City of Toronto Internet Voting Project: Web Accessibility (WCAG 2.0) Evaluations of Voter-Facing Demonstration Sites

A report submitted to:
City of Toronto

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Inclusive Design Research Centre
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Contents

Overall Results

From November 2013 to January 2014, OCAD University's Inclusive Design Research Centre (IDRC) was engaged by the City of Toronto to evaluate the web accessibility of proposals submitted in response to its Internet Voting RFP. The results are as follows:

- While the voter-facing demonstration interfaces (registration and voting) of all three proponents do show at least some evidence of accessibility-influenced design, **none of the voter-facing demonstration interfaces currently conforms with the W3C Web Content Accessibility Guidelines (WCAG) 2.0 Level AA as required by the RFP, or even Level A as would strictly be required by the Accessibility for Ontarians with Disabilities Act (AODA) Information and Communication Standards[1].**
- By a narrow margin, the **Everyone Counts** voting interface probably came closest to meeting WCAG 2.0 Level A. However, its registration interface included relatively more accessibility issues.
- Overall, none of the proponents could be said to be clearly superior to the others in terms of WCAG 2.0 accessibility.

For detailed evaluation results, see the rest of this report.

In all cases, with the *proper* application of accessible design, development, and testing resources, the voter-facing accessibility problems should be addressable within one to two months. However, the operative word is "proper". To be successful, proponents must actually concede that issues exist and then work transparently to fix them as a top priority, while ensuring that the fixes (and any other simultaneous developments) do not compromise accessibility in other ways.

Additional Questions:

Given that none of the demonstration sites meet even WCAG 2.0 Level A, it is probably important to assess which proponent is most likely to do the best job of improving accessibility before the election. To help in this assessment, the IDRC has provided the following questions to the City for submission to the proponents:

Re: Voter-facing demonstration sites:

1. Compared to the state of accessibility (as judged according to WCAG 2.0 Level AA) of the demonstration site(s) provided for this RFP, what accessibility improvements will be made prior to deployment? (voter-facing sites include all sites used by voters, including for registration, verification, voting, etc.)

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[1] http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_110191_e.htm#BK15

2. How long do you anticipate these voter-facing improvements will take (provide an estimate for each improvement)?
3. Will users with disabilities be involved in the design or testing of these voter-facing improvements? If so, how (provide information for each improvement)?
4. To what extent do the user interfaces used by city staff, election workers and election volunteers meet WCAG 2.0 Level AA?

Re: Demonstration sites for city staff, election workers and election volunteers:

5. Compared to the state of accessibility (as judged according to WCAG 2.0 Level AA) of the demonstration site(s) provided for this RFP, what accessibility improvements will be made prior to deployment?
6. How long do you anticipate these staff/volunteer-facing improvements will take (provide an estimate for each improvement)?
7. Will users with disabilities be involved in the design or testing of these staff/volunteer-facing improvements? If so, how (provide information for each improvement)?

Response 1: Dominion Voting

Dominion provides quite a bit of detail in their response. They state that they would make the following accessibility improvements:

- Review of alternatives to CAPTCHA's
- Modifications to ensure correct screen reader usability and
- Design changes based on new focus group testing.

They also state that "prior to deployment, all elements of the user interface used by city staff, election workers and election volunteers will be modified to fully comply with WCAG 2.0 Level AA standards"

They also state that "this work can be completed in parallel to other, already scheduled tasks and requires minimal additional time."

It is a positive sign that they recognize accessibility conformance issues and they describe a reasonable user testing procedure.

Response 2: Scytl

Scytl claims "all Scytl voter-facing interfaces are WCAG 2.0 Level AA compliant". They do offer that "if users with disabilities identify improvements in the accessibility of the voter-facing sites, Scytl will apply the required changes to ensure that the voter-facing sites can be used by any voter."

Scytl does admit that its back-end interface does not meet WCAG 2.0 and says: "It should be noted that the administration interfaces are often more complex and have more options than the user interfaces. Therefore, the interface is designed with accessibility in mind, but only as long as this design does not interfere with the capability to properly operate the system. Also, as the Back Office module will be accessed only by a reduced number of people (system administrators, City staff, election workers), Scytl believes that there is no need of further improvement in the accessibility area. However, if the City has a

particular improvement in mind that wishes to have implemented, it can be further discussed in the requirements gathering phase of the project."

So, while Scytl does state that some changes might be made, it appears slightly less flexible than the other proponents in this regard.

Response 3: Everyone Counts

This response does not admit any short-comings in the voter-facing demonstration site, but did describe features that can be toggled on and off by the City, including: use of CAPTCHA, a "Reader Mode" (that was not available for testing), language toggle rather than ever screen being bilingual. The proponent appears open to user testing by people with disabilities including testing of the user interface and accompanying instructions, as well as feedback regarding the overall process flow and inherent usability.

Everyone Counts does admit accessibility issues with the back-end site. This was said to be related to "differences in election law around the globe", but no examples of why this might be so were provided.

Everyone Counts does seem open to making at least some accessibility improvements to the back-end ("In these instances, we apply specific modifications for a specific customer base or a specific implementation.").

Proposal 1: Dominion Voting

Registration/Validation/Voting Interfaces:

URI: https://www.intvoting.com/_toronto/

Tools Used During This Review:
- Internet Explorer 8
- Firefox 25 + Firebug
- Chrome 30
- NVDA 2013.3 screen reader
- AChecker 1.3 (http://achecker.ca)
- WebAIM Wave Toolbar 1.1.8 (http://wave.webaim.org/toolbar/)
- W3C Markup Validator (http://validator.w3.org/)
- WebAIM Color Contrast Checker (http://webaim.org/resources/contrastchecker/)

General Comments

The Dominion Registration/Validation/Voting Interfaces are **not** currently in conformance with WCAG 2.0, even to Level A.

The primary accessibility issues concern:
- Insufficient colour contrast.
- Some erroneous form field labels.
- Extra hints are inconsistently communicated programmatically to screen readers.
- Errors are inconsistently communicated programmatically to screen readers.
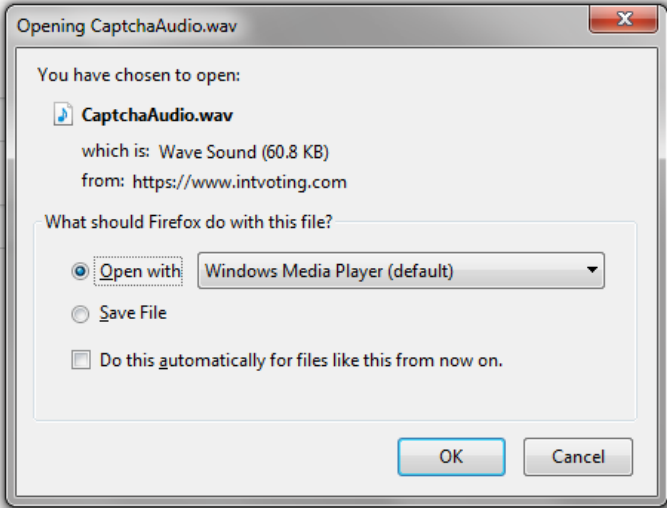- Problems with focus order

Also, while the CAPTCHA system employed includes audio alternatives, which technically meets WCAG 2.0, CAPTCHAs still present accessibility challenges, especially to people with visual or cognitive impairments (See RFP Req# 2.81).

In places throughout the review, "Fail?" or "Pass?" have been used where a fail or pass is questionable. "Pass?" is used in places where a single instance of a barrier has been identified, perhaps an oversight, or where it could be argued that an item might fail or pass, typically a minor issue, leaning toward a Pass. "Fail?" is used in cases where an item could be argued as a fail or pass, leaning toward a fail. In all cases, developers should consider the recommendations made to remove any potential argument.

The primary issues described here, and a variety of other potential accessibility problems, are discussed in more detail in the WCAG 2 Review that follows.
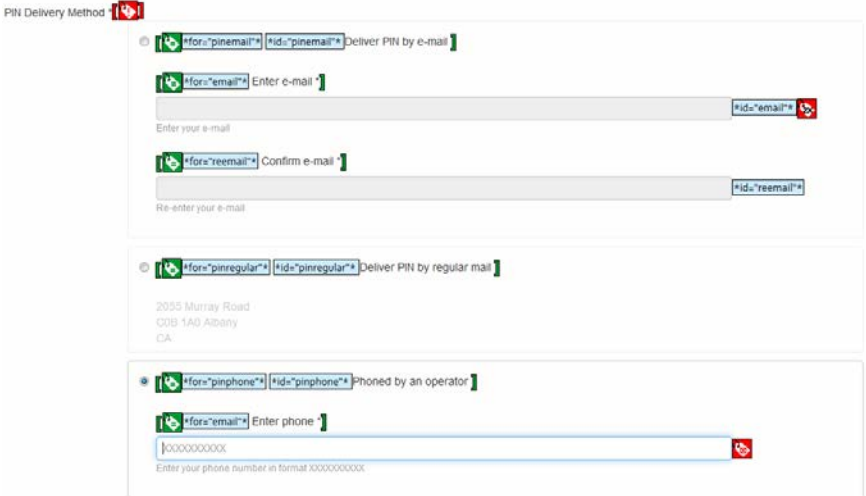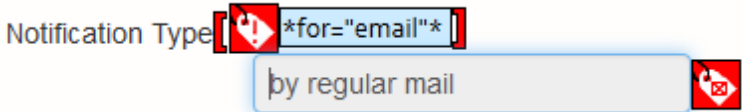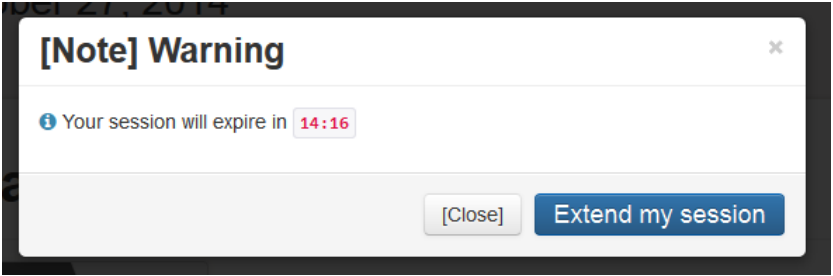
NOTE: Items in the review that appear with a grey background (i.e. all Level AAA success criteria as well as 1.2.4: Captions (Live) and 1.2.5: Audio Description) are optional under AODA, though developers should attempt to conform with these guidelines where possible.
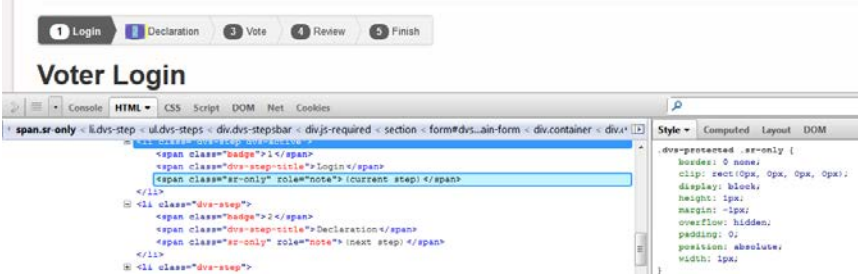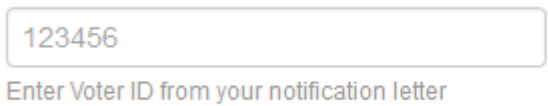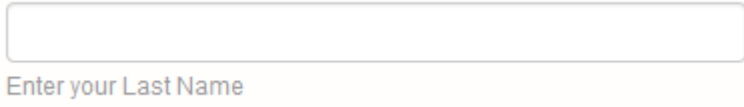
WCAG 2 Review:

Success Criterion	Level	Evaluation	Comments
1.1.1: Non-text Content	A	Pass?	Ballot Confirmation: The warning icons do not have text alternatives. ⚠ Contest 1 ⚠ Contest 2 ⚠ Contest 3 ⚠ Contest 4 General: CAPTCHA's are present on many login screens. An audio CAPTCHA is also provided, which technically meets WCAG 2.0 (although CAPTCHAs still present accessibility challenges, especially to people with cognitive impairments – See RFP Req# 2.81). There are a variety of alternatives to CAPTCHAs (example[2]). Verification Text: q 4 g U W A — Type text from image — After completing the Verification Text, click on the Submit button below to continue. Also, in some browsers the CAPTCHA process may not be as smooth as it might be. For example, in Firefox 25, an "Opening" dialog appeared with a prompt asking if the file should be opened or saved. Opening CaptchaAudio.wav — You have chosen to open: CaptchaAudio.wav which is: Wave Sound (60.8 KB) from: https://www.intvoting.com — What should Firefox do with this file? Open with Windows Media Player (default) / Save File / Do this automatically for files like this from now on. — OK / Cancel Then, when open was selected, the WAV was played in Windows media player:

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[2] http://www.karlgroves.com/2012/04/03/captcha-less-security/
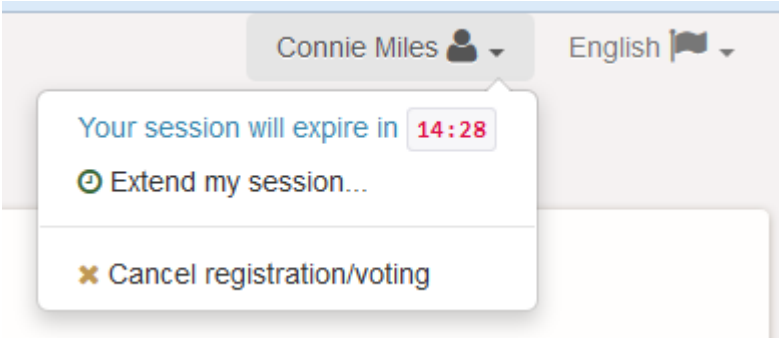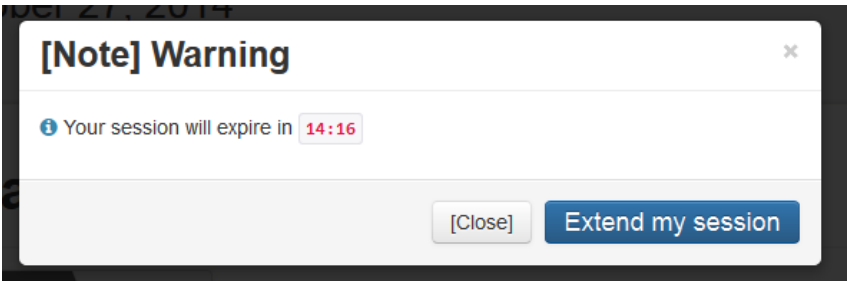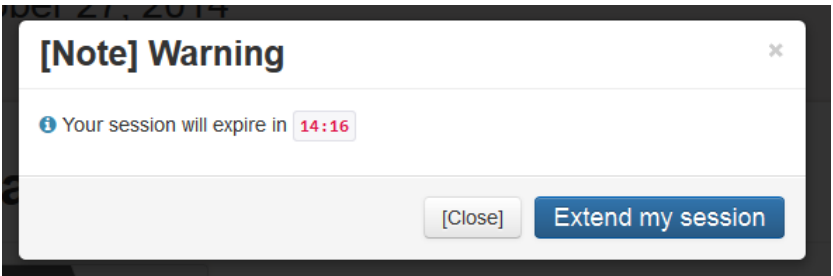
Success Criterion	Level	Evaluation	Comments
			 The user must then remember the digits as they close the player and find their way back to the verification text input field, which is certainly a non-trivial working memory task.
1.2.1: Audio-only and Video-only (Prerecorded)	A	N/A	
1.2.2: Captions (Prerecorded)	A	N/A	
1.2.3: Audio Description or Full Text Alternative	A	N/A	
1.2.4: Captions (Live)	AA	N/A	
1.2.5: Audio Description	AA	N/A	
1.2.6 Sign Language	AAA	N/A	
1.2.7 Extended Audio Description	AAA	N/A	
1.2.8 Media Alternative	AAA	N/A	
1.2.9 Audio-only (Live)	AAA	N/A	
1.3.1: Info and Relationships	A	Fail?	Landmark roles (e.g. "banner", "main", "contentinfo") are generally used appropriately. In most places, form controls are properly labelled (using the HTML
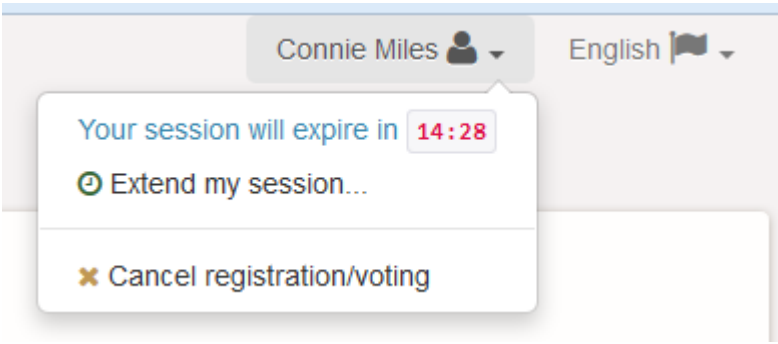
Success Criterion	Level	Evaluation	Comments
			<label> element), however in several places there are bugs. For example, on the Registration interface, the "Enter Phone" label points to the email entry field) Another bug appears on the review details screen: When the user chooses to extend their session, the modal dialog for doing so (that is oddly titled "[Note] Warning") does not properly receive keyboard focus and does not use WAI-ARIA markup properly. On the positive side, the progress indicator bar that records the user's progress through the process is marked up with hidden text for screen reader users that helps communicate which steps are past, current and future:

Success Criterion	Level	Evaluation	Comments
			Voting Interface: When a user with a screen reader completes a ballot and selects "Next Contest" button there is no indication of what position the next contest is actually for. There should be a WAI-ARIA alert message or the page title should change. Voting Interface: "Casting Ballot – Please Wait" message was not communicated via screen reader.
1.3.2: Meaningful Sequence	A	Pass	Sequences are generally meaningful.
1.3.3: Sensory Characteristics	A	Pass	Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound.
1.4.1: Use of Color	A	Pass	Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
1.4.2: Audio Control	A	N/A	
1.4.3: Contrast (Minimum)	AA	Fail	The contrast of the tip text under each field has an insufficient ratio of only 2.8:1 (#999999 on #FFFFFF). It should be at least 4.5:1. Another instance of poor contrast is the success message with a ratio of 3.6:1 (#468847 on #dff0d8):
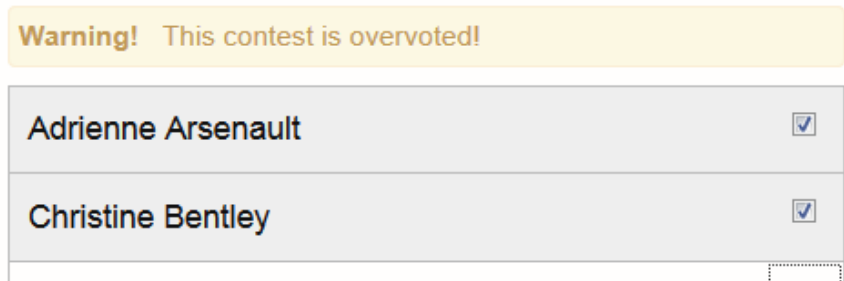
Success Criterion	Level	Evaluation	Comments
			If you are approved for voting over the Internet, th In case you need assistance, please contact our I While it is not WCAG 2.0 requirement, the website also does not automatically support the Windows High Contrast setting: Some websites already do this (e.g. Google apps)
1.4.4: Resize text	AA	Pass	Text can resized with the browser.
1.4.5: Images of Text	AA	Pass	Images of text are not used.
1.4.6: Contrast (Enhanced)	AAA	Fail	Since the AA requirement has already failed.
1.4.7: Low or no	AAA	Pass	

Success Criterion	Level	Evaluation	Comments
Background Audio			
1.4.8: Visual Presentation	AAA		
1.4.9: Images of Text (No Exception)	AAA	Pass	
2.1.1: Keyboard	A	Pass	All functionality can be reached by the keyboard.
2.1.2: No Keyboard Trap	A	Pass	No keyboard traps were encountered.
2.1.3 Keyboard (No Exception)	AAA	Pass	
2.2.1: Timing Adjustable	A	Pass	The system includes a 15 minute session timer after each submission button selection. The user is able to extend the session from a menu option under their name (although this is not a very intuitive place to find this). This leads to following dialog: If this time limit can be extended at least 10 times, then it would satisfy this WCAG 2.0 timing option: • **Extend:** The user is warned before time expires and given at least 20 seconds to extend the time limit with a simple action (for example, "press the space bar"), and the user is allowed to extend the time limit at least ten times; or

Success Criterion	Level	Evaluation	Comments
2.2.2: Pause, Stop, Hide	A	N/A	No moving, blinking, scrolling, or auto-updating information.
2.2.3: No Timing	AAA	Fail	Time limit is probably reasonable for this application.
2.2.4: Interruptions	AAA	Pass	No interruptions observed.
2.2.5: Re-authenticating	AAA	Fail	But the amount of data lost is not great.
2.3.1: Three Flashes or Below Threshold	A	Pass	No flashing observed.
2.3.2: Three Flashes	AAA	Pass	No flashing observed.
2.4.1: Bypass Blocks	A	Pass?	Landmarks ("banner", "main", "contentinfo") are used properly.
2.4.2: Page Titled	A	Pass	Pages are generally titled appropriately in registration,
2.4.3: Focus Order	A	Fail?	Ballot screens: On the first contest the focus order is top to bottom, but when this is submitted, focus stays near the bottom for the second contest, requiring the user to navigate backwards (e.g. with Shift-TAB) to read the new list of candidates. Time extension dialog: When opened, keyboard focus remains in the background page. Language change confirmation dialog: When opened, keyboard focus remains in the background page.

