



Office of the Chief Information Officer
Government of Newfoundland and Labrador

WEB DEVELOPMENT STANDARDS

TECHNICAL REQUIREMENTS AND SPECIFICATIONS

Web Development Group
Office of the Chief Information Officer
Solution Delivery Branch

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DOCUMENT PURPOSE

This document is a compilation of standards, guidelines, and best practices that are endorsed by the *Office of the Chief Information Officer (OCIO)* for use when developing websites for the *Government of Newfoundland and Labrador*.

All web developers must follow these standards when developing or maintaining websites, including web applications; however, some aspects of web application development may be outside of the scope of this document and may require additional planning and consideration.

Contact the OCIO Web Development Team before starting a new project or website to ensure the proper approvals, procedures, and infrastructure requirements have been accounted for. Web applications should include these standards as part of the System Development Life Cycle (SDLC) process.

Important Note

These standards are a technical requirement for the development of any Government of Newfoundland and Labrador website and should be referenced as such in any Request for Proposal (RFP) containing a web delivery component. Developers and web design agencies should be familiar with these standards before bidding or accepting a contract. In the event that these standards contradict a developer or design agency's existing standards or best practices, these standards will take precedence.

CONTACTING THE OCIO WEB DEVELOPMENT TEAM

The OCIO Web Development team is responsible for developing and maintaining these standards. They must be informed and consulted during the entire web development process. The team will provide quality assurance reviews as necessary.

Inquiries directly to the Web Development Team shall be forwarded to:

SDEA@gov.nl.ca.

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1 HOW TO USE THIS DOCUMENT

This document is intended to be used as a reference while developing websites. It is not intended to be an exhaustive compilation of all standards, guidelines, and best practices. If a reference is not found within this document then the OCIO Web Development team should be contacted to review the standard, guideline, or best practice in question.

This document does not define a complete process. Many other factors will determine how a website is created and delivered to a Government stakeholder. A project manager or other Government representative will need to be engaged to obtain information and approvals, and follow policies and procedures. Other requirements may need to be determined, such as network and server infrastructure, information protection (IP), and security, which are outside of the scope of this document.

2 WEB DEVELOPMENT STANDARDS

2.1.1 Supported Browsers and Devices

Websites are expected to support:

- The current and prior major release of Internet Explorer, Firefox, Chrome, and Safari.
- A single desktop monitor with a minimum resolution of 1024X768.
- A keyboard or similar device for user input. *A pointing device, such as a computer mouse or touchpad, is optional; hence all functionality should be accessible using a keyboard only.*

Use website statistics and user trends (i.e. analytics) to determine the most common browsers, operating systems, screen resolutions, devices, etc. Common browsers and devices should be supported.

Analytics for current Government websites are available upon request.

Support for mobile devices, such as smartphones and tablets, is **recommended**. Standards compliance, responsive design, and feature detection (instead of device detection) should be used to be inclusive of as many devices as possible.

2.2 Domain Names

The *Office of the Chief Information Officer (OCIO)* is responsible for registering and administering domain names for all websites owned by the *Government of Newfoundland and Labrador*.

Domain names should not be purchased or registered online using third-party domain providers.

2.3 Analytics

The *Office of the Chief Information Officer* is responsible for tracking statistics for all websites owned by the *Government of Newfoundland and Labrador*. A tracking code will be provided upon request.

Analytics software or accounts should not be purchased or configured using a third-party service provider.

2.4 Referenced Web Technology Specifications

Technology specifications released by the [World Wide Web Consortium \(W3C\)](#)¹ as a **recommendation** are acceptable for use, taking into consideration:

- 1) Workarounds or other complexities are not needed in order to conform to the specification.
- 2) The specification is relatively current and does not contain elements which are deprecated in a newer specification for the same technology.
- 3) The specification is widely recognized and implemented in the most recent versions of all major browsers.

- 4) A solution is implemented for legacy browsers if the specification is not supported in such browsers.
- 5) A solution is implemented for browsers which do not support CSS and JavaScript or those which have CSS and JavaScript disabled.
- 6) A solution is implemented for accessibility software and devices.

