Hurricane Evacuation Zone Finder Accessibility Report:

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The Hurricane Evacuation Zone Finder application was created using a template that is also being used by other maps such as [Crime Victims Services](https://maps.nyc.gov/victimservices/). The Digital Accessibility Coordinator at the Mayor’s Office for People with Disabilities tested it for accessibility and the GIS team at the NYC Department of Information Technology and Telecommunications implemented suggestions and fixed bugs. It has been enhanced for accessibility. Changes include, screen reader compatibility, keyboard access and color contrast. The changes in this report will also be applied to all maps that use this template.

# Screen Reader Enhancements:

The application has been tested using the following operating systems, browsers and screen readers:

## Windows Seven

* Browsers
  + Mozilla Firefox version 60.6.3 Extended Support Release
  + Google Chrome version 74.0.3729.157
* Screen readers
  + JAWS 18.0.5038
  + NVDA version 2018.2.1

## Mac OS 10.12.6

* Browsers
  + Safari Version 10.1.2
  + Google Chrome version 74.0.3729.157
* Screen Reader
  + Voiceover

## iOS 12.3

* Browser
  + Safari
  + Google Chrome version 74.0.3729.121
* Screen reader
  + Voiceover

## List of Enhancements

* ARIA-hidden=true is used to hide content that is not visible on screen
* ARIA-hidden=false is used to unhide previously hidden items
* Shifting screen reader and keyboard focus to appropriate areas
* Fixed the keyboard tab order
* Addition of accessible Toggle buttons for expanding/collapsing functionality
* Addition of alt-text
* Use of ARIA-live to announce number of search results
* Color contrast enhancements to map and keyboard visual focus

## Known Issues:

The following issues were identified and will be addressed at a later date.

* When using Google Chrome, NVDA has some focus issues when the initial modal dialogue pops up. Users have to press shift tab in order to navigate to the “View Map To Find Your Evacuation Zone” link.
* Screen readers do not read the options in the translate combo box when using Google Chrome or Mozilla Firefox on Windows. This is a known issue with all combo boxes on Chrome and Firefox.
* Shifting focus from search field to search results using Safari with Voiceover on Mac and iOS is inconsistent
* When the directions button is pressed, screen readers shift focus to the appropriate area but do not announce anything. This is true for all combinations used to test
* While viewing directions, voiceover does not read the alt-text for start and end location when using Safari or Google Chrome on iOS
* When viewing on mobile there is an empty <h2> heading

# Screen Reader Instructions:

Upon launching the finder, screen readers will only have access to the visible content on screen. The first screen is a message that informs visitors if there is an evacuation order in affect. At this point, the rest of the application is hidden from screen readers because that content is not active yet. Screen reader users can press enter on the “Screen Readers Instructions” link to learn how to navigate the different areas of the application. Keyboard and screen reader users can press enter on the “View Map To Find Your Evacuation Zone” link to proceed.

In the next screen, screen reader focus is dropped onto a search field and the application is no longer hidden from screen readers. Users can input an address to find their zone as well as the nearest evacuation centers. If an address is entered and there is only one result, focus is shifted to a dialogue that alerts the user of their zone and if there is an evacuation order in affect. The user can then dismiss the dialogue and use headings to navigate to the list of evacuation centers.

If an address is entered and it has more than one result, focus is dropped on a list of search results. Users can press tab to cycle between the results. Press enter again on the correct address and focus will be shifted to the dialogue that has zone and evacuation order information. After reading the dialogue, users can dismiss and use headings to navigate to the list of evacuation centers.

Visitors can then find a list of evacuation centers near their address by using headings to navigate. The beginning of the search results area is formatted as a heading level 2. Each evacuation center has a heading level 3 associated with it. Visitors can also navigate to the banner, search and list of evacuation centers using ARIA Landmark Regions.

When reading details for each evacuation center, visitors can use the “Locate this facility on a Map” button to center the map on this facility. Screen reader focus does not shift anywhere and stays on the button.

Visitors can also get directions to any evacuation center by pressing the “Directions” button associated with that facility. Once activated, screen reader focus shifts to a new area with google maps and MTA Accessible Trip Planner directions. Please note that screen readers might not announce that focus has shifted to this new area.

The start location will be the address previously entered. Toggle buttons have been added for users to choose mode of travel. These toggle buttons read the correct state for screen readers. For example, the default directions are walking. When screen reader users first land in the directions area, they will hear “Walking, toggle button pressed” when they encounter it in the tab order. Directions automatically update when the toggle buttons for “Walking,” “Driving,” “Bicycling” and “Trip Planner” are pressed.

There is also a direction heading placed before the beginning of the directions. Screen reader users can navigate by heading to skip the form fields for start and end location as well as mode of travel.

Alt-text has been manually added to the icons that accompany the step-by-step directions. To return to the map and list of evacuation centers, press the “Back to Finder” button. When directions are up, the rest of the application is hidden from screen readers to avoid confusing users. Please note that when using voiceover on iOS, the alt-text for start and end location is not read in both Safari and Google Chrome.

Finally, if the Trip Planner toggle button is pressed, users are taken to an external website. The user will then encounter an accessible redirect page where they have to press enter on “Click to be redirected” button in order to proceed.

# Color Contrast Enhancements:

The default transparency of the application has been changed to 55% to enhance color contrast. There is also a Transparency button located near the top. This button allows users to customize the transparency of the map.

* In general, Webaim Color Contrast Checker was used to test and improve color contrast for all buttons, backgrounds and links.
* A border has been added around the search field so that it is easier to see.
* The color contrast for keyboard visual focus has been enhanced so that it is easier to see which item is currently in focus.

# Keyboard Enhancements:

Keyboard Access has been added to toolbar buttons and list of evacuation centers.

Keyboard tab order was also fixed for the direction page. There was a keyboard trap that would hinder keyboard users from accessing the toggle buttons that was resolved.

# Contact:

If you would like to share feedback about your experience using this finder, please [contact the Digital Accessibility Coordinator](https://www1.nyc.gov/nyc-resources/contact-the-citys-digital-accessibility-coordinator.page) at the Mayor’s Office for People with Disabilities.