

GIS Digital Accessibility at the City of Seattle

WAGISA 2026, Bellevue WA

Zinta Smidchens
Catherine Wendland
Suzy Brunzell



Catherine Wendland, City of Seattle GIS Analyst

- Seattle Information Technology GIS Team
- GIS training, governance, best practices
- Accessibility guidance and requirements for IT applications and Citywide GIS Content



Overview

- Background about Digital Accessibility
- Components of a successful project
- Inventory strategies
- GIS Accessibility Guidelines
- Assessments
- Prioritization
- Support for Content Creators



Background: Digital Accessibility



Department of Justice Ruling

Ruling
April 2024















Compliance Dates

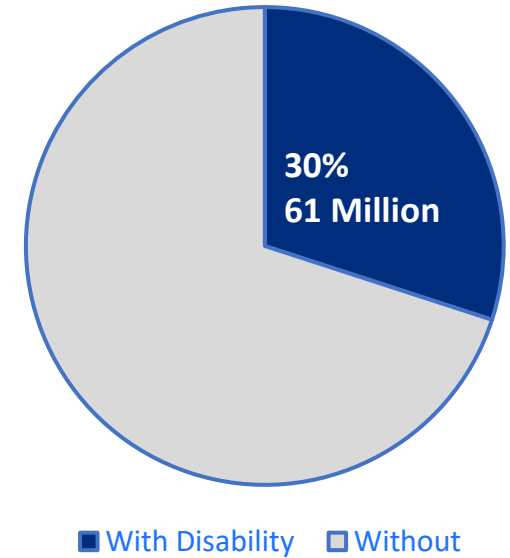
- April 2027: population > 50,000
21 counties in WA
26 cities in WA
- April 2028: population < 50,000
18 counties in WA
250+ cities and towns in WA

<https://www.federalregister.gov/documents/2026/04/20/2026-07663/extension-of-compliance-dates-for-nondiscrimination-on-the-basis-of-disability-accessibility-of-web>

Why do we care about digital accessibility?

	Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent
See	 Blind	 Cataract	 Distracted driver
Hear	 Deaf	 Ear infection	 Bartender
Speak	 Non-verbal	 Laryngitis	 Heavy accent

Percent of US Population with a disability



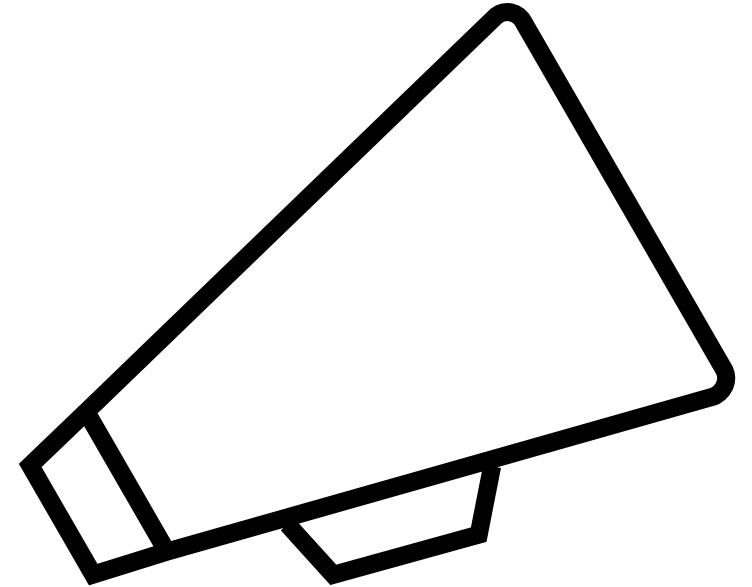
<https://Inclusive.Microsoft.design>

City of Seattle Digital Accessibility Program



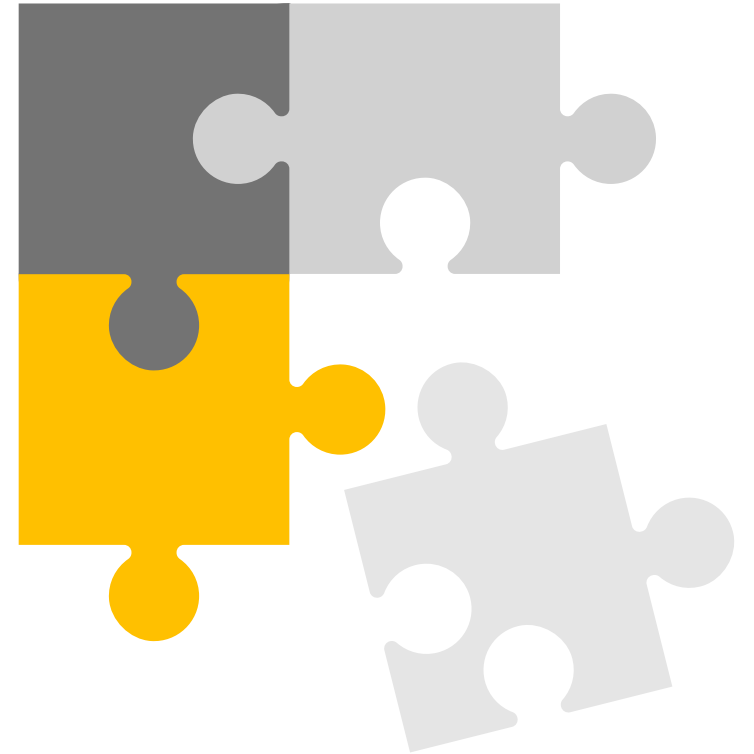
Awareness and Visibility from the Top

- February 2025 Mayor's Office Executive Order
 - Department executives making this high-profile work
- Citywide Digital Accessibility Compliance (CDAC) work group established, led by PM
- Digital Accessibility compliance requires a shift in the entire organization