Success Criterion	Level	Evaluation	Comments
2.4.4: Link Purpose (In Context)	A	Pass	Link purpose is generally clear, although the fact that timing information is located under the person's name is perhaps not as clear as it could be.
2.4.5: Multiple Ways	AA	N/A	Because the pages are part of a "process".
2.4.6: Headings and Labels	AA	Pass	Headings and labels are generally appropriate.
2.4.7: Focus Visible	AA	Pass?	Login screen: The focus indicators for the CAPTCHA are quite difficult to see.
2.4.8: Location	AAA	Pass	Location information is available:
2.4.9: Link Purpose (Link	AAA	Pass	

Success Criterion	Level	Evaluation	Comments
Only)			
2.4.10: Section Headings	AAA	Pass	Section headers are used where needed.
3.1.1: Language of Page	A	Pass	English language code defined.
3.1.2: Language of Parts	AA	Fail?	Français link is not properly encoded as French.
3.1.3: Unusual Words	AAA	N/A	No unusual words
3.1.4: Abbreviations	AAA	N/A	No abbreviations
3.1.5: Reading Level	AAA	Pass?	Reading level is generally appropriate, although some technical words appear (e.g. "overvoted" might be explained be better explained as "too many candidates have been selected").
3.1.6: Pronunciation	AAA	N/A	Words are not used ambiguously.
3.2.1: On Focus	A	Pass	No unexpected actions on focus
3.2.2: On Input	A	Pass	No unexpected actions on input
3.2.3: Consistent Navigation	AA	Pass	Navigation is reasonably consistent.
3.2.4: Consistent Identification	AA	Pass	Items identification is reasonably consistent.
3.2.5: Change on Request	AAA	Pass	Changes of context only occur on user action.
3.3.1: Error Identification	A	Fail	Login screen: Some errors (e.g. missing names) are identified effectively, including to screen reader users. First Name This value is required. Enter your First Name Last Name This value is required. Enter your Last Name But errors in the CAPTCHA are not as effectively communicated. For

Success Criterion	Level	Evaluation	Comments
			example, WAI-ARIA should be used to mark the error message as an alert. **The Verification Text you entered is not valid. Please try again.** Voter ID: 47995 PIN: Verification Text: AkewKB Voter Details screen: Extra hints upon errors are not read by screen readers because they are not included in the <label> or marked with appropriate WAI-ARIA information. Year of birth * 74 This value should be between 1900 and 2013.This value should be greater than or equal to 1900. Enter your Year of Birth Voting interface: "Overvote" errors are not effectively communicated to screen reader users (requires WAI-ARIA or change to label). The fact that the error message only appears at the top of the ballet might also be an issue for people who have magnified the screen. **Warning!** This contest is overvoted! Adrienne Arsenault ☑ Christine Bentley ☑
3.3.2: Labels or Instructions	A	Pass	Labels and/or instructions are provided as required.
3.3.3: Error Suggestion	AA		

Success Criterion	Level	Evaluation	Comments
3.3.4: Error Prevention (Legal, Financial, Data)	AA	Fail?	<u>Oath screen:</u> Clicked on "Decline" to test a faulty entry. There was no confirmation, I was simply logged out. I was able to login again. <u>Voting interface:</u> No "Are you sure" message on final submission of ballot button, although the review screen itself serves this purpose to some extent.
3.3.5: Help	AAA	Fail	No context sensitive help
3.3.6: Error Prevention (All)	AAA		
4.1.1: Parsing	A	Pass	Validity errors were minimal. <u>Validation screen:</u> 3 Errors, 7 warning(s) according to the W3C Validation service. <u>Voting screen:</u> 0 errors, 1 warning
4.1.2: Name, Role, Value	A	Pass?	The name, role and state of content is generally available programmatically, however some alerts are not.

Proposal 2: Scytl

Voter Registration Interface:

URI: https://demo.scytl.com:8443/voter-registration/

Tools Used During This Review:
- Internet Explorer 8
- Firefox 25 + Firebug
- Chrome 30
- NVDA 2013.3 screen reader
- AChecker 1.3 (http://achecker.ca)
- WebAIM Wave Toolbar 1.1.8 (http://wave.webaim.org/toolbar/)
- W3C Markup Validator (http://validator.w3.org/)
- WebAIM Color Contrast Checker (http://webaim.org/resources/contrastchecker/)

General Comments

The Scytl Voter Registration Interface is currently not in conformance with WCAG 2.0, even to Level A.

The primary accessibility issues concern:
- Some messages (alerts and informational) that appear depending on user input are not properly communicated to screen reader users.
- A lack of focus indicator on the accessibility options and "Submit" button.
- Not all headers are properly marked and navigation landmarks should be added.

In places throughout the review, "Fail?" or "Pass?" have been used where a fail or pass is questionable. "Pass?" is used in places where a single instance of a barrier has been identified, perhaps an oversight, or where it could be argued that an item might fail or pass, typically a minor issue, leaning toward a Pass. "Fail?" is used in cases where an item could be argued as a fail or pass, leaning toward a fail. In all cases, developers should consider the recommendations made to remove any potential argument.
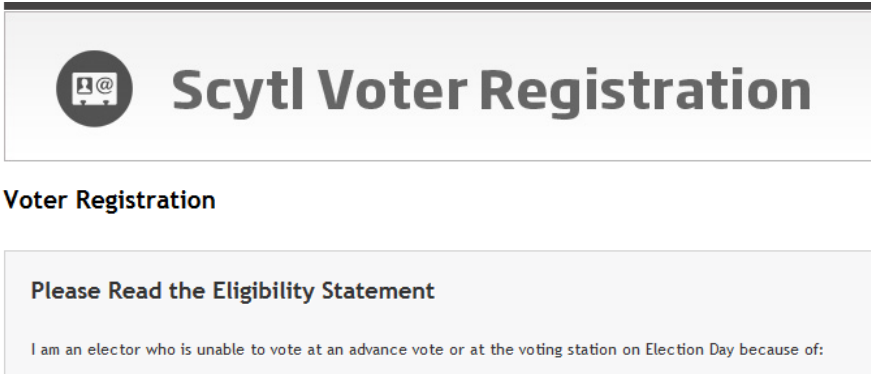
The primary issues described here, and a variety of other potential accessibility problems, are discussed in more detail in the WCAG 2 Review that follows.
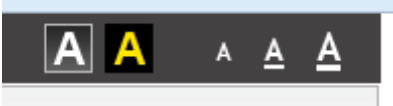
NOTE: Items in the review that appear with a grey background (i.e. all Level AAA success criteria as well as 1.2.4: Captions (Live) and 1.2.5: Audio Description) are optional under AODA, though developers should attempt to conform with these guidelines where possible.
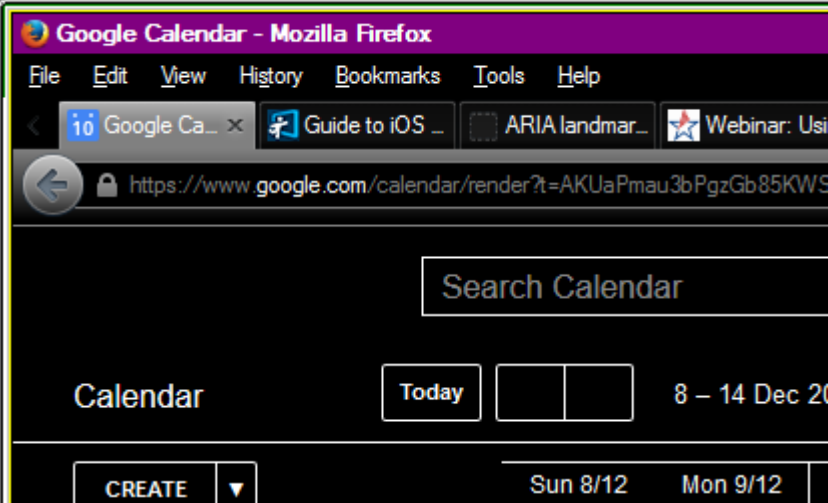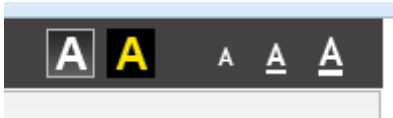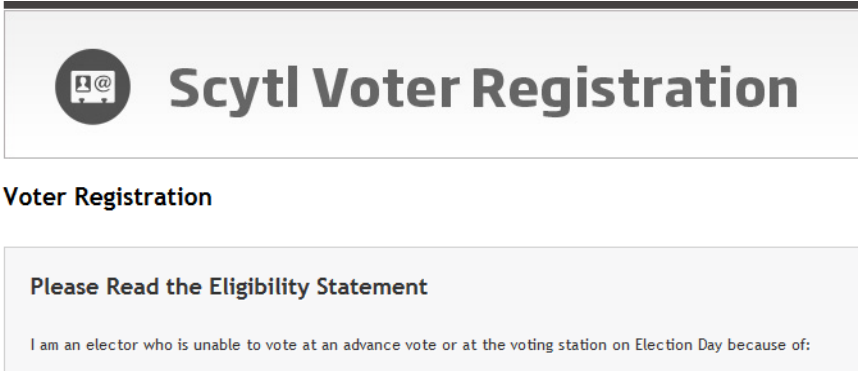
Test Assumptions:
- That the "Scytl" footer will not appear on the final version of the voting system. It has several accessibility issues including poor contrast.
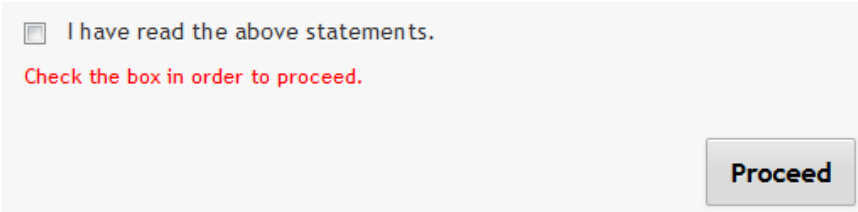
WCAG 2 Review:

Success Criterion	Level	Evaluation	Comments
1.1.1: Non-text Content	A	Pass	
1.2.1: Audio-only and Video-only (Prerecorded)	A	N/A	
1.2.2: Captions (Prerecorded)	A	N/A	
1.2.3: Audio Description or Full Text Alternative	A	N/A	
1.2.4: Captions (Live)	AA		
1.2.5: Audio Description	AA		
1.2.6 Sign Language	AAA		
1.2.7 Extended Audio Description	AAA		
1.2.8 Media Alternative	AAA		
1.2.9 Audio-only (Live)	AAA		
1.3.1: Info and Relationships	A	Fail	General: Landmarks should be used for "Banner", "Content Info" and "Main". First screen: "Scytl Voter Registration" and "Voter Registration" should be marked as headings, but are not. Second screen: Mandatory fields are marked with a red asterisk, but this information is not conveyed in other ways, e.g. as part of the label or by marking the fields as "required" using markup.