Note: *The proposed solution must follow Enterprise Architecture (EA) and Information Protection (IP) recommendations. A consultation with the appropriate subject matter experts may be required.*

2.4.1 Validation

All markup languages including HTML, XHTML, XML (such as RSS and Atom feeds) as well as CSS must be valid. W3C provides online validator services which can be used to validate markup and CSS:

- [W3C Markup Validation Service](#)²
- [W3C CSS Validation Service](#)³
- [Unicorn – W3C’s Unified Validator Service](#)⁴

Note: *Many web development editors and tools have validators built-in therefore it is encouraged to use the most recent versions of development software to ensure your markup is being checked against the most recent W3C standards.*

2.4.2 HTML

[HTML5](#)⁵ is **recommended**. This specification defines an abstract language, as well as, two concrete syntaxes. XHTML is the preferred syntax although HTML is acceptable if the former is not feasible. The following should be taken into consideration:

- Features which have no support or partial support in current browsers should be avoided.

- Native HTML5 accessibility features which have no support or partial support in current browsers should use WAI-ARIA features. Refer to the [Accessibility](#) section of this document for more information on WAI-ARIA.
- Variations in layout or functionality for legacy browsers which do not support HTML5 should be negligible.
- The website should be thoroughly tested and verified to be working in all supported browsers and devices including those with CSS and Javascript disabled.

[XHTML™ 1.0 The Extensible HyperText Markup Language \(Second Edition\)](#)⁶ or later is **acceptable**. This specification is a reformulation of the HTML 4 specification therefore [HTML 4 Elements](#)⁷ and [HTML 4 Attributes](#)⁸ are applicable. Deprecated elements and attributes should be avoided. This specification is commonly used when a solution is not able to provide legacy browser support if HTML5 was used instead.

Additional Resources:

- [Recommended Doctype Declarations to use in your Web document](#)⁹
- [W3C: HTML5 Frequently Asked Questions \(FAQs\)](#)¹⁰

2.4.3 CSS

Both [CSS Level 3 specifications](#)¹¹ that have been released as W3C recommendations and [Cascading Style Sheets Level 2 Revision 1 \(CSS 2.1\) Specification](#)¹² are **recommended**. The following should be taken into consideration:

- CSS should be implemented in such a way that the website will ‘gracefully degrade’ in the following order: 1) W3C CSS Level 3 features; 2) proprietary browser-specific CSS features; 3) W3C CSS 2.1 features; then 4) default browser styling where CSS is not supported or has been disabled by the user.
- Proprietary browser-specific CSS features that do not mimic W3C CSS Level 3 features or are considered experimental should be avoided.

- Variations in layout or styling for legacy browsers which do not support CSS Level 3 featured should be negligible.
- The website should be thoroughly tested and verified to be working in all supported browsers and devices.

2.4.4 Accessibility

[Web Content Accessibility Guidelines \(WCAG\) 2.0](#)¹³ Conformance Level AA is **recommended**. In addition to conformance level, all other [WCAG 2.0 Conformance Requirements](#)¹⁴ must be met. Conformance claims should follow the [Website Accessibility Conformance Evaluation Methodology \(WCAG-EM\) 1.0](#)¹⁵ or a similar standardized evaluation process.

[Accessible Rich Internet Applications \(WAI-ARIA\) 1.0](#)¹⁶ is **recommended**. This specification should be used for dynamic content and advanced user interface controls developed with Ajax, HTML, JavaScript and related technologies. As well, WAI-AIRA includes features for documents (i.e. webpages) which are useful for defining layouts, structuring content, and creating relationships.

Additional Resources:

- [Web Accessibility Initiative \(WAI\)](#)¹⁷
- [How to Meet WCAG 2.0 \(Checklist and Quick Reference\)](#)¹⁸
- [WAVE Web Accessibility Evaluation Tool](#)¹⁹

2.4.5 Mobile

[Mobile Web Best Practices 1.0](#)²⁰ is **recommended** when creating websites to be accessed via mobile devices.

