



ACCESS

RGD

ABILITY

A Practical Handbook on Accessible Web Design

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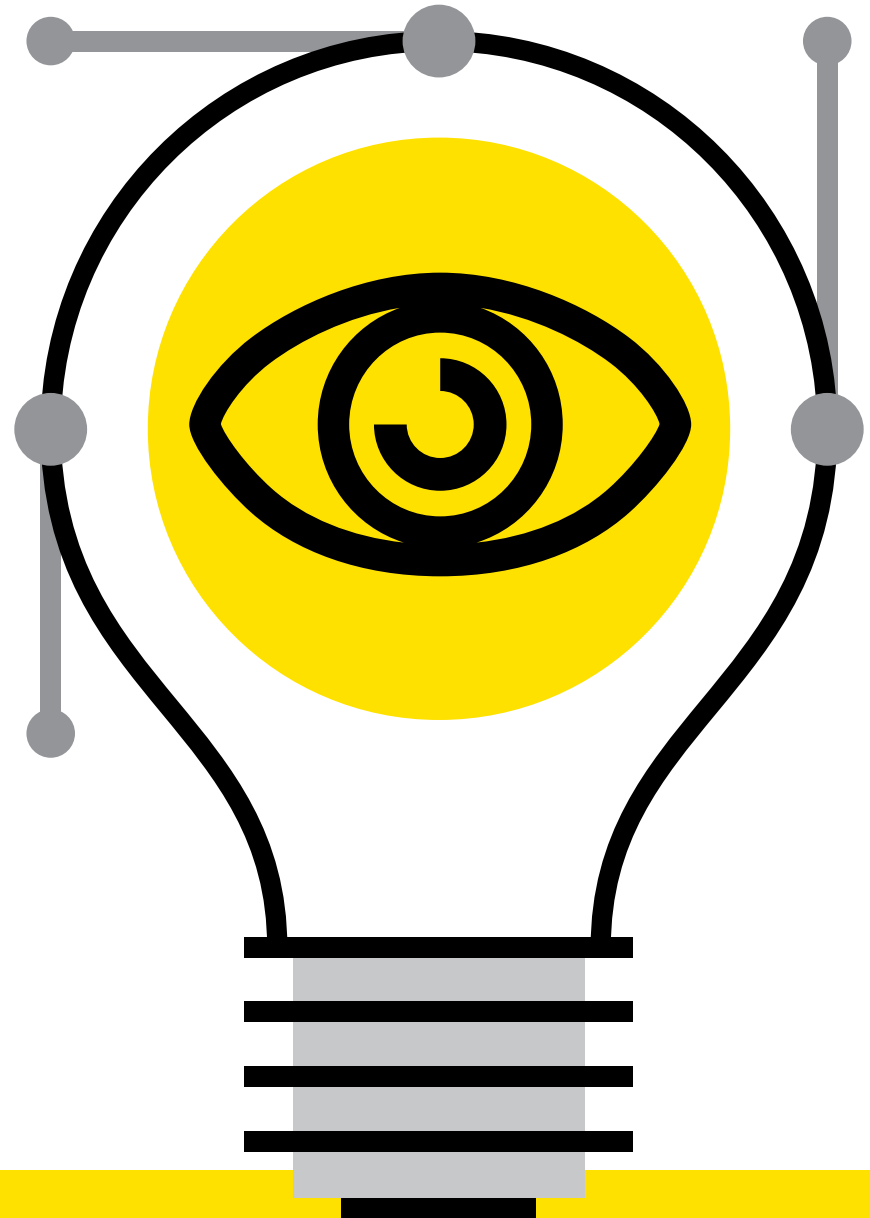
This handbook was produced by the Association of Registered Graphic Designers with support from the Government of Ontario

SECTION **A**

Designing for Accessibility

As a profession, design is committed to providing access to information and ideas through smarter, more effective communications that will engage the widest possible audience. In many ways, the web is the ultimate medium to reach that audience; it provides the opportunity for unprecedented numbers of people to connect, communicate, share and inform.

As designers, we have the power - and the opportunity - to ensure that all people, with a multitude of abilities, can use the web effectively and enjoyably. When websites are properly designed, written and programmed, they can offer universal access to information and functionality.



Designing accessible websites is not just a good thing to do – it's the law.

All public sector organizations, businesses and non-profit organizations with 50 or more employees* in Ontario have to meet web accessibility standards.

The internationally accepted standard – World Wide Web Consortium Web Content Accessibility Guidelines (WCAG) 2.0 – has three levels of accessibility: A, AA and AAA.

New websites or significant site refreshes, as well as any content published after January 1, 2012, must conform to the WCAG 2.0 Level A.

Beginning January 1, 2021, all public websites and web content published after January 1, 2012 must conform to WCAG 2.0 Level AA (providing captions on live videos or audio descriptions for pre-recorded videos is not required). Organizations don't have to modify content posted before 2012 but, if asked, they will be required to work with individuals to make the content accessible to them. Internal websites, such as Intranets, are not required to be accessible.

*All full-time, part-time, seasonal and contract employees within a calendar year.



Through the EnAbling Change Program, the Association of Registered Graphic Designers (RGD) has partnered with the Government of Ontario to help graphic designers and their clients meet the legal requirements of the Accessibility for Ontarians with Disabilities Act (AODA), which aims to make Ontario accessible to people with disabilities in all areas of daily living by 2025.

Good for All of Us

YOU MIGHT BE WONDERING: WHY DO WE NEED A HANDBOOK?

Somewhat surprisingly, accessibility has not yet been adopted by Ontario's graphic design industry as an essential criterion. In the following pages, we hope to create a stronger focus on the conversation about web accessibility among graphic designers. We explain key principles, define industry terms and direct you to further resources. We also highlight practical examples to demonstrate that accessible web design can still be beautiful.

Accessible design can improve people's quality of life and help organizations be more competitive. And it helps designers pursue the ideals that likely prompted them to choose their careers in the first place. After all, making information and ideas available to everyone is the defining goal of all graphic design.

➤ To learn more about the work that RGD is doing to educate, advise and inspire the professional graphic design community – in Ontario and globally – we encourage you to visit rgd-accessible-design.com and join the discussion.

The screenshot shows the RGD website's 'Digital Design' category archive. The header includes the RGD logo with the tagline 'GRAPHIC DESIGN FOR A MORE ACCESSIBLE WORLD' and navigation links for 'Print', 'Digital', 'Environmental', and 'Resources'. Below the header, the page title is 'Home > Category Archive for Digital Design'. The main content area is titled 'Digital Design' and features a grid of article thumbnails. Each thumbnail includes a title, a brief description of the article's content, and a small image. The articles shown are: 'Conference Photo Highlights', 'Presentations Ready for Viewing', 'diabetes.ca', 'Presentation: User Experience & Accessibility', 'Speaker Presentations Slides Now Available', 'Panel: Responsive Design & Accessibility', 'Presentation: Web Accessibility Best Practices by Sandi Gauder', 'Climate Change Action Plan - Annual Report', 'SpeakingOfKids MentalHealth Website', 'CNIB Public Website Redesign', and 'Derek Featherstone Talks Web Accessibility'. A '← Older Articles' link is located at the bottom left of the page.

Principles of Web Accessibility

When websites are properly designed, written and programmed using WCAG 2.0 principles, they offer universal access to information.

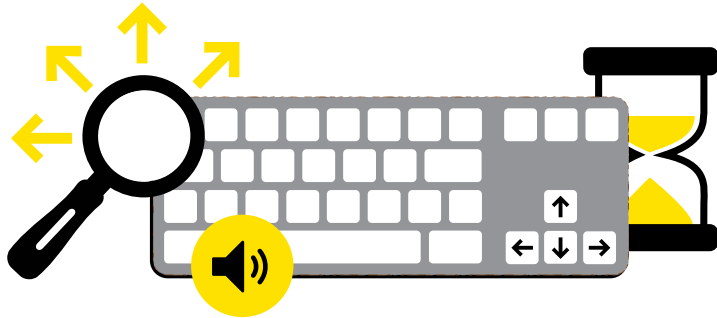
PRINCIPLE #1: PERCEIVABLE

Web-based content and interface components must be presented in ways that all users can perceive. The most effective websites allow users to select preferences for colour, size, typeface and sound. A few points to keep in mind:

- People with visual impairments often require text alternatives (alt text) that can be converted via software into speech, large print, braille, symbols or simpler language.
- A user with significant visual impairment may also use a screen reader, a type of software that converts what is onscreen into audible text; essentially, it reads content out loud to the user.
- The key to ensuring readability for users with low vision is contrast, which is determined by text size and how easily letterforms can be distinguished in a particular font.
- Many users with low vision have screen magnifiers, which can be augmented with screen reader software if desired.
- Colour is also an important factor in accessibility. Many people find that black text on a tan background offers the best readability; others favour off-white text reversed out of black.

- Some users with colour blindness have difficulty distinguishing between red and green, others between yellow and blue – and some cannot see colours at all.
- Use a contrast analyzer to ensure there is enough differentiation between text and background colours. Foreground elements and backgrounds should have a luminosity contrast ratio of at least 10:1.
- People with hearing loss can have difficulty using sites with audio content. Provide transcripts and captions for all audio and video content.

