



Building the case for health equity in climate adaptation efforts: tools and strategies for resilient communities

Workshop

February 12, 2025
Room Nashwaaksis

Land acknowledgement

The City of Fredericton is located on the traditional unceded and unsurrendered territory of the Mi'gmaq et Wolastoqey Peoples.



Treaties of Peace and Friendship

Join at
slido.com
#SCC2025CCD



HOUSEKEEPING / BIENSÉANCE

❖ Ask questions through Slido at [slido.com // #SCC2025CCD](https://www.slido.com/join/SCC2025CCD)

❖ Simultaneous interpretation is available to listen in French or English – grab a headset

❖ Copies of the workshop material & content are available at <https://bit.ly/scc-learning>



❖ Posez vos questions via Slido à [slido.com // #SCC2025CCD](https://www.slido.com/join/SCC2025CCD)

❖ L'interprétation simultanée est disponible pour écouter en français ou en anglais – prenez un casque

❖ Des copies du matériel & contenu de l'atelier sont disponibles à <https://bit.ly/ccd-apprentissage>



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Test

← Select room

- The Mind and the Heart / L'...
- Accommodating the future...
- Day 2 Morning / 2ème jour ...
- Enhancing Your Building Re...
- Building the case for health...
- Together we make change ...



Agenda / Ordre du jour

 Activity	Activité
10:45 Welcome & Opening remarks	Bienvenue et mots d'introduction
10:52 Activity: Case study review & group discussion	Activité: Étude de cas et discussion en groupe
SLIDO	
11:10 Presentation - Weaving Health and Health Equity in Planning: the HealthyPlan.City tool / by Dany Doiron, CANUE	Présentation - Intégrer la santé et l'équité en matière de santé dans la planification : l'outil HealthyPlan.City / Avec Dany Doiron
11:25 Presentation - Health Equity and Climate Adaptation: Inclusive Consultation and Framework for Analysis / by Karina Cardona, CAPE	Presentation - Équité en matière de santé et adaptation climatique : Consultation inclusive et cadre d'analyse / Avec Karina Cardona
11:40 Period of Q&A Zoom on GMF, LLCA & the Climateinsights.ca	Période de Q&R + Zoom sur le FMV, LLAC et Perspectivesclimatiques.ca
SLIDO	
11:55 Wrap up & Key take-away	Récapitulons & Points clés
12:00	End of workshop / Bon appétit!

Activity

Case study review and group discussion

In your groups:

1. Watch the video (3 mins)
2. Using the worksheet, review the case study (2 mins)
3. At your table, discuss with your peers (8-10 mins)

The worksheet includes questions to guide your discussion

4. Share insights (5min)



Kawmadi Abeytunge (she/her)



Activity

Sharing insights

Using Slido, tell us ...

1. What barriers did you identify that were preventing this family from getting the help they need?
2. Have you tried to use community engagement to incorporate equity into adaptation, and were you successful?
3. Do you know where to find the data / information on equity if you wanted to incorporate that into your adaptation work?



Dany Doiron

(He/Il)

Managing Director
@CANUE



Karina Cardona

(She/Elle)

Donor Relations Manager
@CAPE



Lo Cheng

(She/Elle)

Director General of
Environment and
Infrastructure Policy @HICC



Weaving Health and Health Equity in Planning: the HealthyPlan.City tool

Workshop: Building the case for healthy equity in climate adaptation efforts: tools and strategies for resilient communities

February 12, 2025

Dany Doiron

Managing Director, Canadian Urban Environmental Health Research Consortium (CANUE)

Research Associate, McGill University Health Centre





**World Health Organization:
Climate change is “the single biggest threat
facing humanity”**

250,000 deaths

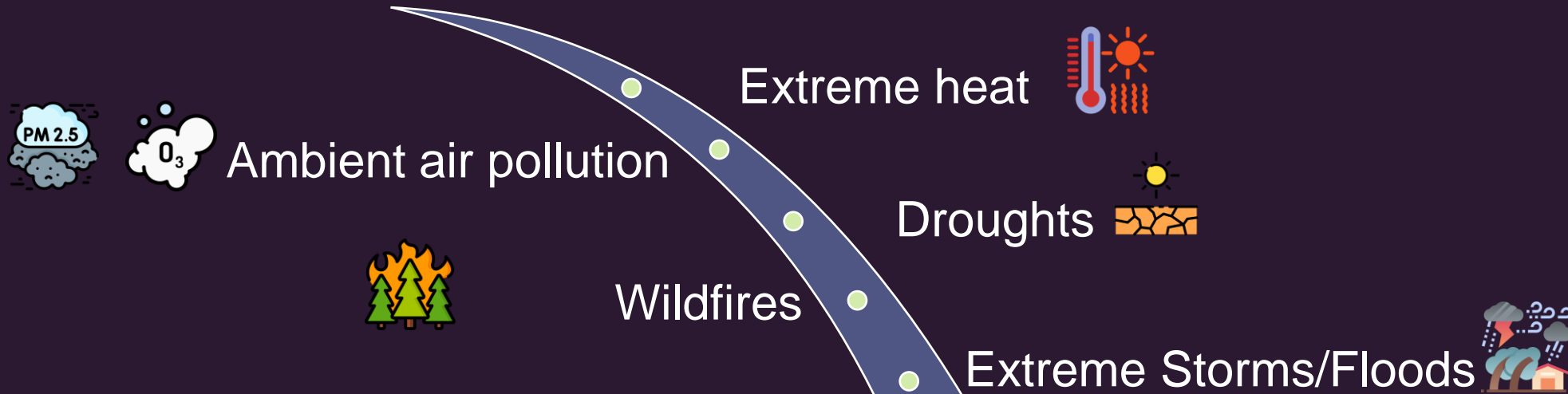
Yearly mortality due to climate-related exposures **by 2030**

US\$ 2 – 4 billion

Yearly direct damage costs to health **by 2030**

Climate change and population health

Climate crisis



- Heat-related illnesses
- Infectious diseases
- Mental/neuro disorders
- Cardiovascular diseases
- Respiratory diseases

Health outcomes



Climate change and health equity

Réduire les vulnérabilités et les inégalités sociales : tous ensemble pour la santé et le bien-être



“There are heat islands in 73% of Montreal’s neighbourhoods with the lowest socio-economic status, compared with only 20% in Montréal neighbourhoods with the highest socio-economic status.”

Original Research Article

ENVIRONMENTAL EPIDEMIOLOGY

OPEN

Analysis of community deaths during the catastrophic 2021 heat dome

Early evidence to inform the public health response during subsequent events in greater Vancouver, Canada

Sarah B. Henderson*, Kathleen E. McLean, Michael J. Lee, Tom Kosatsky



“Significantly higher risk of heat-related death in lower socio-economic status and low greenness Vancouver area neighbourhoods”

Contents lists available at ScienceDirect

Environmental Research

journal homepage: www.elsevier.com/locate/envres

ELSEVIER

environmental research

Exploring spatial heterogeneity and environmental injustices in exposure to flood hazards using geographically weighted regression

Liton Chakraborty^{a,*}, Horatiu Rus^b, Daniel Henstra^c, Jason Thistlethwaite^d, Andrea Minano^a, Daniel Scott^b



“exposure to flood risk is more significant in Canadian neighbourhoods that predominantly comprise certain vulnerable groups such as females, persons living alone, Indigenous, South Asians, the elderly, and economically insecure residents.”

