



Mapping Our Cities for All

A Study on the Accessibility of Buildings
in Vancouver, Calgary, and Ottawa



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Executive Summary

The Accessible Canada Act states that Canada will be barrier-free by January 1, 2040. How will we measure progress? How can we track what advancements are made over time? Perhaps most importantly, how can we demonstrate that our efforts in building an accessible Canada reflect the authenticity, and diverse, lived experiences of Canadians with disabilities?



Image: Jenna Reed-Cote and Katrina Darielle Valdez, Vancouver

The Accessible Canada Act sets a crucial goal for Canada to become barrier-free by January 1, 2040. However, measuring progress and tracking advancements towards this objective has been a challenge due to the lack of data on accessibility barriers in the built environment. In response, AccessNow, in collaboration with the University of Calgary and Spinal Cord Injury Canada, initiated the innovative research project called Mapping Our Cities for All (MOCA). Funded by Accessibility Standards Canada, AccessNow, as well as Mitacs and SSHRC, this project

aims to assess the accessibility of Canadian cities from a disability perspective, using geographic data and insights from individuals with lived experiences of disability.

MOCA represents the largest accessibility mapping effort in Canadian history, employing 40 individuals, including those with disabilities, in various roles, including mapping and leadership positions. The project's unique perspectives and expertise from people with disabilities have been instrumental in capturing essential insights.



Image: Jenna Reed-Cote, Ally Klassen, Valeria Gonzalez Rios, Bryant Lee, Kyle Gieni, Vancouver

The focus of MOCA was primarily on consumer-facing, street-level public businesses in Vancouver, Calgary, and Ottawa, as well as 17 small rural Alberta towns. Mappers were deployed to these locations to assess their overall accessibility levels (Accessible, Partially Accessible, Not Accessible) and collect additional data, such as amenities and non-standardized features. The project yielded over 14,000 distinct locations mapped, with more than 126,000 data points and 70,000+ accessibility-related tags added to the AccessNow platform.

Using an extended list of accessibility tags, MOCA uncovered several important observations and insights regarding the relative accessibility of the target cities and towns. Our findings show that nearly 60% of mapped buildings in each major city remain in the Not Accessible or Partially Accessible category.

The data collected through the MOCA project, along with all of AccessNow's previous data, is now accessible and viewable on AccessNow.com. The interactive map and app remain open to new contributions, allowing individuals with disabilities, city planners, decision-makers, and the public to access and contribute valuable information on the accessibility of buildings across Canada.

By leveraging the collective experiences and perspectives of individuals with disabilities, MOCA contributes to building a more inclusive Canada, where everyone can navigate their surroundings with dignity and ease. The project's outcomes aim to reflect the authenticity of Canadians with disabilities, demonstrating progress towards a truly accessible nation by 2040.

Introduction: Mapping Our Cities for All

Accessible Canada Act

The Accessible Canada Act, which came into effect in 2019, is a legal framework designed to support the achievement of a fully-accessible and inclusive Canada by 2040. Its objective is to identify, remove, and prevent barriers to accessibility in seven key areas: employment; the built environment; information and communication technologies (ICT); communication (other than ICT); procurement of goods, services, and facilities; design and delivery of programs and services; and transportation. The Act applies to all federal government departments and agencies, crown corporations, Parliament, First Nations band councils, and private sector businesses regulated by the federal government, including banks, transportation companies, radio and television stations, and cell phone and internet services.

Section 18 of the Accessible Canada Act lays out the mandate for Accessible Standards Canada as follows: The Standards Organization's mandate is to contribute to the realization of a Canada without barriers, on or before January 1, 2040, through, among other things, (a) the development and revision of accessibility standards; (b) the recommendation of accessibility standards to the Minister; (c) the provision of information, products and services in relation to the accessibility standards that it has developed or revised; (d) the promotion, support and conduct of research into the identification and removal of barriers and the prevention of new barriers; and (e) the dissemination of information, including information about best practices, in relation to the identification and removal of barriers and the prevention of new barriers.

One of the major barriers to advancing accessibility efforts is the lack of data on the state of accessibility within Canada, as well as globally. There is a severe lack of publicly available government data on accessibility barriers. To achieve a fully-accessible and barrier-free Canada by 2040, it is crucial to have data-driven benchmarks and guidelines for tackling issues relating to inaccessibility. With accessible data that identifies where barriers exist and resources to resolve them or improve accessibility features, measurable progress can be made towards this national effort. The Accessible Canada website offers resources, guidelines, and tools to help advance accessibility and inclusion in Canada. By using these resources and promoting data-driven solutions, Canada can take significant steps towards achieving its goal of full accessibility and inclusion.

AccessNow

AccessNow is a Canadian-based organization that was founded in 2015 by Maayan Ziv, a disability rights activist and entrepreneur with a personal connection to the cause. Ziv was born with muscular dystrophy and has used a wheelchair her entire life, which has made her acutely aware of the challenges that people with disabilities face when navigating public spaces. To help address this issue, Ziv built AccessNow, a technology platform that allows users to rate and review the accessibility of different locations, such as restaurants, hotels, parks, storefronts, and other public spaces. The app works by letting users search for specific locations

and see reviews and ratings from other users about the accessibility of those locations. Users can also leave their own ratings and reviews, and add photos to share their experiences and help others make informed decisions. Additionally, AccessNow works with businesses and organizations to assess their accessibility from a consumer-driven perspective of accessible usability in order to help them better understand and accommodate the needs of people with disabilities. Through its work, AccessNow is driving positive change in communities and making the world a more inclusive place for everyone. Since its founding in 2015, AccessNow has had a significant impact on improving accessibility for people with disabilities around the world. The app has collected tens of thousands of reviews, providing valuable insights for people with disabilities who need to navigate public spaces. Over the years notable companies, governments and not-for-profits have partnered with AccessNow. In addition, AccessNow has received funding from a variety of sources, including the Government of Canada, and has been recognized for its work with numerous awards and accolades. The organization has also expanded its reach beyond Canada, with information shared in 107 countries to date. Through its work, AccessNow has made significant strides towards improving accessibility and inclusivity for people with disabilities, and continues to drive positive change in communities everywhere. AccessNow's proposal to Accessibility Standards Canada was to carry out a research project built from the ground up by people with disabilities to begin to fill the data gap and help answer questions about how accessible the places are where Canadians live, work, learn and play.

MOCA

AccessNow recognized an opportunity to utilize its platform and advocacy to provide the government of Canada with a fresh perspective on issues and challenges faced by the disability community. Typically, when governments seek to understand these concerns from the disability community, they rely on volunteer roundtables, surveys, or written submissions.

However, AccessNow took an innovative approach to active engagement, employing and training a team of individuals with a range of disabilities to navigate public spaces and record their experiences using the organization's technology platform and methodology. This approach provided a direct and personalized means of gaining insight into the positive and negative experiences of accessibility in Canadian cities, resulting in a highly effective application of civic technology that allowed communities with shared interests to contribute to public policy.

Funded by Accessibility Standards Canada, and in partnership with the University of Calgary, Mapping Our Cities For All (MOCA) was designed to support the development of accessibility standards while embedding individuals with disabilities at every stage of the project. AccessNow explicitly recruited mappers from the disability community to ensure that the entire research project and all data collected accurately reflected the diverse perspectives and lived experiences of individuals with disabilities. The data gathered from the three cities and 17 rural towns will serve as a valuable tool for organizations such as ASC, enabling them to develop meaningful standards that align with the actual experiences, needs, and desires of individuals with disabilities. This project provided a unique opportunity to learn from a disability-led effort, gathering real-time data on a national scale by combining mapper observations and criteria supported by the AccessNow app, and the methodology and approach proved scalable and repeatable, with the potential to significantly advance accessibility policy with continued funding and commitment.

In addition to having a scalable and repeatable methodology, it is crucial to have data-driven benchmarks and guidelines to address inaccessibility concerns, in line with the Accessible Canada Act's mandate for a fully-accessible, barrier-free country by 2040. The collection of authentic, disability-led results is equally essential to make progress towards this goal.

Methodology

To gather data on the accessibility of buildings across Canada, we built a mapping team, created a data collection app, selected study sites, and coordinated a national-scale data collection.

Method Summary

- Designed a new model of data intake via the AccessNow mobile app
- Developed and tested the new app with, by, and for people with disabilities
- Recruited and trained 40 mappers
- Completed 4,090 hours of mapping
- Mapped 14K+ places

“ Nothing About Us Without Us ”

MOCA Mapping Team

AccessNow recognized an opportunity to utilize its platform and add key value, driving all aspects of this research project is the principle of “nothing about us without us”. This principle was originally embedded in the United Nations Convention on the Rights of Persons with Disabilities (CRPD) which Canada ratified on March 11, 2010. The CRPD committed Canada to rid the country of barriers that prevent people with disabilities from fully enjoying their human rights - and meaningful engagement with people with disabilities in designing an appropriate response to addressing barriers was to be taken. The principle of “nothing about us without us” means that people with disabilities should be included in decision-making processes and policy development that affects their lives. When Canada passed the Accessible Canada Act in June 2019, “nothing about us without us” was a key driving force behind the development of the legislation. As the Act undergoes broad implementation, this principle continues to be a guiding light.

So, how did this research project honour and uphold the principle of “nothing about us without us”? This principle was key in the development of the research methodology for this project. In concrete terms, it meant that people with lived experience of disability were involved in every aspect of the research plan including: determining accessibility tags to map, testing the AccessNow mobile app for accessible design and performance, doing the field work including mapping locations and adding reviews and insights, and conducting detailed exit interviews after the field work was complete to share further insights and lessons learned.

Teams were composed of both people with and without disabilities, and employed in their local communities of Calgary, Vancouver, and Ottawa. All mappers selected to participate in the MOCA project had a clear interest in accessibility issues, and many self-identified as persons with disabilities. In total, 40 people were employed as mappers.

Each team – Calgary, Ottawa, Vancouver – had a “Community Captain”- a person with lived experience of disability who was responsible for guiding each city team, reporting back on any issues faced, and problem-solving on the ground as needed. Community Captains played an essential role in facilitating training and team building. All mappers and captains participated in accessibility mapping training delivered virtually by AccessNow. The training included education on accessibility barriers, how to rate the accessibility of a space, and how to report accessibility data using the AccessNow app.

“ Inclusion is not bringing people into what already exists, it is making a new space, a better space for everyone.”

RACHEL OLIVERO
Mapper

The MOCA mapping team's work has demonstrated the value of involving people with disabilities in the research process. By engaging individuals with diverse lived experiences of disability, the team was able to collaborate, educate each other, and collect data that was more comprehensive, nuanced, and reflective of the diverse experiences and needs of people with disabilities. This approach can serve as a model for other research initiatives seeking to gather data on accessibility and inclusion.

The team faced a number of challenges during their work, including difficulties with physically accessing some buildings and spaces due to limited accessibility features. However, they were persistent and innovative in finding ways to overcome these obstacles, such as using alternate entrances or seeking assistance from building staff.

The field mapping phase of the project took place during the summer of 2021. This historic mapping work took place during rolling lockdowns associated with COVID-19, which presented its own set of challenges for data collection and the MOCA mapping team. The MOCA mappers persisted with safety, and caution, meeting outdoors when in group huddles, distancing, and wearing proper PPE as needed.

Data collection was happening when COVID-19 restrictions were being lifted and businesses in the downtown core of Vancouver, Calgary and Ottawa were beginning to open up. However, because employees were not yet working in downtown offices, street traffic was low, and many businesses that would otherwise have been open were still closed or operated with truncated hours. As a result, not all businesses within a dissemination block were able to be evaluated.

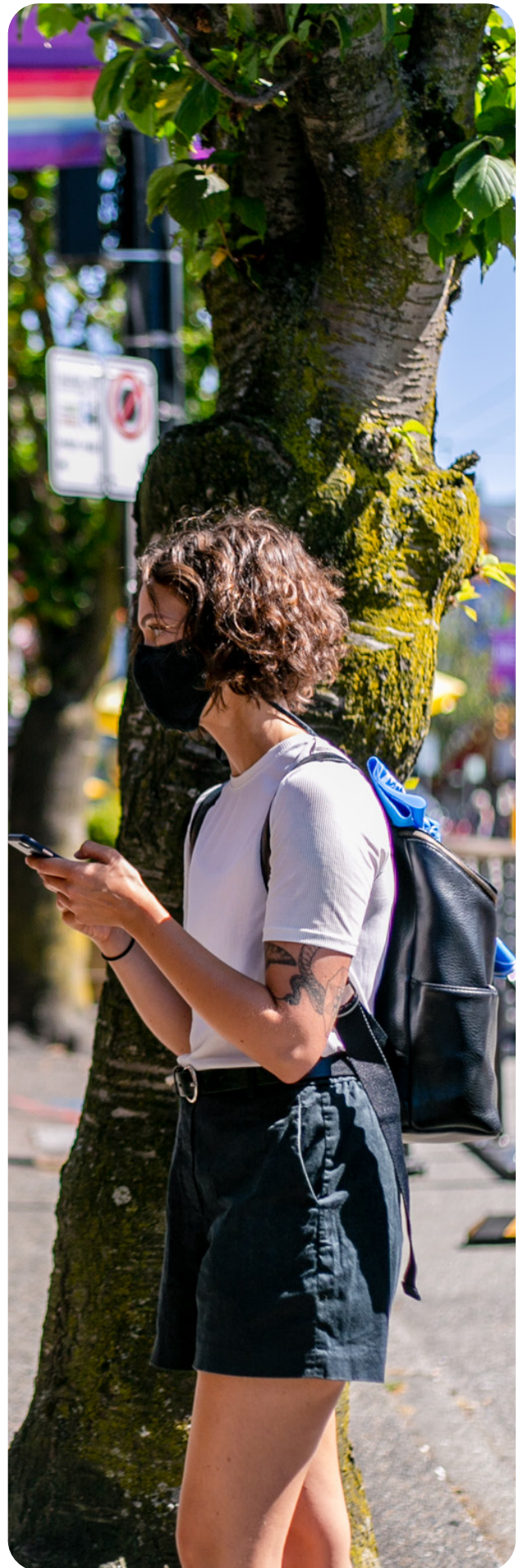


Image: Ally Klassen mapping, Vancouver

Ottawa Team



Image: Zoey Schvan, Mithila Ali, Vanessa Brohman, Stephane Antille, Shannon Costello, Federico Boccheciampe, John Redins, Ottawa



Image: Shannon Costello, Federico Boccheciampe, Zoey Schvan, Ottawa

Vancouver Team



Image: Julia Schertzer, Valeria Gonzalez Rios, Bryant Lee, Katrina Darielle Valdez, Ally Klassen, Jenna Reed-Cote, Kyle Gieni, Vancouver



Image: Sarah Cheung, Julia Schertzer, Vancouver

Calgary Team



Image: Skye Lee, Andrew O'Conner, Aaron Prevost, Yui Tanagi, Mark van der Meer, Kristian Janovcik, Norie Akita, Alexandria Wist, Jocelyn Dennis, Calgary

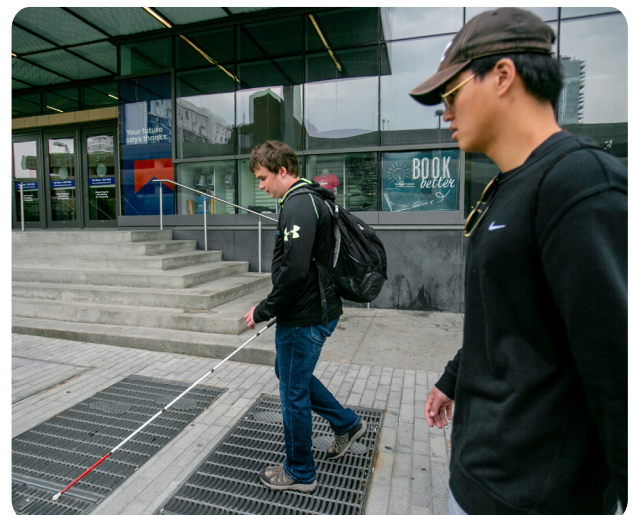


Image: Aaron Prevost, Skye Lee, Calgary

Highlighting Team Members

What did this project mean to the mappers and others with lived experience of disability? Below is a testimonial from Josh Davies, Community Captain for the Ottawa mapping team.