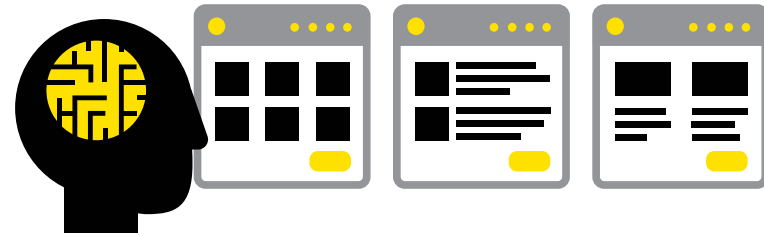




PRINCIPLE #2: OPERABLE

All users must be able to simply and accurately manipulate all interface and navigation components, regardless of how they operate their computers. Some important considerations:

- People with limited fine motor control may face challenges filling out forms, selecting radio buttons or even navigating from page to page. Make all functionality – including links, buttons and form fields – fully accessible from a keyboard.
- Avoid creating custom interface components such as clickable spans that use Javascript. Create large, clickable targets for those using a mouse.
- Provide simple ways to help users navigate, find content and understand where they are. Use clear titles, consistent mechanisms and orientation clues (e.g., “Step 3 of 4”).
- People read and type at different speeds. Give users time to digest and respond to content by flagging timed actions (e.g., “You have up to 20 minutes to complete this form”).
- Label images and graphics with clear text descriptions.
- If there are tables, include a text-format alternative.
- In HTML, tag all titles and headings, large or small – this makes it easier for people using screen readers to navigate pages quickly and effectively.



PRINCIPLE #3: UNDERSTANDABLE

Content and interfaces must be clear so that all people can understand a website. The range of cognitive disabilities and limitations, cultural and language differences and literacy skills can make this principle extremely difficult to achieve, but there are some key factors to keep in mind:

- Ensure that pages and elements are intuitive in appearance and operation.
- Design consistent interface elements that indicate where users are on the site, what they can do there and what comes next.
- Present content in the plainest possible language, provide definitions of potentially unfamiliar terms and expand abbreviations and acronyms.
- Avoid large blocks of text by breaking up long passages into smaller sections with meaningful headings.
- Provide detailed explanations for any actions required of the user (e.g., “Password must be at least six characters long with no spaces”).



PRINCIPLE #4: ROBUST

Robust websites can be reliably interpreted by a wide variety of browsers, devices and assistive technologies.

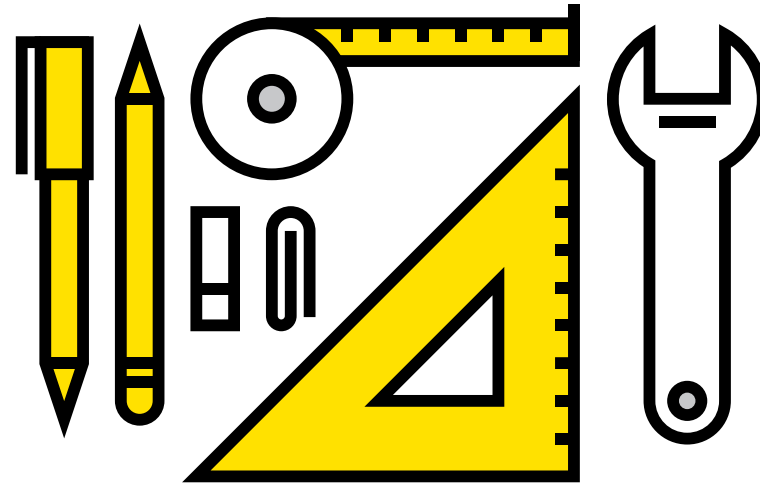
- The foundation for any website should be semantic HTML, with CSS recommended for the presentation layer and JavaScript deployed to guide and support user behaviour.
- With functional HTML as a base, website content should be accessible through all browsers, regardless of what tools are deployed by individual users.

➤ [Canada.ca](https://www.canada.ca)

The Government of Canada website is an excellent example of the principles of web accessibility. It uses clear language, a keyboard-accessible dropdown menu, a consistent layout and a solid structure.

Components of Web Accessibility

Creating or redesigning a website to make it accessible can be daunting if you are unsure where to begin. Here are some key guidelines to follow.



ASSESS YOUR WEBSITE AND CONTENT

Begin by determining how accessible your website and content currently are, and whether or not they already meet WCAG 2.0 accessibility standards.

Evaluate the site by asking the following questions:

- 1 Does it follow the AODA guidelines?
- 2 What interactivity does the site include?
- 3 Do the pages have titles, headings and other semantic mark-up?
- 4 What development platforms does the site use? Does the site use templates or a content management system?

Design Checklist

Use this checklist when making an accessible website:

Understand your audience

- Sites should be designed to meet the needs of the widest possible range of users.

Choose an accessibility strategy

- A universal design that is accessible to everyone, or
- A site that provides accessible alternatives for users.

Create a solid structure and build to standards. People have confidence in sites that are stable, robust and secure

- Ensure code is machine-readable.
- Code to standards.
- Use standard web technologies.
- Use semantic mark-up for content.

Ensure easy interaction

- Ensure that interactive elements are easy to distinguish from other elements.
- Use underlines and colour to distinguish active links and buttons.
- Use WAI-ARIA for complex elements.
- Support keyboard interaction.
- Make controls that are easy to operate.
- Give users control over the operation of the interface.
- Allow users to request more time for timed actions.

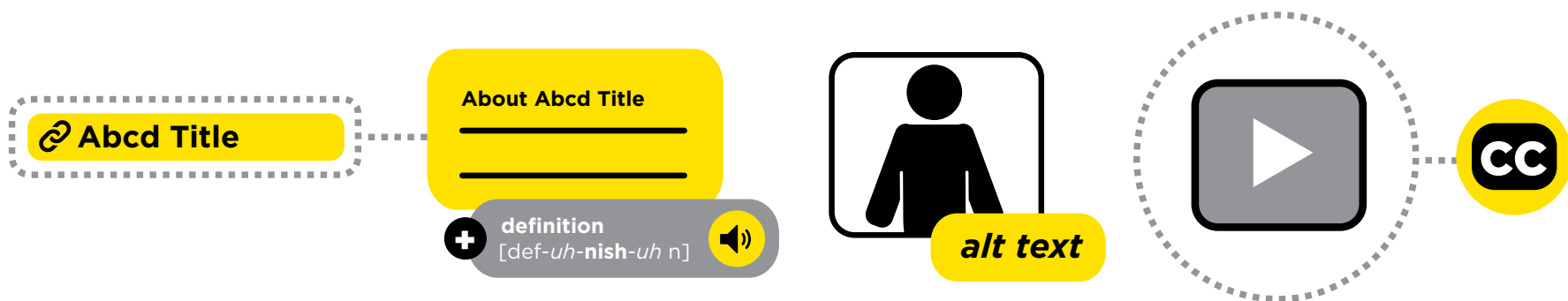
BATTLE OF THE TAGS



Using semantic mark-up for content makes a difference when it comes to accessibility. For instance, text can be italicized using both `` and `<i>` tags, but only the `` tag adds structure when read by a screen reader.

Design helpful wayfinding

- Create consistent cues for orientation and navigation.
- Provide clear landmarks within the page.
- Provide alternative ways to navigate.
- Consistently design elements that perform the same functions (such as menus or forms).
- Differentiate elements that perform different functions.



Use plain language

- Write for your audience.
- Follow plain language guidelines.
- Provide user support to help people through tasks.
- Structure pages for easy scanning and understanding.
- Write sentences and paragraphs that can be easily scanned.
- Create helpful links.
- Provide definitions for unfamiliar terms.
- Provide plain language summaries of complex content.

Ensure the site has clean presentation

- Design simply.
- Minimize distracting clutter.
- Design for customization of the display.
- Support customization through the browser.
- Design content for easy comprehension.
- Use tonal contrast to separate foreground from background.
- Use visual and semantic white space.
- Provide enough space between lines of text.
- Use clear, easy-to-read typefaces, and stick to one or two fonts.

Provide accessible media

- Don't rely on colour alone to communicate meaning.
- Provide instructions that do not require visual cues.
- Describe the content or meaning of images.
- Provide captions and descriptions for video and audio content.
- Format captions to enhance meaning.
- Use dynamic elements thoughtfully.
- Make content and documents accessible.

A SIGNIFICANT SWITCH

This text may be fine to read for a person with good vision.

But users with low vision can benefit from a higher contrast option.

Adding a high-contrast colour option to your site gives those with partial vision loss a better viewing experience.

Design for universal usability

- Design for direct manipulation.
- Be informative and helpful, providing overviews and instructions at the right time, in the right place.
- Support beginners and experts.

Test Your Website

Conduct usability testing, and include people with disabilities in those tests. The following components should be tested:

Text equivalents

- Ensure the presence of alt attributes for elements that require them.
- Write clear text equivalents that provide an appropriate explanation for the image or figure they accompany.

Style sheets

- Accessibility checkers can detect the presence of style sheets, style elements and style attributes, and the designer can then assess how accessible those elements are.
- Pages should be viewed using a browser with style sheets turned off to determine whether the reading order of the page makes sense.

Frames

- Ensure frame-title attributes are present and determine whether or not the titles are useful for identification and navigation.

Colour coding

- Use accessibility checkers to determine colour specifications in the style sheet and corresponding elements in the webpage, and to identify any colour changes. Keep in mind that using colour to convey information creates accessibility issues.
- Test the website by viewing it in black and white.

Image maps

- If an image map (also known as a server-side map) is found, evaluate the availability of text links for all active regions of the map.

Table headers

- Ensure that row and column headers have been identified in data tables.