Gaining Awareness at the IT and GIS level

- Created resources for IT Developers
- Accessibility Advisory Board within IT to establish plan
- GIS-specific resources
- Training Cohorts



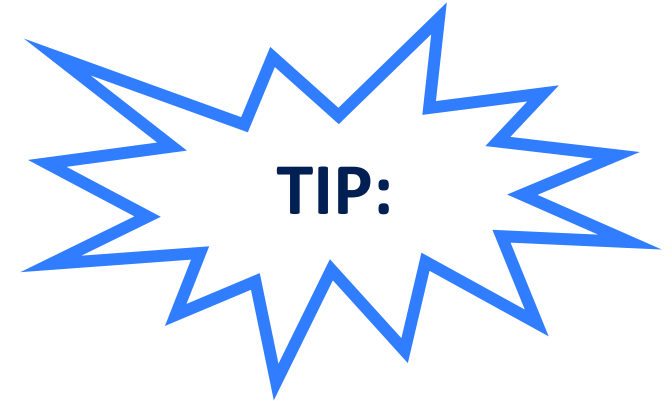
GIS Accessibility

Where to begin?



Inventory: What GIS items need to be compliant?

- “Public-facing digital content and apps are accessible to people with disabilities.”
- Inventory of public-facing applications
 - ArcGIS Online
 - Custom Apps
 - Maps within Tableau and Power BI



Don't underestimate the value of an accurate inventory and governance structure for content. This is worth the effort for many reasons.

Generating an Inventory: Narrow it down

Problem: Thousands of ArcGIS Online items are shared to Everyone, most aren't stand-alone items

Approach:

- Use GEO Jobe Admin Tools to export all public-facing content
- Subject Matter Experts distinguish the “top-level” items exposed to users VS “Apps within Apps”

Item Name	Action	Item Type	User Account	Link
School Safety Map	Upload	Web Map	Transportation_SeattleCityGIS	https://seattlecitygis.maps.arcgis.com/home/item.html?id=9e6313e4fa564886a124bd5f87d26873
Street Use Permit coding tool	Upload	Web Mapping Application	Transportation_SeattleCityGIS	https://seattlecitygis.maps.arcgis.com/home/item.html?id=a0f6ed731e304fbaa837b6c31f42a2ef
MOD Markings Map	Upload	Web Map	Transportation_SeattleCityGIS	https://seattlecitygis.maps.arcgis.com/home/item.html?id=fcd35af93ba44f2b88c956e95807bc45
Right of Way Opening and Restoration Rule	Upload	Web Mapping Application	Transportation_SeattleCityGIS	https://seattlecitygis.maps.arcgis.com/home/item.html?id=49903b3dfa0e4eeb87d12ff9a8ec5cac
Pothole Repair Status	Upload	Web Mapping Application	Transportation_SeattleCityGIS	https://seattlecitygis.maps.arcgis.com/home/item.html?id=5e2cdf9d8735428cb6405db64de6ce8e
Street Type	Upload	Web Mapping Application	Transportation_SeattleCityGIS	https://seattlecitygis.maps.arcgis.com/home/item.html?id=dfeed51c66334b10a82e7a23dc42086f
Seattle Accessible Route Planner	Upload	Web Mapping Application	Transportation_SeattleCityGIS	https://seattlecitygis.maps.arcgis.com/home/item.html?id=86cb6824307c4d63b8e180ebcff58ce2

Key Learnings:

- Discovered this to be a manual exercise
- Discovered content that did not need to be shared publicly

Results:

- ArcGIS Online: **214** “top-level” items built out of **3,364** publicly-shared items
- Two public-facing custom applications

Generating an Inventory: System of Record

Add Accessibility fields to the Citywide Application Inventory

- Evaluation Status, Evaluation Completion Date
- Remediation Status, Remediation Completion Date
- Accessibility Conformance Report (ACR)
- + more

