
# Website Accessibility and Usability Assessment

## March 2021

**Introduction**

The Institute for Human Centered Design (IHCD) conducted a review of the Ashland, MA website (https://www.ashlandmass.com/). This review consisted of an internal assessment by deep content experts which focused on applicable portions of the World Wide Web/Web Accessibility Initiative (W3C-WAI) Web Content Accessibility Guidelines (WCAG 2.1).

**Overview**

The Ashland website is built on ASP.NET with jQuery and other JavaScript libraries. The website incorporates the accessibility features that are built-in with this framework but there are various outstanding issues that present barriers to accessing the site for people with a range of disabilities. The catalog of issues that follows details those issues and provides guidance where applicable on how they can be remediated.

Major issues that present barrier to access include lack of or incorrect use of ARIA states and attributes to ensure access for assistive technology users. The inaccessible main menu, date picker, and automatically rotating carousels stand out as significant examples.

Other issues that need to be addressed include accurate and descriptive alt text, use of images of text where plain text can be used to convey the same information, and descriptive links to aid navigation for users navigating with assistive technology.

**Catalog of Issues**

The catalog identifies the important findings for both accessibility compliance and usability. The catalog includes a WCAG reference with background information on the applicable accessibility guidelines or inclusive design principle, followed by an explanation of the current issue as of internal and user/expert reviews, as well as some recommendations for remediation and additional resources. Each issue should be remedied in all occurrences throughout the website.

**Inclusive Design Recommendations**

- Maintain consistency in link presentation. When most links are through clickable text, it becomes confusing to have links that are clickable images without accompanying linked text.
- Ensure that the visual layout has clear organization and flow. All elements should be aligned in a coherent way. For example, on the Gallery page, all

elements should be either left aligned, or center aligned.
- This website has several links to external pages. All third-party websites and pages should be accessible.

Inclusive design is a framework for the design of places, things, information, communication and policy that focuses on the user, on the widest range of people operating in the widest range of situations without special or separate design.

Inclusive design in the digital realm has been a leading area of focus for the international movement. As is true in other areas of design, web accessibility has been more expansive than the legal requirements for accessibility both in terms of considering a broader spectrum of users and promoting market opportunity and advantage rather than focusing on meeting minimum requirements.

| | Image | Section | Issue Name | Issue Details | Issue Tags |
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| 1 |  | Main Menu | Main Menu Accessibility | **Background**<br>If a screen reader user is forced to move through a submenu before encountering the next menu title, this could cause frustration, as all the content in the submenu would have to be read before arriving at the next menu.<br><br>Users who navigate with a trackpad or mouse should be able to explore expanded content fully without it disappearing, so users are not disoriented. This is especially important for users with dexterity impairments, including those who may have a tremor and might accidentally dismiss content while navigating.<br><br>**Current**<br>The sub menu from each main menu section appears when hovered over. When the mouse no longer is hovering, the menu disappears. This can lead to confusion for users.<br><br>When using NVDA on Firefox, JAWS on Chrome, and VoiceOver on Safari, the main menus aren't identified as having submenus associated with them. Therefore, there is no way to access the submenus which means that users miss out on significant information and an important method of navigating through the website. | Blind, Low-vision, 65+, Brain-based, Dexterity limitations<br><br>WCAG 2.1 1.3.1 Info and Relationships 1.3.2 Meaningful Sequence 1.4.13 Content on Hover or Focus 2.4.3 Focus Order 2.4.6 Headings and Labels 2.4.8 Location 4.1.2 Name, Role, Value |

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| | | | | **Recommendation**<br>Best practice for drop down menus is to let users decide whether they want to expand them rather than automatically doing so, and also notifying the users upon action.<br><br>Consider using aria-haspopup and aria-expanded attributes to identify that each main menu item has a submenu associated with it, and to communicate to users when the submenu is expanded or collapsed. | |
| 2 |  | General Content | Inadequate Focus Indicator | **Background**<br>Visual focus is critical to let keyboard users know which element on the screen has keyboard focus. Failure to provide any or adequate visual focus creates a significant barrier for various user groups. This includes, among others, users with low-vision, and users with dexterity impairments who rely on the use of a keyboard to navigate. It is also an important feature with great benefit for users with some brain-based functional limitations including keyboard users with attention limitations, short term memory limitations, or limitations in executive processes.<br><br>**Current**<br>The given indication of focus on the social media links for keyboard navigation is a box with a thin blue dotted line. It is subtle, lacks the necessary contrast, and makes it difficult to visually determine where the keyboard focus is. This makes navigating especially difficult for keyboard dependent sighted users. | Dexterity Impairments, Low - Vision, Brain-Based Functional Limitations<br><br>WCAG 2.1 AA<br>2.4.7 Focus Visible<br>1.1.1 Non-Text Content |

