



# ***A Community Guide to Understanding and Responding to Climate Change***



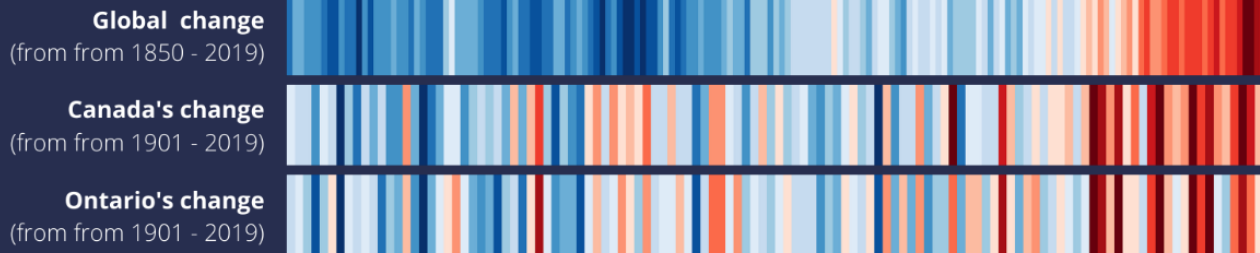
# SOUTH HURON'S CHANGING CLIMATE

Aligned with observed global changes, South Huron's climate is also changing and will have a continued impact on local weather, environment, economy, and the entire community.

## The Past

To visualize the changes to the climate, temperature is one variable that is often used because it is easily understood and clear to visualize. The images below show a simple representation of the historical changes in the average annual temperature across the globe, Canada and Ontario.

Changes in temperature are shown by the stripes changing from blue (cooler temperature) to red (warmer temperature)



\*Images retrieved from Show your Stripes ([www.showyourstripes.info](http://www.showyourstripes.info)) (Hawkins, 2020)

## The Future

The exact future climate depends on global greenhouse gas emissions. Projections of future changes provide a range of possibilities based on scenarios of low to high global emissions.

**What we do know:** our temperature will continue to warm, precipitation and seasonal patterns will continue to change and changes to the duration, frequency and severity of extreme weather events.



### UNDERSTANDING FUTURE CLIMATE PROJECTIONS FOR SOUTH HURON

**Future Scenario:** A high emissions scenario was used where greenhouse gas emissions globally increase at current rates to the end of the century.

**Projection • Immediate future:** refers to the period of 2021 to 2050  
**Periods • Near future:** refers to the period of 2051 to 2080

**Baseline Period:** The period of 1978 to 2005 was used as the baseline to quantify the anticipated future projections.

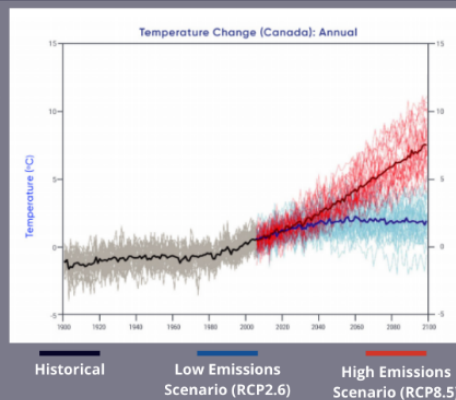
## WHAT IS CLIMATE CHANGE?

When understanding climate change, it is important to decipher climate and weather, as they are often falsely understood as equivalent.

**Weather** refers to the variation in short-term atmospheric conditions (temperature, wind, precipitation, humidity, and cloud cover) that occur from minutes to weeks.

**Climate** on the other hand refers to weather patterns averaged over a period of time, typically 30 years or more.

A snapshot of the projected average annual temperature change for Canada.