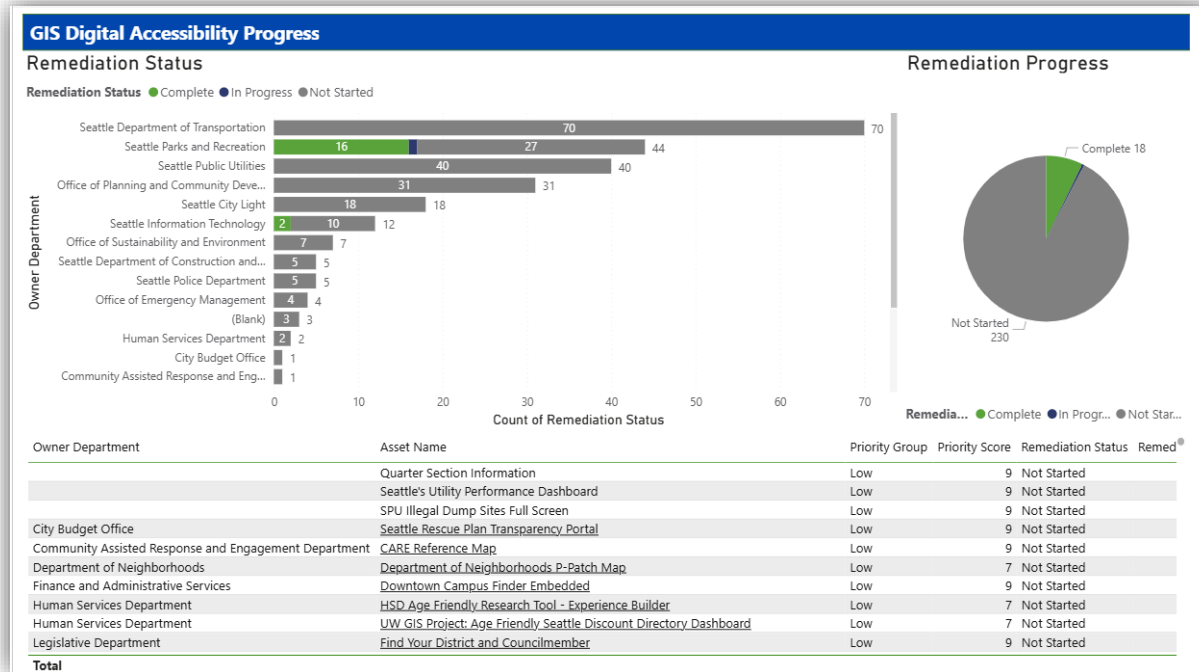
As new apps are rolled out to production, their accessibility compliance is added to the Citywide system of record

The screenshot shows a form titled "Accessibility Attributes" with the following fields:

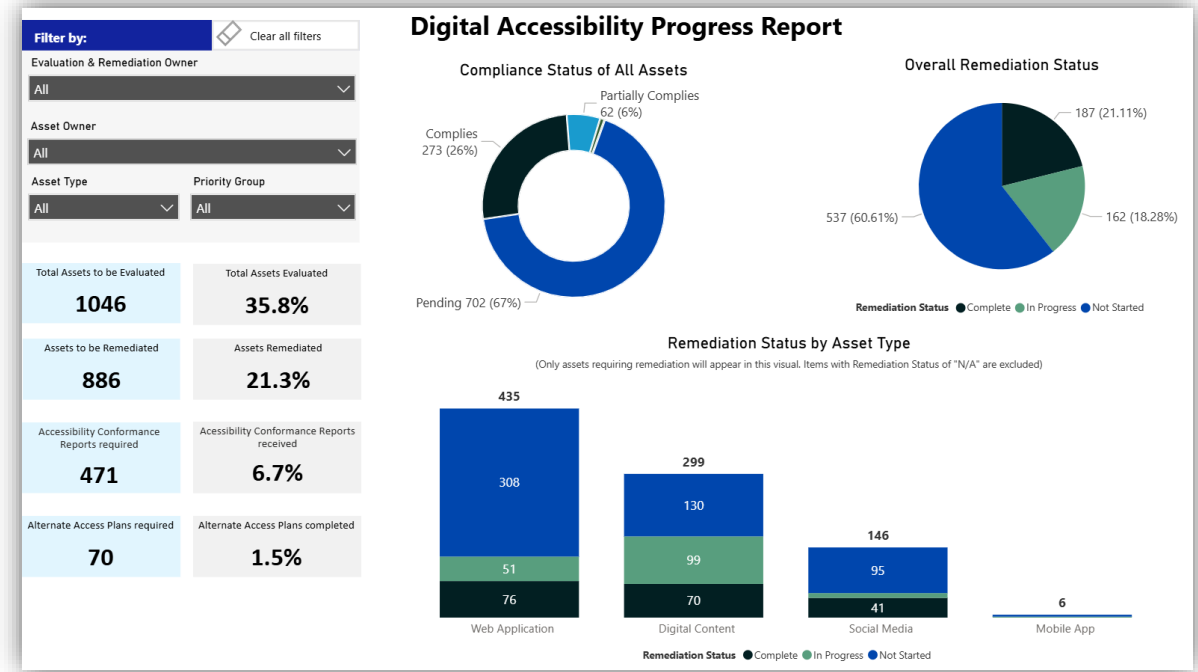
Field Name	Value
Evaluation & Remediation Owner	Seattle Parks and Recreation
ADA Complaints	Unknown
Accessibility Tool(s)	Other
Evaluation Status	Complete
Evaluation Completion %	100
Evaluation Completion Date	12/17/2025
Remediation Status	Complete
Remediation Completion %	100
Remediation Completion Date	12/17/2025
Compliance Outcome	Pending
Compliance Outcome Date	
Accessibility Conformance Report (ACR)	Unknown

Tracking & Reporting Dashboards

GIS Digital Accessibility Progress



Citywide Digital Accessibility Progress



- Audience is GIS content creators
- Pulls from Citywide application inventory
- Built using Microsoft Power BI

- Audience is a broad Citywide audience
- Pulls from SharePoint list
- Built using Microsoft Power BI



GIS Accessibility Guidance



Application Purpose and User Experience

- Think about your audience – what do they actually need to know?
- What is the purpose of your app?
 - Don't include extra layers and tools just because you can
 - Make the workflow and intention clear
- De-center the map, lead with text



What Accessibility Elements are Required?