JOSH DAVIES
Community Captain, Ottawa

“ It was a privilege to work with AccessNow on the Mapping Our Cities For All (MOCA) project. AccessNow provided me the opportunity for personal growth in leadership and advocacy while working on a project that resonates strongly with my ambitions and values. I am proud that we mapped the accessibility of Ottawa as a part of MOCA, and hope that others find the information that we collected as useful as I do! My teammates in Ottawa and the leadership team at AccessNow taught me to look at accessibility from a variety of perspectives, which allowed me to gain a more holistic appreciation of the meaning of accessibility. The Mapping Our Cities for All project provides data to drive the discussions surrounding the accessibility of our cities. This data also helps individuals with disabilities make informed decisions while navigating the accessibility of their own city. I am grateful to have had the opportunity to contribute to the MOCA project, and work with the wonderful people at AccessNow. ”

A commitment to “Nothing about us without us” shaped the project methodology and the way data was gathered. But it was so much more. Every review added to the AccessNow map became one more instance of advocacy, one more authentic experience that highlights the accessibility of a place. With each new review, AccessNow gets closer to discovering the current state of accessibility and how much work is left to be done.

Planning meetings: During the planning phase in the winter/spring of 2020-21, the urban centres to be assessed were confirmed and routes planned out.

Study Sites

Data were collected across three primary urban centres in Canada, moving from West to East: Vancouver, Calgary (and the surrounding area), and Ottawa.

In addition to these three urban centres, we also mapped municipalities throughout central and southern Alberta. These include locations such as Acme, Alix, Bashaw, Beiseker, Big Valley, Black Diamond, Bowden, Bassano, Cremona, Duchess, Irricana, Linden, Longview, Mirror, Penhold, Rosemary, and Turner Valley. Including these rural areas provides a more comprehensive perspective on accessibility, extending beyond the city limits of Calgary.

In collaboration with local Community Captains, we identified **Dissemination Areas (DAs)*** within our study sites that are characterized by higher concentrations of businesses, distinct from predominantly residential or industrial zones. Our mapping efforts focused on these specific Business Areas, which are indicated in blue on the maps in **Figure 1**.

***Dissemination Areas (DAs)** are stable geographical zones that generally house between 400 and 700 residents. DAs are defined by Statistics Canada to be uniformly comparable across Canada. DAs were used to aggregate MOCA data.

To visualize the aggregated MOCA data, we employed choropleth mapping techniques throughout the study. Choropleth maps represent data through the shading or colouring of predefined geographic areas, in this case, DAs. The intensity of the shading or colour conveys the level of a specific variable, enabling easy visual comparisons across areas. Choropleth mapping is effective for presenting complex spatial data in an easily interpretable form.

By combining choropleth mapping with data aggregation at the DA level, we can discern spatial trends and patterns in building accessibility. This approach facilitates benchmarking and comparisons on both local and national scales, thereby contributing valuable insights to building accessibility across Canada.

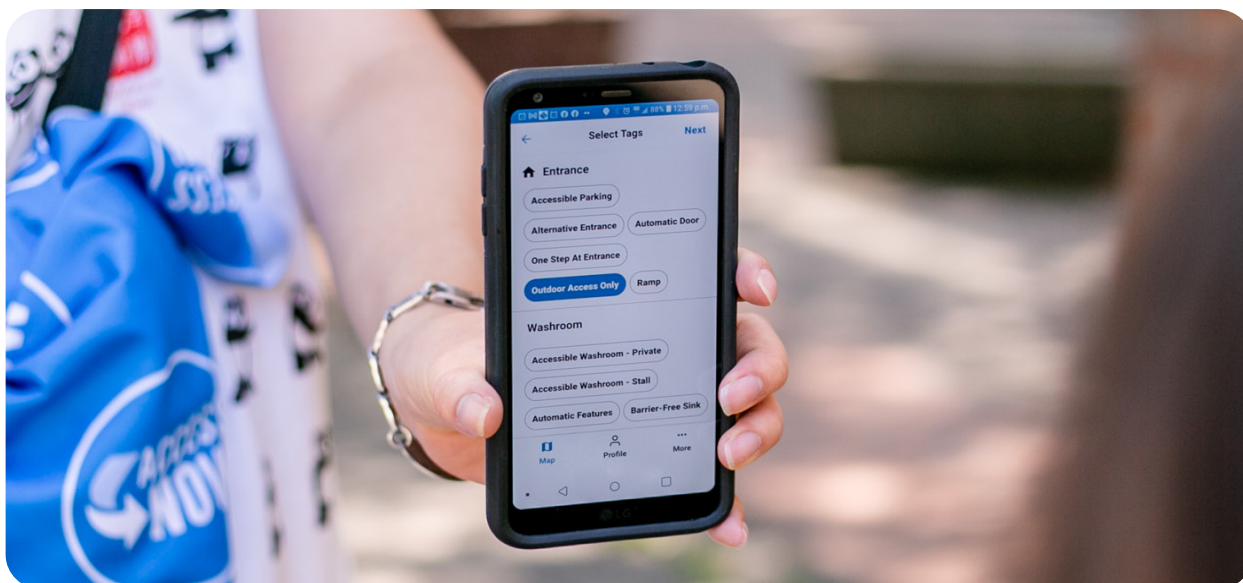


Image: Close up of the AccessNow app, selecting tags to add a review

MOCA Urban Study Sites

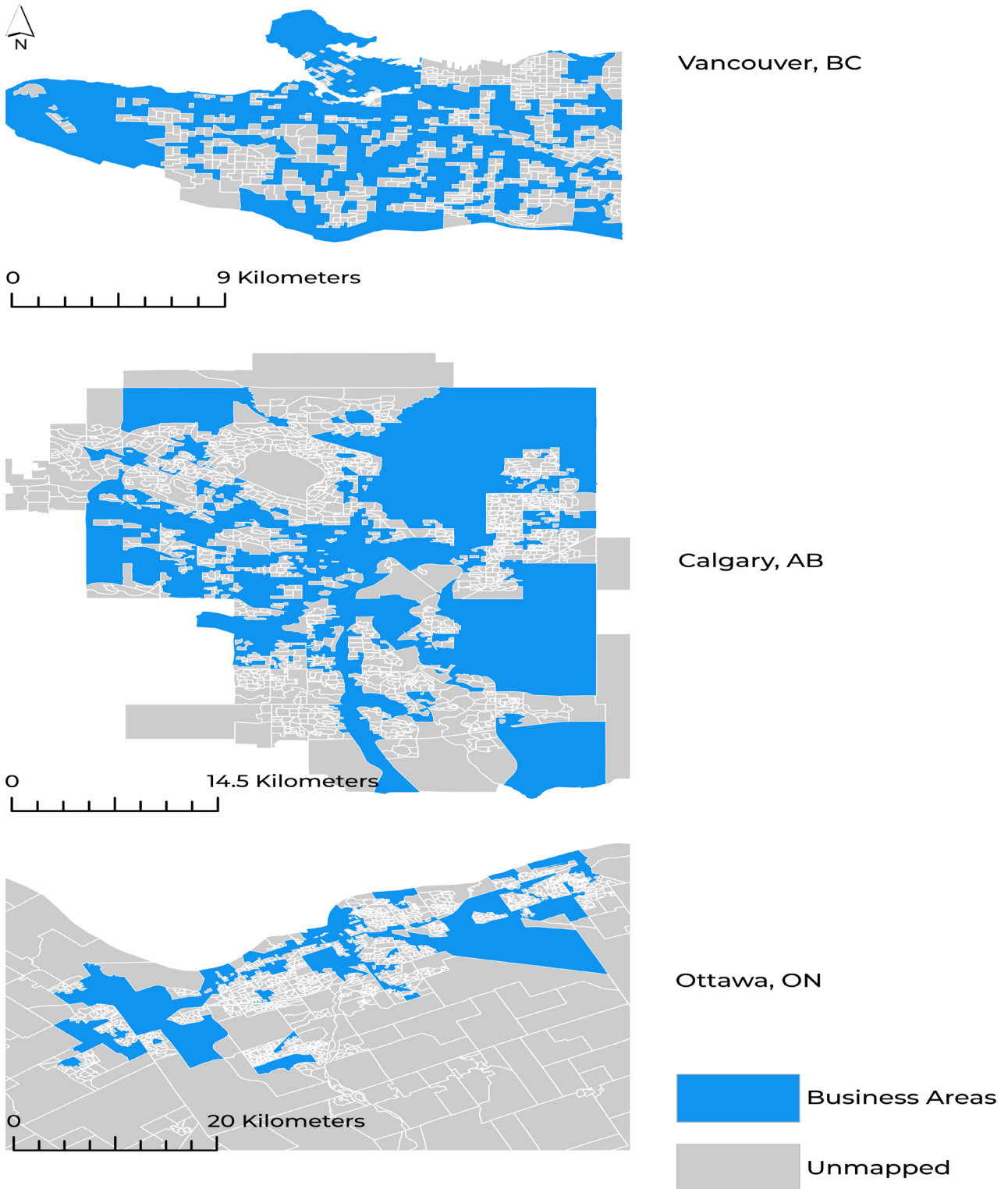


FIGURE 1: MAPPING OUR CITIES FOR ALL URBAN STUDY SITES in the cities of Vancouver, Calgary, and Ottawa. Dissemination areas that were identified as “Business Areas” was the focus of data collection (shown in blue), whereas unmapped areas are shown in gray.

Data Collection

We used a custom deployment of the AccessNow app in order to collect data. Data collection focused on consumer-focused street-level public-facing businesses; meaning businesses that primarily sell to consumers directly, rather than to other retailers and the primary entrance should be located directly on the street. Businesses in office towers or malls were not added to the map unless their businesses had an entrance on the outside of office towers or malls.

Building on AccessNow's "MapMissions" model, which are events that bring people together to rate places in real-time on the AccessNow app, teams collected data that highlighted features that make an establishment more accessible to individuals with disabilities. This community-engaged approach allowed the AccessNow app to reflect what consumers with visible and invisible disabilities are experiencing and asking for when engaging with the built environment.

Mappers considered a wide variety of criteria when assessing a place. Here is a sampling of prompts :

- Is there accessible parking available? If so, how many spots?
- Are there steps at the entrance? Is there a ramp available?
- Are automated doors installed and functional?
- Are there accessible bathrooms with functioning automated doors?
- Are there elevators or stair-lifts? If so, are they functional?
- Can a disabled person independently access products and services?
- Are payment systems digitally accessible?
- What are the sound and light levels like?
- Does the business provide alternative methods to deliver products and services?
- Are service animals/support persons welcome?

Three main types of data were collected: an overall accessibility rating, tags, plus additional text and photos.

Overall Accessibility Rating

The accessibility rating is an overall assessment of the building, which includes accessible, partially accessible, and not accessible.

Rating	Description
Accessible	A green pin on the AccessNow map represents an accessible location. These are places without barriers. Experiences may vary from person to person, but we generally say that accessible places are those that you can get in with ease, and experience no major barrier to access experiences and facilities.
Partially Accessible	A yellow pin on our map represents a location that is partially accessible. Yellow locations often have alternative entrances, present barriers, or limited access within the space, such as steps inside, inaccessible technology, or narrow hallways for example. Not everything about these places is barrier-free.
Not Accessible	A red pin on our map represents a location that is not accessible. These are places with concrete barriers preventing people from accessing the sites. Find a red pin on our map? Help spread the word, or share your own review. The more we know about inaccessible places, the closer we can get to breaking barriers.

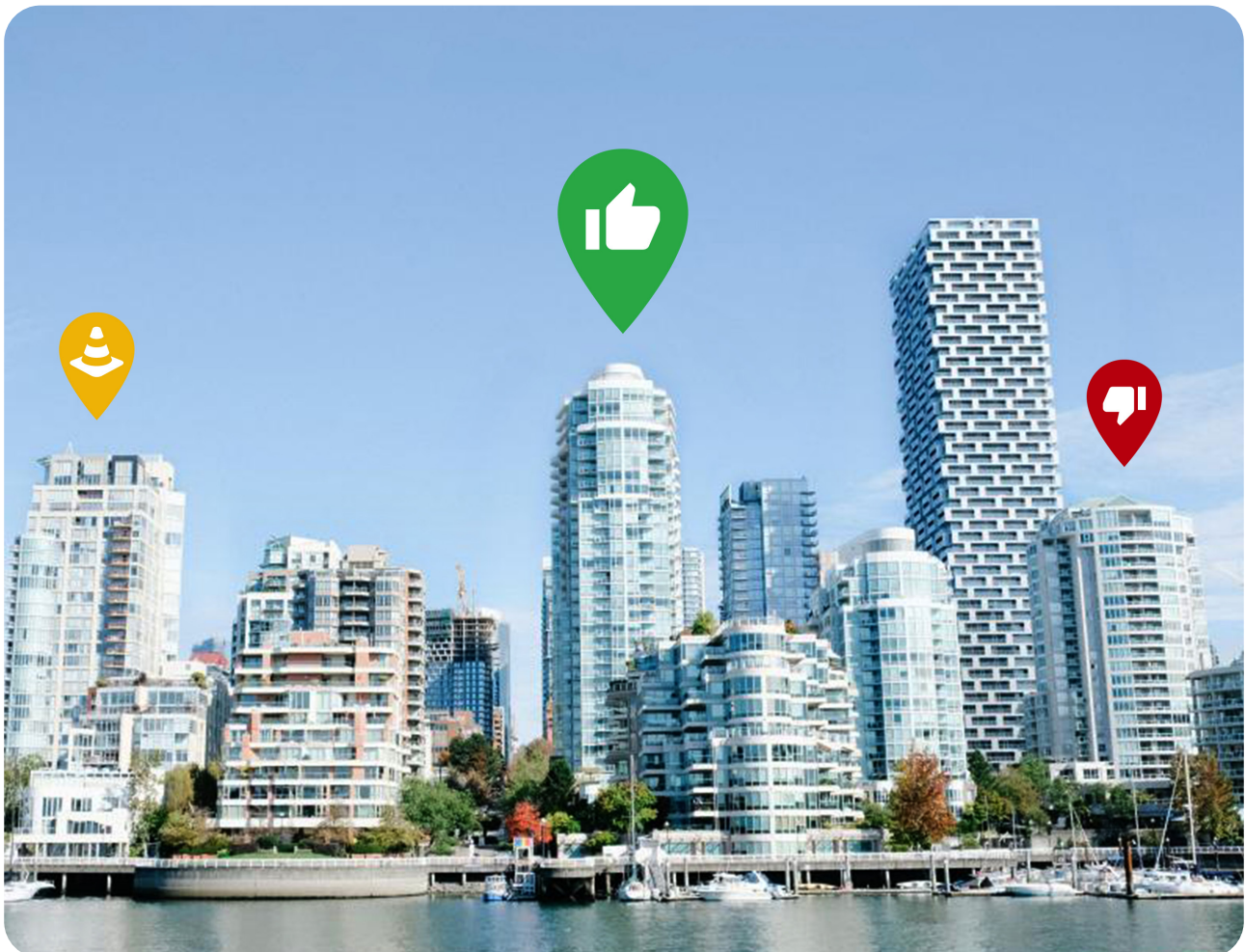



Image: Accessible, partially accessible, and not accessible AccessNow pins above storefronts, Vancouver (for illustration purposes only)

Tags


To further enrich the data, in consultation with people with various lived experiences of disability, we developed an extended list of features that a business could be tagged with upon observation. The list of tags, presented in Table 1, included standard accessibility features, as well as many that are not typically considered as part of building codes or other standards.

