



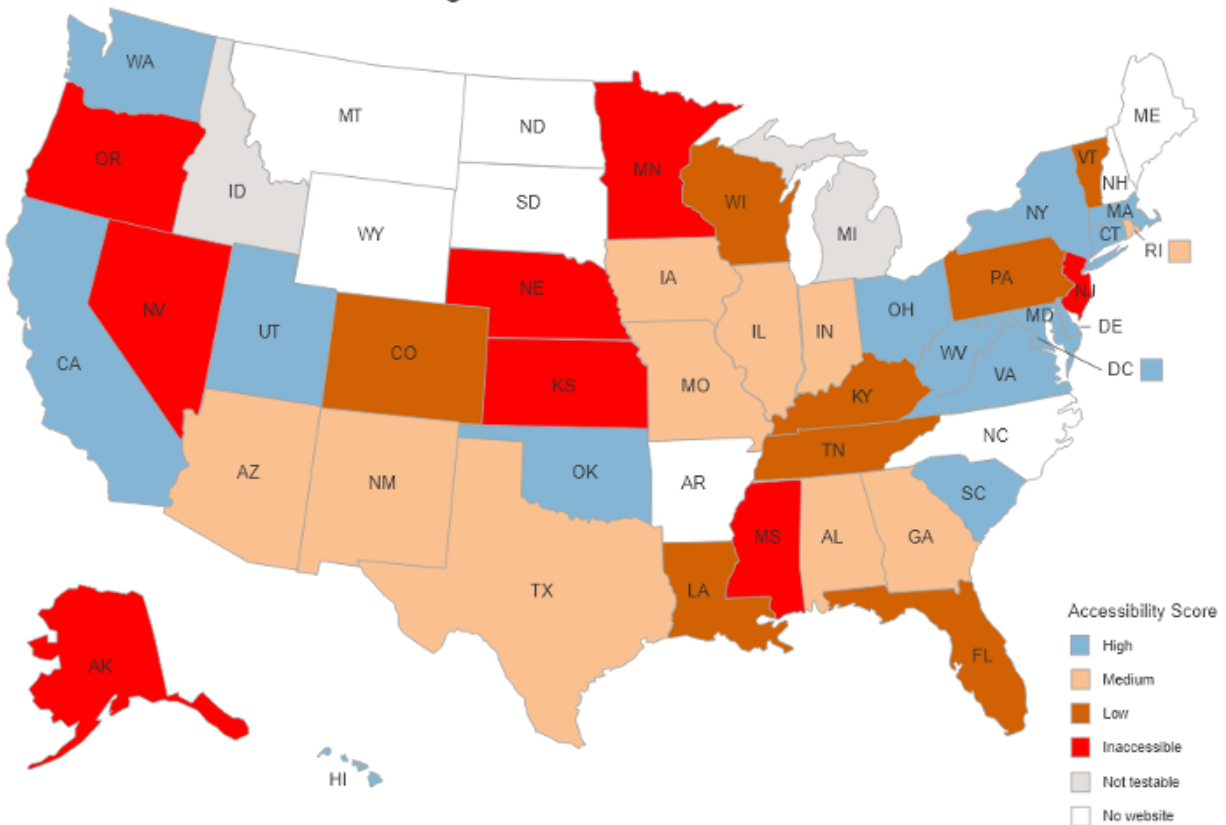
The Inaccessibility of Many State Voter Registration Websites

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Highlights

- Testing with a screen reader tool, VoiceOver on MacOS, revealed that 8 state voter registration websites were inaccessible to a visually impaired user: Alaska, Minnesota, Nebraska, Nevada, New Jersey, New Mexico, North Dakota, Oregon, Kansas, and Mississippi.
- In addition, 14 state voter registration look-up websites—sites that can be used to look up a voter registration and other election information—were inaccessible with a screen reader: Alaska, Connecticut, Georgia, Mississippi, New Hampshire, New Jersey, New Mexico, North Dakota, Oregon, South Dakota, South Carolina, Texas, Vermont, and Wisconsin.
- The 5 states that passed all our accessibility tests – California, Maryland, Oklahoma, Virginia and Washington – had strict web accessibility standards as requirements for official state websites.
- However, 13 out of the 18 states that had either an inaccessible voter registration or voter registration look-up website also had strict web accessibility standards as requirements for state websites.
- A few simple fixes, such as adding more labels to web forms, next page buttons, and submission buttons, would address many of the problems that made the websites we tested inaccessible when using a screen reader.

Voter Registration Websites - VoiceOver Test



A Map Demonstrating the Accessibility Scores of Each State Voter Registration Website Tested Using VoiceOver on a Mac.

Abstract

In this study, we evaluated how many state voter registration and voter registration look-up websites are accessible to disabled Americans using screen readers. Government functions are increasingly migrating online, and today most states offer websites that help Americans register to vote or find their registration and other relevant election information. But what do the 8.1 million Americans who are visually impaired and may rely on screen readers experience when they use these websites? Currently, Section 508 of the Rehabilitation Act regulates website accessibility on federal agency websites. State websites are not required to follow this standard, but many states do so, or have their own strict accessibility standards. We tested the accessibility of each state's voter registration websites first with WAVE, an automated program that checks the HTML of a webpage for compliance with W3C's web accessibility guidelines, and then with VoiceOver, the default screen reader software on Mac computers, to see what problems a disabled user would encounter when trying to register to vote or look up their voter registration. Finally, we researched and ranked the web

accessibility policy and guidelines of each state and the District of Columbia to see whether our test results aligned that state's official web accessibility policy or guideline.

Results summary: When testing with WAVE, we found that the majority of state voter registration websites (79%) and a majority of state voter registration look-up websites (72%) do not comply with W3C's web accessibility guidelines, which are also part of the federal Section 508 standard. When testing with VoiceOver, we found that 8 state voter registration websites were completely inaccessible: Alaska, Kansas, Minnesota, Mississippi, Nebraska, Nevada, Oregon and New Jersey. Fourteen state voter registration look-up websites were also inaccessible with a screen reader: Alaska, Connecticut, Georgia, Mississippi, New Hampshire, New Jersey, New Mexico, North Dakota, Oregon, South Dakota, South Carolina, Texas, Vermont and Wisconsin. Thus, not only are most state websites not complying with accessibility guidelines, but frequently the lack of compliance makes it impossible for a visually impaired user to successfully use a state's website in the ways available to a non-disabled user. The 5 states that led in our accessibility test results – California, Maryland, Oklahoma, Virginia and Washington – all had strict web accessibility standards as requirements for official state websites. However, so did 13 out of the 18 states that failed one of the VoiceOver tests at least once. A few simple fixes, such as adding more labels to web forms, next-page buttons, and submission buttons, would address many of the problems that made the websites we tested inaccessible to someone using a screen reader.

Introduction

Americans increasingly use online websites for critical government services, including voter registration [1]. As government functions move online, many Americans are left behind owing to their disability status. It is of vital importance that these websites be inclusive and accessible if they are to serve the 19.4% of Americans with disabilities, including the 8.1 million Americans who are visually impaired and may need to use screen readers [2, 26]. The Americans with Disabilities Act of 1990 was passed to eliminate discrimination against individuals with disabilities and ensure they have equal access to all walks of life [3]. In addition, Section 508 of the Rehabilitation Act ensures that federal agencies use information technologies that are accessible to those with disabilities [4]. The crucial issue of equal access to state voter registration and voter registration look-up websites is what we investigated in 2020. While Section 508 does not apply to state websites directly, it sets a standard in federal law that many states follow.

In 2014, the ACLU performed a similar in-depth study for 6 states and found that only one, California, was fully accessible [18]. In 2016, the ACLU and disabilities rights advocacy groups successfully sued the New York State Board of Elections and the Department of Motor Vehicles on behalf of two blind plaintiffs unable to access New York State's online voter registration [16, 17].

Our study provides a comprehensive overview of the online accessibility of all state voter registration and voter registration look-up websites in 2020. Given the increasing reliance on digital tools, especially when in-person assistance may be severely strained by the COVID-19 pandemic, it is crucial to investigate whether the problems previously described by the ACLU study in 2014 still exist for state voter registration websites in 2020.

Background

In 1998, Congress amended the Rehabilitation Act of 1973, a predecessor to the ADA, to include Section 508 [5], which addressed web-related equal access issues. Section 508 requires federal agencies to ensure that their technology, including public websites, is accessible to people with disabilities. Inaccessible technology interferes with a disabled individual's ability to obtain and use information at the same level and with the same ease and speed as other non-disabled citizens. Section 508 seeks to eliminate these barriers for technology created by the federal government. This means that all technologies developed, procured and used by federal agencies are both: a) equally accessible to disabled employees; and b) equally accessible to disabled members of the public seeking to use online services or find information. Section 508 only applies to U.S. federal agency websites; Congress and the Judiciary are not included. The U.S. Department of Justice's Civil Rights Division investigates complaints related to Section 508 and provides guidance to both state and local governments to help ensure their technology is accessible [7].

Legal requirements and accessibility standards for state websites vary by state. Some states have no specific laws pertaining to web accessibility or have only soft guidelines. On the other hand, nearly two dozen states incorporated Section 508 into their own laws [6]. Some states created their own accessibility standards based on Section 508 or other standards. These other standards are often those set by the World Wide Web Consortium (W3C), an international non-profit that develops standards to ensure the long-term growth of the web [21]. The W3C developed two sets of "Web Content Accessibility Guidelines", first WCAG 1.0 and later WCAG 2.0 [21]. These guidelines go further than Section 508, which offers a broad, abstract standard, in specifying how to build accessible websites. Section 508 itself was updated in January 2018 to include WCAG 2.0; thus any states that set Section 508 as their standards now automatically include WCAG 2.0 as a requirement [22].


At present, the extent to which websites are covered by accessibility law is a contested topic. The successful 2016 ACLU lawsuit against New York state for having an inaccessible website demonstrated that courts might require state governments to follow their own laws [16, 17]. In 2019, the US Supreme Court let a lower federal court decision in *Domino's Pizza vs. Robles* stand, handing a victory to a blind plaintiff suing Domino's Pizza, a private company, over their website's inaccessibility [18]. Up until 2019, the Supreme Court has not weighed in on whether private companies had to have accessible websites.

Currently, automated tools and services can test websites to see if they meet accessibility guidelines. In Phase 1 of this study, we used a popular automated testing program, the “Web Accessibility Evaluation Tool” (WAVE), on different state websites. WAVE tests the HTML code of websites for their compliance with W3C’s WCAG accessibility guidelines [9]. WAVE is created by WebAIM, a non-profit organization that has provided web accessibility solutions since 1999 [12]. The organization is based at the Center for Persons with Disabilities at Utah State University and aims to expand the potential of the web for those with disabilities [12]. WebAIM provides web accessibility training, evaluation, and consulting services to a wide variety of clients, including government agencies, businesses, educational institutions and Fortune 100 corporations. Its clients include PayPal, Sony, the IRS, and the CIA [12].

Assistive technologies such as screen readers exist to help those with disabilities such as poor vision navigate websites with hearing rather than sight. A popular screen reader is VoiceOver on MacOS. This is the native and default screen reader on all Macs and has significant market share; 13% of screen reader users say it is their primary screen reading software, and 47% say they commonly use it [20]. VoiceOver is an advanced screen reading technology that enables users with visual disabilities to control their computers using various keyboard commands and gestures and to access and interpret websites effectively [14]. The technology describes aloud what is presented on the browser screen. In order for websites to be effectively read aloud by VoiceOver, certain coding must be included during website development to describe non-text elements of the webpage. An example of this is an associated label to describe an input text box. While a user with good vision can read the label next to the text box, a VoiceOver user needs the text box itself to have an associated label in the HTML source file. An example of such a text box is shown in Figure 1 below.

results - avandervorm@college.harvard.edu - Har... Untitled document - Google Docs Final project 1.0 - Google Sheets X

[Skip to Main Content](#) | [Skip to Footer](#)

 **Alex Padilla**
California Secretary of State

[Website Help](#) | [English - Change Language](#) ▼

Welcome!

