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# **ACCESSIBLE DOCUMENT REPORT FOR THE ZONING AND DEVELOPMENT BY-LAW**

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**Regulation Redesign  
2021 - 2022**

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# 1 EXECUTIVE SUMMARY

Over the past four years, the City of Vancouver has been reviewing the Zoning and Development By-law with the public and staff to make it easier to find and use information. In alignment with Vancouver's Accessibility Strategy, the by-law update was an opportunity for the City of Vancouver to pilot an accessible document format for by-laws and other public documents as Phase I action of the Accessibility Strategy. This report details the efforts that went into creating an accessible by-law document, including the best practices research, who was engaged, the testing and refinement process, and the accessibility features that have ultimately been incorporated into the by-law document.

## **Stakeholders Engaged:**

- The City of Vancouver's Persons with Disabilities Advisory Committee -- Accessible City Subcommittee;
- Accessibility experts from the local visually impaired community;
- City of Vancouver's web and user experience staff team;
- Accessibility planners leading the City of Vancouver's Accessibility Strategy; and
- Consultants with experience in accessible by-law creation.

## **Key Accessibility:**

- Screen reader compatibility;
- Simple design with accessible fonts, ample white space, large line spacing and text size;
- Accessible colour palette that is high contrast and ensures legibility for users with low vision or colour vision deficiency;
- Cross-reference links, hyperlinks and bookmarks to improve the navigation of the document;
- Hierarchical heading and list styles that allow screen reader users to navigate and understand the structure of the document;
- Tables programmed with distinct header and data cells so that a screen reader is able to differentiate between them;
- Alternative text programmed into the by-law's maps so assistive technologies can describe their context and function to those with vision impairment;
- Supplementary diagrams to illustrate regulations and support visual understanding; and
- Descriptive titles to accompany the by-law's supplementary diagrams.

Following the accessibility best practices research and the creation of new templates and prototypes, the reformatted by-law documents went through two rounds of testing with people living with blindness and vision impairment. The results of the initial round of testing were positive but included additional recommendations to further improve the accessibility of the by-law. The document was further refined based on these recommendations and the final tests confirmed that the document is well-designed as an accessible document.

## 2 INTRODUCTION

The City of Vancouver launched the Regulation Redesign project in 2018 to review the City's land use regulations. This included a complete review of the Zoning and Development By-law for the first time since it was introduced in 1956. This review was an opportunity for the City to pilot an accessible document format for by-laws and other public documents as a Phase I action of the Accessibility Strategy (2022) and a commitment to advancing equity and inclusion. Working together with the City's Persons with Disabilities Committee and visual accessibility experts, the project team developed an accessible document format that supports screen reader users and common low vision challenges. This report summarizes the learning and outcomes of this journey in creating the City's first accessible by-law document.

### 2.1 Accessible Document Features

The new format integrates accessibility features to meet Web Content Accessibility Guidelines (WCAG) 2.1 Level AA or higher. The following features support low vision accessibility and screen reader compatibility. These features are incorporated into the updated Zoning and Development By-law and can be integrated across common desktop publishing platforms.



**White Space.** Ample white space between text and graphics to ensure a clean and simple design that increases readability and legibility.



**Accessible, Legible Font.** Large text size, accessible font (Arial), extensive line and text spacing, no italicized text and sparing use of full uppercase (or "all caps").



**High Contrast Colour Palette.** A colour palette with a minimum contrast ratio of 4.5:1 to enhance legibility for readers with low vision or colour vision deficiencies.



**Document Styles.** Paragraph and character styles are used to format and structure the document so they can be interpreted in a logical order by assistive technologies like screen readers.



**Headings and Hierarchical Lists.** Tags, numbered lists and heading levels provide markers so screen readers can navigate reading order and accurately move through a document. This enables visually impaired users to scan, quickly recognize headings and find the information they are looking for without having to read through an entire document.



