



Our Community Legacy

What Oakville will our Children and Grandchildren Inherit?



April 2024



Four seasons of Oakville's 250-year-old White Oak tree on Bronte Road.
Photo Courtesy of Christopher Dias

Live Oak trees are the most efficient trees for carbon capture of climate emissions.



in partnership with





Indigenous Wisdom

“For as long as the sun shines, the rivers flow and grass grows.” - Indigenous view of Treaty

“How long will the rivers flow? Just how long until the pollution overshadows the sun? How long until the grass fades?” - Catherine Lafferty, Council Member Yellowknives Dene First Nation

“Reconciliation is meaningless unless we are reconciling with Mother Earth and Indigenous people together. This is done by undoing and restoring the damage that has been done to Mother Earth. Man can’t continue to delude themselves of what harm they are doing to the future of their children.”

- Elder Francois Paulette,

“Mother Earth is really suffering. It’s hard for the earth to breathe. The land is thawing and drying out. In the future, the earth will become drier and drier which will start more fires but there will be no rain to put out the fires because there will be no moisture left in the air for lack of water. This is what the Elders say.”

- Elder Jonas Sangris, Yellowknives Dene First Nation.

“Take care of this land and it will take care of you.”

- Jamie Pashagumskum Cree Nation Chisasibi Quebec, attribution to his grandfather.

MCFN Elder Peter Schuler and Indigenous Advisor to the Oakville Community Foundation and Debwewin: The Oakville Truth Project asks us to respect the first treaty between humans and creation. Elder Peter reminds us that when we work in community, a great challenge like Climate Action is achievable.

“When we all work together we become the lake of change. We can each become a raindrop of change and we can form that lake.”

Ozhibiige nini
(Elder Peter Schuler)

We acknowledge that we are located on the Treaty Lands and Territory of the Mississaugas of the Credit First Nation, as well as the Traditional Territory of the Haudenosaunee, and Wendat people. Further, we acknowledge that the Town of Oakville is covered by Treaty 14, the Head of the Lake Purchase (1806), and Treaty 22 (1820).





What will our community legacy be?

When the Foundation creates local research one of the main impetus is to identify for our Fundholders (donors) where the greatest needs are in our community to assist them in making decisions about where to use their granting funds to meet these needs. It is also a way to bring a community of donors, like our Fundholders, together to recognize priority issues that require many supporters, charities and volunteers to address.

The majority of our donors have set up their Fund to create a lasting legacy for the benefit of the local community and charities. The Foundation's model is to generate new monies through investment returns to provide ongoing support in perpetuity for the benefit of our community and the charitable sector.

This research asked us to think differently about the legacy we are leaving in our community. Not one of financial inheritance but one of a healthy Oakville in which to thrive.

What will be the health of the community we leave behind for the next generation? We have already experienced poor air quality from forest fires, invasive species, flooding, dryer conditions and warmer weather over the past year. We are experiencing climate change in Oakville now, if we continue emitting greenhouse gas emissions, what Oakville will our Children and Grandchildren Inherit?

Addressing Climate action feels overwhelming and unattainable. A number of the graphics in this report break down the specific (or potential) impacts in our community and on our health.

This report shares original research by Sheridan College on how local youth are experiencing climate anxiety- and it is not good. Nearly half of respondents report that their feelings about climate change negatively impact their daily life. DAILY LIFE. The research indicates that many Oakville youth feel afraid, angry, and abandoned by inaction on climate change and believe it will have a negative impact on their future..

Yet this report is a message of hope of what we can do together as a community when we decide to make changes. If not you, then who? Climate action is not about one company, organization, government or person, it is about all of us, working together to make change.

We have seen action, our community has made many changes and adaptations to improve air quality, clean water and healthier environments.



We have provided a list of small, but significant actions that individuals and families can do to help address the emissions from our homes and cars which make up 90% of all local emissions, including some very simple steps like reduce your food waste, and “eat your leftovers.”

We hope that we inspire you to start putting checks on this checklist and more importantly show it to your child or grandchild to show them that you care about their future as a member of a healthy community.

We would like to share our gratitude to Board Member Lisa Kohler for leading the Report Advisory Group, our research partners, Sheridan College and Halton Environmental Network and Advisors as follows:

Lisa Kohler, Halton Region, Lead Advisor

Elder Peter Schuler, Mississaugas of the Credit First Nation

Marsha Smith & Sundus Hussain, Halton Environmental Network

John Helliker, Herb Sinnock & Caroline Holmes, Sheridan College

Councillor Jonathan McNeice & Trisha Henderson, Town of Oakville

Taline McPhedran & Michael Salem, Oakville Community Foundation

We are also indebted to our funding partners: Sagen Canada, The Larry & Gerry Wilson Family Fund, and the Alma Fund.

As Elder Peter Schuler advises, when we work together as a community we can become a powerful force of change.

We encourage everyone reading this report to support and help grow the local tree canopy, which not only makes our Town a beautiful place to live but enhances carbon capture and contributes to a healthy community.

