STATE OF VERMONT
Agency of Administration

STANDARD STC State Technology Collaborative	ORIGINAL POLICY ADOPTED BY STC DATE: January 13, 2006 Updated 8/1/2017	ORIGINAL POLICY NUMBER
	EFFECTIVE DATE January 13, 2006	ASSOCIATED DOCUMENTS Web Accessibility Policy

STATUTORY REFERENCE OR OTHER AUTHORITY: Policy for Web Accessibility Requirements # 0702.042005

Existing Federal Accessibility Standards:
The Access Board: http://www.access-board.gov/

Federal "Section 508" Electronic and Information Technology Accessibility Standards for Web-based Intranet and Internet Information and Applications: (http://www.section508.gov/index.cfm?FuseAction=Content&ID=12#Web)

World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0 (http://www.w3.org/WAI/intro/wcag.php)

Americans with Disabilities Act, 42 U.S.C.A, Section 12101, et. seq. See also 28CFR 35.160.

APPROVAL DATE:

APPROVED BY: **Secretary of Administration**

POLICY TITLE: **Web Accessibility Standards**

POLICY STATEMENT: It is the policy of the State of Vermont to ensure that people with hearing, visual and other disabilities have equal access to public information that has been made available by State agencies or departments on the World Wide Web. It is the direct responsibility of agencies and departments to be knowledgeable of the guidelines for achieving universal accessibility. These principles shall be incorporated in designing and creating any official State of Vermont web-based public information resource.

Implementation Timetable: TBD

Accessibility Performance Criteria:

Performance Criteria and Implementation Guidelines are necessarily technology-dependent and will be updated as technologies evolve and change. The web technologies considered the current standards as of this version include:

- Hypertext Markup Language (HTML) 4.01
- Extensible Hypertext Markup Language (XHTML) 1.0
- Cascading Style Sheet (CSS) Level 1 & 2
- Document Object Model (DOM) Level 1
- Synchronized Multimedia Integration Language (SMIL) 1.0
- JavaScript & Dynamic HTML (DHTML)

Note: The use of other technologies (e.g., Java, Flash) and other document formats (e.g., Adobe Acrobat PDF, Microsoft Word, WordPerfect) is permissible if used in accordance with the standards outlined in this document.

Individuals with disabilities use a variety of accessibility techniques and assistive technologies to access web-based information. From a practical standpoint, web sites must therefore be compatible with these accessibility tools in order to be accessible to people with disabilities. From this perspective, the following functional performance criteria shall be used to judge whether accessibility is effectively achieved:

All information and functionality presented in State of Vermont web sites or web-based applications shall be available in a manner that is:

- Compatible with browser and system font size and color settings
- Completely operable using keyboard only
- Completely operable using leading screen magnification software
- Completely operable using leading screen reading software
- Completely operable using leading speech recognition software
- Completely understandable without sound
- Completely understandable without color
- Clear and consistent
- Unlikely to trigger photosensitive seizures

Standards Checklist:

- ❑ Valid, standard web programming code shall be used.
- ❑ A text equivalent shall be provided for every non-text element via "alt" (alternative text attribute), "longdesc" (long description tag), or in element content or attribute.
- ❑ Web pages shall be designed so that all information required for navigation or meaning is not dependent on the ability to identify specific colors.
- ❑ All changes in the natural language (e.g., English to French) of a document's text and any text equivalents shall be clearly identified.
- ❑ Documents shall be organized so they are readable without requiring an associated style sheet.
- ❑ All equivalents to dynamic content shall be updated whenever the dynamic content changes.
- ❑ Image maps shall be avoided, but when necessary redundant text links shall be provided for each active region of a server-side image map.
- ❑ Tables will not be used for formatting Webpages.
- ❑ Identification of row and column headers shall be provided in data tables.
- ❑ Use of complex data tables shall be avoided, but when necessary, markup to associate data cells and header cells shall be used for data tables that have two or more logical levels of row or column headers.
- ❑ Pages using scripts, applets, or other programmatic objects shall be designed so that they are usable when these elements are turned off or are not supported, or equivalent information shall be provided on an alternative accessible page.
- ❑ Equivalent alternatives shall be provided for any multimedia presentation.

