![Minnesota IT Services logo]

User Instructions for WAVE 3.0.3– powered by WebAIM

The Web Accessibility Evaluation tool (WAVE) has many checks for compliance issues found in the Section 508 and WCAG 2.0 guidelines. The WebAIM site will state 2.1; however, after evaluating the WAVE document page only one 4.1.3 AA was listed, and 4.1.3 is listed as secondary.

The WAVE extension is only available in Chrome and Firefox browsers. Because the extension runs entirely within your web browser, no information is sent to the WAVE server. This ensures 100% private and secure accessibility reporting. The extension can evaluate private, intranet, password-protected, dynamically generated, or scripted web content. Also, because the WAVE extension evaluates the rendered version of the page, locally displayed styles and dynamically-generated content from scripts or AJAX can be evaluated.

Add to Chrome Process

1. Add Chrome browser by searching for Chrome on IE or Edge if you don't have the browser on your computer. You may need to submit a service desk ticket if you are unable to perform this task.
2. Open Chrome and search for Chrome web store
3. Enter WAVE into the search text field and press the enter key
4. Select "Add to Chrome" button

Orientation

1. Open https://www.w3.org/WAI/demos/bad/before/survey.html

2. Select the WAVE icon to the right of your browser address bar on the Chrome menu. You can also trigger a WAVE report by pressing Control + Shift + U (Command + Shift + U on Mac) or by activating the "WAVE this page" context (right click on the page) menu item.
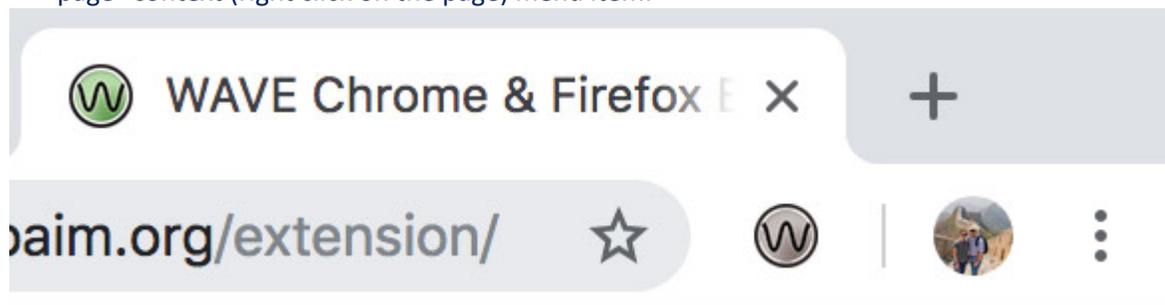
WAVE Views

WAVE displays accessibility information in two ways: Styles and No Styles.

Styles View is set as the default and presents your page with embedded accessibility icons and indicators. Because of the complexity of this view, reports for some complex, CSS-powered layouts may become difficult to read. If this occurs, you can select the No Styles View.

No Styles View displays your page with styles disabled and tables linearized. This view presents the underlying reading and navigation order, the order in which keyboard-only and screen reader users will access the page.

WAVE Panel

WAVE panel has five tabs; Summary, Details, Reference, Structure, and Contrast.

Summary panel provides a list of accessibility information of a page with totals for the following categories; Errors, Contrast Errors, Alerts, Features, Structural Elements, and ARIA.

Details panel provides a listing of all the WAVE icons of the page, with icons for each location.

Reference panel provides an explanation of the WAVE icons and how you can make the page more accessible. The documentation for each icon will indicate any relevant WCAG guidelines.

Structure panel shows regions, landmark structures, and heading structure of the web page.

Contrast panel provides a Foreground Color and Background color textbox. The Color picker and Lightness slider allow you to explore various Contrast Ratios. Both tools will display updated Pass/Fail Status and you can see these applied to the relevant page elements. The panel also provides a dynamic link from **Desaturate page** to **Resaturate page** that allows you to remove all non-grayscale colours.

WAVE icons

WAVE will present your page with embedded icons and indicators. Each icon, box, and piece of information added by WAVE presents some information about the accessibility of your page.

The Summary report section on the WAVE sidebar indicates if WAVE detected any errors or not. The absence of errors DOES NOT mean your page is accessible or compliant. Only humans can determine whether a web page is accessible. **RED** icons indicate accessibility **Errors and Contrast Errors** that need to be fixed. **Orange** icons indicate accessibility **Alerts** which may represent an end user issue and must be manually evaluated .