- Web Content Accessibility Guidelines (WCAG)
- WCAG 2.1 AA has ~50 guidelines
 - Overwhelming
- We do not have control over all aspects of configurable apps.
- Which accessibility elements have the highest impact on end-users?
- Is there low-hanging fruit?
- How can we make this simple for our content creators?



Guideline 1.1

Provide text alternatives for any non-text content

1.1.1 Non-text Content

A **2.0**

- Images, image buttons, and image map hot spots have equivalent [alternative text](#).
- Images that do not convey content, are decorative, or content that is already conveyed in text are given empty alternative text (`alt=""`) or implemented as CSS backgrounds. All linked images have descriptive alternative text.
- Equivalent alternatives to complex images are provided in context or on a separate linked page.
- Form buttons have a descriptive value.
- Inputs have associated [accessible names](#).
- Embedded multimedia is identified via accessible text.
- Frames and iframes are appropriately [titled](#).

Guideline 1.2

Provide alternatives for time-based media.

NOTE: If the audio or video is designated as an alternative to web content (e.g., an audio or sign language version of a web page), then the web content itself serves as the alternative.

1.2.1 Audio-only and Video-only (Prerecorded)

A **2.0**

- A [descriptive transcript](#) of relevant content is provided for non-live audio-only (audio podcasts, MP3 files, etc.).
- A descriptive transcript or [audio description](#) of relevant content is provided for non-live video-only, unless the video is decorative.



1.2.2 Captions (Prerecorded)

A **2.0**

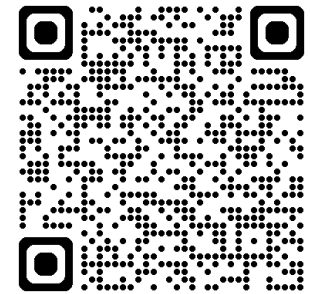
- Synchronized captions are provided for non-live video (YouTube videos.

GIS Accessibility Guidelines

Approach: **prioritize the highest impact accessibility elements that we have control over**

-  **Start Here**
 - Low-hanging fruit that will make a difference for people with disabilities and is easy to implement
-  **Take it further**
 - A little more effort (in many cases, not a lot)
 - Depending on each department's priority, budget, or criticality of the application

[View our full GIS Accessibility Guidelines](#)



[Digital Accessibility | Seattle City Maps](#)

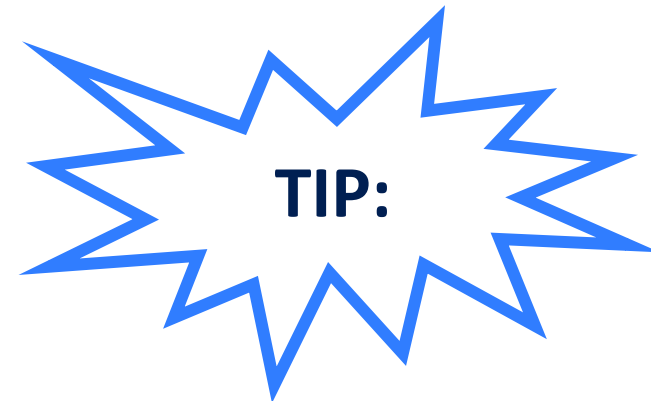
Start Here: Map Viewer

Configurations within the map itself

- **Pop-ups must be configured in Plain Language**
- Image Alt-Text
- Meaningful Links
- Nested Heading Levels



[Map Viewer Accessibility | Seattle City Maps](#)



- Configured pop-ups go a long way.
- Pop-ups can be used by the application in many ways
- A simple text-based pop-up can solve many accessibility issues.



Example: Configured Pop-Ups

Sidewalks: SDW-29597

COMPKEY	327344
UNITID	SDW-29597
UNITDESC	3RD AVE S BETWEEN YESLER WAY AND S WASHINGTON ST, W SIDE
MODDTM	November 14, 2018
CONDITION	FAIR
CONDITION_ASSESSMENT_DATE	June 22, 2017
OWNERSHIP	

Poor example:
Default

Lake Union Park Water Main Replacement & Filter Study

Project Title	Lake Union Park Water Main Replacement & Filter Study
Line of Business	Asset Management and Life Cycle Program
Program	Plumbing and Sewer
Detail Line of Business	Infrastructure and Utilities
Year Completed	2024
Starting Year	2023
Council District	7

Good example:
Aliases, only relevant fields

East Queen Anne Playground

Zoom to

East Queen Anne Playground Wading Pool

Address: 160 Howe St

Wading Pools are open on sunny days when the temperature is forecast to be 70 degrees or above.