HealthyPlan.City background



CANUE

Nationally-standardized
environmental exposure
datasets



More info: www.canue.ca

Data holdings: www.canuedata.ca



Healthy Plan .City

SUPPORTING AN EQUITABLE AND
HEALTHY BUILT ENVIRONMENT

Aim: “Democratize” data assembled by CANUE

Supported by:



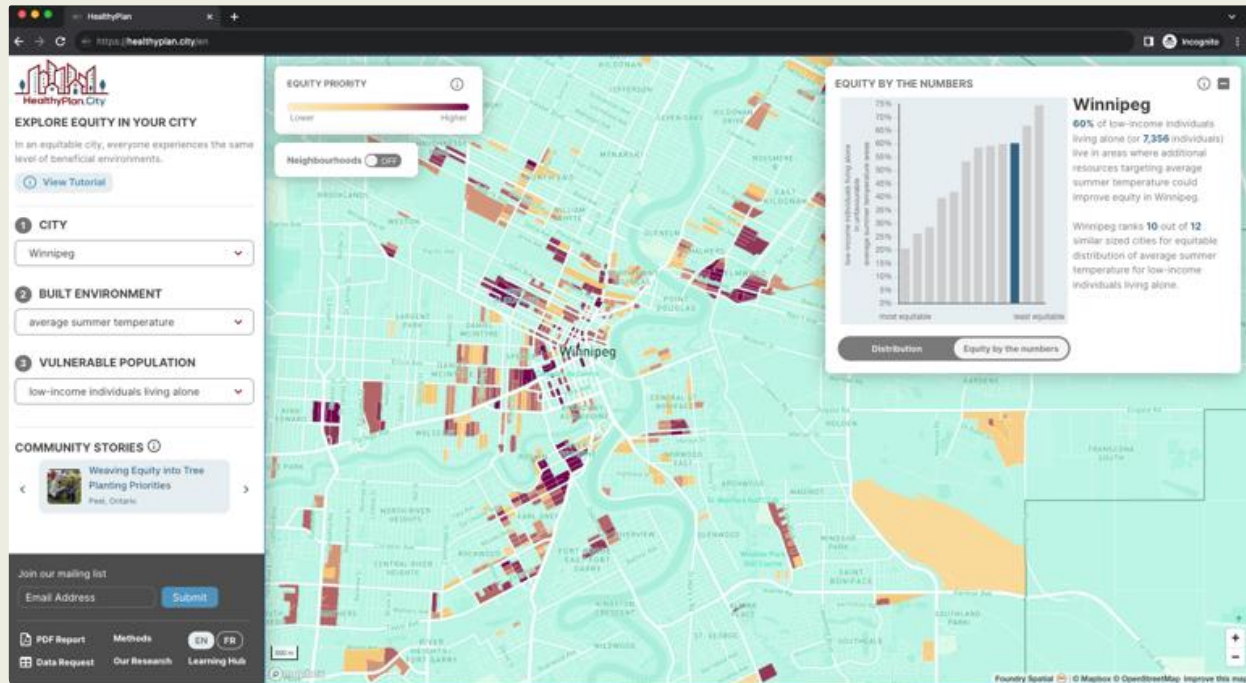
Supported by:



Enhanced Surveillance for Chronic
Disease Program (ESCDP)



HealthyPlan.City overview



Web-based equity mapping tool:

- 26 demographic and environmental indicators
- >125 Canadian municipalities
- Distribution of individual indicators
- Environment equity analyses
- City and neighborhood-comparisons and rankings

Environmental data

- 13 environmental indicators in 4 domains
- Nationally-standardized data
- Sources: satellite imagery, large geospatial databases, machine learning models
- Assigned to city blocks across 129 cities

Urban climate



- Heat
- Tree canopy cover
- Flood susceptibility

Air and noise pollution



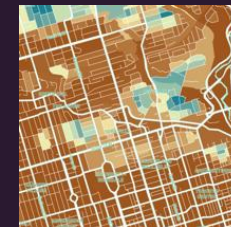
- Air pollution
- Noise

Parks and Recreation



- Parks
- Greenspace provision
- Large natural spaces
- Recreation and sports

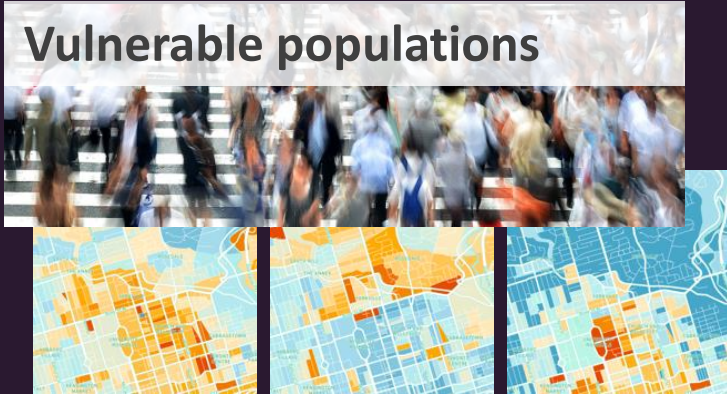
Community Amenities



- Transit stops
- Retail and services
- Healthy food outlets
- Education and Culture

Demographic and geographic data

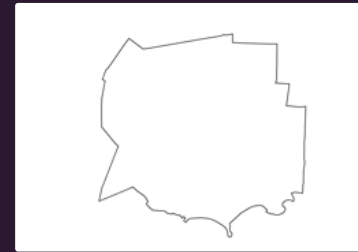
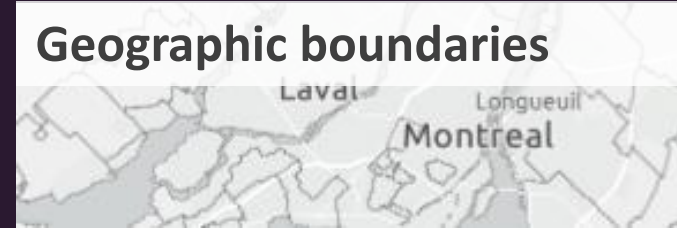
Vulnerable populations



- 13 different **vulnerable population indicators**
- **Nationally-consistent** data from the 2021 Canadian Census
- Assigned to **populated city blocks** for 129 cities

- *Low-income*
- *Children*
- *Older adults*
- *Visible minorities*
- *Individual living alone*
- *Newly-arrived immigrants*
- *First-generation immigrants*
- *Low-income children*
- *Low-income older adults*
- *Low-income visible minorities*
- *Low-income individuals living alone*
- *Low-income newly-arrived immigrants*
- *Low-income first-generation immigrants*