Other icons are presented to facilitate human analysis of accessibility and structure of the page.**GREEN** icons indicate accessibility **Features**, technique that should improve accessibility that may need to be examined. **BLUE** icons indicate **Structural Elements** that also should improve accessibility and that should be verified. **PURPLE** icons indicate **HTML5 and ARIA** elements or landmarks.

You can view what each icon means by selecting the "More Information" icon (circle with lower case i). The **Icon Index** link at the bottom of the **Reference** panel provides the ability to review each icon. You can view details on all WAVE icons at the WAVE Documentation page https://wave.webaim.org/api/docs?format=html.

WAVE Evaluation of Errors and Alerts

- Select the home menu: http://www.w3.org/WAI/demos/bad/before/home.html

- Select the WAVE icon to the right of your browser address bar on the Chrome menu. You can also trigger a WAVE report by pressing Control + Shift + U (Command + Shift + U on Mac) or by activating the "WAVE this page" context (right click) menu item.

Summary Panel for City Lights Home page

Review the reported issues : (**38 Errors, 2 Contrast Errors, and 36 Alerts**)

- Select the Detail tab

Detail Panel for City Lights Home page

Review 38 Errors

1) **Missing alternative text – 19x**

    a) Select the More Information icon

    b) Review **Why it Matters**: Each image must have an alt attribute

    c) Review **How to Fix it**: Add an alt attribute to the image.

        i) Ensure all informative <img> elements have short, descriptive alternate text and all decorative <img> elements have empty alt attributes (e.g. alt="").

2) **Linked image missing alternative text – 7x**

    a) Select the Error icons; (left navigation menu: Home, News, Tickets, Survey & More links)

        i) Input: If non-text content is a control or accepts user input, then it has a name that describes its purpose. Images that are the only thing within a link (image is a link) must have descriptive alternative text.

3) **Spacer image missing alternative text – 10x**

    a) Select the Error icon

    b) Select the More Information icon

    c) Review **What it Means**: A layout spacer image (which should have null/empty alternative text) does not have an alt attribute as they are decorative and do not convey content.

    d) Review **Standards and Guidelines**: Section 508 and WCAG 1.1.1 Level A

*Tip: to review alternative text issues, change the Styles checkbox to **No** **Styles View***

4) **Missing form label – 1x**

    a) Select the Error icon – QUICKMENU

    b) Select the More Information icon

    c) Review **What it Means**: A form control does not have a corresponding label.

5) **Document language missing – 1x**

    a) Select the Error icon; top of page - it applies to the entire page

    b) Select the More Information icon

    c) Review **What it Means:** Language of Page can be programmatically determined

    d) Review Standards and Guidelines: WCAG 3.1.1 Level A

Review 2 Contrast Errors

1) Very Low Contrast – 2x

    a)   Select the Contrast tab

    b)   Select the first Error icon

    c)   Review the **Foreground** and **Background** colors

    d)   Review the **Normal Text AA**: Fail

    e)   Update the foreground color shade darker to 334148, now it Passes AA for Normal text

    Tip: You do not need to enter #

    f)   Select the second Error icon

    g)   Update the background color shade lighter to becdd4, now it Passes AA for Normal text

Review 36 Alerts

Alerts may represent an end user issue and must be manually evaluated.

1) Suspicious alternative text - 2x

    a)   Select the Alert icon; (images that are at the bottom of the page - with the "Click here" links)

    Tip: you will need to scroll the page to find the issue if WAVE does not redirect the focus

    b)   The image is decorative – but the alt="bullet"

    c)   Select the More Information icon:

    d)   Review **What it Means**: Alternative text is likely insufficient or contain extraneous information

    e)   Review **How to Fix It**: Alt="" (null/empty)

2) Long alternative text - 1x

    a)   Select the Alert icon; dashes are around the logo with the following alternative text - Red dot with a white letter "C" that symbolizes a moon crescent as well as the sun. This logo is followed by a black banner that says "City Lights" which is the name of this online portal. Finally, that slogan of the portal, 'your access to the city', follows in a turquoise green handwriting style and with a slight slant across the top banner.

    b)   Good example: <img src="./img/toplogo.png" alt="Citylights: your access to the city.">

3) No page regions – 1x –

    a)   Select the Alert icon, top of page - it applies to the entire page

    b)   Select More Information icon

c) Review **What it Means**: No page regions or ARIA landmarks were found.

    i) Page Regions make up different regions of web pages and applications so that they can be identified by web browsers and assistive technology (AT). A screen reader is a form of AT.

