

# *Webinar: Climate planning that promotes public health: understanding health risks and how good climate planning can protect and promote public health*

*July 17, 2020*

*1:00 pm - 2:00 pm EDT*

## ***Presenters:***

Kristen Boulard (Urban Planner, Brant County Health Unit)

Robert Sanderson (Planning and Evaluation Specialist,  
Northwestern Health Unit)

CLIMATE  
RISK  
INSTITUTE



**BRANT COUNTY  
HEALTH UNIT**

# Today's Speakers



**Robert Sanderson** is a planning and evaluation specialist at the Northwestern Health Unit, supporting the work of the Northern Ontario Climate Change and Health Collaborative.



**Kristen Boulard** is the Urban Planner at the Brant County Health Unit located in Brantford, Ontario.

CLIMATE  
RISK  
INSTITUTE



**BRANT COUNTY  
HEALTH UNIT**

# ***Climate Planning that Promotes Public Health***

***A look at climate change and health impacts and adaptation  
planning in northern Ontario***

Robert Sanderson  
17 July, 2020

# Outline

- Health Impacts of Climate Change
- N.Ont Health Impacts
- Vulnerability and Adaptation Assessments
- Health Co-Benefits Approach



# Background

“Climate change is the biggest global health threat of the 21st century” (Costello et al., 2009)

“and tackling it could be our greatest health opportunity.” (Watts et al., 2018)



Northwestern  
Health Unit

[www.nwhu.on.ca](http://www.nwhu.on.ca)

# The health impacts of climate change

## IMPACTS ON AVAILABILITY OF TRADITIONAL FOODS<sup>2</sup> AND MENTAL HEALTH<sup>3</sup> IN THE NORTH

Due to arctic warming ( 3x Global Rate)<sup>4</sup>.

## CLIMATE CHANGE ITS IMPACT ON HEALTH IN CANADA

Climate change is the biggest global health threat of the 21st century.

— Lancet<sup>1</sup>



### WILDFIRE-RELATED ASTHMA<sup>5</sup> & EVACUATION

Healthcare facilities evacuated:  
 • Fort McMurray: 105 patients<sup>6,7</sup>  
 • Interior B.C 2017: 880 patients<sup>8,9</sup>  
 Anxiety & PTSD following evacuation.<sup>10</sup>

### FLOOD-RELATED DEATHS AND DAMAGE

2013 Alberta flood<sup>11</sup>:  
 • 5 deaths<sup>12</sup>  
 • Healthcare facilities closed due to flooding.<sup>13</sup>

### DROUGHTS<sup>14,15</sup>

Uneven impact on crops.<sup>16</sup>  
 Socioeconomic stress.<sup>17</sup>

### ALLERGIES

Increased severity & duration of pollen seasons.<sup>18</sup>

### TICK-BORNE DISEASE

2017: 3x higher rate Lyme Disease in Ontario than 2012-2016 average.<sup>19</sup>

### HEAT-RELATED ILLNESS<sup>20</sup>

66 people died in Montreal during 2018 heat wave.<sup>21,22</sup>

### DISPLACEMENT

Climate change-exacerbated drought and famine was one factor in Syrian refugee crisis.<sup>24</sup>

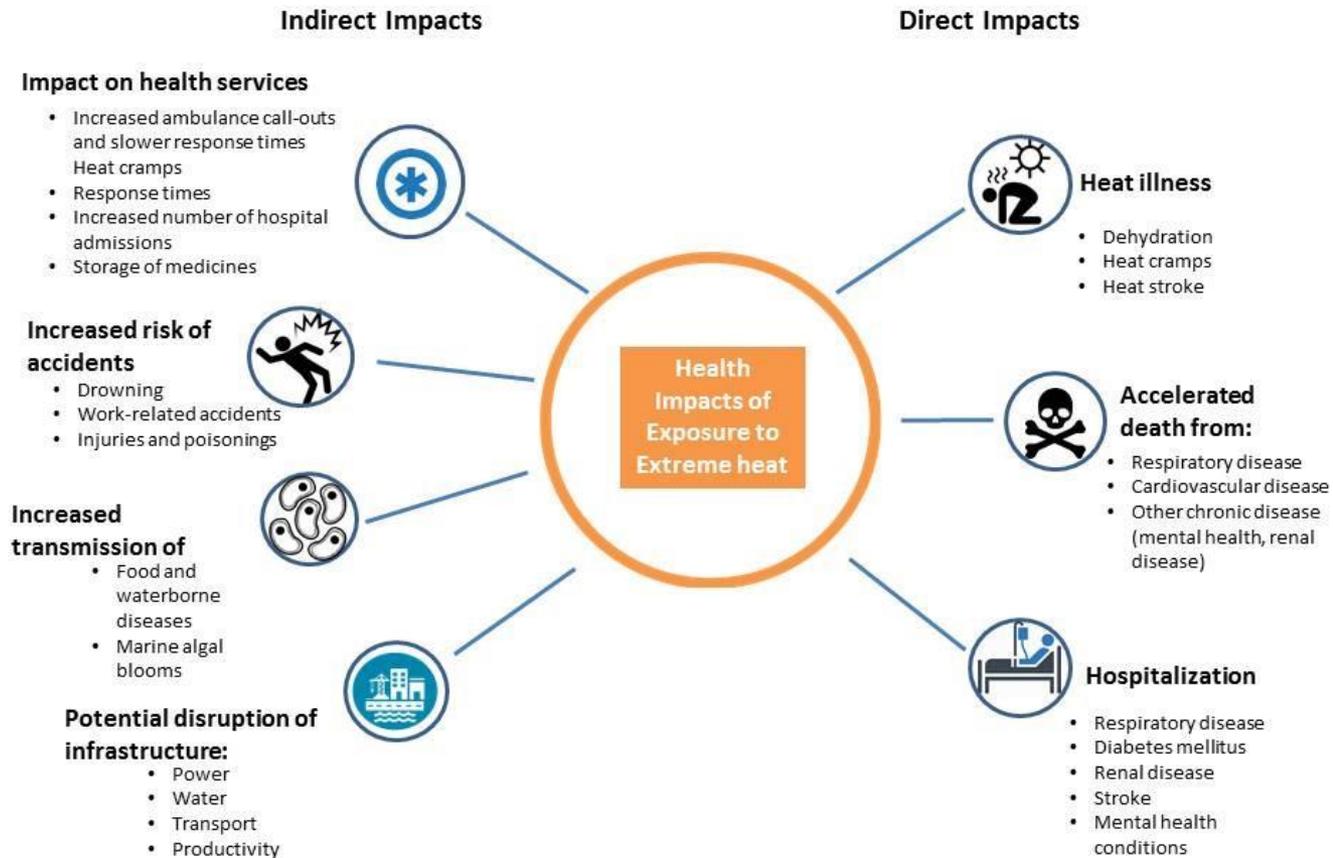
### RELOCATION & STRESS FROM COASTAL EROSION

P.E.I. homes at risk.<sup>23</sup>

ASSOCIATION MÉDICALE CANADIENNE  CANADIAN MEDICAL ASSOCIATION

1-Costello, The Lancet, 2009; 2-Rosol R, IJCH, 2016; 3-Cunsolo A, Ellis N, Nature CC 2018; 4-Canada's Changing Climate 2019; 5-Yao J et al, 2016; 6-Hampshire, G, CBC 2016; 7-Kirchmeier-Young M 2017; 8-BC Int Health 2017; 9-Kirchmeier-Young M et al, Am Geo Un, 2018; 10-Alberta Health, 2016; 11-Teufel B et al 2017; 12-CBC Alberta Flood 2013; 13-United Nurses of Alberta 2013; 14-Yusa A, et al, Int J Env Res P H, 2015; 15- Smoyer-Tomic KE, et al. Ecohealth 2004; 16- Agriculture and Agri-Food Canada, 2015; 17- Cryderman K, 2018; 18- Ziska LH, The Lancet PH 2019; 19- Nelder MP, 2018; 20-Howard, C et al. The Lancet Countdown Policy Brief for Canada 2018; 21-Montreal PH, 2019; 22- Vogel MM et al, Am Geo Union, 2019; 23-Fenech, A, 2014; 24-Kelleys, C, et al, 2015