Wendy Rinella & Mike Miller

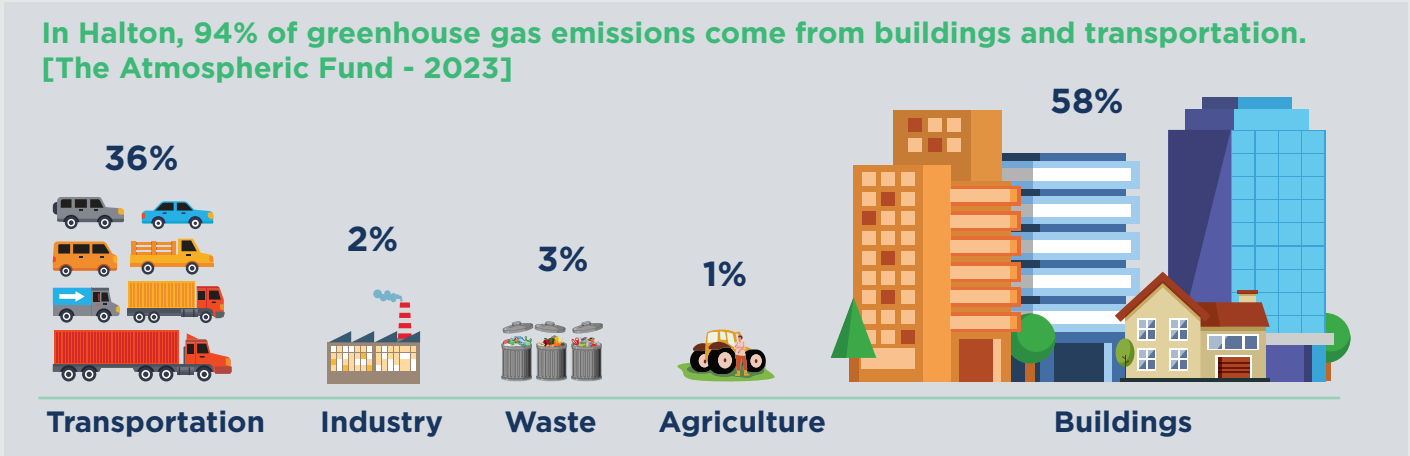




Climate Change in Oakville

The warming of Oakville is caused by the emissions of greenhouse gases from human activities. These activities include the burning of fossil fuels, like oil, gas and coal, for buildings and transportation, land use changes, agriculture and waste. The accumulation of greenhouse gases in the atmosphere traps heat, resulting in the observed warming of the climate.

In Halton, 94% of greenhouse gas emissions come from buildings and transportation. [The Atmospheric Fund - 2023]



In 2022, emissions increased by 12.5% compared to 2021, surpassing pre-pandemic emission levels. This was the biggest increase in emissions in the Greater Toronto Area since 2015, with the building sector being the biggest cause (TAF, 2023).

Our changing climate has serious consequences for human health and habitat—the loss of ice sheets, glaciers and sea ice, an increase in precipitation and extreme weather events and the rise of global sea levels. Global warming isn’t slowing down, with 2023 marked as the hottest summer since global records began in 1880 (NASA, 2023).

Global climate change is affecting the way people live, work and move around the planet. Weather-related crises have triggered more than twice as much displacement as conflict and violence in the last decade, leading to climate refugees (UNHCR, 2021). In 2022, 84% of refugees and asylum seekers fled from highly climate-vulnerable countries (UNHCR, 2024).

Through this report, you’ll see some of the physical and mental impacts of climate change and greenhouse gas emissions on our community and on us as individuals. These consequences are very real and happening right now. Future projections indicate that these impacts will only continue to get worse.

Already, our local built environment around us has been changing to adapt to future climate events. Green infrastructure is a cost-effective approach to rainwater management, preventing floods, and improving air quality, by filtering pollution and trapping carbon and greenhouse gases. But what changes can you make? In this report, you’ll find a list of small but significant actions that you can take in your everyday life to help combat climate change.

To make a difference, we all need to work together.



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What Oakville will our Kids and Grandchildren Inherit?

Community

This map of Oakville shows some of the climate issues we are already experiencing as a community. To learn more, click each issue for an expanded description.

Heat Warning

In the next few decades, we can expect around 33 to 36 days above 30°C per year. Ward 7 has the highest average summer temperature at 31.8°C. Extreme and prolonged heat days can trigger an increase in Emergency Department visits and hospitalization.

More Ice and Wind Storms

Oakville is expecting an increase in extreme weather events, including a 45% increase in freezing rain events resulting in property damage and tree loss or tree stress.

Invasive Species

The Emerald Ash Borer has killed a majority of the 43,000 ash trees. There has been a dramatic increase of ticks and European Buckthorn.

Inadequate Tree Canopy

Ward 4 ranks last in terms of children and older adults living in favourable tree-canopy cover areas.

Air Quality

Between the GEW and Speers Road has Oakville's highest levels of air pollution.

