NYC Mayor's Office for People with Disabilities | Information Technology & Telecommunications

The City of New York Digital Accessibility Report 2019

July 1, 2019

Abstract: This report analyzes the state of accessibility of websites managed by or on behalf of the City of New York. It contains progress since the 2017 report including, websites enhanced for accessibility, status meeting goals, and a plan to reach Web Content Accessibility Guidelines (WCAG) 2.1 Level AA compliance. Accessibility enhancements made to digital maps, mobile apps, electronic documents, social media posts and videos will also be covered. 12 websites were audited across different templates for a WCAG 2.0 Level AA compliance score. "New" template websites had an average score of 92.0%. "Old" template websites had an average score of 61.6%. Non-templated websites had an average score of 88.3%. Outside-hosted websites had an average score of 88.2%. The average score for all websites audited is 82.5%.

Part 1: Introduction

In March of 2016, the City of New York passed Local Law 26. It requires that City agencies make a reasonable effort to make their websites accessible, appoint a designee, adopt standards and publish a web accessibility report every two years. Since then, the City of New York has accomplished the following:

- Hired two Digital Accessibility experts
- Released a web accessibility report in 2017
- Enhanced over 100 websites for accessibility
- Created a digital accessibility toolkit
- Organized two conferences on the topic of digital inclusion

- Enhanced the accessibility of electronic documents and multimedia content
- Has begun creating videos with captions and audio descriptions
- Has made five mobile apps accessible
- At least ten City agencies have begun posting on social media with alt-text

This is the second report required by Local Law 26. It will cover the following:

- Introduction to Local Law 26, WCAG 2.0 and City of New York auditing processes.
- Progress reaching goals established in the 2017 web accessibility report.
- Goals for the 2021 Digital accessibility report.
- All accessibility enhancements since the 2017 report including: websites, mobile apps, e-mails, electronic documents, social media posts, online training modules, and videos.
- Trainings, conferences and guidance materials that aim to foster a culture of accessibility within City agencies.

Appendixes

This report is supplemented by three Excel spreadsheets containing information on City of New York digital assets, accessibility audits and accessibility improvement activities. Each appendix is explained below.

Appendix 1: Survey Tool

12 websites were audited for this report. The data for all audits conducted is contained in Appendix 1: Survey Tool. The City of New York Web Accessibility Scoring Methodology was used to rate the websites audited. It is based on WCAG 2.0 criteria. The methodology is explained in more detail in the "info" tab of the spreadsheet as well as in Part 3 of this report under the "City of New York Web Accessibility Scoring Methodology" heading.

Appendix 2: NYC Websites

The Digital Accessibility Coordinator reached out to Disability Service Facilitators and Chief Information Officers across various City agencies in order to put together a list of websites owned by or created on behalf of the City of New York. Appendix 2: NYC Websites contains the results of this research. It contains a list of websites using the "new" template, "old template, non-templated, and outside-hosted websites. These terms are defined in Part 4 of this report. Please note that the information gathered in this appendix is to the best knowledge of the Digital Accessibility Coordinator. It is not an official list of City of New York Websites.

Appendix 3: NYC Accessibility Enhancements

This appendix contains efforts that the City of New York took to improve website accessibility across agencies. It includes:

- Websites enhanced for accessibility
- Apps enhanced for accessibility
- Digital Maps enhanced for accessibility
- Videos enhanced for accessibility
- Electronic documents enhanced for accessibility
- Online training modules enhanced for accessibility
- City agencies trained by the Digital Accessibility Coordinator
- City agencies trained by the Web Strategies Team at DoITT
- City agencies that make their social media posts accessible by including alt-text for images
- City of New York email blasts that include alt-text

Important Notes

Note, the websites audited in this report were measured for WCAG 2.0 Level AA standard. The City of New York is taking efforts to incorporate Web Content Accessibility Guidelines (WCAG) 2.1 into its processes and will be working towards reaching the standard set by the 2021 digital accessibility report.

Note: The title of this report has changed from "web accessibility report" to "digital accessibility report" because it will include information about the accessibility of e-mails, mobile apps, social media posts, videos and other digital products, in addition to websites.

What is Digital Accessibility?

The web is a platform for applying for and accessing City services. It gives the City the opportunity to reach more people. However, not everyone's needs are the same. Almost one million New Yorkers have some form of disability. Design, whether it's in physical architecture or an organization's website, can affect a person's ability to access something they need. The disability community has assistive technology and other tools to access the web. The design and coding of the websites that people with disabilities visit can determine whether users feel successful or frustrated in accomplishing their task.

Accessibility is the practice of designing or enhancing the physical, social, or virtual environment so that people of all abilities are able to perceive and interact with them independently. Since the disability community faces extra barriers, it is the City's responsibility to help all New Yorkers access City services available through the web. The Americans with Disabilities Act (ADA) already requires government entities to make their services and websites accessible. And as of March 14, 2016, accessibility requirements were codified in Local Law 26, which requires New York City to adopt a protocol for City websites relating to website accessibility for persons with disabilities.

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

- Websites such as NYC Hope from the Mayor's Office to End Domestic and Gender Based Violence (ENDGBV)
- Mobile apps such as Notify NYC from New York City Emergency Management (NYCEM)
- Electronic Documents such as the Truth in Broadband Report from The Mayor's Office of the Chief Technology Officer (MOCTO)

- [Social media posts](#) from City agencies such as the [Department of Transportation](#) (DOT)
- Email newsletters such as Work Well by [Office of Labor Relations](#) (OLR)
- Videos such as the [anti-smoking Public Service Announcements](#) by the [Department of Health and Mental Hygiene](#) (DOHMH)
- Online training modules such as the [Sexual Harassment training](#) from The [City Commission on Human Rights](#) (CCHR)

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 folks 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. The following are examples of assistive technologies that are used by people with disabilities to interact with websites.

Examples of Assistive Tech

There are many assistive technologies for a variety of disabilities. For members of the blind and low vision community, there are a few ways to access computers and websites.