\*Figure retrieved from Canada's Changing Climate Report (2020)

# SOUTH HURON'S

## FUTURE CLIMATE PROJECTIONS UNDER A HIGH EMISSIONS SCENARIO

\*Data for South Huron's future climate projections retrieved from Climate Atlas ([www.climateatlas.ca](http://www.climateatlas.ca))

### WHAT DOES CLIMATE CHANGE MEAN FOR SOUTH HURON?

In general, South Huron's future climate will include warming temperatures, changing precipitation patterns, a shift in seasonal changes and changes in the duration, frequency, and severity of extreme weather events.

#### TEMPERATURE



↑ **Winter Temperature**  
(Baseline: -4.6 °C)  
-2.3 °C (immediate)  
0.1 °C (near)

↑ **Very Hot Days >30 °C per year**  
(Baseline: 11 days)  
29 days (immediate)  
56 days (near)

↑ **Annual Temperature**  
(Baseline: 7.8 °C)  
9.9 °C (immediate)  
12 °C (near)

↓ **Winter Days per year (temp. at least -15 °C)**  
(Baseline: 15.4 days)  
6.5 days (immediate)  
1.8 days (near)

The winter season will experience greatest temperature increase

↑ **in Spring Precipitation**  
(Baseline: 220 mm)  
10% (immediate)  
16% (near)

↑ **in Winter Precipitation**  
(Baseline: 235 mm)  
10% (immediate)  
17% (near)

↑ **Annual Total Precipitation**  
(Baseline: 937mm)  
6% (immediate)  
9% (near)

↑ **in Maximum 1-day and 5-day Precipitation Amounts**

#### PRECIPITATION

More precipitation falling as rain and freezing rain and less falling as snow.



#### SEASONAL CHANGES



↑ **Frost Free Season**  
(Baseline: 170 days)  
194 days (immediate)  
218 days (near)

**Earlier last spring frost**  
(Baseline: May 3)  
April 20 (immediate)  
April 10 (near)

**Later first fall frost**  
(Baseline: Oct. 22)  
Nov. 4 (immediate)  
Nov. 17 (near)

↓ **Annual Freeze-Thaw Cycles**  
9% (immediate)  
22% (near)

↑ **January & February Freeze-Thaw Cycles**  
10% (immediate)  
20% (near)

↑ **Freezing Rain, Ice, and Snow Events** particularly in January and February

↑ **Wind Gusts for all of Southern Ontario**

↑ **Heavy Rainfall and Drought Extremes**

#### EXTREME WEATHER EVENTS

↑ **Heatwave Length** (Baseline: 3 days)  
5 days (immediate)  
7 days (near)

↑ **Heatwave Events per year** (Baseline: 1.4 events)  
4 events (immediate)  
7 events (near)