Climate Refugees

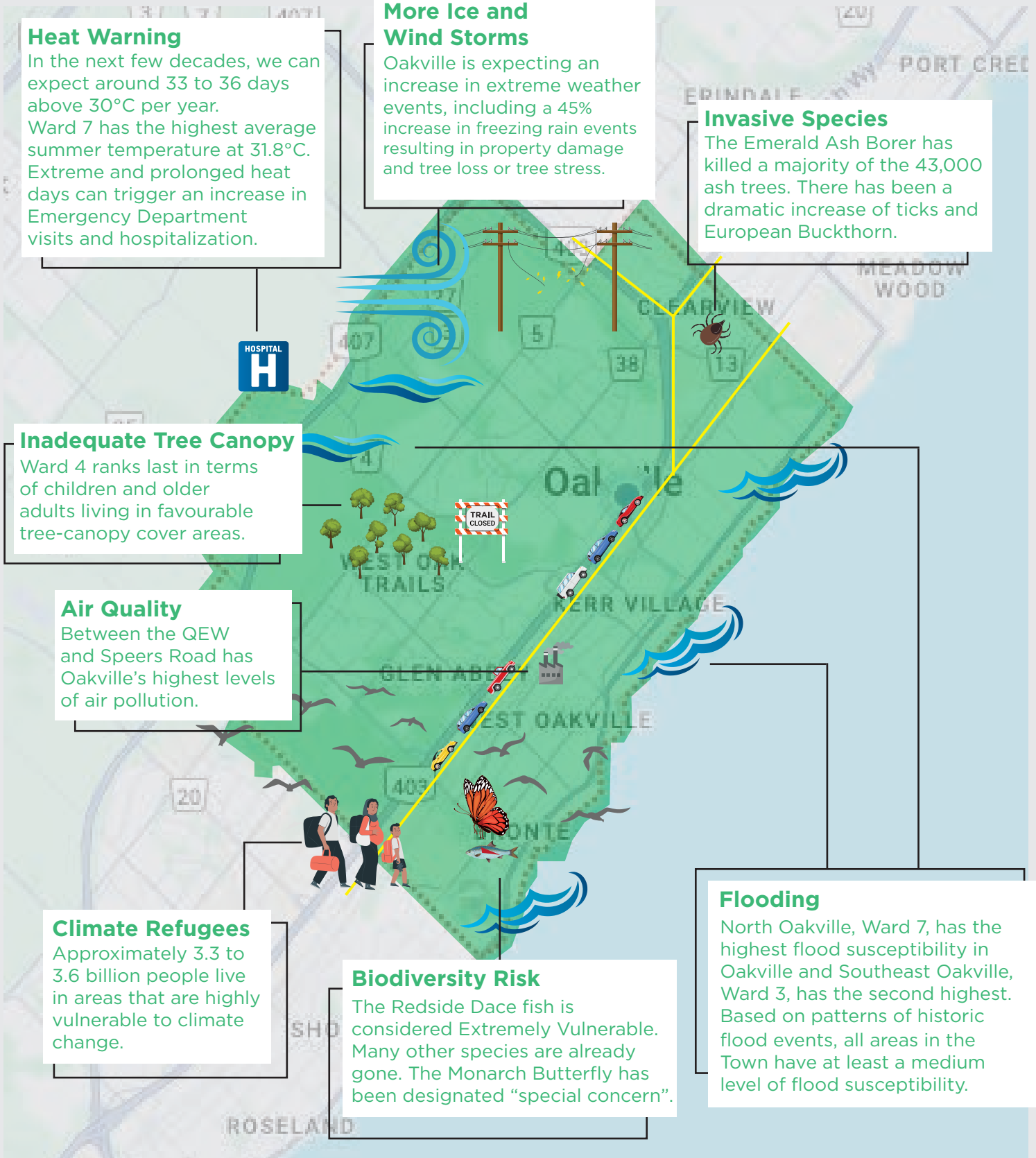
Approximately 3.3 to 3.6 billion people live in areas that are highly vulnerable to climate change.

Biodiversity Risk

The Redside Dace fish is considered Extremely Vulnerable. Many other species are already gone. The Monarch Butterfly has been designated "special concern".

Flooding

North Oakville, Ward 7, has the highest flood susceptibility in Oakville and Southeast Oakville, Ward 3, has the second highest. Based on patterns of historic flood events, all areas in the Town have at least a medium level of flood susceptibility.



Our Community Legacy

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Individual

The following person shows us some of the mental and physical impact that climate change can have on us as individuals. To learn more, click each issue for an expanded description.

Mental Health

Challenges such as post-traumatic stress disorder have been found among those who lived through extreme weather events.

New and Increased Diseases

Air pollution can affect almost every organ in the body.

Increased air pollution may cause shortness of breath, lead to cardiovascular or pulmonary disease, and increase the risk of cancer due to increased exposure.

Increased number of food borne illnesses related to climate-sensitive pathogenic outbreaks of produce such as E. coli O157.

Cardiovascular Disease Leading to Death

For every 5°C increase in temperature during the summer, there is a 2.5% increase in deaths, often caused by cardiovascular disease.

Hunger

In Halton Region, field crops and fruits and vegetables like apples and berries are currently considered at high risk due to climate change.

Ticks and Mosquitoes

Mosquitoes, ticks and mice move north as temperatures warm. In 2009, there were 144 human cases of Lyme disease in Canada compared to over 2,168 in 2022.



Our Community Legacy

What Oakville will our Kids and Grandchildren Inherit?

Youth Climate Anxiety

Not only do climate change issues impact us physically, but mentally too. A survey conducted by Sheridan College looked at the impact of climate emotions and anxiety on young people aged 16-25 in the Oakville community. To learn more, [click here](#) for an expanded description.

Climate Anxiety Affects Youth Mental Health

56% are very or extremely worried that climate change threatens people and the planet.

Negative emotions about climate change are more common.

including:
sad (77%)
anxious (76%)
afraid (69%)
powerless (68%)
hopeless (68%)
angry (62%)
and depressed (52%)

Nearly 45% said their feelings about climate change negatively affect their daily life.

Fewer Grandchildren?

46% feel hesitant to have children due to their thoughts on climate change.