Geographic boundaries



- **City boundaries:** Statistics Canada Census Subdivisions

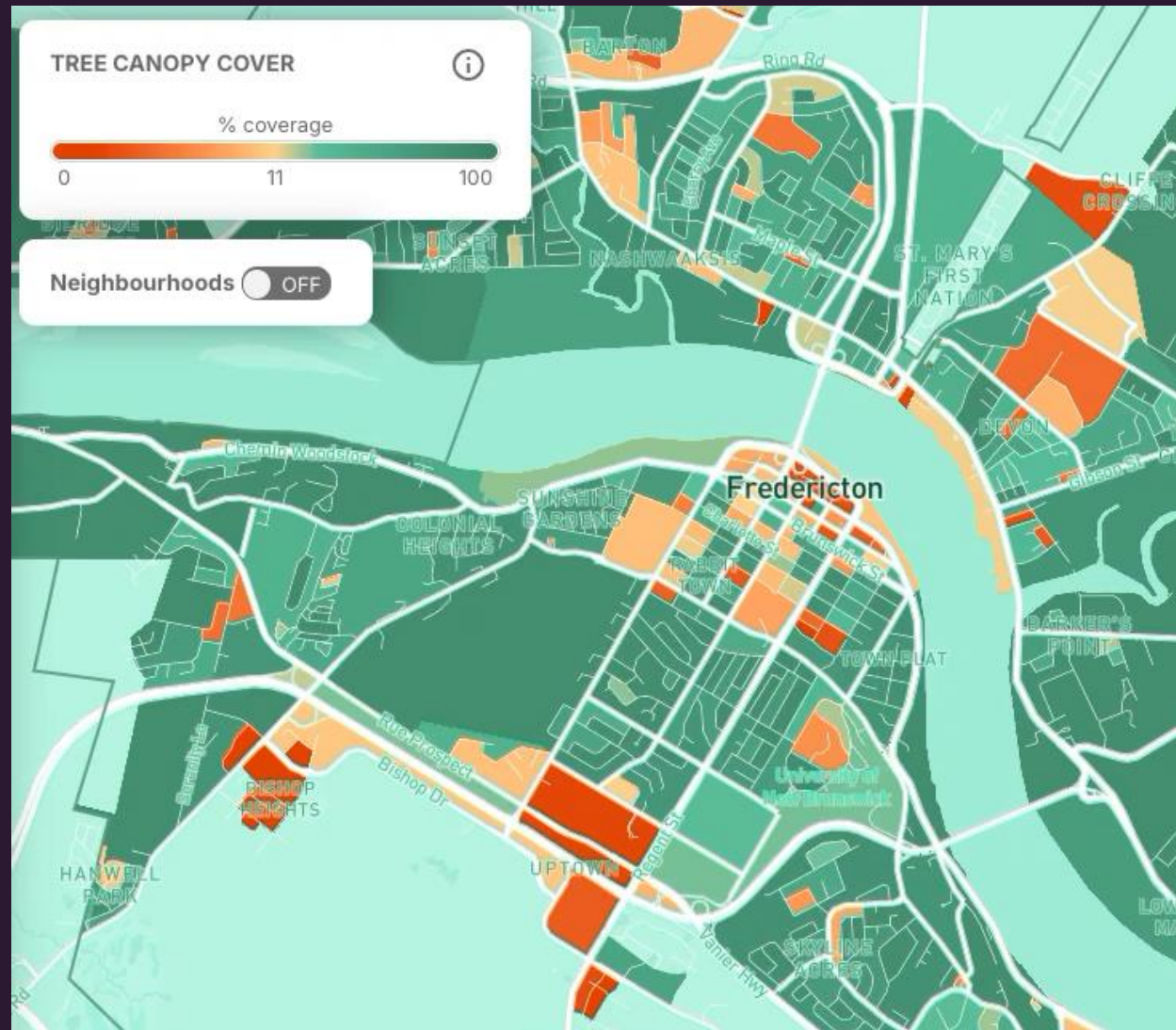


- **Mapping units:** Statistics Canada dissemination blocks (city blocks)

