

Extreme Weather in Halton

Climate change & health

Climate change

is any significant long-term change in current normal climate conditions, such as temperature, precipitation, extreme weather events, snow cover, and sea level.

Extreme weather events

include unexpected, unusual, unpredictable, severe, or unseasonal weather events such as floods, ice storms, snowstorms, hot spells, and cold spells.

Climate change



Extreme precipitation events overall are projected to increase in intensity by 6 per cent to 7 per cent for each degree Celsius increase in temperature.¹

Climate change also increases the likelihood of consecutive extreme weather events.

What are the impacts of extreme weather events that can occur in Halton?



Flooding can result in injuries, drowning, hypothermia, and electrocution. Floodwaters can become contaminated from various sources (including sewage overflow), leading to gastrointestinal and skin disease as well as wound infections.



While winter storms are expected to diminish in their frequency due to an overall warming trend across Halton Region, the intensity and duration of extreme snowfall events can still create significant impacts on health and social service delivery.



The area burned by wildfires in Canada is increasing, doubling from the 1970s to the 2000s mainly due to climate change.² Wildfire smoke contains many different air pollutants, most notably fine particulate matter that can penetrate deep into lungs.³

Who is most at risk in Halton?



Older adults may be more physiologically sensitive to extreme weather. They can experience falls from slipping on ice.⁴ Falls are the most common cause of injury and a leading cause of hospitalization among older Canadians.⁴ Older adults account for high levels of morbidity and mortality from extreme weather related to climate change.⁵



Populations that live in floodplains can be differentially exposed to risks associated with extreme rainfall events where flood risks are higher. Low-income households living in areas prone to flooding may not have the ability to relocate, which increases their risk of exposure to flood hazards. See your local municipality's website for more information.

Health effects from extreme weather events



Injuries, illness, and death from violent storms, floods



Mental health and stress-related illness



Displacement and over-crowding in emergency shelters



Food and waterborne illness from contaminated food and water sources



Hunger and dehydration due to food and water shortages/contamination

Historical Population Exposure to Extreme Weather Events



Rainstorms and freezing rain result in pedestrian and motor vehicle-related injuries and other health risks due to infrastructure failure (such as power outages).

The effects of climate change can already be felt in Halton. The frequency and severity of windstorms, flooding, ice storms, and snowstorms have been increasing in Halton and globally.



Ice storm

December 21st
2013 - January
1st 2014

Southern Ontario experienced a severe freezing rain event that resulted in up to 3cm of ice accumulation.⁶

- The Region of Halton incurred over \$3.5 million in costs related to the ice storm.⁷
- Over 41,100 residents were without power for two or more days, and some residents for up to eight days.⁷



Flood

August 4th 2014

The city of Burlington experienced severe rainfall resulting in two months worth of rain (~20 cm) in less than 8 hours.

- Over \$90 million of insured damage costs⁸ were incurred, and much more in partial or uninsured costs.
- The Region received approximately 6,000 calls including roughly 3,500 related to basement flooding.⁹
- The average cost of a flooded basement in Canada is \$40,000.¹⁰



Flood

July 15-16th
2024

Halton experienced severe rainfall.

