Mayor's Office for People with Disabilities

Office of Technology & Innovation

City of New York Digital Accessibility Report 2023

November 20, 2023

Arthur Jacobs
Digital Accessibility Coordinator

Table of Contents

Introduction

This is the fourth Digital Accessibility Report required by Local Law 26 of 2016 (LL26), which required the City to adopt a website accessibility standard. Following enactment of the law, the City adopted WCAG 2.0 as its standard and hired its first Digital Accessibility Coordinator to oversee the City's efforts towards meeting the requirements of LL26. In 2021 the City adopted WCAG 2.1 Level AA, which is the successor standard to WCAG 2.0, as its web accessibility standard.

This year's report focuses on:

- The WCAG 2.1 standard and the City of New York's Auditing Tool.
- An overview of the City's digital accessibility efforts since the 2021 Report.
- Progress reaching goals established in previous reports.
- Goals for the 2025 Digital Accessibility Report.

Appendices

This report includes three appendices. Each is explained below.

Appendix 1: Survey Tool

The City of New York Web Accessibility Scoring Methodology is at the heart of the Survey Tool. It is based on the WCAG 2.1 Level AA criteria. The methodology is explained in more detail in the "info" tab of this spreadsheet as well as in Part 3 of this report.

Appendix 2: Bug Report Tool

This tool allows those providing accessibility feedback with a way to log and track the issues found on a given website.

Appendix 3: NYC Websites

A list of websites created by, or on behalf of, the City. This list represents the sites that we are aware of but is not an official list of all City websites. The spreadsheet is broken into three tabs, a full list of websites, those newly created since the previous report, and those decommissioned since the previous report.

Part 1: What is Digital Accessibility?

The web is the primary platform New Yorkers use to learn about, apply for, and access City services. The City also uses email, podcasts, social media, and electronic documents to inform and interact with their constituents. The digital space is always evolving and advancing.

Not everyone's needs are the same. Almost one million New Yorkers report having some form of disability. Design, whether in physical architecture or on an organization's website, can affect a person's ability to access something they need. Many members of the disability community use assistive technology to access Information and Communications Technology (ICT). The layout, design, and coding of the ICT that people with disabilities interact with will determine whether users feel successful or frustrated in accomplishing their task.

Accessibility is the practice of designing or enhancing the physical, social, or virtual space so that people of all abilities can perceive and interact with their environment independently. As a public entity, it is the City's responsibility, under the Americans with Disabilities Act (ADA) and other federal, state, and local laws, to ensure all New Yorkers can access the information and services the City makes available through ICT.

Digital accessibility pertains to all digital products used by the City of New York. Examples include:

- Web-Based Content: including websites, web portals, and web apps.
- Mobile Apps: like NotifyNYC and AccessHRA.
- Electronic Documents: including flyers, reports, guides, and presentation decks in any electronic format.
- Social Media Posts: like those on Facebook, Instagram or the platform formerly known as Twitter.
- Email Newsletters.
- Videos: whether hosted directly on an agency website, or from a streaming service like YouTube.
- Online Learning Modules.

Defining Disability

For the purposes of digital accessibility, this report will focus on disabilities that affect the eyes, ears, hands, and brain. Some examples are blindness, deafness, learning disabilities, cognitive disabilities, motor-function disabilities, neurological disabilities, or a combination of the above.

What is Assistive Technology?

Some people with disabilities use assistive technologies. Assistive Technology (AT) is any piece of equipment, product, or system that is used to maintain or improve the functional capacities of people with disabilities. Common examples include wheelchairs, hearing aids, crutches, or even glasses and contact lenses.

Examples of Assistive Tech

The following are examples of assistive technologies that are used by people with disabilities to interact with websites and other ICT. There are many assistive technologies for a variety of disabilities.

Screen Readers

A screen reader is software that uses synthesized speech to read the content and structure presented visually on a computer or mobile device's screen out loud. The user is able to use a keyboard or touch screen to interact with and navigate through the content.

Screen Magnifiers

People with low vision use screen magnifiers to enlarge the content of the screen. Screen magnifiers can also change background and font colors for better contrast.

Hands-Free Technologies

For those with motor-function disabilities, there are ways to control the computer through various means. Hands-free technologies include the use of voice commands, head wands, mouth sticks, switch controls, and alternative keyboards. Read more about assistive technology for motor-function disabilities.

Part 2: The City's Current Standard

The City of New York has adopted the Web Content Accessibility Guidelines (WCAG) 2.1 Level AA standard. This standard is used by many other organizations worldwide. WCAG 2.1 adds to the previous WCAG 2.0 criteria. The guidelines were created by the World Wide Web Consortium (W3C).

