



CHASE

CANADIAN HEALTH ASSOCIATION
FOR SUSTAINABILITY & EQUITY

Improving Health & Health Equity while Fighting Climate Change

CIPHI Alberta Health Webinar

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Climate Change Solutions & Immediate Health & Health Equity Benefits

CHASE & CPHA & OPHA

- ❑ Funding - McConnell Foundation
- ❑ 14 Case Studies
- ❑ 4 Webinars
- ❑ Report - to be released in Oct 2023
 - ❑ Public Health Strategies
 - ❑ Health & Health Equity Benefits of 5 Local Climate Solutions



Promoting Population **Health**,
Health **Equity** & Climate **Action**
Promouvoir la **santé** des populations,
l'**équité** en santé et l'**action** climatique

WEBINAR SERIES
SÉRIE DE WEBINAIRES

Climate Change and Global Health

On a global scale - CC is already producing catastrophic impacts on human health.

With 1.2°C of global warming, extreme climate events such as hurricanes, floods, heat waves, and droughts, are now:

- ❑ claiming the lives of hundreds of thousands of people each year,
- ❑ increasing food insecurity for tens of millions,
- ❑ escalating conflicts, and
- ❑ forcing people to flee from their homes.

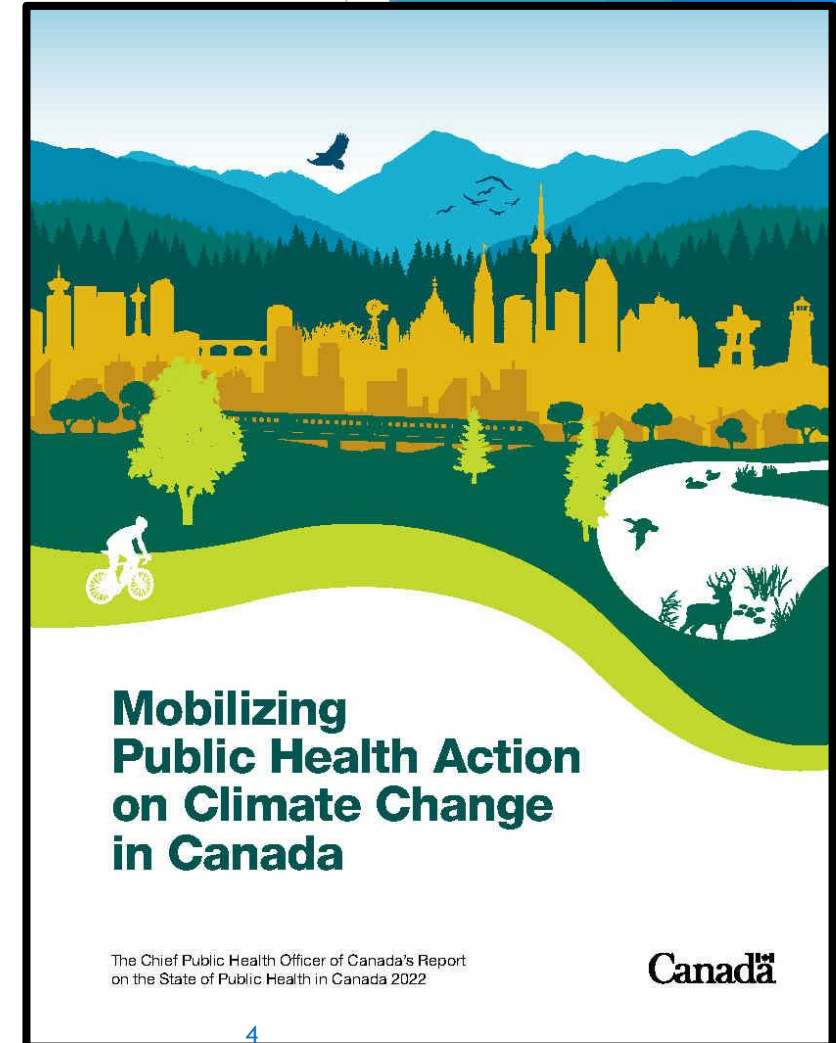


Chief Public Health Officer - 2022

"We must continue to bring climate considerations into public health work to prepare for, and respond to, the now inevitable health impacts. This means supporting communities to adapt to the climate risks they will face."

"But we also need to put health at the centre of climate action and focus on efforts that will lead to significant and near immediate health and environmental benefits...It is clear, climate action is good for our health and public health systems have a critical role to play."