Here you can:

- Check if you are registered to vote.
- Check where you are registered to vote.
- Check your political party preference.
- Check your language preference for election materials.
- Check the status of your vote-by-mail or provisional ballot.
- Find your polling place.
- Find information for upcoming local and state elections.
- Find contact information for your county elections office.
- Choose how you want to receive your state and county voter guides before each election.

If you recently registered online, please wait at least 24 hours before checking your status.

Personal Information

To find your record, you will need to enter some personal information.
Close your browser when you are done to protect your personal information.

First name *

Figure 1. A Screenshot of an Example of a Text Box Requiring an Associated Label. This screenshot shows an example of a text box (in this case ‘First name’). Such a text box requires an associated label in the HTML source file for the screen-reader technology to read. This label will ensure that the function of the text box is communicated accurately so that the user can use the site.

In Phase 2 of this study, we used VoiceOver to test the accessibility of websites from a user experience perspective. We chose VoiceOver because of its popularity and positive reviews from its users [15] and the relative ease of using VoiceOver on Macs as visually abled individuals to compare what we can see on the browser page versus what is read aloud by VoiceOver.

This study tested 43 state voter registration websites and 50 state voter registration look-up websites (including the District of Columbia, excluding Wyoming), which were all the state websites available online as of July 2020 [8]. For the 8 states without a voter registration website, voters must register in person or submit a paper form. Voter registration and voter registration look-up websites are extremely useful to voters, as they allow them to register to vote or check their registration information for errors without leaving the comfort and safety of their homes. These sites massively simplify the registration process for many Americans [11]. In addition, studies have found that voter registration websites can affect voter turnout. For example, a study of Georgia’s online voting registration system showed that 71% of those who registered online turned out to vote, while only 48% of those who registered by mail turned out to vote [10]. Thus, voter registration sites are extremely useful to voters, disabled and non-disabled alike.

Methods

Voter Registration Websites and Voter Registration Look-up Websites

We tested two types of websites: voter registration websites and voter registration look-up websites. Residents of many states use voter registration websites to register to vote. They use voter registration look-up websites to check their registration information and other election information such as sample ballots, election day polling places, their voting history, and absentee ballot request information. As of July 2020, we found voter registration websites in 43 states including the District of Columbia and voter registration look-up websites in 50 states including District of Columbia. Wyoming was the only state where we found neither. Figure 2 below shows examples of each type of website for Massachusetts.

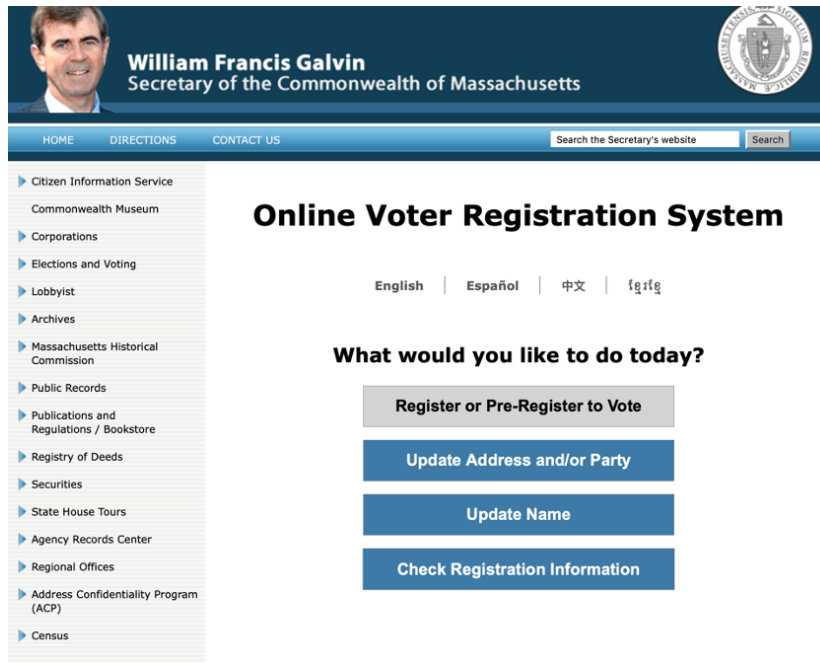


Figure 2.1. Screenshots Demonstrating the Difference Between Voter Look-Up and Voter Registration Websites (using MA as an example). A Massachusetts cover page offers voter registration (“register or pre-register to vote”), voter registration lookup (“check registration information”), and other options.

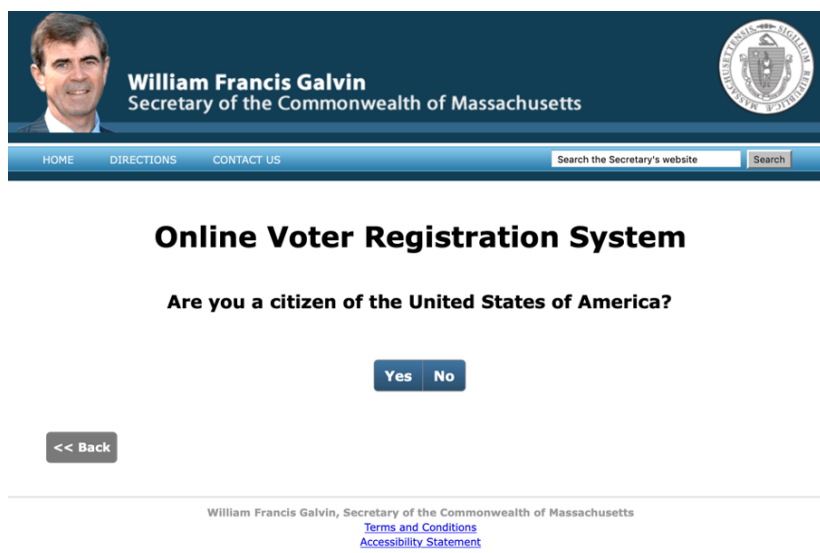


Figure 2.2. This screenshot depicts the start of the online voter registration process for Massachusetts. This is the first page of the voter registration website.

William Francis Galvin
Secretary of the Commonwealth of Massachusetts

HOME DIRECTIONS CONTACT US Search the Secretary's website Search

► Citizen Information Service
Commonwealth Museum

► Corporations

▼ **Elections and Voting**

▼ **Voter Resources**

Register to Vote Online

Am I Registered to Vote?

Where Do I Vote?

View My Ballot

Track My Ballot

Mail-in Registration Form

Automatic Voter Registration

Massachusetts Districts

► Recent Updates

► Research & Statistics

► Voter Information

► Getting on the Ballot

► Publications

► NVRA

► Lobbyist

► Archives

Elections and Voting

English | Español | 中文 | हिन्दी

Find my voter registration status

To find your voter registration information:

- Enter your name, date of birth, and the zip code at which you are qualified to vote.
- Required fields are marked with an asterisk (*).

*** Required: Enter your name**

First name: Last name:

*** Required: Select your date of birth**

Month: Day: Year:

*** Required: Enter your 5-digit zip code**

Zip code:

This webpage is intended for use by the individual voter to determine his or her voter registration status and other information related to voting. Access or attempted access to information that is exempt from public disclosure other than to you as the voter may subject you to criminal prosecution or civil liability.

☐ I understand this statement and agree. You must check this box before you can view your voting information.

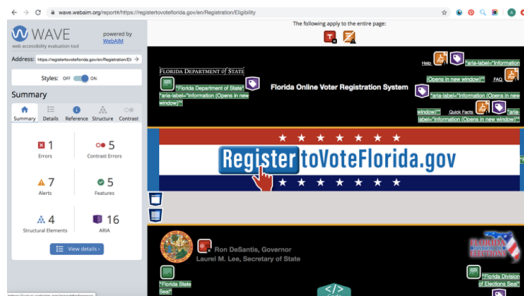
Figure 2.3. This screenshot depicts the first page of the Massachusetts voter registration look-up website. Voters have to fill in their personal information to access their voter information (polling location, absentee ballot application, voter details, voting history etc.).

For Phases 1 and 2, we made a list of the 43 state voter registration websites and the 50 state voter registration look-up websites to test with WAVE and VoiceOver.

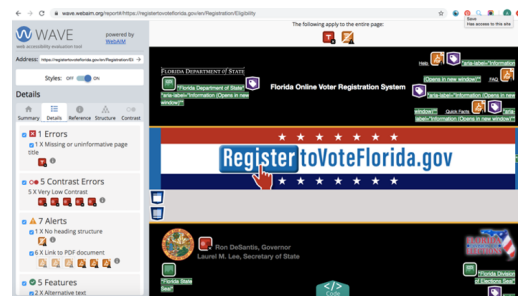
Phase 1: Testing for accessibility errors with WAVE

WAVE is an automated program that checks the HTML of a webpage for compliance with W3C's WCAG web accessibility guidelines.

1. We used WAVE to test each webpage of each state voter registration (Phase 1A) and voter registration look-up website (Phase 1B).
2. We recorded the number and types of accessibility errors WAVE reported for each website. Figure 3 shows an example of a set of results from the WAVE test.



(A)



(B)

Figure 3. Screenshots Depicting an Example of the WAVE Accessibility Tool Results Layout. Both images A and B display the WAVE accessibility tool results for one example website (Florida’s voter registration website). Image A shows the first overview results page. Image B shows the ‘details’ tab, which displays the rundown of errors of different types. WAVE shows where exactly on the webpage each error occurs.

Phase 2: Testing for user experience problems with VoiceOver

We deepened our investigation of accessibility problems on each state voter registration and voter registration look-up websites by using VoiceOver, the default screen reader software on Macs, to compare the experience of using each website as a sighted vs. disabled user. This enabled us to examine whether the accessibility errors in the HTML of a website detected by WAVE translate into experience problems that prevent screen reader users from being able to successfully navigate the site to submit a voter registration or find their voter registration information online.

1. We tested each state voter registration (Phase 2A) and state voter registration look-up (Phase 2B) website pages on a Safari browser with VoiceOver on a Mac computer to look for particular user experience problems that the screen reader user would encounter.
2. We scored each website according to the scale below and recorded the specific experience problems observed, especially if they prevented a user from achieving the intended goal of submitting a voter registration or finding their voter registration online.

Accessibility User Experience Grading Scale

We created this grading scale by analyzing the impact of the problems a VoiceOver user would experience on each website. We determined the extent to which the problems hampered a user’s ability to proceed through the site to perform the site’s intended function. A high score indicates high accessibility, and a score of “inaccessible” means the website could not be functionally used with VoiceOver.

- **High** – No problems, or any problems that existed had no major impact. The site could be used successfully with VoiceOver.
- **Medium** - The problems slightly affect user experience (e.g., there is no description for images), but the site can still be used successfully and easily with VoiceOver. For example, if the site did not provide alternative text to describe an image of a state seal, VoiceOver users would not be aware of that image but could otherwise progress through the site and perform its intended function.
- **Low** - The problems make it fairly difficult to use the website with VoiceOver, but achieving the user’s goals is still feasible, assuming the user makes logical assumptions about what was not read out loud. For example, a county drop-down menu that lacks any labels would affect the user experience, but ultimately the user could likely proceed successfully if they deduced that all the options given were the names of counties in their state.
- **Inaccessible** - The problems render the site inaccessible, and it cannot be used with VoiceOver. For example, if none of the text boxes are labeled with associated text specifically to be read by screen readers, a disabled user would not know what to type in each box, whether their first name, last name, address, or other required information. Thus, they would be unable to proceed to use the website. Another common issue occurred when navigation was not possible because the “continue” or “next” button were images that weren’t readable by VoiceOver. In that case the website was categorized as “inaccessible”.