TABLE 1: MOCA ACCESSIBILITY TAGS - These features are presented in the affirmative and describe accessibility features. They are broken into three categories: entrance, washroom, and general.

Category	Tag Options
Entrance	Accessible Parking; Alternative Entrance; Automatic Door; One Step at Entrance; Outdoor Access Only; Ramp
Washroom	Accessible Washroom- Private; Accessible Washroom - Stall; Automatic Features; Barrier-Free Sink; Change Bench/Table; Gender Neutral
General	Auditory Signals; Bar Height Tables; Braille; Customer Service; Designated Wheelchair Seating; Digital Menu; Elevator; Handrails; Large Print; Lighting - Bright; Lighting - Low; Lowered Counters; Quiet; Scent-Free; Service Animal Friendly; Sign Language; Spacious; Stair-lift; Tactile Surfaces

 Tag	Description
Accessible Parking	Refers to parking spaces that are marked accessible because they are wider for vehicle ramps and lifts. These spots usually offer ease of access to the main location.
Accessible Washroom	An accessible washroom can be a private singular room, or a designated accessible stall within a washroom. They have step-free access, emergency call systems, grab bars, automatic features, are typically more spacious, and have barrier-free access to sinks.
Alternative Entrance	An alternate accessible entrance is available, usually at the side or back of a building. Alternative entrances might include features like a ramp or entryway at street-level.
Auditory Signals	Auditory signals/cues use sound to give you information. For example, subway announcements, pedestrian crosswalk beeping, or feedback while using a mobile device. This includes electronic chimes, voice guides, and alarm sounds.

Tag	Description
Automatic Door	There is an automatic door present (usually at the entrance of the location). An automatic door may be activated by a button, gesture, or simply by moving close enough to the door.
Automatic Features	This includes automatic flush toilets, automatic soap and paper dispensers, automatic faucets. If they are not electronically controlled, they can be lever-operated, push or touch controlled but usable with one hand without the need to tightly grasp, pinch or twist the wrist.
Barrier-Free Sink	Sink should be mounted at a decent height from the floor and should have enough clearance underneath for the knees, to be barrier-free.
Braille	There is braille present. This could be on menus, washroom signs, price tags, location signage, etc.
Change Table/Bench	Accessible benches allow people to transfer to the bench for use in washrooms, changing rooms, saunas, etc. It has clear floor space, offers support, or is affixed to a wall. Some are designed only for children, while others are accessible for adults as well.
Customer Service	Staff are knowledgeable with different types of access (i.e. auditory, cognitive, mobility, sensory, visual) as well as educated on how to assist people with disabilities and use inclusive language.
Digital Menu	There is a digital menu that lists goods and services. Whether on a business website or within a PDF, the content should be designed with accessibility in mind.
Elevator	There is an elevator available to provide access to other levels of the location.
Gender Neutral	Gender neutral washrooms are toilet facilities that can be used by people of any gender. This can make things easier for caregivers whose gender is not the same as the person they are helping. They are clearly identified and accessible.
Handrails	There is adequate railing installed, wherever needed for the comfort and safety of users. They should be mounted at a decent height, should not obstruct any path, have no sharp edges, and allow a firm and easy grip.
Large Print	This could be on menus, washroom signs, price tags, location signage, etc.
Lighting	Bright lighting means the space is well lit (artificial or natural) for easy visibility of all areas, pathways and features. This makes it easier for people to navigate around the space. Low lighting means the space is dimly lit or the brightness is reduced.
Lowered Counters	Accessible counters are lowered to receive the goods and services provided by the business. This includes cashiers, ticketing counters, teller stations, registration counters, checkout aisles, serving counters, work surfaces, etc.

 Tag	Description
One Step at Entrance	There is a single step at the entrance of the location.
Outdoor Access Only	Access to services is available, but only outdoors. Could include restaurant patios, park space, concert venues, etc.
Quiet	There is a quiet area available, or the entire location is a low-noise environment (like a museum).
Ramp	A ramp is one of the more common accessibility features. A ramp creates a gradual change in grade, sometimes over steps, to create a step-free experience.
Scent-Free	The location is clearly marked as a scent-free environment or it is written into a company policy, meaning heavy perfumes and other strong scents are not permitted.
Service Animal Friendly	The location welcomes people to be accompanied by their service animals.
Sign Language	A location tagged with Sign Language is a place that has a sign language interpreter available on staff or available by request. ASL is the short form for "American Sign Language."
Spacious	Spacious locations have enough room to maneuver within the location, such as wide hallways or places with large turning radiuses.
Stair Lift	A stair lift is a motorized chair on a track that is secured to a staircase. It provides access to other levels of a multi-level location.
Tactile Surfaces	Tactile surface indicators are detectable underfoot when walking or by use of a white cane. They are used to alert people of potential hazards such as dangerous pathways or drop-offs. They must also provide a high tonal contrast with the surrounding surface. Tactile surfaces can be found in stairs, platforms, curb ramps, escalator approaches, pedestrian crossings, parking, reflecting pools, and building entrances.
Wheelchair Seating	There is designated wheelchair seating available. They are easily accessible, spacious and clearly labelled. This can be found in restaurants, theaters, concert venues, parks, etc.

Additional Text and Photos

In addition to the standard accessibility ratings of "accessible," "partially accessible," and "not accessible," mappers using the AccessNow app were able to include up to 250 words of qualitative data describing their experience at each location. This additional information provided important context to each review and helped users of the app determine whether a business would be accessible for them. Additionally, photos contributed by mappers offered visual cues of potential problem areas or key accessibility features.

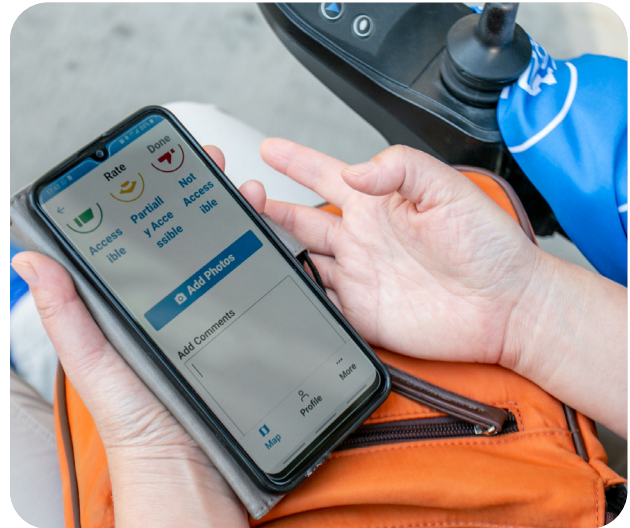


Image: AccessNow app rating a store



Image: Storefronts, Vancouver



Image: Kyle Gieni, Vancouver

Base Data Comparison and Analysis

To facilitate comparison and analysis of the MOCA data, we acquired the Enhanced Points of Interest (EPOI) dataset from DMTI Spatial Inc as a base, or reference, dataset. This national database comprises over 1 million Canadian business and recreational points of interest. Following the collection of MOCA data, the EPOI data was utilized to cross-reference business names and street addresses. Before using the EPOI data, we first excluded business listings from sectors including agriculture, forestry, fishing, hunting, mining, and others. The specific sectors selected from the EPOI data for the study are summarized in **Table 2** and subsector names and descriptions are in **Table 3**. This information played a pivotal role in both the Completeness and Economic Subsector Analyses.

TABLE 2: ENHANCED POINTS OF INTEREST (EPOI) DATASET - Businesses belonging to sectors that have consumer focused, public-facing businesses, used in this study.

Code	Sector	Code	Sector
41	Wholesale trade	56	Administrative and support, waste management and remediation services
44 - 45	Retail trade	61	Educational services
51	Information and cultural industries	62	Health care and social assistance
52	Finance and insurance	71	Arts, entertainment, and recreation
53	Real estate and rental and leasing	72	Accommodation and food services
54	Professional, scientific, and technical services	81	Other services (except public administration)
55	Management of companies and enterprises	91	Public administration



Image: Kyle Gieni, Katrina Darielle Valdez, Valeria Gonzalez Rios, Vancouver

TABLE 3: SUBSECTOR NAMES AND DEFINITIONS - *The names and definitions of the businesses used in the analysis of this data. Abbreviated from information provided by Statistics Canada (2017).*

Code	Subsector Name	Brief Definition
445 ^{US}	Food and Beverage Stores	Businesses engaged in selling food and beverages. Not built for dining or drinking inside of and include grocery stores and liquor stores.
446 ^{US}	Health and Personal Care Stores	Businesses engaged in health and personal care, such as pharmacies, eyeglasses stores, supplements, appliances, and other items associated with health and personal care.
448 ^{US}	Clothing and Clothing Accessories Stores	Businesses engaged in clothing and clothing accessories. Jewelry, luggage, shoes, are included.
451 ^{US}	Sporting Goods, Hobby, Book, and Music Stores	Businesses engaged in selling sporting equipment, books, music equipment, and hobby/craft stores.
453 ^{US}	Miscellaneous Store Retailers	Businesses engaged in selling specialized merchandise: florists, stationary/office supplies, art sellers, pet stores are examples.
52	Finance and Insurance	Businesses engaged in financial transactions or the pooling of risk into insurance.
531	Real Estate	Businesses engaged in the market of renting or purchasing/selling properties.
541	Professional, scientific, and technical services	Businesses engaged in fields which require expertise. Legal services, accounting, research and development, and public relations are examples. Human capital primary input.
611	Educational Services	Establishments engaged in teaching and instruction of a wide variety of skills and fields. These can be schools, colleges, universities, and training centres.
621	Ambulatory Health Care Services	Businesses engaged in the provision of care to ambulatory patients. These are outpatient services not usually requiring specialist equipment or other materials found in hospitals and other intensive care facilities.
722	Food Services and Dining Places	Businesses engaged in the preparation and selling of meals and drinks, for dine in or take out. This includes both food carts and fully licensed restaurants.
811	Repair and Maintenance	Businesses engaged in the repair of vehicles, machinery, electronics, and other related technologies. These can be for both specialist repair and maintenance as well as routine repair and maintenance.
812	Personal and Laundry Services	Businesses engaged in 'personal' care, such as hair stylists and treatment facilities, aestheticians, massage, ear piercings, are included as well as funeral services, pet care, photo finishing, and laundry.

Pairing the MOCA data with EPOI businesses yields two possible calculations.

First, a calculation of **completeness**—or how good the coverage of the dataset is. We use the data as a measure of completeness of the MOCA data by dividing the data contributed during the MOCA project by the EPOI reference dataset within the mapped Business Areas. This produces a “completeness” score between 0-100%, with the higher the percentage, the more ‘complete’ the data coverage is. Completeness maps for the three major cities were determined by taking the total number of businesses mapped divided by the total number of businesses in the filtered version of the EPOI file.

The second calculation is used to determine **accessibility by economic subsector**. Matching mapped businesses with their economic subsector is possible using North American Industry Classification System (NAICS) code data, a string of digits which is a useful standard used by statistical agencies in classifying types of business establishments. We joined the data based on addresses or business names.



Image: Jenna Reed-Cote, Vancouver

Results

The research project resulted in the mapping of the perceived accessibility of over 14,000 locations across Canada, including capturing over 70,000 accessibility features within those locations. The mappers also provided photos, reviews, and other insights, resulting in over 126,000 accessibility data points. This project marks the largest such effort in Canadian history to map accessibility features, providing a wealth of data to help inform and drive discussions surrounding the accessibility of buildings.

The data collected, and details for each mapped business (including rating, tags, and text), can be viewed on the AccessNow website. Any user can also update the rating, adding more details or suggesting changes to the current rating. These unaggregated data are shown in the "Breakdown by the Numbers" section.

To understand the trends on the accessibility of businesses across these cities, we aggregate the data to standardized geographic unit (dissemination areas) for the purpose of analysis and comparison. The remaining results are organized by: Completeness, Accessibility Rating, Text and Photos, Economic Subsector, Geographic Regions for Improvement.



Image: Peace Tower, Ottawa

Summary

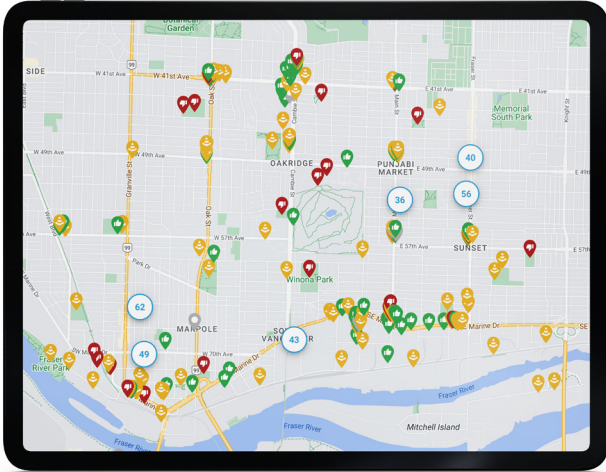
- 15,397 New reviews
- 27,000 Photos
- 70,466 Tags
- 14,000 New places added

A note on terminology:

We use the term “perceived accessibility” to describe the state of accessibility of a space since it is based on crowdsourced observation and interaction. It is important to note that every user is different. For example, a person who is blind will likely rate the space differently than someone in a wheelchair.