- ❑ Appropriate methods shall be used to facilitate the easy tracking of page content so as to accommodate users of assistive technology. The option to skip repetitive navigation links shall be provided and descriptive, intuitive text links shall be used. Vague link titles such as "click here," "link," or "this" shall not be used.

- ❑ Background color schemes that can create problems with legibility shall not be used.

- ❑ Web pages shall be tested with multiple browsers representing commonly used versions and shall be tested with a variety of assistive technologies.

- ❑ A link shall be provided to a page entitled "Access Instructions for Users with Disabilities." This page will include special instructions for accessing Web pages, including a phone number to contact for more information.

- ❑ Separate accessible versions of web pages shall be used only as a last resort.

Implementation Guidelines

1. Valid, standard web programming code shall be used.

   1.1. Use rules and conventions specified by published standards.

   What:
   The World Wide Web Consortium (W3C) sets and publishes standards for most web programming languages, including HTML 5, XHTML 2.0, CSS Level 1, 2 and 3, DOM, and SMIL. Programming code is considered "valid" when it follows the all the rules and conventions specified in the published standards.

   Why:
   Screen readers and other assistive technologies can more accurately interpret and interact with web pages that are built using valid, standard code. W3C languages are designed with accessibility in mind. This will also make your site compatible with a wider range of web browsers and devices used by the general public.

   How:
   Indicate the programming language you are using by starting your code with a document type declaration such as: <!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">. Use the W3C HTML Validation Service and W3C CSS Validation Service to check your code. Refer to the World Wide Web Consortium site for full specifications and documentation.

   Ref: WCAG 3.2, 11.1

   1.2. Use appropriate markup to convey document structure.

   What:
   HTML includes markup (programming code) to identify the structural elements of a document. For example, the <p> element identifies a paragraph and <h1> identifies a first-level heading.

   Why:
   Screen readers use structural elements to help make reading more efficient. For example, some screen readers can skip from heading to heading to allow the user to "skim" the document.

   How:
   Identify section heading, paragraphs, lists, quotes, etc using the appropriate tags instead of relying on formatting commands to distinguish these elements. For example, use <h1> tags to identify top-level headings rather than simply applying font-size or bold formatting commands. Do

not misuse structural elements for formatting effects, such as using <h1> to make text bold or <blockquote> to indent a paragraph that is not actually a quotation.

Ref: WCAG 3.5, 3.6, 3.7, 5.4

2. A text equivalent shall be provided for every non-text element via "alt" (alternative text attribute), "longdesc" (long description tag), or in element content or attribute.

2.1. Provide "alternate text" for all images.

What:
The HTML image element (<img>) includes an "alternate text" attribute (alt) that is used to provide text that can be substituted when the image itself cannot be displayed. Alternate text is meant to be a concise replacement for an image and should serve the same purpose and convey the same meaning.

Why: Individuals who are blind cannot perceive information presented in images; screen reading software reads alternate text instead.

How:
All images must have appropriate alternate text. As a rule of thumb, consider what you might say if you were reading the web page to someone over the telephone. Alternate text should be brief, no more than a few words (150 characters).

Note: Certain types of information, such as GIS and geographically coded data, currently may not be available in a displayable text format. At this time it is acceptable to use these formats without a text equivalent. However, these formats should be used with caution and only when necessary. If a more accessible format is available, or becomes available, to present the same information it should be used instead or provided as an alternative.

Note: For images that contain words or letters - use alternate text that includes the same words or letters. For images links - use alternate text that identifies the link's destination or function. You do not need to include the words "link to." For images that are invisible, purely decorative, or otherwise do not convey meaning - use alt="" (null) to indicate that the image can be safely ignored by a screen reader.

Ref: WCAG 1.1; 508 a

2.2. Provide full descriptions for graphs, diagrams, and other meaningful images.

What:
"Meaningful" images are images that convey more information than can appropriately be expressed as alternate text.