The Wading Pool hotline, (206) 684-7796, is updated every morning by 9:30 a.m. If the weather looks uncertain, the hotline is the best way to find out whether or not wading pools or spray parks are open for the day.

Links:

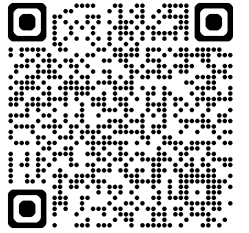
- [SPR Wading Pool Facebook Page](#) for daily updates.

Last edited by SeattleParks_SeattleCityGIS on 5/4/2026, 10:44 AM.

Better example:
Dynamic text

★ Take it Further: Map Viewer

- Symbology color choices – don't rely on color alone
- Consider basemap selection to enhance contrast
- Provide other ways to access the data
- Reduce the amount of visual clutter with scale dependency



[Map Viewer Accessibility |
Seattle City Maps](#)



★ Take it Further: Considerations

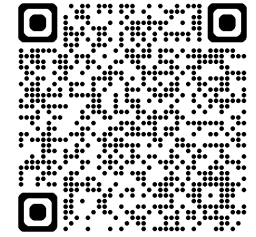
- Do these as much as you can, but...
- Wiggle room for complex maps
- It can be difficult to make a beautiful map and be confined to “don’t rely on color alone”.
- Encourage simplified maps



Start Here: Applications

Configurations within the app builder:

- **Add an “About Panel”**
- Accessibility Statement
- Seattle Branding and appropriate color contrast
- Map Alt-Text
- Image Alt-Text
- Meaningful Links
- Heading Levels
- Focus Order (Experience Builder)

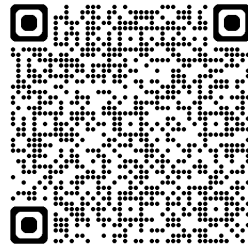


[Application Accessibility Guidelines | Seattle City Maps](#)



About Panel

- States the purpose of the application
- Points users to another way to access the data or get help with app
- Provides a place for an accessibility statement
- See Seattle's [*Spray Parks and Wading Pools*](#) app for an example:



About ×

Introduction

This application shows the location of Seattle Parks and Recreation Spray Parks and Wading Pools in the City of Seattle. Pop-ups include more information about location and hours and alternative ways to find out more about the asset. Users can navigate, search by address, switch languages, view a legend, and share in many ways.

The information that is presented in the map can also be found on the [Seattle Parks and Recreation Spray Parks and Wading Pools](#) webpage.

Wading Pools Hotline (206) 684-7796

Open Data

All layers in this map can be viewed and downloaded through our [Seattle GeoData](#) website.

Terms of Use

The City of Seattle makes no representation or warranty as to its accuracy, and in particular, its accuracy as to labeling, dimensions, contours, property boundaries, or placement or location of any map feature thereof.

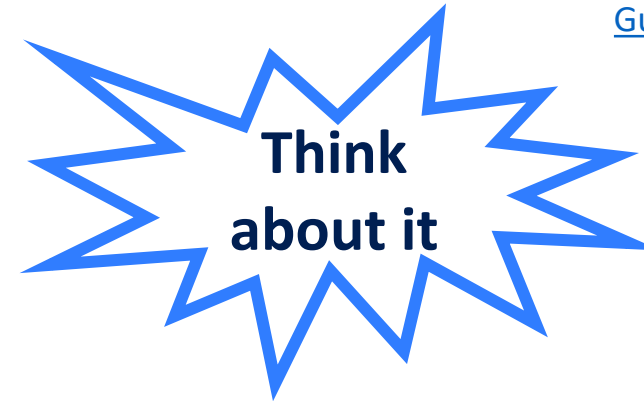
Accessibility Statement

The City of Seattle aims to ensure all digital content and documents are accessible. While efforts are being made to maximize accessibility, some types of content have inherent technical limitations. For more information, visit the [City of Seattle's Web Accessibility page](#).

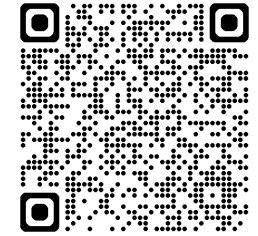
[Enter](#)

★ Take it Further: Applications

- Provide other ways to access the data
- Test and Build Mobile Views of Applications
- Custom-developed Solutions for Accessibility



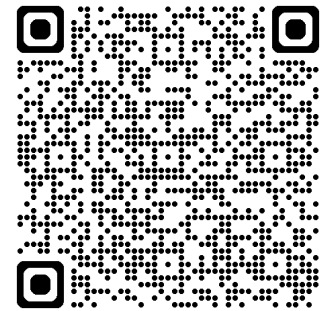
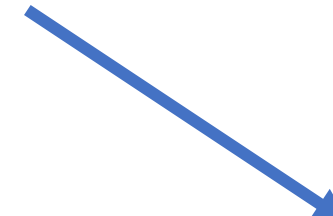
- Over 50% of our seattle.gov traffic is through a **mobile** device
- Have you considered most of your Public users are accessing your app on a phone?
- “Mobile-first” approach: design for the smallest screen first