Additional Resources:

- [Mobile Web @ W3C](#)²¹
- [W3C mobileOK Checker](#)²²

2.5 Government Brand Standards

The Government Brand Signature must be represented on websites owned or sponsored by the *Government of Newfoundland and Labrador*. The [Government Brand Signature](#)²³ website contains all information pertaining to the use of the Government Brand. The [Graphic Standards Manual](#)²⁴ provides all information regarding Brand Signature usage.

The following guidelines are specific to web. They are a supplement to Brand Standards and do not supersede or conflict in any way.

2.5.1 Using the appropriate Brand Signature

The four-colour Brand Signature is always used for digital displays hence it is the correct version to use for web. Depending on the background colour, light backgrounds will use the standard version with blue text, and dark backgrounds will use the reverse version with white text. The stylized Pitcher Plant flower graphic is always full colour. It is important to choose background colours which provide sufficient contrast against all of the colours in the Brand Signature. A minimum contrast ratio of 4.5:1 should be maintained. It is important to ensure that specific colours in the Brand Signature are not lost if placing on a similar color background. The recommended light background colour is white while the recommended dark background colour is the same blue as is used in the Brand Signature text.

The target audience of the website will determine which version of the Brand Signature that should be used. Typically, publicly accessible websites have an international target audience therefore the Brand Signature would include the 'CANADA' subtext. French audiences may use the French version of the Brand Signature. If the website is sponsored by a particular Government department or agency then the Brand Signature may include the department or agency name as subtext. All other instances would use the Brand Signature without subtext. **Never type subtext below the Brand Signature or alter the Brand Signature in any way. The correct image will be provided upon request.**

2.5.2 Using the Brand Signature as a hyperlink

If the Brand Signature is to be used as a hyperlink then it will link to the [Government Home Page](#)²⁵. If the Brand Signature uses a department or agency name as subtext then it will link to that department or agency home page. Under no circumstances should the Brand Signature link to a page or site other than those listed above.

2.5.3 Placement of the Brand Signature

The Brand Signature must adhere to scaling and protection area requirements as outlined in the Government Brand Standards. The Brand Standards use measurements applicable to print although when converted to digital display the minimum width would be no less than 96 pixels wide. The Brand should not be stretched or skewed in any way. To ensure the Brand Signature remains crisp and legible, use image compression and optimization settings that do not distort the image. Compression artifacts should not be visible. High resolution displays may require a higher resolution image.

The Brand Signature should be placed on a solid opaque background color with a negative space of approximately the height of the upper-case “L” in the Brand text.

2.6 Disclaimer/Copyright/Privacy Statement

Websites must reference the [Government Disclaimer/Copyright/Privacy Statement](#)²⁶ on all pages. Typically this is a link placed in the footer of every web page.

2.7 Files

2.7.1 Naming Conventions

Folder and filenames (including web page files, pdf files, and other downloadable application files) should be concise yet descriptive of the file. Typically, the file name would be the same or similar to the document title when applicable. Special characters should not be used and spaces should be replaced with hyphens (-) or underscores (_).

Folder and filenames which are exposed in the website's URL should be understandable and memorable. The entire URL, including the domain name, should be 80 characters or less.

2.7.2 File Structure

Folders or filenames should not be renamed or moved. Create a file structure that allows for expected revisions and additions. Use a permanent URL for the most current version of a document and archive copies using specific version numbers. Notify users if they are not viewing the most recent version.

Note: Many web server technologies allow the URL to be rewritten or redirected so that the permanent URL is different than the underlying internal file structure. Such technology can be helpful when organizing a file structure.

For example, "final-document-v1.0.doc" is mapped to "document.doc". An updated document "final-document-v1.1.doc" is added to the site and the remapped to "document.doc". The permanent file name, "document.doc", never changes and always points to the newest version.

2.7.3 File Size

Compression and optimization techniques should be used to keep file sizes small. This includes all files which are delivered to the web browser, such as html/css/scripting files, images, audio and video files, and document/application files (pdf, word, etc.)

2.7.4 Concurrent Connections

The number of concurrent connections that a web browser is required to make should be kept to a minimum. Style and scripting files should be bundled and minified. Image sprites can be used for icons and other common UI elements.