# Direct vs Indirect



# Impacts in the North

Mental Health



Food Security



Temperature Extremes



Vector-borne Disease



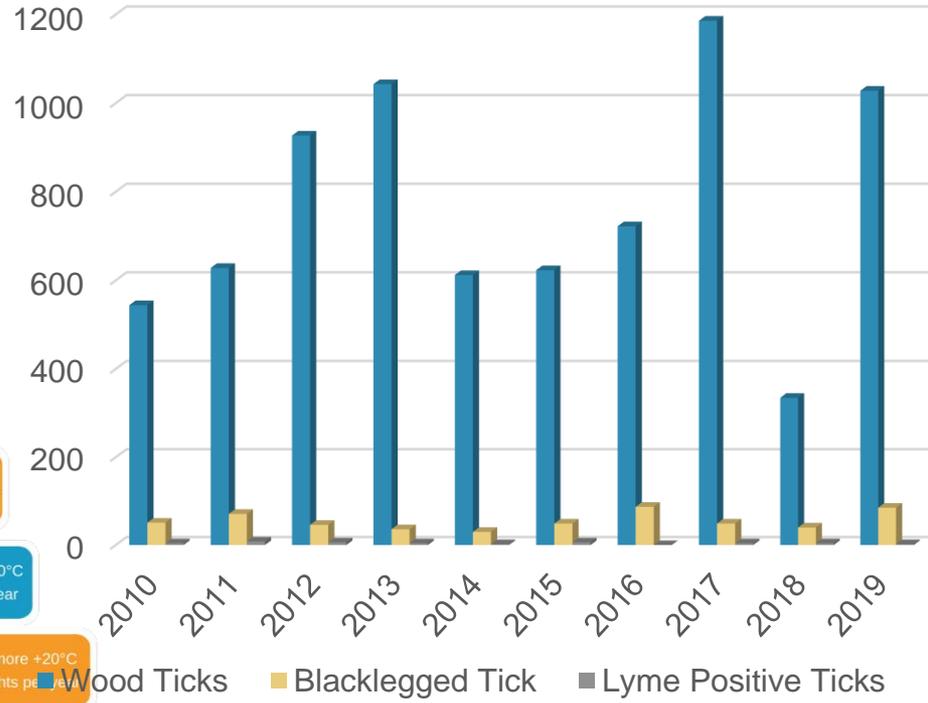
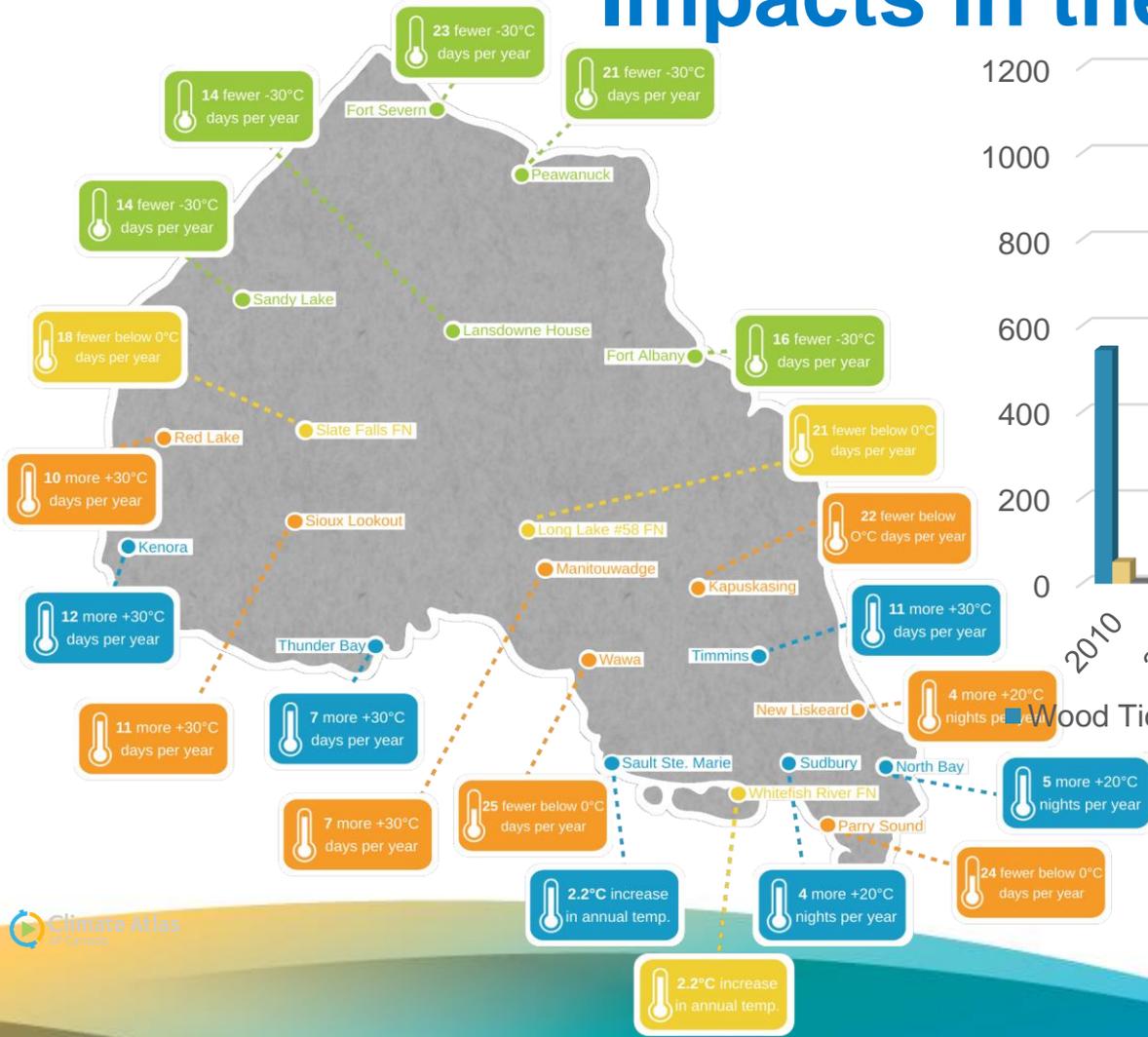
Weather Unpredictability



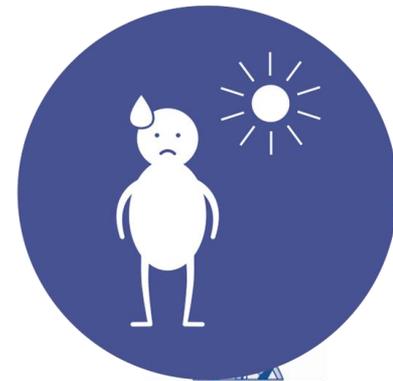
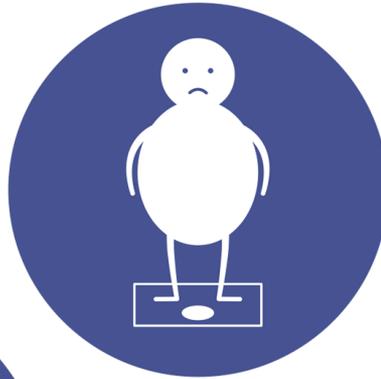
Extreme Weather Events