More than 1 in 3 Feel Ignored

35% say when they try to talk about climate change, they feel ignored or dismissed



Some of the negative thoughts youth have:

“People have failed to take care of the planet.” (89%)

“The future is frightening.” (80%)

“I won’t have access to the same opportunities my parents had.” (71%)

“The things I value most will be destroyed.” (64%)

“Humanity is doomed.” (56%)

Despite the negative thoughts, youth also reported positive thoughts, like:

“Small actions to combat climate change matter.” (76%)

“There is still hope for the future.” (68%)

“I am motivated to take climate change action in my community.” (66%)

“Humanity can adapt to these challenges.” (53%)

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Future Projections

As children grow, their world may have greater negative health consequences. The following projections represent the world that our future generations—our children and our grandchildren, will live in.

Childhoods Spent Predominantly Indoors

An increase in annual precipitation by 10%, along with intensity, duration and frequency.

A projected 4.7°C increase in winter temperatures (-3.4°C to 1.3°C) and a 4.6°C rise in maximum summer temperatures (25.7°C to 30.3°C).

An increase in freezing rain events by 45% and an increase in high winds (CPR, 2021).

Increased Mortality Rate

Globally, climate change is expected to cause 250,000 additional deaths per year by 2050 (IPCC, 2021).

Decreased Water Supply

Climate change will reduce the quantity and quality of water in all Canadian regions on a seasonal basis due to increased water temperature, demand and weather volatility (Berry, P., & Schnitter, R., 2022).

Hunger

An estimated 529,000 deaths worldwide could occur between 2010 and 2050 due to climate related reductions in food availability (Health Canada, 2022).

More Climate Refugees

By 2050, 44 to 216 million people are expected to be displaced due to climate change (IOM, 2023). Canada currently has no plan in place for potential climate refugees.

The Potential for Increased Allergies

A longer and more intense allergy season will increase the number of people who experience allergies and asthma symptoms.



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Positive Changes

In order to leave a healthier Oakville behind for the next generations, there are many small positive changes we make to our homes and lifestyles.

94% of local emissions come from Buildings and Transportation.



“To meet Oakville’s target for emissions reductions, we should be declining in emissions by at least 3% per year.”

-Future Energy Oakville, March 2024

This list provides some actions that can be taken to lower personal and household emissions. The ability to implement some of these changes will depend on household income.

1. Use public transit when possible.
2. Use active transportation (bicycle, walk, skateboard).
3. Being conscious of what you buy and where it will end up.
4. Seal your windows and doors.
5. Install a Smart Home system.
6. Install a heat pump.
7. ENERGY STAR appliances.
8. Energy efficient lighting.
9. Electric car and charging station.
10. Solar panels.
11. Continuous insulation.
12. Rain garden and pollinator plants.
13. Efficient water management.
14. Plant trees & shrubs (non-invasive native species).

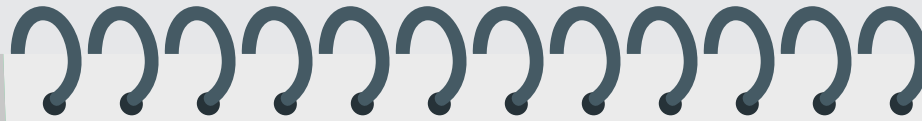
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Small, But Significant Actions

According to 76% of local youth, “Small actions to combat climate change matter.”


Sometimes it can all feel rather overwhelming. However, there are simple things we can all do to help address climate change. The trick is to start small and build your confidence.



 small actions we can all do  
to show our love to future generations

- Eat your leftovers!
-leftovers in the landfill release methane
- Support local tree planting 
-it restores our tree canopy
-builds the urban forest and reduces carbon
- Enhance your home's natural beauty
-plant native trees, add a rain garden,
-plant flowers for the bees
- Get active, walk, carpool, take transit
-transportation makes up a big part of
our regional emissions
- Support local youth in their climate work
-it helps mitigate their climate anxiety,
and it makes for a healthier community for all
- Seal your windows and doors
-not only does it make your home greener
it saves you money on your energy bill!
- Tell your Elected Officials that climate
change is an important issue to you!



Write a love letter to your kids and grandkids about what you're doing to ensure a healthy future for them. 

“Our urban forest plays a significant role in improving the health of Oakville residents by reducing the amount of smog formed from the local emissions of certain pollutants.”

-Town of Oakville Report, March 2024

Our Community Legacy

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 Thank you to our Partners for their support.  



The Alma Fund





Data & Research

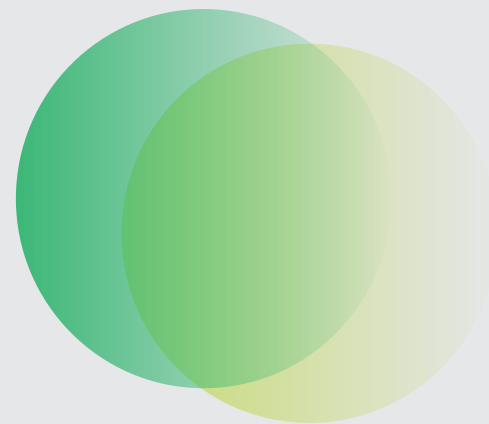


Sheridan



**Research prepared by
Halton Environmental
Network**

**Survey Administered by
Sheridan College**





Community Map Data

Flooding

Flooding can happen as a result of intense rainfall, overflowing creeks and high-water levels in Lake Ontario. Between 1948 and 2016, there has been a 9.7% increase in annual precipitation in Ontario (Bush, E. and Lemmen, D.S., 2019)—changes in intensity, frequency and duration due to climate change have contributed substantially to flooding events throughout Oakville.