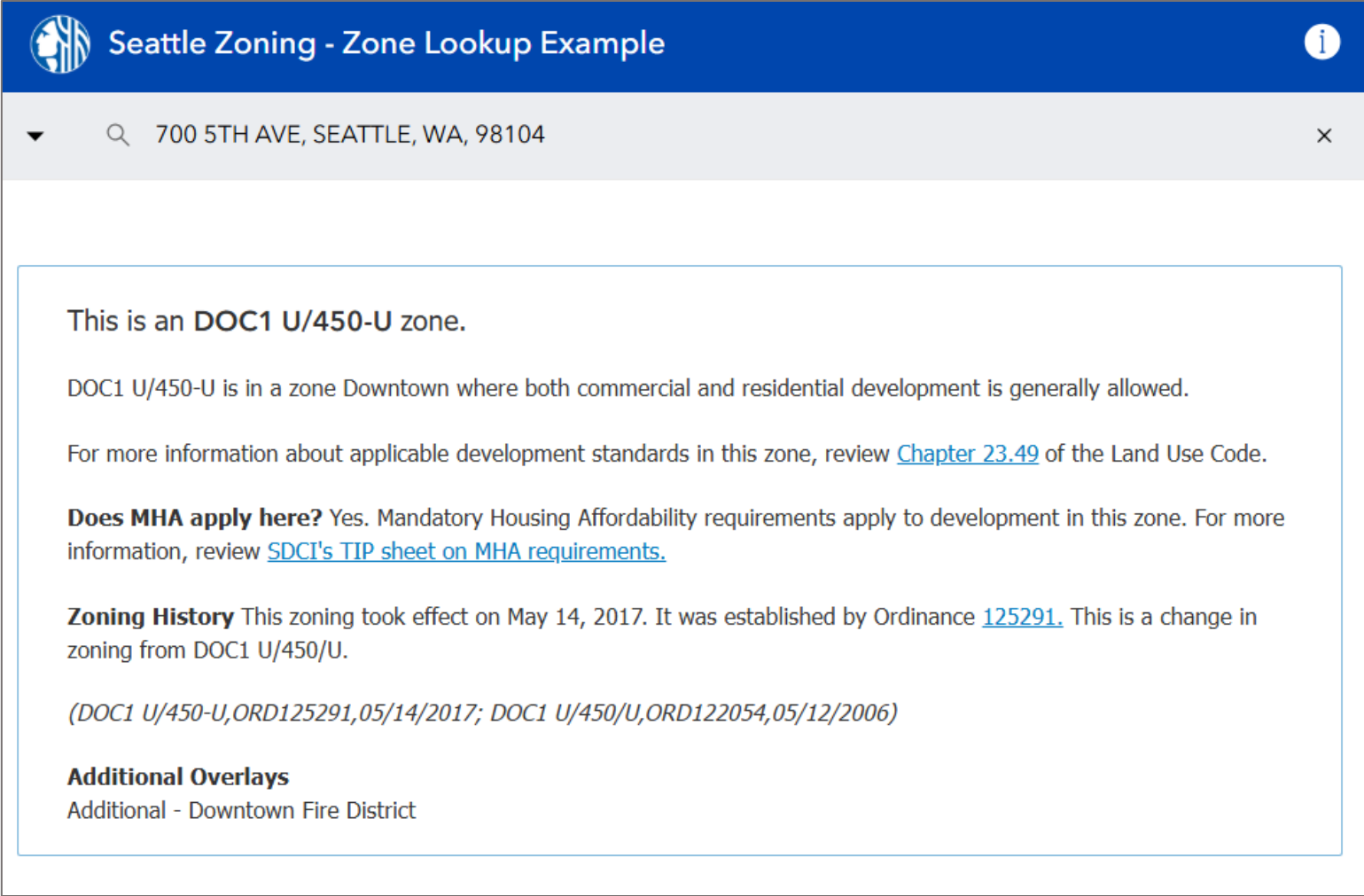
[Application Accessibility Guidelines | Seattle City Maps](#)



Other Ways to Access the Same Info

- Could the same information be conveyed through text on your website?
- Provide access to data on Open Data
- Use the instant app templates "Nearby" or "Zone Lookup" to create a text-based app



Zone Lookup Example



 Seattle Zoning - Zone Lookup Example 

▼ 🔍 700 5TH AVE, SEATTLE, WA, 98104 ×

This is an **DOC1 U/450-U** zone.

DOC1 U/450-U is in a zone Downtown where both commercial and residential development is generally allowed.

For more information about applicable development standards in this zone, review [Chapter 23.49](#) of the Land Use Code.

Does MHA apply here? Yes. Mandatory Housing Affordability requirements apply to development in this zone. For more information, review [SDCI's TIP sheet on MHA requirements](#).

Zoning History This zoning took effect on May 14, 2017. It was established by Ordinance [125291](#). This is a change in zoning from DOC1 U/450/U.