Phase 2 (VoiceOver) testing was done twice, first in May 2020 and then in July 2020. For the second round of testing, we used a second machine to confirm the results of the May tests using archived copies of the relevant state websites when possible. The results presented in the paper are from the second round of testing in July 2020.

We found that 8 states lacked voter registration websites, and 1 state lacked a voter registration look-up website as of July 2020. In addition, 4 states had voter registration websites and 7 states had voter registration look-up websites that WAVE’s automated program was not able to check for accessibility errors. This was usually due to the state websites treating WAVE as a bot and delivering an error page. We were able to use VoiceOver to test nearly all eligible state websites in Phase 2, including the ones that WAVE was not able to test in Phase 1. We encountered issues with using VoiceOver on Idaho and Michigan’s websites, so they weren’t tested in Phase 2. Thus, the following state websites were excluded from testing in Phase 1 or 2 in some manner:

- 8 states without a voter registration website (not tested in Phase 1 or 2):

- Arkansas, Maine, Montana, New Hampshire, North Carolina, North Dakota, South Dakota, and Wyoming
- 1 state without a voter registration look-up website (not tested in Phase 1 or 2):
 - Wyoming
- 4 states with voter registration websites that could not be tested by WAVE in Phase 1:
 - Connecticut, Massachusetts, Minnesota, and Rhode Island
- 7 states with voter registration look-up websites that could not be tested by WAVE in Phase 1:
 - California, Iowa, Massachusetts, Minnesota, New Mexico, North Dakota, and Utah
- 2 states with voter registration websites not testable with VoiceOver in Phase 2:
 - Idaho and Michigan
- 2 states with voter registration look-up websites not testable with VoiceOver in Phase 2:
 - Idaho and Michigan

Phase 3: Researching State Website Accessibility Policies and Guidelines

We researched state accessibility laws and policies to compare how these standards and guidelines aligned with our WAVE and VoiceOver accessibility test results in phases 1 and 2.

- We searched “[state] web accessibility policy” on Google for each state to find their policy/standards (if any). As a starting point, we used resources provided by 3Play Media, a company that focuses on video accessibility [23].
- We recorded what we found, if any, about accessibility standards for each state.
- We divided states into 5 categories based on their accessibility standards and then sorted into 2 tiers based on the strictness of their standards.

State Accessibility Standard Category

We created these categories based on shared characteristics of different states’ accessibility standards and laws.

- **Strict Section 508** – A state falls into this category if Section 508 is stated as the required standard for accessibility compliance. In most cases, this is part of the state’s laws. Since Section 508 now includes WCAG 2.0 compliance, these states also automatically require WCAG 2.0, even if it is not specified in the state policy.
- **Strict W3C Level Standards** – A state falls into this category if the state does not require Section 508 compliance but does require compliance with W3C standards (WCAG 1.0 or WCAG 2.0).
- **Strict Unique Regulations** – States that have their own policies or laws that exceed Section 508 fall into this category.
- **Soft Section 508** – A state falls into this category if Section 508 is described by the state as a guideline for state websites but not a legal requirement.
- **Soft W3C Level Standards** – A state falls into this category if it offers WC3’s WCAG as guidelines but not requirements.

Tiers Based on Strictness of State Accessibility Standard Category

We then created 3 tiers based on the strictness of each state’s accessibility standard category.

Tier 1 – These states have the strictest web accessibility policies. They adopt a high standard for web accessibility and require state websites to meet this standard. These are the states that fall into the three following accessibility standard categories: “Strict Section 508”, “Strict W3C Level Standards”, or “Strict Unique Regulations”.

Tier 2 – These states have accessibility standards, but they are only guidelines; there is no legal or compliance requirement involved. These are the states that were in the “Soft Section 508” or “Soft W3C Level Standards” categories.

Results

Phase 1A Results. Testing State Voter Registration Websites for Accessibility Errors with WAVE

We found that only 8 states with voter registration websites passed the WAVE test without any major accessibility errors: California, Illinois, Indiana, Maryland, New York, Oklahoma, Virginia, and Washington. Of the 39 testable state voter registration websites, 31, or 79%, failed the WAVE test and were not compliant with the W3C’s WCAG accessibility guidelines. Figure 4 shows each state’s performance in the WAVE test.

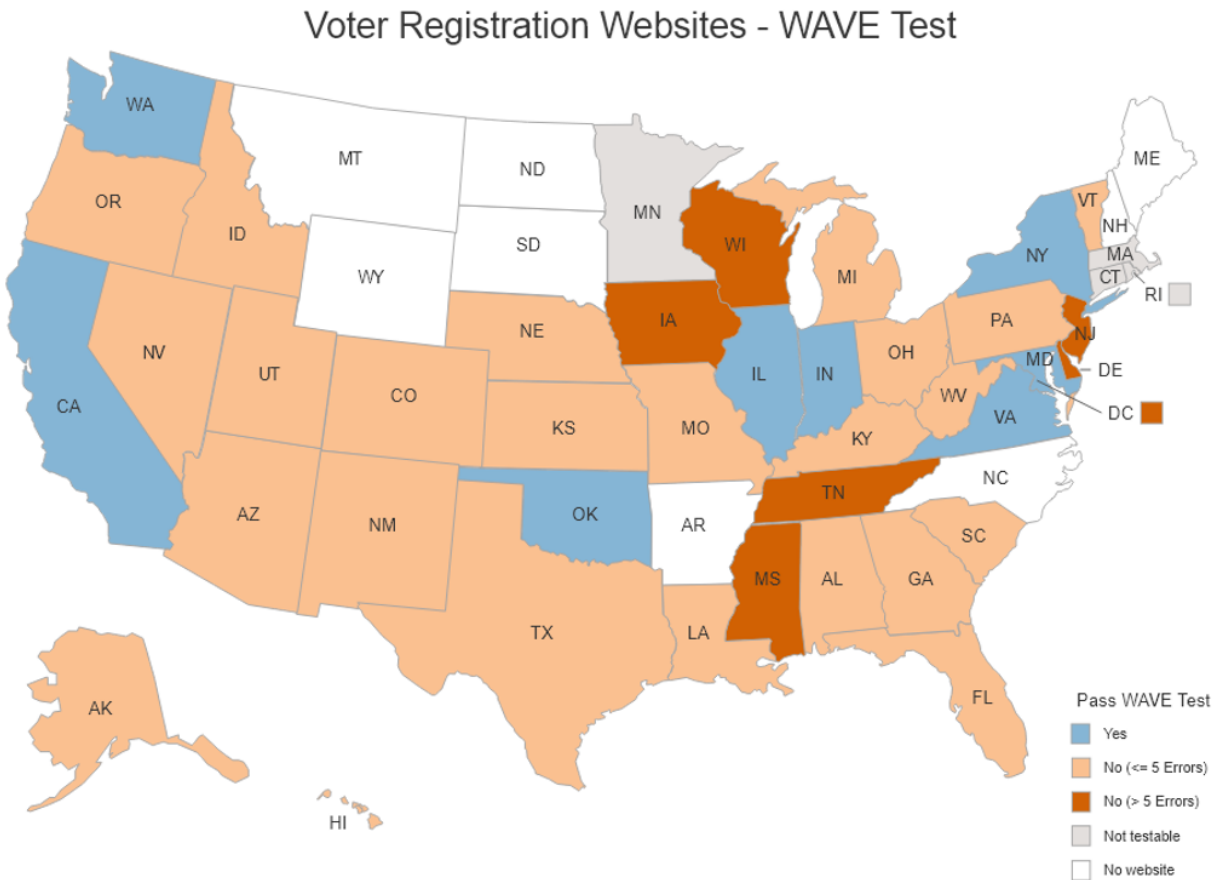


Figure 4. This map demonstrates which state voter registration websites met accessibility standards in the WAVE test. It shows that only 8 states had accessible voter registration websites compliant with W3C's WCAG guidelines.

In terms of types of errors found, 4 of the states that passed the WAVE test had no errors at all, while the other 4 had a few contrast errors. Contrast errors refer to a lack of contrast between background and foreground colors, which can make it hard for users with low vision to read and interpret the content. Since contrast errors can be overcome by screen readers, we did not count contrast errors as a major accessibility error in this study. Figure 6 shows the types of errors that WAVE found for voter registration websites. The most common was a “multiple form labels” error; 20 out of the 112 errors were of this type. A “multiple form label” is where a form control such as a text box has more than one label associated with it. This is problematic for those using screen readers because, if a form control has more than one label associated with it, the screen reader may not read aloud the correct label, and thus the user may be unable to proceed [9].

Phase 1B Results. Testing State Voter Registration Look-up Websites for Accessibility Errors with WAVE

We found that only 12 of 43 testable state voter registration look-up websites passed the WAVE test: Arizona, Arkansas, Illinois, Indiana, Maryland, Michigan, Montana, Oklahoma, South Carolina, Washington, District of Columbia, and West Virginia. Thus, 72% of the websites were not compliant with W3C's WCAG accessibility guidelines. Figure 5 shows a color-coded map categorizing the states' performance in the WAVE test.

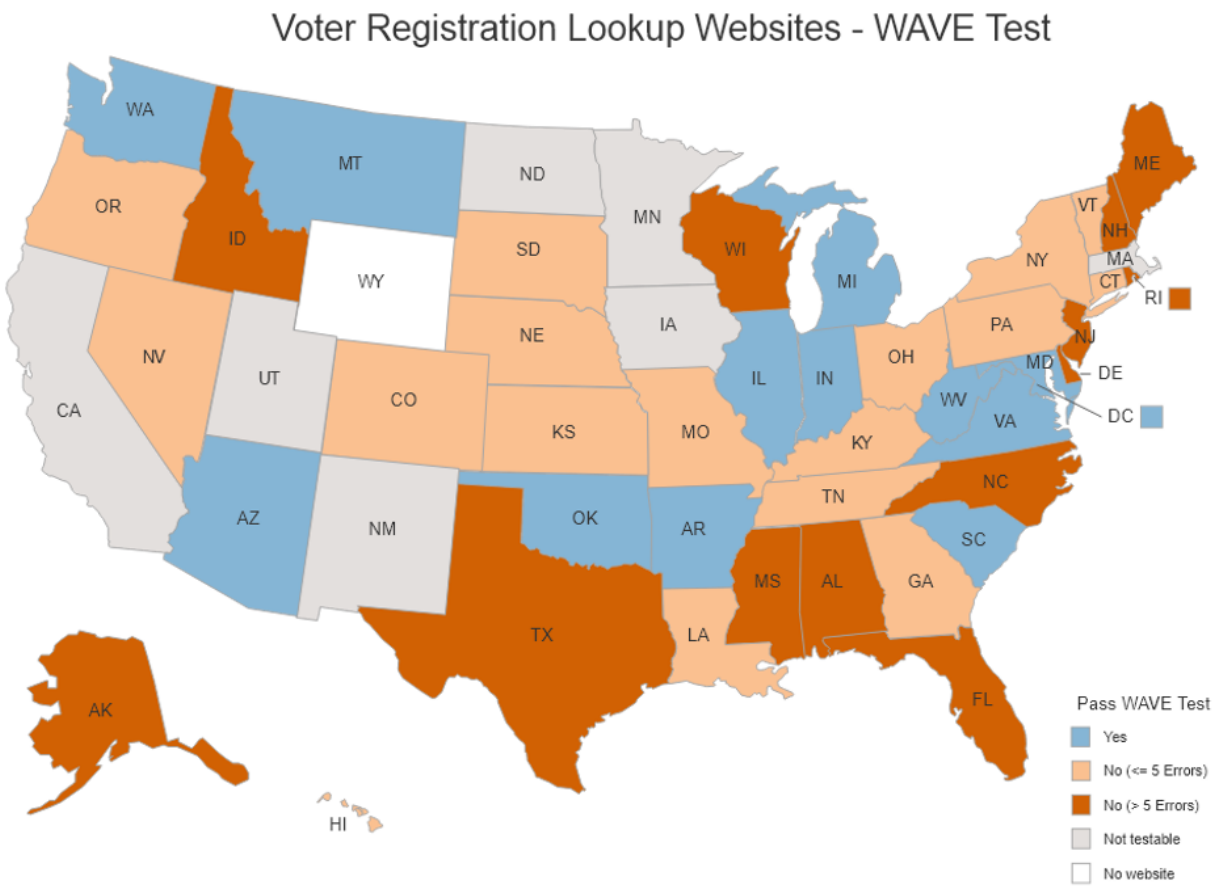


Figure 5. A map demonstrating which state voter registration look-up websites meet the W3C accessibility guidelines. It shows that only 12 of 43 successfully tested sites had accessible, W3C WCAG-compliant voter registration look-up websites.