# Impacts in the North



# Who will be impacted?





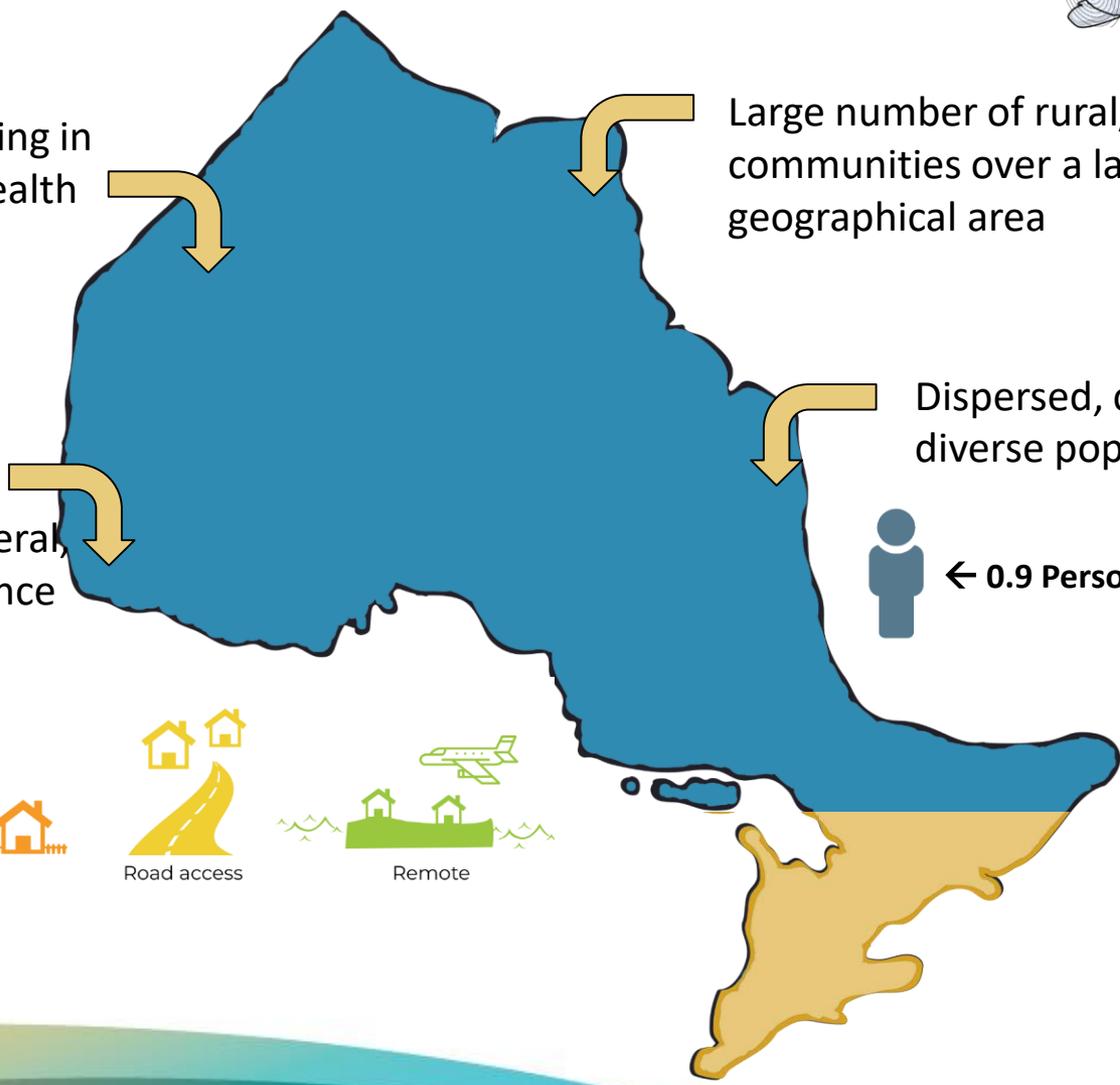
Systemic barriers resulting in inequitable access to health services

Large number of rural/remote communities over a large geographical area

Shared or intertwined municipal, unorganized townships, provincial, federal, and First Nations governance structures.

Dispersed, culturally diverse population

← 0.9 Persons / Km<sup>2</sup> →



Urban



Rural

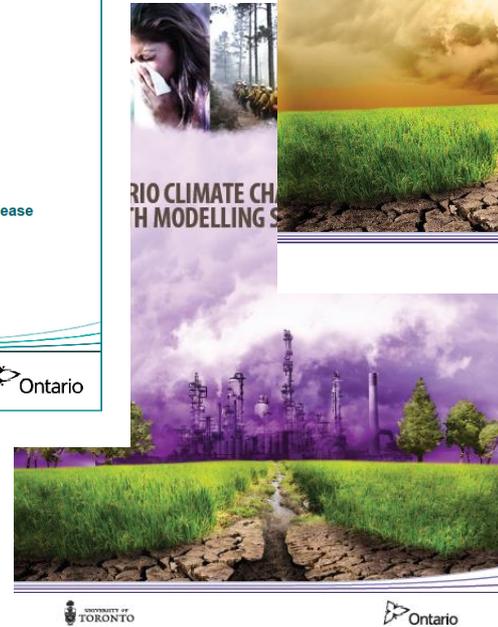
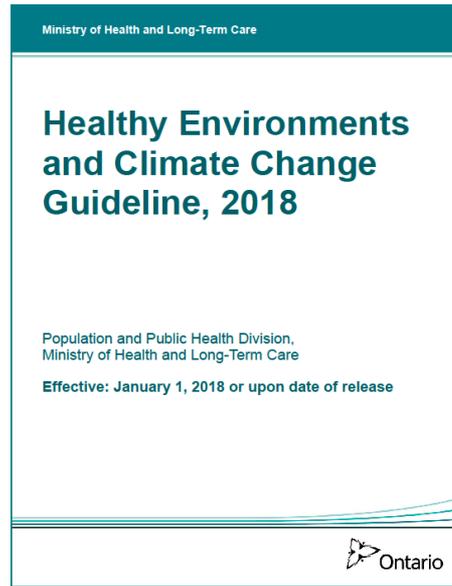
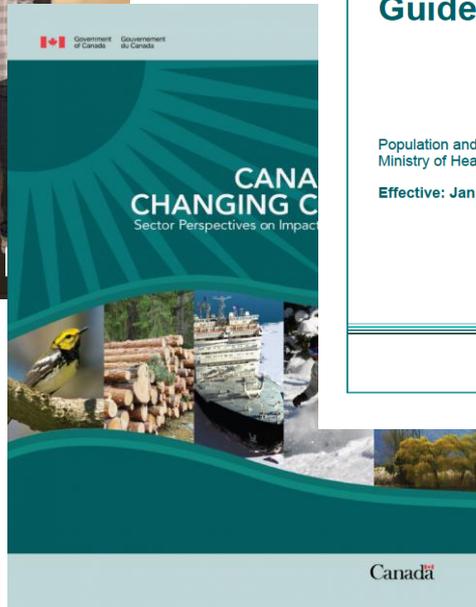