North Oakville, Ward 7, has the highest flood susceptibility in Oakville and Southeast Oakville, Ward 3, has the second highest. Based on patterns of historic flood events, all wards, though not all neighbourhoods, have at least medium susceptibility (Healthy Plan City, 2024).

In 2014, 3,500 homes in Burlington were flooded when 196 mm of rain poured down in only seven hours. Nearly half of the affected homes of the 2014 Burlington flood did not have full insurance to cover the damage to their homes. (Intact Centre on Climate Adaptation, 2018, p.i). Recently, Desjardins Insurance announced it would no longer cover homes in certain Quebec flood zones (CTV News Montreal, 2024).

In 2017, about three-quarters of a meter was added to the Lake Ontario surface due to precipitation and run-off from the rest of the basin. This meant several shoreline restrictions, including the partial closure of Coronation Park and Gairloch Gardens, a short section of Water Street and more (Oakville News, 2017). The flooding resulted in Oakville Town Council approving \$3.8 million to repair the shoreline and harbours (Town of Oakville, n.d., Flooding)

Heat Warnings

Ontario's mean annual temperature has increased by 1.3°C between 1948 and 2016 (Bush, E. and Lemmen, D.S, 2019). Areas in North Oakville have a higher average summer

temperature, over 30°C, compared to areas closer to Lake Ontario, and Ward 7 has the highest average summer temperature at 31.8°C (Healthy Plan City, 2024).

Seven heat warnings were issued in Halton region in 2023. Heat warnings are issued when temperatures rise above 31°C and are accompanied by cooling centres across the Town to allow for community members to rest and access water. In the next few decades, we can expect around 33 to 36 days above 30°C per year. To learn more and sign up for heat alerts, [click here](#).

Air Quality

In the summer of 2023, Halton Region was blanketed by wildfire smoke from Central and Northern Ontario as well as Western Quebec. During this time, the Ontario Air Quality Health

Index (AQHI) ranked the air quality as 10+, representing the highest health risk (InHalton, 2023). Five special air quality statements were issued for Halton-Peel Region (Ministry of the Environment, Conservation and Parks, 2024).

Community members were encouraged to wear a respirator-type mask if they had to be outside, as well as to keep doors and windows closed and to adjust their HVAC system to recirculate air instead of pulling it from outdoors. For tips and to sign up for alerts, [click here](#).

Without considering additional smoke advisories, the areas between the QEW and Speers Road/Cornwall Road are considered to have high levels of air pollution (Healthy Plan City, 2024).

Biodiversity Risk

Oakville has 185 types of birds, 30 species of amphibians and reptiles, 29 mammals and 58 different kinds of fish sharing our Town (Town of Oakville, 2018). Increased temperatures and high levels of precipitation bring with it



a danger to all biodiversity, with the loss of fauna and aquatic ecosystems most at risk (Climate Risk Institute, 2023). The Redside Dace, a fish that leaps out of the water to eat in many Halton rivers and creeks, is considered Extremely Vulnerable (Conservation Halton, 2023). Ontario lists the Monarch Butterfly as “[special concern](#),” meaning it may become threatened or endangered due to a combination of biological characteristics and identified threats.

Climate-related threats to biodiversity include pollution, invasive species, increased temperatures, mismatches in ecological timings and high levels of precipitation. There is already evidence that ecosystem changes due to climate change are already occurring in Canada. In Halton, species that were formerly present but are no longer found include the Loggerhead Shrike, Passenger Pigeon and Timber Rattlesnake (Conservation Halton, 2023).

Inadequate Tree Canopy

Between 2005 and 2015, Oakville increased its tree canopy cover by 1.3%. With more than 2 million trees, there is an overall canopy cover of 27.8% (Town of Oakville, 2016). According to the Town, the total value of home energy savings provided by Oakville’s trees is around \$1.8 million per year.

That doesn’t mean that all areas of the Town are covered equally. Ward 4 ranks last in terms of children and older adults living in unfavourable tree-canopy cover areas, with Ward 7 ranking second-last for children (Healthy Plan City, 2024).

More Ice and Wind Storms

Climate-change related extreme weather events are a growing risk to Canada’s electricity grid. In winter 2023, much of North America was at an elevated risk of insufficient energy supplies to meet the demand in extreme operating conditions (North American Electric Reliability Corporation, 2023).

In May 2022, the Derecho storm event that passed through Halton Region was, at the time, the sixth most expensive natural disaster in Canadian history— costing around \$1 billion in damages. It destroyed homes and damaged electric grids due to strong winds and fallen debris, killing 11 people across Ontario and Quebec (Toronto Star, 2022).

Invasive Species

Invasive species compete with native plant species and, not only impact local biodiversity, but can spread new diseases. They are able to spread further and faster because of warming temperatures due to climate change.

In Oakville, the Emerald Ash Borer, an invasive insect that attacks and kills untreated ash trees, has killed a majority of the 43,000 ash trees by causing them to become brittle (Town of Oakville, n.d). Other invasive species include the Giant Hogweed, a plant that’s sap contains chemicals that can cause skin to become hypersensitive to sunlight and erupt in painful blisters (Town of Oakville, n.d).

Climate Refugees

Climate change will increase the risk of a humanitarian crisis. Approximately 3.3 to 3.6 billion people live in areas that are highly vulnerable to climate change, which is increasingly driving displacement in Africa, Asia, North America and Central and South America (IPCC, 2023).