In terms of the accessibility errors found by WAVE, 8 of the compliant states had no errors at all, while 4 states had up to four contrast errors. For other errors found, the most common type of error on voter registration look-up websites is the “missing form labels” error. Of the total of 169 errors, 77 (46%) were of this type. This type of error would cause a screen reader to skip reading aloud the description of an input form such as a text box.

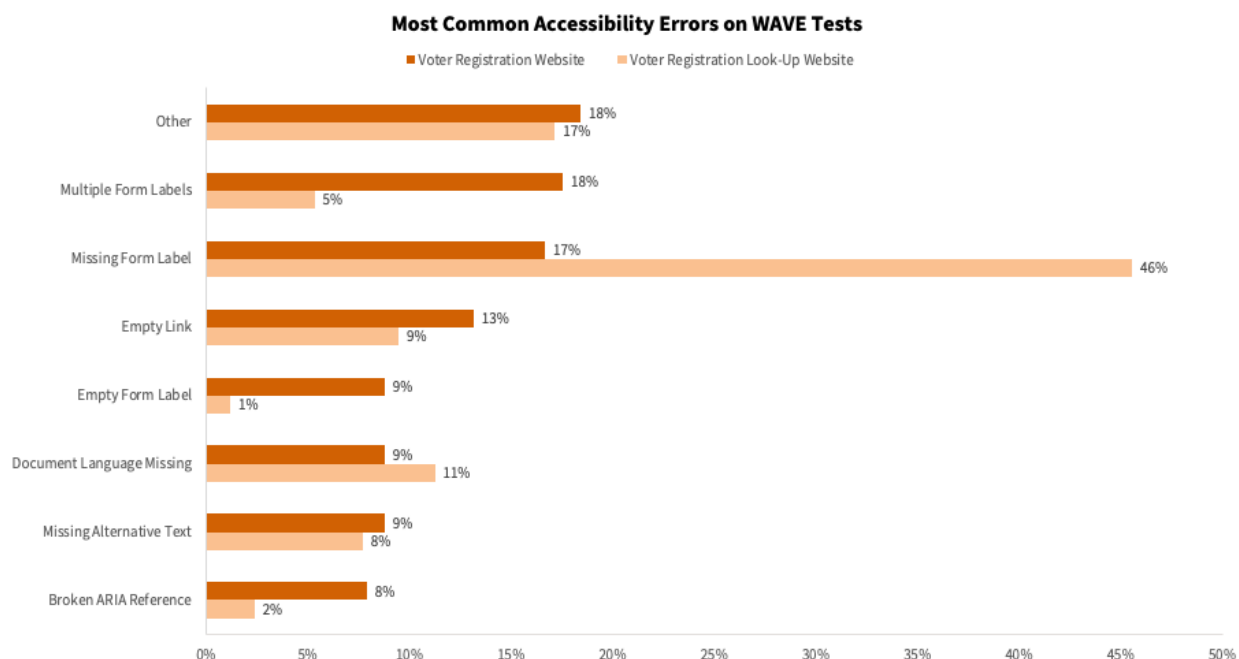


Figure 6. Most Common Accessibility Errors on WAVE Tests. The most common types of error are “multiple form labels” for voter registration websites and “missing form label” for voter registration look-up websites. The “other” category includes all the additional types of errors, including empty heading, empty button, broken skip link, broken ARIA menu, uninformative page title, linked image or spacer image missing alternative text, page refreshes/redirects, missing button, and missing or uninformative page.

Phase 2A Results. Testing State Voter Registration Websites for User Experience Problems with VoiceOver

After testing the user experience with VoiceOver, we categorized 8 state voter registration websites as completely inaccessible: Alaska, Kansas, Minnesota, Mississippi, Nebraska, Nevada, New Jersey, and Oregon (Figure 7). These websites failed the test because of missing form labels, which meant a user could not know what to enter into a text box, or missing labels for submit/continue buttons, which caused VoiceOver to skip over the buttons when reading out loud. A further 8 states had “low” accessibility scores, meaning that the websites could only be navigated with great difficulty by asking the disabled user to infer what’s missing based on context clues. These states were Colorado, Florida, Kentucky, Louisiana, Pennsylvania, Tennessee, Vermont, and Wisconsin (Figure 7). Fifteen states had high accessibility scores (Figure 7).

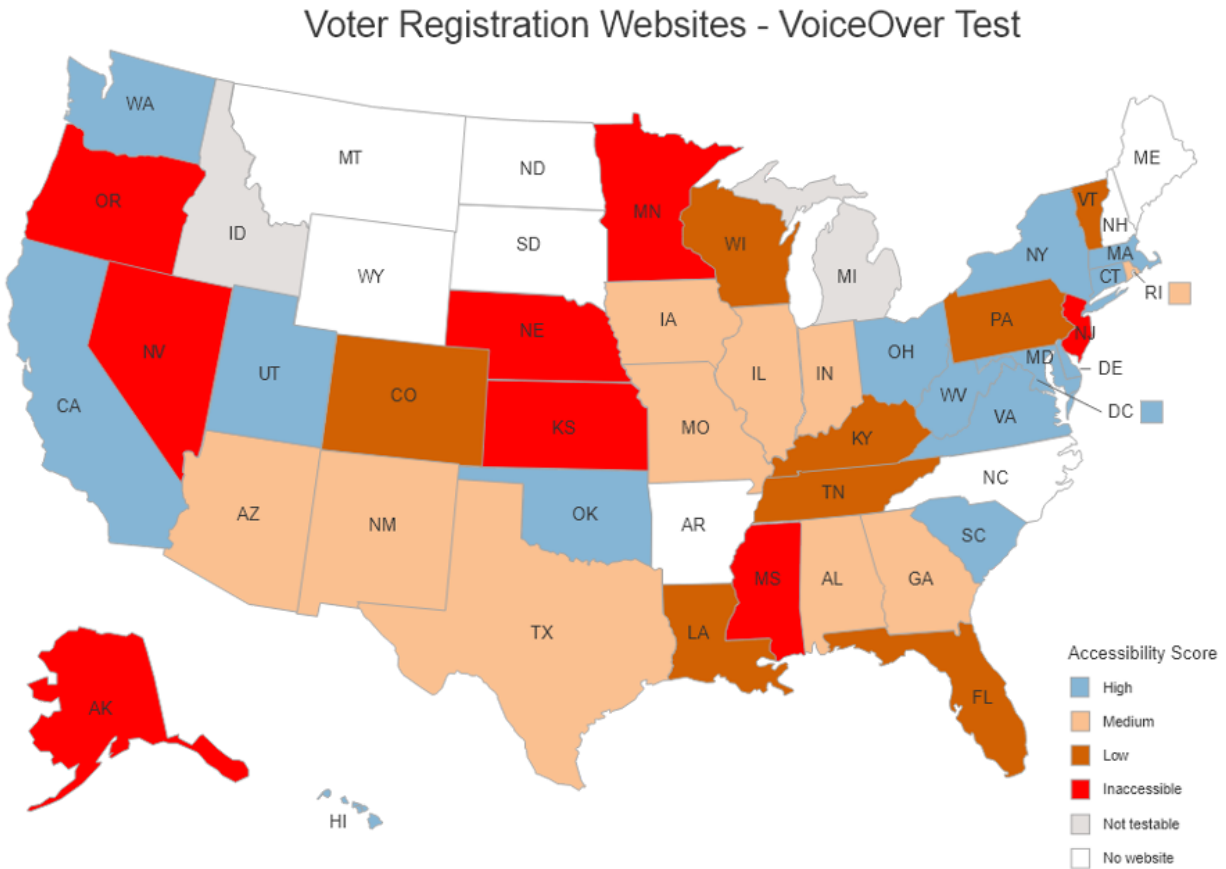


Figure 7. A map demonstrating the accessibility score of each state voter registration website tested using VoiceOver. Eight states' sites were completely inaccessible, and a further 8 states had low accessibility. Only 15 states were scored as having high accessibility.

Figure 8 shows a screenshot for each of the 8 inaccessible state voter registration websites with a red box highlighting the area(s) of the webpage that made it completely inaccessible. These areas represent functions that a disabled user using VoiceOver could not perform.

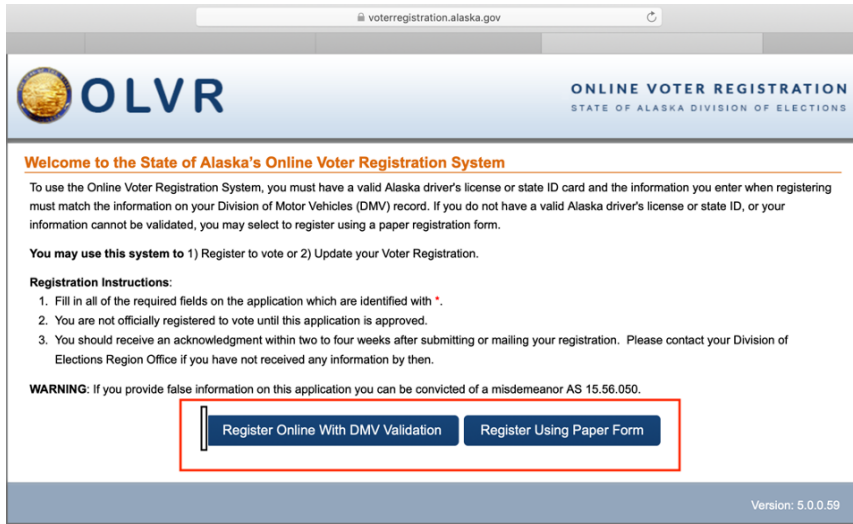


Figure 8.1. A screenshot demonstrating the area of Alaska’s voter registration site that rendered it inaccessible.