2.8 Layout and Design

When designing your website, make sure the primary content or functionality of the page is prominently displayed and obvious to the user. Content should have strong

contrast from decorative elements and images. A clean, modern, and professional design is preferred. Be selective with modern design trends as they may not be applicable for the purpose or functionality of the website. Design with accessibility and usability in mind.

Do not rely on colour as the only way of distinguishing a feature or for conveying information such as a selected element or emphasized text.

2.9 Images and Graphics

2.9.1 Graphic Formats and Optimization

Graphics Interchange Format (GIF), Joint Photographic Experts Group (JPEG), and Portable Network Graphics (PNF) formats are acceptable for use on websites. Images and graphics should be optimized for web to keep file sizes relatively small; however, apparent image quality should not be affected, details within the image should remain sharp, and no compression artifacts should be visible. Images and graphics should not be distorted or skewed.

Scalable Vector Graphic (SVG) is acceptable as long as an alternative graphic format is used to support legacy browsers.

2.9.2 Copyrighted Images

Copyrighted images or trademarks must be used with the consent of the copyright owner or in accordance with the copyright license.

2.9.3 Alternative Text

Images should always contain alternative text equivalents. The text should describe the image as it is presented visually without adding additional information that cannot be determined in context. Alternative text is associated with an image by using the alt attribute which should always be included. If the image is used for decoration (i.e. purely aesthetic, no information, and no function) then the alt attribute is included and the attribute value is an empty string (i.e. alt="").

2.9.4 Graphical Text

Images of text should be only used for decoration (i.e. purely aesthetic, no information, and no function) or when the visual representation of the text is essential. If images of text are used, the text alternative should contain the same words as in the image.

Examples:

- Logo containing text. The visual representation of the text is essential to the identity of the logo.
- Sample credit card. The visual representation of the text is essential as it accurately depicts what the credit card looks like and how the text should appear.
- Characters used as symbols or icons where the actual text has no meaning towards their purpose such as “B” for bold, “I” for italics, small “A” to decrease font size, large “A” to increase font size, etc. The visual representation of the text is essential as such symbols are common UI elements. Alternative text should be used to describe the actual function.

2.9.5 Infographics

An infographic is a picture, image, chart or diagram utilizing a combination of images and text to convey information or data in a visual way.

When using an infographic, whether for print or on the web, the colour contrast should meet accessibility standards. As with any image, alternative text must be used.

A text equivalent of the information the infographic is conveying must accompany the image, or there should be a link provided with the image to take a user to the text version.

2.10 Language and Text

2.10.1 Page Title and Language

Pages should have a title that is clear and concise yet descriptive of the topic or purpose of the page. Do not use the same title for all pages. A common title, such as the site name, may be appended to the end of the page title.

Set the language of the page using the 'lang' attribute for the <html> element.

2.10.2 Plain Language

Know the audience and avoid jargon and technical language where possible. Keep it clear and concise.

2.10.3 Headings

Headings should always be used and be concise yet descriptive of their content block. They should make sense out of context, in other words, heading text has to stand on its own. As a rule of thumb, they should be 40-60 characters long. Remove leading articles such as “the” and “a”. See [Plain Language](#) above.

It is good practice to use heading levels properly. For example, all sub-sections below <h1> should be <h2>. All sub-sections below <h2> should be <h3>, and so forth. The main content section of a web page should start with heading level 1 <h1>.

2.10.4 Clear Text

Text should be clear and easy to read with good contrast and adequate spacing between lines, paragraphs, and content sections. Lines should not be overly long (80 characters can be used as a rule of thumb). A minimum contrast ratio of 4.5:1 between text and background should be maintained. Do not rely on colour alone as the only way to identify text or indicate an action.

Resource: [WebAIM: Color Contrast Checker](#)²⁷

2.10.5 Font Type and Size

Fonts should be sans-serif with a minimum size of 12pt or 16px. Relative font sizes and measurements should be used. Text can be resized up to 200% without loss of content or functionality.

2.10.6 Text on Images

Whether graphical text is part of an image or text is an overlay on top of an image, the background for the text should be a single opaque colour. A minimum contrast ratio of 4.5:1 should be maintained.