Why:
A full description allows a user who cannot see or understand a meaningful image to receive the same information as a sighted individual.

How:
Present a full description of a meaningful image either on the page on which the image appears or through a link immediately preceding or following the image. Use alternate text to provide a concise name for the image. For example, the alternate text of a graph should state its title and the long description should summarize its trends and/or present a table of its data.

Note: The longdesc attribute of the <img> element can also be used to provide a link to a full description. Because longdesc it is not yet supported by most web browsers, it should not be used as the only method of providing a full description.

Note: Certain types of information, such as GIS or geographically coded data may not be currently available in a displayable text format.

Ref: WCAG 1.1; 508 a

3. Web pages shall be designed so that all information required for navigation or meaning is not dependent on the ability to identify specific colors.

   Do not convey information with color alone.

   What:
   Color is often used to indicate special functions or status. For example, required form fields are frequently indicated with red labels.

   Why:
   Users with blindness, limited vision, or color-blindness may miss information presented with color.

   How:
   Whenever color is used as an indicator, use a non-color-based indicator as well. For example, required form fields could be identified with asterisks as well as color.

   Note: Standard links within body text shall be designated by something other than color alone.

   Ref: WCAG 2.1; 508 c

4. All changes in the natural language (e.g., English to French) of a document's text and any text equivalents shall be clearly identified.

   What:
   HTML uses the lang attribute to specify language in a web page. It can be set for any HTML element.

   Why:
   Words written in foreign languages can be unintelligible when spoken by a screen reader. Some screen readers are able to pronounce words in their appropriate language if it is specified.

   How:
   Use the lang attribute on the <html> element to identify the primary language of each document, for example, <html lang="en">, for English. Use the lang attribute on or other elements to identify words or phrases in other languages. For example, a Spanish phrase within an English document could be coded as se habla español.
   Note: Not all screen readers support automatic language changes, but setting the lang attribute will not negatively affect those that do not.

   Ref: WCAG 4.1, 4.3

.

5. Documents shall be organized so they are readable without requiring an associated style sheet

   When using style sheets for layout, make sure that reading order is logical when style sheets are not supported.

   What:
   The positioning features of Cascading Style Sheets can be used to position elements visually almost anywhere on a web page.

   Why:
   As with layout tables, screen readers read through the elements on a web page in the order in which they appear in the page code, regardless of how they are positioned using style sheets. It is essential that the reading order match the logical flow of the document so that a screen reader user would hear the document in the same order that a visual reader would read it.

How:
Check the reading order by following the order in which elements appear in the page code. Reading order can usually be adjusted by rearranging the order in which elements are defined in the code.

Ref: WCAG 6.1; 508 d

6. All equivalents to dynamic content shall be updated whenever the dynamic content changes.

7. Using server-side image maps shall be avoided, but when necessary, redundant text links shall be provided for each active region of a server-side image map.

   What:
   While client-side image maps and server-side image maps look and operate similarly, they are technically very different. Because of the way server-side image maps work, all information about the image and links is stored at the web server and is not available to the user's web browser or assistive technology.

   Why:
   Screen readers cannot identify or read the separate areas or links within server-side image maps.

   How:
   Whenever possible, use client-side image maps instead of server-side image maps. If server-side image maps must be used, provide a set of text links that duplicate all the functions/destinations included in the image map.

   Ref: WCAG 1.2, 9.1; 508 e, f

8. Image maps shall be avoided whenever possible

   If image maps are to be used, provide alternate text for each area in client-side image maps.

   What:
   Image maps are images divided into multiple "areas," with each area having its own hypertext link.

   Why:
   Just as images must have alternate text, each area of an image map must also have appropriate alternate text for use when the image is not displayed.

   How:
   Use alternate text that indicates the function or destination of the link for each area of a client-side image map. The image itself should have alternate text that indicates the overall function of the image map.

   Ref: WCAG 1.1; 508 a

9. Tables will not be used for formatting Webpages.

10. Data tables shall provide identification of row and column headers.

    10.1. For simple data tables, explicitly identify headings for all columns and rows.

    What:
    "Data tables" are simply HTML tables used to display data. (On the other hand, "layout tables" are used to lay out columns and sections on a web page. Both data and layout tables use the <table> element, but their functions, and accessibility issues, are very different.) "Headers" identify the content of each row and/or column.