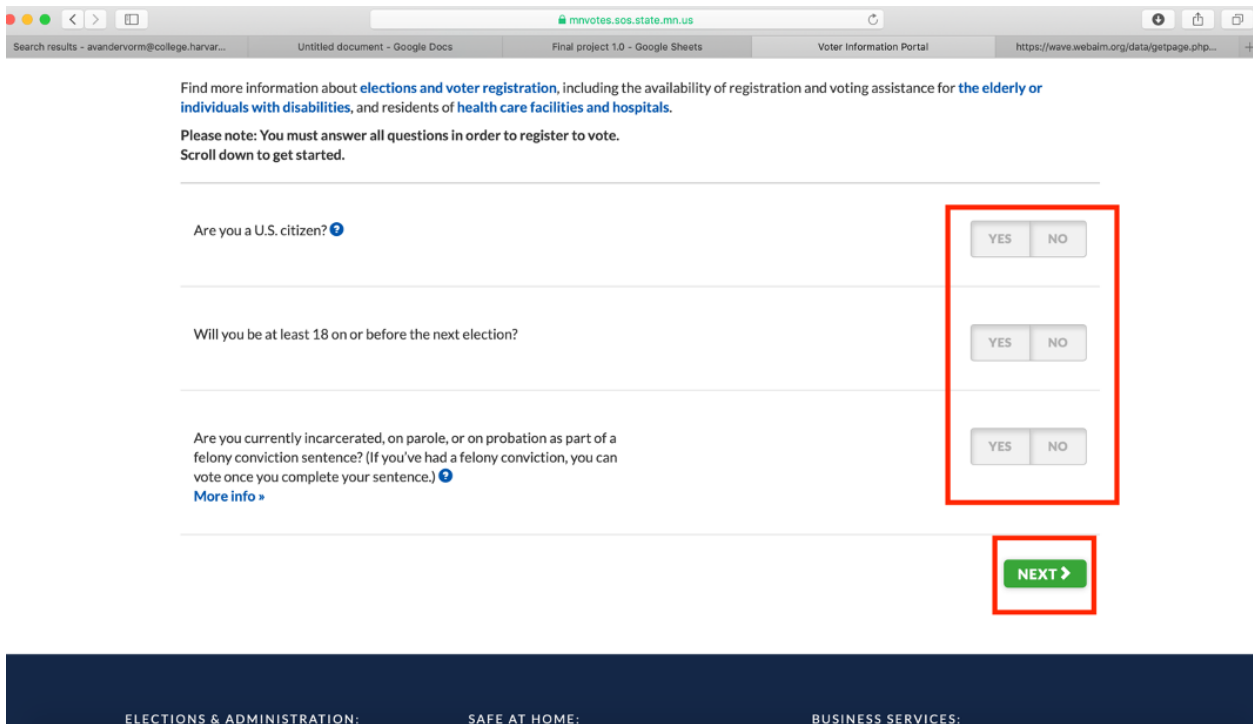


Figure 8.2. A screenshot demonstrating the areas of Minnesota’s voter registration site that rendered it inaccessible.

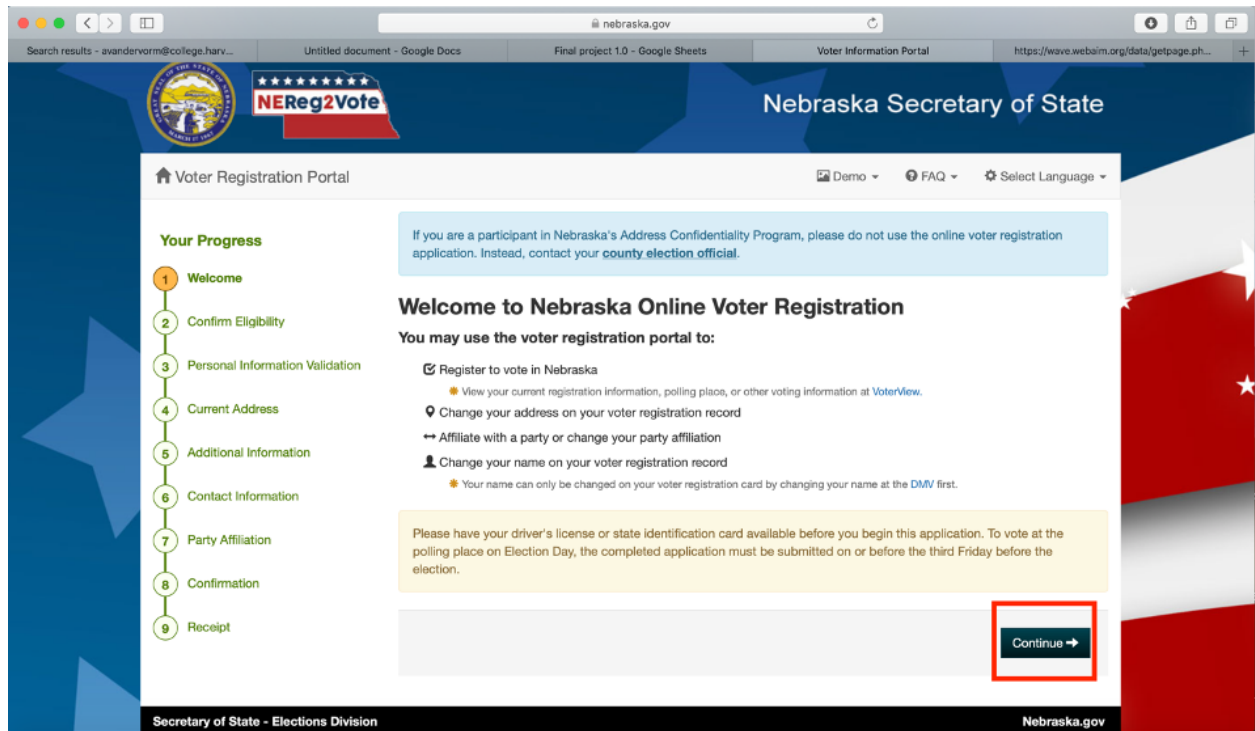


Figure 8.3. A screenshot demonstrating the area of Nebraska’s voter registration site that rendered it inaccessible.

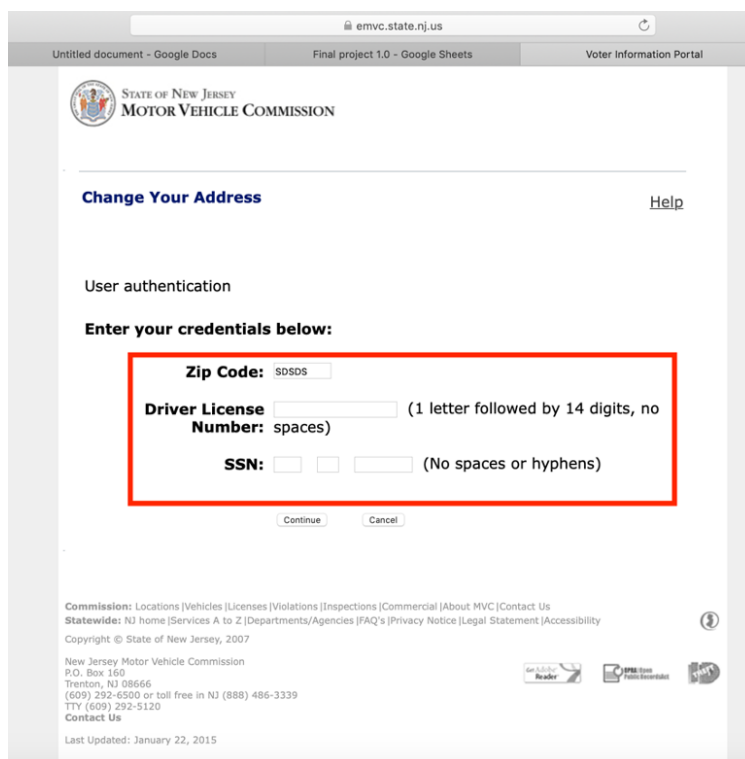


Figure 8.4. A screenshot demonstrating the area of New Jersey's voter registration site that rendered it inaccessible.

The screenshot shows a web browser window with the URL `secure.sos.state.or.us`. The page header includes the Oregon Secretary of State logo and navigation links: Home, Business, Voting & Elections, State Archives, and Audits. The main section is titled "My Vote" and contains a "Search criteria" form. The form prompts the user to "Please enter the following information to check or update your voter registration or track your ballot." and includes fields for First Name, Last Name, and Date of Birth (mm/dd/yyyy). The "First Name" field is highlighted with a red rectangular box. Below the form are "Submit", "Reset", and "Cancel" buttons. To the right of the form is a "Language" dropdown menu set to "English" and a "Disclaimers" section with two bullet points. The footer contains the Oregon State Seal, contact information for the Elections Division, links to Privacy and Accessibility policies, and information about Oregon.gov and ODVA.

Oregon Secretary of State
Bev Clarno

Home Business Voting & Elections State Archives Audits

My Vote

Search criteria

Please enter the following information to check or update your voter registration or track your ballot.

First Name

Last Name

Date of Birth (mm/dd/yyyy)

Submit Reset Cancel

Language
English

Disclaimers:

- Voter information updated on March 19, 2020.
- If your information is confidential or you are not yet 18 years old, contact your [county elections official](#) to confirm your registration status.

Contact
Elections Division
255 Capitol St NE, Ste 501
Salem, OR 97310
Phone: 503-986-1518 or 1-866-673-VOTE
Fax: 503-373-7414

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ODVA LEARN ABOUT VETERAN BENEFITS

Figure 8.5. A screenshot demonstrating the area of Oregon's voter registration site that rendered it inaccessible.

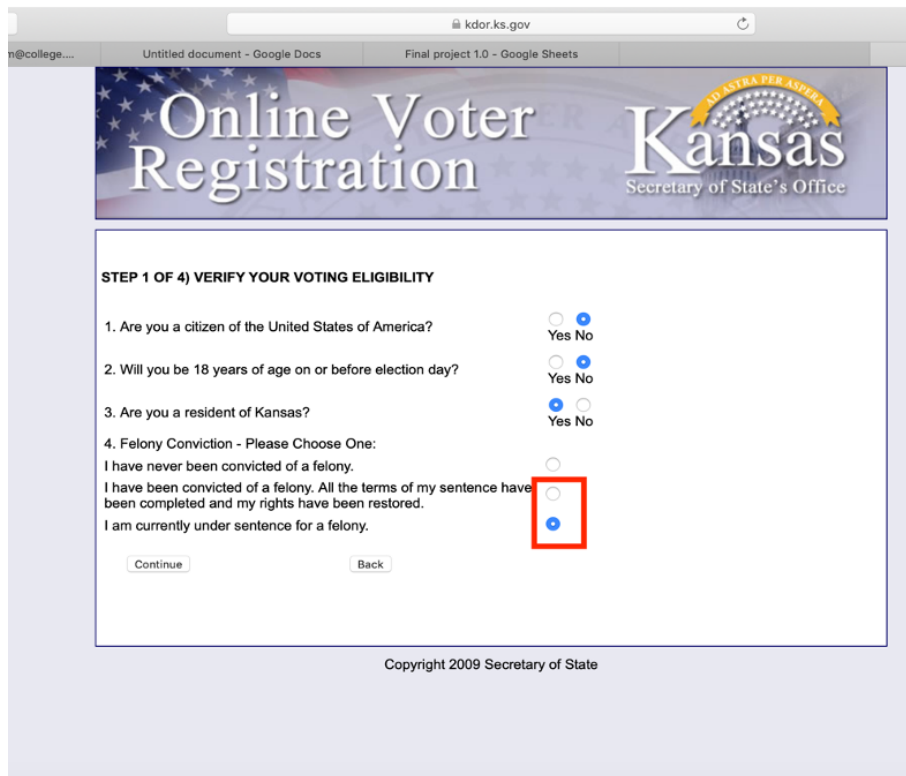


Figure 8.6. A screenshot demonstrating the area of Kansas' voter registration site that rendered it inaccessible.