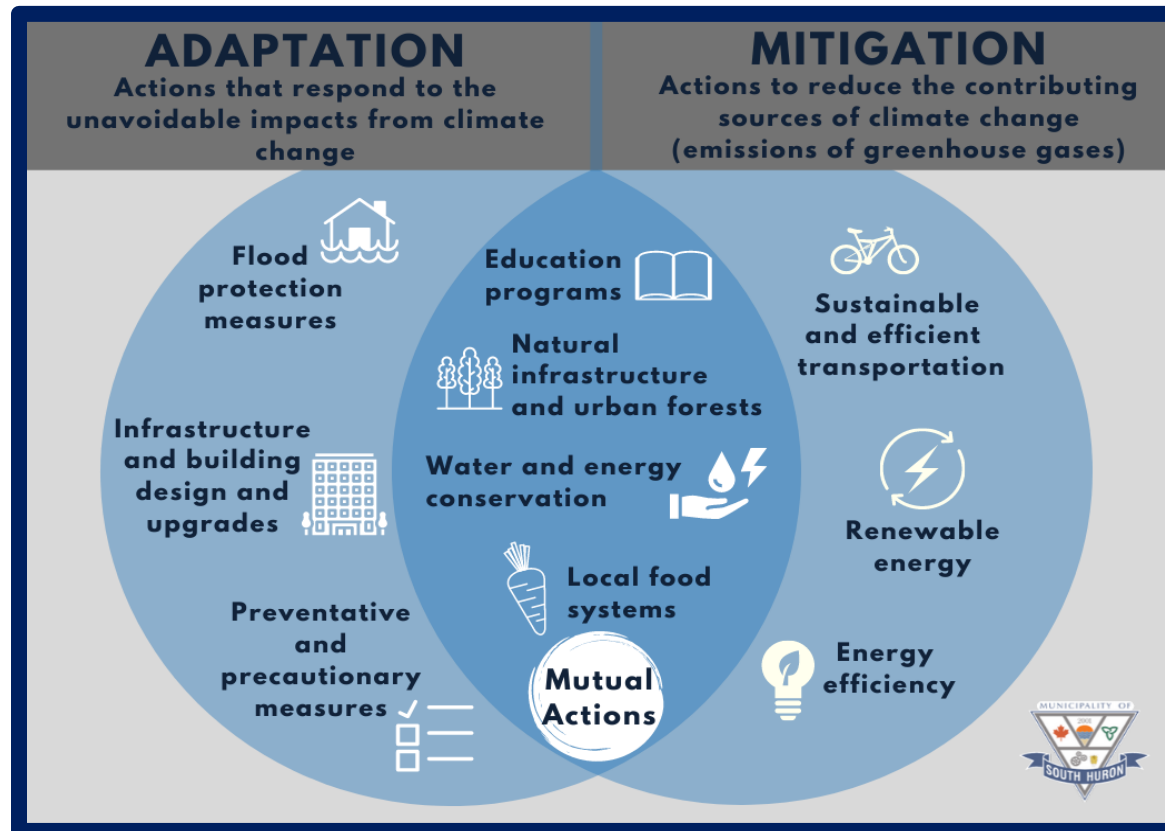


# RESPONDING TO CLIMATE CHANGE

Responding to climate change can be described using two approaches: adaptation and mitigation.

- **Adaptation** is an action that adjusts practices, processes or structures in response to the unavoidable impacts, either opportunities or threats, caused by climate change.
- **Mitigation** refers to measures implemented to reduce the contributing sources of climate change (e.g. GHG emissions reduction) that contribute to the unavoidable impacts.

The most effective response to climate change includes efforts of both adaptation and mitigation, designed to work concurrently and not to undermine or replace each other.



# HOW IS SOUTH HURON RESPONDING TO CLIMATE CHANGE?

With funding received from the Federation of Canadian Municipalities, we have developed the **South Huron Climate Change Adaptation Strategy** and this **Community Guide to Understanding and Responding to Climate Change** to help the community understand what climate change means for South Huron and how we can respond.

As outlined in the adaptation strategy, our vision is to create **A future-ready South Huron that is resilient to the impacts of a changing climate.**

Based on the impacts from climate change identified for South Huron, a series of eight (8) goals were developed along with adaptation action items to address each goal:

- **Goal 1:** Integrate climate change adaptation into municipal planning, asset management and operations;
- **Goal 2:** Support municipal and community resilience awareness and action;
- **Goal 3:** Ensure community readiness and a coordinated response to extreme weather events;
- **Goal 4:** Reduce risks to buildings, properties and people from flooding;
- **Goal 5:** Minimize disruption to municipal service delivery;
- **Goal 6:** Reduce health and safety risks to municipal workers and community members from extreme temperatures;
- **Goal 7:** Protect and enhance the natural landscape to mitigate impact; and
- **Goal 8:** Strengthen the resiliency of municipal infrastructure and facilities.