If the text is an overlay, do not rely on the image for the background colour. If images are turned off, this text may not be visible against the page background.

If the text is part of the image, the text alternative should contain the same words as in the image.

The main focal point of the image should not be covered by text or other elements.

2.11 Hyperlinks

2.11.1 Link Appearance

All textual links should be underlined and coloured. If the layout and design clearly indicates an area's function, such as navigation menus or other link list, it is not always necessary to underline the link text. However, links should not rely on colour alone.

Reserve underlining for links only. Do not underline any text that is not a link. Avoid showing text in your chosen link colours or other cues. Links should be obvious and stand out from other text.

2.11.2 Descriptive Link Text

Links should be meaningful so that the purpose of the link can be determined from the link text alone. Do not rely on the context surrounding the link to determine the purpose. Avoid "click here", "read more", etc. If two or more links point to the same web address

or the serve the same purpose then the link text should be the same or similar. Similarly, do not use the same link text for links that point to different web addresses or serve different purposes.

2.11.3 Links within Government

Links to other sites within Government will open in the current browser window.

2.11.4 Links outside Government

For occasions when the hyperlink sends the user to a webpage outside of government, the link will open in a new window. The text “opens in new window” should be included in the link text. An icon may be placed adjacent to the link that denotes the same intention.

2.11.5 Links to Document or Application Files

If a link will open a document format or application that requires a plugin, viewer, or opens in an application other than the browser, the document or application type should be included in the link text. An icon may be placed adjacent to the link that denotes the same intention. Icons for common file types are available upon request.

The link should open in a new window. Refer to Links outside Government for more information.

File size should be kept to a minimum. The user should be notified if a large file could potentially cause a delayed response or load time. A 10-15 second download delay (low bandwidth) or a file size greater than 200 KB can be used as a rule of thumb. The file size for large files should be included in the link text.

2.12 Forms

2.12.1 Labels and fieldsets

All form fields should use labels. Labels should be related to their control using the “for” attribute. They should be clear, descriptive, and unique. Instructions or hints, such as required, data format, etc., should be including in the label text.

Related form fields should be grouped using fieldsets. Legend text should be clear, descriptive, and unique. If fieldsets are used, labels need only be clear, descriptive, and unique in context with the legend text.

Placeholder text within text input controls should not be used as labels, instructions or hints.

2.12.2 Errors

Errors or suggestions should be automatically detected, the item in error should be identified, and the error or suggestion should be described to the user in text.

Do not rely on colour alone as a means to identify errors.

2.12.3 CAPTCHA

CAPTCHAs (Completely Automated Public Turing test to tell Computers and Humans Apart) are used in forms to make sure that the entity filling out the form is a human being rather than a computer program that was written to submit the form many times.

Avoid using CAPTCHA unless absolutely necessary. If CAPTCHA is necessary then: (1) provide at least two types of CAPTCHA (ex. image, audio); (2) provide contact information and allow customer service or technical support to bypass CAPTCHA on behalf of the user; (3) do not use CAPTCHA if a user is already logged in. [Note on CAPTCHA](#)²⁸.

2.13 Tables

Tables should only be used to display tabular data rather than as a layout tool. When using a table to display tabular data, table headers should be used to associate the data with the column and/or row titles.

A table summary should be used to describe the table structure and its purpose. A table caption may be used in conjunction with summary.

3 EXCEPTIONS AND DEVIATIONS

If, for any reason, the requirements or recommendations described in this document are not feasible for the website in question then:

- 1) The exceptions or deviations should be documented and approved as acceptable by the stakeholders of the project.
- 2) An alternative means to access the information or services provided by the website is available and support is provided to the user.

***Note:** If the alternative is a more traditional means such as printed documents or mail, it should not be considered equivalent. Many of the features and conveniences of web technologies cannot be replicated. Ultimately, the goal should be to create an efficient, usable website that is accessible to everyone.*

4 APPENDIX A - WEB APPLICATIONS

Any system or service that is either custom built or purchased as a Commercial-Off-The-Shelf (COTS) product for the Government of Newfoundland and Labrador and has a web-based user interface is considered a web application. Such applications are launched and run in a web browser or similar user agent such as a screen reader. Web applications should adhere to the standards, guidelines, and best practices outlined in this document.