Road access



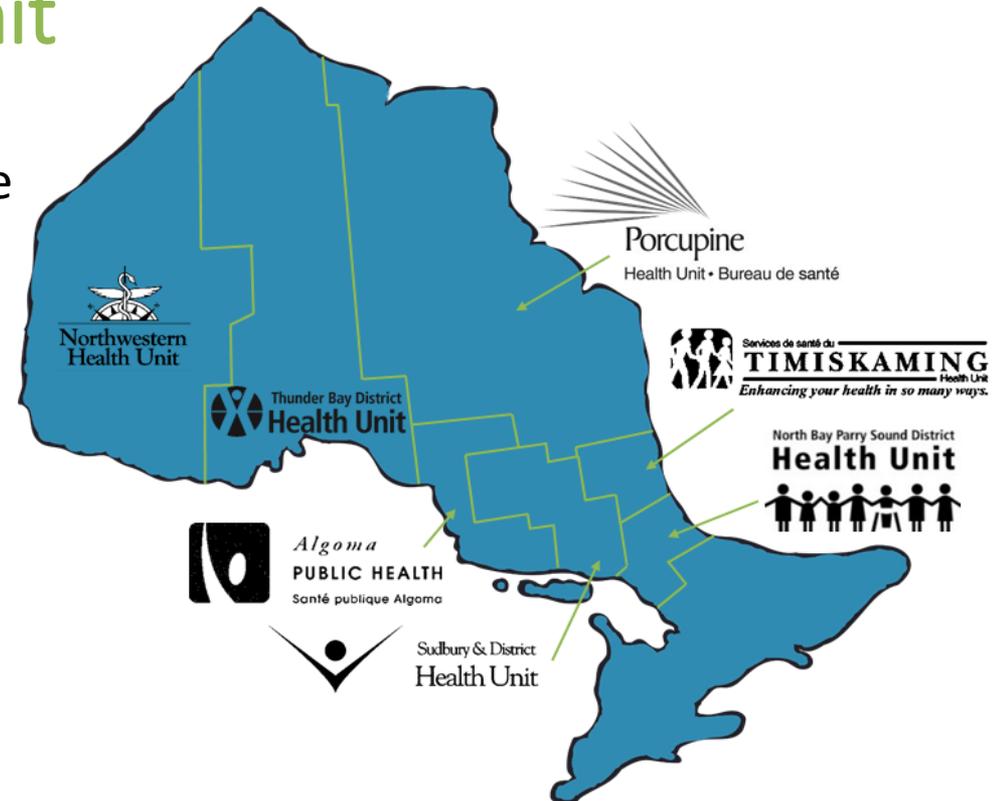
Remote

# Ontario Context



## Northwestern Health Unit Context

- Collaborative project between the 7 health units in Northern Ontario
  - o Algoma Public Health
  - o North Bay Parry Sound Health Unit
  - o Northwestern Health Unit
  - o Porcupine Health Unit
  - o Public Health Sudbury & Districts
  - o Thunder Bay District Health Unit
  - o Timiskaming Health Unit



Funded by:

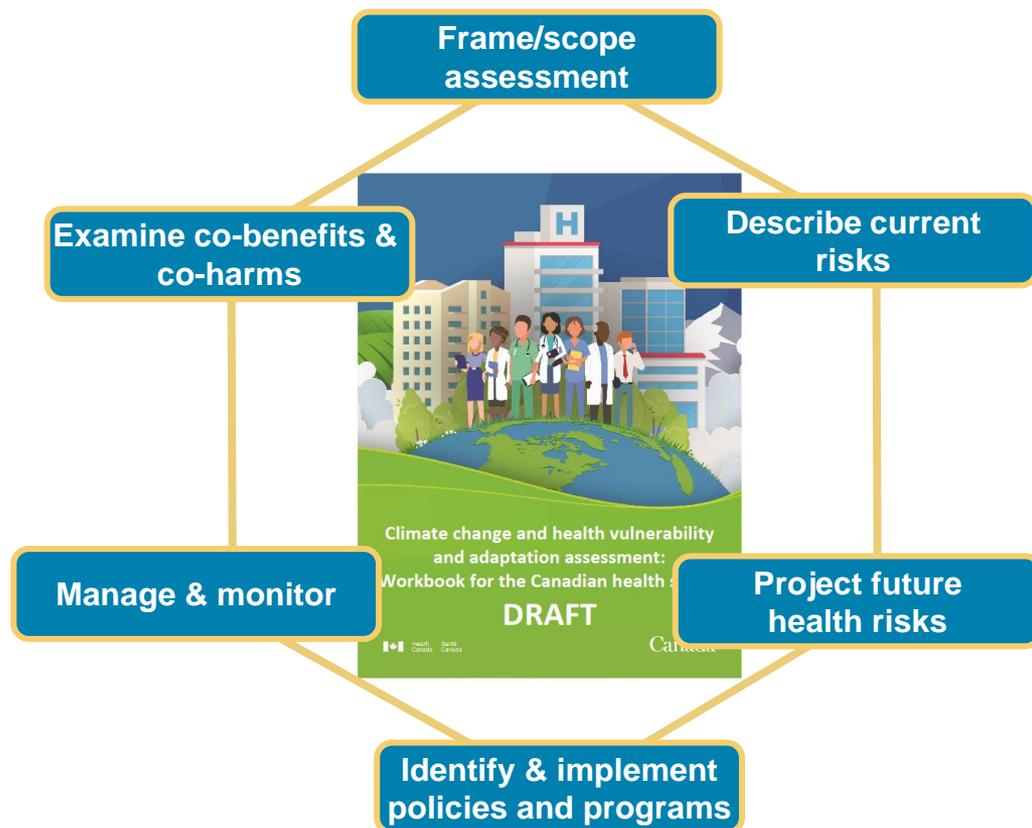


Health  
Canada

Santé  
Canada

# Assessment Process

1. Frame and scope the assessment
2. Describe current risks, including vulnerabilities and capacities
3. Project future health risks
4. Identify and prioritize policies and programs to manage the additional health risks associated with a changing climate
5. Establish an iterative process for managing and monitoring health risks
6. Examine the potential health benefits and co-harms of adaptation; and mitigation options implemented in other sectors



# Assessment Process

## Frame & scope assessment

- Establish project team
- Identify priority health impacts of concern
- Develop vulnerability and adaptation assessment work plan

## Describe current risks

- Comprehensive literature review
- Describe historical trends in climate impacts
- Characterize current vulnerability

## Project future health risks

- Gather input from experts
- Gather climate and health projection data
- Describe current and future changes to health risks



# Assessment Process

## Identify & implement policies and programs

- Assess health system resiliency
- Identify options, priorities, and constraints to action
- Recommend program and policy modifications to increase resiliency

## Manage & monitor risks

- Develop monitoring plan
- Develop indicators for monitoring
- Identify and share lessons learned and best practices

## Examine co-benefits & co-harms

- Review adaptation options implements or proposed in other sectors
- Identify actions to maximize synergies among adaptation options





## Objectives

### Objective 1:

Develop a set of tools and training materials to:

- Enable each health unit to understand climate change and its associated risks
- Effectively engage communities across their health unit
- Use the information from their climate change and health vulnerability and adaptation assessment to inform evidence based adaptation strategies.

### Objective 2:

Identify, engage and mobilize local and regional citizens and partners relevant to climate change adaptation

- Educate the public and other key stakeholders about the links between current and future/ projected climate change and health
- Identify locally- and culturally- relevant current and future adaptation strategies

### Objective 3:

Produce regional climate change and health vulnerability and adaptation assessments :

- Climate change predictions
- Assessment of current local vulnerabilities and capacities to adapt
- Current and future health risks
- Current and future policies/ programs to respond to climate change

## Objectives

### Objective 1:

Develop a set of tools and training

- Enable health units to understand and manage climate change risks
- Effectively communicate health risks
- Use the results of their climate change and health vulnerability and adaptation assessment to inform evidence based adaptation strategies.

