions of higher education, and political subdivisions of the Commonwealth.

"Information technology" means all electronic information processing hardware and software, including telecommunications.

"Nonvisual" means synthesized speech, Braille, and other output methods not requiring sight.

"Telecommunications" means the transmission of information, images, pictures, voice or data by radio, video, or other electronic or impulse means, but shall not include public broadcasting services as defined in § 2.2-2427.

(1999, cc. 769, 773, § 2.1-808; 2001, c. 844.)

§ 2.2-3502. Assurance of nonvisual access.

In general, the head of each covered entity shall ensure that information technology equipment and software used by blind or visually impaired employees, program participants, or members of the general public (i) provide access (including interactive use of the equipment and services) that is equivalent to that provided to individuals who are not blind or visually impaired; (ii) are designed to present information (including prompts used for interactive communications) in formats adaptable to both visual and nonvisual use; and (iii) have been purchased under a contract that includes the technology access clause required pursuant to § 2.2-3503.

(1999, cc. 769, 773, § 2.1-809; 2001, c. 844.)

§ 2.2-3503. Procurement requirements.

A. The technology access clause specified in clause (iii) of § 2.2-3502 shall be developed by the Secretary of Technology and shall require compliance with the nonvisual access standards established in Subsection B of this section. The clause shall be included in all future contracts for the procurement of information technology by, or for the use of, entities covered by this chapter on or after the effective date of this chapter.

B. At a minimum, the nonvisual access standards shall include the following: (i) the effective, interactive control and use of the technology (including the operating system), applications programs, and format of the data presented, shall be readily achievable by nonvisual means; (ii) the technology equipped for nonvisual access shall be compatible with information technology used by other individuals with whom the blind or visually impaired individual interacts; (iii) nonvisual access technology shall be integrated into networks used to share communications among employees, program participants, and the public; and (iv) the technology for nonvisual access shall have the capability of providing equivalent access by nonvisual means to telecommunications or other interconnected network services used by persons who are not blind or visually impaired. A covered entity may stipulate additional specifications in any procurement.

Compliance with the nonvisual access standards shall not be required if the head of a covered entity determines that (i) the information technology is not available with nonvisual access

because the essential elements of the information technology are visual and (ii) nonvisual equivalence is not available.

(1999, cc. 769, 773, § 2.1-810; 2001, c. 844.)

§ 2.2-3504. Implementation

A. The head of any covered entity may, with respect to nonvisual access software or peripheral devices, approve the exclusion of the technology access clause only to the extent that the cost of the software or devices for the covered entity would increase the total cost of the procurement by more than five percent. All exclusions of the technology access clause from any contract shall be reported annually to the Secretary of Technology.

B. The acquisition and installation of hardware, software, or peripheral devices used for nonvisual access when the information technology is being used exclusively by individuals who are not blind or visually impaired shall not be required.

C. Notwithstanding the provisions of subsection B, the applications programs and underlying operating systems (including the format of the data) used for the manipulation and presentation of information shall permit the installation and effective use of nonvisual access software and peripheral devices.

(1999, cc. 769, 773, § 2.1-811; 2001, c. 844.)

APPENDIX C: Voluntary Product Accessibility Template (VPAT)

The Voluntary Product Accessibility Templates (VPATs) are provided to help in reviewing existing and future products and systems for compliance. They can be given to suppliers to aid in outlining their products' compliance. Use of the VPATs is voluntary.

Section 2.2.1 Software Applications and Operating Systems - Detail Voluntary Product Accessibility Template		
<i>Criteria</i>	Supporting Features	Remarks and explanations
(a) When software is designed to run on a system that has a keyboard, product functions shall be executable from a keyboard where the function itself or the result of performing a function can be discerned textually.		
(b) Applications shall not disrupt or disable activated features of other products that are identified as accessibility features, where those features are developed and documented according to industry standards. Applications also shall not disrupt or disable activated features of any operating system that are identified as accessibility features where the application programming interface for those accessibility features has been documented by the manufacturer of the operating system and is available to the product developer.		
(c) A well-defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that Assistive Technology can track focus and focus changes.		
(d) Sufficient information about a user interface element including the identity, operation and state of the element shall be		

Section 2.2.1 Software Applications and Operating Systems - Detail

Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
available to Assistive Technology. When an image represents a program element, the information conveyed by the image must also be available in text.		
(e) When bitmap images are used to identify controls, status indicators, or other programmatic elements, the meaning assigned to those images shall be consistent throughout an application's performance.		
(f) Textual information shall be provided through operating system functions for displaying text. The minimum information that shall be made available is text content, text input caret location, and text attributes.		
(g) Applications shall not override user selected contrast and color selections and other individual display attributes.		
(h) When animation is displayed, the information shall be displayable in at least one non-animated presentation mode at the option of the user.		
(i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.		
(j) When a product permits a user to adjust color and contrast settings, a variety of color selections capable of producing a range of contrast levels shall be provided.		
(k) Software shall not use flashing or blinking text, objects, or other elements having a flash or blink frequency greater than 2 Hz and lower than 55 Hz.		
(l) When electronic forms are used, the form shall allow people using Assistive		

Section 2.2.1 Software Applications and Operating Systems - Detail

Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
Technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.		