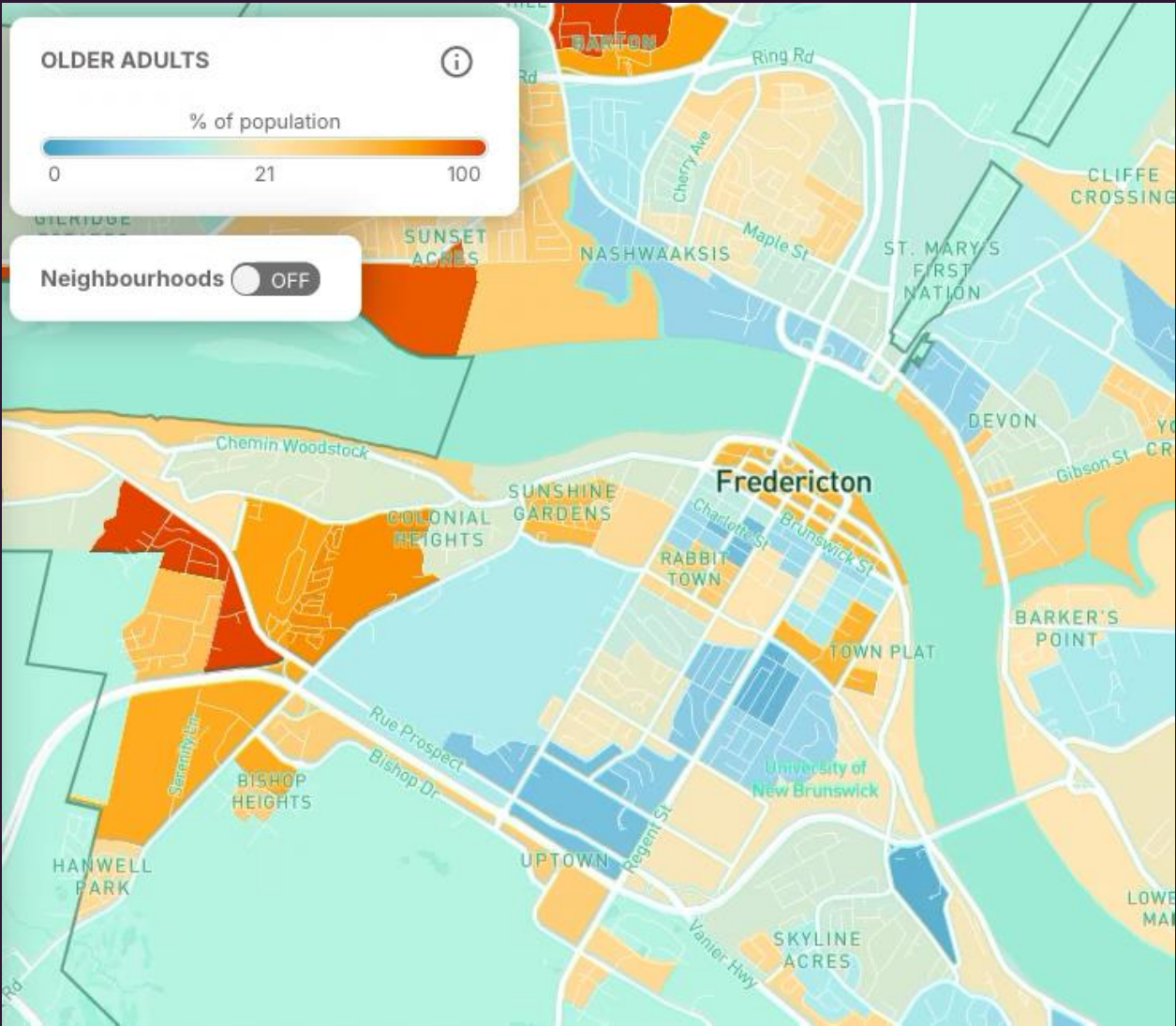


- **Neighborhood boundaries** for select cities

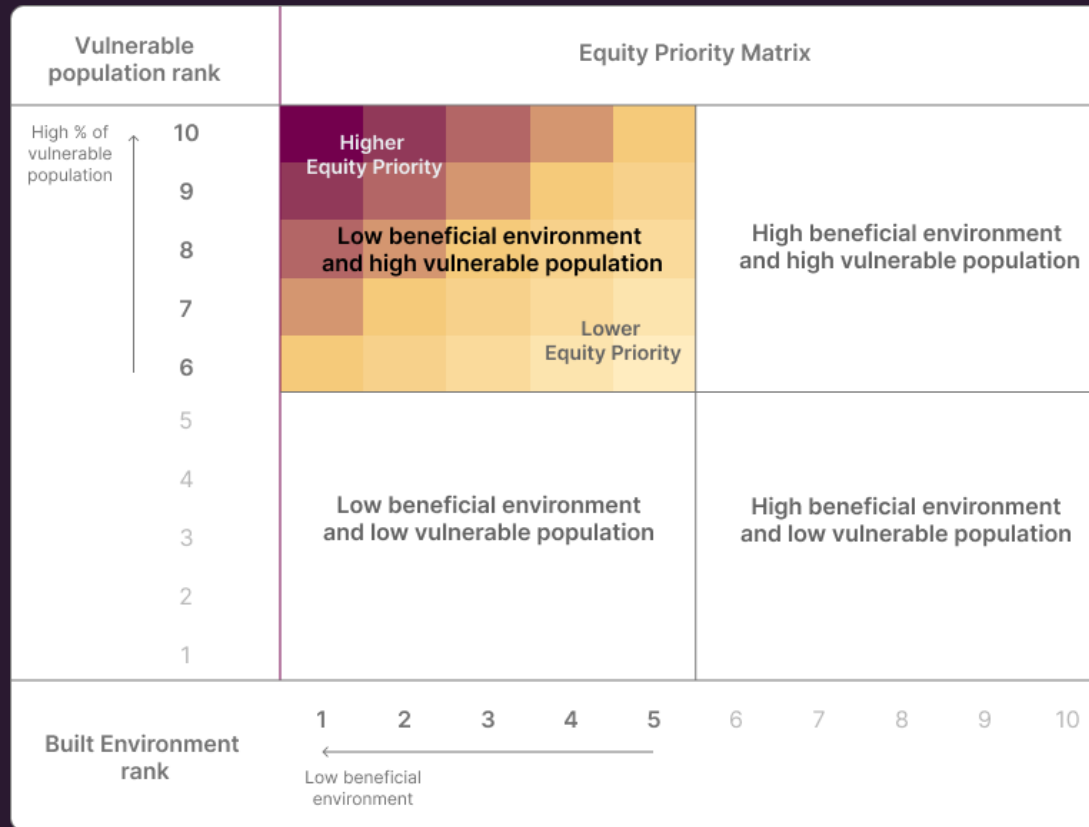
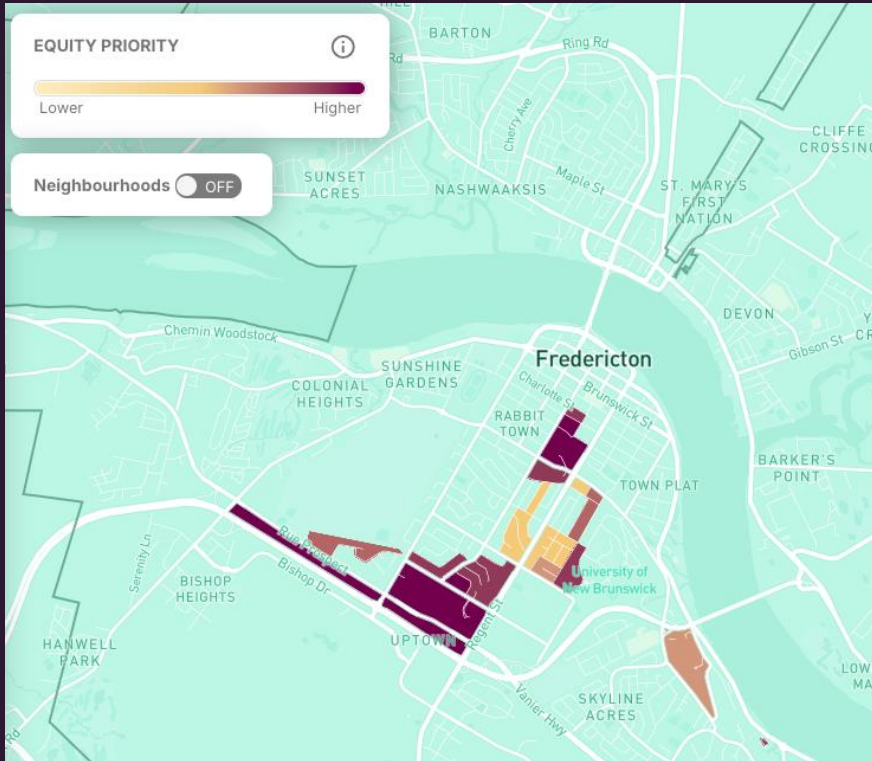
Tree canopy cover in Fredericton