Screen Readers

A [screen reader](#) is software that uses synthesized speech to read the screen's contents and structure out loud. The user interacts and navigates through the content by using touch gestures or keyboard commands.

Screen Magnifiers

People with low vision use [screen magnifiers](#) to enlarge the contents of the screen. Screen magnifiers can also change background and font colors for better contrast.

For those with motor-function disabilities, there are ways to control the computer through various means.

Hands-Free Technologies

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: Local Law 26

Signed on March 14, 2016, [Local Law 26 adds a new section 23-802 to the Administrative Code](#) concerning the adoption of a protocol relating to the accessibility of websites managed by and on behalf of the City of New York. It requires:

- The Mayor must appoint a designee to implement this law.
- The City of New York must adopt either the Web Content Accessibility Guidelines (WCAG) 2.0 AA standard or Section 508 federal standards codified at 36 CFR 1194.22 or any successor standards provided that the adopted protocol may differ from these standards in specific instances when the Mayor or Mayor's designee determines, after consulting with experts in website design and reasonable accommodations for people with disabilities, and the holding of a public hearing, that such differences will provide effective communication for people with disabilities, and that such differences are documented in such protocol.
- A report on the compliance of all websites managed by or on behalf of the City of New York that must be submitted no later than July 1, 2017.
- A subsequent report must be submitted every two years thereafter.

Note: The law also states, "This section does not require an agency to take any action that would result in a fundamental alteration in the nature of a service, program, or activity or in undue financial and administrative burdens."

Designee

The Mayor's designee is the Digital Accessibility Coordinator, who is a [Department of Information Technology and Telecommunication](#) (DoITT) employee. DoITT partners with the [Mayor's Office for People with Disabilities](#) (MOPD) in this effort. Other City agencies have contributed as needed.

The [Department of Education](#) (DOE) has also hired a Digital Accessibility Director. This staff is in charge of leading DOE efforts to make the education field in the City of New York accessible to people with disabilities.

Standards

The City of New York has chosen to adopt the [WCAG 2.0 level AA](#) standard. With the revision of Section 508, the federal government has adopted this standard, as well as other governmental entities worldwide. The guidelines were created by the [World Wide Web Consortium](#) (W3C).

The Web Content Accessibility Guidelines 2.0 are based on [four principles of accessibility](#). These principles dictate the criteria a website must have in order to be accessible. Content must be:

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

For purposes of the audit conducted in this report, the criteria behind the principles laid out in WCAG 2.0 are used as a [checklist](#) that pertains to each of the four principles. The checklist items have numbers associated with them.

Perceivable

Website users must be able to perceive all of the information that is being presented regardless of their ability to see or hear. This principle pertains to checklist items that start with the number 1. For example, 1.1, 1.2.1, 1.2.3, etc. Checklist 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. This principle pertains to checklist items that start with the number 2. For example, 2.1.1, 2.1.2, etc. Checklist 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. This principle pertains to checklist items that start with the number 3. For example, 3.1.1, 3.1.2, etc. Checklist 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. This principle pertains to checklist items that start with the number 4. For example, 4.1.1 and 4.1.2. Checklist items include "4.1.1 parsing" and "4.1.2 name, role, value."

WCAG 2.1:

As mentioned previously, the City of New York is implementing WCAG 2.1 and will be working towards reaching that standard for the 2021 digital accessibility report.

Part 3: Testing Methods

To measure compliance with WCAG 2.0 guidelines, testing was performed on various City of New York agency websites. Testing involves measuring whether or not the elements and content that make up a webpage are reflecting success criterion from the [WCAG 2.0 checklist](#). Success Criteria are the specific components that a webpage must adhere to in order to succeed for each of the criteria mentioned above. Websites were tested on some of the following:

- Color contrast: text, background, links, and other significant areas must meet the required color contrast ratio.
- Text resizing: users should be able to magnify the webpage up to two times.
- Alt-text: text descriptions should be included for images, logos, and pictures. This text is not visible on screen. It 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 only.
- Heading structures: Pages should be structured and the headings and sub-headings that make up a page should be properly formatted to work with assistive technologies.
- Forms: all input fields should have text labels and validation errors that should be easy to perceive and correct.
- Content that plays automatically: content that is longer than three seconds and can be 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.
- And more (Refer to Appendix 1 under the "Info" sheet for a list of full criteria).

Manual and automated testing methods were used. A combination of the following two methods was 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 contents 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

A number of automated tools were considered for the purposes of testing websites' accessibility. The 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 checklist items "4.1.1 parsing" and "4.1.2 name, role, value."

Manual Testing Tools

Manual testing included using a combination of assistive technologies, web browsers, and operating systems.

Windows 7 version 6.1.7601 was used for testing. For this operating system, the following assistive technologies were used:

- JAWS version 18.0.5038
- NVDA version 2018.2.1

For Windows, the browsers tested include the following:

- Google Chrome version 74.0.3729.157
- Mozilla Firefox version 60.6.3 Extended Support Release version

Mac OS 10.12.6 was used for testing. For this operating system, the following browsers were used in conjunction with the built-in screen reader called Voiceover:

- Safari version 10.1.2
- Google Chrome version 74.0.3729.157

Note: Testing with Internet Explorer was not included because that browser is no longer supported.

City of New York Web Accessibility Scoring Methodology

The following methodology was created to measure accessibility based on the WCAG 2.0 level AA standards that the City of New York has chosen to adopt. In Appendix 1, each checklist item is measured and given a score between 0 and 1. For example, "1.1 non-text content" pertains to the number of images that appear on a page. To measure, all images on a page were counted, then the number of instances of alt-text for each image was counted. An average was calculated from those figures. For example, if there were six images and six alt-texts, then the score would be 1. If there were six images and only three alt-texts, the score would be .5.

Some checklist items were given a 0 or 1 score instead of an average. For example, checklist item "2.1.2 no keyboard traps" was not useful to count. It either exists on the page or not. Therefore, scores given were either 0 or 1.

In other cases, scores were rounded to the nearest quarter because of ambiguity. For example, the checklist item "1.3.1 info and relationships" pertains to proper syntax and heading structures. Since a heading structure that is not proper can still be useful, scores such as 0, .25, .5, .75 and 1 are given to pages regarding this criteria.