An Overview of WCAG 2.1

The Web Content Accessibility Guidelines 2.1 are based on four principles of accessibility. These principles dictate the functionality or features a website must have to be accessible.

These principles state that content must be:

1. Perceivable
2. Operable
3. Understandable
4. Robust

Perceivable

Website users must be able to perceive all the information that is being presented regardless of their ability to see or hear. Criteria pertaining to this principle start with the number 1—such as 1.1, 1.2.1, 1.2.3, etc. Examples of these items include: 1.1 Non-Text Content, 1.3.1 Info and Relationships, and 1.3.2 Meaningful Sequence.

Operable

User interface components and navigation must be operable. The interface should not require interaction that a user cannot perform. Criteria pertaining to this principle start with the number 2—such as 2.1.1, 2.1.2, etc. Examples of these items include: 2.1.1 Keyboard, 2.1.2 No Keyboard Traps, and 2.2.1 Timing Adjustable.

Understandable

The content and interface must be understandable. Users must be able to understand the information as well as the operation of the user interface. The content or operation cannot be beyond their understanding. Criteria

pertaining to this principle start with the number 3—such as 3.1.1, 3.1.2, etc. Examples of these items include: 3.1.1 Language of Page and 3.1.2 Language of Parts.

Robust

As technologies and user agents evolve, the content should remain accessible. Criteria pertaining to this principle start with the number 4—such as 4.1.1 and 4.1.2. Examples of these items include: 4.1.1 Parsing and 4.1.2 Name, Role, Value.

Part 3: NYC's Website Accessibility Scoring Methodology

The following methodology was created to measure accessibility based on the WCAG 2.1 Level AA standard adopted by the City of New York.

For every page tested, various techniques are used to measure compliance with the WCAG criteria. Those criteria scores are then averaged together to create a score for that page. For each website, a minimum of five pages should be tested. These page scores are then averaged together to create the City of New York Accessibility Score for that website. This score represents the percentage of compliance with WCAG 2.1 Level AA. The City has set a score of 85 as the minimum "passing" score.

Measuring and Scoring for Specific WCAG Criteria

Using the Survey Tool in Appendix 1, each WCAG criterion is tested and given a score between 0 and 1. For example, 1.1.1 Non-Text Content pertains to the number of images and other non-text content that appear on a page. To score, the number of images on a page is recorded, then the number of instances of appropriate alt-text for each image is recorded. Scores are then recorded for the accessibility of other non-text content. An average is then calculated from those scores. For example, if a page has six images, and all six have appropriate alt-text, that will give images a score of 1. If there are no maps, data visualizations, or CAPTCHAS, then the overall score will be a 1. On pages with these features, all the scares are averaged to give a final score for this criterion (i.e., images: 1, maps: .5, CAPTCHA: 1 = 0.83).

Some items are given a score of 0 or 1, because it either exists or does not—for example, 2.1.2 No Keyboard Traps. There either are keyboard traps on the page or there are not. Whereas, other items are scored based on an evaluation of the criterion as applied to a particular page's content. For these items, available scores are at either the quarter- or half-point. In all these cases, each criterion's score cell has a dropdown with the available scores for that criterion.

It is important to note that not every criterion is applicable for all pages. For example, 1.2.1 Audio Only and Video Only (Pre-Recorded) is not applicable if the page has no media on it. In these cases, N/A is used in the score field and that criterion is not included in the average calculation for the page.

Page and Website Scoring

As mentioned above, all the scores for the pages audited for a given website are averaged together to calculate the accessibility score for the entire website. The scoring methodology measures overall percentage of WCAG 2.1 Level AA compliance. Therefore, full compliance would be a score of 100. The City is currently endeavoring to reach an accessibility score of 85. We anticipate raising this benchmark in the future.

For more details about the scoring of individual criterion, please refer to Appendix 1's "Info" tab.

Testing Methods

To measure compliance with WCAG 2.1 guidelines, testing should be performed on a variety of pages that represent the overall content of a website. Testing involves measuring how the elements and content that make up a webpage reflect the 52 success criteria outlined in the WCAG 2.1 Level AA guidelines. The Success Criteria are measurable aspects of the accessibility of the content and components that make up a webpage.

Some examples of these include:

- *Color Contrast:* text, links, and other significant areas must meet the required color contrast ratio with its background.
- *Text Resizing:* users should be able to magnify the webpage up to two times with the browser.