    Why:

A screen reader can use table headers to provide row and column information while a user explores the data cells within a table.

How:
Use <th> (table header) or <td> (table data) elements with scope="col" (for column headers) or scope="row" (for row headers) to identify cells that contain row and/or column headings.

Ref: WCAG 5.1; 508 g

11. Use of complex data tables shall be avoided, but when necessary, markup to associate data cells and header cells shall be used for data tables that have two or more logical levels of row or column headers.

What:
Table with multiple layers of headers and "spanned" columns or rows can become very complex.

Why:
Complex data tables can be difficult to navigate and understand using a screen reader. Only the most advanced screen readers can use advanced table markup to provide orientation information.

How:
Whenever possible, simplify complex tables by re-arranging or dividing them into separate tables. When a complex table cannot be simplified, use advanced table markup, such as headers, axis, scope, <col>, and <colgroup>, to indicate fully the relationships between data cells and headers. Note: See W3C's "Tables in HTML Documents" for complete details on how to markup complex tables.

Ref: WCAG 5.2; 508 h

12. Pages using scripts, applets, or other programmatic objects shall be designed so that they are usable when these elements are turned off or are not supported, or equivalent information shall be provided on an alternative accessible page.

12.1. Make sure that significant interactions can be performed with both keyboard and mouse.

What:
Scripting languages, such as JavaScript, are simple programming languages that can be used within a web browser to automate certain tasks and enable pages to change and respond to user input. Scripts can trigger changes when the user performs specific actions ("events"). Some events are triggered by either mouse or keyboard actions. For example, an image can change color when the mouse pointer hovers over it (the onmouseover event).

Why:
Users with physical impairments may be able to use the keyboard but not the mouse. Individuals who cannot see the mouse pointer on the screen also use the keyboard for all interactions. Scripts that can only be triggered by the mouse are not usable by these individuals.

How:
Whenever using a mouse-only event (e.g., onmouseover, onmouseout) to trigger a significant script action, also use the corresponding keyboard event (e.g., onfocus, onblur). Also make sure that keyboard events do not unintentionally trigger script actions. For example, keyboard users should be able to arrow through the choices in a <select> list without triggering each choice (e.g., onchange).

Note: An alternative accessible page may be used as a last resort to provide equivalent information.

Ref: WCAG 6.4, 9.2, 9.3

12.2. Make sure that essential content and functionality are available when client-side scripts are not supported fully.

What:
Scripts are often used to show or hide dynamically the content that appears on a web page or to perform important functions, such as checking that entries in form fields are appropriate. "Client-side" scripts, such as JavaScript, are scripts that are run by the user's web browser. Client-side scripts must be supported by and compatible with the user's browser in order to work. ("Server-side" scripts, such as CGI, ASP, JSP, or PHP, run on the web server before the web page ever reaches the user's browser. Server-side scripts do not generally pose additional accessibility problems.)

Why:
Older assistive technologies and web browsers may not support client-side scripting at all. Even current assistive technologies may interact in unexpected ways with content that is displayed using scripts, such as by skipping text that is dynamically displayed or reading text that is dynamically hidden. Users need to be able to access the same essential content and functionality whether scripts are fully, partially, or not supported. It is not safe to assume that users with disabilities will have scripting support turned off.

How:
Whenever scripts are used, it is the responsibility of the page developer to thoroughly test using assistive technologies to ensure that all information and functionality is accessible. If there is any doubt, err on the safe side by ensuring that the essential elements of the page do not rely on scripts.

> Note: One approach to ensuring accessibility with scripts is to include a back-up method of providing the same information and functionality that does not require scripts. For example, if a client-side script is used to check an entry in a form field, a server-side script could make the same check. Similarly, if scripts are used for "drop-down" menus, the same menu choices could be provided in an appropriate location elsewhere on the current or subsequent page. Additionally, scripting features that are purely decorative and do not present any significant information or functionality do not need to be made accessible. (However, remember Guideline 12.5: Flickering, blinking, and unnecessary animation shall not be used.)