**Navigational Tools.** Navigational aids including bookmarks, cross reference links, hyperlinks and a table of contents allow users to bypass information and jump ahead to sections.



**Accessible Tables.** Tables are set with precise styles and export tagging to ensure that they are read in logical order and hierarchy and that a screen reader is able to differentiate between the header and data cells.



**Alternative Text for Maps.** Maps in the by-law are accompanied by alternative text to describe the contents for those with vision impairment.



**Descriptive Titles for Diagrams.** Supplementary diagrams are accompanied by descriptive titles that describe the nature of the diagram.

In addition, supplementary diagrams are integrated throughout the by-law to support alternative ways of accessing the content and understanding complex land use regulations.

While the by-law document is primarily designed with common accessibility features, the features may not serve every accessibility need. The online document library also includes a statement offering alternative formats upon request.

### 3 ACCESSIBILITY LEGISLATION ACROSS CANADA

Canada introduced document accessibility standards to support the goal of creating equitable, barrier-free access to communities, workplaces and services for people with disabilities. The Accessible Canada Act aims to achieve a barrier-free Canada on or before January 1, 2040.<sup>1</sup> This new legislation requires federally regulated entities to remove and prevent barriers in 7 priority areas, including information and communication technologies. Ontario was the first province to enact legislation in 2005, with the Accessibility for Ontarians with Disabilities Act<sup>2</sup>, which requires organizations to create and provide accessible formats and communication supports to people with disabilities. In addition to the advancements at the national and provincial levels, many cities across Canada are developing their own set of document standards to ensure that the sharing and exchange of information is done in an accessible format.

Following the lead of the Federal and Ontario governments, British Columbia is introducing expanded accessibility requirements for organizations operating within the province. In 2021, the British Columbia Legislature passed the *Accessible British Columbia Act* (B.C. Act).<sup>3</sup> Effective September 1, 2022, the B.C. Act will require school districts, municipalities, health authorities and other public sector organizations to establish accessibility committees and develop accessibility plans for the identification, removal and prevention of barriers for individuals seeking services, including information and communication supports. Accessibility plans will be made available to the public to provide feedback. Organizations will then be given a period of two years to achieve compliance with these new accessibility requirements.

The City of Vancouver recently adopted its own Accessibility Strategy.<sup>4</sup> In 2018, Vancouver City Council directed staff to develop an accessibility strategy in collaboration with an Accessibility Task Force, made up of members from the Persons with Disabilities Advisory Committee, Seniors Advisory Committee and People with Lived Experience Advisory on Mental Health and Substance Use. Vancouver City Council approved Phase 1 of the Accessibility Strategy in July 2022, which set policy directions achieved through the development of goals, objectives, definitions, principles, approaches, focus areas and an accountability framework. The areas of focus align with the Accessible Canada Act and the Accessible British Columbia Act.

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<sup>1</sup> Source: Towards an Accessible Canada, 2022, <https://www.canada.ca/en/employment-social-development/programs/accessible-canada.html>.

<sup>2</sup> Source: Accessibility for Ontarians with Disabilities Act, 2005, S.O. 2005, c. 11. <https://www.ontario.ca/laws/statute/05a11>.

<sup>3</sup> Source: Accessible British Columbia Act, S.B.C. 2021, c. 19. <https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/21019>.

<sup>4</sup> Source: Transforming Attitudes, Embedding Change: The City of Vancouver's Accessibility Strategy (Phase 1), 2022, <https://council.vancouver.ca/20220719/documents/ra-appendixa-plainlanguage.pdf>.

## 3.1 Best Practices Research

In anticipation of the B.C. Act and the Vancouver Accessibility Strategy, the Regulation Redesign project explored best practices in document accessibility and how they can be applied to Vancouver's zoning by-law.