Success Criterion	Level	Evaluation	Comments
			New Registrant — Fields marked with an asterisk(*) are mandatory First Name * Interestingly, if the "Proceed" button is pressed without adding these items they are then properly marked "this field is required". First Name * This field is required. <u>Second screen:</u> Information is sometimes displayed based on a selection – this should be delivered to screen reader users via appropriate ARIA markup. Preferred Delivery Method of PIN * Postal Mail You have chosen postal delivery as your preferred delivery method for the voting PIN. Please note that delivery by postal mail may take up to five (5) business days and may prevent you from obtaining the PIN in time to vote. <u>Second screen:</u> "Browse…" button needs more information about what is being browsed for.
1.3.2: Meaningful Sequence	A	Pass	Sequences are generally meaningful.
1.3.3: Sensory Characteristics	A	Pass	Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound.
1.4.1: Use of Color	A	Pass	Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
1.4.2: Audio Control	A	N/A	No audio
1.4.3: Contrast (Minimum)	AA	Pass?	The regular contrast version of the system has reasonable contrast, although the default size of lettering is small. However, a high contrast option is provided, as is a larger text option: A A A A A **Aside:** The contrast icons are odd for the behaviours they represent. The white-on-black icon makes the site black-on-white, while the yellow-on-black icon makes the site white-on-black. An alternative approach is to turn the high contrast setting on automatically when the Windows High Contrast setting is detected, as many web sites do (e.g. Google apps):

Success Criterion	Level	Evaluation	Comments
1.4.4: Resize text	AA	Pass	Text can be resized with the browser settings.
1.4.5: Images of Text	AA	Pass	No improper images of text.
1.4.6: Contrast (Enhanced)	AAA	Pass	Using the high contrast option.
1.4.7: Low or no Background Audio	AAA	Pass	No background audio
1.4.8: Visual Presentation	AAA		
1.4.9: Images of Text (No Exception)	AAA		No improper images of text.
2.1.1: Keyboard	A	Pass?	General: The accessibility options (contrast, text size) are difficult to use with the keyboard because of a lack of visible focus.
2.1.2: No Keyboard Trap	A	Pass	No keyboard traps were found.
2.1.3 Keyboard (No Exception)	AAA		
2.2.1: Timing Adjustable	A	Pass?	Not encountered.
2.2.2: Pause, Stop, Hide	A	N/A	No moving, blinking, scrolling, or auto-updating information.
2.2.3: No Timing	AAA	?	Not encountered, however some time limit is probably reasonable for this application.

Success Criterion	Level	Evaluation	Comments
2.2.4: Interruptions	AAA	Pass	No interruptions were experienced.
2.2.5: Re-authenticating	AAA	?	Not encountered
2.3.1: Three Flashes or Below Threshold	A	Pass	None seen.
2.3.2: Three Flashes	AAA	Pass	None seen.
2.4.1: Bypass Blocks	A	Pass	Second screen: There is a skip to main content link.
2.4.2: Page Titled	A	Pass?	General: The page title changed on the last page to indicate the process was successful.
2.4.3: Focus Order	A	Pass?	The focus order generally made sense, however the text contrast and size options were in reverse order, complicating the fact that there is no focus indicator:
2.4.4: Link Purpose (In Context)	A	Pass?	Most links make sense.
2.4.5: Multiple Ways	AA	N/A	Because the pages are part of a "process".
2.4.6: Headings and Labels	AA	Fail?	Several heading were not properly marked (e.g. "Voter Registration" on the second screen):
2.4.7: Focus Visible	AA	Fail	General: Focus indicators are missing.
2.4.8: Location	AAA	Pass	The

Success Criterion	Level	Evaluation	Comments
2.4.9: Link Purpose (Link Only)	AAA	Pass?	
2.4.10: Section Headings	AAA	N/A	The content is not complex enough to require these.
3.1.1: Language of Page	A	Fail	General: The language of pages is not specified.
3.1.2: Language of Parts	AA	N/A	General: There are no items in additional languages.
3.1.3: Unusual Words	AAA	N/A	No unusual words
3.1.4: Abbreviations	AAA	N/A	No abbreviations
3.1.5: Reading Level	AAA	Pass?	Reading level is generally appropriate. However, several spelling and grammar errors were found ("Hight contrast", "Tezt Size"):
3.1.6: Pronunciation	AAA	N/A	Words are not used ambiguously.
3.2.1: On Focus	A	Pass	No unexpected actions on focus
3.2.2: On Input	A	Pass	No unexpected actions on input
3.2.3: Consistent Navigation	AA	Pass	Navigation is reasonably consistent.
3.2.4: Consistent Identification	AA	Pass	Items are identified consistently.
3.2.5: Change on Request	AAA	Pass	Changes of context only occur on user action.
3.3.1: Error Identification	A	Fail?	First screen: If the user forgets to check the checkbox, then the following error message is displayed, but it does not include WAI-ARIA markup (e.g. role="alert", etc.) to allow it be announced to screen reader users (see the Form Validation Example at http://webaim.org/techniques/aria/)

Success Criterion	Level	Evaluation	Comments
3.3.2: Labels or Instructions	A	Pass	Labels and/or instructions are provided as required.
3.3.3: Error Suggestion	AA	Pass	Error suggestions are made where appropriate, e.g. only validly formatted postal codes can be entered.
3.3.4: Error Prevention (Legal, Financial, Data)	AA	?	Data can be corrected?
3.3.5: Help	AAA	Fail	No context sensitive help
3.3.6: Error Prevention (All)	AAA	?	The system allows voting again to write-over previous votes but the City may not enable this.
4.1.1: Parsing	A	Fail?	Login screen: 16 Errors, 4 warning(s) according to the W3C Validation service
4.1.2: Name, Role, Value	A	Pass?	The name, role and state of content is typically available programmatically, however some alerts are not:

Voter Interface

URI: https://demo.scytl.com:8443/online-voting/index.html#!/?electionId=4028f4fa427a21d201427a87d26c0026&siteLanguage=en

Tools Used During This Review:
- Internet Explorer 8
- Firefox 25 + Firebug
- Chrome 30
- NVDA 2013.3 screen reader
- AChecker 1.3 (http://achecker.ca)
- WebAIM Wave Toolbar 1.1.8 (http://wave.webaim.org/toolbar/)
- W3C Markup Validator (http://validator.w3.org/)
- WebAIM Color Contrast Checker (http://webaim.org/resources/contrastchecker/)

General Comments

The Scytl Voter Interface is not currently in conformance with WCAG 2.0, even to Level A.

The primary accessibility issues concern:

- The use of "glyphicons" in several places without text alternatives.
- The non-standard use of radio button lists (i.e. many single item lists instead on one multi-item list)
- Difficulty orienting to each page in the ballot (since keyboard focus stays at the bottom of the page and the page tittle never changes).
- Poor contrast on the regular version (a high contrast version exists but may be difficult for some users to turn on)
- Focus indicators are generally difficult to see and could be improved.

Also, a relatively large number of HTML validity errors may cause problems with certain assistive technologies.

In places throughout the review, "Fail?" or "Pass?" have been used where a fail or pass is questionable. "Pass?" is used in places where a single instance of a barrier has been identified, perhaps an oversight, or where it could be argued that an item might fail or pass, typically a minor issue, leaning toward a Pass. "Fail?" is used in cases where an item could be argued as a fail or pass, leaning toward a fail. In all cases, developers should consider the recommendations made to remove any potential argument.

The primary issues described here, and a variety of other potential accessibility problems, are discussed in more detail in the WCAG 2 Review that follows.

NOTE: Items in the review that appear with a grey background (i.e. all Level AAA success criteria as well as 1.2.4: Captions (Live) and 1.2.5: Audio Description) are optional under AODA, though developers should attempt to conform with these guidelines where possible.
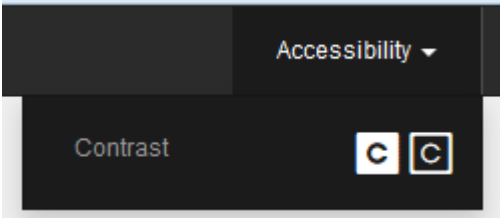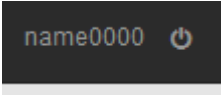
Test Assumptions:

- That the "Powered by Scytl" link to Scytl.com will not appear on the final version of the voting system. Obviously, an off-site link raises usability issues.
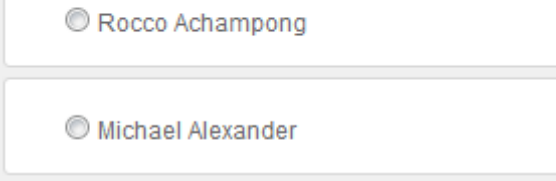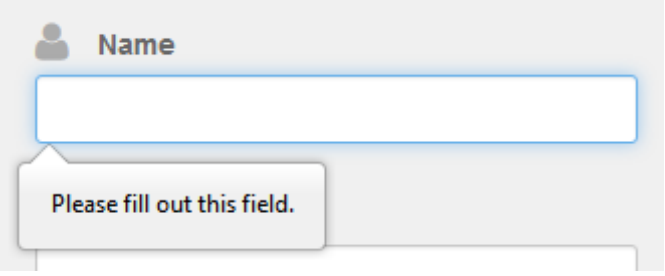
WCAG 2 Review:

Success Criterion	Level	Evaluation	Comments
1.1.1: Non-text Content	A	Fail?	General: The logo image is not read by screen readers because it is injected using CSS and has no associated alternative text, however the page title currently conveys the same information.
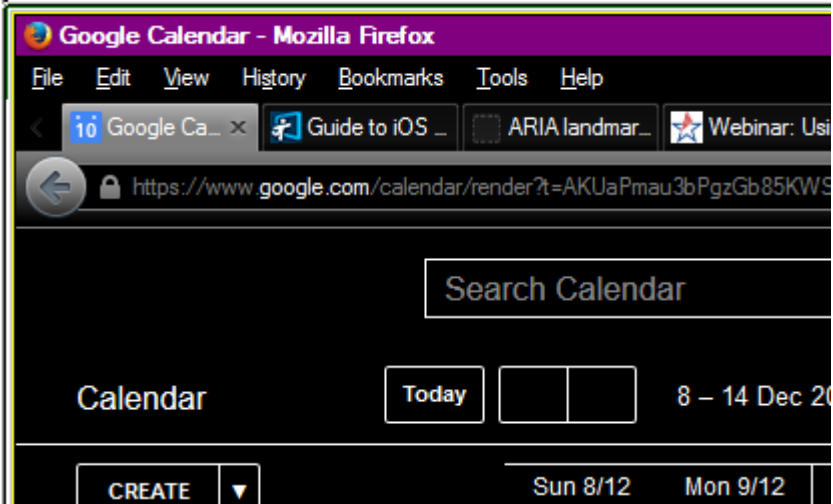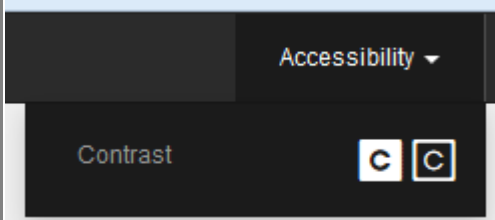
Success Criterion	Level	Evaluation	Comments
			General: The two contrast options are represented by "glyphicons" that do not include associated alternative information. Ballot Screen: The logout image ("glyphicon") does not include associated alternative information. Receipt screen: The "x" button has no meaningful alternative.
1.2.1: Audio-only and Video-only (Prerecorded)	A	N/A	
1.2.2: Captions (Prerecorded)	A	N/A	
1.2.3: Audio Description or Full Text Alternative	A	N/A	
1.2.4: Captions (Live)	AA		
1.2.5: Audio Description	AA		
1.2.6 Sign Language	AAA		
1.2.7 Extended Audio Description	AAA		
1.2.8 Media	AAA		
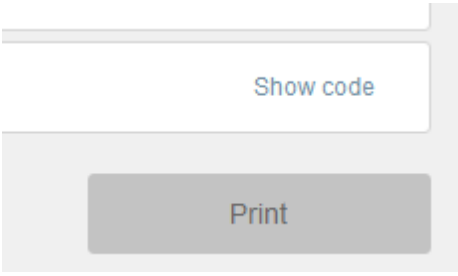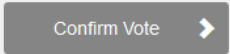
Success Criterion	Level	Evaluation	Comments
Alternative			
1.2.9 Audio-only (Live)	AAA		
1.3.1: Info and Relationships	A	Fail	Ballot screens: Because the ballot screens are implemented as a single page that updates dynamically, screen readers (NVDA) do not automatically read anything when the Next> button is pressed, leaving the screen reader user to wonder whether anything has actually happened (this problem is compounded by the fact that keyboard focus is left on the same Next> control). It would be better if the question being voted for were automatically announced by the screen reader and focus was place on the first option in the list. Another area where information is provided to sighted users but not to screen reader users is the process progress indicator. A screen reader user will just hear the text read with no indication that some steps have been completed, which is the current step and which are the steps to come: The best way to provide this information might be with the use of text that is hidden from the screen, but not from screen readers (a useful technique appears here[3]). Text might be added that explains that "The process has five steps" and each step would be labelled appropriately e.g. • "Completed step" • "The current step is" • "Future step Similarly, when the user has moved between the various phases ("Vote", "Review Vote", "View Receipt") this should be communicated: Ballot screens: When selecting candidates, the list looks like a regular radio button list, but it is actually a series of lists, each with a single radio button. As a result, screen reader users hear a whole series of "list with 1 item" labels instead of perceiving a coherent multi-item list. Also, it means that the arrow buttons cannot be used to move around the list (as they are typically used in a regular radio button list), however the arrow buttons do still cause selection, if pressed once the TAB key has been used to place focus on a candidate, which might lead to errors.
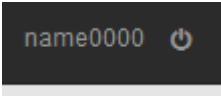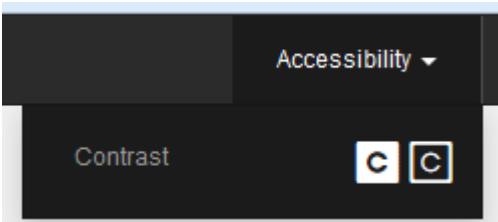
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[3] http://webaim.org/techniques/css/invisiblecontent/#absolutepositioning
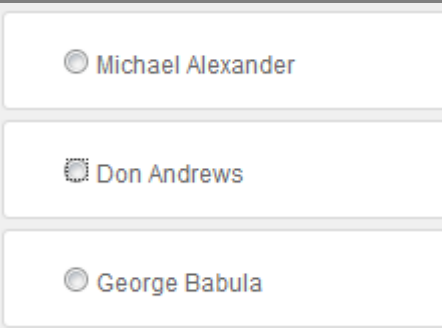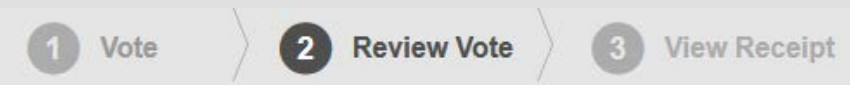
Success Criterion	Level	Evaluation	Comments
			It would be better if screen readers could be warned of what they were doing when an item is selected (e.g. "You have selected Rocco Achampong for the office of mayor"). General: The main headings (e.g. "Login", "1. Ballot for the office of MAYOR ") are typically marked as H2 – it would be better if they were marked as H1. General: Landmarks are used properly to identify "Banner" and "Content Info" areas, but the "main" and "navigation" areas are not marked.
1.3.2: Meaningful Sequence	A	Fail?	Ballot screens: After selecting "Next" on a ballot screen, the keyboard focus remains on the Next> button on the next screen instead of moving to the top of the new page. As a result, on each ballot screen keyboard-only users (and screen reader users) must begin by moving the focus backwards through the list to their selection.
1.3.3: Sensory Characteristics	A	Pass?	Generally, sensory-specific instructions are not found, but the messages to "Please fill out this field" (on Login screen) are an exception – they assume the user can see which field they refer to.
1.4.1: Use of Color	A	Pass	Colour is not used alone to indicate anything.
1.4.2: Audio Control	A	N/A	No audio
1.4.3: Contrast (Minimum)	AA	Pass?	The regular contrast version of the system includes several instances of low contrast (see below). However, a high contrast version is also provided, which does improve contrast:
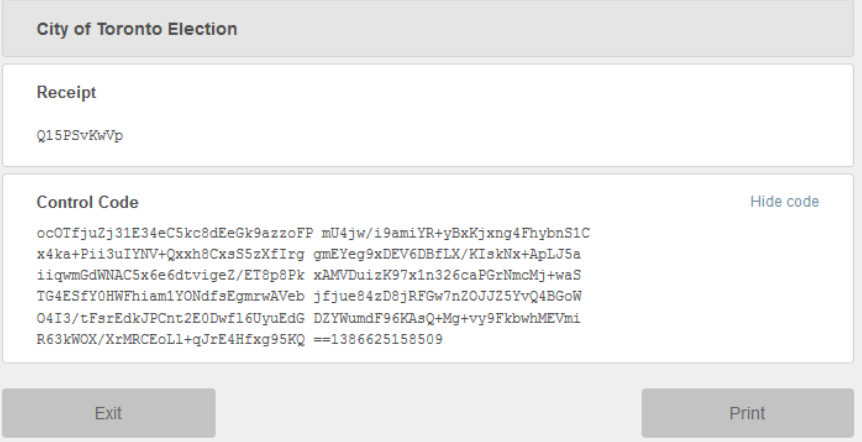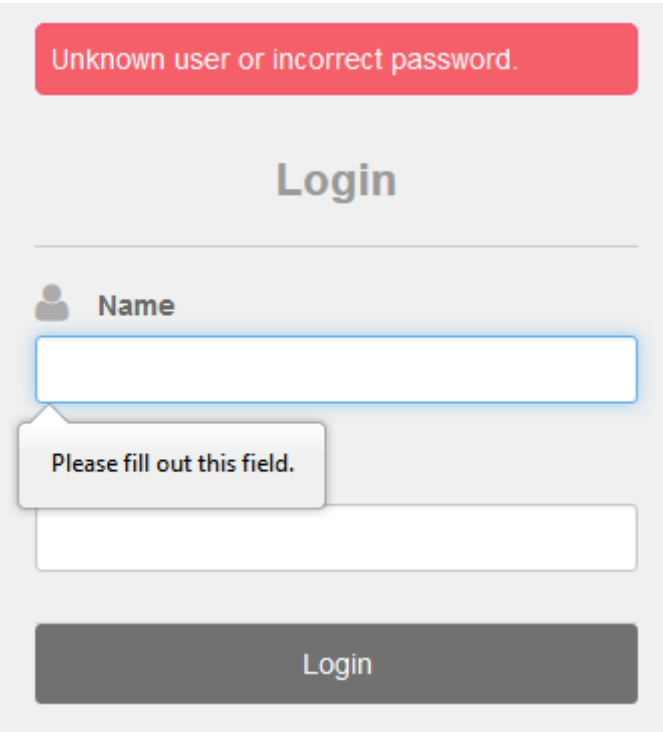
Success Criterion	Level	Evaluation	Comments

This is sufficient for a technical pass, however, this mode could be improved in at least two ways: the controls to turn it on and off could be made more accessible (see 1.1.1, 2.1.1, and 2.4.7) and the current focus should be much more clear in that mode (see 2.4.7).

Here are the areas of low contrast in the regular contrast interface:

Login screen: The default login title (#CCCCCC on #F0F0F0) only has contrast of 2.5, whereas WCAG 2.0 requires a contrast ratio of 4.5:1 for normal text and 3:1 for large text.

Login screen: The Name and PIN fields (#999999 on #FFFFFF) only have a contrast of 2.8.

Login screen: The "Accessibility" menu item (#999999 on # 2b2b2b) is only just sufficient (5:1) and its narrow (non-bold) font makes it even more difficult to see.

An alternative approach is to turn the high contrast setting on
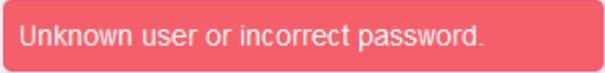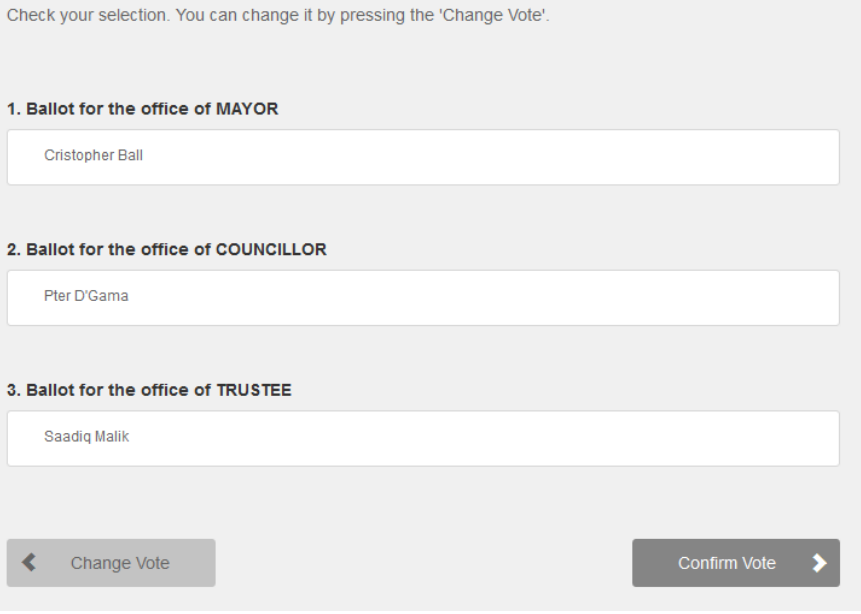
Success Criterion	Level	Evaluation	Comments
			automatically when the Windows High Contrast setting is detected, as many web sites do (e.g. Google apps):
1.4.4: Resize text	AA	Pass	Text can be resized with the browser settings.
1.4.5: Images of Text	AA	Pass	No improper images of text.
1.4.6: Contrast (Enhanced)	AAA	Fail	Since there are already contrast problems at for 1.4.3 (Level AA).
1.4.7: Low or no Background Audio	AAA	Pass	No background audio
1.4.8: Visual Presentation	AAA		
1.4.9: Images of Text (No Exception)	AAA		No improper images of text.
2.1.1: Keyboard	A	Fail?	<u>Login screen:</u> The accessibility menu is somewhat difficult to use with the keyboard because of a lack of visible focus. Also, once the menu has been opened with the keyboard it does not close, as it does when operated with the mouse. <u>Receipt screen:</u> Cannot get keyboard focus on to the "Show/Hide code"
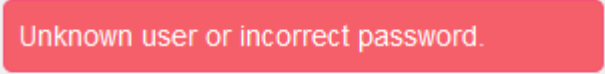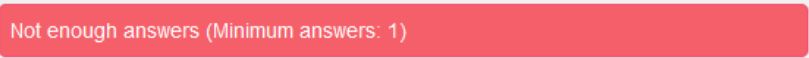
Success Criterion	Level	Evaluation	Comments
			pseudo-link. Show code Print
2.1.2: No Keyboard Trap	A	Pass	No keyboard traps were found.
2.1.3 Keyboard (No Exception)	AAA		
2.2.1: Timing Adjustable	A	Pass?	Review Vote screen: This message was encountered. Does it have anything to do with timing? "Error 403 - The server encountered an unexpected condition which prevented it from fulfilling the request." Confirm Vote Error 403 - The server encountered an unexpected condition which prevented it from fulfilling the request.
2.2.2: Pause, Stop, Hide	A	N/A	No moving, blinking, scrolling, or auto-updating information.
2.2.3: No Timing	AAA	?	Not encountered, however some time limit is probably reasonable for this application.
2.2.4: Interruptions	AAA	Pass	No interruptions were experienced.
2.2.5: Re-authenticating	AAA	?	Not encountered
2.3.1: Three Flashes or Below Threshold	A	Pass	None seen.
2.3.2: Three Flashes	AAA	Pass	None seen.
2.4.1: Bypass Blocks	A	Fail?	General: No "skip to content" links. General: Landmarks are used properly to identify "Banner" and "Content Info" areas, but the "main" and "navigation" areas are not marked.