Breakdown by the Numbers

Vancouver



48.5% PERCEIVED ACCESSIBLE



4,367 PLACES MAPPED



4,877 REVIEWS ADDED



12,290 IMAGES UPLOADED



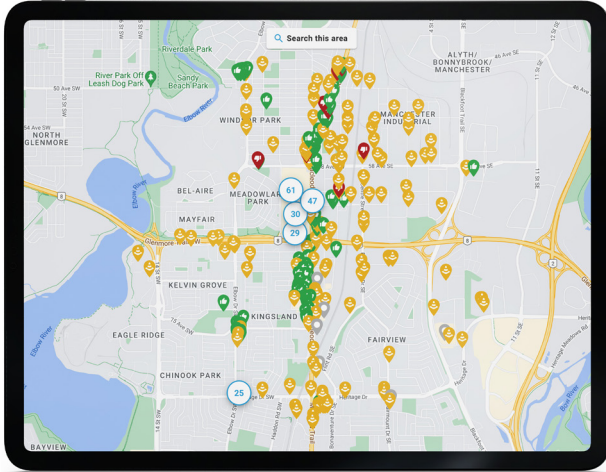
18,987 TAGS ATTRIBUTED
MOST USED: CUSTOMER SERVICE

VIEW THE INTERACTIVE MAP HERE:
<https://tinyurl.com/MOCAVancouver>



Image: Vancouver Skyline

Calgary



35% PERCEIVED ACCESSIBLE



5,381 PLACES MAPPED



5,715 REVIEWS ADDED



4,811 IMAGES UPLOADED



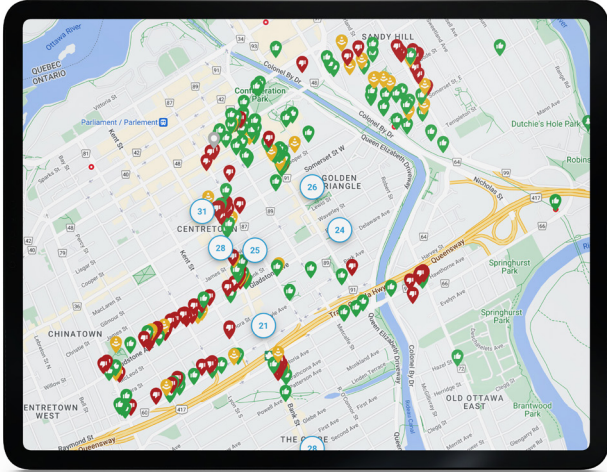
24,348 TAGS ATTRIBUTED
MOST USED: ACCESSIBLE PARKING

VIEW THE INTERACTIVE MAP HERE:
<https://tinyurl.com/MOCACalgary>



Image: Bow River Pathway Bridge, Calgary

Ottawa



53% PERCEIVED ACCESSIBLE



3,099 PLACES MAPPED



3,259 REVIEWS ADDED



7,247 IMAGES UPLOADED



13,125 TAGS ATTRIBUTED
MOST USED: AUTOMATIC DOOR

VIEW THE INTERACTIVE MAP HERE:
<https://tinyurl.com/MOCAOttawa>



Image: Rideau Canal Locks, Ottawa

Completeness of Mapped Businesses

The assessment of completeness yields valuable insights into the coverage of the MOCA dataset compared to the total number of businesses in a given area. The completeness score is calculated as the proportion of businesses covered by the MOCA data compared to the total number of businesses in the EPOI (Enhanced Points of Interest) reference dataset, expressed as a percentage. For example, if there are 100 businesses listed in the EPOI dataset for a specific Business Area, and the MOCA data covers 50 businesses, the completeness score would be 50%. A higher completeness score indicates that the MOCA data is more comprehensive and representative of the actual distribution of businesses in the area, while a lower score suggests that certain businesses might not be adequately represented in the MOCA dataset.

Completeness is an essential metric as it helps researchers and policymakers understand the scope and reliability of conclusions drawn from the dataset. It also highlights areas where data collection efforts might need enhancement to ensure a more accurate representation of the accessibility landscape across various business areas.

The varying shades of blue on the choropleth completeness maps for Vancouver, Calgary, and Ottawa (**Figures 2, 3 and 4**) indicate the degree of coverage within different dissemination areas. Darker blues correspond to areas that have been more thoroughly mapped, signifying higher completeness, while lighter blues indicate areas where mapping coverage is relatively less comprehensive.

Table 4 presents the average completeness of MOCA data within mapped dissemination areas across the urban study sites of Calgary, Vancouver, and Ottawa. The MOCA data coverage for each city averages 50%. Ottawa recorded the lowest at 46%, Vancouver at 48%, and Calgary at 54%. Notably, rural areas saw nearly half of businesses surveyed, with a completeness of 49%.

TABLE 4: COMPLETENESS RESULTS FOR ALL STUDY SITES - The column titled "Business Areas" refers to the average completeness results for businesses within the strategically targeted dissemination areas due to their high density of consumer focused, public facing businesses.

Location	Business Areas	Location	Business Areas
All	43%	Black Diamond, AB	36%
Urban	50%	Bowden, AB	62%
Calgary, AB	54%	Cremona, AB	50%
Ottawa, ON	46%	Duchess, AB	14%
Vancouver, BC	48%	Irricana, AB	100%
Rural, AB	49%	Mirror, AB	45%
Acme, AB	26%	Linden, AB	51%
Alix, AB	35%	Longview, AB	50%
Bashaw, AB	87%	Penhold, AB	26%
Bassano, AB	33%	Rosemary, AB	71%
Beiseker, AB	77%	Turner Valley, AB	36%
Big Valley, AB	69%	Overall average	50%

City of Vancouver Completeness

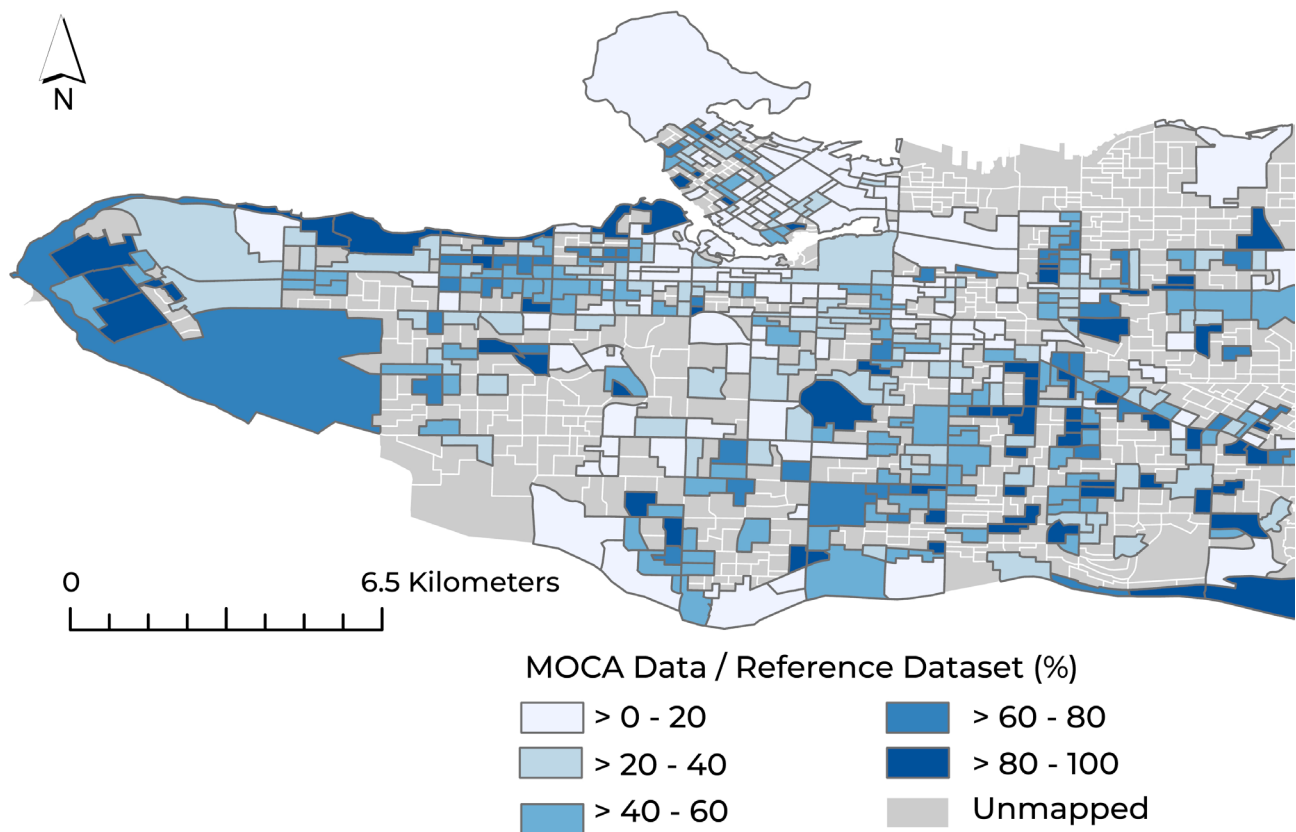


FIGURE 2: COMPLETENESS MAP FOR THE CITY OF VANCOUVER. The City of Vancouver, which has an average Business Area completeness of 48%, also shows lower completeness in the downtown peninsula, however mapped dissemination areas in East Vancouver, along Broadway, and into University of British Columbia, show very high completeness scores.

City of Calgary Completeness

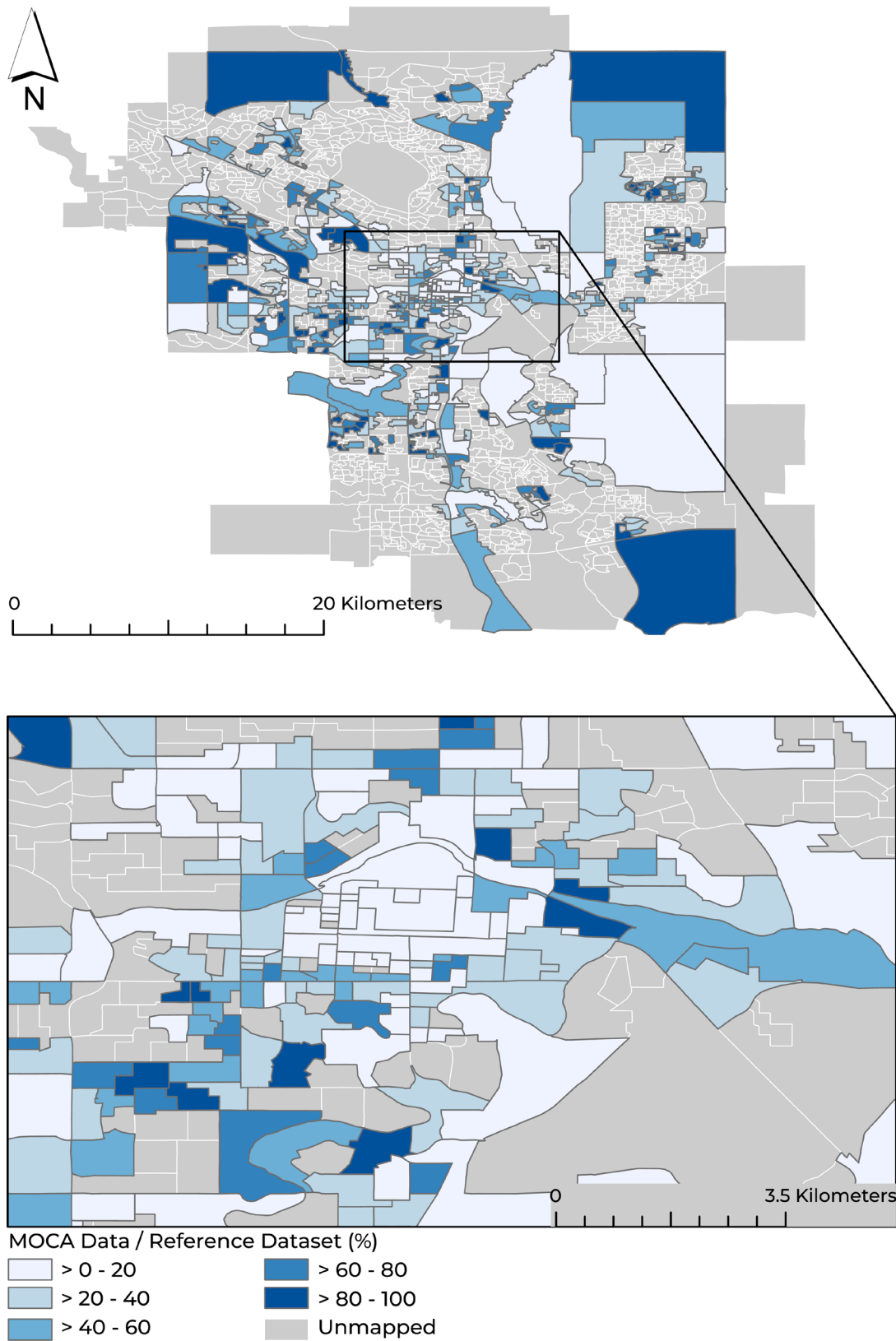


FIGURE 3: COMPLETENESS MAP FOR THE CITY OF CALGARY. The City of Calgary, which has a Business Area average completeness of 54%, sees the downtown core having completeness ratings below 20%. However, in the areas directly surrounding the downtown core, completeness quickly rises to above 20%, including some pockets with completeness ratings over 80%.

City of Ottawa Completeness



FIGURE 4: COMPLETENESS MAP FOR THE CITY OF OTTAWA. *The City of Ottawa reverses the earlier trend, with denser data coverage in the downtown regions outside Parliament and along Bank Street, and inconsistent patterns of completeness in the more suburban dissemination areas.*

Accessibility Ratings

This study has found the majority of businesses surveyed were either Partially Accessible or Not Accessible. This is a problem for disability and access rights. To achieve a barrier-free Canada by 2040, immediate work must begin to make buildings and businesses more accessible.