[Link to CPHO Report](#)



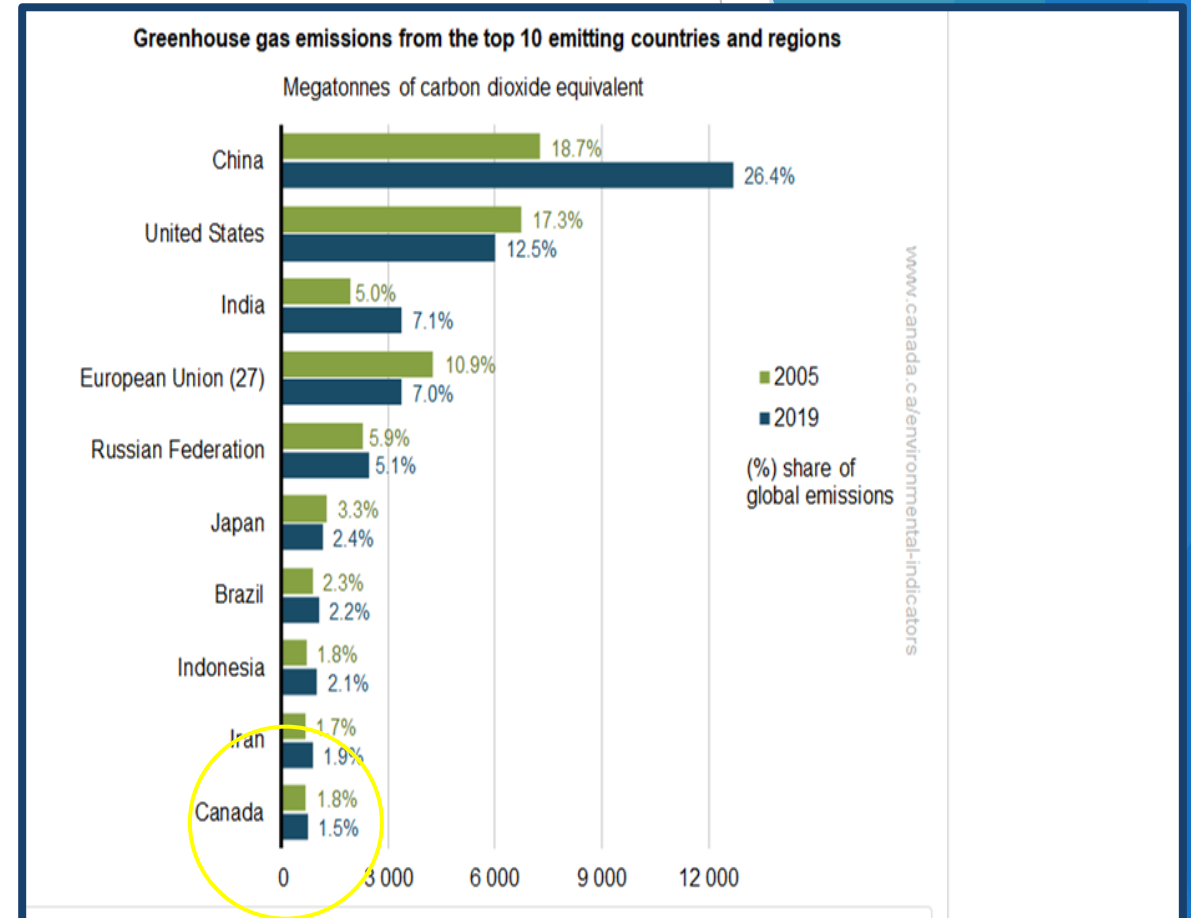
Action Needed to Prevent 2°C Warming: IPCC 2019

To prevent 2 degrees C of warming, the world must:

- Cut GHGs by 45% by 2030
- Reach Net Zero emissions by 2050

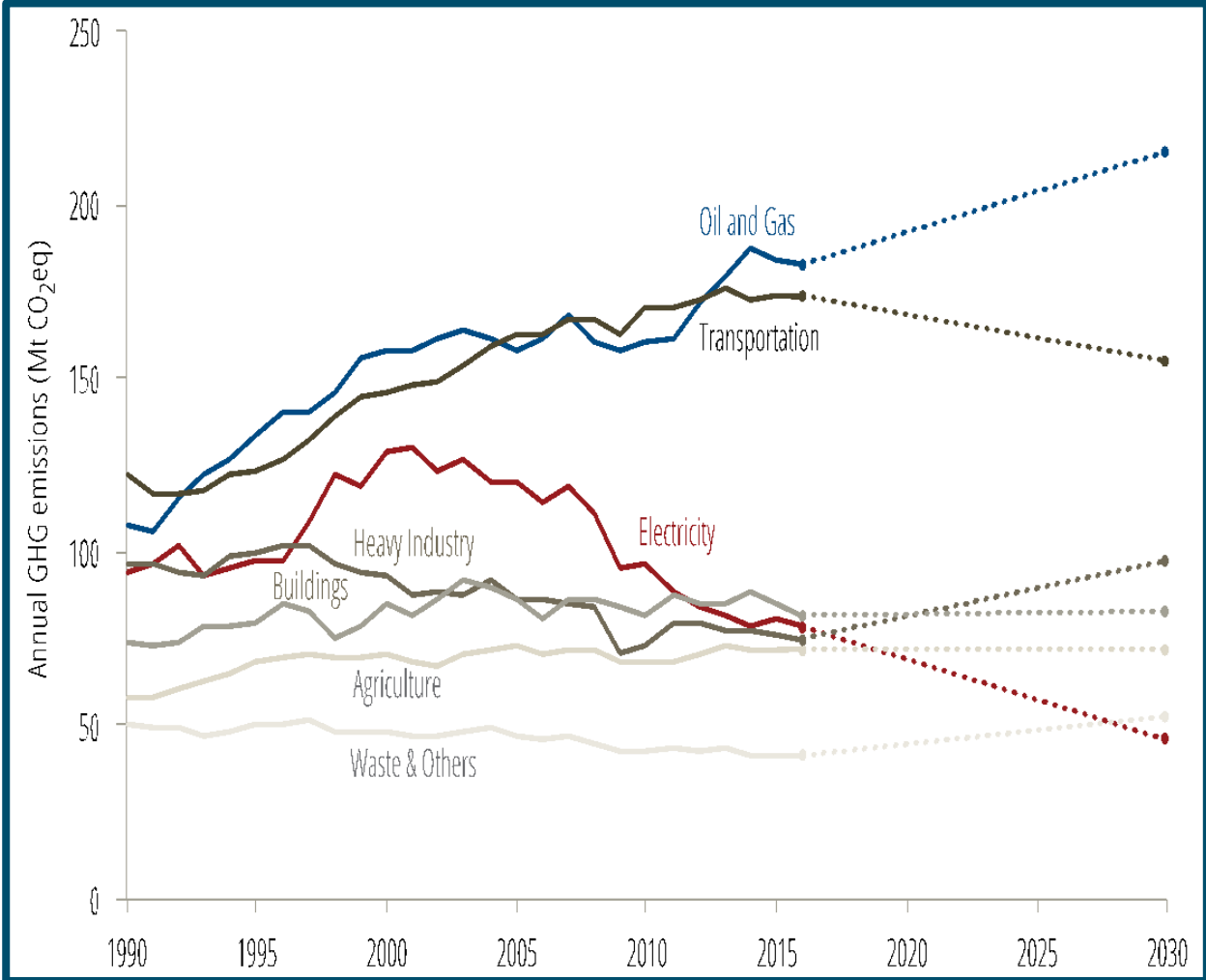
Canada should do more because:

- 1 of the top 10 emitting countries for decades



Canadian GHGs by Sector - 1990-2016 & to 2030

- ❑ **Transportation Sector**
 - ❑ Brown line - 25%
- ❑ **Oil & Gas Sector**
 - ❑ Blue line - 26%
- ❑ **Buildings**
 - ❑ Grey line - 13%
- ❑ **Electricity Emissions**
 - ❑ Red line - 11%



Climate Change Amplifies Health Inequities & Vulnerabilities

Young children, older people, & those with pre-existing health conditions more sensitive to environmental stressors

Structurally disadvantaged populations are at greater risk of adverse health effects already because of:

- ❑ Factors such as low-paying jobs, poor housing conditions, food insecurity ...
- ❑ Disadvantages that result from inter-personal & systemic biases such as sexism, racism, & colonialism ...
- ❑ Can experience greater exposures to CC impacts
- ❑ May not have the resources to protect themselves, or recover, from those events



- ▶ Berry P Clarke K Fleury MD & Parker S. 2014. Human Health in Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation. Editors: Warren FJ and Lemmen DS. Government of Canada, Ottawa, Ontario.
- ▶ Public Health Agency of Canada, Pan-Canadian Public Health Network, Statistics Canada, and the Canadian Institute for Health Information. 2018. Key Health Inequalities in Canada report/Pan-Canadian Health Inequalities Data Tool

Transportation Sector

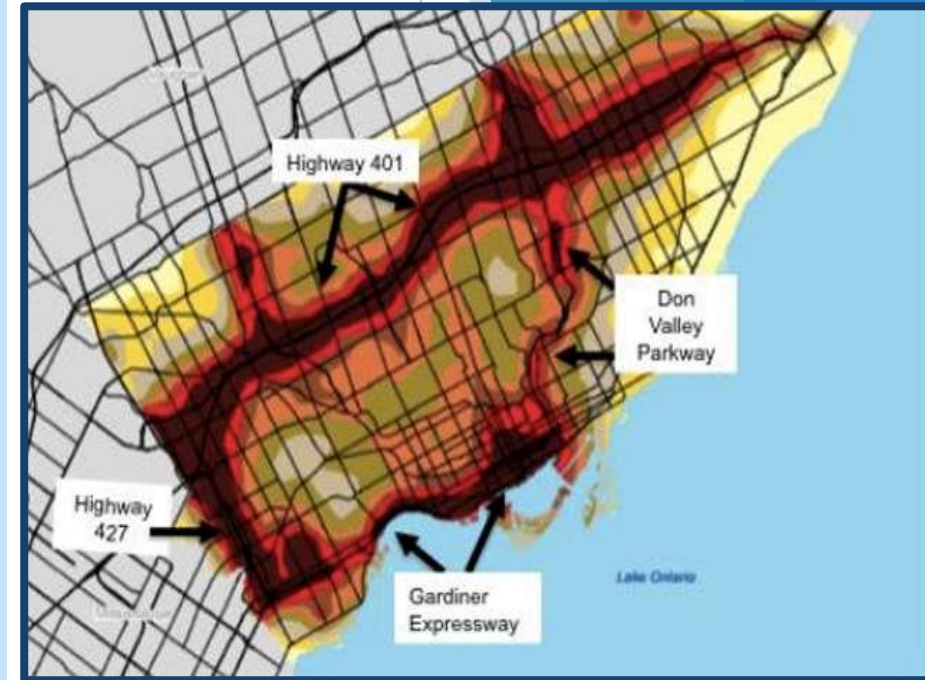
Traffic Related Air Pollution & Health

Air Pollution:

- ❑ 15,300 deaths/year in Canada -- \$130 Billion/year

TRAP:

- ❑ Tailpipe, engine, tires, brakes
- ❑ 1200 premature deaths/year - \$9.5 Billion/year
- ❑ Increases risk of asthma in children, asthma exacerbations, CVD, lung cancer & premature deaths
- ❑ Likely to cause childhood leukemia & lung cancer in adults
- ❑ May cause breast cancer in adults



Transportation Sector

Physical Activity & Health

Chronic diseases:

- ❑ About 150,000 premature deaths/year
- ❑ About \$200 Billion/year in health-related costs
- ❑ **Type 2 Diabetes:**
 - ❑ 10% of Canadians over a 10-year period
 - ❑ Huge cost to people & health care system

Physical Activity:

- ❑ Reduces the risk of 25 chronic diseases

Physical IN-activity:

- ❑ \$6.8 Billion/year in health-related costs - 7 chronic conditions



Climate, Health & Health Equity Benefits Public Transit

Reduces GHGs:

- ❑ Vancouver, by 2050, active travel plan could cut VKT & GHGs from transportation sector by 15% relative to BAU

Increases Physical Activity:

- ❑ Montreal Study - round trip on public transit - 25% of the daily physical activity recommended

Reduces Air Pollution:

- ❑ GTHA - transit-oriented plan - produce \$2 billion/year health-related benefits - reducing air pollution & increasing physical activity



Climate, Health & Health Equity Benefits Public Transit

Increases access to jobs & services:

- ❑ 20-40% of people do not drive due to income, age or ability

Reduces living costs:

- ❑ Costs \$6,000-\$13,000/year - one car

Reduces vehicle-related deaths:

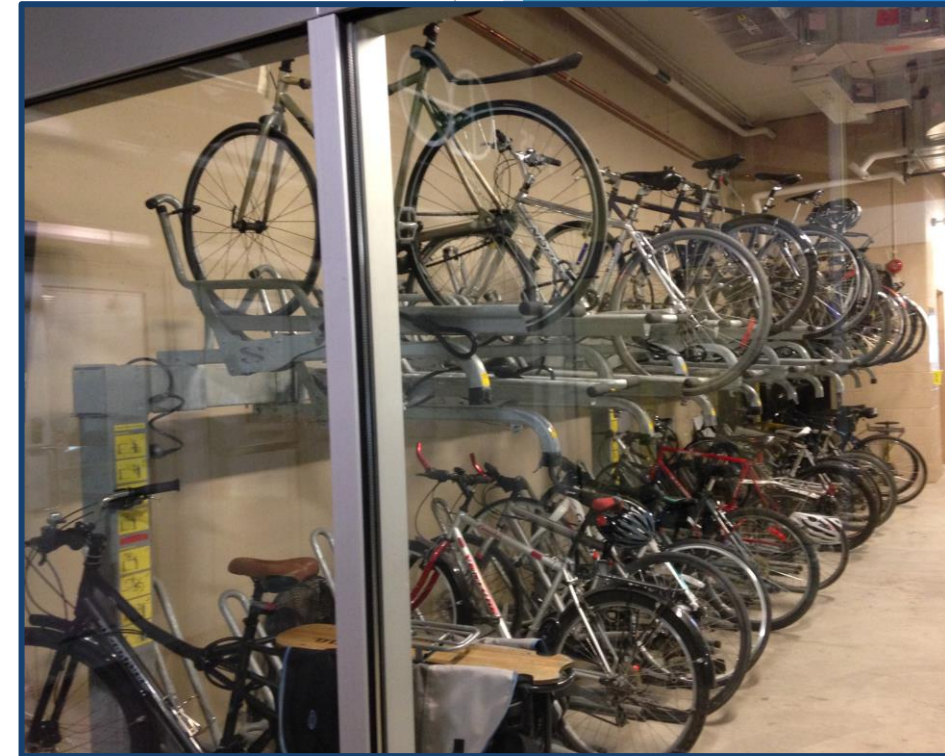
- ❑ 2000 vehicle-related deaths/year
- ❑ Fatality rate is 20 times less in transit



Climate, Health & Health Equity Benefits Active Transportation Infrastructure

Separated bike lanes, safe bicycling parking, pedestrian bridges, benches, lighting, sidewalks, traffic lights....

- ❑ Encourages walking & cycling as modes of transportation
- ❑ Reduces GHGs & air pollution
- ❑ Increases safety & physical activity
- ❑ Improves health
- ❑ More important for low-income neighbourhoods



Climate, Health & Health Equity Benefits Active Transportation Infrastructure

Long-Term Study - 2017 - followed more than 250,000 people - 22 communities - UK - 5 years found: .