Success Criterion	Level	Evaluation	Comments
2.4.2: Page Titled	A	Fail?	General: In this demo, the page title stayed the same instead of reflecting the phase of the process.
2.4.3: Focus Order	A	Pass	The focus order generally made sense (however, see 1.3.2).
2.4.4: Link Purpose (In Context)	A	Pass?	Most links make sense, except this exception: General: There is no non-glyphicon indication that clicking on the user name will cause the user to be logged out. And there is also no "are you sure" message before the user is logged out.
2.4.5: Multiple Ways	AA	N/A	Because the pages are part of a "process".
2.4.6: Headings and Labels	AA	Pass	Headings and labels are generally appropriate.
2.4.7: Focus Visible	AA	Fail	Overall, the focus indicators are not very easy to see. General: The accessibility menu lacks a visible focus indicator. Login screen: It is also quite difficult to see the focus indicator on the "Login" button (left: not focussed, right: focussed): And in high contrast mode: Ballot screens: The focus indicators on the choices are quite difficult to see:

Success Criterion	Level	Evaluation	Comments
2.4.8: Location	AAA	Pass	Location information is available (but needs to be accessible, see 1.3.1).
2.4.9: Link Purpose (Link Only)	AAA	Pass?	
2.4.10: Section Headings	AAA	N/A	The content is not complex enough to require these.
3.1.1: Language of Page	A	Fail	General: The language of pages is not specified.
3.1.2: Language of Parts	AA	N/A	General: There are no items in additional languages.
3.1.3: Unusual Words	AAA	N/A	No unusual words
3.1.4: Abbreviations	AAA	N/A	No abbreviations
3.1.5: Reading Level	AAA	Pass?	Reading level is generally appropriate, although the receipt is somewhat confusing.
3.1.6: Pronunciation	AAA	N/A	Words are not used ambiguously.
3.2.1: On Focus	A	Pass	No unexpected actions on focus
3.2.2: On Input	A	Pass	No unexpected actions on input
3.2.3: Consistent Navigation	AA	Pass	Navigation is reasonably consistent.
3.2.4: Consistent Identification	AA	Pass?	Receipt screen: The user is asked to "copy your receipt code", then they are then given both a "Receipt" number and a "Control Code". This seems

Success Criterion	Level	Evaluation	Comments

			confusing.
			
			The voting receipt is your digital certificate. Copy your receipt code to verify your vote has been cast and stored correctly
			
			City of Toronto Election
			
			Receipt
			
			Q15PSvKwVp
			
			Control Code Hide code
			
			`ocOTfjuZj31E34eC5kc8dEeGk9azzoFP mU4jw/i9amiYR+yBxKjxng4FhybnS1C`
			`x4ka+Pii3uIYNV+Qxxh8CxsS5zXfIrg gmEYeg9xDEV6DBfLX/KIskNx+ApLJ5a`
			`iiqwmGdWNAC5x6e6dtvigeZ/ET8p8Pk xAMVDuizK97x1n326caPGrNmcMj+waS`
			`TG4ESfY0HWFhiam1YONdfsEgmrwAVeb jfjue84zD8jRFGw7nZOJJZ5YvQ4BGoW`
			`O4I3/tFsrEdkJPCnt2E0Dwfl6UyuEdG DZYWumdF96KAsQ+Mg+vy9FkbwhMEVmi`
			`R63kWOX/XrMRCEoLl+qJrE4Hfxg95KQ ==1386625158509`
			
			Exit Print

3.2.5: Change on Request	AAA	Pass	Changes of context only occur on user action.
3.3.1: Error Identification	A	Fail?	Login screen: If the user forgets to fill out their name or PIN, then they receive a message that says "please fill out this field". This is ok for sighted users, but screen reader users will not know which field. Unknown user or incorrect password. Login Name Please fill out this field. Login Login screen: If the name or password are incorrect then the following

Success Criterion	Level	Evaluation	Comments
			error message is displayed, but it does not include WAI-ARIA markup (e.g. role="alert", etc.) to allow it be announced to screen reader users (see the Form Validation Example at http://webaim.org/techniques/aria/) Unknown user or incorrect password.
3.3.2: Labels or Instructions	A	Pass	Labels and/or instructions are provided as required.
3.3.3: Error Suggestion	AA	Pass	Error suggestions are made where appropriate, e.g.: Not enough answers (Minimum answers: 1)
3.3.4: Error Prevention (Legal, Financial, Data)	AA	Pass	Ballot screens: Data entered is re-confirmed with the user in the last step Check your selection. You can change it by pressing the 'Change Vote'. 1. Ballot for the office of MAYOR Cristopher Ball 2. Ballot for the office of COUNCILLOR Pter D'Gama 3. Ballot for the office of TRUSTEE Saadiq Malik ◀ Change Vote Confirm Vote ▶
3.3.5: Help	AAA	Fail	No context sensitive help
3.3.6: Error Prevention (All)	AAA	?	The system allows voting again to write-over previous votes but the City may not enable this.
4.1.1: Parsing	A	Fail?	Login screen: 41 errors, 3 warnings according to the W3C Validation service
4.1.2: Name, Role, Value	A	Pass?	The name, role and state of content is typically available programmatically, however some alerts are not:

Success Criterion	Level	Evaluation	Comments
			Login screen: Error message is not identified using WAI-ARIA markup (e.g. "alert"): Unknown user or incorrect password. Ballot screens: Error message is not identified using WAI-ARIA markup (e.g. "alert"): Not enough answers (Minimum answers: 1)

Proposal 3: Everyone Counts

Voting Interface:

URI: https://elect.everyonecounts.com/app/71/97

Tools Used During This Review:
Internet Explorer 8
Firefox 25 + Firebug
Chrome 30
NVDA 2013.3 screen reader
AChecker 1.3 (http://achecker.ca)
WebAIM Wave Toolbar 1.1.8 (http://wave.webaim.org/toolbar/)
W3C Markup Validator (http://validator.w3.org/)
WebAIM Color Contrast Checker (http://webaim.org/resources/contrastchecker/)

General Comments
The Everyone Counts voting interface is not currently in conformance with WCAG 2.0, even to Level A.

The primary accessibility issues concern:
- Pages within the site are not uniquely titled.
- That despite being properly labelled with candidate names, the fact that all of the ballots are on the same page may cause some users to have difficulty determining which race a candidate's checkbox belongs to.
- When users over-vote a race, there is no immediate warning that they were unsuccessful in marking their ballot or why that might be.
- The combined English/French interface is not marked up programmatically (i.e. with "lang" attributes) and also is a concern for readability. (Though it is understood that the combined language ballot is not reflective of how the final ballots will appear)

In places throughout the review, "Fail?" or "Pass?" have been used where a fail or pass is questionable. "Pass?" is used in places where a single instance of a barrier has been identified, perhaps an oversight, or where it could be argued that an item might fail or pass, typically a minor issue, leaning toward a Pass. "Fail?" is used in cases where an item could be argued as a fail or pass, leaning toward a fail. In all cases, developers should consider the recommendations made to remove any potential argument.

The primary issues described here, and a variety of other potential accessibility problems, are discussed in more detail in the WCAG 2 Review that follows.

NOTE: Items in the review that appear with a grey background (i.e. all Level AAA success criteria as well as 1.2.4: Captions (Live) and 1.2.5: Audio Description) are optional under AODA, though developers should attempt to conform with these guidelines where possible.
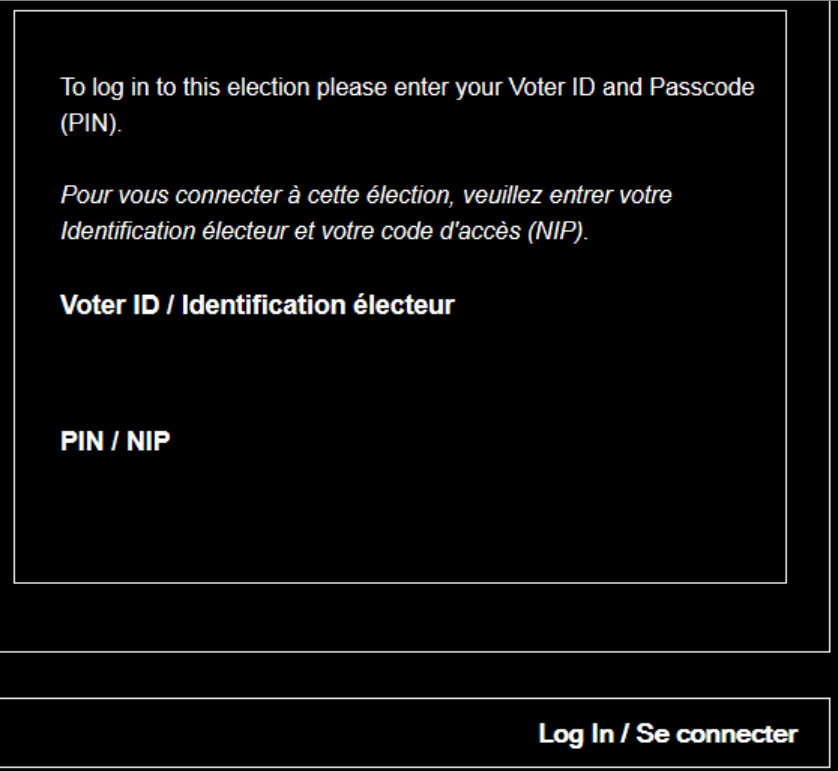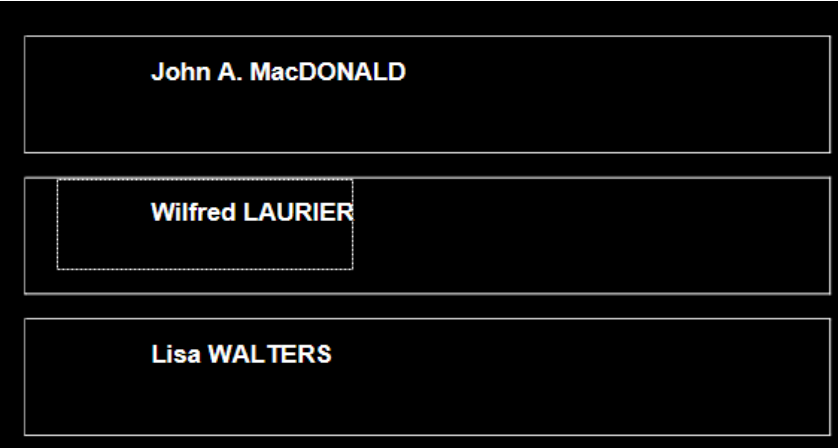
Assumptions:
- Once the vote is submitted, the system states that in the live version a receipt code will appear. We assume that this code will be provided in an accessible manner.