Some checklist items are not applicable for all pages. For example, checklist item "1.2.1 audio only and video only pre-recorded media" is not applicable if the page does not have media such as a video or podcast. When a checklist item was not applicable, it was not counted towards the average checklist score for the page.

Finally, all applicable checklist items for each page tested were averaged to calculate a City of New York Accessibility Score for that page. That score is then turned into a percentage. The passing score used is 75%. For more details about scoring for each of the criteria, please refer to Appendix 1 under the "Info" tab.

Updates to Scoring Methodology:

Since the 2017 report, some of the scoring methodology was updated. The following is a list of these updates.

- 1.3.1 Info and Relationships: added that the use of a star or Asterix in form labels for required fields counts towards this criteria in a positive way.

WCAG 2.1:

In 2018, W3C released WCAG 2.1 which adds 17 additional criteria to the existing 37 from WCAG 2.0. The update adds criteria to improve performance on mobile devices, as well as improvements for low vision and cognitive accessibility. Currently, WCAG 2.1 criteria are being incorporated into DoITT's processes. The scoring methodology will be updated to include WCAG 2.1 for the next report in 2021.

Part 4: City of New York Websites

A citywide outreach effort was made to compile a list of websites owned by the City of New York. The following website and page counts are based on that effort.

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 and directories. Public-facing websites were the main focus of this report because they are designed to be used by a wider audience.

There are 313 websites that were counted as part of research done for this report. There are two types of public-facing websites. The first are websites that reside on the NYC.gov server. For the purposes of this report, these websites will be referred to as NYC.gov server-hosted websites. Within this type, there are two templates used to create websites for City agencies: the "old" and "new" templates. There are also some websites on NYC.gov that are "non-templated," which means that they were built with static HTML. The second type of websites are ones hosted outside of the NYC.gov server. For the purposes of this report, they will be referred to as outside-hosted websites.

NYC.gov server-Hosted Websites

There are 239 websites hosted on the NYC.gov server. The following section will break down the difference between "new" template, "old" template and non-templated websites that are hosted on the NYC.gov server.

Old Template Websites

In the 2017 web accessibility report, there were 72 websites on the NYC.gov server that use the "old" template. This template offers fewer accessibility features than the "new" template. Since the 2017 report, 50 websites that were using the "old" template were transitioned over to the "new" template, and 15 of them were deleted. Eleven websites are still using the "old" template. There were four websites that were not included in the previous report due to an error collecting data. The average score for "old" templated websites audited in this report is 61.6%. For a list of websites that were transitioned from "old" to "new" template refer to Appendix 3: NYC Accessibility Enhancements. For a list of the "old" template websites that were deleted, refer to Appendix 2: NYC Websites.

New Template Websites

In the last report, there were 128 websites on the NYC.gov server that use the "new" template. Currently, there are 210 websites on the NYC.gov server that use the "new" template. The template is formatted in such a way that is more accessible than the "old" template. The average score for "new" template websites audited in this report is 92.0%. For a list of websites that use the "new" template, please refer to Appendix 2: NYC Websites.

"Non-Templated" Websites

As of last report, there were nine websites on the NYC.gov server that are not templated, and are built with static HTML. Currently, there are 18 non-templated websites on the NYC.gov server. Audits done for this report indicate that the average accessibility score for non-templated websites is 88.3%. For a list of websites that are not templated, please refer to Appendix 2: NYC Websites.

Differences Between the "Old" and "New" Templates

There are many differences between the templates that make the "new" template more accessible than the "old" template. From a foundational perspective, the "new" template uses HTML 5 while the "old" template uses HTML 4. It is considered an accessibility best practice to use HTML 5. The audit results for this report show that the average accessibility score for "new" template websites is 92.0% while the average accessibility score for "old" template websites is 61.6%.

Furthermore, the "new" template allows for better implementation of the following features:

- Heading structures
- Alt-text for images
- Labels for form fields
- Accessible error reporting for forms
- Keyboard access
- Color contrast
- Accessible Captchas

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- Larger base font (16 pixels)
- Rotating banner

Outside-Hosted Websites

In the last report, there were 72 websites hosted outside of the NYC.gov server, which may still be hosted by the City. An example is [Growing up NYC](#). Currently there are 74 websites on outside-hosted servers. Outside-hosted websites refer to websites that are not hosted on the NYC.gov server and have either been created by a vendor or created by an agency. The average accessibility score for outside-hosted websites is 88.3%. For a list of outside-hosted websites, please refer to Appendix 2: NYC Websites.

Scope/Pages Tested

In this report, a sample of 35 pages from 12 websites were audited in total representing both NYC.gov server hosted and outside-hosted websites. For websites using the "new" template, three websites were audited and used to create an average score for all websites using that template. Two websites using the "old" template were measured in the same way. A sample of 11 pages from four non-templated websites were tested. Finally, 9 pages from 3 outside-hosted websites were tested. The average accessibility score for all websites tested is 82.5%.

For websites that were audited, a sample of pages was used for testing purposes. The samples included but were not limited to the following:

- Select homepages;
- Select "About" pages;
- Select "Contact" pages;
- Select "E-mail the Commissioner" pages; and

Reasoning

A sample of the three types of pages were chosen for the following reasons:

- The homepages tend to be unique from the rest of the pages on each website.
- The "About" pages are consistently included on websites and tend to have similar layouts to those of other pages.
- The "Contact" pages usually have forms that need to be manually tested. If the "Contact" page is accessible, visitors will be able to establish contact with a City agency to get answers they may not be able to find by navigating the website.

Part 5: Summary of Digital Accessibility Enhancements Since 2017

Auditing results:

As mentioned in parts 3 and 4, the City of New York Accessibility Scoring Methodology was used to audit 12 websites. This score is a percentage of how compliant with WCAG 2.0 Level AA a web page is. Below is a breakdown of scores for each of the types of websites. All audits conducted can be found in Appendix 1: Survey Tool 2019.