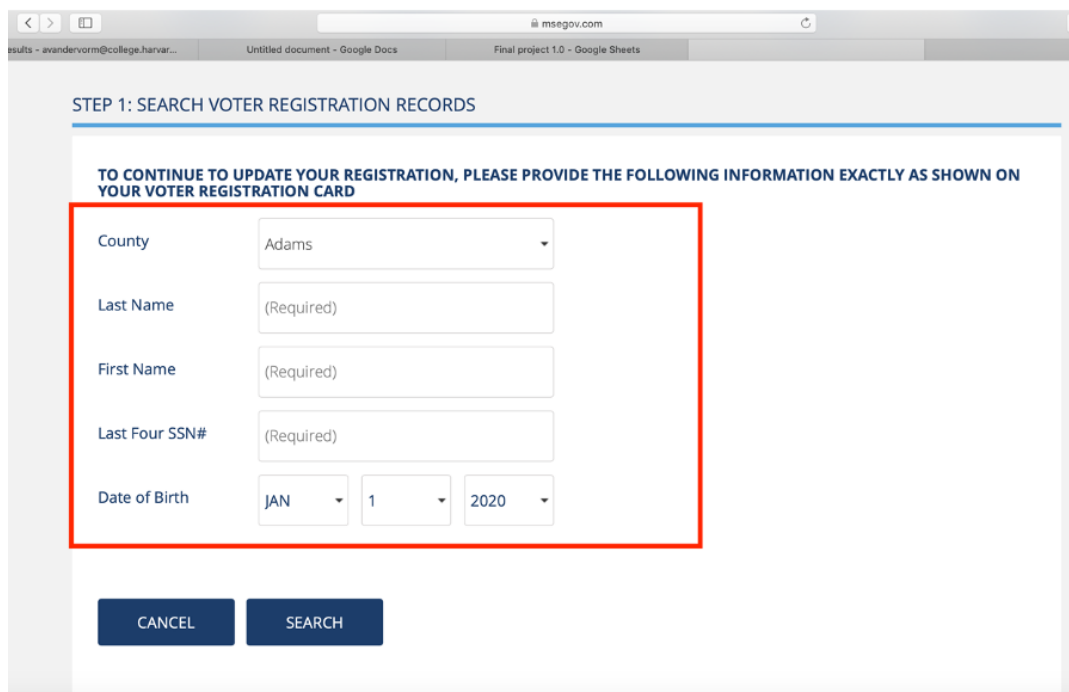


Figure 8.7. A screenshot demonstrating the area of Mississippi’s voter registration site that rendered it inaccessible.

Figure 8.8. A screenshot demonstrating the areas of Nevada’s voter registration site that rendered it inaccessible.

Phase 2B Results. Testing State Voter Registration Look-Up Websites for User Experience Problems with VoiceOver

We found that 14 state voter registration look-up websites were completely inaccessible to a user using VoiceOver. These states were Alaska, Connecticut, Georgia, Mississippi, New Hampshire, New Jersey, New Mexico, North Dakota, Oregon, South Dakota, South Carolina, Texas, Vermont and Wisconsin (Figure 9). A further 4 states had low accessibility: Colorado, Florida, Hawaii, and North Carolina (Figure 9). The remaining 26 states had high accessibility (Figure 9). Figure 10 shows screenshots of the precise parts of the website for each of the 14 states that were inaccessible using VoiceOver.

Voter Registration Lookup Websites - VoiceOver Test

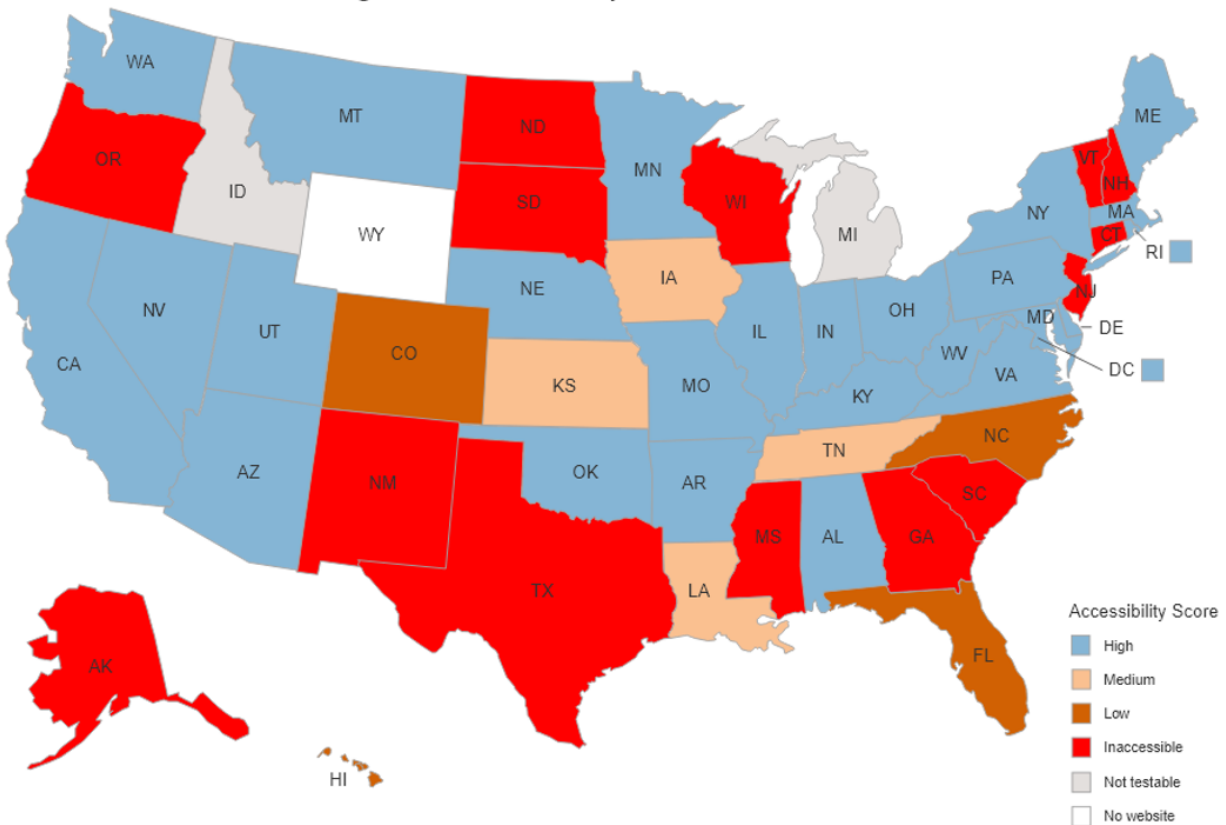


Figure 9. A map demonstrating the accessibility scores of each state voter registration look-up website tested using VoiceOver. Fourteen states were completely inaccessible. A further 4 states had low accessibility. Twenty-six states had high accessibility.

VOTER INFORMATION
State of Alaska, Division of Elections

Use this page to check:

- Voter Registration Status
- Polling Place Location
- Absentee Application and Ballot Status

The information available through the Voter Information tool is pursuant to AS 15.07.195.
This tool will not provide information for individuals who chose to keep their residence address private. They will need to contact an Elections Regional Office.

[Click here for a list of Regional Offices](#)

Version: 5.0.0.25

Enter Information:

Last Name:

First Name:

Mailing City:

☐ I'm not a robot

Submit Clear

Figure 10.1. A screenshot demonstrating the area of Alaska's voter registration look-up site that rendered it inaccessible.

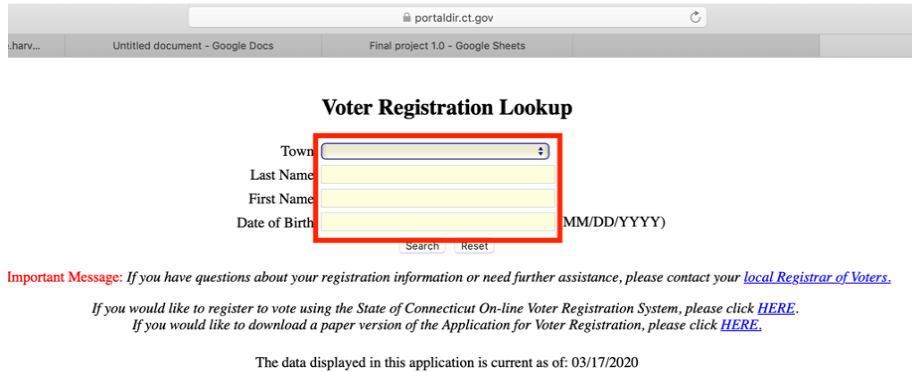


Figure 10.2. A screenshot demonstrating the area of Connecticut’s voter registration look-up site that rendered it inaccessible.

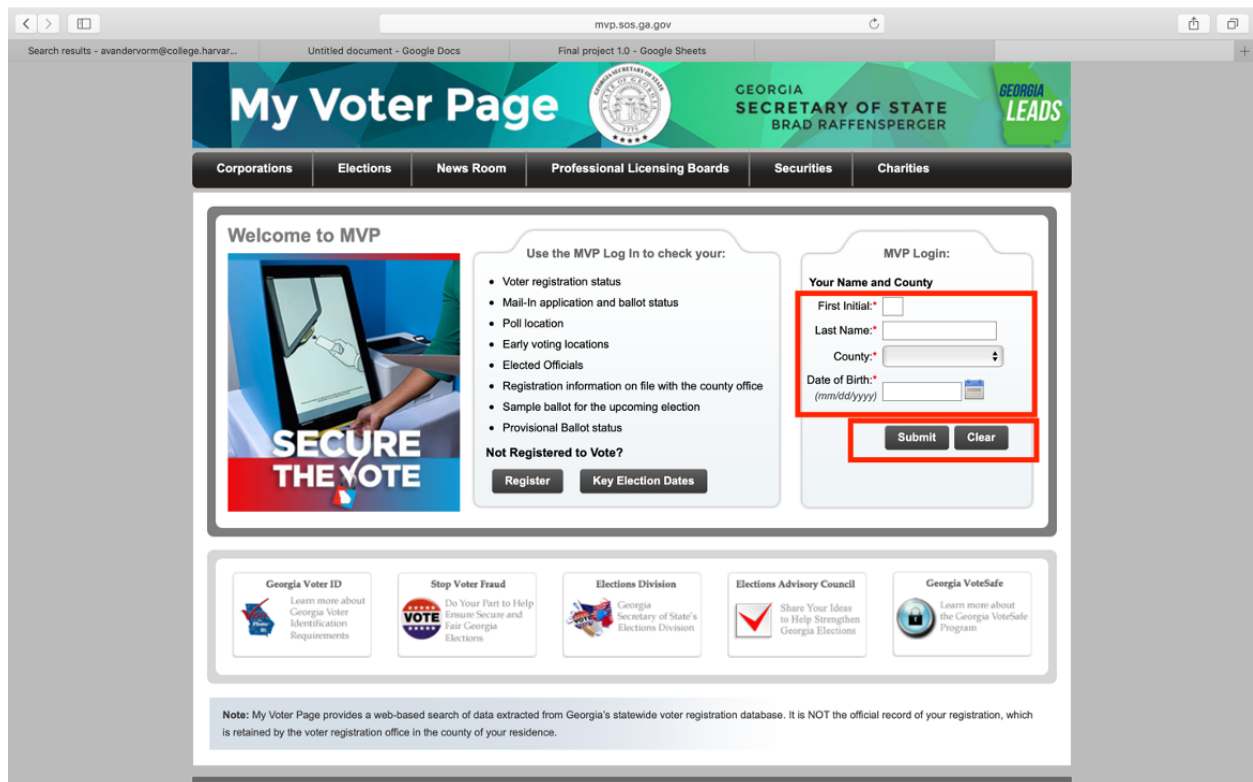


Figure 10.3. A screenshot demonstrating the areas of Georgia’s voter registration look-up site that rendered it inaccessible.

ARE YOU REGISTERED TO VOTE?

TO CHECK YOUR REGISTRATION, PLEASE PROVIDE THE FOLLOWING INFORMATION. THIS MUST MATCH THE INFORMATION ON YOUR VOTER REGISTRATION.

County: Adams

Last Name: (Required)

First Name: (Required)

Last Four SSN#: (Required)

Date of Birth: JAN, 1, 2020

CANCEL SEARCH

Figure 10.4a. A screenshot demonstrating the area of Mississippi’s voter registration look-up site that rendered it inaccessible.

SEARCH RESULTS

PLEASE SELECT THE CORRECT NAME AND ADDRESS COMBINATION BELOW, THEN:

- CLICK 'UPDATE' TO CHANGE YOUR VOTER REGISTRATION NAME OR ADDRESS INFORMATION
- OR
- CLICK 'VERIFY' TO PROCEED.