4) Possible heading 1x

a) Select the Alert icon; dash border is around "Welcome to CityLights"

b) Select the More Information icon; Why it Matters: Heading elements (<h1><h6>) provide important document structure.

Note: Headings facilitate page navigation for users of assistive technologies. They also provide semantic and visual meaning and structure to the document. First level headings should contain the most important heading(s) on the page.

5) Suspicious link text - 4x

a) Select the Alert icon; icon is next to "Click here" and "Read More" links)

b) Select More Information icon

c) Review **What it Means**: Link text contains extraneous text or may not make sense out of context.

    i) Link text may not make sense out of context –tested with screen reader List of links (JAWS shortcut Insert+F7) will display several links listed with the same name. The screen reader user will not be able to differentiate between duplicate link names.

6) Redundant link - 6x –

a) Select the More Information icon

b) Review **The Algorithm... in English:** Two adjacent links go to the same URL.

c) You will need to perform manual analysis with DevTools by pressing F12

d) The "Lack of brains hinders research" href="news.html" is the same as "More"

    link

e) The two "Click here" href="../offsite.html" are the same

*However, "**Read More**" link is not reported because the links do not go to the same URL. They would be screen reader issues as the screen reader would announce "Read more" link for both. **Unless there is additional programmatic code for AT)***

f) Select the More Information icon

g) Review the **Standards and Guidelines**: WCAG 2.4.4 Level A

7) Noscript element - 2x

a) Select the Alert icon – they are usually behind the scenes and located either at the top and/or bottom of the page

b) Select the "No Styles" tab

c) Select the second Alert icon – issue at the bottom of page

d) Scroll to the bottom of the page

e) Select the More Information icon

f) Review **How to Fix it:** Ensure that scripted content is accessible.

g) Review **Standards and Guidelines**: Section 508

8) **Device dependent event handler - 7x**

a) Select Styles tab

b) Select last Alert icon - More>> links

c) Select More Information icon

d) Review **What it Means**: An event handler is present that may not be accessible.

Tip: Flag for keyboard testing! The JavaScript events appear to not be accessible to both mouse and keyboard users (left navigation menu: Home, News, Tickets, Survey and More>> links).

9) **JavaScript jump menu – 1x**

a) Select More Information icon

b) Review **Why it Matters**: When navigating with the keyboard, each change in the select menu triggers a page change, making navigation very difficult. **Flag for keyboard testing.**

10) **Very small text – 1x**

a) Select the Alert icon; copyright text (10px)

b) Review **The Algorithm…in English**: Text is present that is sized 10 pixels (px) or smaller.

i) Best practice - Ensure fonts are no smaller than 9px. The minimum font size only applies to footers, such as a copyright statement.

ii) While there is no official minimum font size for the web, it is generally agreed upon that 16px for body text is a good starting point. Of course, some text will be smaller, and headers will be larger, but for the main body text is usually 16px. That said, WCAG 1.4.4 Resize Text all text on the page can be resized up to 200% of its original size.

11) **Layout Table – 10x -**

a) Select More Information icon

b) Review **The Algorithm…in English**: A <table> element is present that does not contain any header (<th>) cells.

Washginton.edu - Accessible University 3.0

View the inaccessible home page https://www.washington.edu/accesscomputing/AU/before.html. This page demonstrates common web accessibility issues using the fictitious AU home page. See how many web accessibility problems you can identify. **NOTE:** Since the purpose of this page is to demonstrate inaccessible web design, certain features are inherently inaccessible to some groups of users.

WAVE - Complete the What is….

1st Error

1. What is Icon Title: Missing alternative text

2. What is WCAG guideline: 1.1.1 Non-text Content (Level A)

1st Contrast Error

1. What is Contrast Ratio: 2.52.1

Last Alert

1. What is Icon Title: Layout Table

2. What is How to Fix It: Replaced with other HTML elements and styled with CSS to achieve the desired visual presentation.

Resources

- WebAIM - http://wave.webaim.org/help

- W3C - https://www.w3.org/WAI/tutorials/page-structure/regions/ and http://www.w3.org/WAI/demos/bad

- Washington EDU - https://www.washington.edu/accesscomputing/AU/before.html