WCAG 2 Review:
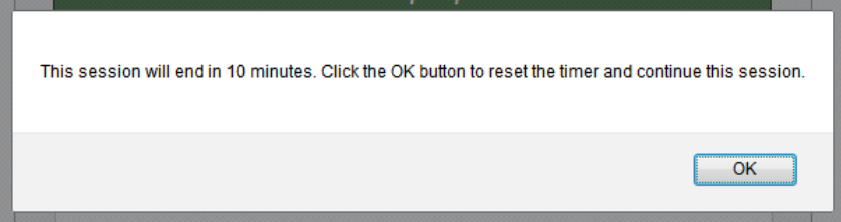
Success Criterion	Level	Evaluation	Comments
1.1.1: Non-text Content	A	Pass	All images have text alternatives.
1.2.1: Audio-only and Video-only (Prerecorded)	A	N/A	
1.2.2: Captions (Prerecorded)	A	N/A	
1.2.3: Audio Description or Full Text Alternative	A	N/A	
1.2.4: Captions (Live)	AA		
1.2.5: Audio Description	AA		
1.2.6 Sign Language	AAA		
1.2.7 Extended Audio Description	AAA		
1.2.8 Media Alternative	AAA		
1.2.9 Audio-only (Live)	AAA		
1.3.1: Info and Relationships	A	Fail?	General: The main headings (e.g. "Authentication") are typically marked as H3 – it would be better if they were marked as H1. Voting screen: Some text that is styled to look like headings are actually not marked up as headings (e.g. City of Toronto) General: Navigation landmarks not used, but the pages are simple enough that they may not be required. Voting screen: The checkmark indicator is very easy to see and understand.

Success Criterion	Level	Evaluation	Comments
			  Voting screen: Each checkbox is labelled with the candidate name, so a screen reader user hears "John A. MacDonald checkbox checked". However, because there are multiple ballots on each page, screen reader users may lose track of which position they are voting for. The best way to provide this information might be with the use of text that is hidden from the screen, but not from screen readers (a useful technique appears here[4]). For example, the hidden text "(Candidate for POSITION_NAME)" might be added to each label.
1.3.2: Meaningful Sequence	A	Pass	Sequences are generally meaningful.
1.3.3: Sensory Characteristics	A	Pass	Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound.
1.4.1: Use of Color	A	Pass	Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
1.4.2: Audio Control	A	N/A	No audio
1.4.3: Contrast (Minimum)	AA	Pass	Contrast is good. The lowest contrast is the white-on-green text (#FFFFFF on #336633) which has a ratio of 6.8 to 1. While not strictly required, it is a good practice to consider support for the Windows High Contrast setting, as many web sites do (e.g. Google apps), since some users with visual disabilities may have this mode enabled. Currently, the interface does not properly support this mode. For example, text entry boxes (e.g. Voter ID, PIN) are not displayed properly in FireFox 26.

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[4] http://webaim.org/techniques/css/invisiblecontent/#absolutepositioning

Success Criterion	Level	Evaluation	Comments
			To log in to this election please enter your Voter ID and Passcode (PIN). *Pour vous connecter à cette élection, veuillez entrer votre Identification électeur et votre code d'accès (NIP).* **Voter ID / Identification électeur** **PIN / NIP** Log In / Se connecter Also, candidate selections are not displayed properly in the ballot screen, when the Windows High Contrast Mode is on: John A. MacDONALD Wilfred LAURIER Lisa WALTERS
1.4.4: Resize text	AA	Pass	Text can be resized above 200% with the browser settings (both the whole screen and text-only).

Success Criterion	Level	Evaluation	Comments
			AUTHENTICATION / AUTHENTIFICATION To log in to this election please enter your Voter ID and Passcode (PIN). *Pour vous connecter à cette élection, veuillez entrer votre Identification électeur et votre code d'accès (NIP).* **Voter ID / Identification électeur** **PIN / NIP**
1.4.5: Images of Text	AA	Pass	No improper images of text.
1.4.6: Contrast (Enhanced)	AAA	Pass?	Most of the site is black on white, which would pass immediately. The white-on-green text (#FFFFFF on #336633) which has a ratio of 6.8 to 1, which is slightly lower than the 7 to 1 requirement for AAA, however in those cases the text is fairly large (which only requires a 4.5 to 1 ratio),. AUTHENTICATION / AUTHENTIFICATION
1.4.7: Low or no Background Audio	AAA	N/A	
1.4.8: Visual Presentation	AAA		
1.4.9: Images of Text (No Exception)	AAA	Pass	Logotypes (e.g. the City of Toronto logo are allowed).
2.1.1: Keyboard	A	Pass	All aspects of the site can be operated by the keyboard.
2.1.2: No Keyboard Trap	A	Pass	No keyboard traps were found.
2.1.3 Keyboard (No Exception)	AAA	Pass	All aspects of the site can be operated by the keyboard.

Success Criterion	Level	Evaluation	Comments
2.2.1: Timing Adjustable	A	Pass	General: The user is warned 10 minutes before being logged out and is given the option to extend the timer. This session will end in 10 minutes. Click the OK button to reset the timer and continue this session. OK Assuming this timer could be extended at least 10 times, then it would satisfy this WCAG 2.0 timing option: **Extend:** The user is warned before time expires and given at least 20 seconds to extend the time limit with a simple action (for example, "press the space bar"), and the user is allowed to extend the time limit at least ten times; or
2.2.2: Pause, Stop, Hide	A	N/A	No moving, blinking, scrolling, or auto-updating information.
2.2.3: No Timing	AAA	Fail	Time limit is probably reasonable for this application.
2.2.4: Interruptions	AAA	Pass	No interruptions observed.
2.2.5: Re-authenticating	AAA		
2.3.1: Three Flashes or Below Threshold	A	Pass	No flashing observed.
2.3.2: Three Flashes	AAA	Pass	No flashing observed.
2.4.1: Bypass Blocks	A	N/A	There are not blocks of repeating content, other than a single logo image.
2.4.2: Page Titled	A	Fail	The page title is always the same ("City of Toronto"), even when the user moves between the login, ballot, review, and logout screens.
2.4.3: Focus Order	A	Pass	The focus order is generally appropriate.
2.4.4: Link Purpose (In Context)	A	N/A	There are few if any links.
2.4.5: Multiple Ways	AA	N/A	Because the pages are part of a "process".

Success Criterion	Level	Evaluation	Comments
2.4.6: Headings and Labels	AA	Pass	Headings and labels are generally appropriate.
2.4.7: Focus Visible	AA	Pass?	<u>Login screen:</u> The focus indicator on the log in button is not very visible. Log In / Se connecter Log In / Se connecter
2.4.8: Location	AAA	N/A	The process is simple enough that this is probably not required.
2.4.9: Link Purpose (Link Only)	AAA	N/A	There are few, if any, links.
2.4.10: Section Headings	AAA	Pass?	Section headings are generally used to organize the content, however they are not always numbered correctly (e.g. do not start at H1)
3.1.1: Language of Page	A	Pass	<u>General:</u> The main language (lang="en") is set.
3.1.2: Language of Parts	AA	Fail	<u>General:</u> The French translations (that appear all through the site) are not properly marked up to identify them French (i.e. lang="fr") <u>General:</u> The inclusion of French translations throughout the interface adds unnecessary complexity, especially for screen reader and screen magnifier users. It is recommended that these be moved to a separate French interface option.

Success Criterion	Level	Evaluation	Comments
			Vote Summary / Sommaire de Voix Scroll down to review your vote. Click the **Change / Modifier** button below your vote to make changes, or the **Submit / Soumettre** button to confirm. *Faites défiler la liste pour revoir votre vote. Cliquez sur le **Change / Modifier** bouton ci-dessous votre vote d'apporter des modifications, ou de la **Submit / Soumettre** pour confirmer.* MAYOR *Vote for not more than ONE.* MAIRE *Ne voter que pour UN(E).* **Wayne J. ELLINGTON**
3.1.3: Unusual Words	AAA	N/A	No unusual words
3.1.4: Abbreviations	AAA	N/A	No abbreviations
3.1.5: Reading Level	AAA	Fail?	Reading level is generally appropriate, but the combination of French and English may be confusing for some readers.
3.1.6: Pronunciation	AAA	N/A	Words are not used ambiguously.
3.2.1: On Focus	A	Pass	No unexpected actions on focus
3.2.2: On Input	A	Pass	No unexpected actions on input
3.2.3: Consistent Navigation	AA	Pass	Navigation is consistent.
3.2.4: Consistent Identification	AA	Pass	Items are identified consistently.
3.2.5: Change on	AAA	Pass	Changes of context only occur on user action.

Success Criterion	Level	Evaluation	Comments
Request			
3.3.1: Error Identification	A	Fail?	Voting screen: If only one candidate can be selected and one has already been selected further down the list and the user attempts to click on another choice, it simply doesn't work. There is no warning about why. If such a warning is added, it must be done such that it is read to screen reader users (e.g. as part of the item label or using appropriate WAI-ARIA markup).
3.3.2: Labels or Instructions	A	Pass	Labels and/or instructions are provided as required.
3.3.3: Error Suggestion	AA	N/A	There are no instances where input errors are automatically detected and suggestions for corrections are known. This would be more relevant in a registration interface.
3.3.4: Error Prevention (Legal, Financial, Data)	AA	Pass	There is a confirmation page.
3.3.5: Help	AAA	Fail	No context sensitive help
3.3.6: Error Prevention (All)	AAA	?	The system allows voting again to write-over previous votes, but the City may not enable this.
4.1.1: Parsing	A	Pass?	Voting screen: 3 Errors, 7 warning(s) according to the W3C Validation service.
4.1.2: Name, Role, Value	A	Pass	The name, role and state of content is available programmatically.

Registration Interface:

URI: https://ecvoterenroll.everyonecounts.com/axshare/Voter_Lookup/language_selection.html

Tools Used During This Review:
Internet Explorer 8
Firefox 25 + Firebug
Chrome 30
NVDA 2013.3 screen reader
AChecker 1.3 (http://achecker.ca)
WebAIM Wave Toolbar 1.1.8 (http://wave.webaim.org/toolbar/)
W3C Markup Validator (http://validator.w3.org/)
WebAIM Color Contrast Checker (http://webaim.org/resources/contrastchecker/)

General Comments

The Everyone Counts registration interface is not currently in conformance with WCAG 2.0, even to Level A, and is actually less accessible than the demonstration voting interface.

The primary accessibility issues concern:

- Invisible images that clutter the audio output from screen readers.
- Heading markup is not used properly.
- Input fields are not properly associated with either their visual labels or their error messages (e.g. when the field is missed).
- Inconsistent focus order.

In places throughout the review, "Fail?" or "Pass?" have been used where a fail or pass is questionable. "Pass?" is used in places where a single instance of a barrier has been identified, perhaps an oversight, or where it could be argued that an item might fail or pass, typically a minor issue, leaning toward a Pass. "Fail?" is used in cases where an item could be argued as a fail or pass, leaning toward a fail. In all cases, developers should consider the recommendations made to remove any potential argument.