Section 2.2.2 Web-based Internet and Intranet Information and Applications - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
(a) A Web site procured in accordance with the Virginia Public Procurement Act (§ 2.2-4300 et seq.), must adhere to, but is not required to exceed, the Federal Section 508's rules for Web-based intranet and Internet information and applications, which is covered by WAI Level A compliance.		
(b) Ensure that foreground and background color combinations provide sufficient contrast when viewed by someone having color deficits or when viewed on a black and white screen. WAI WCAG checkpoint 2.2		
(c) The opening of new browser windows should only be done if the user is warned that a new window will open and there may be a possibility of functional difficulties. Developers should refer to the WATG template site for details at http://www.vadsa.org/watg/ .		
(d) Use style sheets to control layout whenever possible. Do not use tables for layout unless the table makes sense when linearized. If the table does not make sense, provide an alternative equivalent, which may be a linearized version. WAI WCAG checkpoint 5.3		
(e) Font sizes should be percentage based instead of fixed.		
(f) A method shall be provided that permits users to skip repetitive navigation links. (See: WATG for more details)		
(g) Content headers shall use the <H1>-<H6> hierarchy, although style sheets may be used to modify the size and other		

Section 2.2.2 Web-based Internet and Intranet Information and Applications - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
characteristics of that text. [See Glossary: “Heading Elements”]		
<p>(h)The requirements of the aforementioned Standard apply to all Commonwealth of Virginia Executive Branch Web sites, with the following exceptions:</p> <p>(i) Downloadable documents (e.g. Word document, PowerPoint presentation, etc.) per se are exempted, although accessible and equivalent versions of the content must be available. (See: WATG for further details.)</p> <p>(ii) Sites external to the Executive Branch.</p> <p>(iii) HTML frames are forbidden when you use the visual template. If you’re exempt from using the visual template and are using frames, then you must:</p> <ul style="list-style-type: none"> • Provide alternative, equivalent content since many screen readers can’t access or follow frames. • Title your frames with text that facilitates frame identification and navigation. <p>(iv) Agencies that are considered to be exempt are:</p> <ul style="list-style-type: none"> • The Virginia Tourism Corporation • The Library of Virginia • Museums • Institutions of Higher Education <p>(v) Other exceptions may be allowed on an</p>		

Section 2.2.2 Web-based Internet and Intranet Information and Applications - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
individual basis and with written approval of the Virginia Information Technologies Agency.		

Section 2.2.3 Telecommunications Products - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
(a) Telecommunications products, which include voice communication functionality, shall support all commonly used cross-manufacturer non-proprietary standard TTY signal protocols.		
(b) Voice mail, messaging auto-attendant, and interactive voice response telecommunications systems shall be usable by TTY users either through direct TTY access or through use of the relay service and by Voice Carry over (VCO), Hearing Carry over (HCO), and Speech To Speech users through the relay service		
(c) Voice mail, messaging, auto-attendant, and interactive voice response telecommunications systems that require a response from a user within a time interval, shall give an alert when the time interval is about to run out, and shall provide sufficient time for the user to indicate more time is required.		
(d) Where provided, caller identification and similar telecommunications functions shall also be available for users of TTYs, and for users who cannot see displays.		
(e) If the telecommunications product allows a user to adjust the receive volume, a function shall be provided to automatically reset the volume to the default level after every use if the volume is capable of greater than 18 dB of gain		
(f) Where a telecommunications product delivers output by an audio transducer, which is normally held up to the ear, a means for effective magnetic wireless coupling to hearing technologies shall be provided.		

Section 2.2.3 Telecommunications Products - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
<p>(g) Products which have mechanically operated controls or keys, shall comply with the following:</p> <p style="padding-left: 40px;">(i) Controls and keys shall be tactilely discernible without activating the controls or keys.</p> <p style="padding-left: 40px;">(ii) Controls and keys shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls and keys shall be 5 lbs. (22.2 N) maximum.</p> <p style="padding-left: 40px;">(iii) If key repeat is supported, the delay before repeat shall be adjustable to at least 2 seconds. The key repeat rate shall be adjustable to 2 seconds per character.</p> <p>(iv) The status of all locking or toggle controls or keys shall be visually discernible, and discernible either through touch or sound.</p>		

Section 2.2.4 Video and Multimedia Products - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
a) Equipment that includes a DTV receiver or display circuitry, shall be equipped with caption decoder circuitry which appropriately receives, decodes, and displays closed captions from broadcast, cable, videotape, and DVD signals.		
(b) Television tuners, including tuner cards for use in computers, shall be equipped with secondary audio program playback circuitry.		
(c) Training and information video and multimedia products, excluding television broadcasts and live Webcasts, that contain speech or other audio information necessary for the comprehension of the content, shall be open or closed captioned.		
(d) Training and informational video and multimedia products, excluding television broadcasts and live Webcasts, that contain visual information necessary for the comprehension of the content, shall be Alternatively Described ⁶ .		
(e) Display or presentation of alternate text presentation or audio descriptions shall be user-selectable unless permanent.		
(f) Television broadcasts, both live and pre-recorded, are subject to all the rules and regulations as specified by the Federal Communications Commission (FCC) regarding the inclusion of captioning and video descriptions. (See www.fcc.gov)		

⁶ NOTE: Adding captions and/or video description to video or multimedia products purchased or developed without such access features may be required to meet an individual's needs under the ADA or Section 504.