Online forms

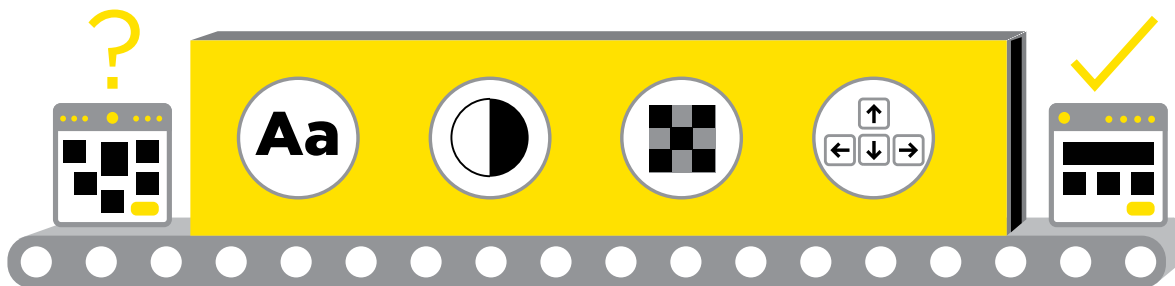
- Use testing tools to determine that every input element within type text, passwords, checkboxes, radio buttons and files has an ID attribute to match the attribute of a label element enclosing text, which is the prompt for that input element.

Synchronized multimedia

- For some multimedia formats, it may be possible to use algorithms to determine whether or not captioning is included.
- Ensure captions are available for all media formats, and that they are accurate.
- The text-only version of a site should offer equivalent functionality and the same information as the full site.

Scripting

- Test screen readers and talking browsers to determine whether someone using assistive technology can navigate and interact with the page.



6 STEPS TO MAINTAIN IT

Ensuring accessibility for everyone is an ongoing process that requires the following steps:

- 1 Set policies and develop training.
.....
- 2 Choose content and development tools that support accessibility.
.....
- 3 Create a style guide and media library.
.....
- 4 Include people with disabilities in the testing process, and on an ongoing basis after a site is launched.
.....
- 5 Use tools and assistive technology to perform ongoing evaluations.
.....
- 6 Make accessibility checking part of regular site maintenance.

Applets and plug-Ins

- Use software accessibility checkers to detect whether applets, plug-ins or other corresponding links are present on the page.
- Ensure that all essential information is available to users with assistive technology. One way to do this is to ensure that no information is lost when the scripting is turned off.
- Test to ensure that keyboard accessibility is available for any applets or plug-ins. For every mouse interaction, there needs to be an equivalent method of interaction using the keyboard.

Complex tables

- Use your judgment to determine whether or not there are two or more logical levels of row or column headers in data tables, and whether or not the headers mark-up that is in place is adequate.

Skip to content navigation

- Use assistive technology to verify that a skip navigation link works, allowing users to bypass navigation and go directly to content.

Timed responses

- Check all form submissions to determine if timed responses are required, and ensure it is possible to request more time.

Flicker rate

- Software can detect elements on a webpage that can cause flickering in the hazardous range (4-59 flashes per second with a peak sensitivity at 20 flashes per second, as well as quick changes from dark to light such as strobe lights).

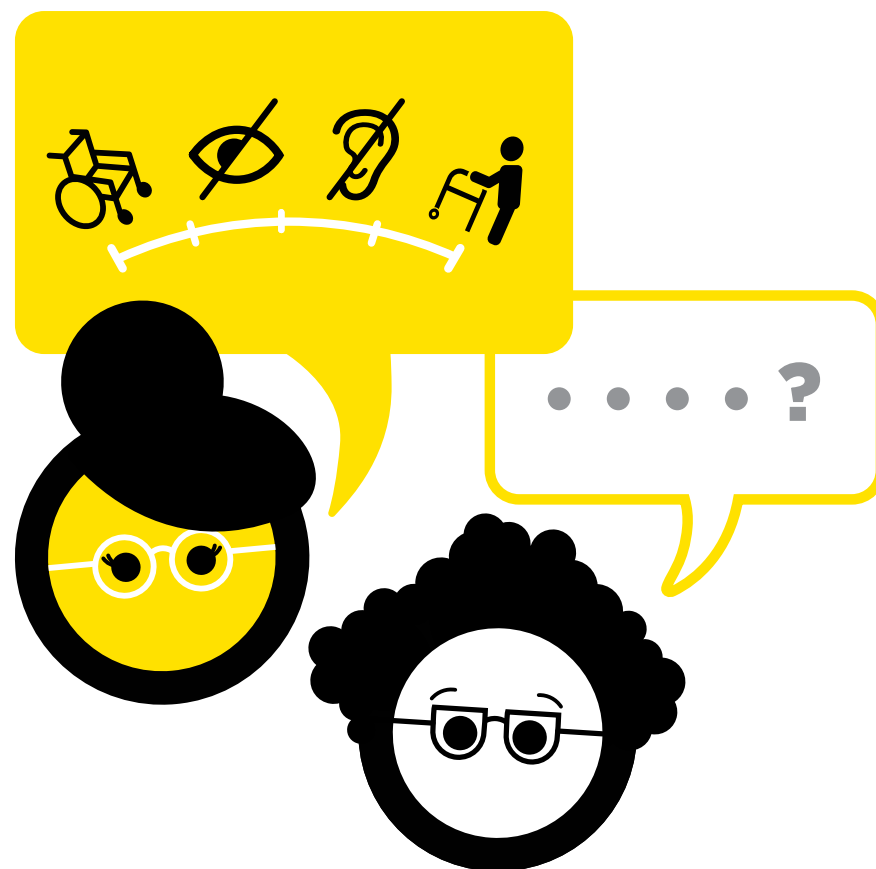
Please see the [Additional Resources](#) section for a list of testing software.

Planning and Management

Helping clients understand the need, opportunity and processes for accessible web design will help you deliver successful solutions while maintaining a positive and profitable relationship.

STEP 1: ASSESS YOUR CLIENT'S KNOWLEDGE ABOUT ACCESSIBILITY

A client's lack of accessibility knowledge may be your first and primary challenge. Starting a conversation about accessibility will help you determine what they know and their views about accessibility. This will result in a better, more collaborative experience for both parties.



STEP 2: EDUCATE CLIENTS

It's important to help clients understand what accessibility is, and why it matters. Describe the range of disabilities and assistive technologies, and explain the importance of addressing these in your design. Explain to clients that accessible web design is also beneficial for people with developmental, intellectual or learning disabilities, and that as the user population ages, the likelihood that their customers will benefit from an accessible website increases.

Clients also need to be aware of the legal requirements. Under the AODA, many organizations must ensure that new or redesigned websites are accessible. Encourage your clients to use the Accessibility Compliance Wizard on the Government of Ontario website to help them determine which AODA requirements apply to them (for more information, see the [Additional Resources](#) section on page 28).

When making the business case for accessibility, remind clients that an accessible website is easier for everyone – not only people with disabilities – to use. In addition, search engines such as Google rank accessible websites higher, which means better search results for your client's website.

STEP 3: MANAGE CLIENT EXPECTATIONS

Once your client understands the importance of web accessibility, the next step is managing their expectations. They may want a particular design or user interface that presents an accessibility challenge. Don't tell your clients that compliance will not impact a website's look and feel, user interface or user experience. Instead, explain that it is your job as a designer to provide a solution that meets their needs while satisfying accessibility requirements. This may put some constraints on design, but it doesn't mean you can't create something spectacular.

Making a website 100% accessible is an elusive goal. Try to make a site as accessible as possible – at minimum, meet the AODA requirements – but never promise perfect accessibility to a client. Issues may come up that are beyond your control, or someone may identify accessibility limitations that you didn't catch. Some accessibility guidelines are simply best practices, subject to wide debate within the design and development communities. You and your clients will need to decide together how accessible their website should be.

STEP 4: HELP CLIENTS PRIORITIZE ACCESSIBILITY EFFORTS

Clients may wish to phase in web accessibility gradually depending on their legal obligations. The AODA provides a helpful schedule for compliance, which can help prioritize accessibility goals. For example: start by working with a template and its reusable components, and focus on content that has the highest impact; leave individual page elements for later.

Building an accessible template should always be the first step in creating an accessible site, and that alone may yield results that are good enough for the initial phase. The second phase might focus on individual pages and content, with further prioritization. Think about critical paths that users would take through the site, and use traffic analysis tools such as Google Analytics to help identify the most visited pages. Work on those pages first. Think about what matters most to users. For example, forms that allow users to provide feedback or ask for assistance are high impact. Ignore or decommission content that has little or no relevance. Document your analysis to back up recommendations.

FOUR CATEGORIES OF ACCESSIBILITY CHALLENGES

- 1 Critical:** problematic to encounter. Until this is fixed there are significant barriers for people with disabilities, as well as legal implications from the AODA.
.....
- 2 Serious:** very frustrating to encounter and might prevent people with disabilities from using the site.
.....
- 3 Moderate:** mildly frustrating but will not prevent people with disabilities from using the site.
.....
- 4 Minor:** technically an accessibility issue but unlikely to cause problems for anyone.

Does your client provide an essential service? Are they part of an industry that provides products that people need? If so, the risk of a public relations issue is much higher. How much traffic do they get to their site and how much money do they make?

Educate your clients on what their responsibilities are and why accessibility can benefit their business. Help them understand what is and isn't possible, and provide them with alternatives when they feel that their expectations are not being met. Identify what they need to do now, and what they can leave aside for later. Working collaboratively with your client on an accessibility project will help you establish a relationship of trust and respect that will carry over into all your work with them.

Accessible PDFs

Accessible PDFs can be read by screen reader software. They have the following characteristics:

- A logical reading order.
- Alternative text for all images.
- Header rows defined for tables containing data.
- A specified document language (e.g., “English”).
- Tags that define the document structure, as in HTML.

There are several elements to consider when creating accessible PDFs:

COMPATIBILITY

Many screen reader users are running outdated software, primarily due to cost. For example, a license for JAWS, one of the most common screen readers, is \$1200. For an individual on a limited budget, upgrading software every year may be too expensive. That’s why it’s important to make content backwards-compatible, which allows it to work with input generated by an older product or technology.