The primary issues described here, and a variety of other potential accessibility problems, are discussed in more detail in the WCAG 2 Review that follows.
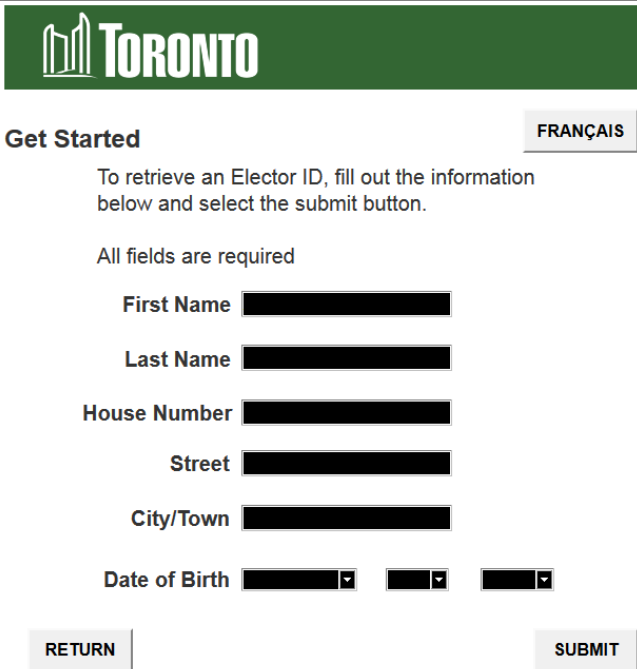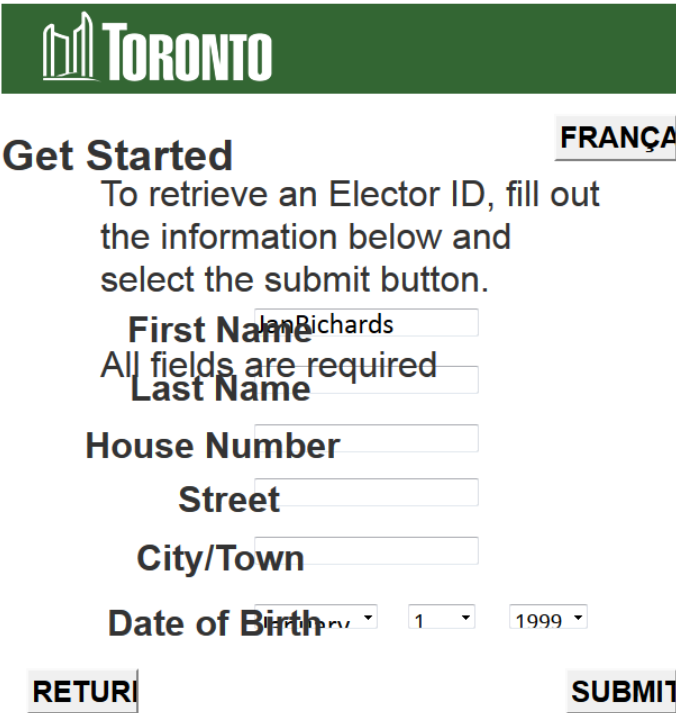
NOTE: Items in the review that appear with a grey background (i.e. all Level AAA success criteria as well as 1.2.4: Captions (Live) and 1.2.5: Audio Description) are optional under AODA, though developers should attempt to conform with these guidelines where possible.
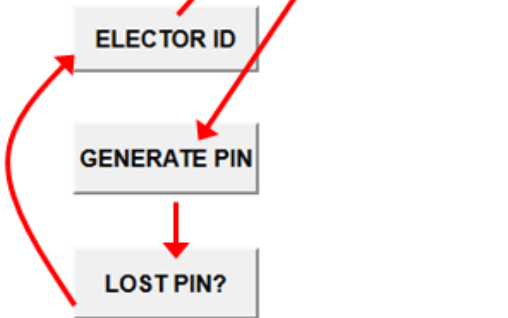
WCAG 2 Review:

Success Criterion	Level	Evaluation	Comments
1.1.1: Non-text Content	A	Fail?	General: The Toronto banner lacks alt text: General: Sometimes there are transparent images that appear on the page. These are not visible to most people, but are read out by screen readers and are confusing. The following screenshot shows the page with image outlines turned on. The invisible image is evident.

Success Criterion	Level	Evaluation	Comments
			Welcome to the Internet Voting for Persons with Disabilities Enrollment Page for the 2014 Regular Municipal Election Bienvenue sur le vote par Internet pour les Personnes Handicapées D'inscription Page pour L'élection Municipale Ordinaire 2014 Select the appropriate language button. Cliquez sur le bouton de la langue appropriée. FRANÇAIS ENGLISH
1.2.1: Audio-only and Video-only (Prerecorded)	A	N/A	
1.2.2: Captions (Prerecorded)	A	N/A	
1.2.3: Audio Description or Full Text Alternative	A	N/A	
1.2.4: Captions (Live)	AA		
1.2.5: Audio Description	AA		
1.2.6 Sign Language	AAA		
1.2.7 Extended Audio Description	AAA		
1.2.8 Media Alternative	AAA		
1.2.9 Audio-only (Live)	AAA		
1.3.1: Info and Relationships	A	Fail	General: Page headings (e.g. "Get Started") are not properly identified as headings (e.g. with <H1>) General: Form fields and their labels and error messages are generally not

Success Criterion	Level	Evaluation	Comments
			properly associated (with <label> element). All fields are required First Name ____ Last Name ____ House Number ____ Street ____ City/Town ____ Date of Birth January ▾ 1 ▾ 1999 ▾
1.3.2: Meaningful Sequence	A	Pass	Sequences are generally meaningful (and the pages are quite straightforward).
1.3.3: Sensory Characteristics	A	Pass?	There are a few examples of referring to the location of controls, but it probably would not cause significant issues. Disability oath declaration: "Read the following oath and acknowledge the information by selecting the box **below**"
1.4.1: Use of Color	A	Pass	Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.
1.4.2: Audio Control	A	N/A	No audio
1.4.3: Contrast (Minimum)	AA	Pass	Contrast is good with large text and dark gray (#333333) on white (#FFFFFF) colours used (ratio: 12.63:1). While not strictly required, it is a good practice to consider support for the Windows High Contrast setting, as many web sites do (e.g. Google apps), since some users with visual disabilities may have this mode enabled. Currently, the interface does not properly support this mode. For example, while most of the user interface remains the same, the text boxes receive a black background, however text typed into them is also black meaning that text entries are not visible.

Success Criterion	Level	Evaluation	Comments
1.4.4: Resize text	AA	Pass?	Text can be resized above 200%, but only by zooming the whole screen, not the text-only.
1.4.5: Images of Text	AA	Pass	No improper images of text (the Toronto logotype is OK).

Success Criterion	Level	Evaluation	Comments
1.4.6: Contrast (Enhanced)	AAA	Pass	Contrast is good with large text and dark gray (#333333) on white (#FFFFFF) colours used (ratio: 12.63:1).
1.4.7: Low or no Background Audio	AAA	N/A	
1.4.8: Visual Presentation	AAA		
1.4.9: Images of Text (No Exception)	AAA	Pass	Logotypes (e.g. the City of Toronto logo are allowed).
2.1.1: Keyboard	A	Pass	All aspects of the site can be operated by the keyboard.
2.1.2: No Keyboard Trap	A	Pass	No keyboard traps were found.
2.1.3 Keyboard (No Exception)	AAA	Pass	All aspects of the site can be operated by the keyboard.
2.2.1: Timing Adjustable	A	???	Unknown timeout length. This page may not be operational in this respect.
2.2.2: Pause, Stop, Hide	A	N/A	No moving, blinking, scrolling, or auto-updating information.
2.2.3: No Timing	AAA	???	Unknown timeout length. This page may not be operational in this respect.
2.2.4: Interruptions	AAA	Pass	No interruptions observed.
2.2.5: Re-authenticating	AAA		
2.3.1: Three Flashes or Below Threshold	A	Pass	No flashing observed.
2.3.2: Three Flashes	AAA	Pass	No flashing observed.
2.4.1: Bypass Blocks	A	N/A	There are not blocks of repeating content, other than a single logo image.
2.4.2: Page Titled	A	Pass	The various process steps are identified with relevant page titles.
2.4.3: Focus Order	A	Fail?	Get started: The button focus order begins with the bottom button ("Lost PIN?" in Firefox, "Generate PIN" in Chrome and IE) and then jumps

Success Criterion	Level	Evaluation	Comments
			around: **Get Started** If you have not yet received an Elector ID to sign up for online voting for Voters with Disabilities, select the Elector ID button below. If you have already received an Elector ID and would like to generate a PIN for online voting, select the Generate PIN button below. FRANÇAIS / ELECTOR ID / GENERATE PIN / LOST PIN? Other focus orders (e.g. order of input fields in forms do tend to be in the appropriate order).
2.4.4: Link Purpose (In Context)	A	N/A	There are few if any links.
2.4.5: Multiple Ways	AA	N/A	Because the pages are part of a "process".
2.4.6: Headings and Labels	AA	Fail?	Headings and labels are generally (visually) appropriate, however are not properly marked up (i.e. lack of <H1> etc. and <label> tags).
2.4.7: Focus Visible	AA	Pass?	Login screen: The focus indicator on the log in button is present, but not as visible as it could be.

Success Criterion	Level	Evaluation	Comments
			ELECTOR ID GENERATE PIN LOST PIN?
2.4.8: Location	AAA	N/A	The process is simple enough that this is probably not required.
2.4.9: Link Purpose (Link Only)	AAA	N/A	There are few, if any, links.
2.4.10: Section Headings	AAA	N/A	Pages are short enough that section headings are not required.
3.1.1: Language of Page	A	Fail	General: The main language (lang="en") is not set.
3.1.2: Language of Parts	AA	Fail	General: The French translations (that appear all through the site) are not properly marked up to identify them French (i.e. lang="fr"). General: The inclusion of French translations throughout the interface adds unnecessary complexity, especially for screen reader and screen magnifier users. It is recommended that these be moved to a separate French interface option.
3.1.3: Unusual Words	AAA	N/A	No unusual words
3.1.4: Abbreviations	AAA	N/A	No abbreviations
3.1.5: Reading Level	AAA	Pass	Reading level is generally appropriate.
3.1.6: Pronunciation	AAA	N/A	Words are not used ambiguously.
3.2.1: On Focus	A	Pass	No unexpected actions on focus
3.2.2: On Input	A	Pass	No unexpected actions on input

Success Criterion	Level	Evaluation	Comments
3.2.3: Consistent Navigation	AA	Pass	Navigation is consistent.
3.2.4: Consistent Identification	AA	Pass	Items are identified consistently.
3.2.5: Change on Request	AAA	Pass	Changes of context only occur on user action.
3.3.1: Error Identification	A	???	Most likely, this site's input validation has been disabled. Get started screen: There is also likely an error in this page because error messages are not dismissed once the proper information has been entered.
3.3.2: Labels or Instructions	A	Pass	Labels and/or instructions are provided as required.
3.3.3: Error Suggestion	AA	???	Most likely, this site's input validation has been disabled.
3.3.4: Error Prevention (Legal, Financial, Data)	AA	Pass	There are confirmation screens.
3.3.5: Help	AAA	Fail	No context sensitive help

Success Criterion	Level	Evaluation	Comments
3.3.6: Error Prevention (All)	AAA	Pass	Registration information is all reversible and confirmation screens are provided.
4.1.1: Parsing	A	Pass?	Multiple validation errors were found on many pages in the registration process using the HTML validation service.
4.1.2: Name, Role, Value	A	Pass?	Lost PIN? Screen: The delivery options are marked-up as "radio" buttons, but in fact they act more like checkboxes, since multiple buttons can be selected. ◉ Mail ◉ SMS ◉ Email ◯ Telephone Call