### Objective 2:

Identify locally- and culturally- relevant current and future adaptation strategies

- Identify locally- and culturally- relevant current and future adaptation strategies

**To improve the capacity of each health unit to continue climate change work, by enhancing partnerships and collaborative efforts to increase internal and community capacity to adapt to climate change.**

Identify current local vulnerabilities and capacities to adapt

- Current and future health risks
- Current and future policies/ programs to respond to climate change

# Objectives

## Objective 1:

Develop a set of tools and training materials to:

**Interview Guide (General Impacts on Health)**

1. Perception of climate change impacts on health: What do you see?
2. What do you consider to be the biggest impacts of climate change in the region? (positive and negative)
3. What impacts do you perceive climate change is and will have on health in the region?
4. How concerned are you about these climate change impacts to health and what is most concerning?
5. Who (what populations) do you consider to be most vulnerable to the impacts of climate change?
6. Stakeholder adaptation action to protect health: What has been done and is needed?
7. What work has your organization done to adapt to climate change impacts in your region?
8. In your organization involved in activities to promote policy change around climate change adaptation?
9. What adaptation actions do you think would protect health within your region?
10. How would these adaptation actions impact health and well-being?
11. Is there anything more you or your organization could be doing to respond to climate change impacts on health?
12. Health Unit Adaptation: How can public health units support and respond to climate change?
13. How can the public health unit best support the community and families to adapt to the impacts of climate change?
14. Is action/change required beyond the level of our community and the health unit?
15. What additional information do we need to know or are missing?
16. Are there other community leaders or organizations within the region that you feel we should hear from?
17. How would these adaptation actions impact health and well-being?
18. Is there anything more you or your organization could be doing to respond to climate change impacts on vector-borne disease?
19. Health Unit Adaptation: How can public health units support and respond to climate change?
20. How can the public health unit best support communities and organizations to adapt to the impacts of climate change on vector-borne disease?
21. Is action/change required beyond the level of our community and the health unit?
22. What additional information do we need to know or are missing?
23. How can the public health unit best support the community and families to adapt to the impacts of climate change?
24. What type of action and/or change is required beyond the level of the health unit?
25. Is there anything else you would like to add regarding climate change, food security and adaptation in the region?

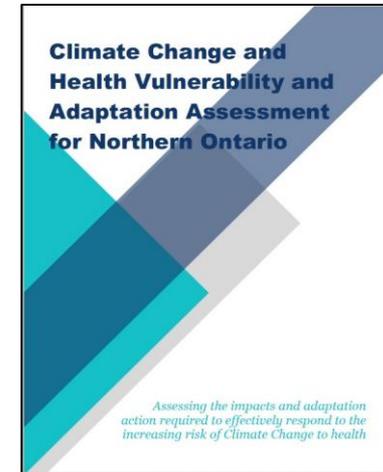
## Objective 2:

Identify, engage and mobilize local and regional citizens and partners relevant to climate change adaptation



## Objective 3:

Produce regional climate change and health vulnerability and adaptation assessments



## The process

- Improved capacity around climate science within public health
- Engagement toolkit for PHUs to begin engaging partners
- Vulnerability and Adaptation Assessment for each northern Ontario PHU
- Sharable resources for other jurisdictions wanting to conduct an assessment