Ref: WCAG 6.3; 508 l

12.3. Avoid plug-ins if possible, but when necessary use accessible applets or plug-ins or provide equivalent information on an alternative accessible page.

What:
"Applets" and "plug-ins" refer to a variety of newer web technologies, such as Java and Flash that can be used to create advanced, interactive content on web pages. Both require additional software to be downloaded, installed, and run before the content can be viewed or used. Applets and plug-ins also operate with their own user interfaces, which are separate and different from that of standard web pages.

Why:
Because applets and plug-ins have their own interfaces, they must be accessible in and of themselves. If essential content or functionality is presented using an applet or plug-in that is not accessible, it will not be usable by individuals with disabilities.

How:
Check with the manufacturer and/or developer of each applet or plug-in to determine if and how the technology is accessible. Whenever a link is provided to content that requires an applet or plug-in, the text should indicate the applet or plug-in that is required and provide a link to an accessible download site for the plug-in (e.g., “Flash Player 6 required to view the presentation.”).

If an accessible applet or plug-in is available, provide users with a link to any special instructions or software that is necessary.

Ref: WCAG 8.1; 508 m

13. Equivalent alternatives shall be provided for any multimedia presentation.

13.1. Do not convey information with sound alone.

What:
It is possible to use sound for a variety of purposes, including presenting warning signals, cues, or verbal instructions.

Why:
Users who are deaf or hard of hearing may miss information provided only through sound.

How:
Whenever significant information is provided by sound, include a visual indicator that provides the same information as well.

Ref: WCAG 1.1; 508 a

13.2. Provide text transcripts for audio containing speech.

What:
"Audio containing speech" includes audio recordings or live broadcasts of speeches, seminars, conferences, etc. A text transcript is a word-for-word written record of the spoken content of such an event.

Why:
Individuals who are deaf or hard of hearing may require text transcripts to access audio information.

How:
Provide a link to a text (or HTML) transcript of any audio presented on a web site. Transcripts should be posted within 48 hours of a request for the data.

Ref: WCAG 1.1; 508 a

13.3. Provide synchronized captions for multimedia containing speech.

What:
Multimedia generally refers to recorded or live media containing both video and audio tracks. Captioning (as in "closed captioned") is essentially a text transcript of the audio synchronized with the audio/video tracks of the presentation.

Why:
Individuals who are deaf or hard of hearing may require captions to access the audio information in multimedia.

How:
Whenever possible, captions should be implemented using Synchronized Multimedia Integration Language (SMIL) to synchronize the display of text from a transcript with the video. As a less desirable alternative, captions can be added to a standard video recording and then converted to a web format.

Ref: WCAG 1.4, 508 b

13.4. Provide audio descriptions for multimedia with significant video.

What:
Audio descriptions are verbal descriptions of the actions and images displayed in a video that are inserted during pauses in the regular dialog or audio track. Audio descriptions are only necessary if significant information that is presented visually is not discernable from the dialog or audio track.

Why:
Individuals who are blind or low-vision may require audio descriptions to access the visual information in multimedia.

How:
Carefully consider whether audio descriptions are necessary to present the significant information of a multimedia recording. Many speech-intensive events, such as speeches, lectures, or conferences, may not need audio description.

Ref: WCAG 1.3

13.5. Flickering, blinking, and unnecessary animation shall not be used.

What:
Animated graphics, Flash, Java, <blink> tags, <marquee> tags, and other techniques are often used to create a variety of animated effects.

Why:
Flickering or blinking between 2 and 55 Hz (flashes per second) can trigger epileptic seizures. Animation can be distracting to users with certain visual or cognitive disabilities.

How:
Do not cause elements to blink or flash. Avoid animation and movement unless it provides significant additional information.

Ref: WCAG 7.1, 7.2, 7.3; 508 j

14. Appropriate methods shall be used to facilitate the easy tracking of page content so as to accommodate users of assistive technology. The option to skip repetitive navigation links shall be provided and descriptive, intuitive text links shall be used. Vague references such as "click," "here," "link," or "this" shall not be used.