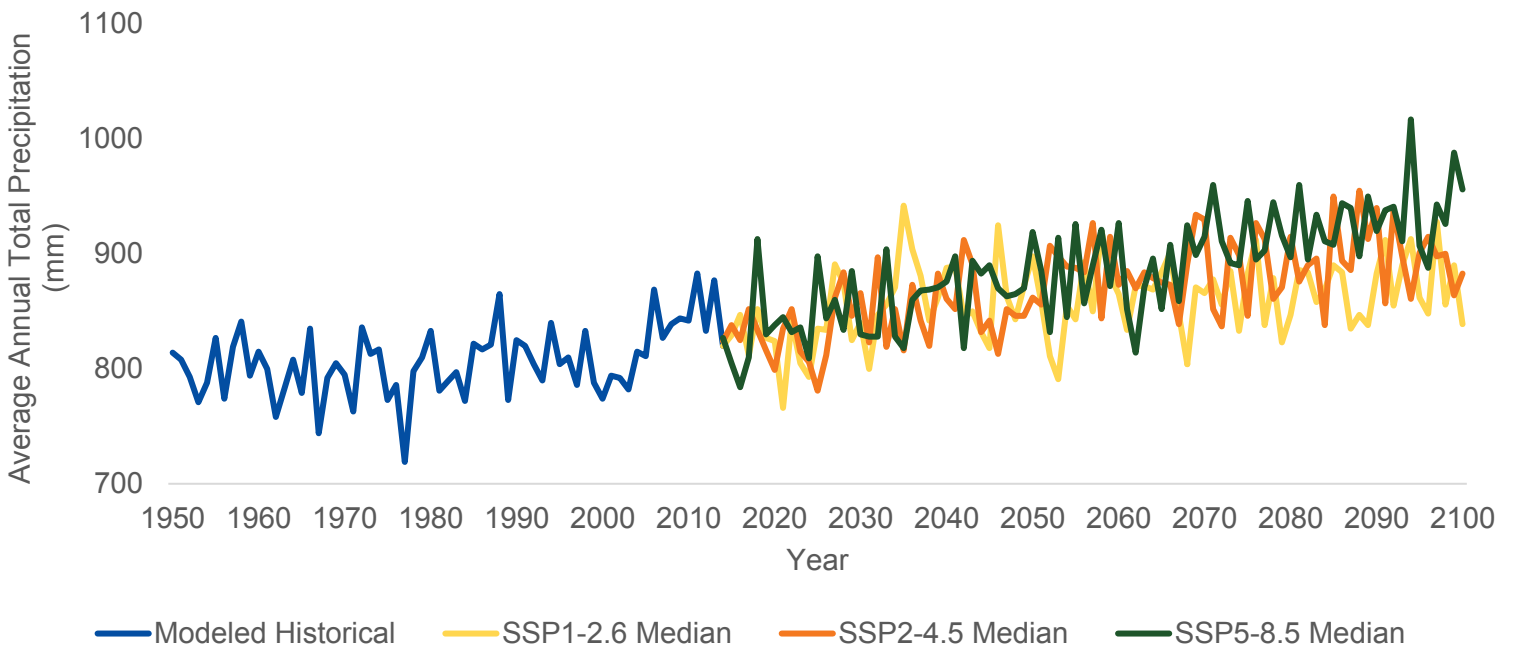
- In Halton Hills, 118 mm of rain was recorded, which is more than the area normally receives in an entire month.¹¹
- The City of Burlington received 65mm in rain over three hours on July 15th, and more rain the following day.
- Across the Region, intersections, homes, and buildings were flooded. A total of 1,897 basement flooding incidents were reported, including 1,620 in the City of Burlington, 124 in the Town of Halton Hills (Georgetown), 49 in the Town of Milton and 104 in the Town of Oakville.¹¹

Even after flood waters have subsided, the effects of the weather event can still be felt. Damp or flooded buildings can develop mold. Mold can impact indoor air quality. Poor indoor air quality has been shown to aggravate asthma and result in other respiratory symptoms, including coughing and wheezing.

There is also evidence that flooding and severe storms can have an impact on people's mental health, including symptoms of psychological distress, anxiety, and depression. Studies have shown that the prevalence of mental health symptoms is two to five times higher among individuals who reported flooding in their homes compared to non-flooded individuals.¹²

Looking to the Future

Projections show that by the 2080s, Halton Region can expect an average increase in Total Precipitation of 62mm at SSP1-2.6, 85mm at SSP2-4.5, or 145mm at SSP5-8.5, compared to the historical baseline years of 1971-2000.¹³



Be Prepared!

Individual actions to reduce health risks of extreme weather primarily involve listening to alerts and following safety orders issued by regional agencies; checking in on more susceptible neighbours; having an adequate supply (typically three days) of essential supplies in the event of power outages and service disruptions; and removing oneself from a disaster affected area (e.g., flooded housing or buildings located near floodplains). More information on preparing for emergencies can be found at halton.ca/For-Residents/Emergency-Preparedness

Data Notes

- Shared Socio-economic Pathways (SSPs) describe possible socio-economic conditions, land-use changes, and other human-caused climate drivers that influence greenhouse gas emissions, thus affecting Radiative Forcing, which describes the amount of excess energy trapped within the Earth's climate system due to the variation of climate change factors. The SSPs also describe socio-economic characteristics that influence greenhouse gas emissions (and subsequently, Radiative Forcing) in a standardized way, given an indication of the societal pathways associated with different levels of warming.¹⁴
- The period from 2041-2070 is referred to as the 2050s, while the period from 2071-2100 is referred to as the 2080s.

Under each family of scenarios there can be multiple emissions scenarios that lead to different levels of Radiative Force. The three future scenarios explored in this report are the three hosted on ClimateData.ca:

- SSP5-8.5 – high emissions
- SSP2-4.5 – medium emissions
- SSP1-2.6 – low emissions

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This highlight report provides a high-level overview of this impact category. The full Climate Change and Health in Halton Region report is available upon request by contacting 311 or 905-825-6000 or by emailing accesshalton@halton.ca.

For more information on Halton Region's climate change initiatives visit halton.ca.