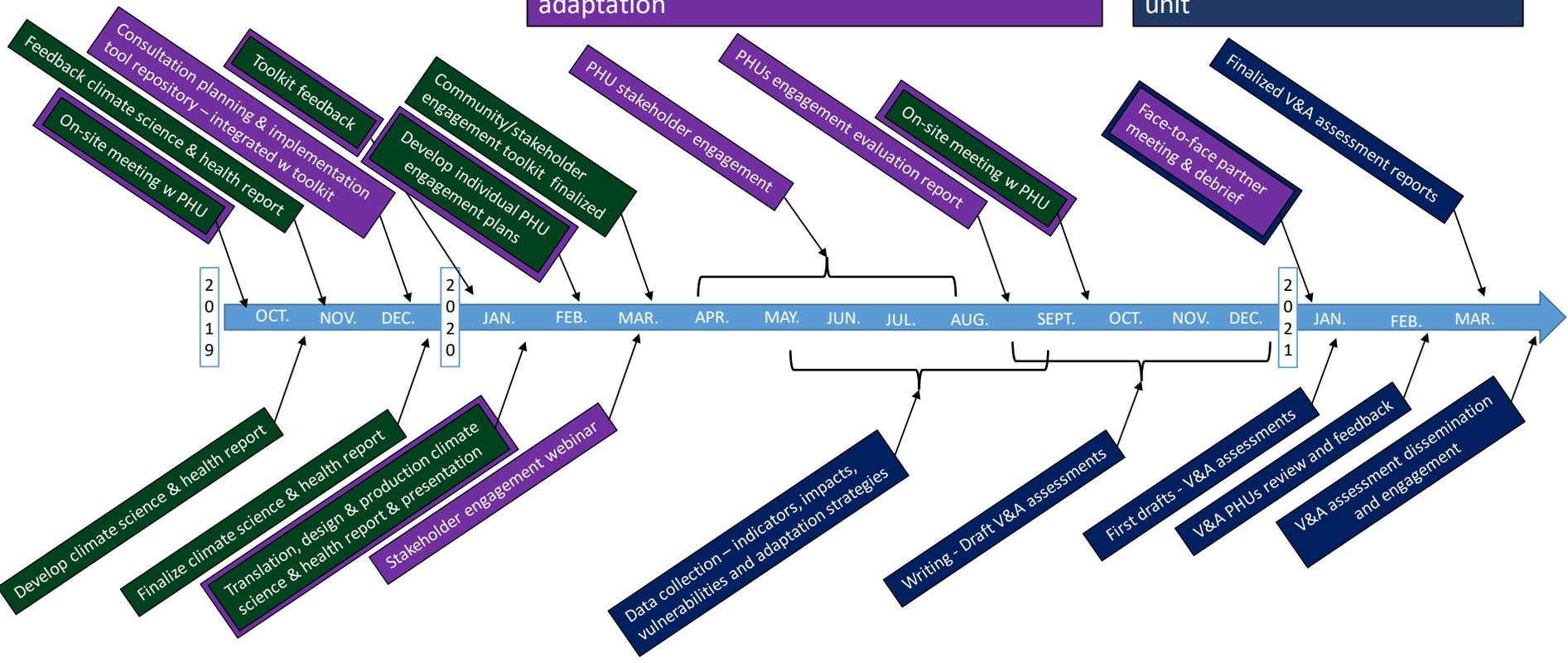


# Northern Ontario Climate Change Collaborative Project Timeline

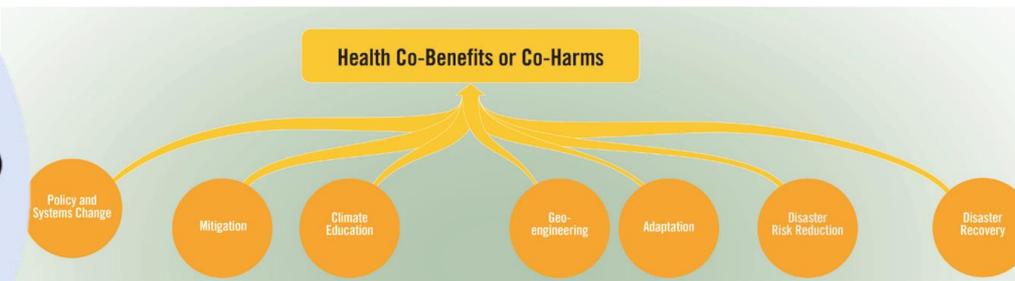
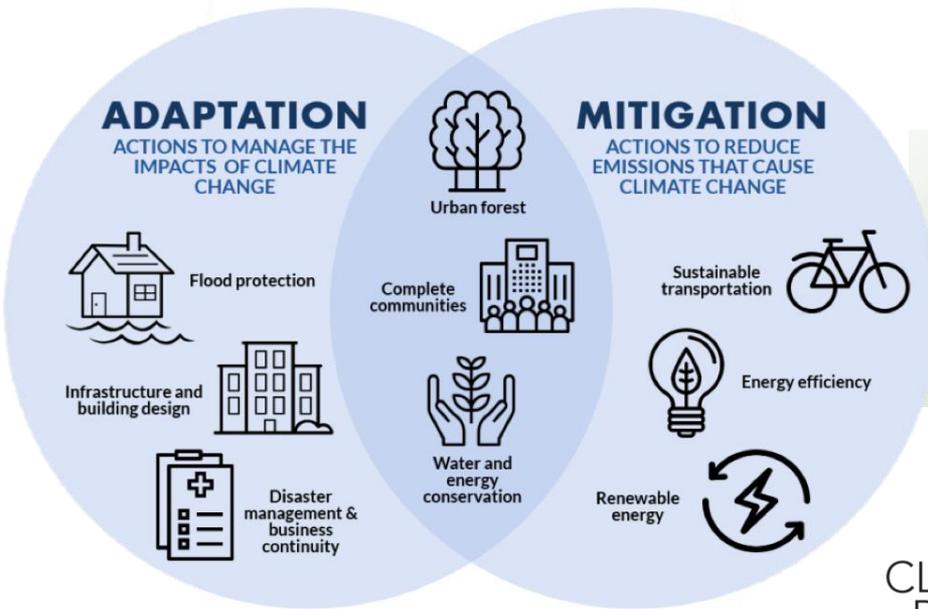
**Objective 1: Develop tools to understand, engage and adapt**

**Objective 2: Identify, engage and mobilize local and regional partners relevant to CC adaptation**

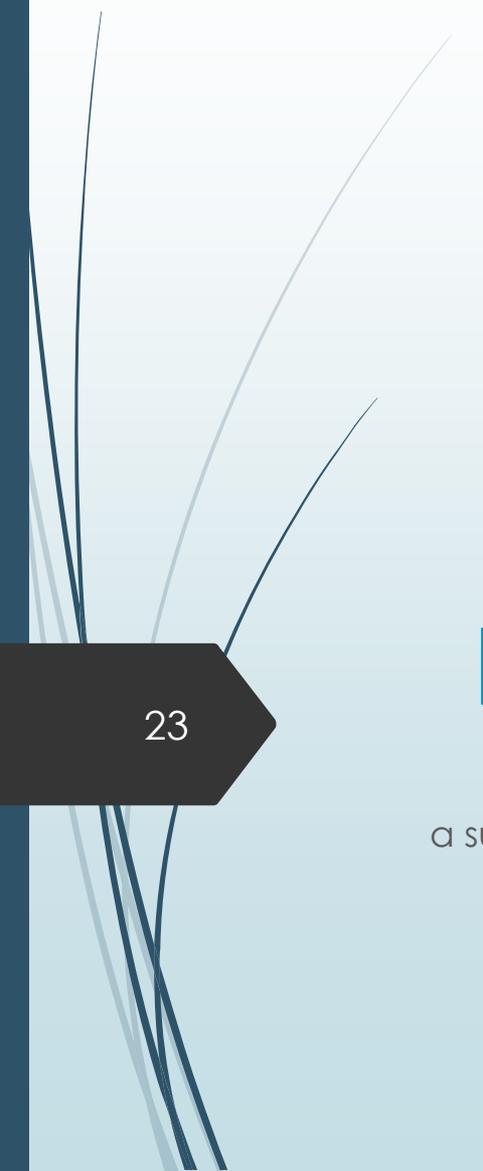
**Objective 3: Produce CC V&A assessment for each health unit**



# How adaptation planning can have Co-Benefits for health



CLIMATE  
RISK  
INSTITUTE



# Climate Change and Brant County Health Unit

23

a summary of two of our projects...

# Current Climate Change Projects

- Brant County Official Plan

## A Simply Grand *Plan*

The County is currently working on a new Official Plan document. BCHU has partnered with the County to develop Healthy Community and Climate Change and Health policies.

- Climate Change and Health Vulnerability Assessment

BCHU is the initial phase of an assessment of the health vulnerability of local climate change impacts.

## Why Now?

The recent updates to provincial planning policies by the current government requires a Municipal Comprehensive Review (MCR).

The Growth Plan (2019) defines a municipal comprehensive review as, "A new official plan, or an official plan amendment, initiated by an upper- or single-tier municipality under Section 26 of the *Planning Act* that comprehensively applies the policies and schedules of this Plan." The Municipal Comprehensive Review (MCR) is also known as the conformity exercise that all municipalities within the Greater Golden Horseshoe area are to conduct as required by Provincial legislation.

An MCR describes the following four major Growth Plan (2019) policy matters that are required to be addressed through the conformity exercise for the City:

1. Managing forecasted growth through intensification;
2. Protecting employment lands;
3. Considering requests to convert employment lands; and
4. Developing environmental policies.

# Background Documents

As part of the M.C.R., the County of Brant, Watson & Associates Economists Ltd, and BCHU are preparing a series of discussion papers that will facilitate discussions with the public and the County. The discussion papers have been organized based on key themes:

- ▶ Building Healthy and Complete Communities;
- ▶ Economic Development and Prosperity;
- ▶ Protecting What We Value;
- ▶ How We Green;
- ▶ Planning for Infrastructure; and
- ▶ Transportation and Mobility.

# Building Healthy and Complete Communities Discussion Paper

## **Key Elements of a Healthy and Complete Community**

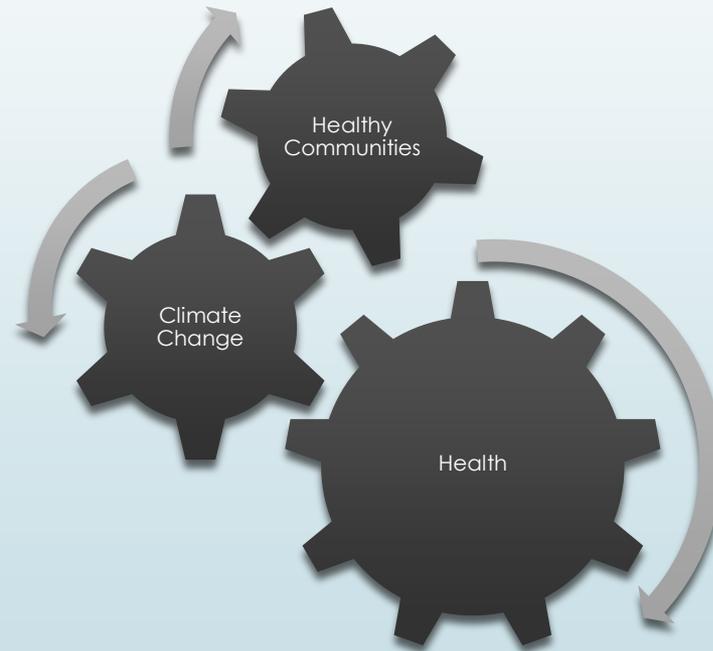
- ▶ Ensuring that all residents can access goods, services and places of employment, and making it easier to do so as the community grows;
- ▶ Supporting the use of alternative forms of active transportation options (cycling and walking) to improve accessibility and impact on the environment;
- ▶ Meeting the housing needs of people of all ages, abilities and income groups;
- ▶ Ensuring that actions and the use of resources consider the immediate and long-term environmental and fiscal impact;
- ▶ Encouraging sustainable growth by using existing infrastructure and underutilized land, including identifying opportunities to protect the natural environment and reduce the financial cost burden on the municipality and residents;
- ▶ Ensuring that parks, open space and recreational amenities are fully leveraged by residents by improving accessibility connections to these sites;
- ▶ Accommodating a wide range of employment opportunities for residents by supporting business diversity within the community;
- ▶ Building on the distinct community character by preserving community heritage sites and respecting local culture; and
- ▶ Supporting the access to affordable and healthy food, as well as protecting agricultural lands that secure local food production for the County.