Use semantic mark-up like H1 tags, H2 tags and figures. Also, remember that all images and figures must have an accompanying alt text.

TABLES OF CONTENTS

In an accessible PDF, a table of contents helps the user easily navigate to different sections within the document. The structure of a table of contents can become complicated, so it’s important to make sure the semantic mark-up is correct. Use an accessibility checker to ensure compliance.

COLUMNS

If columns aren't formatted properly in InDesign or Word, the reading order will go from the first rows of the left column into the first row of right column and then back again, as opposed to down the entire left column first and the right column second. This can be very confusing for users.

BOOKMARKS

Creating bookmarks in an accessible PDF makes it easier to navigate for all users. Often bookmarks are generated automatically based on the table of contents.

LANGUAGE

It is important to specify a document's language. This will ensure that the user's adaptive technology is able to interpret the content properly. You can set the language by clicking on the advanced tab of PDF Document Properties.

HEADERS AND FOOTERS

The W3C recommends using running headers and footers in PDFs to help orient the average user. Ensure that you tag running headers and footers as artifacts to prevent screen readers from reading the document's publication date and title, as well as the current page, chapter and subsection, every time users move from one page to another.

ALT TEXT

Applying text alternatives to images has been standard web practice for a long time, but it is somewhat new to desktop publishing. Using alt text allows users with vision loss and those using a screen reader to hear a description of an image. Use the ALT entry to add alt text to PDFs. For example, if you included a photograph of a person, the ALT text would explain what the image contains.

ROWS

Alternating the background colour of rows can increase accessibility for users with cognitive disabilities or low vision. It's easier to follow along rows that have alternate shading. Keep in mind, though, that colour alone shouldn't be used as an identifier (for more information, see [page 4](#)).

HYPERLINKS

When directing users to a hyperlink, write a clear description of where it will take them. For example, "Click here to register for the conference", or "Conference registration".

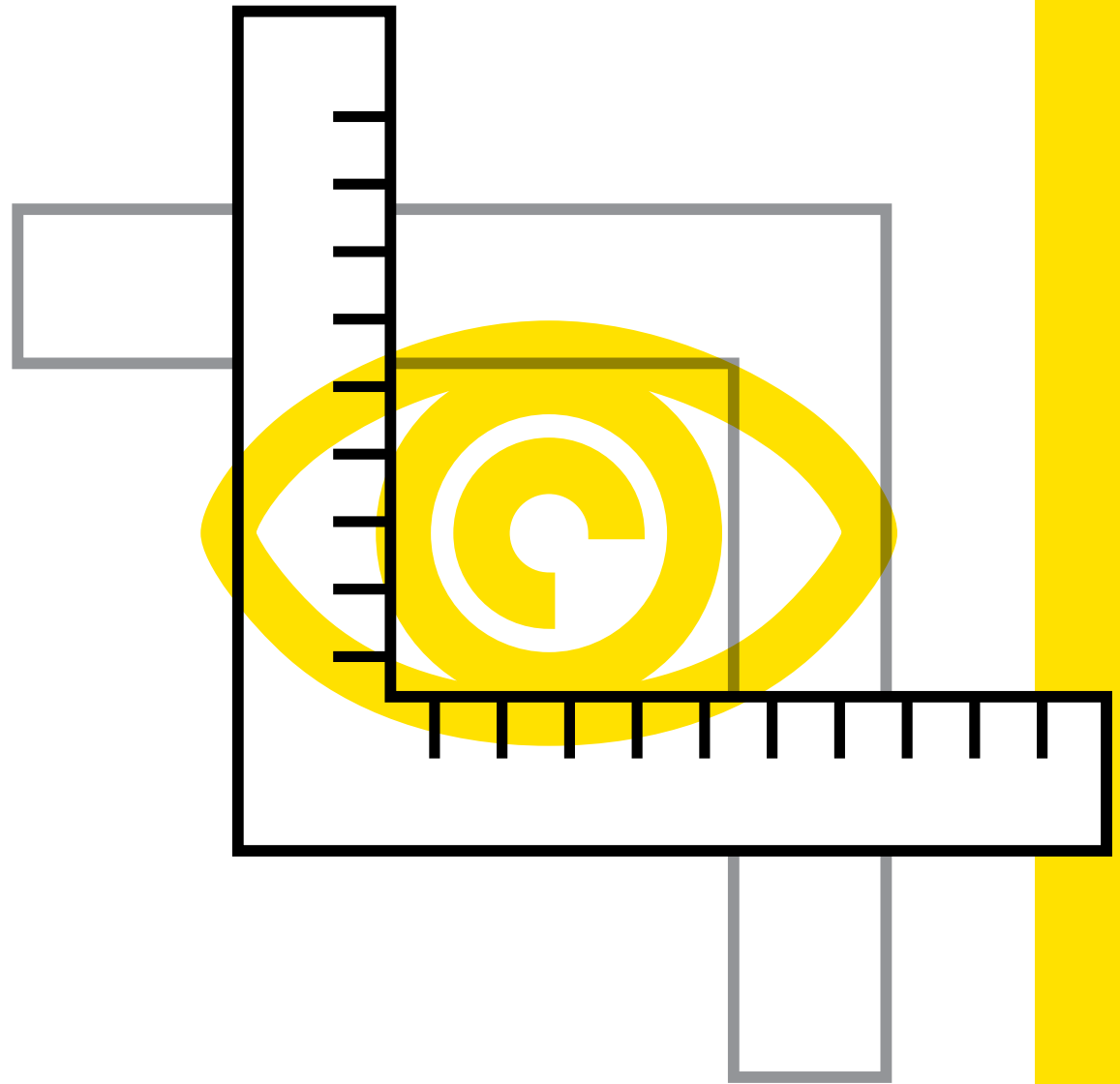
COMPRESSION

Don't use too much image compression. 150 dpi will ensure the PDF isn't too large for downloading, and images should be clear when zoomed in up to 200%.

SECTION B

Case Studies

See projects that exemplify best practices in accessible design.



Diabetes.ca

Client: The Canadian Diabetes Association (CDA)

Studio: ecentricarts

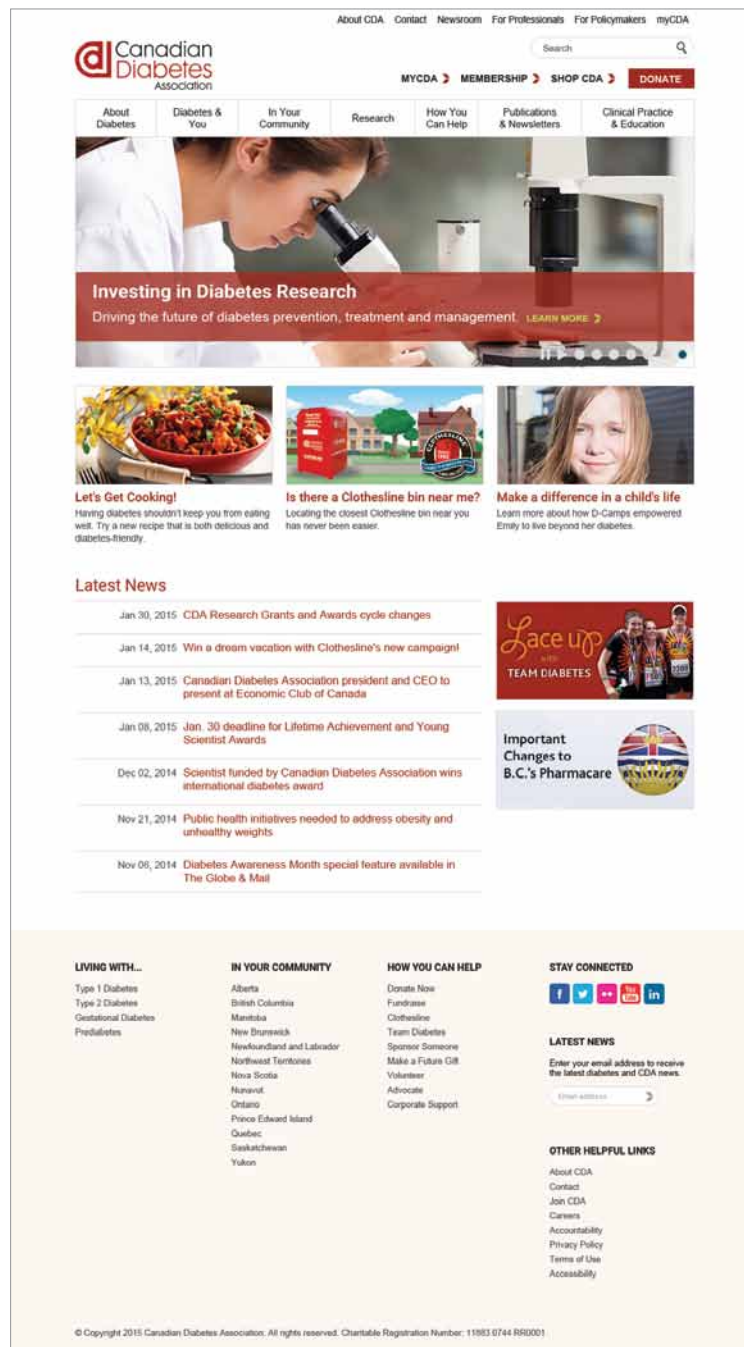
The CDA asked ecentricarts to re-implement diabetes.ca on a modern, easy-to-use content management system. The new and improved website would help position the CDA as an authority and thought leader on diabetes and healthy living.