4.1 How to Use this Section

All standards, guidelines, and best practices outlined for websites in the main body of this document are applicable to web applications. This section is an addendum outlining additional standards, guidelines, and best practices specific to web applications and may expand further on topics already covered if they are more relevant when developing web applications instead of websites.

4.2 Differences between Web Application and Website

A web application is defined by its programming logic and communication between servers, tiers, or systems. Typically, a web application will connect to an application server and/or database server. It is also defined by its user interface and interactions by the user to perform functions and input data.

Typically, a website is defined by its content that is delivered to the user and, while some interaction is required for the user to navigate and browse this content, there is no advanced interface and the user does not provide input that is sent through and processed by secondary servers or systems.

Examples of a typical web application are: (1) front-end client application that is part of a larger system or workflow and provides a user interface that allows the user to input data or change configuration settings for the larger system, such as a registration or administration interface; or (2) series of screens or pages embedded in a larger website

or in a new window with a similar look and feel to the parent website, such as a form or survey.

Refer to [Guidelines and Best Practices for Government Technology Solutions](#)²⁹ for more information on server-side technologies. Within the scope of this document, guidelines and best practices are provided for the rendered HTML output and associated client-side technologies that are necessary.

4.3 Client-side Technology Specifications

4.3.1 HTML

[HTML5](#)³⁰ is **recommended** as this specification implements a number of native controls and widgets that are useful for web applications. Native controls and widgets should be used in favor of custom-built controls and widgets when applicable. See [HTML](#) above for more information.

4.3.2 Javascript

Javascript is **recommended** as it is considered the de facto standard for client-side scripting. Standards compliant [JavaScript Web APIs](#)³¹ should be used. It is important that solutions take into consideration browsers or user agents where Javascript is not enabled.

Important Note: Javascript may be disabled due to a number of reasons: a user may choose to disable Javascript using the browser's preferences; a browser may not support Javascript; a network administrator may use a policy to disable Javascript for security purposes; etcetera.

4.3.3 Front-end frameworks

Many front-end frameworks are available for HTML, CSS, and Javascript. Such frameworks should be considered when designing and developing web applications. There are many benefits to using frameworks such as cross-browser support and consistency, responsive layouts, documentation, support, and constant improvements and enhancements through new version releases. Functionality is often moved to the

client with modern web application architecture which complicates client-side coding. Frameworks may decrease development time and improve consistency and reliability in coding practices and functionality.

Frameworks should be chosen based on enterprise-level acceptance and support within the industry, adherence to technical standards, documentation and training, accessibility, active development and improvements, customization features such as the ability to use semantic markup, and their ability to adjust layout, look and feel, and branding to meet Web Standards.

The Web Development Team should be consulted prior to the choice or use of any proposed framework.

4.3.4 Accessible Rich Internet Applications (WAI-ARIA)

[WAI-ARIA 1.0](#)³² is **recommended**. This specification defines new ways for functionality to be provided to assistive technologies. It especially helps with dynamic content and advanced user interface controls developed with Ajax, HTML, Javascript, and related technologies. See [Accessibility](#) above for more information.

4.4 Introduction, Login, and Messaging

A web application should start with an introductory page including a brief overview of the application, its workflow, and the expected outcome. Login and account creation should be included on this page. If the login and account creation is integrated into an application that may not be accessible to all devices, the introductory page should stand alone and provide alternatives to the user to avail of the services the application provides.

Programming logic should be used to detect if required features are supported and enabled by the browser or user agent. Messaging should be displayed to the user only if a feature is unsupported or disabled and will cause issues or degrade functionality. Messaging should encourage enabling the feature or upgrading to the newest version, if possible. The user should be guided to an alternative solution or provided support for cases where a feature cannot be enabled or resolved.

4.5 User-Centric Features

Features, workflows, and wording should reflect the user's knowledge of the application and its purpose. Users typically know less about what is expected and how the application works than administrators, owners, and developers. They may prefer a simple interface with a clear direction on how to achieve common tasks. Advanced or specialized features should be offered to users upon request. Typically this would be an expanded or secondary view that they may choose, if that is their preference.