Type:	Websites Tested:	Average Score:
New Template	3	92.0%
Old template	2	61.6
Non-templated	4	88.3%
Outside-Hosted	3	88.2%
Total:	12	82.5

Summary of Accessibility Improvements

The following sections are summaries of accessibility efforts done by the City of New York in the past two years. They contain information and statistics on digital products that were enhanced for accessibility as well as accessibility trainings that were conducted. For a full list of digital products that have been enhanced for accessibility, refer to appendix 3: NYC Accessibility Progress.

Websites Enhanced Since 2017

Since 2017, 129 websites were enhanced for accessibility. The Digital Accessibility Coordinator supported agencies in enhancing 20 websites for accessibility. After being trained by the Digital Accessibility Coordinator, the Web Strategies Team at DoITT went through 77 existing websites on the "new" template and enhanced them for accessibility. There were also 22 websites added to the "new" template with accessibility enhancements included. For a full list, refer to Appendix 3: NYC Accessibility Enhancements.

Other Accessibility Enhancements

Below is a list of digital products enhanced for accessibility since the 2017 report.

- 8 digital maps were enhanced for accessibility
- 5 mobile apps were enhanced for accessibility
- 3 online training modules were enhanced for accessibility
- 27 videos were audio described
- At least 50 videos were captioned
- 10 agencies have started posting on social media with alt-text for images
- 5 email blasts have started including alt-text

Training Efforts

Since the 2017 report, the Digital Accessibility Coordinator has trained 12 agencies on various topics around digital accessibility. A lot of agencies had multiple trainings. The Web Strategies Team at DoITT has trained 73 agencies in creating accessible content using TeamSite. Between the Digital Accessibility Coordinator and the Web Strategies Team, 78 agencies were trained. For a full list of agencies trained, refer to Appendix 3: NYC Accessibility Enhancements. Also, read Part 7 of this report for more details about the trainings conducted.

Accessibility Enhancements:

The following is a list of accessibility enhancements made to digital products since the 2017 web accessibility report. Note: not all items in this list apply to all digital products. Some items such as captions and audio descriptions are specific to one type of digital content.

- Alt-text for images
- Proper heading tags and heading structures
- Unique link labels
- Accessible text labels for all buttons, links and interactive elements
- Keyboard access to all controls including links, buttons and other interactable elements
- Content must follow a logical order when navigated by screen reader or keyboard users
- Keyboard visual focus stands out and is easy to see
- Text alternatives for digital maps
- Color contrast: 4.5:1 ratio between text and background
- Accessible fonts: San Serif
- Use of plain language
- Include instructions for interacting with content whenever possible including accessible error messages
- Audio, video or slide content does not play automatically
- Use of accessible video players such as YouTube, Vimeo or other HTML 5 players
- Video content has captions and audio descriptions
- Podcasts and other audio content has transcriptions
- Hiding irrelevant content from screen readers
- Shifting screen reader and keyboard focus to modal dialogues and other pop-ups
- Use of ARIA-live attribute to announce when dynamic content has appeared on screen
- Created filters to narrow down dense content or search results
- Use of accessible accordions for expanding content
- Keyboard access and alt-text for interactive infographics

Accessible Assets:

The following section contains examples of accessible digital products that the City of New York worked on internally or with vendors.

Accessible Websites:

While the City of New York continually makes enhancements to agency websites, some are more accessible than others. Some notable examples of websites that have successfully implemented most WCAG 2.0 criteria include the Following:

- [Department of Records: Open Records Website](#)
- [New York City Emergency Management: Advanced Warning System Website](#)
- [Mayor's Office to End Domestic and Gender Based Violence: NYC Hope Website](#)
- [NYC Opportunity: Growing up NYC Website](#)

These websites were enhanced in the following ways:

- Added alt-text for all images
- Proper heading structures
- Text labels for all links, buttons and other form fields
- Unique link text for all links
- High color contrast
- Use of accessible fonts
- Keyboard access to all links, buttons and other form controls
- Created accessible accordions
- Created accessible filters
- Shifted screen reader and keyboard focus to appropriate areas when dynamic content appears
- Use of ARIA-Live attribute to announce when search results have appeared
- Created accessible tab panels
- Included text alternatives for required fields in forms
- Added proper error validation for forms with required fields

Accessibility of Maps:

In order to make maps accessible to screen reader users, MOPD has worked with DoITT and other City agencies to create equivalent text-based lists with headings and filters for enhanced navigation. Below are four examples.

- [HRA – SNAP Center Locations](#)
- [DOB – Sidewalk Sheds Map (Map Version)](#)
- [DOB- Sidewalk Sheds Map (Accessible List)](#)
- [NYCEM: Hurricane Evacuation Zone Finder](#)

Search Filters and Paginations:

The following is an accessible filter with a pagination that allows users to navigate to different pages that contain results. When the user selects one or more filters and activates the search button, screen reader focus is shifted to the beginning of the results section. Each result is formatted as a heading for faster navigation. The number of search results is also included to give visitors more context. The [BSA Decisions](#) page is a good example of use of this filter. The template used in this example is used on other parts of NYC.gov as well.

Accordions:

Accordions are buttons or links that expand and collapse to show or hide content on a page. An accessible accordion is one that works for both non-disabled and disabled users. For screen reader users, accordions need to share the correct information so that screen readers would announce its state as collapsed or expanded. With an accessible accordion, when a section is collapsed, the content is hidden visually as well as for assistive technologies. The City Commission on Human Rights has an example of [FAQs for Employees/Job Seekers](#) that uses accessible accordions. The framework for this accessible accordion is also used in other parts of NYC.gov.

Interactive Infographics:

DOHMH created an interactive infographic that is accessible. It's a single page application that contains images that bring up messages when clicked. The images were given alt-text and keyboard access. The ARIA-Live attribute was used to announce when new content has appeared on the page. Finally color contrast enhancements were made to the page at large and borders were added around the clickable snowflakes for low vision users. Accessibility instructions were included to accommodate first time users.

