<u>Standards and General Application Information for Web-based Technology</u>
<u>As of 4/8/04:</u>

All following standards should be incorporated to the fullest extent possible based on budget and strategic planning for any future Web-based technology. Examples and explanations follow each of the sixteen standards listed below: As the State policy for web accessibility may be updated, the Contractor shall comply with the guidelines enforce at the time and noted in applicable Task Orders.

The following are standards (corresponding to *Section 508 of the Federal Rehabilitation Act, and 36 CFR 1194.22 Web-based intranet and internet information and applications* as of February 6, 2004) to be used by non-exempt units of State government in designing nonvisually accessible web based information technology and web based information technology services.

Examples and explanations follow each of the sixteen standards listed below.

1. A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or in element content).
Without providing alternative text, a screen reader cannot read the actual image or animation and a visually impaired user will not receive the message of the image.

3. Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.
When displaying a media presentation, provide synchronous text alternative(s), and when possible provide for the ability to create a hard copy of this alternative.

3. Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.
When colors are used as a sole method for identifying a screen element or some control, persons who are color-blind or have no/low vision capability may find the web page unusable. Directions such as "press the blue button" should also identify the blue button in some other manner than by just color.

4. Documents shall be organized so they are readable without requiring an associated style sheet.
Web pages using style sheets should be able to be read accurately by browsers that do not support style sheet and by browsers that have disabled the support for style sheets.

5. Redundant text links shall be provided for each active region of a server-side image map.
When a web page uses a server-side image map to present the user with a selection of options, browsers cannot indicate to the user the URL that will be followed when a region of the map is activated. Therefore, redundant text links provide access to the page for anyone not able to see or accurately click on the map.

6. Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.
In Client-side image maps, an active region in a picture can be assigned its own link that specifies what web page to retrieve. HTML allows each active region to have its own alternative text, just like a picture can have alternative text.

7. Row and column headers shall be identified for data tables.
Row and column headers should be labeled. This also affects No. 8 below.

8. Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.
Since screen readers read left to right, and tables do not always present information by this means, it becomes important to label columns and rows in order for the screen reader to convert a table into a format which can be understood by the user. Many assistive technology applications can interpret the HTML codes for tables and will most likely be updated to read the table coding of new markup languages.

9. Frames shall be titled with text that facilitates frame identification and navigation.
Frames can be an asset to users of screen readers and other assistive technology if the labels on the frames are explicit. Labels such as top, bottom, or left, provide few clues as to what is contained in the frame. Labels such as 'navigation bar' or 'main content' are more meaningful and facilitate frame identification and navigation.

10. Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
As designed, blinking elements and 'marquees' move across a screen causing distractions to viewers and possible seizures. By not using these devises or providing a freeze function, this will decrease adverse effects.

11. A text-only page, with equivalent information or functionality, shall be provided to make a web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.
When the creation of an accessible page is not possible, then it is best to provide a link to an alternative page that uses W3C technologies, is deemed accessible, has equivalent information or functionality, and is updated as often as the inaccessible version.

12. When pages have scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.

As script permits the user's computer to share the processing of information with the web server, if there is no 'functional text' included with a script, a screen reader may read the content of the script itself in a meaningless mass of letters and numbers. This mass of data may be text, but it cannot be interpreted and becomes useless. When functional text is provided, that text that is read conveys an accurate message as to what is being displayed by the script.

13. When a web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with the following:

(Note: This provision does not forbid the use of scripts or plug-ins and many of the existing products support these features. If a browser does not support these features; however, some other method of working with the web page must be provided. This places a responsibility on the web page author to know that a compliant application exists, before requiring a plug-in.)

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 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 technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

14. When electronic forms are designed to be completed on-line, 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.
Examples of this: Provide shortcut keys to access form fields. By providing alternative short cuts located on the keyboard, forms and questionnaires can be made clear. Provide nonvisually accessible data entry field content instructions. Test electronic forms during development, wherever possible using a screen reader to ensure the user-friendliness of electronic forms.

15. A method shall be provided that permits users to skip repetitive navigation links.
This allows for the user of assistive technology to track the page content so that they may have the option to skip repetitive navigation links.

16.   When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.
For security reasons or to reduce demands on a computer or its system, accessibility to pages may be further denied or concluded altogether after a specified period of time. A disability may have a direct impact on the speed with which a person can read or respond to the computer. This standard requires only that a user be notified if a process is about to time-out and then also be given the opportunity to answer a prompt asking whether additional time is required.