Perceived Accessibility Ratings

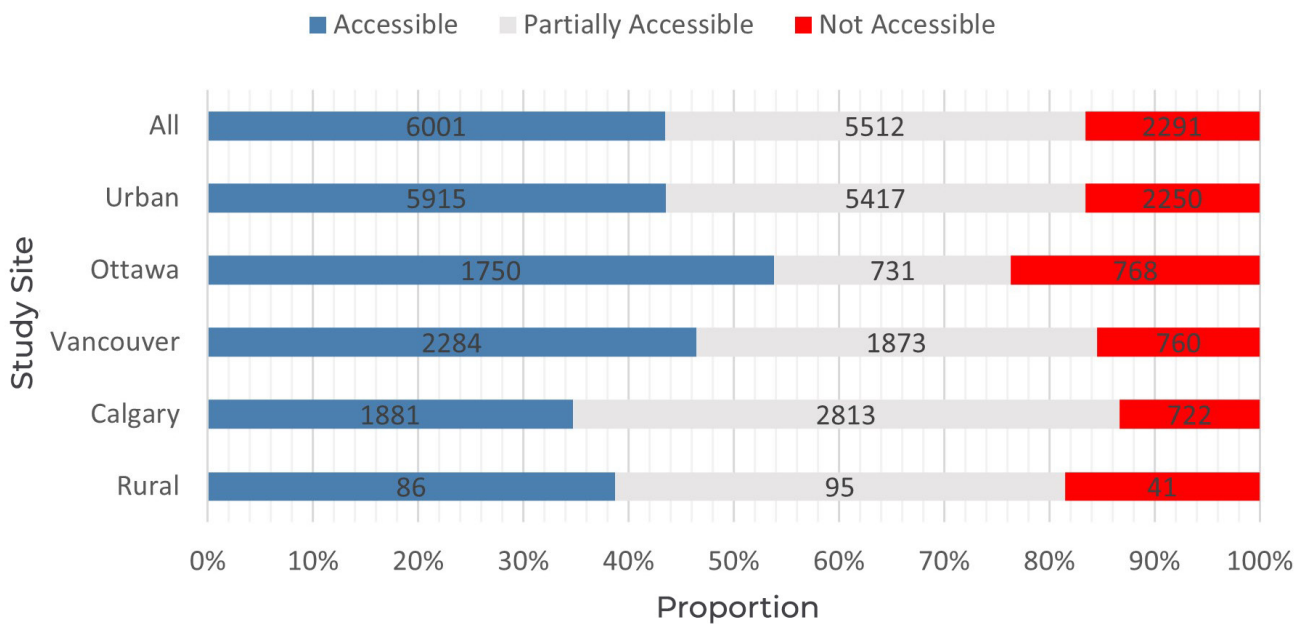


FIGURE 5: STACKED BAR CHART SHOWING PROPORTION OF PERCEIVED ACCESSIBILITY RATINGS - The above bar chart shows both the frequency and the proportion of businesses rated as either Accessible, Partially Accessible, or Not Accessible in each study site. Except for Ottawa, no region had a majority of businesses rated as Accessible. All other regions have a majority of their businesses rated as some degree of non-accessible. While Ottawa does have a majority of businesses rated as Accessible, it also has the smallest proportion of Partially Accessible businesses and the largest proportion of Not Accessible businesses. It is interesting that while the proportions of businesses in the Accessible and Partially Accessible category changes, the Not Accessible proportions are mostly consistent across all study sites. This suggests a stable interpretation of a baseline of Not Accessible businesses, at just under 20% of collected data.

The frequency and proportion of contributions in the Not Accessible, Partially Accessible, and Accessible categories are shown both in a stacked bar chart (**Figure 5**) and, for the urban centres, cartographically (**Figure 6, 7, 8**). These are generated from the perceived accessibility ratings assigned to each business.

Figures 6, 7 and 8, used a choropleth map technique to aggregate underlying data into areal based units. In turn, this data was displayed via dissemination areas which are a recognized unit of census analysis which contains between 400-700 people, and is uniform across Canada.

In the choropleth maps below, percentages represent the number of businesses assigned to the category of either Partially Accessible or Not Accessible, divided by the total number of contributions within each dissemination area. Lower percentages, shown in shades of blue, represent fewer Partially Accessible or Not Accessible businesses, and therefore a higher prevalence of Accessible businesses. Larger percentages, shown in shades of red, represent more non-accessible businesses.

Vancouver

This map of Vancouver shows many dissemination areas as somewhat, less, and least accessible, shown as shades of red along major arterial streets like Kingsway and Broadway.

Some distortion occurs when looking at, for example, the dark red of Stanley Park in the top centre of the map. This coloration does not mean that the entirety of Stanley Park is highly inaccessible, but rather the buildings assessed within the dissemination area (which happens to envelope Stanley Park), had a high level of “least accessible”. While the seawall that encircles Stanley Park and the many pathways in and around the park are generally celebrated as accessible, these were not assessed as part of the project.

City of Vancouver: Distribution of Perceived Building Accessibility

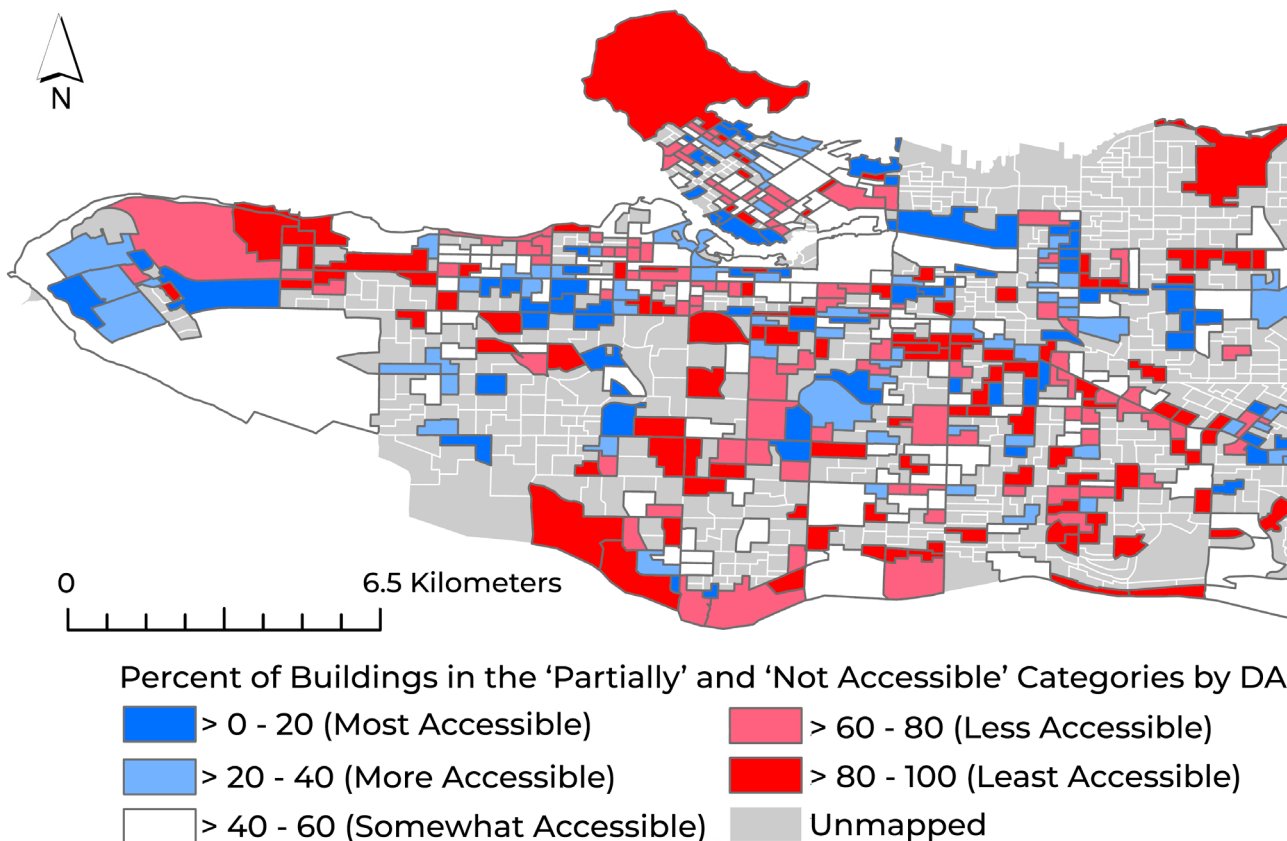


FIGURE 6: CITY OF VANCOUVER CHOROPLETH SHOWING DISTRIBUTION OF PERCEIVED ACCESSIBILITY RATINGS

Calgary

The downtown core of Calgary shows most of their dissemination areas in the less and least accessible categories. The neighbourhoods represented by Kensington and Sunnyside in the inset map are shown in the more and most accessible categories. Outside the inset area, there is a checkerboard pattern of accessibility.

City of Calgary: Distribution of Perceived Building Accessibility

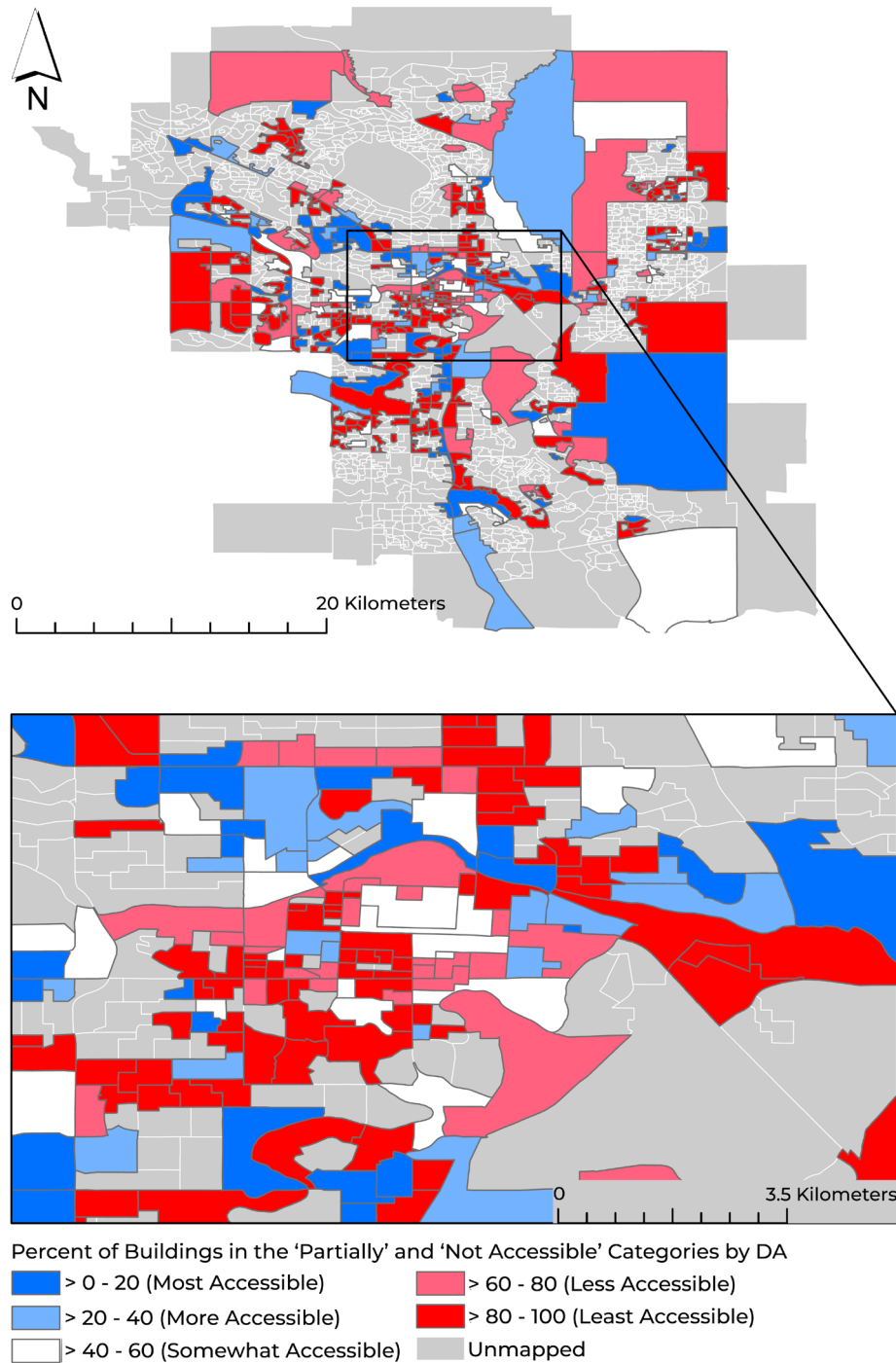


FIGURE 7: CITY OF CALGARY CHOROPLETH SHOWING DISTRIBUTION OF PERCEIVED ACCESSIBILITY RATINGS

Ottawa

The suburban communities in and around Ottawa show more accessibility than the downtown core, which is red around the buildings of Parliament. However, moving just south, east, or west, accessibility becomes more available as the colours shift blue to indicate more Accessible buildings.