	NAME	ADDRESS
<input type="radio"/>		MS 39457
<input type="radio"/>		DN, MS 39463
<input type="radio"/>		N, MS 39463
<input type="radio"/>		PICAYUNE, MS 39466

BACK CANCEL UPDATE VERIFY

Secretary of State
sos.ms.gov

Figure 10.4b. A screenshot demonstrating the area of Mississippi’s voter registration look-up site that rendered it inaccessible.

Figure 10.5. A screenshot demonstrating the area of New Hampshire’s voter registration look-up site that rendered it inaccessible.

Figure 10.6. A screenshot demonstrating the area of New Jersey’s voter registration look-up site that rendered it inaccessible.



**New Mexico Secretary of State
Voter Services**

SOS HOME PAGE VOTER INFORMATION PORTAL

Select Language Select Language

My Registration Information

Enter the applicable search criteria for the option below and click search.

Voter Registration Search

First Name:

Last Name:

Date of Birth (MM/DD/YYYY):

County:

☐ I'm not a robot

Once you enter the required information, you will be able to view:

- Your voter registration information
- Your voting locations
- Your sample ballot
- Your absentee application and ballot status
- Your county clerk's contact information

New Mexico Office of the Secretary of State
New Mexico Capitol Annex North / 325 Don Gaspar, Suite 300 / Santa Fe, NM 87501
(505) 827-3600 / (800) 477-3632 / Email SOS Elections

Visit Secretary of State Website | Contact your County Clerk | Voter Registration Information | Military & Overseas Voters Information

Figure 10.7. A screenshot demonstrating the area of New Mexico's voter registration look-up site that rendered it inaccessible.



vip.sos.nd.gov

@college.harvard.edu - Harvar... Untitled document - Google Docs Final project 1.0 - Google Sheets WAVE Report of Voter R

North Dakota nd.gov Official Portal for North Dakota State Government

Secretary of State NORTH DAKOTA

Home | About the Office | Secretary of State Bio | Contact Us | Forms Troubleshooting | Search: GO

My Voting Information My Polling Place My Ballot My Absentee/Mail Ballot My Election Districts My County Auditor My Voter ID

Vote.ND.Gov | Voters

My Voting Information

Enter the information requested to locate your record.

State-Issued ID#
(driver's license or non-driver's ID)

Date of Birth
(mm/dd/yyyy)

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Figure 10.8. A screenshot demonstrating the area of North Dakota's voter registration look-up site that rendered it inaccessible.

The screenshot shows a web browser window with the URL `secure.sos.state.or.us`. The page header includes the Oregon Secretary of State logo and navigation links: Home, Business, Voting & Elections, State Archives, and Audits. The main heading is "My Vote" with a subheading "Search criteria". Below this, a message states: "Please enter the following information to check or update your voter registration or track your ballot." A red rectangular box highlights three input fields: "First Name", "Last Name", and "Date of Birth (mm/dd/yyyy)". Below these fields are three buttons: "Submit", "Reset", and "Cancel". To the right of the search fields is a "Language" section with a dropdown menu set to "English". Below the language section is a "Disclaimers" section with two bullet points: "Voter information updated on March 20, 2020." and "If your information is confidential or you are not yet 18 years old, contact your [county elections official](#) to confirm your registration status." The footer contains the Oregon State Seal, contact information for the Elections Division, and links to Policies, About Oregon.gov, and About ORESTAR.

secure.sos.state.or.us

Inbox (7,301) - avandervorm@college.harvard... Untitled document - Google Docs Final project 1.0 - Google Sheets

Oregon
Secretary of State
Bev Clarno

Home Business Voting & Elections State Archives Audits

My Vote

Search criteria

Please enter the following information to check or update your voter registration or track your ballot.

First Name

Last Name

Date of Birth (mm/dd/yyyy)


Submit Reset Cancel

Language

English

Disclaimers:

- Voter information updated on March 20, 2020.
- If your information is confidential or you are not yet 18 years old, contact your [county elections official](#) to confirm your registration status.

 **Contact**
Elections Division
255 Capitol St NE, Ste 501
Salem, OR 97310
Phone: 503-986-1518 or 1-866-673-VOTE
Fax: 503-373-7414
orestar-support.sos@oregon.gov

Policies
[Privacy Policy](#)
[Accessibility Policy](#)


About Oregon.gov
[Oregon.gov](#)
[State Directories](#)
 [LEARN ABOUT VETERAN BENEFITS](#)
[About ORESTAR](#)

Figure 10.9. A screenshot demonstrating the areas of Oregon's voter registration look-up site that rendered it inaccessible.

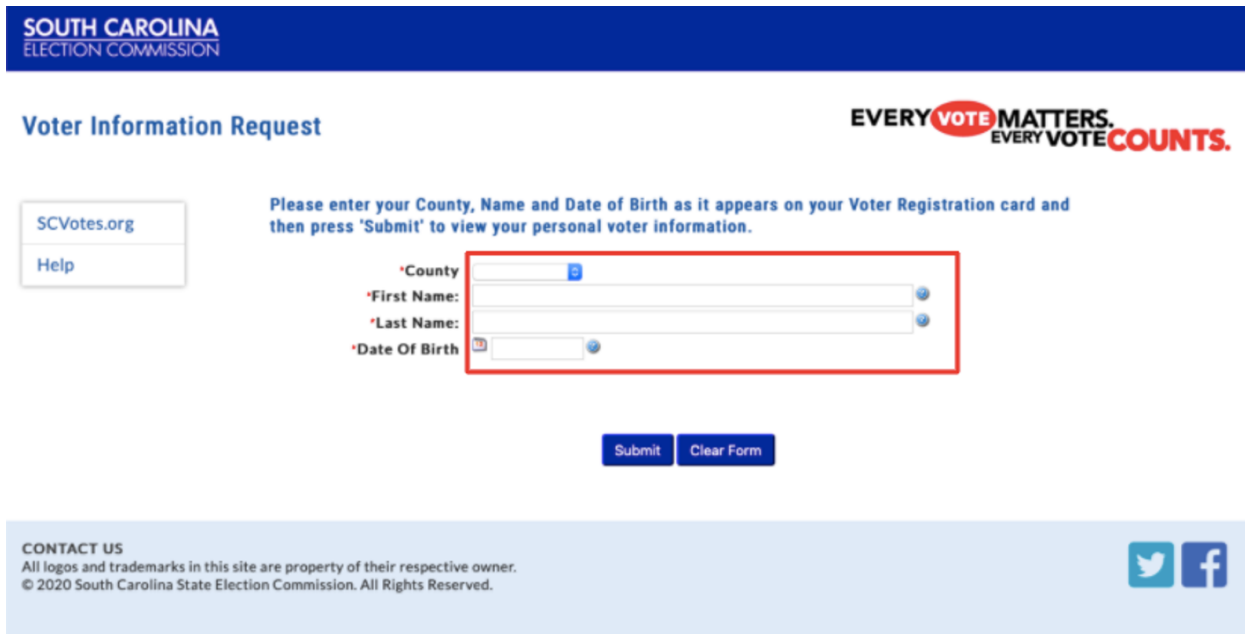


Figure 10.10. Screenshot demonstrating the area of South Carolina’s voter registration look-up site that rendered it inaccessible.

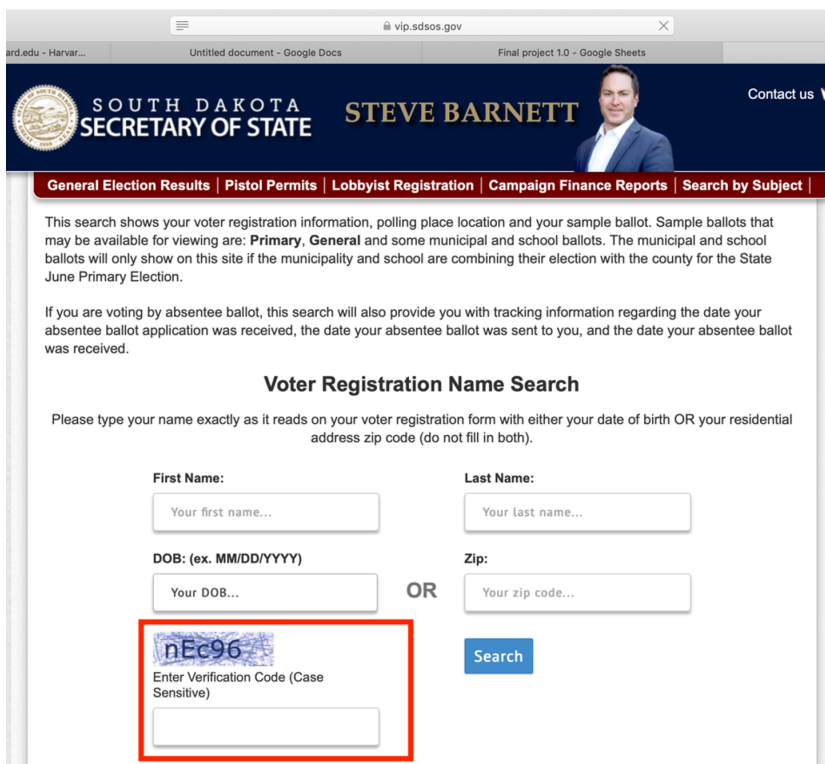


Figure 10.11. A screenshot demonstrating the area of South Dakota’s voter registration look-up site that rendered it inaccessible.

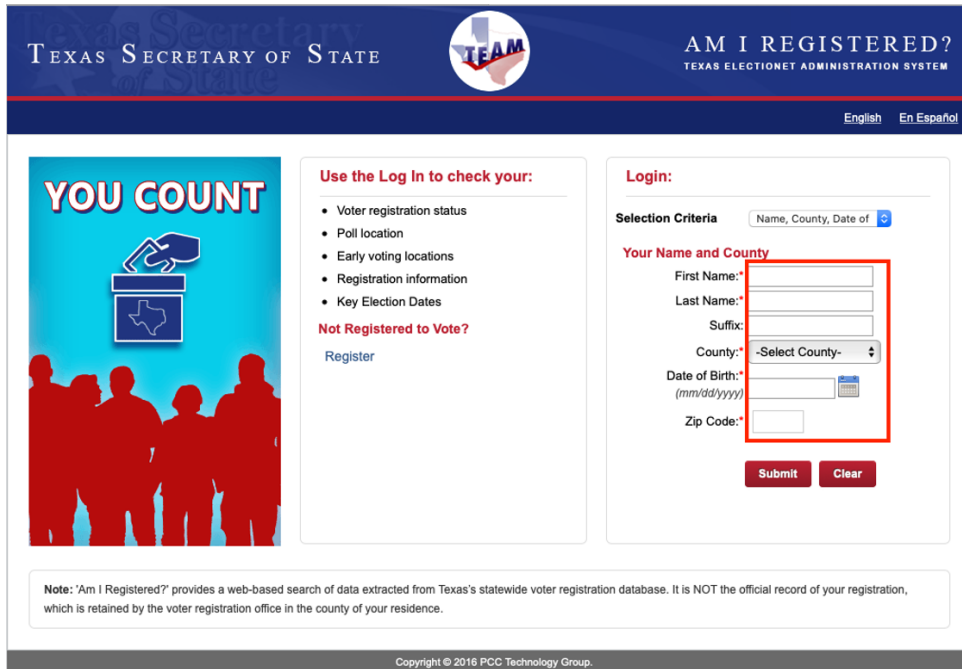


Figure 10.12. A screenshot demonstrating the area of Texas' voter registration look-up site that rendered it inaccessible.