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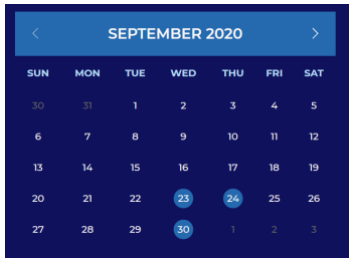
| | | | | **Recommendation**<br>Provide focus indicators that have high contrast with the background the element is on, and ensure that a user can always discern where they are on the page.<br>Consider:<br>outline: white solid 2px; | |
| 3 |  | General Content | Inaccessible Calendar Functionality | **Background**<br>The meaning derived from the content formatting i.e. presenting dates in a calendar, must be preserved when the content is rendered through different sensory modalities. For example, when contents are in table format, the relationships of cells sharing the same column or row must be communicated using a screen reader.<br><br>**Current**<br>When using keyboard navigation on the calendar widget, dates are read as numbers. Dates with events are read as links and all dates must be navigated through to determine which have links to events.<br><br>When using keyboard navigation on the main calendar page, you cannot select a start or end date.<br><br>The dates of the calendar on the previous or next month have low color contrast that make them difficult to read.<br><br>The arrow buttons do not have descriptive text when read using NVDA, Voiceover, and JAWS.<br><br>**Recommendation** | Blind, Low-Vision<br><br>WCAG 2.1 AA<br>2.4.4 Link Purpose |

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| | | | | Ensure that all links have accessible names to let users have context for the elements they are interacting with. The dates of the month should not just read as “1”, “2” ... nor read out the placeholder values of the table. They should be read as “Thursday August one” or something similar. ARIA labels can be used to achieve this.<br><br>See documentation on accessible date pickers such as: https://www.digitala11y.com/accessible-datepickers-roundup/ | |
| 5 |  | General Content | Missing ARIA States | **Background**<br>For all user interface components, notification of changes in states must be available to user agents including assistive technologies. This is especially important for the users who are blind or have low-vision who rely on screen readers to navigate web content. For example, when expandable menus collapse or expand, there should be a notification available for all sensory modalities.<br><br>**Current**<br>Screen readers do not recognize that the Events/Meetings widget and the Twitter/Facebook widgets toggle between two states.<br><br>**Recommendation**<br>Use tab panel or tab which will let users know there is content related to each:<br>See https://www.w3.org/TR/wai-aria-practices-1.1/examples/tabs/tabs-1/tabs.html | Blind, Low-Vision, Brain-based Functional Limitations<br><br>WCAG 2.1 AA 1.3.1 Info and Relationships 2.4.6 Headings and Labels 2.4.8 Location |

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| 6 |  | Widget on Homepage | Keyboard Trap | **Background**<br>Widgets that add iFrames with continuous or long scrolling content become a keyboard trap for many users. For example, a keyboard-dependent user who is navigating the page must tab persistently to bypass the content. Not only is this frustrating for screen reader users, but it also causes problems for users with dexterity issues, who may experience pain due to numerous keystrokes or find it difficult to perform the number of keystrokes it takes to move beyond the trapping iFrame. Also, those who use screen magnification often get caught in these types of iFrames, scrolling through the iFrame rather than scrolling down the webpage as intended.<br><br>**Current**<br>When users navigate inside the Facebook/Twitter widget using a keyboard, they are unable to escape the widget without going through all posts.<br><br>**Recommendation**<br>Consider eliminating the use of iFrames unless essential; where implemented, limit the number of items that appear in iFrame widgets and always provide a header or other mechanisms to allow users an easy way to bypass this content. | Blind, Low-vision, 65+, Dexterity limitations<br><br>WCAG 2.1 2.1.2<br>No Keyboard Trap |
| 7 |  | Meetings and Events | Link Purpose | **Background**<br>Users navigating a web page with a screen reader rely on descriptive link text to understand the purpose and function of a link. Many screen reader users use a shortcut to display a list of links to navigate a website efficiently. | Low-Vision, Brain-Based Functional Limitations |

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| | | | | When link titles are unspecific, users cannot identify which link to select to find the information they are searching for, often leading to confusion and a frustrating user experience.<br><br>**Current**<br>When screen readers read the list of events, when reading "Read On…" it does not read the associated heading for which the user would request more information on.<br><br>**Recommendation**<br>Ensure that all links directly reference the content they are referring to. For example, The link to read more information on the School Committee Meeting would read "School Committee Meeting – Read On." Consider editing the visual link so that the text on-screen is more descriptive as well. If editing the visual link is not feasible, use aria-label, aria-labelledby or aria-describedby to achieve compliance. | WCAG 2.1 AA 1.3.1 Info and Relationships |
| 9 |  | General Content | Automatically Rotating Images/Improper Alternative Text | **Background**<br>Images must have alternative text. This gives equal access to the information conveyed in the image for low-vision and blind users who use screen readers.<br><br>**Current**<br>Photo carousels on several pages rotate automatically and have no alternative text.<br>(For Example: https://www.ashlandmass.com/229/Department-of-Human-Services | Low-Vision, Brain-Based Functional Limitations<br><br>WCAG 2.1 AA 1.1.1 Non-text Content 1.1.1 Non-Text Content |