CLIENT SPECIFIC NEEDS

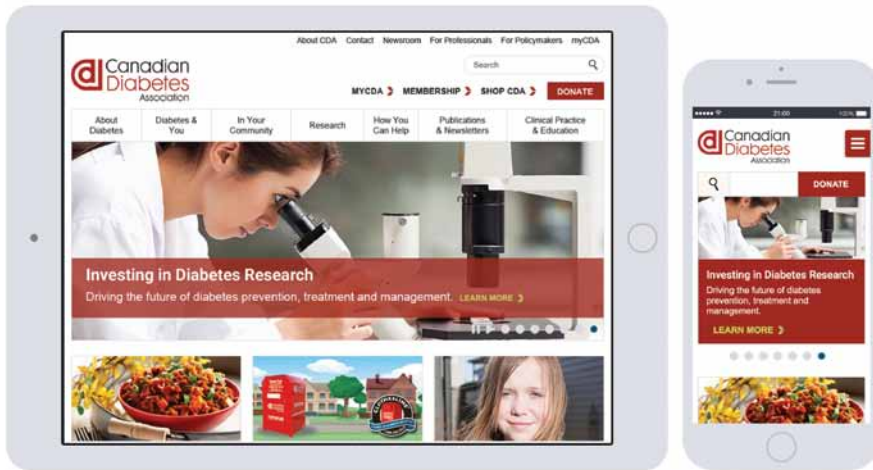
- A website that serves the needs of a diverse community of users as well as the client's stakeholders.
- A dynamic resource that optimizes content and functionality for each audience.
- A broad library of content in a format that allows users to quickly find what they are looking for.
- To present learning opportunities available through the CDA.
- A responsive user interface that is AODA and WCAG 2.0 Level A compliant.

ecentricarts' technical solution leveraged a number of features and functions of the Kentico Content Management System version 7:

- Flexible template
- Web part
- Widget framework

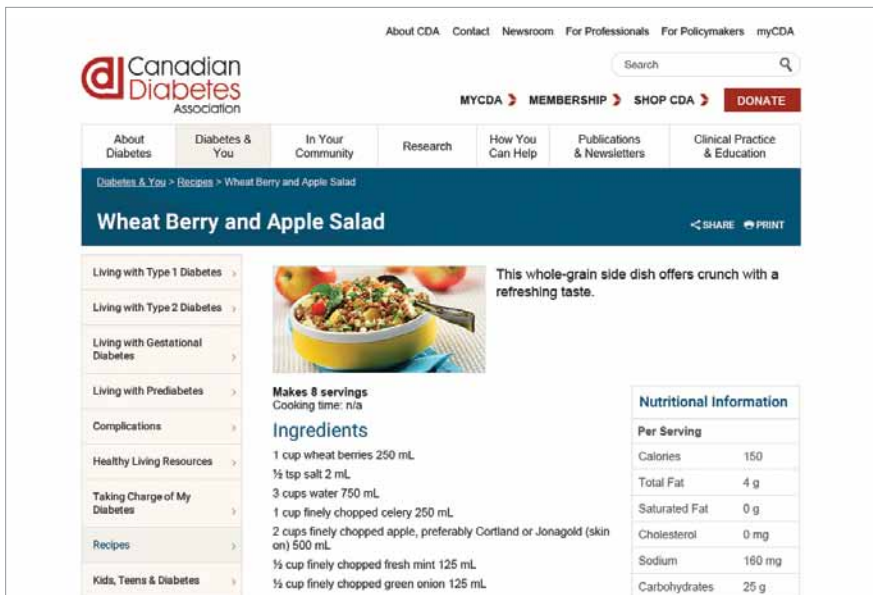


Diabetes.ca homepage. The rotator image on the homepage is an accessible carousel using jQuery UI tabs. Each control, page control and slide is a tab.



These features helped the site meet web accessibility requirements. They also enabled the CDA to easily publish and update content, and to quickly generate new content types and publication formats without the need for additional technical development. Kentico's document types and custom tables allow simplified content entry and structuring of content in semantic HTML that is AODA and WCAG 2.0 Level A compliant.

For the client, having a rotator on the homepage was important. ecentricarts implemented an accessible carousel using jQuery UI tabs. Each control, page control and slide is a tab. There could not be an effective cross-fade without further customizing, so the carousel simply flips from one slide to another.



Auto-play was disabled. Pagination and start/stop controls were made prominent and easily accessible. There was concern that the controls might be hard to see on a white background; slight opacity in the background allows the image to peek through, and the text area can be sized up to 200%. Although higher colour contrast is a Level AA requirement, the CDA chose to incorporate this feature because many of its users have visual impairments.

Navigation was also a central focus for ecentricarts. They implemented "skip to content" so that users can bypass the navigation and get to the information they want. Those links could be styled to be visible, but still work with the interface of the website. Users are alerted to where they are on the site at all times through a variety of indicators.

The new CDA site caters to their diverse audience; from diabetics looking for healthy recipes to researchers looking for funding information, users now have quick and simple access to relevant content.

↑ ecentricarts designed responsive versions of the site so that it is accessible from any type of device with any size screen.

➤ Kentico's search and filter web parts allows recipes on the site to be searchable by keyword, category and main ingredient.

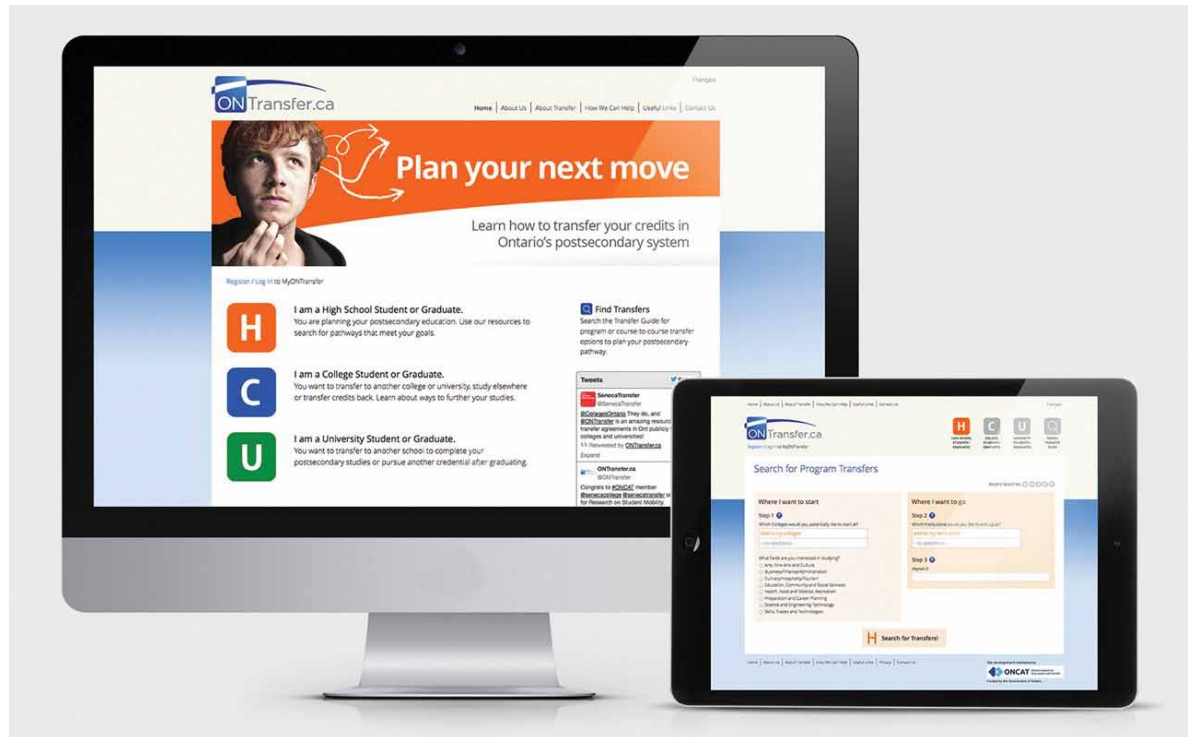
ONTransfer.ca

Client: ONTransfer **Studio:** Bold

ONTransfer.ca is a website that helps post-secondary students in Ontario transfer from one school to another. A recent website refresh included several techniques to improve compliance with WCAG 2.0 guidelines.

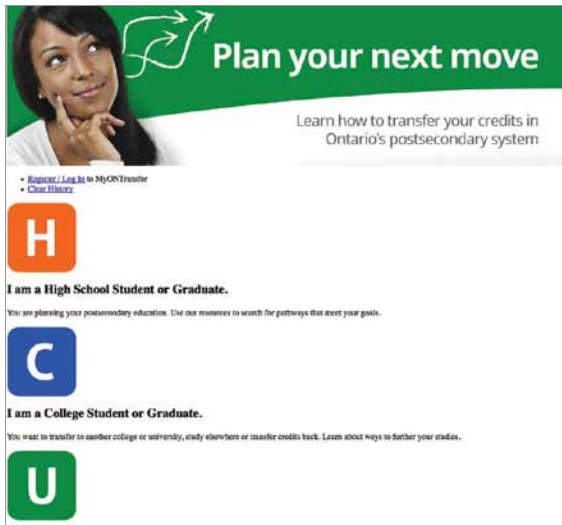
CONTRAST

ONTransfer wanted the website to feature the colourful banners used in their print and transit advertising campaigns. One banner had a light orange background and white text, which did not provide sufficient contrast to meet accessibility requirements for distinguishable content. For the website, ONTransfer chose a new shade of orange that provided a higher contrast ratio between the text and background. The text was large (greater than approximately 1.2 to 1.5 ems), so a contrast ratio of 3:1 was sufficient.



↑ ONTransfer.ca refresh incorporates strong colour contrast, content linearization, easy-to-use forms to meet WCAG 2.0 guidelines.