In 2022, over 32 million people were internally displaced (forced to leave their homes for somewhere else in their country) due to a climate related event (UNHCR, 2023). For example, in Canada, the 2017 wildfire season in British Columbia forced 65,000 people to evacuate their homes (BCCIC, 2020). In 2023, 68% of the population of the Northwest Territories, more than 25,000 people, were evacuated due to more than 250 wildfires (CTV News, 2023).



Individual Person Data

Mental Health

Climate change is exacerbating pre-existing mental health issues and contributing to new ones. Experiencing extreme climate events, such as flooding or wildfires, and dealing with the aftermath of these events, including forced migration or displacement and damage or loss of property, can take their toll— often long-term.

Challenges such as post-traumatic stress disorder have been found among those who lived through extreme weather events, grief and anxiety among those concerned about climate change and a sense of loss among those who find their homes, communities and way of life disrupted by climate change (Chase Canada, 2023).

Interviews with households after the 2014 Burlington Floods indicated that they experienced significantly higher levels of worry and stress. Within the first 30 days of experiencing a flood, 47% of flooded household members were worried and stressed compared to 11% of households not experiencing flooding. Additionally, three years after the flooding event, 48% of flooded household respondents were increasingly worried when it rained (Intact Centre on Climate Adaptation, 2018).

Heat Illness/Cardiovascular Disease

Extreme heat is particularly dangerous for children and seniors and those who have pre-existing conditions like chronic illness. When in prolonged extreme heat, considered above 31°C during the day and 20°C at night, people can experience heat illnesses: heat stroke, heat exhaustion, fainting, heat rash and edema (Halton Region, Heat Warnings, n.d.).

With temperatures projected to rise considerably in the future, with more days above 30°C per year, it's important to note that this could directly cause more deaths. In summer 2021, British Columbia experienced an unprecedented heat dome, where temperatures reached over 40°C in many parts of the province, which resulted in 691 deaths (British Columbia, Chief Coroner, 2022).

Past studies in Ontario indicate that for every 5°C increase in temperature during the summer, there is a 2.5% increase in deaths, often caused by cardiovascular disease (Berry, P., & Schnitter, R., 2022).

New and Increased Diseases

Climate change can bring with it new or increased diseases. Climate-related water-borne and food-borne diseases have increased. Droughts and extreme precipitation have been shown to spread pathogens in the water supply that can lead to disease, while heavy rainfalls can also contaminate private wells (Berry, P., & Schnitter, R., 2022).

Air pollution can affect almost every organ in the body (Chase Canada, 2023). Increased air pollution may cause shortness of breath, lead to cardiovascular or pulmonary disease, and increase the risk of cancer due to increased exposure. (Canadian Climate Institute, 2021).

Increasing temperatures can also have implications with food safety, with the increased risk of food spoilage, contamination and an increased number of food-borne illnesses related to climate-sensitive pathogenic outbreaks of produce such as E. coli O157 outbreaks in lettuce (Berry, P., & Schnitter, R., 2022).



Ticks and Mosquitos

As temperatures get warmer, there is an increased risk for contagious vector-borne diseases like West Nile Virus and Lyme disease. Virus-carrying animals such as mosquitoes, ticks and mice are able to move north as conditions become warmer and wetter. In 2009, there were 144 human cases of Lyme disease in Canada compared to over 2,168 in 2022 (Public Health Agency of Canada, 2023).

Halton Region Public Health conducts tick surveillance in the spring and fall— in 2019, four positive black-legged ticks were detected compared with 24 detected in 2023 (Halton Region, n.d). It's important to note that while ticks are more active in spring and summer, they can be found at any time of the year when the temperature is above freezing (Public Health Ontario, 2022).

Hunger

Climate change will disrupt key components of food systems in Canada, such as the production, processing, distribution, preparation, and consumption of food. It is estimated that 529,000 deaths worldwide could occur between 2010 and 2050 due to climate-related reductions in food availability and changes in consumption patterns (Berry, P., & Schnitter, R., 2022).

Increased risks of drought, flooding, pests, diseases, and temperature can all damage crops and reduce yield. In the Halton region, field crops and fruits and vegetables like apples and berries are currently considered at high risk due to climate change (Ontario, Climate Risk Institute, 2023).

Food Bank Canada's 2023 Hunger Count revealed there were nearly 2 million food bank visits in Canada in 2023. It is estimated that 11% of Oakville residents are food insecure (Oakville Community Foundation, 2023).





Youth Climate Anxiety Data

RESEARCH SUMMARY REPORT

Survey Name: Climate emotions and perspectives among young people in the Oakville, Ontario, Canada community: a local survey

Researchers: Herb Sinnock, Director, Sustainability, (Staff Principal Investigator) and Caroline Holmes, Manager, Corporate Sustainability (Staff Co-Investigator) of the Office for Sustainability at Sheridan College. The Oakville Community Foundation (OCF) is serving as Community Partner for dissemination of research findings.

Date: March 2024

1. PREAMBLE

a) Introduction:

In May 2023, the Oakville Community Foundation (OCF) invited representatives from Sheridan College to participate on an Advisory Group supporting the development of an Oakville Climate Report for target release on April 22, 2024 (Earth Day). As a key priority for this work, OCF expressed interest in better understanding youth perspectives on climate change and climate anxiety, and they invited Sheridan representatives to conduct a survey of local youth and share findings for inclusion in the Oakville Climate Report.