City of Ottawa: Distribution of Perceived Building Accessibility

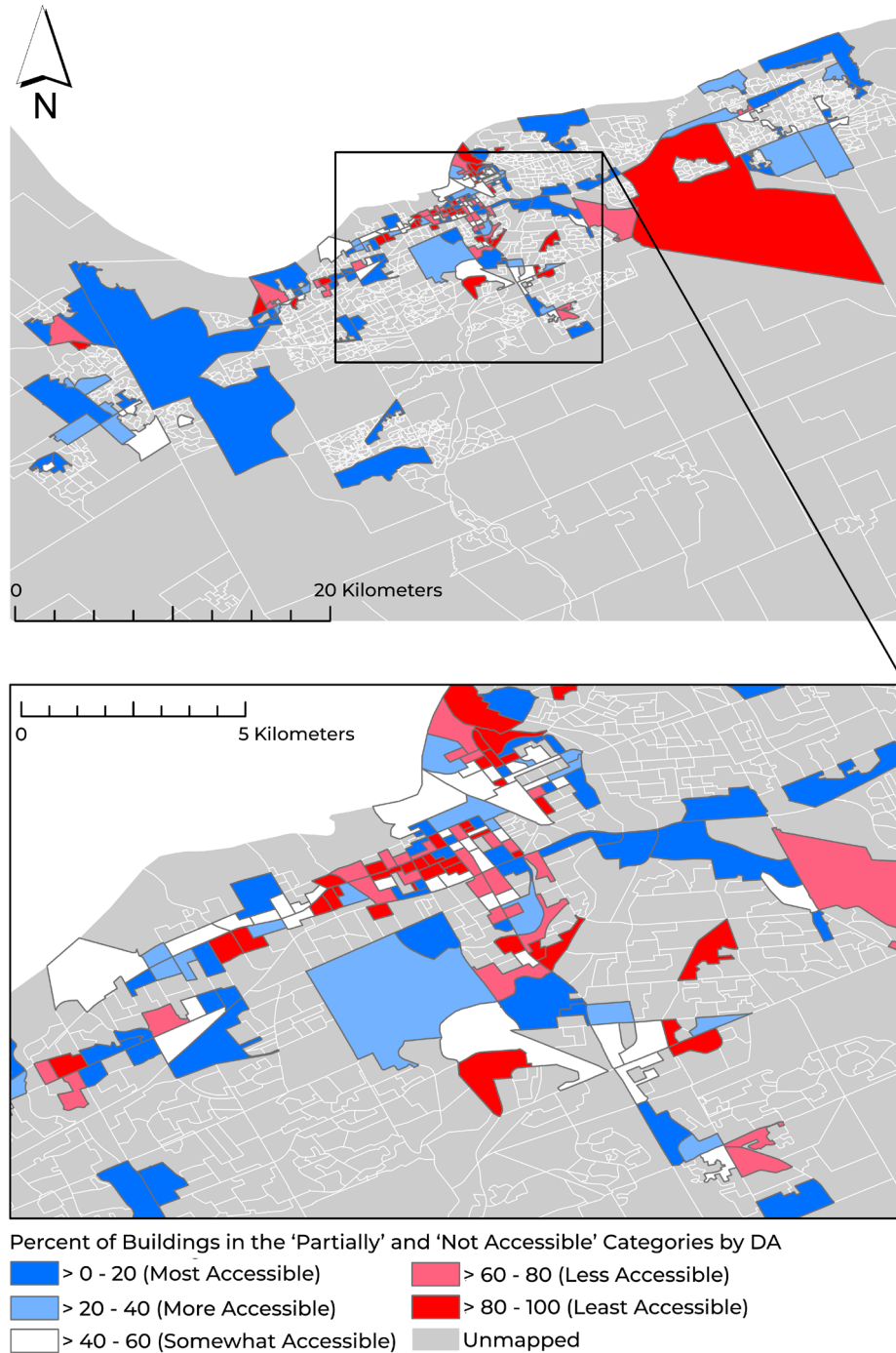
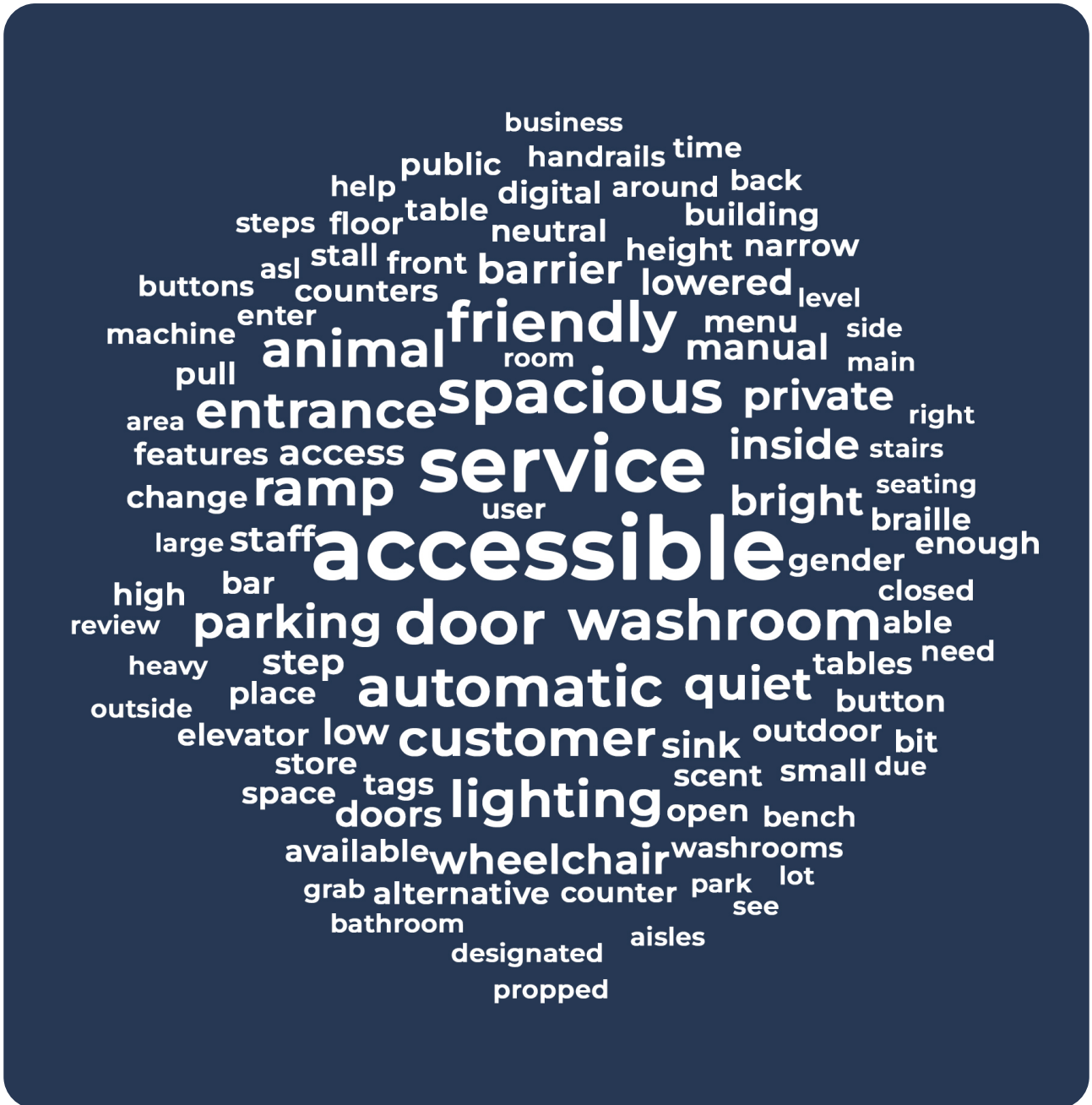


FIGURE 8: CITY OF OTTAWA CHOROPLETH SHOWING DISTRIBUTION OF PERCEIVED ACCESSIBILITY RATINGS

Text and Photos

Based on all reviews by mappers across the project, below is a word bubble that visually depicts the most frequently used words in the written description. The words accessible, followed by service, door, and washroom, are among the most frequent.



Ottawa



Image: Josh Davies, Ottawa



Image: Stephane Antille, John Redins, Ottawa

Vancouver



Image: Katrina Darielle Valdez, Valeria Gonzalez Rios, Kyle Gieni, Vancouver



Image: Katrina Darielle Valdez, Jenna Reed-Cote, Vancouver

Calgary



Image: Alexandria Wist, Calgary



Image: Jocelyn Dennis, Norie Akita, Calgary

Economic Subsector Accessibility

Leveraging the North American Industry Classification System (NAICS) codes, this analysis aims to understand business accessibility across diverse economic subsectors in Canada. Overall, we enriched the MOCA dataset with industrial information for 4,996 businesses. **Table 5** shows the total number of businesses mapped, as well as those successfully matched to a NAICS code, within each study region.

The relatively low rate of successful matches—hovering around 36-37% for most study sites and dropping to 21% in rural areas—is largely attributable to inconsistencies in address information, such as the use of 'St' instead of 'Street,' as well as changes in business names due to closures or rebranding. It's important to underscore that while the rate of successful matches is relatively low, these findings mark a first step in the study of accessibility by business type. These findings serve as a crucial advancement in enabling targeted interventions for accessibility improvements across various industries.

TABLE 5: REGIONAL SUBSECTOR DATA AND MOCA DATA MATCHING RESULTS - This table shows the total number of businesses overall and the total number of matched businesses within each region.

Region	Total Businesses	Number Matched	Proportion Matched
All	13,804	4,996	36.19%
Urban	13,582	4,928	36.28%
Rural	222	47	21.17%
Calgary	5416	1967	36.32%
Ottawa	3249	1,219	37.52%
Vancouver	4917	1,742	36.44%

Figure 9 displays the perceived accessibility ratings for 13 prioritized economic subsectors, which are arranged from most to least accessible. These subsectors were chosen based on having at least 100 business matches and represent a diverse array of economic activities. In the top five sectors—health and personal care; real estate; finance and insurance; clothing and accessories; and sporting goods stores—at least 50% of businesses are perceived as accessible. Conversely, sectors like professional, scientific, and technical services; repair and maintenance; personal and laundry services; and educational services are less accessible, with fewer than 35% of their businesses rated as “Accessible.” Of special concern is the educational services sector, which not only is among the least accessible industries but also has the highest proportion of businesses rated as “Not Accessible.”

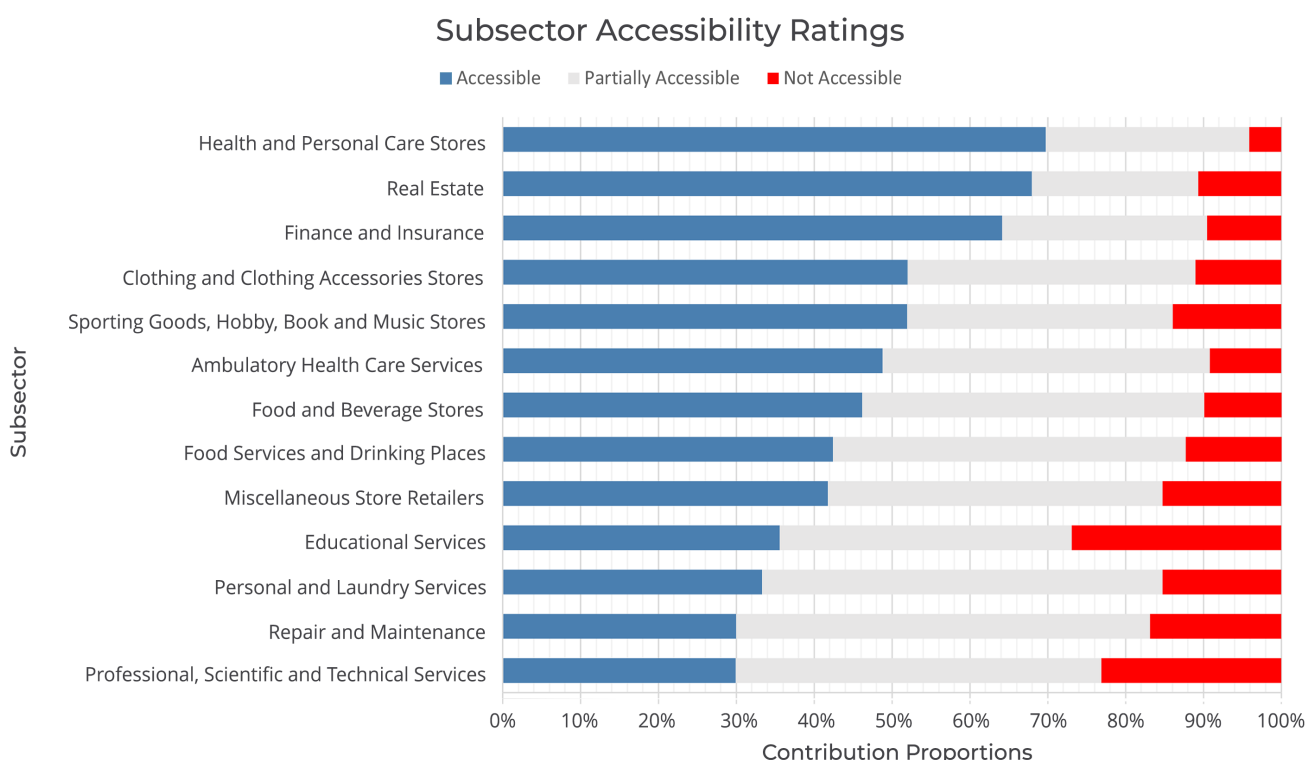


FIGURE 9: PERCEIVED ACCESSIBILITY RATINGS AGGREGATED TO ECONOMIC SUBSECTOR - This stacked bar chart shows the breakdown of perceived accessibility, blue indicating Accessible businesses, grey representing Partially Accessible businesses, and reds representing Not Accessible businesses.

Highlight Restaurant Access

Using the NAICS codes, we were able to compare categories and their overall level of access. For one important category - Restaurants (Food Services and Drinking Places), this is what we learned.

VANCOUVER

Accessible:	48.76%
Not Accessible:	11.14%
Partially Accessible:	40.1%

CALGARY & AREA

Accessible:	33.02%
Not Accessible:	7.82%
Partially Accessible:	59.16%

OTTAWA

Accessible:	52.42%
Not Accessible:	21.65%
Partially Accessible:	25.93%

TOTAL

Accessible:	43.32%
Not Accessible:	12.67%
Partially Accessible:	44.02%

Geographic Regions for Accessibility Improvement

For this section, a Local Indicators of Spatial Association (LISA) analysis was applied to perceived accessibility ratings in the three urban centres as a way to look for values which deviate significantly from the entire dataset and detect geographic areas where these deviations occur together, causing clustering, or separately, causing outliers. In turn, these may reveal areas of a city in need of further research or study. Within Vancouver, only the Partially Accessible rating category returned statistically significant LISA results. For Ottawa, only the Not Accessible category returned statistically significant LISA results. For Calgary, all three rating categories had LISA observations of note.

Vancouver

The patterns for Partially Accessible buildings in the City of Vancouver, as highlighted through the pink dissemination areas, show that there is a clustering of Partially Accessible businesses in the downtown core, east of Burrard Street, as well as on Broadway between the Granville and Burrard Street Bridges. These represent statistically significant clusters of Partially Accessible buildings, which could signal an area of attention or improvement.

City of Vancouver: Partially Accessible LISA Results

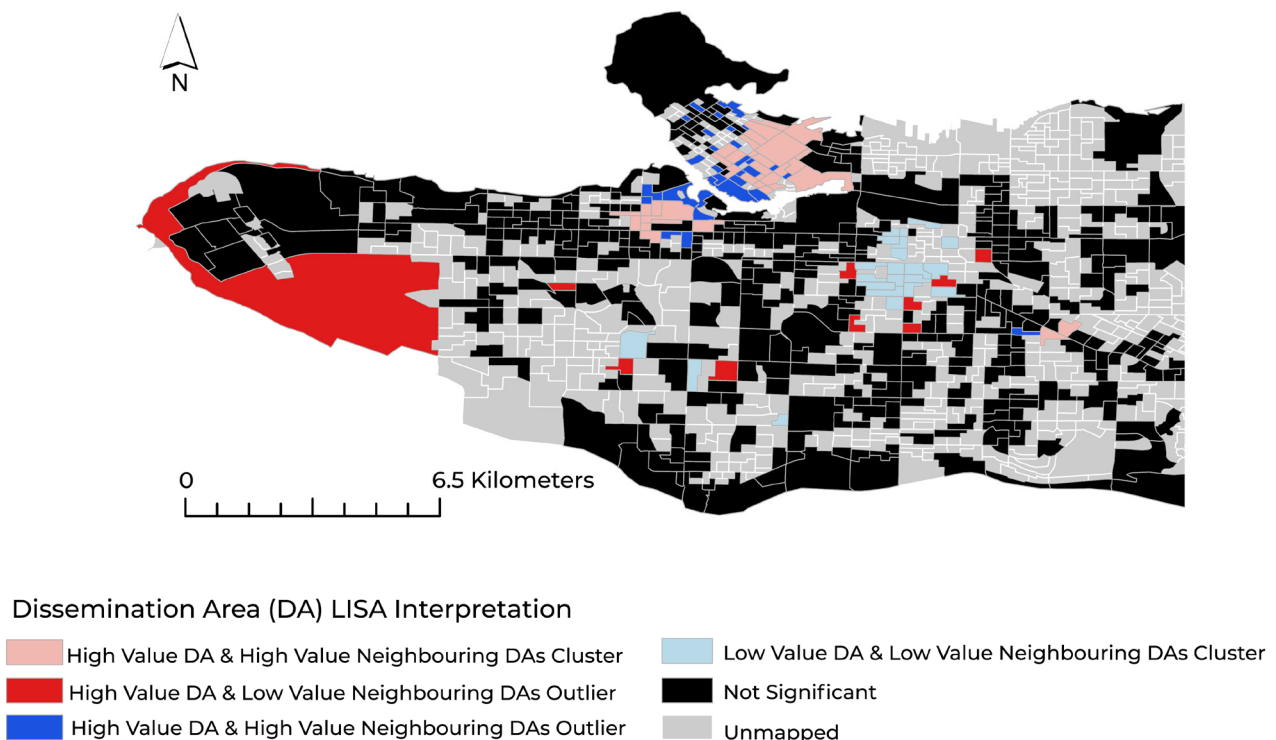


FIGURE 10: LOCAL INDICATORS OF SPATIAL ASSOCIATION TEST ON VANCOUVER'S PARTIALLY ACCESSIBLE BUSINESSES

Calgary

The LISA results for the City of Calgary show interesting and overlapping clustering patterns for perceived accessibility in the downtown core. Both the Accessible and Partially Accessible LISA results returned few dissemination areas of statistical significance outside of the inset maps focused on the downtown core. Not Accessible LISA maps show more variety outside of the inset maps. While the information might lead to contradictory interpretations, given the overlapping clusters of perceived accessibility, it is critical to remember these dissemination areas do not represent singular features but aggregated features. The local values can contain a wealth of internal diversity. Therefore, Calgary's downtown core could benefit from increased attention, resources, and intervention to improve the accessibility of businesses in all the dissemination areas above, because there is such internal diversity - even areas with high clusters of Accessible businesses will still have some pockets of less accessible businesses.