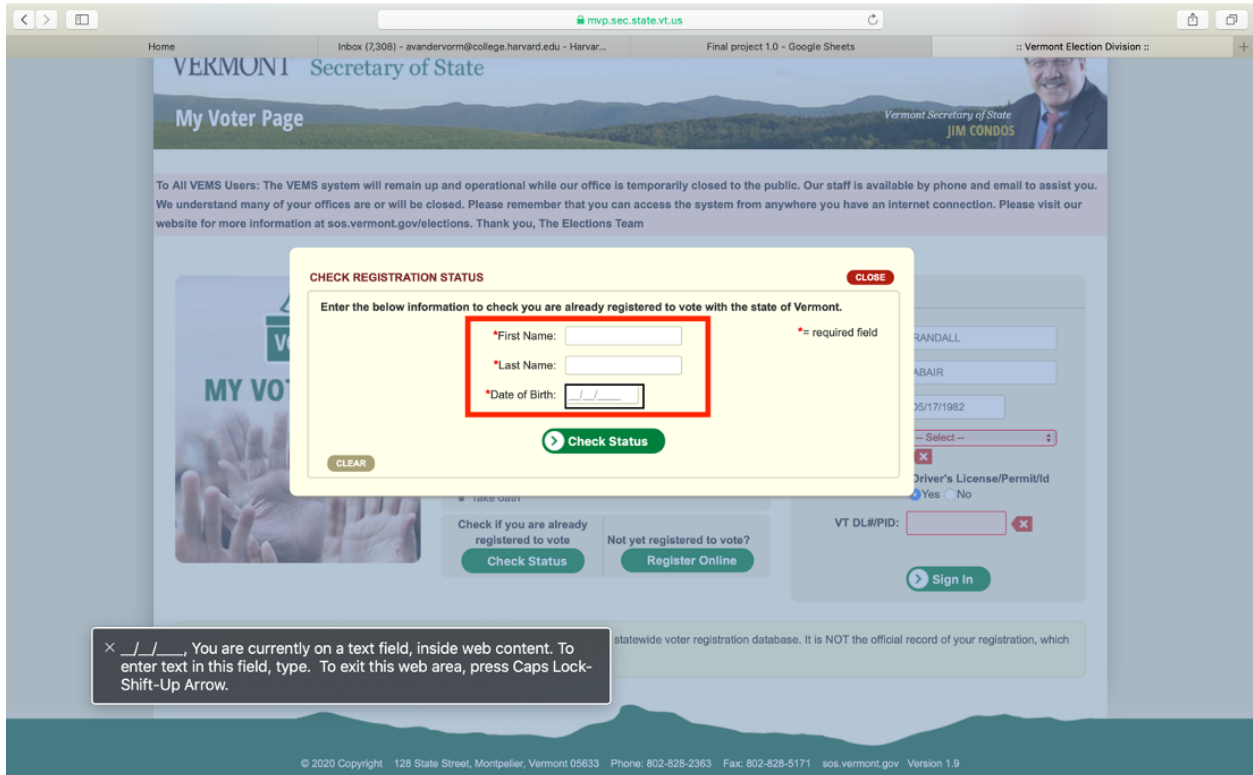


Figure 10.13. A screenshot demonstrating the area of Vermont’s voter registration look-up site that rendered it inaccessible.

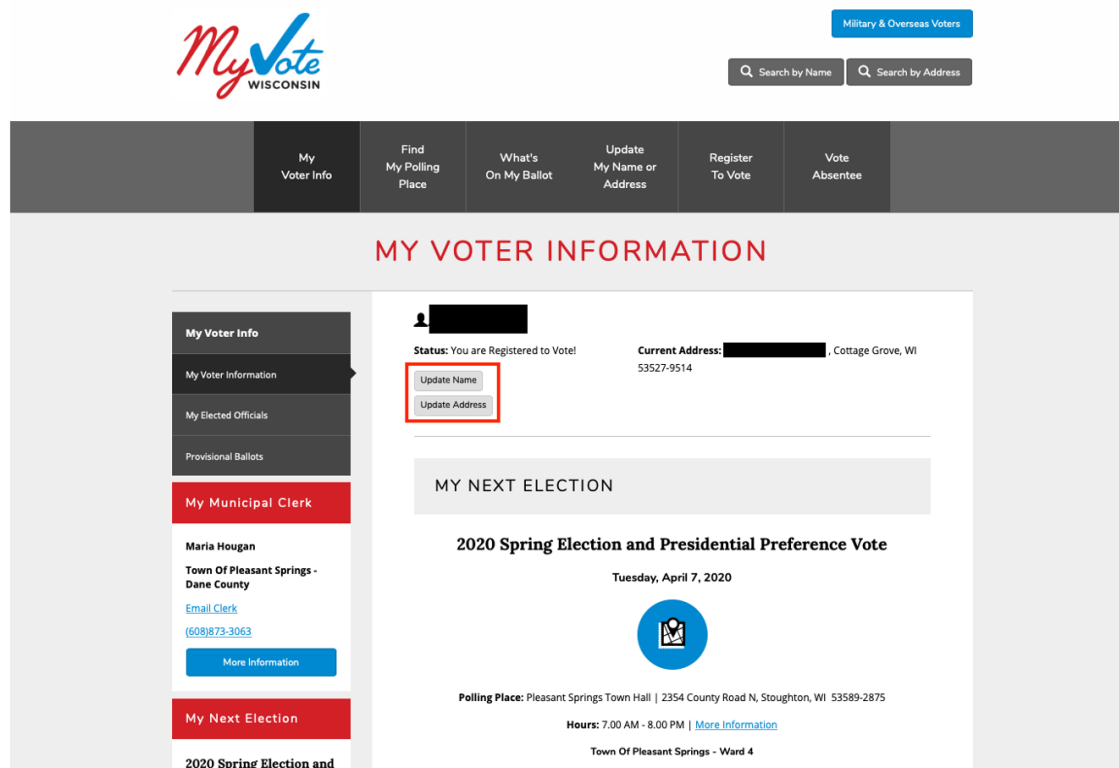


Figure 10.14. A screenshot demonstrating the area of Wisconsin’s voter registration look-up site that rendered it inaccessible.

Phase 3 Results. Researching State Website Accessibility Policies and Guidelines

We found that 23 states including DC had “Strict Section 508” policies, having adopted Section 508 as a required standard for accessibility (Figure 11). A further 6 states were in the “Strict W3C Level Standards” category, meaning that those states’ websites are required to meet WCAG 1.0 and WCAG 2.0 guidelines (Figure 11). Another 11 states created their own required “Strict Unique Regulations” that exceed Section 508 standards (Figure 11). A total of 40 states including DC had tier 1, the strictest accessibility policies, for their websites (Figure 12).

11 states had softer tier 2 recommendations or guidelines for web accessibility (Figure 12). 6 states were in the “Soft Section 508” category, meaning they recommended that all state websites comply with Section 508 standards (Figure 11). 5 of these states had ‘Soft W3C Level Standards’, meaning they recommended following WCAG 1.0 and WCAG 2.0 guidelines (Figure 11).

Strict Section 508 (Tier 1)	Strict W3C Level Standards (Tier 1)	Strict Unique Regulations (Tier 1)	Soft Section 508 (Tier 2)	Soft W3C Level Standards (Tier 2)
Alabama	Connecticut	Arkansas	Louisiana	Alaska
Arizona	Georgia	Maryland	Nevada	Delaware
California	Michigan	Massachusetts	North Carolina	Mississippi
Colorado	New Mexico	Minnesota	South Carolina	Oregon
District of Columbia	Rhode Island	Nebraska	South Dakota	Wyoming
Florida	Washington	New York	West Virginia	
Hawaii		North Dakota		
Idaho		Ohio		
Illinois		Pennsylvania		
Indiana		Utah		
Iowa		Virginia		
Kansas				
Kentucky				
Maine				
Missouri				
Montana				
New Hampshire				
New Jersey				
Oklahoma				
Tennessee				
Texas				
Vermont				
Wisconsin				

Figure 11. Table Grouping States By State Accessibility Standard Tier. This table shows the nature of the web accessibility policy of each state, demonstrating the level of enforcement (strict requirement vs. guidelines) and the level of standards (Section 508, WC3, or other).

Strictness Tier

- 1 - Strict
- 2 - Soft

Discussion

This study found that the majority of state voter registration and voter registration look-up websites displayed accessibility errors in the WAVE tests. Those often translated into usability problems that negatively affected the user experience during the VoiceOver tests. Seventy-nine percent of testable state voter registration websites (Figure 4) and 72% of testable state voter registration look-up websites (Figure 5) failed the WAVE test for compliance with W3C's accessibility guidelines. Thirty-nine percent of the testable state voter registration websites (Figure 7) and 38% of the testable state voter registration look-up websites (Figure 9) were inaccessible or had low accessibility to a disabled individual using VoiceOver. These results demonstrate a clear accessibility problem in our voting registration

and registration look-up websites that should be addressed to ensure all Americans have equal access to these tools.

Some states stood out as leaders in website accessibility. Five states consistently performed well in Phase 1 and 2 for each of their state websites: California, Maryland, Oklahoma, Virginia, and Washington. New York also passed each accessibility test, except for the WAVE test of the voter registration look-up website. That site was still highly usable with VoiceOver. Massachusetts also had highly accessible websites when testing with VoiceOver, although the Massachusetts sites had detected the WAVE program as a bot and blocked it from running in Phase 1.

Are States Compliant with Their Own Web Accessibility Policies and Guidelines?

We found that the 5 best performers (California, Maryland, Oklahoma, Virginia, and Washington) all had strict tier 1 web accessibility standards.

However, multiple states that adopted Strict Section 508 or W3C standards in their own laws did not have easily accessible voter registration or voter registration look-up websites. Out of the 18 states that had either an inaccessible voter registration or voter registration look-up website in Phase 2 testing with VoiceOver, 13 had strict tier 1 web accessibility requirements for state websites: Connecticut, Georgia, Kansas, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Dakota, Texas, Vermont and Wisconsin. Five of the states that failed Phase 2 testing had soft tier 2 accessibility recommendations or guidelines: Alaska, Mississippi, Oregon, South Carolina, and South Dakota.

Easy Ways to Make Voter Websites Accessible

It is important to note that most of the errors that render a site inaccessible to a disabled user using a screen reader like VoiceOver are fairly easy to fix. Seventeen percent of the accessibility errors at voter registration websites and 46% of the accessibility errors at voter registration look-up websites were “missing form label” errors, or places where text boxes on the webpage were not identified with labels that a screen reader could read. Without such labels, a disabled user has to guess at what the website is expecting them to type into the text box. Fixing this issue is fairly simple. Figure 13 shows how changing the “behind-the-scenes” HTML content of the webpage can help a disabled user using a screen reader understand what to enter in the text box [26].

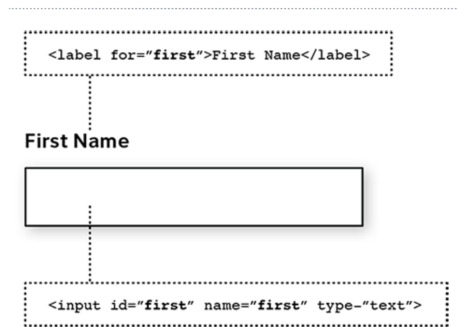


Figure 13. An Image Demonstrating How to Code Forms So That They Are Accessible [26]. This image, created by the Center for Civic Design, shows how to combat one of the biggest issues with accessibility found in this study: coding forms so that they are accessible. Adding a label of “first” here will help a screen reader read out loud to a user that a first name is expected as input into the text box.

Other common accessibility problems arose when buttons to submit a form or continue to the next page were unreadable by VoiceOver, or important links on a webpage were unlabeled and skipped by the screen reader. These problems can similarly be fixed by adding more labels to the HTML of the website.

The CCD makes the following suggestion to help states make accessible voter registration websites [26]:

- Make the information easy to read
- Make headings meaningful
- Structure the site with proper HTML tags and appropriate metadata
- Code the form fields so they are accessible to screen readers
- Make sure everything works with a keyboard

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