# HOW CAN THE COMMUNITY RESPOND TO CLIMATE CHANGE?

## ADAPTATION ACTIONS

### Actions that respond to the unavoidable impacts from climate change

- ✓ Learn about ways to protect your home from flooding by visiting the [Home Flood Protection Program](#) (Intact Centre for Climate Adaptation).
- ✓ Learn about on-site stormwater management options for your property that also can provide a range of environmental benefits, such as installing a [Rain Barrel](#) to store rainwater or [Rain Garden](#) to control and disperse it (Ausable Bayfield Conservation Authority).
  - BONUS: Retain and enhance the natural features on your property – they will help to hold water during rainfall events while providing many other benefits.
- ✓ Ensure you have an emergency plan in place for your home or business in the event of extreme weather. [Get Prepared](#) (Government of Canada) has everything you need in order to make a plan.
- ✓ Planning a renovation or new building? Consider the type of materials used in your project and how they will stand up to a changing climate.
  - Design areas to consider: basement (flooding), insulation, heating, cooling (warming temperature), exterior materials and structural (extreme weather), and driveway material (rainfall events and warming temperature).

## MITIGATION ACTIONS

### Actions that reduce the contributing sources of climate change

- ✓ Calculate your Carbon Footprint (how much greenhouse gas emissions your lifestyle releases) by visiting [Carbon Footprints to Forests](#)
  - BONUS: You can make a donation for trees to be planted by your local Conservation Authority OR plant a tree on your property to offset your impact!
- ✓ Consider completing an Energy Audit for your home or business to identify areas of inefficiency and potential rebate programs to help complete efficiency upgrades. These upgrades will save you money on your heating and cooling costs, provide greater comfort in your home or business and increase the value of your building.
- ✓ Reduce your transportation emissions and improve your overall health by leaving your car at home and participate in [Active Transportation](#), whether it be on your bike, skateboard, walking or running. Other options for reducing your impact: car sharing to your destination or investing in an efficient vehicle (electric or hybrid).
- ✓ Support climate mitigation initiatives happening in your community. These initiatives are dedicated to ensuring a better future for our community by reducing our impact on the planet.

**Currently, the Municipality is exploring ways to mitigate corporate emissions.**

## HOW WE GOT HERE

The Municipality of South Huron has developed **South Huron's Climate Change Adaptation Strategy** thanks to the financial support provided by the Government of Canada through the Federation of Canadian Municipalities, Municipalities for Climate Innovation Program.



As part of the adaptation strategy, the **Community Guide to Understanding and Responding to Climate Change** was created and is intended to provide a non-technical overview of climate change and how the community can respond.

## HELPFUL TERMS YOU SHOULD KNOW

**Adaptation** is an action that adjusts practices, processes or structures in response to the unavoidable impacts, either opportunities or threats, caused by climate change. The goal of effective adaptation is to anticipate the impacts ahead of time (proactive) rather than after the impacts have been experienced (reactive).

**Climate change** refers to a significant variation to long-term (typically decades or longer) change in climate (global or regional) which reflects changes in weather patterns, including an increase in temperature, fluctuating precipitation patterns and extreme weather events.

**Global Warming** refers to the long-term warming in temperature observed on a global scale. *Global warming is one aspect of climate change.* The primary source of global warming is in the increase of greenhouse gases (GHGs) released into the atmosphere by human-made activities which burn fossil fuels including transportation, manufacturing and electricity. Natural sources of GHG emissions include volcanic activity, the Earth's orbit, and the solar output.

**The Greenhouse Effect** refers to the buildup and long term presence of GHGs in the atmosphere, causing the atmosphere becomes thicker which traps the sun's radiation (heat), making the Earth's air temperature warmer.

**Greenhouse Gas (GHG)** refers to gases that have the property of trapping heat or longwave radiation in the atmosphere that was radiated from Earth, contributing to the *greenhouse effect* (see definition). The following gases are considered a greenhouse gas: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases (synthetic gases).

**Mitigation** refers to measures implemented to reduce the contributing sources of climate change (ex. GHG emissions reduction) that contribute to the unavoidable impacts.

**Resilience** refers to the capability to respond and recover to change or disruption while maintaining an acceptable level of service or functionality.

**Weather** refers to the variation in short-term atmospheric conditions (temperature, wind, precipitation, humidity, cloud cover) that occur from minutes to weeks.