- *Reflow:* content should be responsive to the size of the viewport such that a user is only required to scroll vertically without loss of content or functionality.
- *Alt-Text:* text descriptions should be included for images, logos, and pictures. This text is not visible on screen, but is embedded for screen reading technologies to interpret for users.
- *Keyboard Access:* all links, buttons, and other interactive controls should be navigable by pressing the tab key.
- *Heading Structures:* pages should be structured using headings and sub-headings that make sense and are properly coded to work with assistive technologies.
- *Forms:* all input fields should have text labels and error validation that is easy to perceive and correct.
- *Dynamic Content:* modal dialogues, accordions, status messages, and other page changes that occur without loading a new page need to move focus to the proper area, automatically announce changes, and hide or unhide relevant content as is appropriate.
- *Content that Plays Automatically:* content that is longer than three seconds and is played automatically should be easily disabled.
- *Captions:* captions should be provided for video or audio content.
- *Audio Description:* videos should have an audio track that verbally describes what is happening visually.
- *Video Controls:* all embedded videos should have accessible controls with accessible text labels and should not disappear once the video starts playing.
- *Link Labels:* all links must have unique labels that are descriptive of the page they lead to.

A combination of the following two methods are used to measure compliance:

- *Automated Testing:* an automated tool is usually a web browser add-on that generates a report when the user submits a webpage address. Such a report would contain a list of errors. For example, a page might have

three images that are missing alt-text. Note: automated testing is effective at detecting some but not all types of accessibility barriers.

- *Manual Testing:* manual testing entails a person visiting the website using assistive technology and manually testing it by going through the content to find accessibility barriers. For example, a user might report that a page has a pop-up dialogue that is not made available to assistive technology and keyboard users.

Automated Testing Tools

Several automated tools were considered for the purposes of testing websites' accessibility. These tools include aXe, tota11y and WAVE. WAVE was found to be the most useful to test for color contrast, missing document language, and duplicate labels. The W3C Markup validation Service was used to test for the 4.1.1 Parsing criterion.

Manual Testing Tools

Manual testing should use a combination of assistive technologies, web browsers, and operating systems.

For the Windows operating system, the following assistive technologies should be used: JAWS and NVDA. These screen readers should be used with the following browsers when doing testing: Google Chrome and Mozilla Firefox.

For the MacOS, the following browsers should be used in conjunction with its built-in screen reader, called Voiceover: Safari and Google Chrome.

In addition to the above, testing should also be done on both iPhone and Android mobile devices using their built-in browsers and screen readers.

Part 4: City of New York Websites

The City of New York owns and manages websites that are both public-facing and for City employee use. Internal websites include, for example, training modules, employee self-service portals, and resource directories. The websites listed in Appendix 3 are divided into two main categories—NYC.gov Hosted and Outside Hosted. Each of these categories is further

broken down by the platform the site uses, or type of site in some cases. As of this report, this list has 342 websites.

NYC.gov Hosted Websites

Of the 342 websites reported, approximately 70% (238) are hosted on the NYC.gov server. About 84% (199) of the websites on the NYC.gov server utilize the TeamSite CMS, which is a standardized template used to manage the content of City sites.

The remaining sites on the NYC.gov server fall into three subcategories. Around 5% (13) use the Content API CMS, which is another aspect of the TeamSite system that provides more flexibility for developers and content creators. Seven percent (7% - 16) of the sites are Web Apps. The remaining 10 websites (4%) use a variety of other platforms. In previous reports, there were sites on what was referred to as the "old" template. All these sites have been transitioned to other platforms, with the final site set to launch in early fall.

Outside-Hosted Websites

Approximately 30% (104) of the websites reported are on outside hosted servers. Of these, 46% (48) use a WordPress hosting environment. Three percent (3% - 3) are Web Apps. The remaining 53 websites (51%) use a variety of other platforms.

Part 5: Accessibility Plan

In the 2017 Web Accessibility Report, an accessibility plan was created. The plan set accessibility goals that OTI (formerly DoITT) and MOPD work together to achieve.

Progress on NYC.gov Hosted Websites

'Old Template' and Non-Templated Websites

Since the 2021 Report, all the websites using NYC.gov's old template have transitioned to either TeamSite or WordPress. The final site to transition, the NYC Police Pension Fund, went live on September 13, 2023.

NYC.gov server-hosted "non-templated" (referred to in the List of NYC Websites as 'NYC.gov-Hosted: Other') website accessibility has been addressed in the following ways:

- The Digital Accessibility Coordinator continues to reach out to the various City agencies and offices that manage sites hosted on the NYC.gov server that utilize hand-coded content or are built using other development platforms outside of TeamSite as the need for accessibility remediations are discovered.
- OTI and other City agencies inform the Digital Accessibility Coordinator about new "non-templated" websites for accessibility testing and remediation.