Older adults in Fredericton

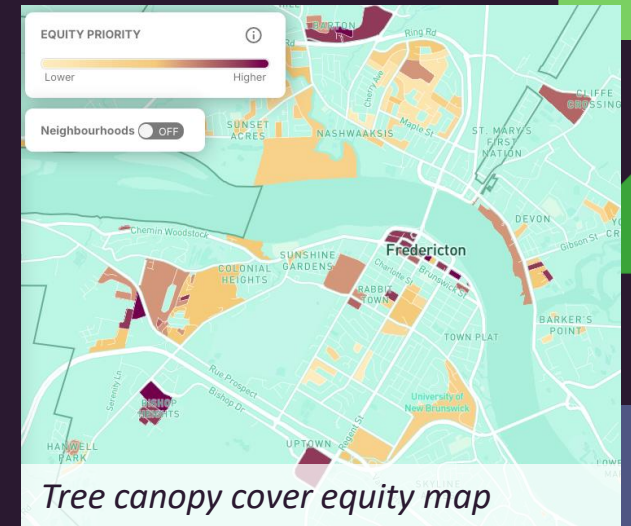
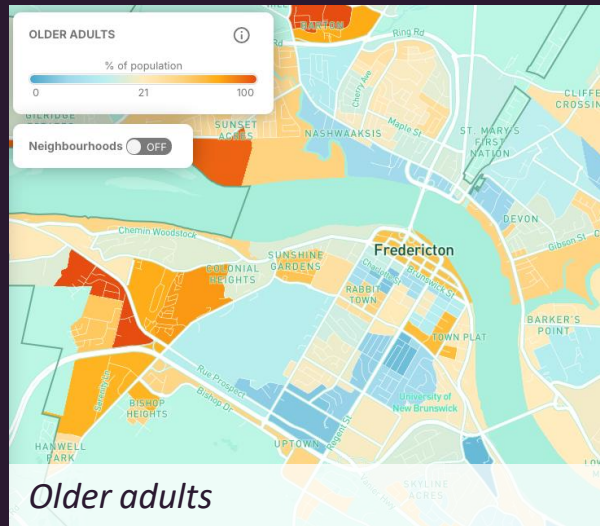
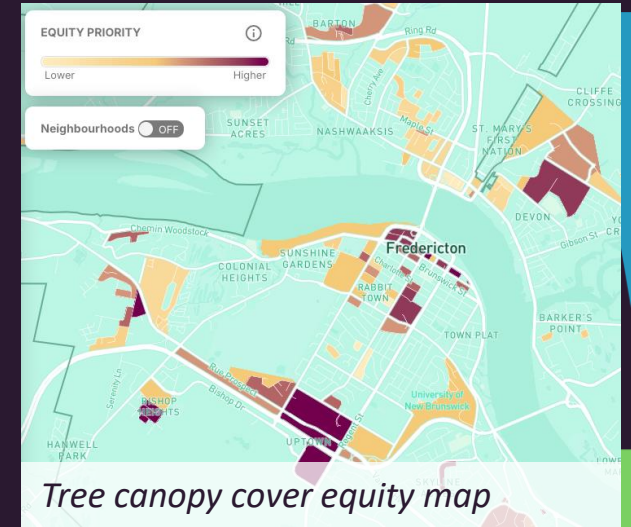
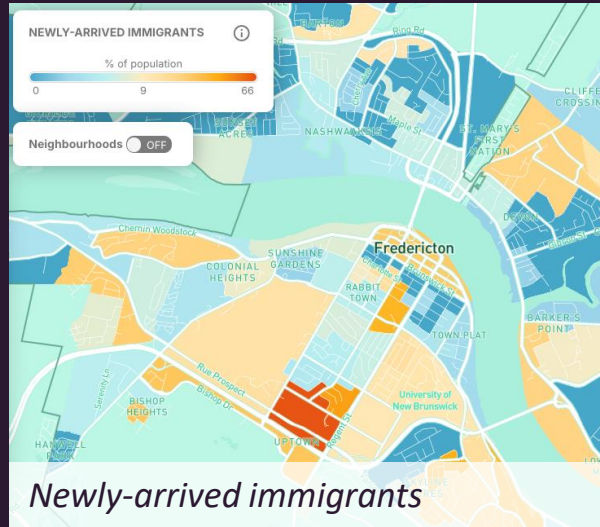
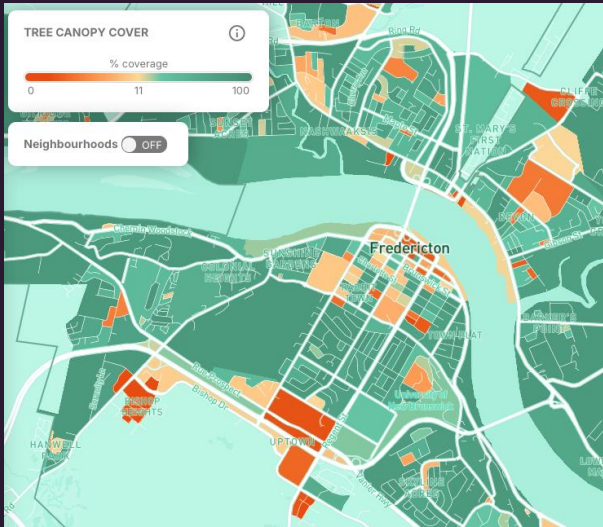


Equity priority maps



- Equity priority areas are city blocks with:
 - Above median vulnerable population % AND
 - Below median built environment values
 - Darker shades show higher equity priorities

Equity priority maps: Tree canopy cover in Fredericton



Community partnerships

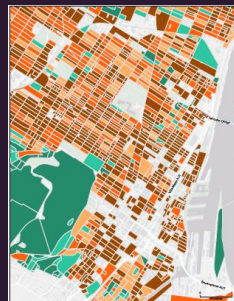
Green Communities
CANADA



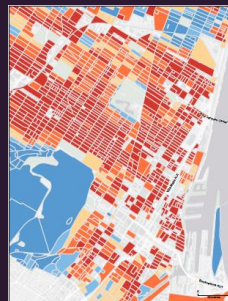
- Supported 11 local organizations across Canada in planning for and implementing equitable green infrastructure projects
- Developed equity maps that show environmental risk factors relative to social risk factors.



Greenness



Heat islands



Low-income visible minorities



Areas to prioritize



LA
PRESSE

ENVIRONNEMENT

Planète bleue, idées vertes

Où se jouent les iniquités environnementales dans nos villes ?