City of Calgary: Accessible LISA Results

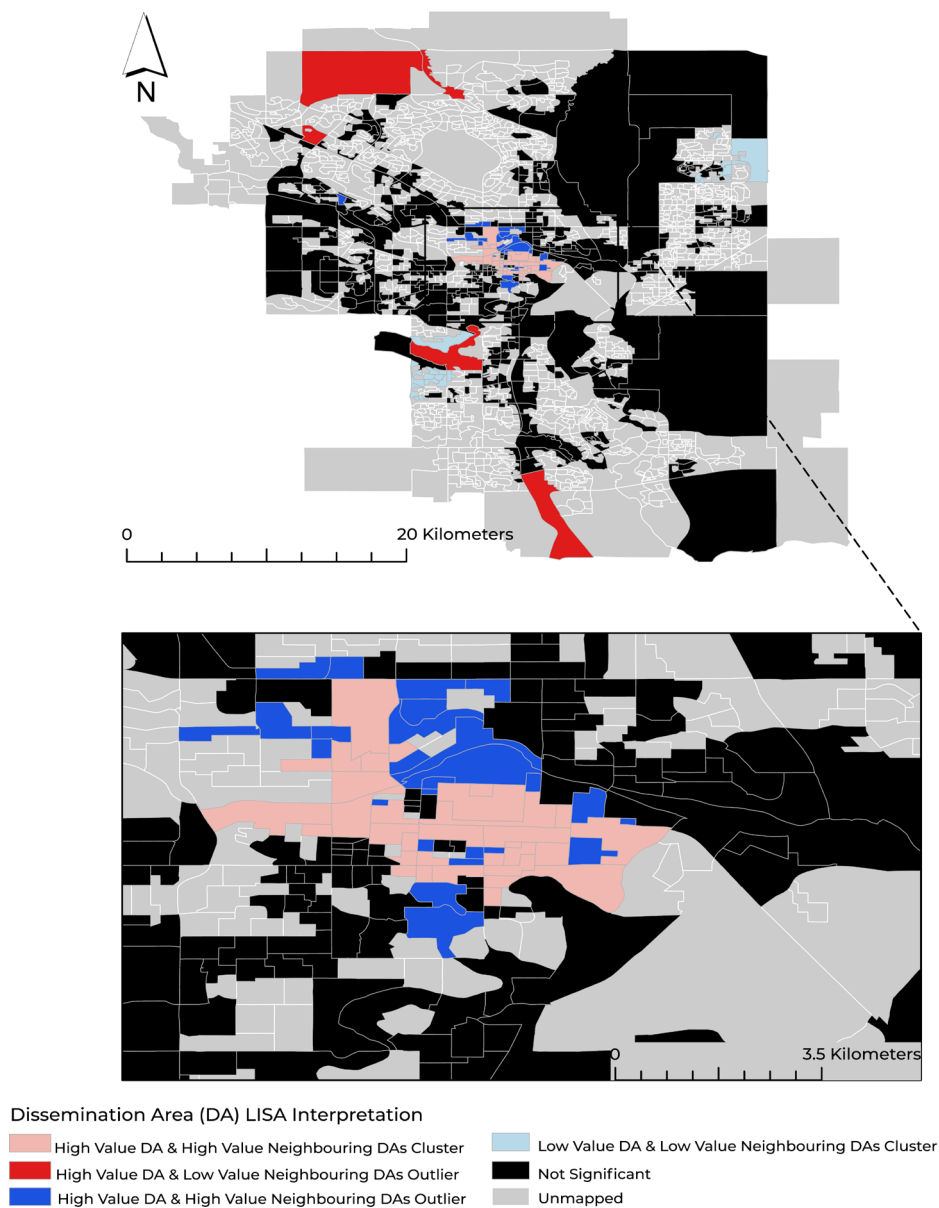
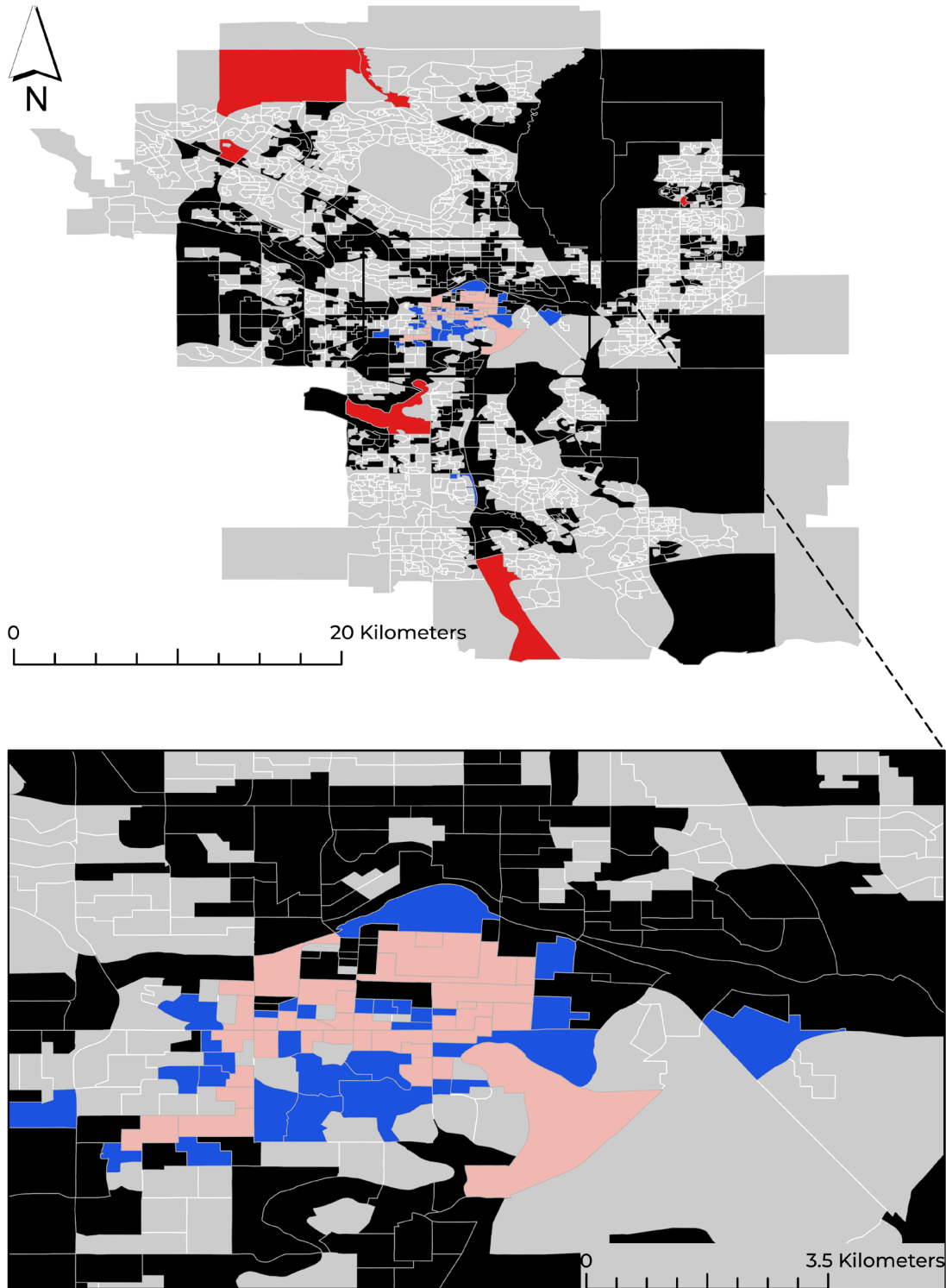


FIGURE 11: LOCAL INDICATORS OF SPATIAL ASSOCIATION TEST ON CALGARY'S ACCESSIBLE BUSINESSES
 - Local tests of spatial association look for values which deviate significantly from the entire dataset and detect geographic areas where these deviations occur together, causing clustering, or separately, causing outliers. There is a clustering of more-than-expected Accessible businesses within the downtown core, illustrated in pink, surrounded by outliers with fewer accessible rated buildings shown in blue.

City of Calgary: Partially Accessible LISA Results

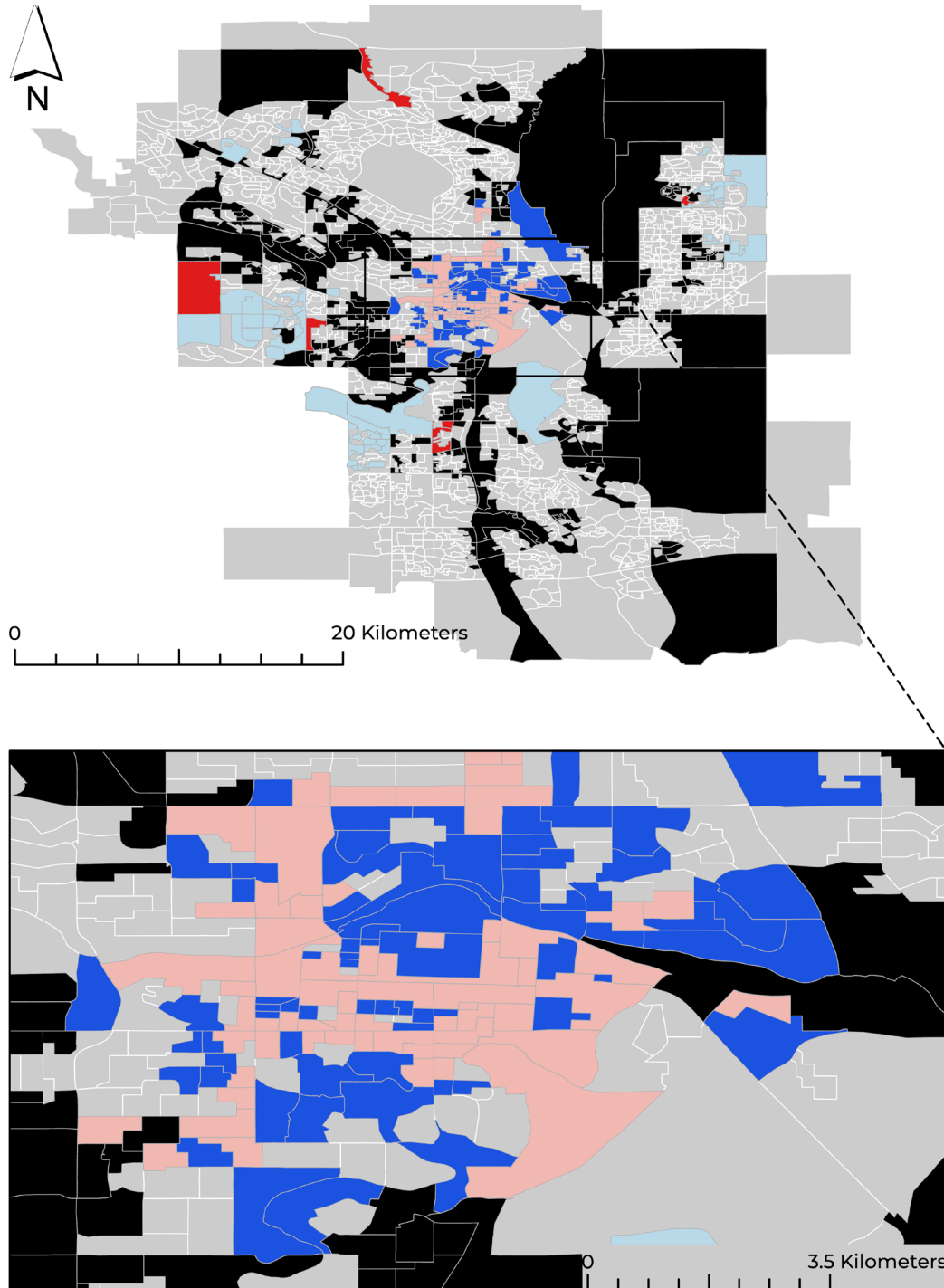


Dissemination Area (DA) LISA Interpretation

 High Value DA & High Value Neighbouring DAs Cluster	 Low Value DA & Low Value Neighbouring DAs Cluster
 High Value DA & Low Value Neighbouring DAs Outlier	 Not Significant
 High Value DA & High Value Neighbouring DAs Outlier	 Unmapped

FIGURE 12: LOCAL INDICATORS OF SPATIAL ASSOCIATION TEST ON CALGARY'S PARTIALLY ACCESSIBLE BUSINESSES - Local tests of spatial association look for values which deviate significantly from the entire dataset and detect geographic areas where these deviations occur together, causing clustering, or separately, causing outliers. There is a clustering of more-than-expected Partially Accessible businesses within the downtown core, illustrated in pink, surrounded by outliers with more accessibly rated buildings shown in blue.

City of Calgary: Not Accessible LISA Results



Dissemination Area (DA) LISA Interpretation

 High Value DA & High Value Neighbouring DAs Cluster	 Low Value DA & Low Value Neighbouring DAs Cluster
 High Value DA & Low Value Neighbouring DAs Outlier	 Not Significant
 High Value DA & High Value Neighbouring DAs Outlier	 Unmapped

FIGURE 13: LOCAL INDICATORS OF SPATIAL ASSOCIATION TEST ON CALGARY'S NOT ACCESSIBLE BUSINESSES - Local tests of spatial association look for values which deviate significantly from the entire dataset and detect geographic areas where these deviations occur together, causing clustering, or separately, causing outliers. There is a clustering of more-than-expected Not Accessible businesses within the downtown core, illustrated in pink, surrounded by outliers with more accessibly rated buildings shown in blue.

Ottawa

The pink-coloured dissemination areas found in the downtown core of Ottawa in and around the Parliamentary Precinct, represent a high value of Not Accessible businesses clustered into a dissemination area surrounded by neighbours which also have high values. This means this area is a geographic extent which would benefit from more extensive interventions to improve accessibility, as it returns statistical significance for being a relatively extreme deviation from the entire Ottawa dataset. The blue which surrounds the pink, represent outliers of low values of Not Accessible buildings surrounded by higher values of Not Accessible, and are therefore buildings which could be deprioritized until work is done elsewhere in the pink and red dissemination areas.