- ❑ 90% of cycling commuters & 80% of mixed mode/cycling - physical activity guidelines
- ❑ 54% of walking commuters & 50% of mixed mode/walking - physical activity guidelines
- ❑ **Commuting by cycling - lowered the risk of CVD, cancer & premature deaths from all causes**
- ❑ **Commuting by walking - lowered risk of CVD - six miles or two hours/week**



Climate, Health & Health Equity Benefits Active Transportation Infrastructure

Air Pollution & Physical Activity Health Benefits:

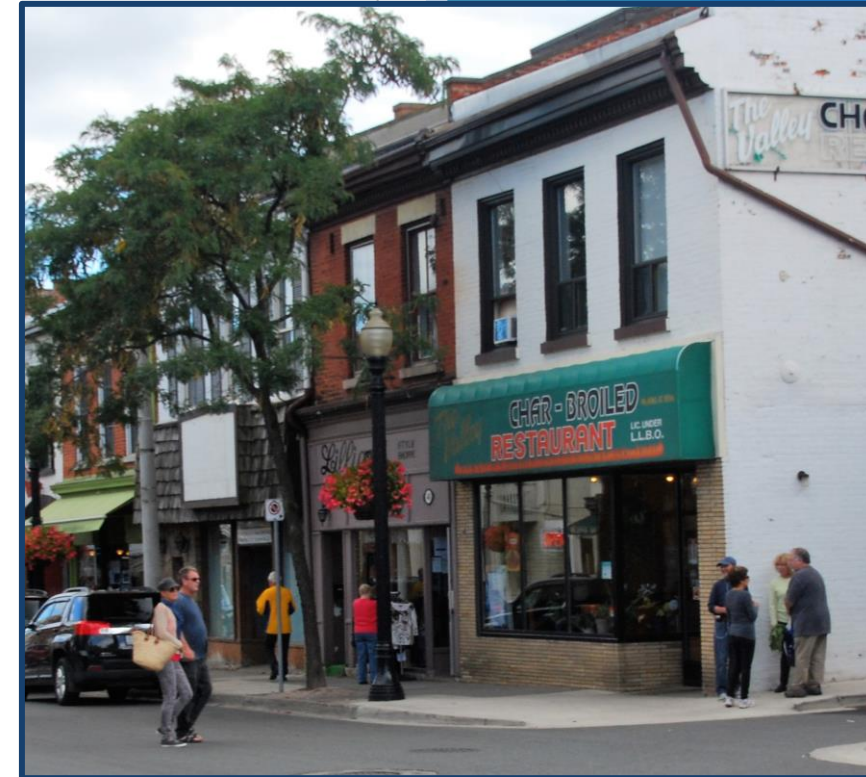
- ❑ Midwestern US - 31.3 M people
- ❑ Eliminate all vehicle trips <8 km
- ❑ Replace 1/2 with cycling
- ❑ \$7.35 B health-related benefits



Climate, Health & Health Equity Benefits Walkable Neighbourhoods

Five Ds - Density, Diversity, Design, Destinations, Distance to Transit

- ❑ Reduce GHGs
- ❑ Increase walking for transportation
- ❑ Reduce weight, diabetes, premature deaths
- ❑ Reduce air pollution
- ❑ Improve health equity by increasing access to essential amenities
- ❑ Greater health benefits for low-income populations



Climate, Health & Health Equity Benefits

Walkable Neighbourhoods

A 2022 study - followed 1.8 million adults over 15 years found that:

- ❑ Those living in the most walkable neighbourhoods were:
 - ❑ 9% less likely to die prematurely from CVD
 - ❑ 13% less likely from Stroke
 - ❑ 3% less likely all causes
- than those in the least walkable neighbourhoods

- ❑ Those living in the most walkable neighbourhoods who:
 - ❑ Had little education
 - ❑ Lived in low-income households
 - ❑ Lived in highly deprived neighbourhoods

Were 9%, 15% and 25% less likely to die prematurely from CVD than similar populations living in the least walkable neighbourhoods