- [DOHMH Winter Weather Safety Infographic](#)

Audio Description:

MOPD has worked with agencies such as DOT, NYCEM and TLC to include [audio description](#) in the videos they create. This insures that the videos are accessible to the blind community. Below are some examples of audio described videos from various NYC agencies.

- [MOPD Becky Curran – NYC at Work Video Profile](#)
- [DOT Cycle Eyes](#)
- [NYCEM Ready New York - A well planned escape](#)
- [DOHMH: Audio Described Videos Playlist](#)

Podcast Transcripts:

Some NYC agencies have started their own Podcasts. Since Podcasts are typically in an audio format, they can be accessible to Deaf audiences through transcripts. Checkout New York City Emergency Managements Podcast called [Prep Talk](#) as an example.

Part 6: Accessibility Plan Progress

In the 2017 web accessibility report, an accessibility plan was created. The plan set accessibility goals that DoITT and MOPD have worked together in order to reach. Below are the statuses of these goals.

Progress for NYC.gov server-Hosted Websites

Non-templated Websites
NYC.gov server-hosted "non-templated" websites were to be addressed in the following ways:

- The Digital Accessibility Coordinator will be reaching out to specific City agencies with regards to accessibility remediations for the 9 "non-templated" websites.
- DoITT and other City agencies will inform the Digital Accessibility Coordinator about new "non-templated" websites for accessibility testing and remediation.

Non-Templated Websites Progress:
There are 18 websites that are currently on the NYC.gov server that do not use templates. Out of the 16, the Digital Accessibility Coordinator worked closely with DoITT to make accessibility enhancements to the following websites:

- [NYC Hope](#)
- [NYC Digital Blueprint](#)
- [Open Records](#)
- [Sandy Funding Tracker](#)
- [Lead Free NYC](#)
- [City Clerk](#)
- [MWBE](#)

Enhancements:
Enhancements to "non-templated" websites include:

- Alt-text for images (All)
- Properly formatted heading structures (All)
- Addition of ARIA Landmark Regions (Open Records, NYC Hope and Blueprint)
- Accessible accordions (NYC Hope and Open Records)

- Accessible search filters (NYC Hope and Open Records)
- Keyboard and screen reader focus shifting (NYC Hope)
- Color contrast enhancements (All)
- Use of accessible fonts (All)
- And more (for a full list, refer to Appendix 5: accessibility reports)

Future Fixes:

As the City of New York improves websites for accessibility, any outstanding issues are recorded so that they can be addressed at a future date. Future planned fixes include:

- NYC Hope: fix focus shifting because it is inconsistent
- NYC Digital Blueprint: remove empty ARIA Landmark Regions and add a secondary navigation region
- Sandy Funding Tracker: create accessible alternatives for the maps
- Lead Free NYC: use unique link labels
- City Clerk: fix unlabeled buttons
- MWBE: images missing alt-text

Templated NYC.gov server-Hosted Websites

NYC.gov server-hosted "templated" websites are composed of two main parts. The first part is the template with which each site is built. There are two types: the "old" and the "new" templates. The second part is the website's content. The content is managed by IT professionals and communications personnel in each specific agency, and/or DoITT using a vendor-provided software product called TeamSite (version 7.3.2.0.0).

In the 2017 report, the following strategies were set to address accessibility for NYC.gov server-hosted websites:

- Make forms more accessible;
- Work with agencies to improve the accessibility of their website content and correct color contrast;
- Make accessibility enhancements to the "new" template;

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- Transition all remaining "old" template websites to the "new" template; and
- Implement an accessibility accreditation process for all new websites.

Progress Implementing Strategies:

In the last two years, the Digital Accessibility Coordinator and DoITT have made progress towards reaching these strategies. The sections that follow will outline these efforts.

Form Changes

Since the 2017 report, the City of New York has made accessibility enhancements to at least 524 forms on "new" template websites on NYC.gov.

- Agency Head/Commissioner Contact Forms: DoITT set a goal to convert old-style agency head forms to the new-style agency head forms which are more accessible. This effort has been successful. Currently, all agencies that do not use their own customized contact form are using the one optimized for accessibility.
- "Other" Existing Forms: Another goal from the 2017 report is for DoITT to convert other existing forms to the new style. There were 608 existing forms on NYC.gov ("new-template" websites) to be converted from the last report. 524 of those forms were converted. Moving forward, the remaining forms will be enhanced for accessibility by the end of 2019.
- "New" Forms: Moving forward, all "new" forms will be created using the updated CSS and HTML. This is currently in place for websites that use the "new" template or "non-templated" managed by DoITT.

Content and Style Changes

The 2017 report set a goal for MOPD and DoITT to create step-by-step guides for content creators That include instructions on how to add alt-text

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for images, improve color contrast, format headings properly, as well as caption and audio describe videos. To realize this goal, DoITT created two websites to aid developers in creating accessible content. For web masters using our TeamSite templates, the Process website has specific guidance on using TeamSite to create Accessible Content. This website is internal and available to City of New York employees only. The NYC Digital Blueprint has more general guidance on creating accessible content and is available to the public.

To compliment the Process website, DoITT created a training on creating accessible content using TeamSite. In the last two years, the web strategies team, which was trained on accessibility by the Digital Accessibility Coordinator, has been conducting these trainings and have trained 73 agencies. In some cases, agencies were trained more than once. For a list of City Agencies trained in creating accessible content on TeamSite, refer to Appendix 3: NYC Accessibility Enhancements.

New Template Changes
In the previous report, MOPD and DoITT had been examining the "new" template and its various forms and created a list of accessibility changes based on best practices.

The following changes have been implemented into the "new" template.

- Added a new Translate button that is accessible on desktop and mobile
- Added a new search accordion that is accessible on desktop and mobile
- Added a "skip to main content" link at the top of the page
- Added a "main content" ARIA landmark region to all pages
- Created unique labels for primary and secondary navigation regions
- Added a footer region
- Added an <h1> heading to all pages at the beginning of the main content
- Added headings in primary and secondary navigation regions
- Added a label for navigation accordion on mobile
- Added keyboard visual focus for links

This list of changes was projected to be implemented by the end of 2017. DoITT has been able to make progress in implementing all of these changes to the main [NYC.gov](NYC.gov) website and will be rolling them out to the rest of the websites on NYC.gov in the next few months.