Sheridan representatives Herb Sinnock (Director, Sustainability) and Caroline Holmes (Manager, Corporate Sustainability) identified that similar research on youth climate anxiety had been conducted by Hickman et al. (2021) with a global research population, and by Galway & Field (2023) with a national (Canadian) research population. They obtained approval to replicate and adapt Galway & Field's survey instrument for the purpose of conducting local research to learn about climate emotions and anxiety among young people (aged 16-25) within the Oakville, Ontario community and contribute insights that may help inform potential future interventions and support systems.

b) Data Collection:

Data were collected from 163 participants via an anonymous online survey administered in English language through Qualtrics, a cloud-based web survey platform. Participants were eligible if they were between the ages of 16 – 25 years and had a connection to the Oakville, Ontario community (i.e., they must live, work, study and/or recreate within the Oakville community and/or their treaty lands include the Oakville community). Recruitment methods for the research included social media posts by Sheridan Mission Zero and amplified by Oakville Community Foundation, website posts and newsletter announcements, direct email invitation to Sheridan College Mission Zero Volunteers, and promotional posters that were hung on noticeboards at Sheridan College's Trafalgar Road Campus and shared by the Oakville Community Foundation with the Mississaugas of the Credit First Nation and other community stakeholders (including local school boards and Oakville Town Hall). All recruitment and promotional materials included an electronic link to the details about the study and informed consent, and no potential participants were able to access the survey before consent was obtained.



The survey instrument, adapted from Galway & Field, included 15 questions asking Oakville youth about their (1) feelings about climate change and their impacts on daily life and perspectives for the future; (2) perspectives on local government response to climate change; (3) perspectives on supports/programs/resources to assist Oakville youth in coping with negative climate emotions or anxiety, and (4) perspectives on advances needed around climate change education within formal education systems. The survey instrument also included four demographic questions which collected information about participants' age, affiliation with the Oakville community, gender identity, ethnicity. The total survey was estimated to take 15 minutes to complete.

Data collection began on Monday, January 22, 2024, and closed on Tuesday, February 20, 2024, with a total of 163 participant responses. In alignment with inclusion criteria for this study, data from 10 participants who indicated they were outside of the eligible age range (i.e., they selected “under 16” or “over 25”) were removed, as was data from 11 participants who had no connection to the Oakville community (i.e., they selected “I have no engagement with the Oakville community”). Of eligible respondents, 60.5% were in the 16-20 age group and 39.5% in the 21-25 age group, with a mean age of 19.54 years (SD 2.58). In terms of connection to the Oakville community, 75% of eligible respondents selected ‘I study in Oakville,’ 61% selected ‘I live in Oakville,’ 46% selected ‘I recreate/socialize in Oakville,’ 22% selected ‘I work in Oakville,’ and 9% selected ‘My treaty lands include Oakville.’ Most of eligible respondents identified as female (77%), with 12% identifying as male, 9% gender non-conforming, and 3% preferring not to answer. In terms of ethnicity, 41% of eligible respondents identified as White, 22% as South Asian, 16% as Southeast Asian, 8% as Black, 4% as Arab, 4% as Latin American, 1% as West Asian, and 9% selected ‘Other.’ No respondents identified as Indigenous (Inuit/First Nations/Metis).

The study received ethical approval from the Sheridan College Research Ethics Board (SREB No. 2023-12-001-036).

c) Data Analysis:

The researchers numerically coded Likert scale questions (e.g. 1=Not At All/Strongly Disagree and 5=A Very Great Deal/Strongly Agree) and analyzed them using descriptive statistics.

Computed sample mean and standard deviation identify the prevailing sentiment of the participants and the associated variability in responses. Simple percentages give an accurate picture of the prevalence of Yes versus No responses in binary questions. Those respondents leaving responses blank were excluded resulting in varying sample sizes.

A coding scheme was used to categorize responses to all open-ended questions using NVivo software. Any blank or nonsensical responses were excluded. Researchers verified the appropriateness of themes and codes when tabulating responses for this report.

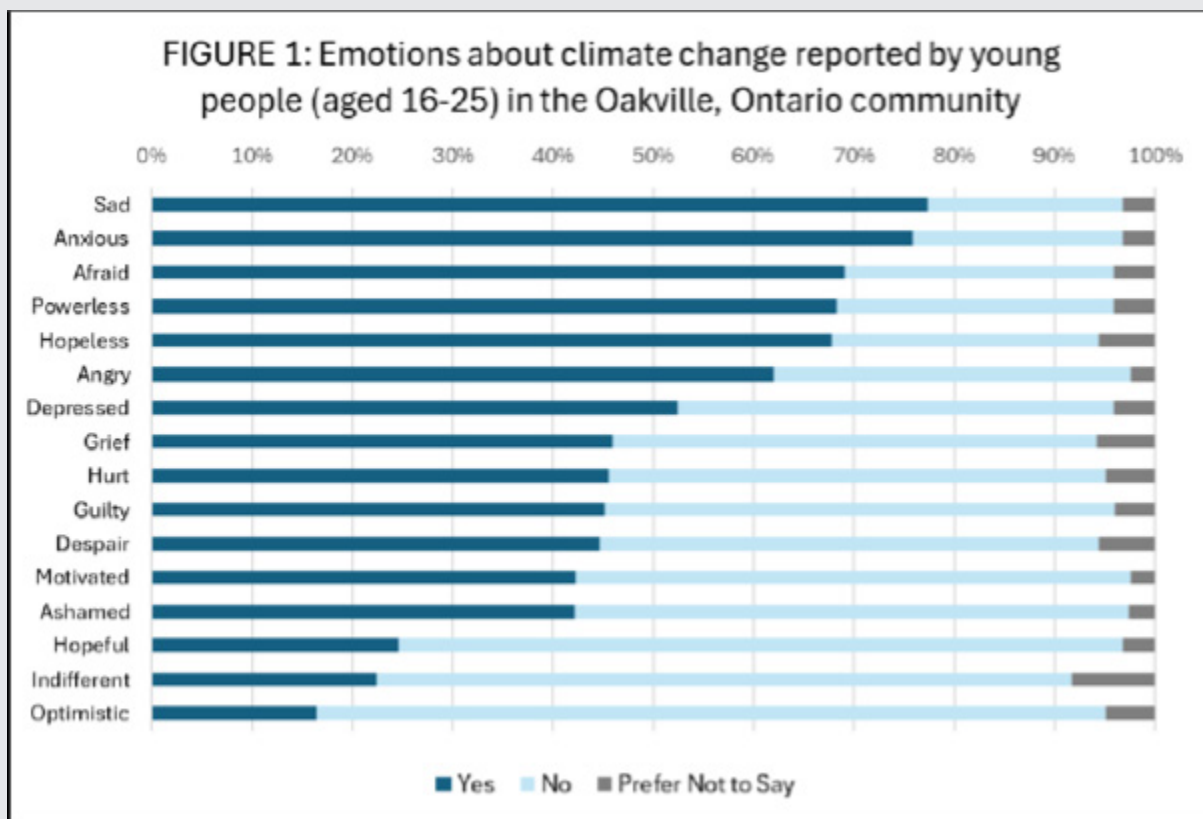
It should be noted that while this study is focused on youth perspectives and feelings on climate change, the data is being analyzed and interpreted from the perspective of adult researchers working in the environmental sustainability sector.