Section 2.2.5 Self-Contained, Closed Products - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
(a) Self contained products shall be usable by people with disabilities without requiring an end-user to attach assistive technology to the product. Personal headsets for private listening are not assistive technology.		
(b) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.		
(c) Where a product utilizes touch-screens or contact-sensitive controls, an alternative input method shall be provided.		
(d) When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.		
(e) When products provide auditory output, the audio signal shall be provided at a standard signal level through an industry standard connector that will allow for private listening. The product must provide the ability to interrupt, pause, and restart the audio at anytime.		
(f) When products deliver voice output in a public area, incremental volume control shall be provided with output amplification up to a level of at least 65 dB. Where the ambient noise level of the environment is above 45 dB, a volume gain of at least 20 dB above the ambient level shall be user selectable. A function shall be provided to automatically reset the volume to the		

Section 2.2.5 Self-Contained, Closed Products - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
default level after every use.		
(g) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.		
(h) When a product permits a user to adjust color and contrast settings, a range of color selections capable of producing a variety of contrast levels shall be provided.		
(i) Products shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.		
<p>(j) Products which are freestanding, non-portable, and intended to be used in one location and which have operable controls shall comply with the following:</p> <p style="padding-left: 40px;">(i) The position of any operable control shall be determined with respect to a vertical plane, which is 48 inches in length, centered on the operable control, and at the maximum protrusion of the product within the 48 inch length.</p> <p style="padding-left: 40px;">(ii) Where any operable control is 10 inches or less behind the reference plane, the height shall be 54 inches maximum and 15 inches minimum above the floor.</p> <p style="padding-left: 40px;">(iii) Where any operable control is more than 10 inches and not more than 24 inches behind the reference plane, the height shall</p>		

Section 2.2.5 Self-Contained, Closed Products - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
be 46 inches maximum and 15 inches minimum above the floor. (iv) Operable controls shall not be more than 24 inches behind the reference plane.		

Section 2.2.6 – Desktop and Portable Computers – Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
<p>(a) Products which have mechanically operated controls or keys, shall comply with the following:</p> <p>(i) Controls and keys shall be tactilely discernible without activating the controls or keys.</p> <p>(ii) Controls and keys shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls and keys shall be 5 lbs. (22.2 N) maximum.</p> <p>(iii) If key repeat is supported, the delay before repeat shall be adjustable to at least 2 seconds. Key repeat rate shall be adjustable to 2 seconds per character.</p> <p>(iv) The status of all locking or toggle controls or keys shall be visually discernible, and discernible either through touch or sound.</p>		
<p>(b) If a product utilizes touch-screens or touch-operated controls, an alternative input method shall be provided.</p>		
<p>(c) When biometric forms of user identification or control are used, an alternative form of identification or activation, which does not require the user to possess particular biological characteristics, shall also be provided.</p>		
<p>(d) Where provided, at least one of each type of expansion slots, ports and connectors shall comply with publicly available industry standards.</p>		

Section 2.2.7 Functional Performance Criteria - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
(a) At least one mode of operation and information retrieval that does not require user vision shall be provided, or support for assistive technology used by people who are blind or visually impaired shall be provided.		
(b) At least one mode of operation and information retrieval that does not require visual acuity greater than 20/70 shall be provided in audio and enlarged print output working together or independently, or support for assistive technology used by people who are visually impaired shall be provided.		
(c) At least one mode of operation and information retrieval that does not require user hearing shall be provided, or support for assistive technology used by people who are deaf or hard of hearing shall be provided.		
(d) Where audio information is important for the use of a product, at least one mode of operation and information retrieval shall be provided in an enhanced auditory fashion, or support for assistive hearing devices shall be provided.		
(e) At least one mode of operation and information retrieval that does not require user speech shall be provided, or support for assistive technology used by people with disabilities shall be provided.		
(f) At least one mode of operation and information retrieval that does not require fine motor control or simultaneous actions and that is		

Section 2.2.7 Functional Performance Criteria - Detail Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
operable with limited reach and strength shall be provided.		

Section 2.2.8 Information, Documentation and Support - Detail

Voluntary Product Accessibility Template

<i>Criteria</i>	Supporting Features	Remarks and explanations
(a) Product support documentation provided to end-users shall be made available in alternate formats upon request, at no additional charge		
(b) End-users shall have access to a description of the accessibility and compatibility features of products in alternate formats or alternate methods upon request, at no additional charge.		
(c) Support services for products shall accommodate the communication needs of end-users with disabilities.		