Transitioning from "Old" to "New" Template

Since the last report, DoITT has made great progress in phasing out websites using the "old" template. This template is outdated and does not support many accessibility features. Therefore, MOPD and DoITT have decided to focus their efforts on making enhancements to the "new" template. Testing of the "new" template shows that it has a higher level of accessibility. The process of transitioning websites using the "old" template to the "new" template was projected to be completed by the submission of the 2019 report. While not all the "old" template websites were converted, 50 of them were successfully converted. There are currently 11 websites using the "old" template. 15 websites were either deleted or moved off the NYC.gov server. The remaining 11 websites are expected to be converted or phased out by Spring of 2020.

Progress for Accessibility Accreditation Process

Before a new website goes live on NYC.gov, it goes through a site review process at DoITT. As of May 10, 2017, the Digital Accessibility Coordinator is part of that process, ensuring that all new websites that the City creates using TeamSite will be tested and enhanced for accessibility before launch or shortly thereafter. Working up to the next report in 2021, a process will be put in place to officially document websites tested for accessibility before going live.

Progress for Internal Websites

The 2017 report also set goals to address internal websites and training modules. Focus on internal websites was projected to start in 2018.

The Digital Accessibility Coordinator has been gathering a list of internal websites from City agencies and has started working on addressing accessibility issues of some of them with developers. Internal websites that have been enhanced and will continue to be enhanced for accessibility include:

- [NYC Employee Self Service](#)
- [Citytime](#)

The Digital Accessibility Coordinator has also been working with the Department of Citywide Administrative Services (DCAS) to improve the accessibility of online training modules that all employees are mandated to complete. The Digital Accessibility coordinator identified accessibility issues that DCAS and their vendor are currently working on resolving. The first two trainings that will be addressed are the Sexual Harassment and LGBTQ training modules. Changes include:

- Alt-text for images
- Audio description for videos
- Text labels for all navigational buttons and other interactable elements
- Use of accessible fonts
- High color contrast
- Keyboard access for all interactable content
- Enhancements to keyboard visual focus
- Transcripts for audio content
- Use of plain language

Progress for Outside-Hosted Websites

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/DoITT are informed of new procurements, the Digital Accessibility Coordinator has tested and shared feedback with vendors.

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In the past two years, the Digital Accessibility Coordinator has worked with various agencies and vendors on accessibility enhancements to outside-hosted websites. Some examples are below.

NYC Advanced Warning System

The NYC Advanced Warning System is a website that was procured by NYCEM and created by Image Works. The Digital Accessibility Coordinator was able to work closely with the vendor and all accessibility issues were resolved before launch. Some enhancements include:

- Improvements to heading structures
- Improvements to color contrast
- Labeling all links with unique labels
- Addition of ARIA landmark regions
- Improvements to alt-text

Winter Weather Safety Infographic

Another successful example is the Winter Weather Safety Infographic procured by DOHMH and created by Vanguard. This is an interactive infographic where users can click on icons in order to get safety tips. It was enhanced for accessibility in the following ways:

- Alt-text for all images
- Keyboard access for all icons
- Accessibility instructions for screen reader users
- Use of ARIA-Live attribute to announce when dynamic content has appeared
- Color contrast enhancements
- Use of accessible fonts
- Added boarders to icons to make them stand out visually
- Enhanced the visibility of keyboard visual focus

Progress Summary for Outside-Hosted Websites

This process has varying results as there are many factors that can become barriers. Remediations to existing outside-hosted websites were projected to

be completed by the 2019 report. Due to a variety of factors, the Digital Accessibility Coordinator has had difficulty reaching this goal. Some vendors are no longer working with the City of New York, others no longer exist and in some cases it was difficult to persuade vendors to implement changes.

Moving forward, the Digital Accessibility Coordinator will continue to work with agencies and vendors to enhance outside-hosted websites for accessibility. To ensure that future outside-hosted websites are accessible, the Digital Accessibility Coordinator will collaborate with DoITT and City Hall to include accessibility requirements in all website procurements.

Procurements

Since 2017, the Digital Accessibility Coordinator has been sharing the following Request for Proposal (RFP) language with City agencies to be included in procurements of digital products. This language will be updated and circulated more widely for agency awareness between the 2019 and 2021 reports.

> "In March, 2016 the City Council enacted Local Law 26, which set a requirement for accessibility of City websites by adopting one of the two following standards:
>
> - The Web Content Accessibility Guidelines (WCAG) 2.0 Level AA
> - Section 508 federal standards
>
> For "Product name" we will be using the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA. This product must be compliant with WCAG 2.0 Level AA no later than the time of launch. The technology strategy and implementation by the software vendor must meet the standard. Of particular interest for technical implementation are screen reader compatibility, text resizing, color contrast, keyboard accessibility, captioning and audio description for video content wherever applicable. The "Agency procuring" will coordinate accessibility testing with the Mayor's Office for People with Disabilities (MOPD) during the design process and after launch. The vendor is responsible for working with "procurement agency" or MOPD during

the design process and remediating any accessibility issues. Once the product is launched, the vendor is responsible for remediating any accessibility issues reported by MOPD within 90 days."

Progress Reaching Other Goals

The 2017 report also set the goals listed below for setting policies. MOPD and DoITT have successfully implemented these policies internally. The next step is to guide and inform other agencies to adopt those policies. The policies would live on the NYC Digital Blueprint website for agencies to adopt and implement.