Eleven municipalities were researched based on the document accessibility of their zoning by-laws. The majority of these municipalities are located in Ontario as they have a more extensive and longer history of accessibility legislation. Staff also had conversations with a select few municipalities to understand their procedures and the level of accessibility achieved for their zoning by-law documents. The municipalities researched include:

- City of Brantford, Ontario
- City of Burlington, Ontario
- City of London, Ontario
- City of Markham, Ontario
- City of Mississauga, Ontario
- City of Oakville, Ontario
- City of Ottawa, Ontario
- City of Toronto, Ontario
- City of Vaughan, Ontario
- City of Victoria, British Columbia
- City of Winnipeg, Manitoba

While the majority of the municipalities integrate some degree of web accessibility, only a few have incorporated accessibility standards into their posted by-law documents. Many municipalities do not have a by-law in an accessible format, or are only in the process of making their by-laws accessible. For instance, the City of Mississauga only publishes their most popular by-laws in an accessible format. The City of Brantford provides alternative formats for public documents by request. Other cities have converted their by-laws to an HTML or electronic text version that is screen reader convertible.

Multiple levels of software are required to make a document accessible. All of the municipalities interviewed have their by-laws in a PDF format that is posted online. Many also have their by-laws in an HTML format. The majority of municipalities store their by-laws in MS Word, use headings to make the content more accessible and then they transfer it to other formats (i.e. PDF and/or HTML) before they publish their by-laws. The City of Ottawa uses Adobe InDesign to publish their more complex guideline documents.

## 4 REFORMATTING THE ZONING AND DEVELOPMENT BY-LAW

The Regulation Redesign project developed prototypes of the new by-law format based on the accessibility best practices research conducted with other Canadian municipalities and engagement with key stakeholders and accessibility experts. Consultants with experience in accessible by-law creation were procured to assist with the work. The City of Vancouver's Persons with Disabilities Advisory Committee (PDAC) - Accessible City Subcommittee provided advice and guidance throughout the course of this project and provided feedback on prototypes of the new by-law format. This subcommittee recommended detailed testing by experts from the local sight-impaired community.

### 4.1 Methodology

Based on recommendations from PDAC, two experts were invited and compensated to test prototypes of the new by-law document.

- Amit Ram, is a sight impaired technology professional with many years of experience in providing training in the use of assistive technologies. He is familiar with a suite of accessibility software and is JAWS certified, which is a computer screen reader program for Microsoft Windows.
- Amy Amantea, is an actor and creative that lives with legal blindness and dyslexia. Amy is an artist and Accessibility Consultant and spends her time volunteering, enhancing accessibility and creating awareness around sight loss.

In fall 2021, the accessibility experts were first asked to review the by-law's RM-6 District Schedule as a prototype. They conducted two tests: screen reader and low-vision tests. The findings from their review went on to inform the formatting of the rest of the Zoning and Development By-law. In summer 2022, Amit Ram conducted a follow-up review and screen reader test of the entire consolidated Zoning and Development By-law as a single PDF file. The 'Key Findings' section below describes the feedback from both the district schedule format review and the review of the consolidated by-law. The screen reader tests were conducted on JAWS and NVDA on a PC computer, VoiceOver on a Mac computer, and on a mobile phone. These screen readers were identified as the most common screen readers used. The low vision test was conducted on a computer using a magnifier. The accessibility experts presented the results via teleconference to City of Vancouver staff and consultants for the Regulation Redesign project. They provided recommendations on what works well and what needs improvement. Many recommendations were incorporated into the proposed new by-law. This report will also be shared with staff to inform the creation of accessible documents in the future.



## 4.2 Guiding Questions

1. Do the screen reader functions (for example, reading order, headings, paragraph styles, bookmarks, cross references and other tags) work easily on the systems you are testing them on?
2. Are the following accessibility features in the document helpful?
  - Sensory characteristics (for example, page layout, text size, shape, font, colours, location, page orientation, and visual locations or information, etc.)
  - Text readability (for example, limited capitalization, no italicization, and text spacing)
  - Navigation and reading sequence (for example, bookmarks, cross references, hyperlinks, and header levels)
  - Colour contrast (for example, minimum of 4:5:1 ratio for colours)
3. Were there any features that did not work or need improvement?
4. Do you have any other comments about the screen reader functionality?
5. Are there any other document accessibility features you recommend we explore in the future?