Classification or processes that may be useful internally by the department or division may not need to be exposed to the user.

4.6 Navigation and User Controls

4.6.1 Use standard controls and widgets

Standard UI controls and widgets that are native to the browser such as links, buttons, radio buttons, checkboxes, close, scrollbars, input types, and etcetera should be used. In the event that a standard control or widget does not exist for the functionality required, custom controls may be developed or may be included in a front-end framework. Special consideration should be used to ensure the control or widget mimics the look and functionality of its traditional desktop application counterpart, including keyboard commands and accessibility features. See [WAI-ARIA 1.0 Authoring Practices](#)³³ for more information.

4.6.2 Maintain consistent layout, menus, other UI elements

The same wording or commands should be used for the same functionality. The same placement across all pages should be used. Menu items should be consistent and in the same order. The same look and feel should be used for controls or widgets of the same type.

4.6.3 Use large click targets

Links, buttons, and other interactive elements should be large enough that they can be easily clicked by a pointing device. Users should be able to easily touch the active area

on a touch screen display without zooming. If a click target is bordered or shaded, the entire area should be clickable.

Small click targets can cause problems for some users.

Click targets should be indicated with the default outline or other styling change on focus so that a user with a keyboard only can easily identify the link, button, or other action they are currently focused on.

4.7 Feedback, Errors, Messaging

4.7.1 Provide feedback to the user

Feedback is important in order for users to understand and intuitively use the application. The user should always know the system's current state and how their actions have been interpreted. Essentially, the user should know what is happening. Users should not have to guess what they need to do, what data they need to enter and in what format.

While feedback is important for any action that is performed or completed, it is especially important if an action takes a long time to complete. Performance should be a consideration and applications should be responsive. Although, if a long response time is unavoidable, indicators should be used. Anything longer than 1 second should use a 'busy' indicator and anything longer than 10 seconds should use a 'progress' indicator.

4.7.2 Use informative error messages

Error messages should be used to help the user fix problems and to understand the situation so they can avoid making the same mistakes. Error messages should be descriptive using natural language and precise about the exact problem. Use polite language and offer constructive advice or suggestions on how to fix the problem.

Error messages should be highly visible and noticeable both for the message itself and for the control or data input that the user needs to fix.

Important Note: While error messages should be informative and helpful for the end user, they should not expose any details about the application architecture or programming as doing so may compromise the security of the application.

4.7.3 Use messaging or hints to avoid common mistakes

Messaging should be used to guide the user on how to use the application or input data, although it should be brief and concise. Users typically do not want to read a long list of instructions in order to complete a task. Move detailed instructions into a user guide and be intuitive on how a task should be performed. Hints or examples are helpful for quick tasks or when a specific data format is required. In-context help should be provided.

4.7.4 Only display messaging if relevant

Use programming logic to detect features and only display messaging if that feature is unsupported. A typical example is supported browsers or browser features. If the user's browser is supported, it is not necessary to remind them of all the browsers that are not supported. Although if the browser being used is unsupported, a message should be displayed encouraging them to upgrade or install a supported browser from a different vendor. If a browser feature is disabled, a message should be displayed encouraging the user to enable the feature.

Full application requirements or other important details should be included in a user guide or other supporting documentation and available to the user for reference.

4.7.5 Provide in-context help for users

Help content should be non-interfering. It should be available on every page although should remain out of the way until needed. Use plain language and only as much wording as necessary. Fully describe what the user is expected to do. If it is a feature, explain what the feature does, not what its benefits are. If text input is expected in a specific format, show the format structure or show an example.

In-context help should be unobtrusive. Allow the user to easily access and return to their original task. Often, help content can be displayed adjacent to the main content and

toggled in and out of display. It can be dynamic and display help content related to the user's actions.

4.8 Data Input

4.8.1 Provide the intent of the data being collected

The user should be aware of the intended purpose for any data they are submitting including assurances that the data is secure and will not be misused. If data is to be used for purposes not directly associated with the application's intent, this should be stated. Users should be given the choice to opt out of usage that is not a necessity to the application's primary purpose.