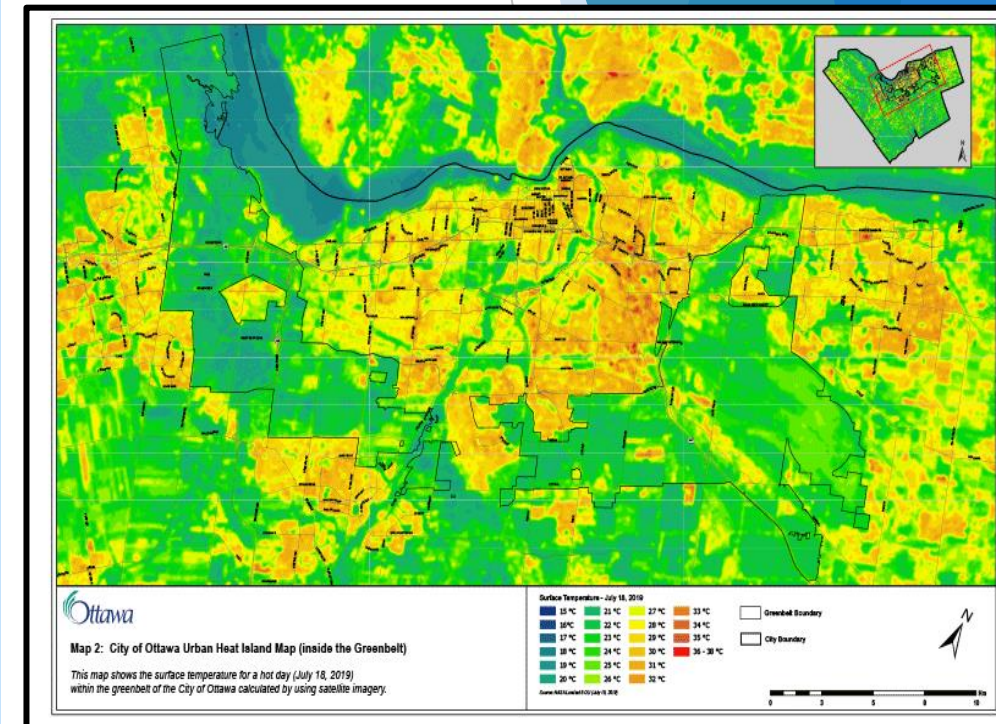
Green Buildings & Greenspace

Extreme Heat, Health & Health Equity

One study - 26 Canadian cities - extreme heat - increased premature deaths by 2-13%

BC Heat Dome:

- ❑ Deaths in community increased by 440%
- ❑ Much higher death rates:
 - ❑ 65-74 yrs
 - ❑ Low-income populations
 - ❑ Homes that lacked air conditioners
 - ❑ Less greenness & higher building densities



References: Health Canada. 2022. Health of Canadians in a Changing Climate - Advancing our Knowledge for Action.⁷ Henderson, 2022.

Image: City of Ottawa Urban Heat Island Map, Ottawa

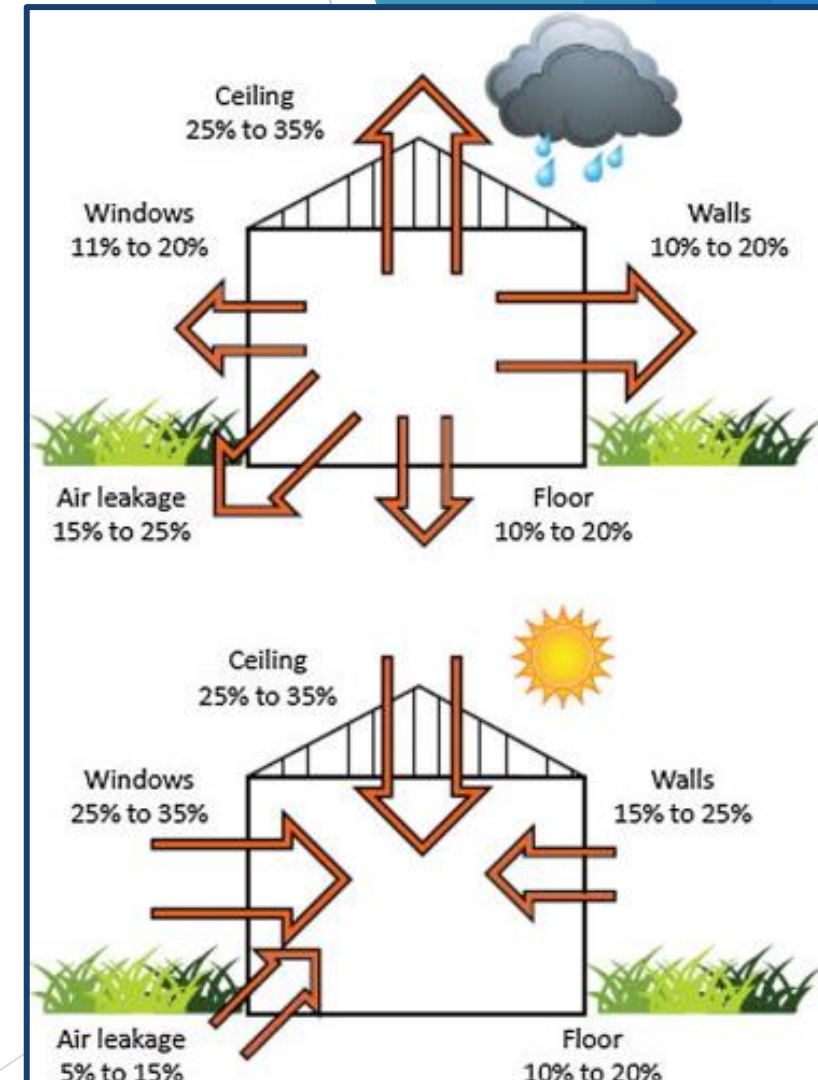
Climate, Health & Health Equity Benefits Green Buildings & Building Retrofits

Reduce Greenhouse Gases:

- ❑ International Energy Agency predicts that:
- ❑ Total GHGs from oil & gas used in buildings - reduced by **30% by 2050**
- ❑ Energy demand for space heating - reduced by **85% by 2050** - improving building envelopes & heat pumps

Reduces Outdoor Air Pollution

- ❑ Oil & gas release Nox & other pollutants



Climate, Health & Health Equity Benefits Heat Pumps

Cold Climate air-source heat pumps (ccASHP) -
Operate to temperatures as low as -25°C

- ❑ Completely replace conventional oil- or natural gas-fired heating systems & air conditioning
- ❑ Use 70% less energy than conventional home heating
- ❑ When electricity is from renewable energy sources, Heat Pumps can cut GHG from the heating & cooling of buildings by 100%