Adapted from *Building Complete Communities: Supporting Quality of Life* prepared by the Ontario Ministry of Municipal Affairs and Housing, accessed online January 27, 2020:  
<http://www.mah.gov.on.ca/AssetFactory.aspx?did=15007>.

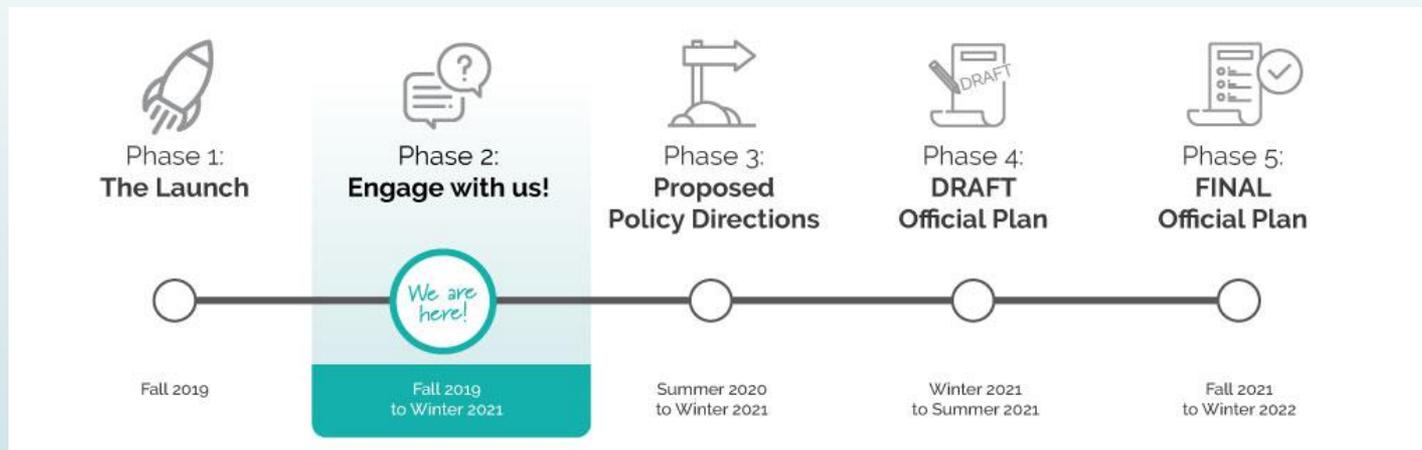
## BCHU is responsible for the following sections:

- ▶ Mix of Housing Options and Diversity of Land Uses
- ▶ Service Proximity and Community Amenities
- ▶ Neighbourhood Design: Street Connectivity and Streetscaping
- ▶ Active Transportation
- ▶ Natural Environment and Greenspace
- ▶ Food Security
- ▶ The Role of Public Health
- ▶ Climate Change
- ▶ How can we create new tools and guidelines to help planners, developers and public health professionals make more health-informed decisions?

# Our Approach



# Where are we in the process?



# Climate Change and Health Vulnerability Assessment Project

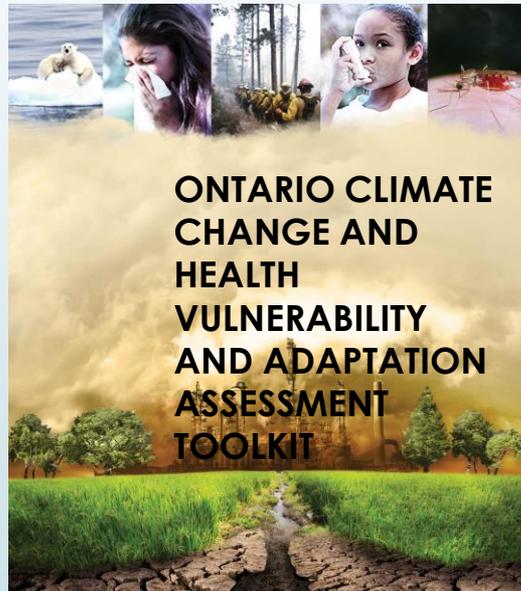


Table 3: Key Health Concerns from Climate Change

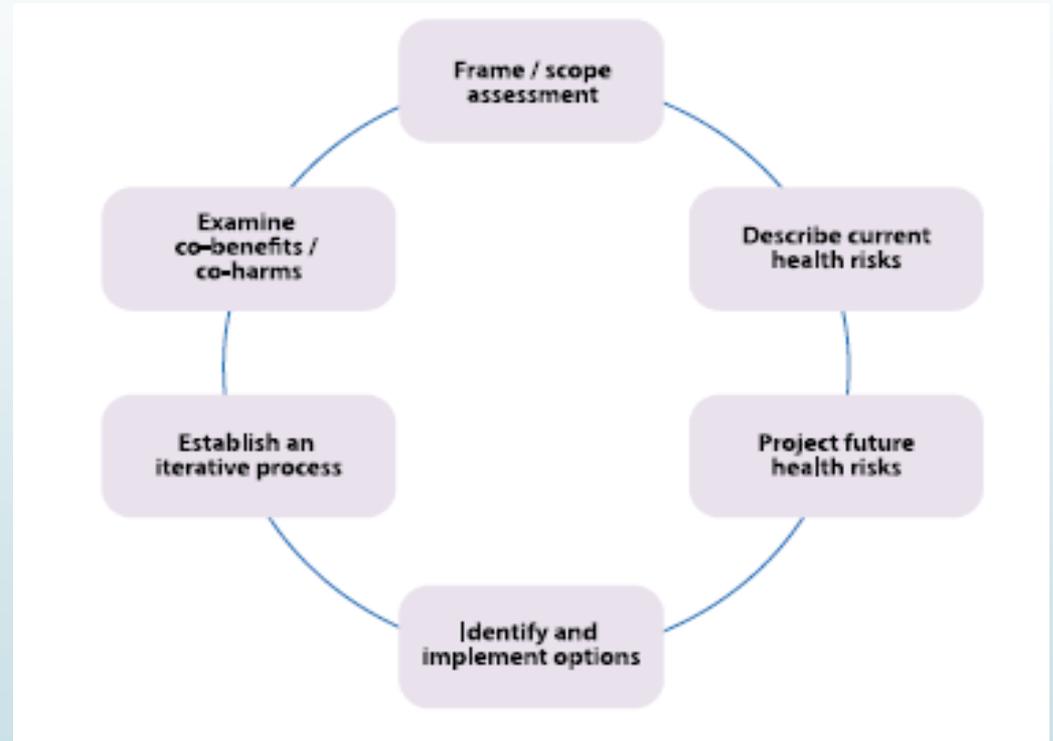
HEALTH IMPACT CATEGORY	POTENTIAL CHANGES	PROJECTED/POSSIBLE HEALTH EFFECTS
<b>Temperature extremes</b>	<ul style="list-style-type: none"> <li>• More frequent, severe, and longer heatwaves</li> <li>• Overall warmer weather, with possible colder conditions in some locations</li> </ul>	<ul style="list-style-type: none"> <li>• Heat related illnesses and deaths</li> <li>• Respiratory and cardiovascular disorders</li> <li>• Possible changed patterns of illness and death due to cold</li> </ul>
<b>Extreme weather events and natural hazards</b>	<ul style="list-style-type: none"> <li>• More frequent and violent thunderstorms, more severe hurricanes, and other types of severe weather</li> <li>• Heavy rains causing mudslides and floods</li> <li>• Rising sea levels and coastal instability</li> <li>• Increased drought in some areas, affecting water supplies and agricultural production, and contributing to wildfires</li> <li>• Social and economic changes</li> </ul>	<ul style="list-style-type: none"> <li>• Injuries, illness, and death from violent storms, floods, etc.</li> <li>• Psychological health effects, including mental health and stress-related illnesses</li> <li>• Health impacts due to food or water shortages</li> <li>• Illnesses related to drinking water contamination</li> <li>• Effects of the displacement of populations and crowding in emergency shelters</li> <li>• Indirect health impacts from ecological changes, infrastructure damages, and interruptions in health services</li> </ul>
<b>Air quality</b>	<ul style="list-style-type: none"> <li>• Increased air pollution from higher levels of ground-level ozone and airborne particulate matter, including smoke and particulates from wildfires</li> <li>• Increased production of pollens and spores by plants</li> </ul>	<ul style="list-style-type: none"> <li>• Eye, nose, and throat irritation, and shortness of breath</li> <li>• Exacerbation of respiratory conditions</li> <li>• Chronic obstructive pulmonary disease and asthma</li> <li>• Exacerbation of allergies</li> <li>• Increased risk of cardiovascular diseases (e.g. heart attacks and ischemic heart disease)</li> <li>• Premature death</li> </ul>