## 4.3 Key Findings

### Fall 2021 Draft Reformatted RM-6 District Schedule Testing

The fall 2021 testing of the draft reformatted RM-6 District Schedule passed both the screen reader and the low-vision tests. The screen reader test revealed that the new format's hierarchical heading and list styles allow screen reader users to easily navigate and understand the structure of the document. Tables have been designed so that a screen reader is able to differentiate the header cells from the data cells, which provides the necessary context to the user. From a low vision perspective, the amount of white space set between the text and within the layout makes the document discernible and user-friendly. Tables and headings help separate information and break up the pattern of words. The font style (Arial) and lack of italics make the text crisp and easy to read.

Both accessibility experts provided some suggestions, which have been integrated to into the new format. This includes providing multiple viewing options for the Zoning and Development By-law. As such, both a consolidated by-law and a webpage that divides the by-law into multiple downloadable sections will be available to users. It was also suggested that a Table of Contents with linked sections be added to the consolidated Zoning and Development By-law. This has since been incorporated to assist with document navigation and allow users to move easily between sections. The testing revealed that the different heading styles should be made more distinguishable. It was also revealed that lower-case letters (i.e. 'o', 'p', 'a', etc.) are hard to decipher in bold fonts, especially for those with low-vision. Uppercase letters have since been introduced into the highest order headings for clarity and hierarchy. Further, it was advised that an accessibility statement be included within the document for users with diverse abilities. A statement will therefore be added to the City's online document library that advises users on how to access an alternative format.

### Summer 2022 Screen Reader Test of the Consolidated Zoning and Development By-law

Once all of the Zoning and Development By-law documents were drafted and amalgamated into a consolidated version, Amit Ram conducted another screen reader test. The consolidated by-law will be provided in addition to the individual by-law documents on the City of Vancouver's online document library as a convenience copy to users. He was asked the same set of questions from the District Schedule format review, but was also asked some additional probing questions about the table of contents and navigating between the different chapters of the by-law. The screen reader test revealed that the table of contents, which is only included in the consolidated version of the by-law, works really well. It allows the screen reader user to navigate between the different chapters of the by-law and find the content they are looking for. Like in the district schedule draft format, the tables across the entire consolidated by-law are read easily by the screen reader. The list hierarchies have also been programmed so that the screen reader is able to discern between the different heading levels.

The review of the consolidated by-law found that not all of the maps across the by-law were programmed with the appropriate alternative text. This has since been corrected. This round of testing also revealed that the consolidated by-law can cause the screen reader to crash as it loads the very large PDF document. For this reason, the by-law is offered in both individual chapter files and as well as a comprehensive, consolidated document on the online document library so that users have multiple ways to access the by-law.

## 5 FUTURE CONSIDERATIONS

The accessibility experts made additional recommendations for future considerations. While the formal Regulations Redesign project has come to a close, these considerations may be helpful in future City of Vancouver advancements in document accessibility.

- **Semantic HTML format.** In the future, the City can further advance document accessibility through the use of semantic HTML format. HTML simply means that everything is structured, organized and adds meaning to the page. Every element is tagged so that a screen reader user understands what the content is and where they are on a web page.
- **Note the recommended screen reader software for each document.** People using screen readers can experience the same document differently depending on the software, browser and device.
- **Descriptive titles for all graphics and diagrams.** Adding a descriptive caption to images would also support low-vision users.

## 6 CONTACT

For more information about this project, please visit [vancouver.ca/regredesign](http://vancouver.ca/regredesign) or email [regredesign@vancouver.ca](mailto:regredesign@vancouver.ca).