(DOC1 U/450-U, ORD125291, 05/14/2017; DOC1 U/450/U, ORD122054, 05/12/2006)

Additional Overlays
Additional - Downtown Fire District

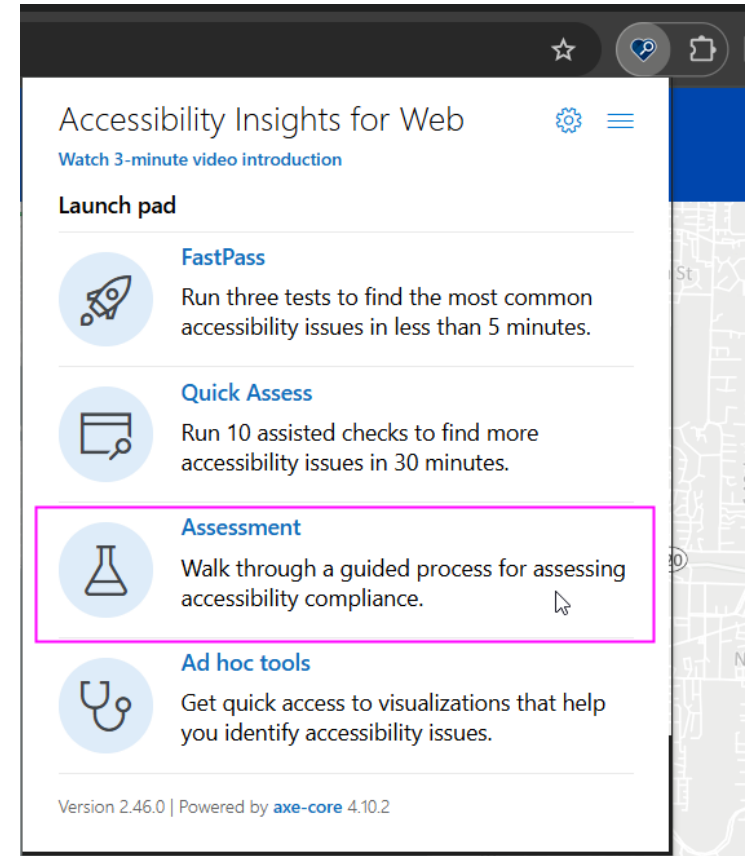


Assessments



Accessibility Insights for Web: Quick Assess

- Quick assessment
- Automated and guided manual checks
- Expand windows / pop-ups



Accessibility Insights for Web: HTML Output

The screenshot shows the 'Accessibility Insights for Web' application interface. At the top, the target page is 'Seattle Parks Trails'. The left sidebar contains a navigation menu with 15 items, including 'Overview' (0% Completed), 'Automated checks', 'Keyboard', 'Focus', 'Landmarks', 'Headings', 'Repetitive content', 'Links', 'Native widgets', 'Custom widgets', 'Timed events', 'Errors / status', 'Page navigation', 'Parsing', 'Images', and 'Language'. The main content area is titled 'Overview' and contains a summary of the assessment process. A progress bar shows 0% completion. Below the progress bar is a 'Test details' table with 12 categories and their respective progress indicators.

Category	Progress
Automated checks	60
Keyboard	0/6
Focus	0/6
Landmarks	0/3
Headings	0/3
Repetitive content	0/4
Images	0/5
Language	0/2
Sensory	0/4
Adaptable content	0/6
Audio / video	0/2
Multimedia	0/5

Test As You Build

Application Configuration

Accessibility Component	What to look for	Tool	How to test	How to Fix
✔ About Panel	Does your app have one or not? Is it descriptive?	Manual		Use guidance on app-specific page
✔ Seattle Branding and appropriate color contrast	Check the contrast between the background and foreground. <ul style="list-style-type: none"> • Regular text • Button text • Different states (visited links, hover over buttons, etc) • If text is over an image, is there enough contrast on all parts of the background image? <ul style="list-style-type: none"> ◦ Even when the browser is resized and the 	Contrast Report - WCAG Colour Contrast Checker SiteImprove	Contrast Report: Use eyedroppers to check background vs foreground contrast. SiteImprove: Run the tool and look for errors "Color contrast does not meet minimum requirement". (Note: this will not pick up contrast issues where text is over an image).	<ul style="list-style-type: none"> • Choose Seattle Branding colors • For text over images, add a drop shadow or halo to text, or darken the background image with a semi-transparent overlay. • Choose a different image for the background or switch to a solid color.

Assessment Tools

- Browser Extensions
 - [SiteImprove Browser Extension](#)
 - [Accessibility Insights for Web](#)
 - [Wave Browser Extension](#)
- Websites
 - [Contrast Report - WCAG Colour Contrast Checker](#)
 - [Bookmarklets](#)
 - [Manual Testing for Accessibility | Digital Accessibility Services](#)
- Applications
 - NVDA

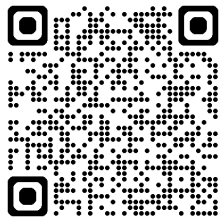
Extra Credit: Use a Screen Reader

- NVDA (Non-Visual Desktop Access) application is free, open source
- Gives an enlightening user experience
- Will likely result in you simplifying your app
- <https://www.nvaccess.org/about-nvda/>

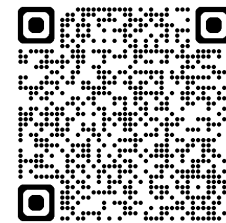


Alternate Access Plans

- Each application that does not comply with WCAG must have an Alternate Access Plan (AAP)
- AAPs is a temporary plan for accessibility until app can be fully compliant
- Example: if the application includes a map (inaccessible), the user can:
 - Call a phone number to help with interpretation
 - Visit the website for a text-based list
- AAP is a User Experience Solution, not necessarily a technology solution