SARA CHAMPAGNE
La Presse



Learn more

Read our manuscript published last year
in the *Journal of Urban Health*



J Urban Health (2024) 101:497–507
<https://doi.org/10.1007/s11524-024-00855-x>

ORIGINAL ARTICLE

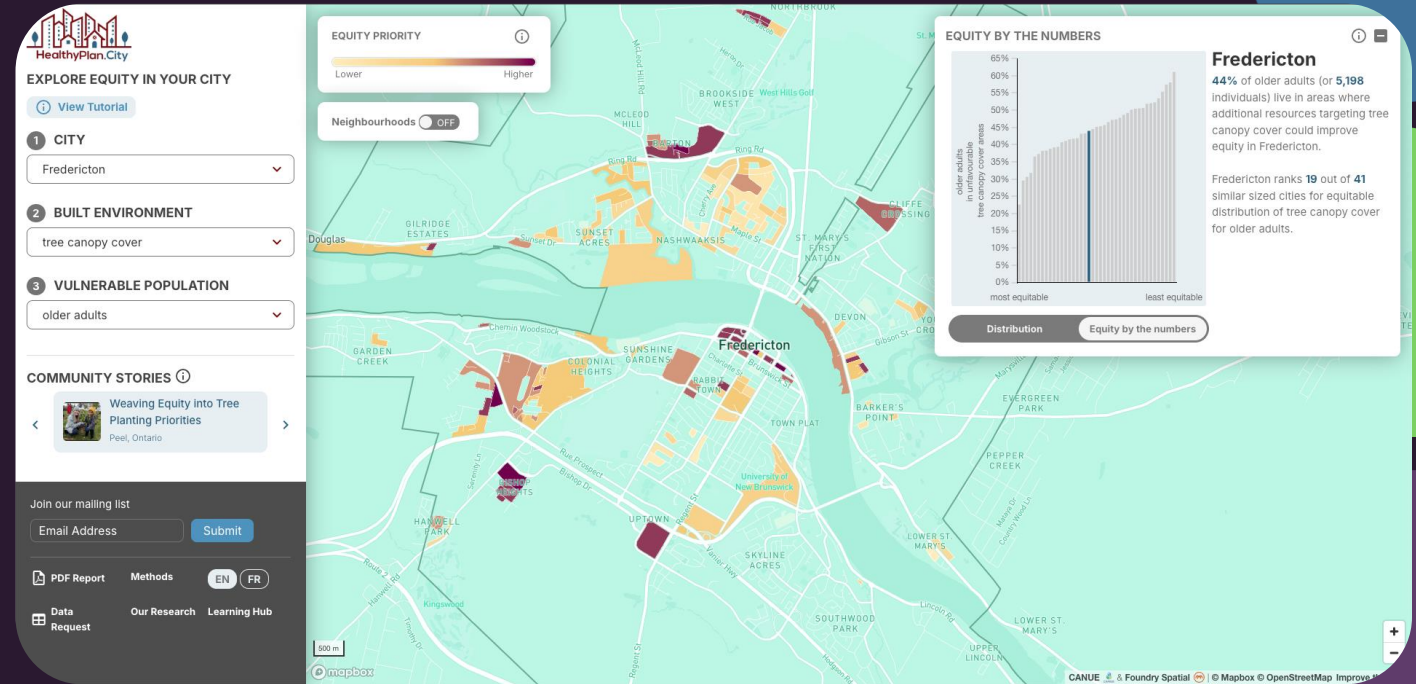
HealthyPlan.City: A Web Tool to Support Urban Environmental Equity and Public Health in Canadian Communities

Dany Doiron · Eleanor M. Setton · Joey Syer · Andre Redivo · Allan McKee · Mohammad Noaen · Priya Patel · Gillian L. Booth · Michael Brauer · Daniel Fuller · Yan Kestens · Laura C. Rosella · Dave Stieb · Paul J. Villeneuve · Jeffrey R. Brook

Accepted: 8 March 2024 / Published online: 8 April 2024
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Abstract Urban environmental factors such as air quality, heat islands, and access to greenspaces and community amenities impact public health. Some vulnerable populations such as low-income groups, children, older adults, new immigrants, and visible minorities live in areas with fewer beneficial conditions, and therefore, face greater health risks. Planning and advocating for equitable healthy urban environments requires systematic analysis of reliable spatial data to identify where vulnerable populations intersect with positive or negative urban/environmental characteristics. To facilitate this effort in Canada,

we developed HealthyPlan.City (<https://healthyplan.city/>), a freely available web mapping platform for users to visualize the spatial patterns of built environment indicators, vulnerable populations, and environmental inequity within over 125 Canadian cities. This tool helps users identify areas within Canadian cities where relatively higher proportions of vulnerable populations experience lower than average levels of beneficial environmental conditions, which we refer to as *Equity priority areas*. Using nationally standardized environmental data from satellite imagery and other large geospatial databases and demographic data from the Canadian Census, HealthyPlan.City



Try the tool (currently desktop only):

- In English: <https://healthyplan.city/en>
- En français: <https://healthyplan.city/fr>

Health Equity and Climate Adaptation

Inclusive Consultation and Framework for Analysis



Karina Cardona Claros, CAPE



Climate Change Toolkit for Health Professionals



Climate Crisis? Health Crisis!
How climate change affects the health of Canadians

🕒 1:48



Crippling Climate Adaptation
Disability Justice and Climate Change

🕒 13:34

AVAILABLE WITH DESCRIPTIVE AUDIO:

The case for equity-focused climate adaptation

Health

Marginalization

Vulnerability

Isolation

Risk

Individual health

Population health

Community health

Personal needs and well-being

Health data pertaining to demographic groups

Impacts of the built, social, political, historic, and economic environments upon the health of a community

Developing place-based pathways for equitable climate adaptation

Health inequities are experienced by individuals, populations, or communities as disproportionate health harms generated through places, spaces, policies, practices, attitudes, and norms.

Place-based solutions require understanding of quantifiable AND anecdotal local community impacts.

By collecting local stories and planning solutions that take these impacts into account, inclusive consultation can contribute to improved more equitable climate adaptation.

Climate resilience is accomplished by building belonging in community - trust, listening, communication, planning, accountability.

Continuum of equitable climate adaptation

Adverse events

Hundreds who died from heat exposure in B.C. were mostly seniors found alone in unventilated suites, says coroner

At least 486 sudden and unexpected deaths have been reported since Friday — a number which is likely to grow

David Carrigg

Published Jul 01, 2021 • 3 minute read



What needs will you have in an emergency, but also, what needs aren't being met yet?