↩ The original orange colour did not provide sufficient contrast to meet accessibility requirements.



← Disabling CSS on the site shows how the content is presented in a clear, linear format.

↙ Accessible forms use fieldsets and legends to group and describe form elements and allow for easy keyboard tabbing.

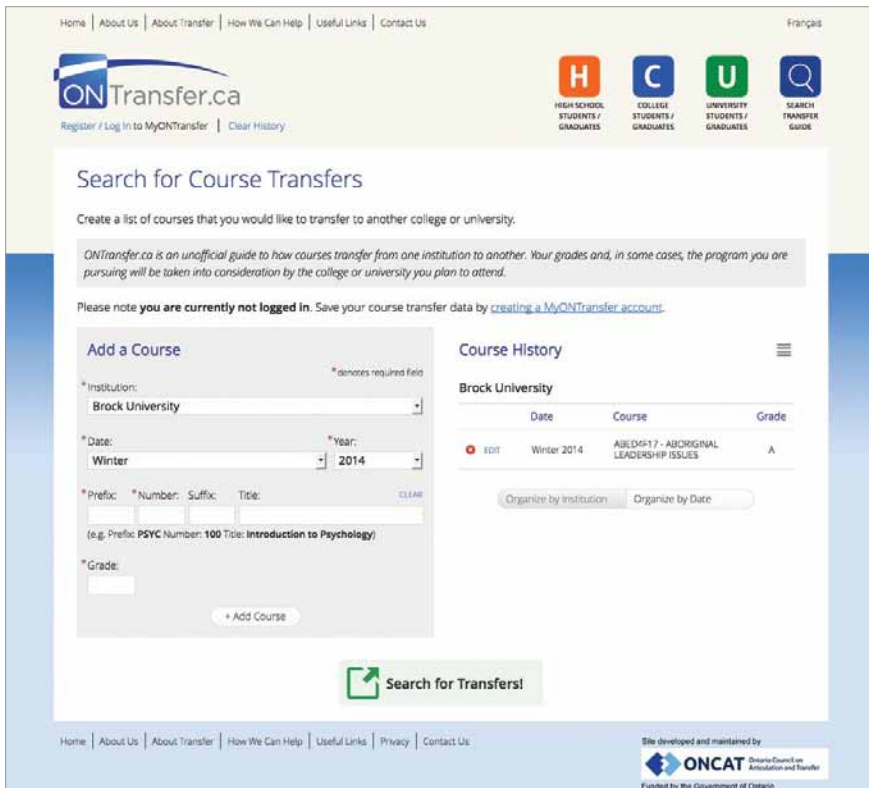
CONTENT LINEARIZATION

Arranging HTML content in a logical order significantly improves web accessibility, because screen readers read coded content in sequence. ONTransfer used HTML lists for menus and provided a “skip to content” link at the top of every page to linearize their content. To verify their work, they disabled CSS in the browser and ensured the site would be read in the proper order.

FORMS

Searching for transfer options between schools on ONTransfer.ca requires complex form input from users. ONTransfer put a great deal of effort into creating forms that were easy to use, which is especially important for those using screen readers or keyboard navigation. ONTransfer followed good form development practices such as associating form labels with controls, using fieldsets and legends to group and describe form elements, and ensuring easy keyboard tabbing in forms wherever possible. Form accessibility was further improved by using a definition list instead of tables to display input fields, which allows screen readers to more easily identify and navigate forms. Any issues with form validation were clearly identified on a field-by-field basis.

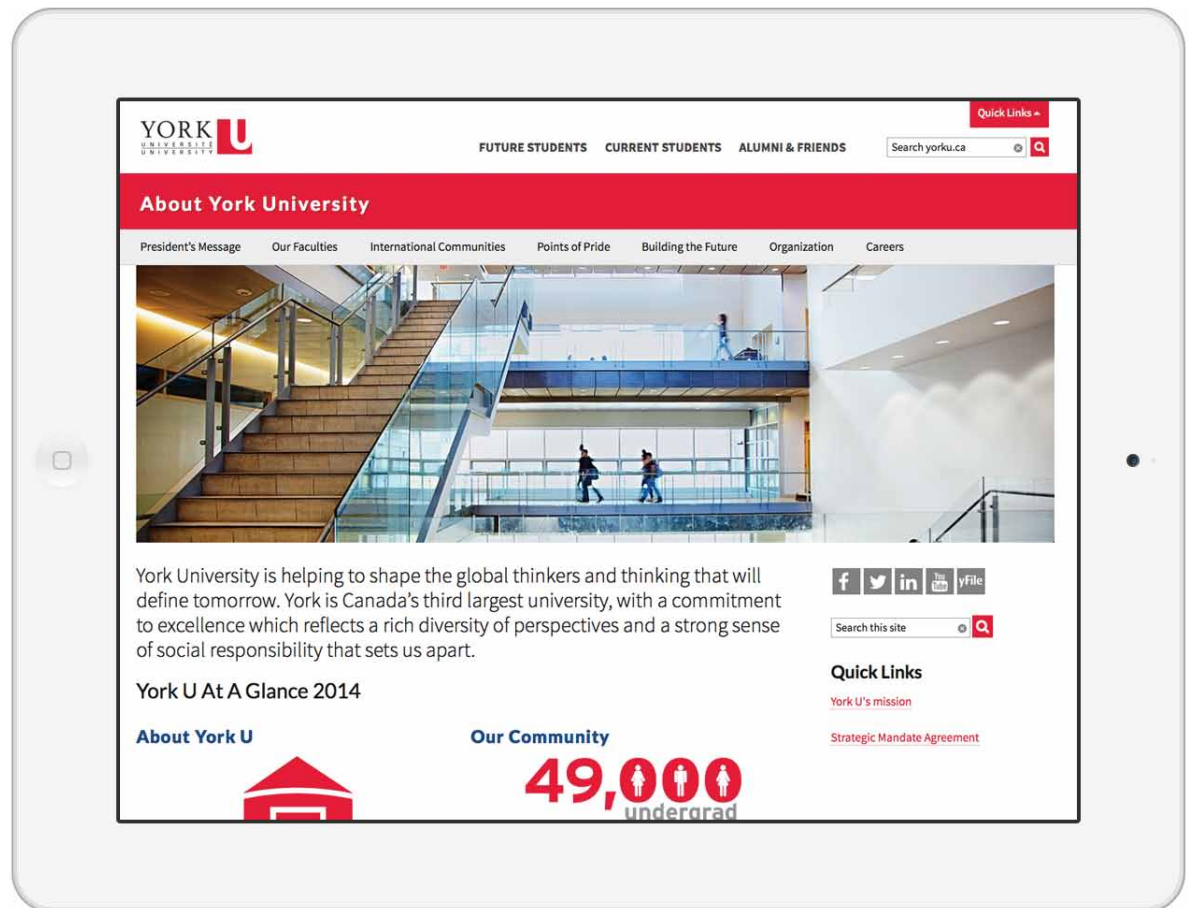
These techniques – and others – ensure that ONTransfer.ca adheres closely to WCAG 2.0 guidelines. ONTransfer continually audits and improves the updated site to better provide information for Ontario’s students.



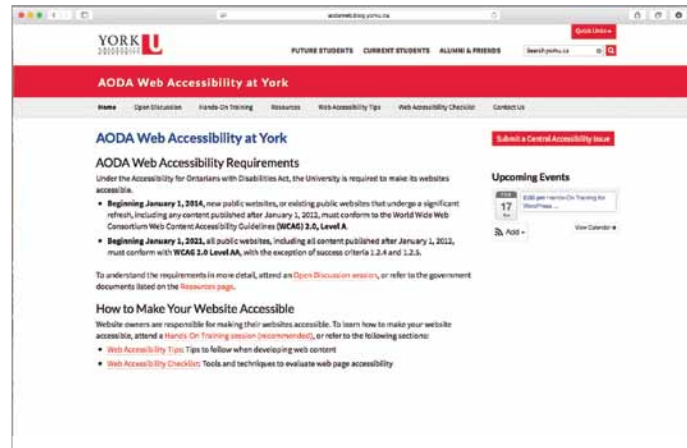
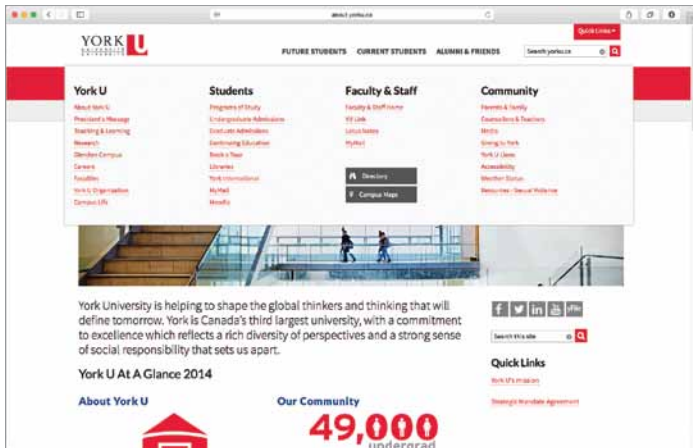
York University Website

Client: York University **Studio:** York University

There are several thousand websites at York University – for faculties, departments, labs, research and administrative units and student clubs. WordPress Multisite was their content management system of choice because it enables centralized control over the theme while allowing individual groups to publish their own content. But their site template looked dated and had only basic accessibility features. So the York design team, which includes IT and Marketing & Creative Services, worked together to redesign their WordPress theme. They wanted to create a responsive theme that would be universally accessible and robust enough to accommodate the diverse needs of the large community of York websites.