Websites Using TeamSite and Content API Templates

Websites using TeamSite and Content API are comprised of two components—the template, which sets the overall look and feel of the site, and the content placed within that structure. The template's available elements are maintained by OTI. Each website's content is managed by the IT professionals and communications personnel of each agency or office that "owns" it.

Improvements to the TeamSite Template and Forms

Over the past six years, the Digital Accessibility Coordinator and OTI have improved the contact forms to include better error messaging, and the Web Ops team continues to test forms to ensure continued functionality.

Previous reports identified many enhancements made to the TeamSite template. These enhancements continue to be rolled out as content is updated by agencies. In addition, further enhancements have been made to the Programs and Services element used on many homepages. A more accessible language translation button has been developed and is in the process of undergoing testing to ensure its proper functioning prior to roll out across all sites.

Working with Agencies to Improve Their Content's Accessibility

Once OTI publishes a new site, the agency or office which owns it is responsible for the accessibility of the content as it is updated. The Digital

Accessibility Coordinator and OTI work to train content creators on how to create accessible content.

These trainings include the following concepts:

- Use of plain language.
- Color contrast.
- Link text and button labels.
- Alt text for images.
- Use of headings and heading structures.

Accessibility Review Process

Before a new website goes live on NYC.gov using a City template, it goes through a site review process conducted by OTI. The Digital Accessibility Coordinator is part of that process, ensuring that all new websites that the City creates using TeamSite are tested and enhanced for accessibility before launch.

The Digital Accessibility Coordinator uses a process to log bugs and track progress of accessibility enhancements. The Bug Report Tool is an Excel spreadsheet and is included here as Appendix 2.

Outside-Hosted Website Accessibility

The 2017 Report set a goal for the Digital Accessibility Coordinator to work with vendors whenever possible to improve the accessibility of outside-hosted websites. As MOPD and OTI are informed of new procurements, the Digital Accessibility Coordinator reaches out to the agency doing the procurement to work with them and their vendor to be sure they understand their accessibility obligations and provide support and feedback on the website or app being developed.

In the past two years, the Digital Accessibility Coordinator has worked with various agencies and vendors on accessibility enhancements to outside-hosted websites. One example is working with Esri as they work to improve the accessibility of their finder map template which is being used to update the current finder maps used by City agencies.

The Digital Accessibility Coordinator will continue to work with agencies and vendors to enhance outside-hosted websites' accessibility. To ensure that future outside-hosted websites are accessible, the Digital Accessibility Coordinator is collaborating with OTI and City Hall to include accessibility requirements in all Information and Communications Technology procurements.

Progress Reaching Other Goals

Previous Reports set the goals listed below.

- **Apply Accessibility Standards to Internal Websites**
  Progress: Internal websites such as CityTime and Employee Self Service have undergone accessibility enhancements and will continue to receive more enhancements. In addition, sites on the City's internal Intranet have begun the process of relaunching on the Content API platform.
- **Create a Long-Term Strategy for Phasing Out Inaccessible Legacy Sites and Portals**
  Progress: The Digital Accessibility Coordinator has been communicating with various agencies to inform them that their legacy software or website is not accessible and stressing the importance of including accessibility when replacing existing platforms. Additionally, agencies will be evaluating these sites as part of the development of their 5 Year Accessibility Plans.
- **Establish a Citywide Policy Regarding Audio Description and Captioning for All Video Content**
  Progress: All agencies trained in accessibility are informed that this is required by the WCAG 2.1 standard (See WCAG Success Criteria 1.2.2 and 1.2.5). We continue to work on the establishment of a formal Citywide policy as this seems to be one of the more difficult items for agencies to comply with. MOPD has created specific guidance on how to make videos accessible. This guidance is available on the MOPD Digital Accessibility Guides page.
- **Produce a Plain Language Policy for City Agency Websites and Content**
  Progress: All digital accessibility trainings conducted by the Digital Accessibility Coordinator include plain language guidance. MOPD has created guidance on making documents accessible which includes

information on plain language best practices. It can be downloaded on the MOPD Digital Accessibility Guides page.