Everyday life



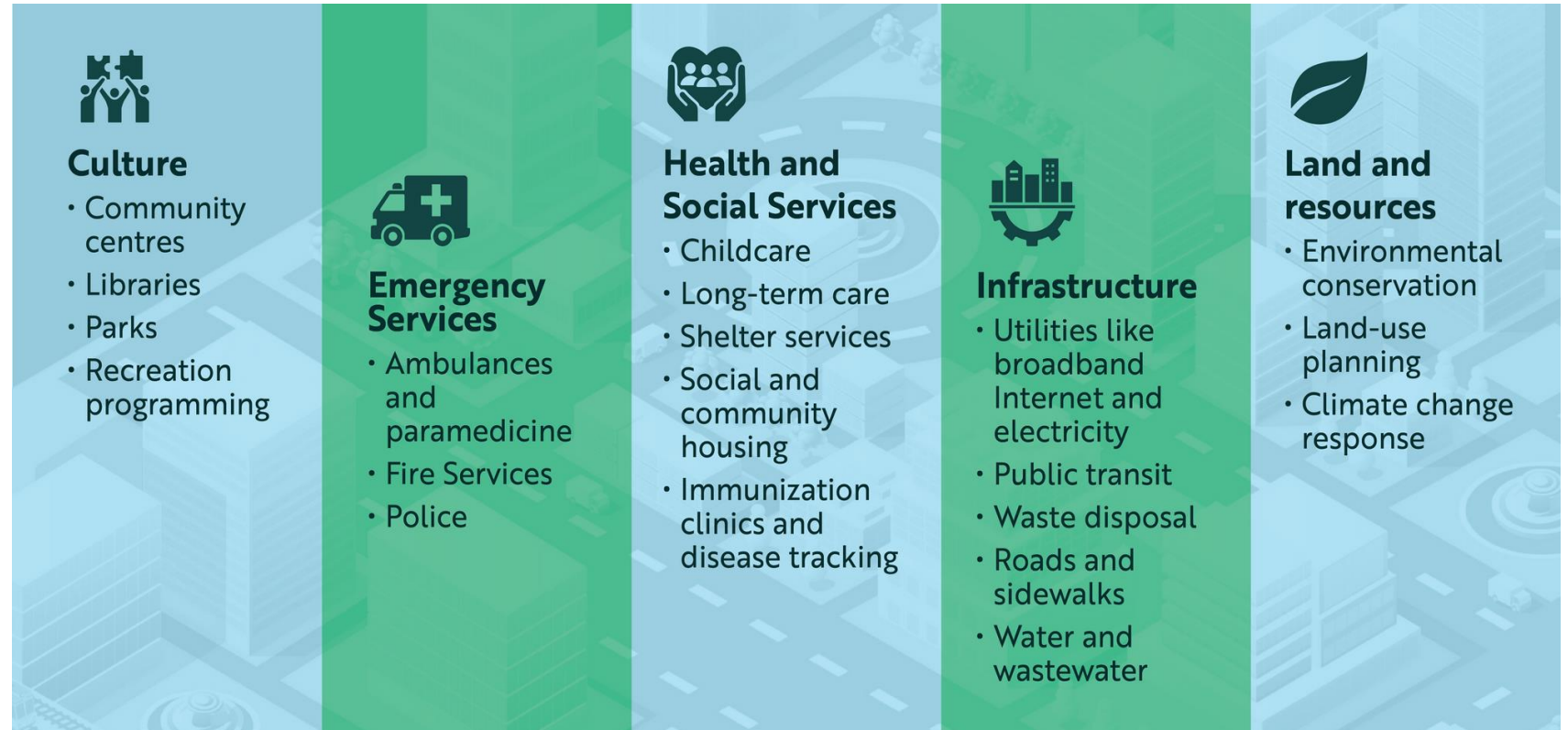
Municipalities (About you)

Considerations:

- Jurisdiction
- Mandate
- Vision
- Plans
- Policies
- Limitations

Engagement:

- Data collection
- Data analysis
- Local findings
- Communication
- Taking action



Source: Association of Municipalities of Ontario
<https://www.amo.on.ca/about-us/municipal-101>

Inclusive consultation

=

Nothing about us
without us

PRAIRIE CLIMATE CENTRE AND THE UNIVERSITY OF WINNIPEG PRESENT
**CRIPPING CLIMATE
ADAPTATION**

SCREENING . PANEL DISCUSSION . CONVERSATION



CONVOCATION HALL, UNIVERSITY OF WINNIPEG
DATE: NOV 17, 2023 TIME: 1:30 PM - 4:00 PM

Meeting “where we’re at”

Offering participants what they need in order to engage with consultation processes

Developing a common language and understanding of health (in)equity and climate adaptation to “get on the same page”

Building trust, understanding, and supports through dialogue, collaboration, and mutual agreements

Amplifying findings, establishing solutions, maintaining communication, and demonstrating results

What were the aspects identified for a transition to disability justice and climate change adaptation?

RISKS

What are the disproportionate risks faced by disabled Canadians in the climate crisis, including those who face multiple and intersecting barriers and forms of discrimination?

Need to explore the possible unintended consequences of addressing a climate risk and how it could result in maladaptation.

Systemic Ideas around capacities, rights and lived experience, get in the way of fighting climate change.

Lack of progress as a result of not including disabled people on the climate adaptation conversation.

OBLIGATIONS

How are we ensuring the adaptation efforts enhance climate resilience with disabled people?

Need to meet people where they are at, to understand the levels of what people experience and attend those who might require more assistance in any climate emergency situation.

Building the networks needed to make sure process are inclusive.

Disabled people should be incorporated into planning processes.

You can't have only a voice to talk about disability.

ROLES

What are the roles that disabled people, their leadership, and their knowledge can play in efforts to enhance climate resilience in Canada?

When developing climate adaptation strategies, different ways of knowing and doing must be included. People with disabilities already have different ways of knowing and operating in their environments, such as life hacks and worldviews about coexistence and stewardship of the environment.

During evacuations, there is high reliance on friend and family to help disabled people.

Consider the role of support workers for disabilities in planning situations.

OPPORTUNITIES

What are the opportunities to use disability knowledge on climate resilience?

If we make things more accessible, it opens up a lot of doors.

At the core we need a collective identity, so we are taking care of everyone: elderly, children, and adults.

Inclusion of disabled people will enrich the climate adaptation conversation.

How can climate change adaptation policies be used to make some of the changes that we want to see here to reduce impacts?

CHALLENGES

Challenges highlighted by participants on the transition to Disability Justice and climate change adaptation.

Preparedness for climate change needs to reflect the level that we will be impacted by it.

Climate Resilience is new to disabled people; it is new to all people.

Regional and geographical differences need to be taken into consideration as the effects of climate change are different.

What are acceptable conditions for all of us?

We need to plan as if everyone is disabled, because everyone has the possibility to be disabled.

* Insights from conversation notes

The power of community stories



**Dr. Kawmadi
Abeytunge
London, ON**

**Heat stroke, youth,
disability, low-
income housing**



**Dr. Anna Serebrin
Edmonton, AB**

**Neo-natal ICU filled
with smoke during
wildfires**



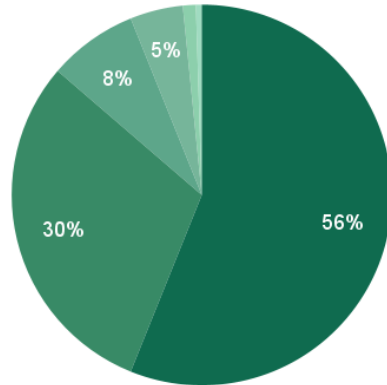
**Dr. Nancy Hansen
Winnipeg, MB**

**Protected lanes for
AT as barriers to
mobility**



**Dr. Ojistoh Horn
Akwasasne, QC**

**First Nations,
multiple
jurisdictions, enviro
pollution, disease,
new tech, heat**



**Vancouver, BC
Heat dome 2021**

**619 deaths, 98%
indoors, 90%
seniors, disability,
56% lived alone,
A/Cs, 10x heat-
related illness**



**Dr. Sébastien
Jodoin, Montreal,
QC**

**Mental health,
medication, and
heat**

Developing local solutions

Risks?

Obligations?

Roles?

Opportunities?

Challenges?

Places and spaces

Policies

Practices

Attitudes and norms

Experiences with barriers, gaps,
and lack of continuity

Examine jurisdiction,
mandate, zoning, vision,
plans, affordability, etc.