➤ The accessible, responsive theme of the York site has been adopted by over 150 internal sites and the design team runs training sessions to ensure each content editor has the necessary tools to create accessible content.



← The site offers a “Quick Links” navigation menu that is always accessible.

↙ Through the site, users can offer feedback so that the design team can make ongoing improvements to the site.

THE SOLUTION WAS TWO-PRONGED:

- Create an accessible, responsive theme that is flexible enough to accommodate the various needs of the large and diverse web community at York University.
- Improve the overall user experience of visitors to York University’s websites.

The new responsive theme is keyboard accessible and WCAG 2.0 AA compliant. It was tested on mobile devices with accessibility features turned on. The design team used several tools to increase functionality, including WAVE, HTML_CodeSniffer, manual mobile accessibility testing (VoiceOver, TalkBack) and manual keyboard accessibility testing.

The information architecture of the universal menu was revamped, collapsing the formerly cluttered header section into a “Quick Links” menu. York had some challenges with externally developed plug-ins and components, particularly those affecting keyboard accessibility of collapsible menus and image sliders.

With some re-coding, they made those and other common elements accessible as well.

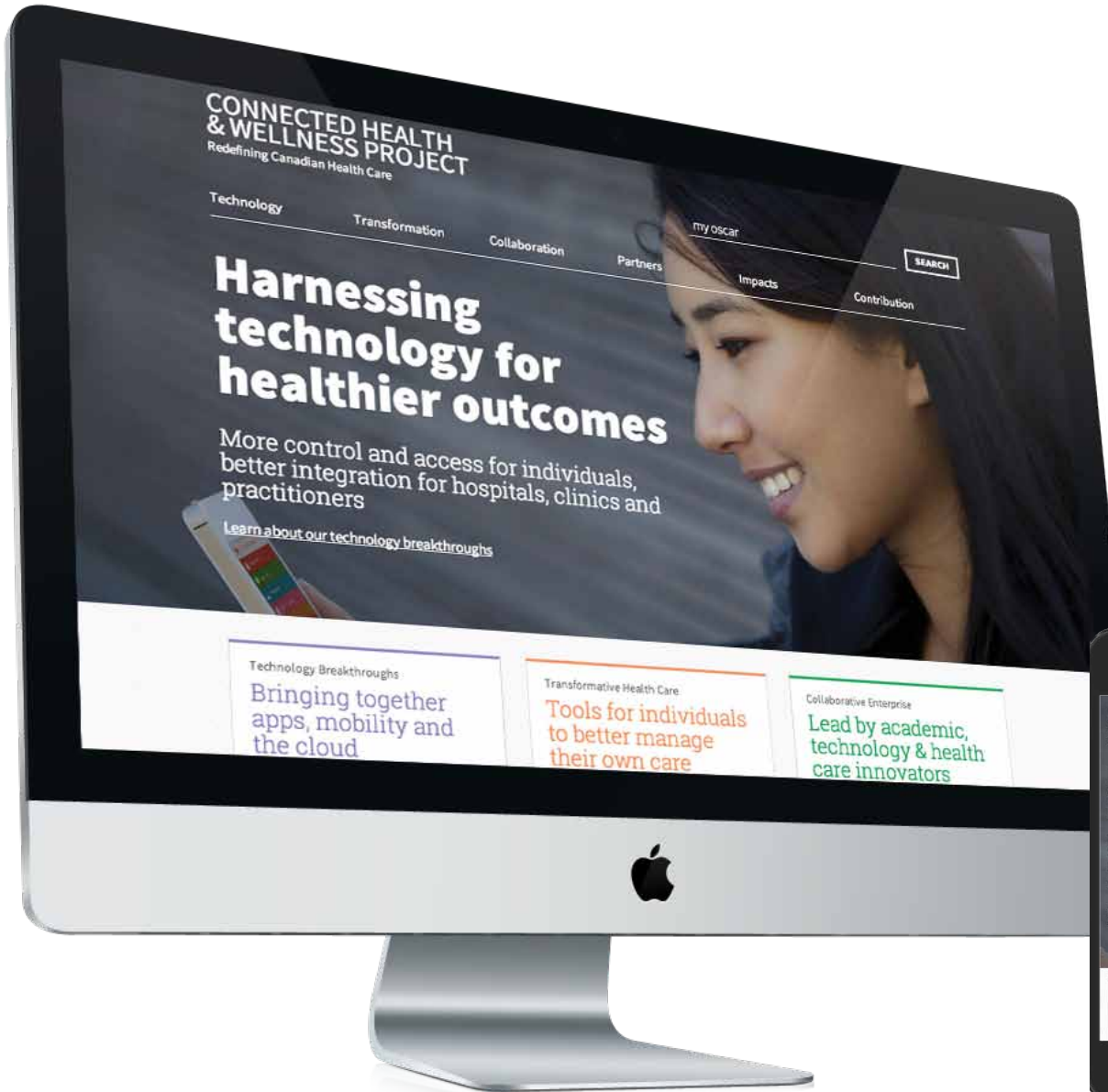
The initial redesign was only the first part of the project. As groups and departments began moving over to the new theme, there were more and more requests for additional features and layout options. The design team wanted to accommodate each new request while maintaining adherence to their standards, which were challenging to interpret and apply.

The theme has been adopted by more than 150 sites so far, and it continues to evolve as more groups migrate over and request new functionalities. The core design team runs training sessions to ensure that each content editor has the necessary tools to create accessible content.

York continues to receive feedback on the usability and accessibility of their sites, and they make improvements on a regular basis.

CHWP.org

Client: The Connected Health and Wellness Project (CHWP) **Studio:** Context Creative



The vision for CHWP was to create a cloud-based platform that would allow patients, families and professional care teams to manage and collaborate on health and wellness needs. It would also serve as an educational platform for healthcare professionals. This three-year project required the participation of 19 entities including healthcare, IT, research and educational organizations.

CHWP's website was produced with high contrast ratios to aid the visually-impaired.

Accessibility was not an add-on for this project – it was inherent in all aspects of site development. The initial designs and specifications incorporated the best practices of accessibility (WCAG AA 2.0 compliant) in typography, use of images, design, copywriting and programming. Flash and complex menu structures were avoided.

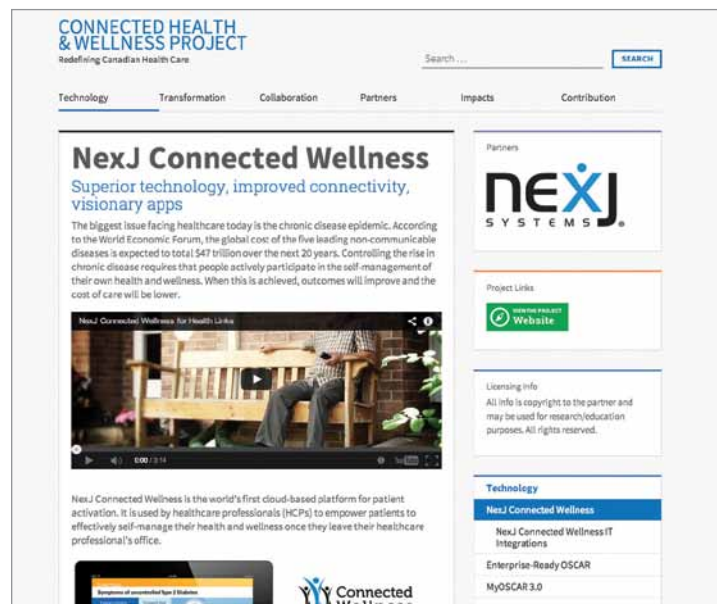
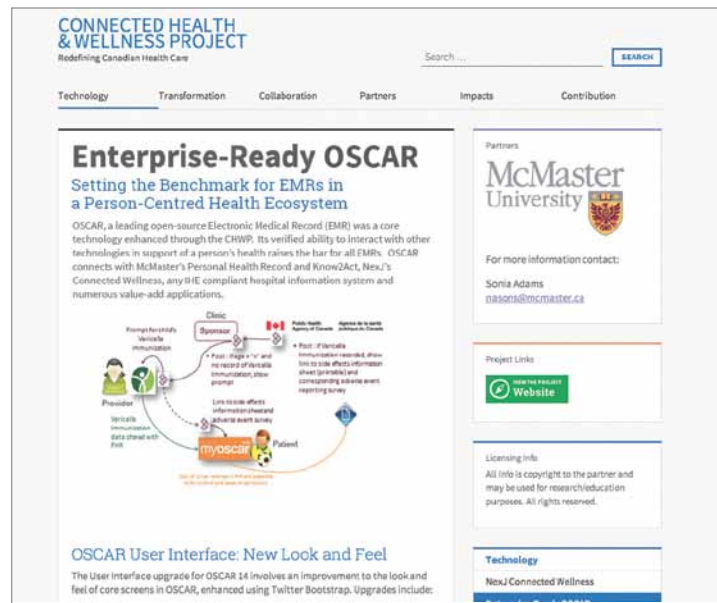
The greatest challenge in building the site was to gather and interpret materials from 19 partners. Content came in a variety of formats for both graphics and text. Elements were modified as needed to ensure they met accessibility standards.

An additional challenge was to ensure that alt tags and content descriptions were clear and appropriate. The site included complex charts, and in some cases it was more useful to write an outline of what a chart demonstrated than to write out each individual data point.

Context used various accessibility checkers to ensure a logical reading order for the site, and to ensure overall accessibility.

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➤ HTML 5 tags were used throughout the site to assist with screen reading.



Martin Prosperity Institute PDFs

Client: Martin Prosperity Institute **Designer:** Martin Prosperity Institute

At the Martin Prosperity Institute (MPI), PDFs are the primary delivery mechanism for academic research reports, which often include maps and/or infographics that require descriptive text. MPI needed to ensure AODA compliance and make its reports accessible to everyone.