Information Management/Information Protection (IM/IP) policies will apply, especially if personal or confidential information is collected. Consult with Web Development Team or the project team lead for more information.

4.8.2 Use default values

Preload or set default values for data or options that are typical and where a default value would be acceptable. Directing users towards a common outcome helps speed up the interaction and guides users who would not know what else to do. If a default value is not applicable because a very specific response is required, ensure that the user is clear on what they need to provide and how they should make the decision.

4.9 Exceptions and Deviations

See [Exceptions and Deviations](#) above for more information.

¹ World Wide Web Consortium (W3C) - <http://www.w3.org/>

² W3C Markup Validation Service - <http://validator.w3.org/>

³ W3C CSS Validation Service - <http://jigsaw.w3.org/css-validator/>

⁴ Unicorn – W3C’s Unified Validator Service - <http://validator.w3.org/unicorn/>

⁵ HTML5 - <http://www.w3.org/TR/html5/>

⁶ XHTML™ 1.0 The Extensible HyperText Markup Language (Second Edition) - <http://www.w3.org/TR/xhtml1/>

⁷ HTML 4 Elements - <http://www.w3.org/TR/html4/index/elements.html>

⁸ HTML 4 Attributes - <http://www.w3.org/TR/html4/index/attributes.html>

⁹ Recommended Doctype Declarations to use in your Web document - <http://www.w3.org/QA/2002/04/valid-dtd-list.html>

¹⁰ W3C: HTML5 Frequently Asked Questions (FAQs) - <http://www.w3.org/html/wiki/FAQs>

¹¹ CSS Level 3 specifications - <http://www.w3.org/Style/CSS/current-work>

¹² Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification - <http://www.w3.org/TR/CSS2/>

¹³ Web Content Accessibility Guidelines (WCAG) 2.0 - <http://www.w3.org/TR/WCAG20/>

¹⁴ WCAG 2.0 Conformance Requirements - <http://www.w3.org/TR/WCAG20/#conformance-reqs>

¹⁵ Website Accessibility Conformance Evaluation Methodology (WCAG-EM) 1.0 - <http://www.w3.org/TR/WCAG-EM/>

¹⁶ Accessible Rich Internet Applications (WAI-ARIA) 1.0 - <http://www.w3.org/TR/wai-aria/>

¹⁷ Web Accessibility Initiative (WAI) - <http://www.w3.org/WAI/>

¹⁸ How to Meet WCAG 2.0 (Checklist and Quick Reference) - <http://www.w3.org/WAI/WCAG20/quickref/>

¹⁹ WAVE Web Accessibility Evaluation Tool - <http://wave.webaim.org/>

²⁰ Mobile Web Best Practices 1.0 - <http://www.w3.org/TR/mobile-bp/>

- ²¹ Mobile Web @ W3C - <http://www.w3.org/Mobile/>
- ²² W3C mobileOK Checker - <http://validator.w3.org/mobile/>
- ²³ Government Brand Signature - <http://gov.nl.ca/brand/>
- ²⁴ Graphic Standards Manual - <http://www.gov.nl.ca/brand/GSM%20Brand%20Standards.pdf>
- ²⁵ Government Home Page - <http://www.gov.nl.ca/>
- ²⁶ Government Disclaimer/Copyright/Privacy Statement - <http://gov.nl.ca/disclaimer/>
- ²⁷ WebAIM: Color Contrast Checker - <http://webaim.org/resources/contrastchecker/>
- ²⁸ Note on CAPTCHA - <http://www.w3.org/TR/UNDERSTANDING-WCAG20/text-equiv-all.html>
- ²⁹ Guidelines and Best Practices for Government Technology Solutions - <http://www.ocio.gov.nl.ca/ocio/itresources/>
- ³⁰ HTML5 - <http://www.w3.org/TR/html5/>
- ³¹ JavaScript Web APIs - <http://www.w3.org/standards/webdesign/script>
- ³² WAI-ARIA 1.0 - <http://www.w3.org/TR/wai-aria/>
- ³³ WAI-ARIA 1.0 Authoring Practices - <http://www.w3.org/TR/wai-aria-practices/>