- Apply accessibility standards to Internal websites and training modules
  - o Progress: Internal websites such as CityTime and Employee Self Service have undergone accessibility enhancements and will continue to receive more enhancements.
  - o 2021 goal: create a long-term strategy for phasing out inaccessible legacy software and ensuring that all internal websites and digital products used and procured by the City of New York are accessible.
  - o Currently DCAS is implementing accessibility enhancements to its Sexual Harassment and LGBTQ online training modules and has plans to address other trainings as well.
  - o CCHR released a Sexual Harassment training that is accessible and includes audio description.
- Produce a policy regarding Audio description and captioning for all video content released to the public
  - o Progress: MOPD has been audio describing all videos since 2016. Also, all agencies trained in accessibility are informed that this is legally required.
  - o 2021 goal: MOPD will craft a policy on audio description and DoITT will put it up on the NYC Digital Blueprint website.
  - o The following City agencies have also started creating videos with audio description.
  - o Department of Transportation
  - o New York City Emergency Management
  - o Taxi and Limousine Commission
  - o Department of Health and Mental Hygiene
- Produce a plain language accessibility policy for City of New York agency websites

- o Progress: Agencies have been trained in plain language, and accessibility guides contain instructions on how to write using plain language.
  - o 2021: goal: MOPD to craft a policy and DoITT to post it on the NYC Digital Blueprint.
- Produce an accessibility policy for electronic documents posted on City of New York agency websites
  - o Progress: All documents created by MOPD are accessible. MOPD also assists other agencies in making flyers and reports accessible.
  - o 2021: MOPD to craft a policy and DoITT will post on the NYC Digital Blueprint website.
  - o City agencies have started to make accessibility enhancements to online documents such as the [Truth and Broadband Report](#) or the [Disability Legal Protections](#) guide.
- Produce an accessibility policy for Web apps and widgets on City agency websites
  - o Progress: MOPD and DoITT have worked with agencies to make maps and other data visualizations accessible. Also, all agencies trained in accessibility are informed that all widgets, data visualizations and other add-ons must be accessible.
  - o 2021 goal: MOPD to craft a policy around this type of content and DoITT will post on NYC Digital Blueprint website.
- Produce an accessibility policy for Mobile apps associated with City services
  - o Progress: 5 mobile apps have been enhanced for accessibility in the past two years.
  - o Apps such as [Notify NYC](#), [311](#), [Advanced Warning System](#) and [NYC Secure](#) have all been optimized for accessibility.
  - o 2021 goal: MOPD to craft a policy for mobile app accessibility and DoITT will post to the NYC Digital Blueprint website.

Part 7: Guides, Trainings, and Outreach

The 2017 report set goals for the City of New York to make efforts to increase awareness within City agencies about Local Law 26, the WCAG 2.0

guidelines, and the Web Accessibility Plan. These efforts included the following:

- Building relationships with DoITT employees that manage templates, code and oversee the NYC.gov server-hosted website creation process;
- Creating accessibility best practices guides that will be shared with City agencies as well as the public; and
- Training DOITT employees, content creators, TeamSite users, as well as vendors on how to make websites accessible.

Relationships

The Digital Accessibility Coordinator has developed relationships with DOITT employees who set standards, manage templates, and create and approve new websites. It is through this effort that MOPD and DoITT have created the list of changes to make for the "new" template, issued the directive for transition, and develop the accreditation process.

In addition, the Web Strategies team has taken initiative to ensure accessibility in the past two years. After being trained by the Digital Accessibility Coordinator, the team has become knowledgeable on how to create accessible websites and has created a Process website as a resource. The Process website is available to City employees only and it covers how to create accessible content on TeamSite.

They have also created a training to aid folks who create content. The training focuses on creating accessible content using TeamSite. In the past two years, they have trained 73 agencies. For a list of all agencies trained, refer to Appendix 3: NYC Accessibility Enhancements.

NYC Digital Blueprint

Since the last report, DoITT and other agencies created the NYC Digital Blueprint. In the previous report, it was referred to as the NYC Digital Resource Hub. It is a general guide on how to create websites and has a

section dedicated to [accessibility](#). It also has a downloadable [Digital Accessibility Toolkit](#) to assist content creators in making their digital content accessible. It covers the following topics.

Accessible web design

An overview of website accessibility standards, tips for including accessibility in the design process, examples of best practices, as well as links to resources.

Accessible Documents and Presentations

A guide on creating accessible electronic documents, slide decks as well as how to present in an accessible way. Some tips include:

- Alt-text for images
- Heading structures
- Table of contents
- Color contrast
- Accessible Fonts
- Font size requirements for slide decks, electronic documents as well as printed large print documents

Social Media and Video Accessibility Guide

A guide for City employees who manage social media accounts or create video content for their agencies. It contains information on how to create accessible social media posts on Facebook, Twitter and Instagram. Topics covered include describing pictures and captioning videos. Instructions are given on the following:

- Using empowering language when referring to people with disabilities
- How to describe what is in an image
- How to enable the alt-text feature on Twitter
- The proper format to use for image descriptions on Facebook and Instagram
- How to add captions to a video
- How to add audio description to a video

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Conferences and Trainings

There have been many efforts by the Digital Accessibility Coordinator to build a culture of accessibility inside and outside City government through trainings, conferences and a digital inclusion group for City professionals.

Trainings for the Public

The Digital Accessibility Coordinator creates programming for the public to increase awareness of digital accessibility. Some events held for the public include:

- Cyber Security for People with Disabilities Training
- How to make data accessible training
- Auditing websites with a screen reader

Trainings

Trainings have been conducted by the Digital Accessibility Coordinator and the Web Strategies team at DoITT. The Digital Accessibility Coordinator trained 12 agencies and the Web Strategies Team has trained 73 agencies. A total of 78 agencies have had some kind of training in creating accessible digital content. Note: some agencies were trained both by the Digital Accessibility Coordinator and the Web Strategies Team.

The trainings that the Digital Accessibility Coordinator conducts are usually one to two hours long and are meant to introduce the topic of digital accessibility, build empathy, and demonstrate accessible and inaccessible digital content. The trainings are customized to meet the needs of each specific agency. Note: many agencies were trained more than once. There are four different trainings. Below is a description for each of the trainings.