Climate, Health & Health Equity Benefits Green Buildings & Building Retrofits

Poor Indoor Environmental Quality (IEQ) can increase the risk of CVD, strokes, premature deaths, asthma, & respiratory diseases

- ❑ Extreme heat & cold
- ❑ Viruses & bacteria; Mould & dampness
- ❑ Air pollutants & toxics

Poor IEQ can Amplify Health Inequities:

- ❑ More sensitive to poor IEQ
- ❑ More likely to live in poor IEQ
- ❑ Less likely to have the resources to protect themselves, or recover, from climate-related events



Climate, Health & Health Equity Benefits Green Buildings & Building Retrofits

Improve IEQ

- Stabilize temperatures
- Reducing mould
- Improve air quality
- Improve health

Reduces Energy Poverty

- Reduce energy costs
- 1 in 10 households spend >6% on energy



Climate, Health & Health Equity Benefits Greenness & Greenspace

Sinks GHGS: One study estimated that:

- ❑ Urban forests can store about 25.1 tonnes C/hectare
- ❑ Forests store about 53.3 tonnes/hectare

Cleans & Cools the Air:

A 2015 review found that greenspace:

- ❑ Reduces temperatures & levels of air pollution
- ❑ Impacts felt locally & at a community level
- ❑ Particularly important for low-income neighbourhoods



Climate, Health & Health Equity Benefits Greenness & Greenspace

Improves Mental & Physical Health:

- ❑ Decreases stress, ADD/ADHD symptoms, & depression
- ❑ Associated with healthier birth & healthier weights, & improved cognitive function - particularly in children
- ❑ Decreases risk of diabetes & premature deaths from all causes

One long-term study

- ❑ 1.3 million Canadians - higher levels of greenness - 250-500m
- ❑ Decreased premature deaths from 6 causes by 8-12%

Greenness & Health Equity:

- ❑ Study in Montreal, Toronto & Vancouver found that:
- ❑ Materially deprived neighbourhoods were more likely to have higher levels of air pollution, be less walkable, and less green

Case Studies: Ottawa Public Health Walkable Neighbourhoods & Green Buildings

OPH is a Department of the city

- ❑ Co-located two staff in the Planning Dept to help develop the new Official Plan
 - ❑ One staff - 15-minute neighbourhoods
 - ❑ One Staff - Resiliency to Extreme Heat
- ❑ High Performance Development Standard for buildings
 - ❑ Mitigate health impacts for occupants & residents
 - ❑ Protect fresh air intakes from TRAP
 - ❑ Community energy planning, sustainable roofing, soil volumes, bird safe designs

15-Minute Neighbourhood



Housing
(i.e., low, medium and high rise)



Retail, Commercial and Health Services
(e.g., grocery stores, pharmacies, doctor's offices)



Public Service Facilities
(e.g., recreation facilities, libraries, indoor community centres)



Education
(e.g., schools, licensed child care)



Parks and Greenspaces
(e.g., playgrounds, pathways)



Sustainable Mobility
(e.g., cycling facilities, sidewalks, transit)

Case Study: Vancouver Coastal Health - Transit & AT

VCH is an arms-length agency of the province

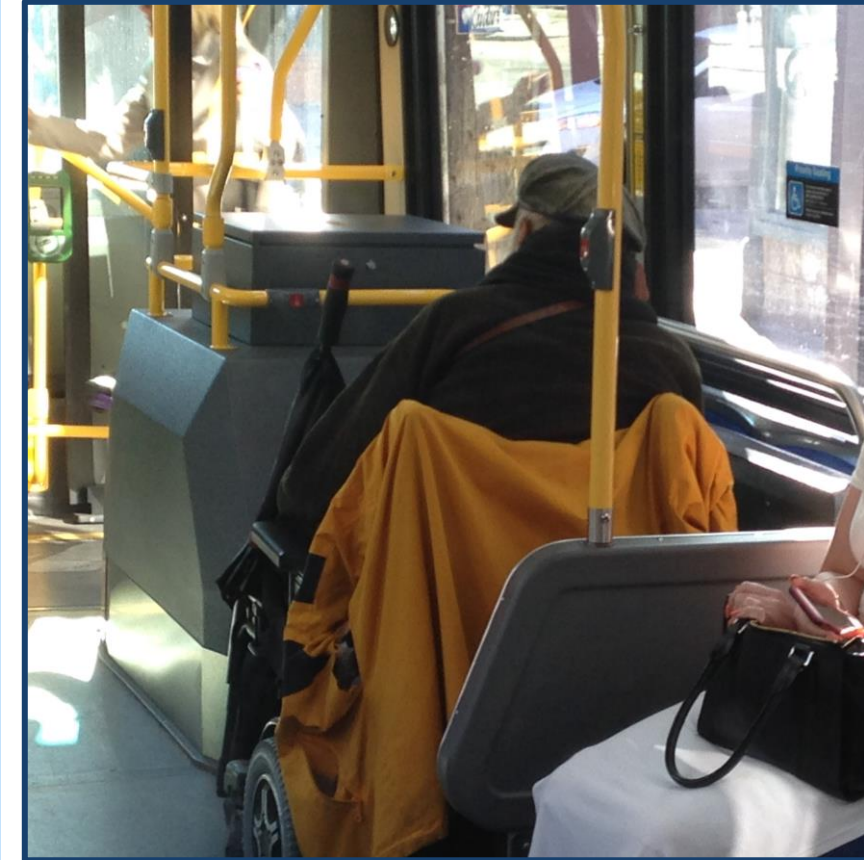
- ❑ Establish a Healthy Environments Team - fold social & environmental determinants of health - into the built environment
 - ❑ Meet with key staff in key agencies such as TransLink
 - ❑ Provide formal comments
 - ❑ Medical Health Officer depute to political bodies
- ❑ E.g. TransLink - transit impacts on physical activity, access & social equity, air pollution, GHGs, & vehicle-related injuries & deaths