There are a number of challenges in creating accessible PDFs. Alt text can be difficult to write when dealing with complex content. PDF compatibility can also be problematic, because the accessibility features in Adobe Acrobat X Pro don't always work in older versions of the software. In addition, anchoring exhibits to their in-text references creates layout issues. Adobe InDesign only allows for anchors to be applied within a single page spread, which means that in-text references and exhibits must be placed within the same page spread. This is often impossible in MPI's research reports.

.....
➤ MPI presents many academic research reports as pdfs, such as this, which must be AODA compliant.



To create accessible PDFs for the MPI, the designers used a combination of Adobe InDesign CS6 and Adobe Acrobat X Pro. Using Adobe InDesign, she ensured that paragraph styles were strictly adhered to. Each style was assigned either an XML Header tag of 1-6 or a Paragraph tag, establishing a hierarchical structure throughout the document. Once a report was designed, untagged items were added to the document structure through the structure pane, and then paragraph styles were mapped to the tags. Alt text was also added in the structure pane by adding a new Alt attribute to the selected item. When necessary, the structural order of the document was reorganized in the structure pane.

A document title was added to the file information of the InDesign document. When exporting the document to PDF, Create Tagged PDF was selected in the export options. After exporting the PDF and opening it in Adobe Acrobat X Pro, the reading order on each page was adjusted so it flowed correctly. Adobe Acrobat X Pro's Accessibility Checker, which alerts users to any potential errors, was used to ensure accessibility. A detailed and attention-based approach ensured that PDFs were readable by assistive technologies.

The MPI's priority was to make all of its PDF documents accessible. This required some compromises to layout, but in the end the design was more fluid – and accessible to everyone.



← Infographics and maps are often used within MPIs PDF reports but always include clear, descriptive text.

↙ Information within the report was categorized under five themes using colour coding and clear descriptors.



ADDITIONAL RESOURCES

IN PRINT

Horton, Sarah and Quesenbery, Whitney.
A Web for Everyone: Designing Accessible User Experience

Thatcher, Jim et al.
Web Accessibility: Web Standards and Regulatory Compliance

ONLINE

abilities.ca – The Canadian Abilities Foundation provides an overview of accessibility across Canada, as well as resources for those with special needs.

adobe.com/accessibility – Adobe Accessibility Centre provides resources for creating accessible PDFs.

adod.idrc.ocad.ca – This site helps users create accessible office documents, and helps select accessible office applications for your organization.

ontario.ca/accessibilitycompliance
The government of Ontario website has a tool called the accessibility compliance wizard that helps organizations find out what they need to do to comply with Ontario's accessibility laws.

cnib.ca

The CNIB provides resources for people with visual impairments. It is also an example of an accessible website.

codex.wordpress.org/Accessibility

This site provides WordPress accessibility tips.

ontario.ca/accessibility

The Ontario Accessibility Standard for Information and Communications, which is part of the AODA. The site also contains a guide to making your website more accessible.

webaim.org/techniques/flash

This site provides guidelines for creating accessible flash websites.

github.com/w3c/aria

This site provides information on using WAI-ARIA.

w3.org/WAI

This site provides an overview of WCAG 2.0 and the guidelines, techniques and criteria for web accessibility.

TESTING

accessgarage.wordpress.com/2013/02/09/458 – This tool is a free vision simulator for Google Chrome.

accessibility.oit.ncsu.edu/tools/color-contrast – This site provides a colour palette accessibility evaluator.

achecker.ca/checker – This tool checks single HTML pages for conformance with accessibility standards.

addons.mozilla.org/en-US/firefox/addon/fangs-screen-reader-emulator
This tool renders a text version of a webpage similar to how a screen reader would read it.

contrast-finder.tanaguru.com – This tool tests the colour contrast of a website.

jigsaw.w3.org/css-validator – This tool checks an entire website and evaluates its conformance with W3C open standards to quickly identify which portions of the website need attention.

nvaccess.org/download – This site provides a free screen reader to test your site for low-vision accessibility.

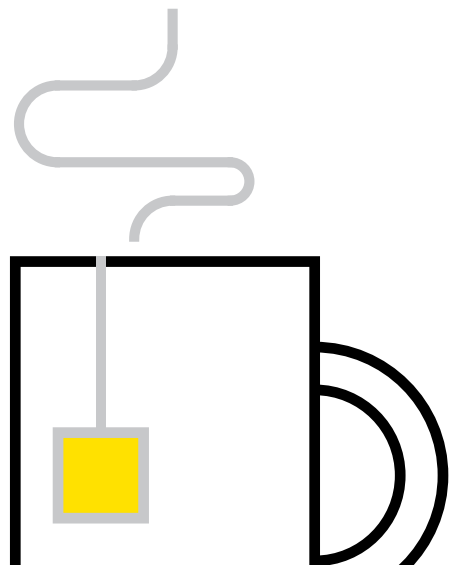
GLOSSARY OF TERMS

snook.ca/technical/colour_contrast/colour.html – This tool allows you to select a foreground and background colour to determine if they provide enough contrast when viewed by users with colour deficits, or when viewed on a black-and-white screen.

squizlabs.github.io/HTML_CodeSniffer
This tool checks that HTML code conforms to a coding standard.

wave.webaim.org – This site provides a web accessibility evaluation tool.

validator.w3.org – This validator checks the mark-up validity of web documents in HTML, XHTML, SMIL, MathML and more.



AODA (Accessibility for Ontarians with Disabilities Act) – The Government of Ontario enacted the AODA in 2005 with the goal of making Ontario accessible by 2025. The AODA lays the framework for the development of province-wide mandatory standards on accessibility in key areas of daily life.

Accessible Carousel
To be accessible, a carousel or slideshow must provide user controls that pause or stop the carousel; these user controls must be keyboard navigable and correctly labelled for screen readers.

Artifacts – In PDFs, artifacts are elements that are not part of the page's content (e.g., headers, footers, decorative images). Screen readers ignore artifacts. Elements can be converted

into artifacts with the TouchUp Reading Order tool: select the element and press the Background button.

Assistive Technology
A product or service that maintains or increases the functional capabilities of people with disabilities. Assistive technologies such as screen readers and voice recognition software help people with disabilities access the Internet more effectively.

ChromeVox – A free screen reader for Google Chrome.

Coding to standards
Web standards are the formal, open standards and technical specifications that define and describe the World Wide Web.

JAWS – (Job Access with Speech) A screen reader for Microsoft Windows.

Machine-Readable
A format that a computer can understand. While formats such as HTML and PDF are easily opened for most computer users, these formats make it difficult to convert the information to new uses. Providing data in structured formats, such as JSON and XML, add significant ease to access and allow more advanced analysis, especially with large amounts of information.

NVDA – A free, open-source screen reader for Microsoft Windows.

Retina Display – A screen that has such a high pixel density that individual pixels are no longer visible at a normal viewing distance.

Semantic Mark-up
Semantic markup is XHTML that has been written to define the context of the

content enclosed in the mark-up. This means that headers would be defined by <h1> through <h6> elements, paragraphs with <p> elements, lists with and elements, and so on. Tags that only have a meaning referring to style, such as and <i> should be avoided in favour of tags that provide a semantic meaning along with their standard styles, such as and .

Skip to Content
This design approach provides links that allow users to skip directly to a site's main content, bypassing the navigation. This can enhance the accessibility of a website.

Usability testing
A method of evaluating a product or system by testing the quality of the user experience.

Validation – A process that helps ensure a webpage can be read across many platforms and web browsers.

Viewport – The viewport is the framed area on a display screen for viewing information. The function of the viewport is to constrain the HTML element, which is the uppermost containing block of your site.

WCAG (Web Content Accessibility Guidelines)
Guidelines that outline web accessibility policies and recommendations, with a goal of providing a single shared standard for web content accessibility. The current version, WCAG 2.0, was published by W3C in December 2008.

W3C (World Wide Web Consortium)
An international community that develops open standards to ensure the long-term growth of the web.

WAIARIA (the Accessible Rich Internet Applications Suite)
Technical specifications by the W3C that outline ways to increase the accessibility of webpages, particularly those that make extensive use of dynamic content and advanced user interface controls developed with Ajax, HTML, JavaScript and related technologies.

WebAIM (Web Accessibility in Mind)
A not-for-profit organization that focuses on providing web accessibility solutions.

ACKNOWLEDGEMENTS

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ABOUT RGD

The Association of Registered Graphic Designers represents more than 3,000 members, including graphic design practitioners who help clients produce corporate and marketing communications; designers and managers who work within Canadian companies, government agencies, educational institutions and not-for-profit organizations; educators who oversee the training of the next generation of design professionals; and students who are the future of our industry.

Created by an act of the Ontario legislature in 1996, RGD is empowered to grant the designation Registered Graphic Designer (RGD) to qualified designers. We are the only graphic design association in North America supported by this kind of legislation.

The mission of RGD is to be the hub for the province's graphic design community by promoting knowledge sharing, continuous learning, research, advocacy and mentorship. We work constantly to establish and promote professional standards, best practices and technical expertise throughout our industry. We also direct collective efforts in support of design thinking, the creative resolution of practical challenges in ways that envision an improved future result. Design thinkers apply their imagination, empathy and problem solving skills to drive the success of organizations and meet the needs of individuals - including all those who understand the vital importance of accessibility.

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RGD-AccessibleDesign.com

The conversation on accessible design does not end here. For more information on best practices, additional case studies and further resources, please visit RGD's Access Ability website. Created to serve as a meeting point, the site invites users to visit, learn, engage in dialogue and share their own stories, examples and helpful tips.

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