Intro to Digital Accessibility:
Description:

What you need to know to start making your digital content accessible. Do you create or manage websites, electronic documents, mobile apps, social media posts or videos? Find out how you could be reaching a wider and more diverse audience by making your content accessible to all. Topics include:

- What is Digital Accessibility and who is it for
- Intro to Assistive Technology
- WCAG 2.0 Level AA standard
- Making images accessible
- Intro to Website accessibility
- Intro to document and PowerPoint accessibility
- Intro to social media accessibility
- Intro to video accessibility
- And more…

Who is it for?

All digital professionals: developers, designers, marketing, communications, social media, content creators etc.

Accessible Outreach:
Description:

Geared towards marketing and communications professionals, this training is aimed at teaching attendees how to communicate effectively with people with disabilities. It also covers how to plan an accessible event from start to finish. Topics include:

- Creating accessible flyers and electronic documents
- Creating accessible slide decks
- Accessible event pages and registrations
    - Advertising your accessibility features
- Setting up accommodations and hiring access workers
- Creating accessible print documents
- Creating accessible emails
- Creating accessible social media posts

- Creating accessible videos
- How to present with accessibility in mind

Who is it for?

Anyone who does outreach or communications: marketing, communications, content creators, designers, social media managers, event planners, presenters etc.

Video Accessibility Training:
Description:

How to make your videos accessible to folks who are blind or deaf. Learn about captions and audio descriptions. Captions make sound accessible by adding text on screen that captures dialogue, sound effects and music for deaf audiences. Audio descriptions make visual content accessible to blind audiences by using an audio track to describe the setting for each scene, introducing characters, reading on-screen text and describing visual events that are important to the plot. Training includes:

- Introduction to open/closed Captions and Audio descriptions
- Good examples of captions and audio descriptions
- The difference between open captions and closed captions
- Designing your captions for accessibility: i.e. fonts, font sizes, color contrast
- How to write a script for audio description
- Tips for recording and editing your audio description
- How to describe different types of videos. i.e. a news report, an art performance, a sports event, or a live show

Who is it for?

Anyone who works with videos: editors, writers, producers, directors, journalists etc.

Screen reader testing training

Description:

An in-depth training on how to use screen readers and automated tools to test your website for accessibility. Topics include:

- Intro to screen readers
- Commonly used screen reader shortcuts
- How screen reader users typically navigate websites
- Testing images
- Testing heading structures
- Testing forms
- Testing maps
- Testing video players
- Using WAVE to test for color contrast, document language, document title, form labels and more

Who is it for?

Anyone who manages websites: Developers, programmers, content creators, web designers, accessibility testers, quality assurance etc.

Agencies Trained:

Trainings have been conducted for the following agencies:

- Intro to Digital Accessibility: Department of Information Technology and Telecommunications, City Commission on Human Rights, Department of Finance, New York City Housing Authority and Housing Preservation and Development
- Accessible Outreach: Department of Transportation and Department of Citywide Administrative Services
- Video Accessibility Training: City Commission on Human Rights, New York City Housing Authority, Media and Entertainment, Mayor's Office

on Creative Communications, Department of Transportation and New York City Emergency Management
- Auditing websites with a screen reader: Department of Information Technology and Telecommunications, Mayor's Office of the Chief Technology Officer, Small Business Services and Economic Development Corporation

For a full list of agencies trained by the Digital Accessibility Coordinator, refer to Appendix 3: NYC Accessibility Enhancements.

The Web Strategies team at DoITT has also been training agencies on creating accessible content using TeamSite. Since the 2017 report, DoITT has given this training to 73 agencies. The trainings cover some of the following:

- Accessible heading structures
- Alt-text for images
- Page titles
- Unique link text
- Proper use of tables
- Color contrast
- Building accessible forms
- And more

For a full list of agencies trained by the Web Strategies team refer to Appendix 3: NYC Accessibility Enhancements

Digital Inclusion Conference (DICON)
In 2018 and 2019 the City of New York organized two conferences on the topic of digital inclusion and accessibility. The conferences were aimed at teaching City employees and members of the public to learn about how to create accessible and inclusive content. Below are some more details.

Conference 2018:

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On May 17, 2018 MOPD and the NYC Office of the CTO were the lead agencies in organizing a [conference on digital inclusion and accessibility](#). It was also Global Accessibility Awareness Day. The planning committee included members from more than ten different City agencies. The conference was attended by around 200 City government employees.

Topics covered include:

- Creating accessible multimedia content
- Accessibility for older adults
- WCAG 2.1
- Affordable auditing tools
- [View the schedule here](#)

As part of this conference, the City of New York also released a [Digital Accessibility Toolkit](#) that contains guidance on accessible web design, accessible documents and presentations, as well as accessible videos and social media posts.

Conference 2019:
On May 16, 2019 MOPD and the Mayor's Office on Creative Communications organized the second annual conference on digital inclusion called [DICON](#). This was a one-day event and was open to the public. The focus was creating accessible content, assistive technology and art, as well as data and privacy. About 70 City government employees and 70 members of the public attended the event which was [live streamed and recorded](#) to reach a wider audience.

The conference featured well-known assistive technology vendors, digital accessibility auditing companies, and one-on-one advice sessions with accessibility experts. View the [full schedule](#) for more info.

Digital Inclusion Committee

The Digital Accessibility Coordinator created an internal working group for City employees called Digital Inclusion Committee. The group meets on a quarterly basis to discuss and learn about creating websites, electronic documents, videos and social media posts that empower all New Yorkers. The group also conducts trainings for attendees. Each training is usually attended by 25 people in person and about 10 people joining remotely. Below is the schedule of trainings conducted since 2017.

- September 2017: WCAG 2.0 and NYC Web Accessibility Report
- October 2017: Testing website accessibility using screen readers
- January 2018: Alt-text and Image Descriptions
- March 2018: Creating Accessible Forms
- August 2018: Accessible Digital Maps
- December 2018: Creating Accessible PDFs Webinar by Adobe

Conclusion

In the last two years, a formidable effort has been put into auditing websites, applying accessibility enhancements, creating guidance materials, conducting numerous trainings, and organizing conferences to get City employees excited about accessibility. We believe that these efforts are making a big impact on reaching the goal of making all of the digital Assets of the City of New York accessible to people with disabilities.