City of Ottawa: Not Accessible LISA Results

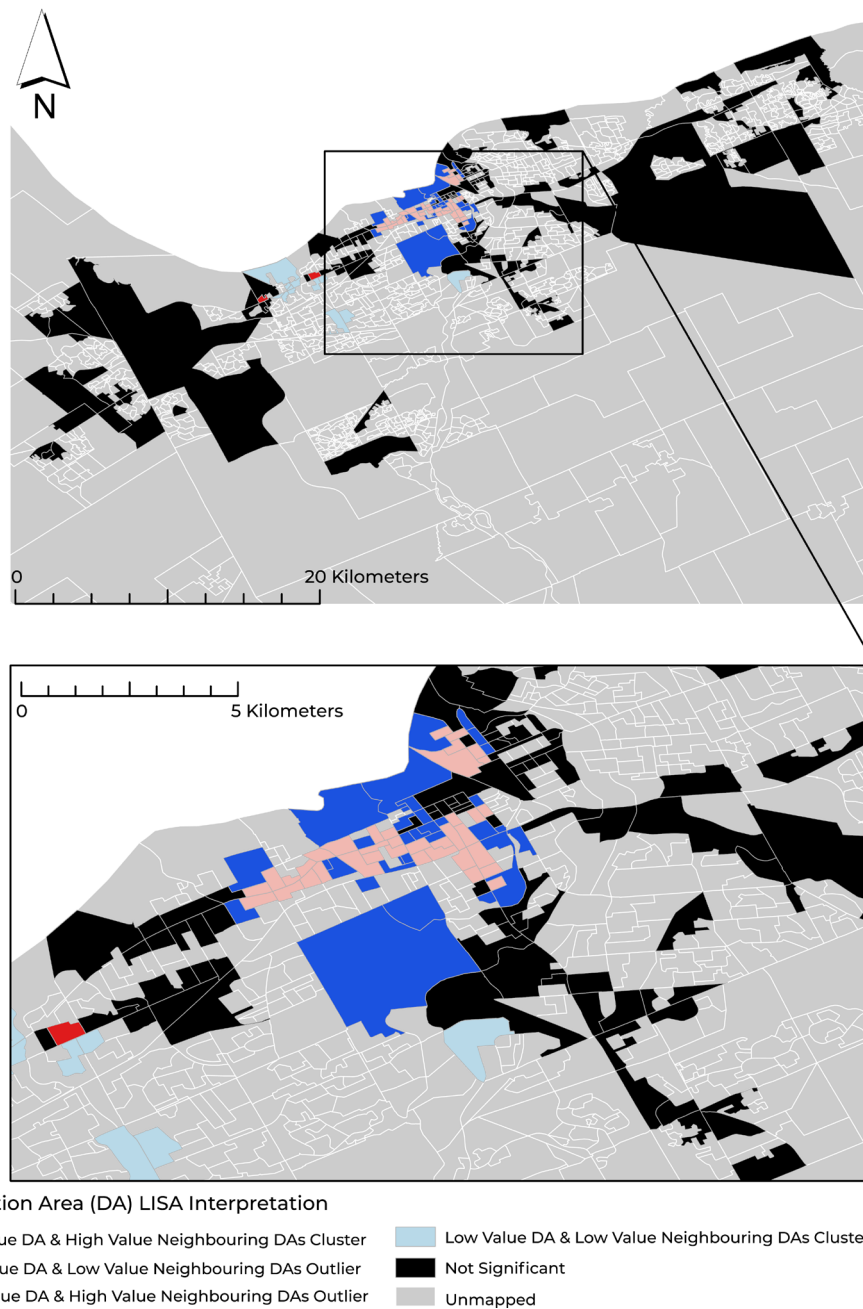


FIGURE 14: LOCAL INDICATORS OF SPATIAL ASSOCIATION TEST ON OTTAWA'S NOT ACCESSIBLE BUSINESSES

Discussion and Conclusion



Image: Parliament Hill, Ottawa

Engaging both volunteers and paid mappers, the MOCA project successfully collected over 126,000 data points related to perceived accessibility ratings and the presence of accessibility features. These data were used to analyze the accessibility of buildings in Canada. Through this research, we've identified meaningful patterns and trends in accessibility across diverse sectors and regions and gained valuable insights into the barriers encountered by individuals with disabilities in different settings. **Most strikingly, our findings reveal that more than 50% of buildings in Canada are considered either partially or not accessible.**

What is particularly powerful about this approach is that it captures thousands of instances in which real people shared experiences related to their access within buildings and spaces. These documented engagements with accessibility (or lack thereof) were individually mapped and then combined into a common database.

Through this process, the data has highlighted trends, patterns, and areas of concern, which can be used to better understand how people interact within their communities.

The data gathered by the MOCA Mapping team has provided valuable insights into the current state of accessibility in the built environment in Canada. The team's efforts have highlighted both areas of progress and significant gaps that need to be addressed. This data can be used to inform policy decisions, guide resource allocation, and support efforts to make Canada a more accessible and inclusive society.

The MOCA project successfully collected a large database of accessibility information referencing the built environment, a crucial step towards understanding the accessibility landscape in Canada. However, it is evident that much work remains to be done. One major

barrier to progress is the lack of comprehensive data on accessibility, which in itself creates barriers for people with disabilities. To truly understand how Canadians with disabilities experience their communities and what barriers they face, we must prioritize the collection of accessibility data.

The Canadian government's Accessibility Data and Measurement Strategy for 2022-2027 provides a promising framework for such data collection, outlining a comprehensive approach to measuring accessibility and identifying barriers across a range of domains. This framework requires buy-in from all levels of government, and all departments in order to be comprehensive. Today, disability representation, and data reflecting this lens, is sparse. By directly engaging with people with disabilities and collecting data in a standardized and consistent manner, we can develop a more nuanced understanding of accessibility in the built environment and take more effective steps towards creating an accessible Canada that reflects the diverse needs and experiences of people with disabilities.

Conventional policy development processes across different levels of government have traditionally relied on roundtable discussions or written submissions from select stakeholders. With the MOCA project, AccessNow saw an opportunity in its research approach to help inform government policy from a different perspective - by directly engaging people with disabilities to collect data and insights on the ground.

The results of the MOCA project can serve as a useful tool to assist organizations like ASC and others to develop meaningful standards that more closely reflect the actual experiences, needs, and desires of people with different disabilities. In turn, this becomes a key step in building a more accessible and inclusive Canada.



Image: City Hall, Calgary

Recommendations



Image: Supreme Courts, Vancouver. Photo taken by Sarah Cheung

The Accessible Canada Act represents a significant step forward for the rights of people with disabilities in Canada, but there is still much work to be done to ensure that all Canadians have access to a fully-accessible built environment. As part of this effort, this report provides recommendations to the government of Canada on advancing accessibility standards under the Act. These recommendations are based on the findings of the Mapping Our City for All (MOCA) research project.

The following recommendations call for a sustained national effort to map and assess the accessibility of every public-facing building and public space in Canada. Further research is necessary to better understand the inequity faced by people with disabilities, the motivations of building owners, the barriers faced by certain sectors, the impact of technology on accessibility, and more as described below. If implemented, these recommendations, in addition to many others that have not been highlighted in this report, can support the Government of Canada in advancing accessibility standards under the Accessible Canada Act by providing concrete data.

1 A National Effort Is Needed

A sustained, nationwide initiative is essential for comprehensively evaluating the accessibility of Canada's built environments—including public-facing buildings, parks, monuments, transportation corridors, and other key infrastructure. While the MOCA project serves as an initial framework, a long-term initiative is necessary to track progress over time and to address the many follow-up questions and lines of inquiry that emerged from this research.

Central to this national effort is an interdisciplinary collaboration that includes federal leadership, municipal and local governments, research institutions, and private sector stakeholders. Active and meaningful involvement of people with disabilities and disability-led organizations is also key. A community-engaged research approach ensures that collected data are grounded in the lived experiences of those most affected by accessibility issues.



Image: Mark van der Meer, Norie Akita, Calgary

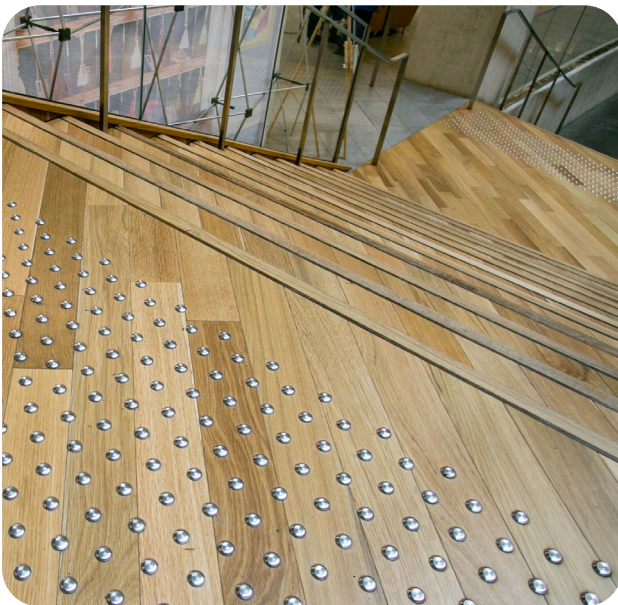


Image: Tactile indicators, Central Library, Calgary

2 Understanding the Motivations of Building & Business Owners

It is crucial to investigate why private building and business owners either implement—or fail to implement—accessibility features. Research in this area can offer insights into the motivations behind decisions, whether they are cost, compliance, litigation, company policy, inclusion goals, or market considerations. Such research will provide data useful for developing balanced policy frameworks that utilize a mix of incentives and penalties to encourage compliance with accessibility standards.

3 Certain Sectors Address Accessibility Better

Our research reveals uneven accessibility patterns across industry sectors. Focused research should examine why certain sectors excel at implementing accessibility measures while others fall short. Is the uneven progress due to budget constraints, organizational inertia, or weak enforcement of compliance? Could it also be influenced by lack of leadership or physical constraints, such as the age or heritage designation of buildings? Investigating these sector-specific disparities will provide invaluable insights for crafting targeted policy interventions.

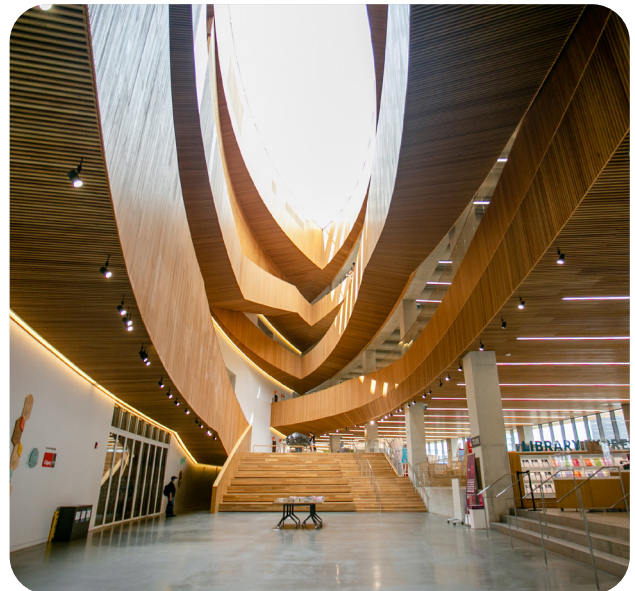


Image: Central Library, Calgary



Image: Aaron Prevost holding white cane, Calgary

4 Technology and the Built Environment

Our research observed that the infusion of technology into the built environment presents both opportunities and challenges for accessibility. On the one hand, innovations in digital technology can facilitate convenient and accessible experiences. On the other hand, these advancements can inadvertently introduce new barriers when they are not designed with accessibility in mind. There is an urgent need for research to gauge the extent of technology-induced accessibility barriers.

Examples from our MOCA project illustrate the scope of the issue: digital payment systems in restaurants that lack Braille or auditory cues, digital menus linking to inaccessible websites and touchless elevators with inadequate navigational cues. The current regulatory landscape does not appear to be sufficient to ensure digital technology adoption in the built environment does not inadvertently create new barriers. Further research in this domain is critical for informing new accessibility standards.

5 Disability Knows No Geographic Bounds

Our findings suggest that the issues of inaccessibility are similarly pervasive in city and non-city settings. However, the research is limited in its geographic scope, having omitted rural, remote, northern, Indigenous, and Franco-Canadian communities. Given disability does not have geographic boundaries, a truly national approach to accessibility must allocate equitable funding and resources to investigate challenges in these underserved regions.

Moreover, there is a need for targeted initiatives to understand and address the specific accessibility concerns of Indigenous communities. These initiatives must be guided by Indigenous knowledge and perspectives.



Image: Richard Peter, Stanley Park Seawall, Vancouver



Image: Julia Schertzer, Bryant Lee, Sarah Cheung, Katrina Darielle Valdez, Valeria Gonzalez Rios, Kyle Gieni, Vancouver

6 Inclusive Standards Through Intersectional Approaches

There is an urgent need for standards that authentically represent intersectional identities and experience both within the standards development process and in the standards themselves. Research must delve into the complex, multi-layered barriers faced by individuals with disabilities who may also be navigating additional dimensions of identity, such as race, gender, and socioeconomic status.

Existing research shows that disabled individuals who more closely align with heteronormative, white, male positions of power tend to encounter fewer barriers. In contrast, individuals who identify as non-white, LGBTQ+, non-verbal, or neurodivergent often face compounded challenges due to the intersectionality of their identities. Engaging with individuals across a spectrum of intersecting identities will deepen our understanding of accessibility challenges and guide the development of equitable, inclusive standards.

Author Statements



Image: Victoria Fast and Maayan Ziv



Victoria's Message:

"Together with AccessNow and our research and mapping team, we are Mapping Our Cities for All, with the hope of transforming our built environment into a space that truly embraces accessibility and ensures equal opportunities for everyone. We are dedicated to creating a better understanding of the barriers faced by individuals with disabilities and supporting the government's goals towards a more accessible Canada.

Accessibility is not just a matter of physical barriers faced by individuals in wheelchairs. It encompasses a vast spectrum of disabilities and experiences. Our goal has been to integrate this incredibly wide disability lens, ensuring that every voice is heard, and every perspective is considered. The cornerstone of disability justice is inclusivity, and that's the foundation of the work we do.

This is not just a professional endeavour for me; it's a personal promise I made to my father. His struggle with multiple sclerosis and his desire for a more inclusive world continue to drive me forward, and I am committed to making a tangible difference. By mapping our cities and gathering data, we aim to shed light on the diverse challenges individuals face daily and advocate for meaningful change. Through collaboration, technology, and the power of shared experiences, we can build a society where accessibility is a fundamental right and where no one is left behind."



Maayan's Message:

"Accessibility is a fundamental human right. At AccessNow, we envision a world where everyone can navigate their surroundings with ease and dignity, regardless of their abilities. Collaborating with Dr. Victoria Fast and our exceptional mapping team on the Mapping Our Cities for All project has been a profound journey. We have united our passion for creating positive change, leveraging technology and crowd-sourced data to benchmark accessibility in buildings across Canada.

As someone who has faced numerous barriers as a person with a disability, I understand firsthand the transformative power of information. Together, we are empowering individuals with disabilities to participate fully in society by providing crucial insights into the accessibility of their cities. By amplifying diverse voices and experiences, we advocate for an inclusive future where accessibility is woven into the fabric of our communities.

Mapping Our Cities for All is more than just an initiative; it's a movement towards greater equity and understanding. It's about challenging norms, sparking conversations, and inspiring collective action. The journey ahead is bound to be challenging, but our dedication to making the world a more accessible place is unwavering. We invite everyone to join us on this transformative path as we strive to build a society where no one is left behind, and everyone can embrace their full potential."

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