Consider resources and capacity
for communication, engagement,
outreach, partnerships, and
commitments

Aim to dismantle exclusion by
building awareness, acceptance,
and belonging

Thank you / Merci

karina@cape.ca



**Prairie
Climate Centre**
From Risk to Resilience



Climate Atlas
of Canada

ACME
Association canadienne
des médecins
pour l'environnement

A logo consisting of a green leaf on top of a caduceus (a staff with two snakes and wings), symbolizing the intersection of medicine and the environment.

CAPE
Canadian Association
of Physicians
for the Environment



ClimateWest

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#SCC2025CCD

Q&A



Green municipal fund (GMF)

Program of **\$2.4 B** funded by the Government of Canada and implemented by FCM.

Our unique mix of **funding** and **capacity building** delivers clear environmental, economic and social impact—creating better lives for people in Canada.

Local Leadership for
Climate Adaptation
(LLCA)



LLCA Overview

Supporting climate change adaptation in communities across the country



Climate-Ready Plans and Processes

Climate risk assessments and integration of climate considerations in plans, processes and management systems



Adaptation in Action

Municipal adaptation projects reducing risks of climate change impacts



Financing Adaptation

Testing new resilient infrastructure financing models

\$530 million

Funding for

1400+ initiatives

by

2032-2033



Climate Adaptation

Equity

Reconciliation

Collaboration

Nature-positive

Low-carbon resilience

LLCA cross-cutting themes

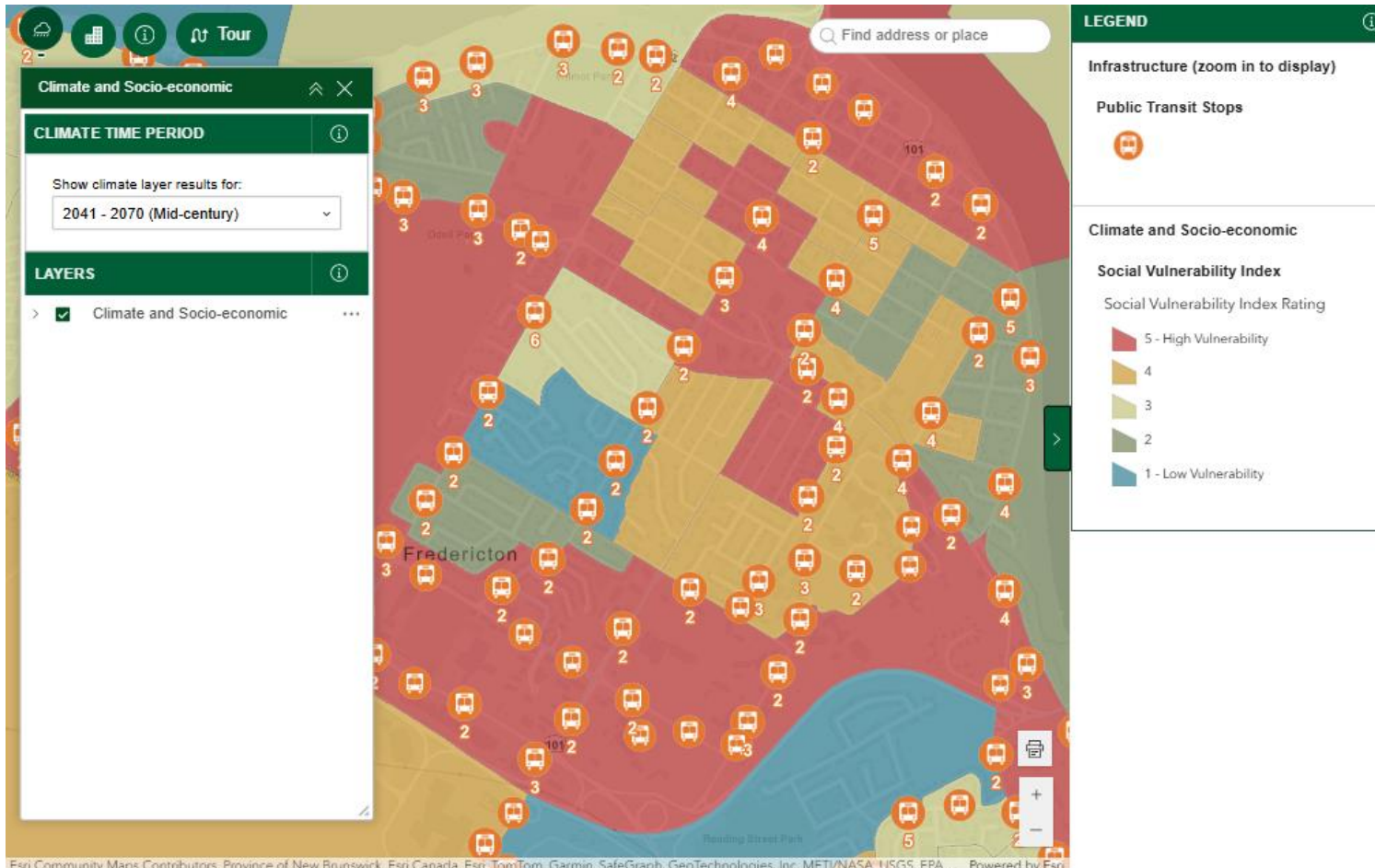
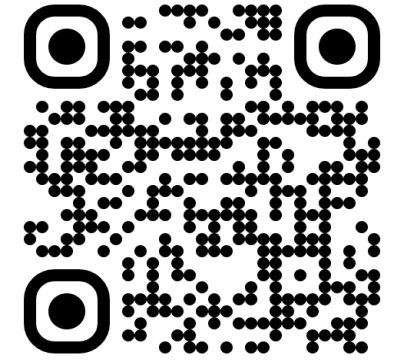


Meet GMF staff at the booth to learn about **funding** and **learning** opportunities



Climate Toolkits for Housing and Infrastructure

climateinsight.ca



This interactive map on ClimateInsight.ca lets users bring together climate, social vulnerability, and infrastructure data to promote equity-informed decision-making.

HICC and ICLEI Canada are working on updates to better reflect the social determinants of health (the non-medical factors that shape health and well-being, like income or education) through this map.

Results for Fredericton, NB, combining public transit stops, climate projections, and social vulnerability.

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[slido.com](https://www.slido.com)

#SCC2025CCD

Share one resource /
Partagez une ressource



Learn more

Resources & Tools

- [HealthyPlan.City](#) tool
- HICC [climateinsight.ca](#) platform
- Report: [Crippling Climate Adaptation - A Special Report on Disability Justice and Climate Change](#)
- GMF Factsheet: [Why equity matters in municipal climate adaptation](#)

Inspirational stories

- <https://climateatlas.ca/videos>
- HealthyPlan.City's [community stories](#)

Share your feedback / Partagez vos retours

Please take out your phone
/ Sortez vos cellulaires



Scan this code /
Scannez ce code