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| | | | | https://www.ashlandmass.com/184/Ashland-Public-Library<br>https://www.ashlandmass.com/172/Elder-Services<br>https://www.ashlandmass.com/204/Recreation)<br><br>**Recommendation**<br>Allow users to control the rotation of photographs with carousel controls along the bottom of the carousel, or buttons on either side of the image. Ensure that users can stop the automatic rotation with a pause/stop button. All images should have accurate and descriptive alternative text. Where images are used as decorative elements, null alt text must be provided to ensure that assistive technology users are aware of the content on the screen. See: https://webaim.org/techniques/alttext/ | |
| 10 |  | General Content | Improper Alternative Text | **Background**<br>Text instead of images of text must be used to present information if the author can achieve the same visual presentation. If not, user interface components such as links with labels that include text or images of text must have ARIA labels that contain the text that is presented visually. This gives equal access to the information conveyed in the image for low-vision and blind users who use screen readers.<br><br>**Current**<br>The alternative text for this image is “Level 5.” It does not provide any of the text in the image or instructions on how else to access that information. This is especially problematic for important notifications, updates, | Low-Vision, Brain-Based Functional Limitations<br><br>WCAG 2.1 AA 1.1.1 Non-text Content 1.4.5 Images of Text |

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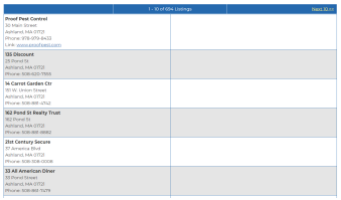
| | | | | instructions, and other town information that residents need and rely on.<br><br>**Recommendation**<br>Best practice is to avoid using images of text where plain text and a supplemental image can be used to convey the same information. In the interim, provide an accessible equivalent to the image of text, either by having the alternative text describe all the text in the image or by providing a link to another location where the information can be found. | |
| 11 |  | Resource Directory | Meaningful Navigation | **Background**<br>Data should not be represented in tables unless necessary. The purpose of data tables is to present tabular information in a grid, or matrix, and to have column or rows that show the meaning of the information in the grid. Sighted users can visually scan a table. They can quickly make visual associations between data in the table and their appropriate row and/or column headers. Someone that cannot see the table, however, cannot understand when a table is being used for a list.<br><br>**Current**<br>Search results are displayed in only the first column of the table, but screen readers must read through every cell when describing the page.<br><br>**Recommendation**<br>Tables should never be used to convey information unless necessary and considered the best method to present | Low-Vision, Brain-Based Functional Limitations<br><br>WCAG 2.1 AA 1.3.1 Info and Relationships |

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| | | | | information (for example, a bus schedule). Provide the search results as plain text to ensure ease of navigation and easy access to information. | |
| 12 |  | Resource Directory | Meaningful Navigation | **Background**<br>Assistive technology users should have a logical, easy way to navigate through website content with equivalence to sighted users' navigation by scrolling or skimming through webpages. Assistive technology users should not be forced to navigate through lengthy, repetitive elements that make the experience difficult and cause fatigue.<br><br>**Current**<br>Screen readers read all letters before proceeding to main search content. JAWS on Chrome reads each vertical bar separating each link.<br><br>**Recommendation**<br>Given that the list of alphabets serves as a way to filter content, we recommend that it be integrated into the format that other filters are presented in: by using a drop-down menu or list that is easy for assistive technology users to bypass. In the interim, the A–Z links could be moved to the bottom of the page to reduce forced navigation and potential fatigue. | Low-Vision, Brain-Based Functional Limitations<br><br>WCAG 2.1 AA<br>1.3.1 Info and Relationships |

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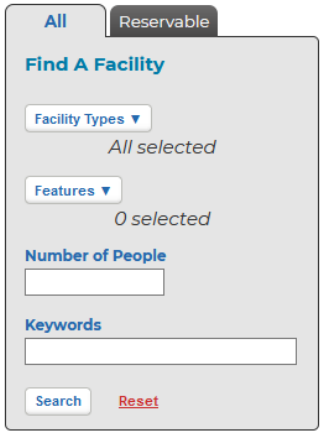
| 13 |  | Facilities | Missing ARIA States | **Background**<br>For all user interface components, notification of changes in states must be available to user agents including assistive technologies. This is especially important for the users who are blind or have low-vision who rely on screen readers to navigate web content. For example, when expandable menus collapse or expand, there should be a notification available for all sensory modalities.<br><br>**Current**<br>Screen readers do not recognize Facility Types or Features as dropdown menus. JAWS on Chrome does not recognize “All” and “Reservable” as tabs, only as list items.<br><br>**Recommendation**<br>Accurate implementation of ARIA states and attributes on these elements would make them accessible to users navigating with assistive technology.<br>See:<br>https://www.w3.org/TR/wai-aria-1.1/ | Low-Vision, Brain-Based Functional Limitations<br><br>WCAG 2.1 AA 1.3.1 Info and Relationships |