14.1. Make sure that links are understandable out of context.

What:
A link is understandable out of context when it clearly indicates its destination or function without requiring additional information.

Why:
Screen reader users often tab through links (skip from link to link by pressing the Tab key) in order to "scan" a page. Most screen readers also offer a "links list" feature to help speed the process of navigating to specific links. Links that are not understandable out of context, such as "click here" or "more," make these techniques much less efficient.

How:
Use link text that is clear and unambiguous. Avoid using "click here” or other similar non-descriptive text."

Ref: WCAG 13.1

14.2. Provide a means of skipping past repetitive navigation links.

What:

Navigation links are the lists or "menus" of links to all the sections of a site that are often repeated on every page.

Why:
Because navigation links are typically placed at the beginning (top left) of pages, screen reader users must read through all the navigation links before reaching the main area of the page. Individuals who use a keyboard instead of a mouse similarly must tab through all the navigation links before reaching the main area of the page. Providing a means of skipping these links can significantly improve efficiency and usability for screen reader and keyboard users.

How:
Provide a link at the beginning of navigation lists that points to a target at the beginning of the main content area of the page. This link must be visible to screen reader and keyboard users, but can be hidden from other users. The link can be a text link, or you may put the link on a small image with ALT-text such as “skip navigation”. The link is typically named “skip navigation” or “skip to content”. It is also acceptable to design a page so that navigation links come at the end of the document.

> Note: This is required only if your site contains a set of navigation links at or near the top of the page that repeats on multiple pages of the site.

Ref: 508 o

15. Background colors will be avoided since color schemes can create problems with legibility, but when necessary appropriately contrasting background and foreground colors will be used.

    When background colors are necessary use contrasting foreground and background colors.

    What:
    Web authors can set specific colors to be used for foregrounds (text) and backgrounds. Sometimes images are used as backgrounds.

    Why:
    Users with limited vision or color-blindness may have difficulty reading text that is similar in color to its background.

    How:
    For text, use dark colors on light backgrounds, or vice versa. Avoid combinations of red and green as well as busy background images.

    > Note: Look and feel standards state that usability studies indicate that for body text, users can most easily read black text against a white background. This will be the standard for all state sites.

    Ref: WCAG 2.2

16. Web pages shall be tested with multiple browsers representing commonly used versions and shall be tested with a variety of assistive technologies.

    What:
    Testing includes functional tests with assistive technology, browser and operating system functionality as well as automated testing software.

    Why:
    Testing will determine whether accessibility has actually been accomplished.

    How:

Use browser and operating system accessibility features and leading assistive technology software such as screen readers and magnifiers to test for functional accessibility. Use an automated testing tool to identify common accessibility problems. If possible, do user testing with people with disabilities.

Ref: n/a

17. A link shall be provided to a page entitled "Access Instructions for Users with Disabilities." This page shall include special instructions for accessing Web pages, including a phone number to contact for more information.

    What:
    Contact information for assistance with accessibility should be identified. Contact information should include email, telephone, TTY, and mailing address.

    Why:
    Individuals with disabilities may need to report accessibility problems or request information in an alternate accessible format.

    How:
    List accessibility contact information on the home page or contact page. Inquiries about accessibility, especially requests for materials in alternate format, need to be handled in a timely manner.

    Ref: n/a

18. Separate accessible versions of web pages shall be used only as a last resort.

    What:
    Separate accessible or "text-only" versions are often offered instead of providing a single accessible site.

    Why:
    Manually developing and maintaining a separate "text-only" version of an entire site is tremendously demanding of time and resources. In practice, "text-only" versions are rarely kept complete or up-to-date. Given advances in accessibility techniques and assistive technologies, "text-only" sites are simply not necessary in most cases.

    How:
    Follow these standards to develop a single site that is universally accessible and efficient to maintain.

    Ref: WCAG 11.4; 508 k

APPROVED _____ _____

Secretary of Administration **Date**