HEALTH IMPACT CATEGORY	POTENTIAL CHANGES	PROJECTED/POSSIBLE HEALTH EFFECTS
<b>Water and foodborne diseases</b>	<ul style="list-style-type: none"> <li>• Increase contamination of drinking and recreational water by run-off from heavy rainfall</li> <li>• Changes in marine environments that result in algal blooms and higher levels of toxins from fish and shellfish</li> <li>• Behavioural changes with warmer temperatures resulting in an increased risk of water and foodborne infections (e.g. through longer BBQ and swimming seasons)</li> <li>• Increase economic pressures on low income and subsistence food users</li> </ul>	<ul style="list-style-type: none"> <li>• Sporadic cases and outbreaks of disease from strains of waterborne pathogenic micro-organisms</li> <li>• Foodborne illnesses</li> <li>• Other diarrheal and intestinal disorders</li> <li>• Impacts on nutrition due to changing availability of local and traditional foods</li> </ul>
<b>Infectious diseases transmitted by insects, ticks, and rodents</b>	<ul style="list-style-type: none"> <li>• Changes in the biology and ecology various disease-carrying insects, ticks, and rodents (including geographical distribution)</li> <li>• Faster maturation for pathogens within insect and tick vectors</li> <li>• Longer disease transmission season</li> </ul>	<ul style="list-style-type: none"> <li>• Increased incidence of vectorborne infectious diseases native to Canada (e.g. Eastern and Western Equine encephalitis, Rocky Mountain spotted fever)</li> <li>• Introduction of infectious diseases new to Canada</li> <li>• Possible emergence of new diseases, and re-emergence of those previously eradicated in Canada</li> </ul>
<b>Stratospheric ozone depletion</b>	<ul style="list-style-type: none"> <li>• Depletion of stratospheric ozone by some of the same gases responsible for climate change (e.g. chloro- and fluorocarbons)</li> <li>• Temperature-related changes to stratospheric ozone chemistry, delaying recovery of the ozone hole</li> <li>• Increased human exposure to UV radiation owing to behavioural changes resulting from a warmer climate</li> </ul>	<ul style="list-style-type: none"> <li>• More cases of sunburns, skin cancers, cataracts, and eye damage</li> <li>• Various immune disorders</li> </ul>

Source: Berry et al. 2014

## The Process

The toolkit is designed to enable public health units to identify vulnerabilities within their communities; identify and implement local mitigation and adaptation strategies; raise awareness about the health hazards of climate change; and reduce public health vulnerability to climate change.



## Where we are now

### Step 2: Describe Current Risks Including Vulnerabilities and Capacities

This step is undertaken to describe current climate change and health relevant exposures, vulnerabilities, and capacities, to provide the context for understanding where modifications to current programs could decrease vulnerability to current and projected climate change. The information is also helpful for consideration of where new programs are needed to better manage the health risks expected within the next couple of decades.

The key components of this step are:

- Review qualitative and quantitative information;
- **Estimate current relationships between weather patterns and climate-sensitive health outcomes;**
- Describe trends for environmental hazards of interest;
- Characterize current vulnerability of exposed individuals and communities;
- Describe and assess effectiveness of policies and programs; and
- Develop an explicit baseline for use in monitoring future vulnerability and for evaluation of adaptation options.

# What's next?

## ► **Complete Step 2**

- Describe historical trends in the environmental hazards of interest
- Characterize the current vulnerability of exposed individuals and communities, including sensitivity and ability to cope
- Describe and assess the effectiveness of policies and programs to manage current vulnerabilities and health burdens
- Develop a baseline of information for use in monitoring future vulnerability and for evaluating adaptation options

## ► **Complete Steps 3 through 6**

- Including stakeholder and public consultation and the development of a communications plan.

**Step 3: Project Future Health Risks**

- ▶ Review qualitative and quantitative information
- ▶ Describe how current risks could change under different weather and development patterns

**Step 4: Identify And Prioritize Policies And Programs To Manage The Additional Health Risks Associated With A Changing Climate**

- ▶ Review qualitative and quantitative information
- ▶ Inventory options to improve the effectiveness of current policies and programs or to implement new ones to manage the health risks of climate variability and change
- ▶ Prioritize options and identify resource needs
- ▶ Assess possible constraints to implementing options and how to overcome them
- ▶ Develop a climate change and health adaptation plan

**Step 5: Establish An Iterative Process For Managing And Monitoring Health Risks**

- ▶ Develop a monitoring plan
- ▶ Develop indicators for monitoring
- ▶ Identify and share lessons learned and best practices

**Step 6: Examine The Potential Health Benefits And Co-harms Of Adaptation And Mitigation Options Implemented In Other Sectors**

- ▶ Review adaptation and mitigation options implemented/proposed in other sectors
- ▶ Identify synergies for adaptation and mitigation options

For more info, please contact me:

Kristen Boulard  
Urban Planner  
Population Health Assessment  
Foundational Standards  
Brant County Health Unit  
194 Terrace Hill Street  
Brantford, ON, N3R 1G7

Tel: 519-753-4937, ext.315  
Mobile: 519-755-6967  
Fax: 519-753-2140  
Email [Kristen.Boulard@bchu.org](mailto:Kristen.Boulard@bchu.org)

Thank you for listening.

# Questions or Comments?

## **Contact information:**

Kristen Boulard, Urban Planner, Brant County Health Unit

519-753-4937, ext. 315  
[Kristen.Boulard@bchu.org](mailto:Kristen.Boulard@bchu.org)

Robert Sanderson, Planning and Evaluation Specialist,  
Northwestern Health Unit

807-625-8454  
[rsanderson@nwhu.on.ca](mailto:rsanderson@nwhu.on.ca)

CLIMATE  
RISK  
INSTITUTE



**BRANT COUNTY  
HEALTH UNIT**