Case Study: Niagara Region Public Health & Emergency Services Department - Active Transportation & Transit

Public Health is a Department of Niagara Region

- ❑ Health Equity-Informed Planning adopted in 2020
- ❑ Public Health manages the process
 - ❑ 3 levels of HIA - Rapid, Intermediate & Comprehensive
 - ❑ Rapid HIA - desktop exercise, secondary data, project manager & public health staff
- ❑ Assess project's potential to amplify or mitigate negative health impacts on priority populations for each SDOH
- ❑ E.g. Road Re-construction near 3 schools & 4 adult living facilities - Increase active travel, safety for pedestrians & cyclists, & access to services



Case Study: Peel Health - Greenspace - Trees

Peel Health is a Department in Peel Region

- ❑ 2012 Climate Vulnerability Report & 2019 Health Status report - extreme heat as a health risk
- ❑ Member of the Region's Urban Forest Working Group & Climate Change Steering Committee & Advisory Committee for **Tree Planting Prioritization Tool**
 - ❑ Tool based on benefits of trees, data sources & weighting recommended by Committee
 - ❑ Tool can be used to prioritize low-income neighbourhoods for tree planting



Case Study: Island Health - Building Retrofits - Heat Pumps

Vancouver Island Health Authority - Agency of the province - many small & remote communities

In 2013 – Healthy Built Environment Portfolio – address health & health equity

- ❑ **Province** provides policy positions & resources.
- ❑ **HBE Coordinator** - builds capacity & supports EHOs
- ❑ **EHOs** – work with **community health networks** that include elected leaders, First Nations reps, community groups, staff from local municipalities

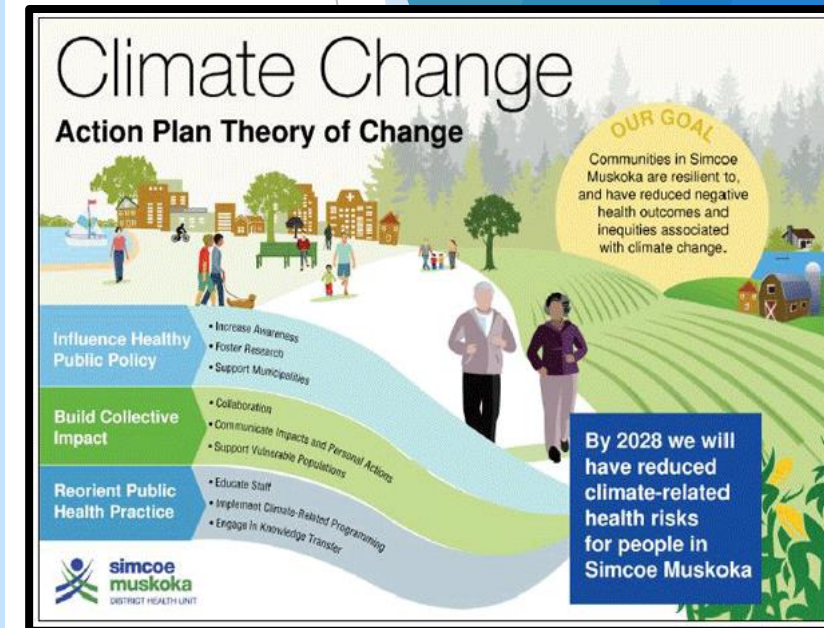
E.g. Cowichan Valley Regional District - air pollution concern - swapping out wood stoves for heat pumps



Case Study: Simcoe Muskoka District Health Unit - Climate Change & Indigenous Perspective

SMDHU is a local public health agency - independent Board of Health - 26 municipalities in Ontario

- Three-pronged program for Climate Health
 - Influence Healthy Public Policy - updated built environment policies to include climate perspective
 - Develop Collective Impact - established SM Climate Change Exchange - 40 members from organizations
 - Re-orient public health practice - with climate change mitigation & adaptation built into all work
- Contracted Indigenous consultant to do research on Indigenous perspective on climate adaptation



Ref: <https://chasecanada.org/2022/11/25/addressing-climate-health-in-simcoe-muskoka-ontario/>

Common Themes - 10 Public Health Case Studies

- ❑ **Climate Change Mitigation** - Benefits recognized but not always officially
- ❑ **Intersectoral Collaboration is essential** - context shapes this
- ❑ **Need to Engage Disadvantaged populations**
- ❑ **Senior Management Support is Pivotal**
- ❑ **Requires cultivating relationships & committing resources**
- ❑ **Specialized Training can be helpful**
- ❑ **Requires Increased and Sustainable Funding for Public Health**



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