- **Produce an Accessibility Policy for Electronic Documents Posted on City Agency Websites**
  Progress: MOPD created guidance on making accessible documents that is available for download on the MOPD Digital Accessibility Guides page. The Digital Accessibility Coordinator continues to ensure MOPD's electronic documents are accessible. They also support other agencies in the accessibility of their electronic and print documents both by assisting with the actual remediation of documents and by continuing to educate agencies on their accessibility obligations and how to meet them.
- **Produce an Accessibility Policy for Web Apps and Widgets on City Websites**
  Progress: MOPD and OTI continue to work with agencies to make maps and data visualizations accessible. Also, all agencies trained in accessibility are informed that all widgets, data visualizations, and other add-ons must be accessible. MOPD is in discussions with OTI to craft a policy around this type of content, which would also include the non-use of accessibility overlays.
- **Produce an Accessibility Policy for Mobile Apps Associated with City Services**
  Progress: MOPD is working to craft a policy for mobile app accessibility.
- **Updated WCAG Standard vs. DOJ Rule**
  Progress: W3C released an updated Recommended Standard, WCAG 2.2, on October 5, 2023. The DOJ recently issued a notice of proposed rulemaking regarding accessibility of web information and services of state and local governments. They have proposed making WCAG 2.1 Level AA, with a few exceptions, the applicable technical standard used by state and local governments. It remains to be determined if the City will follow the DOJ Rule (once issued), or adopt the WCAG 2.2 Standard, which is more stringent than what DOJ has proposed.
- **Digital Accessibility Portal**
  Progress: To streamline the auditing and reporting process, the Digital Accessibility Coordinator will be expanding the MOPD Digital Accessibility Resources webpage to create a portal. It will be a place for MOPD, and eventually other agencies, to post their audits and bug reports. This

website will act as a database of all audits as well as provide guidance for NYC agency professionals and the public. We are still working to create the content for this site and hope to launch it soon.

Additional Accessibility Efforts

In addition to the above, the City has been engaging in additional efforts to reach our accessibility goals.

MyCity Portal

Over the last two years, the City has begun the process of developing a unified portal to allow New Yorkers access all City programs and services called MyCity. This portal is being designed with accessibility in mind. The Digital Accessibility Coordinator has advised the team at OTI on the importance of ensuring accessibility from launch. We continue to work with them as issues are discovered. MyCity has launched with resources available for Child Care, Business, Jobs, and Benefits. More resources will continue to be added.

Website Accessibility Statements

In January of this year, Local Law 12 went into effect requiring all City agencies to create and regularly update a 5 Year Accessibility Plan. These plans are meant to cover all aspects of accessibility, including digital access. An initial requirement of Local Law 12 was for every agency to post a Website Accessibility Statement and provide a mechanism to report accessibility issues. These statements are now available. See e.g., MOPD's Website Accessibility Statement and the City's Website Accessibility Feedback Form, which is used by most agencies. These 5 Year Plans will be published for public comment by the end of this year.

Digital Inclusion Officers

A recommendation we are making to agencies as they develop their 5 Year Accessibility Plans is to designate a Digital Inclusion Officer (DIO). The DIO would serve as the main point person within an agency on digital accessibility and as the liaison with OTI and MOPD on digital accessibility issues. The DIO would act as an accessibility advocate in the agency. They would be expected to complete the full suite of digital accessibility trainings that MOPD provides within 90 days of designation to ensure they have the knowledge to effectively fulfill their role.

DIOs will have the following responsibilities:

1. Work with OTI, MOPD and their agency's leadership to identify a list of digital assets that will be prioritized for accessibility enhancements over the next year, two years, etc.
2. Monitor samples of outgoing communications including emails, social media posts, electronic documents and videos and test them for accessibility to ensure consistency in the overall accessibility of outgoing communications. Where problems are found, recommend corrective actions.
3. Be the agency's subject matter expert whenever new Information and Communication Technology is being considered for production or procurement. They would also work with MOPD and OTI to ensure appropriate language related to accessibility requirements is included in all procurement documents and to ensure the resulting ICT is indeed accessible upon launch.
4. Identify training needs within their agency and collaborate with OTI and MOPD on organizing trainings for staff in their agency.
5. Collect and share data with MOPD for the bi-annual report required by Local Law 26.

ASL Translations

MOPD and OTI have been working together to develop a way that translations in ASL can be provided for the content on an agency's website. There is currently a working prototype on MOPD's About page. We are continuing to develop this feature and hope to be working with agencies using the TeamSite CMS to roll this feature out onto their sites throughout the next few months. Once it is successfully implemented across TeamSite, MOPD and OTI will then begin working on a solution that will also work on Content API sites, and then sites on other platforms.

Conclusion

Over the past six years, the City has devoted significant efforts to auditing websites, applying accessibility enhancements, creating guidance materials, and conducting trainings to get City employees excited about accessibility. The Adams Administration wants all New Yorkers to be able to access the resources the City has to offer and has placed a strong emphasis on access for all, including those with disabilities. We believe that the efforts described in this report are moving the City forward towards the goal of making all its digital assets accessible to people with disabilities.