[Colorado's app-specific AAP's](#)



[Harvard's guide for AAP's](#)

Prioritization



Prioritize Remediation

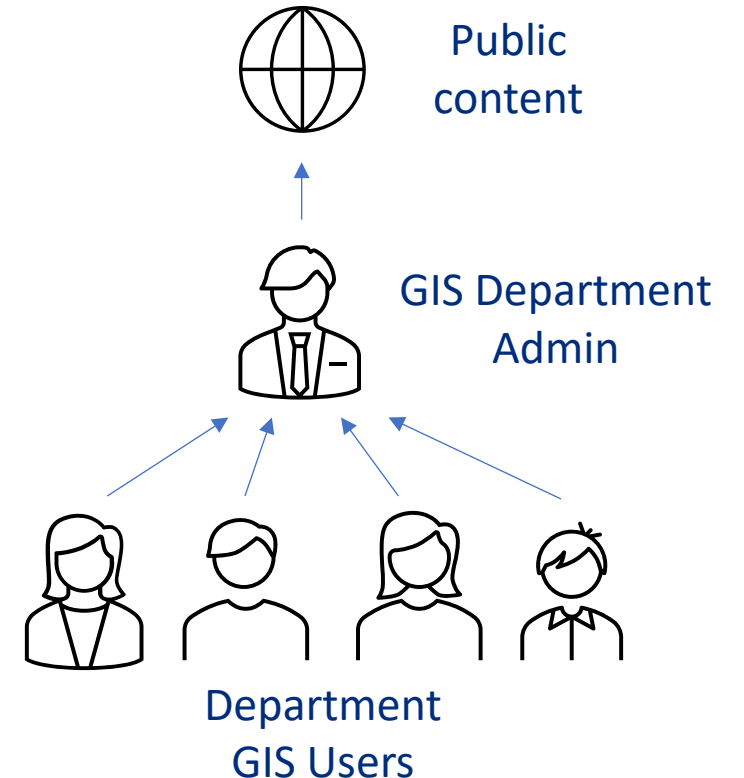
- Remediate critical applications right away
 - Is this the primary way the Public accesses a service?
 - Does access to this application affect public safety?
 - How popular is this application?
- All other applications: Remediate at department's pace
- All new applications must meet guidelines

Supporting Content Creators



WebGIS Governance

- Content creators cannot share to the Public
 - Responsible for following all standards including Digital Accessibility
- GIS Department Admins check to make sure standards are followed before sharing to the public



Support for Content Creators

- SharePoint site with GIS Accessibility Guidelines, including app-specific AAP templates
- GIS User Group meetings with segments for Accessibility
- GIS User Group Team Channel
- Accessibility training cohort
- GIS Accessibility office hours
- Post questions on Esri Community - [Accessibility Questions](#)
 - They actually respond within a day!



Conclusion



Next steps

- Incorporate accessibility training in current WebGIS curriculum
- Further training and awareness of user experience, plain language
- Keep up with Esri's enhancements and adjust guidance
- Standardized accessible templates



Current Pain Points

- Budget constraints limit funding for digital accessibility program
- No Citywide digital accessibility program manager (yet!)
- No straightforward solution for many maps
- High learning curve for everyone
- Accessibility testing is disjointed and clunky, requires many tools



Beyond the Classic Digital Map

- [Tactile Mapping: Cartography for People with Visual Impairments](#)
- A GIS Workflow for 3D Printing Topographic Models
 - Thurs May 21, 9:30am, room 403
- Video game-like navigation by Audiom [Home - XR Navigation](#)
 - Brandon Biggs [WA IPMA Accessibility Matters conference](#) October 2025.
- [AI for conversational map interaction](#) “What do you see in this image?”
- Haptic response with map layers?
 - See OneCourt device with trackable vibrations for watching a sports game

<https://www.esri.com/en-us/esri-press/browse/tactile-mapping-cartography-for-people-with-visual-impairments>

<https://xrnavigation.io/>

<https://youtu.be/SeNkXZjLSY8?si=OqB3j0RpxcJG8j2P>

<https://www.esri.com/arcgis-blog/products/arcgis-pro/geoai/vision-language-models-geospatial-analysis>



Resources

- ArcGIS Community
 - [Accessibility Questions](#)
 - [Accessibility Compliance User Group](#)
- Regional GIS Accessibility Group (Oregon and Washington)
 - Contact Diego.Portillo@portlandoregon.gov
- [WA Dept of Services for the Blind](#)
- [Colorado GIS](#)
- [Minnesota GIS](#)
- 15th Annual [Global Accessibility Awareness Day](#), May 21, 2026



Acknowledgements

- Kim Dowden – Citywide Digital Accessibility Compliance Project Manager
- Megan Erb – Seattle IT Communications Manager
- Michal Perlstein – Seattle IT Digital Engagement
- Jenny Rock – Seattle IT Service Management Product Engineer
- London Walker – State of Colorado GIS



Questions

- Email me and Zinta – put “Accessibility” in the subject
- Catherine.Wendland@seattle.gov
- Zinta.Smidchens@seattle.gov