2. RESULTS



a) Feelings and perspectives about climate change emotions and coping

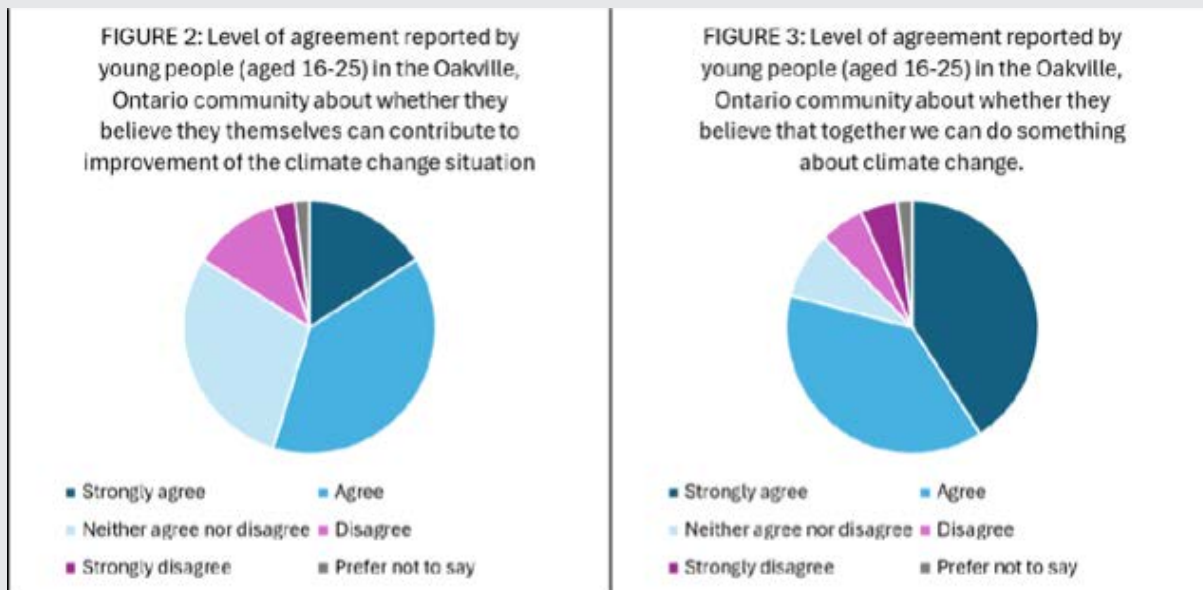
Participants reported high levels of worry about climate change, with a majority (56%) reporting they feel “very” or “extremely” worried that climate change threatens people and the planet, 26% feeling “moderately worried,” 15% feeling “a little bit worried,” and only 3% reported feeling “not at all worried” for a sample mean of 3.66 (SD 1.15) on a scale from 1 to 5. Survey data also indicates that respondents are experiencing negative emotions about climate change with the majority feeling sad (77%), anxious (76%), afraid (69%), powerless (68%), hopeless (68%), angry (62%), and depressed (52%). The emotions that were least reported were feeling optimistic (16%), indifferent (23%), and hopeful (25%) (Figure 1).





Nearly 45% of participants reported that their feelings about climate change negatively affect their daily life, with over 80% reporting at least “a little” impact on their overall mental health with a sample mean just below the “Moderately” level at 2.55 (SD 1.16) on a scale from 1-5. Respondents reported a range of negative thoughts and beliefs related to the impact of climate change on their future, with a majority reporting that they think people have failed to take care of the planet (89%), that the future is frightening (80%), that they won’t have access to the same opportunities that their parents had (71%), that the things they value most will be destroyed (64%), that their family’s security will be threatened (56%), and that humanity is doomed (56%). Over 46% of respondents also expressed feeling hesitant to have children due to their thoughts about climate change. When asked about their experience talking to other people about climate change, 42% of respondents indicated they do not try to talk to others about climate change, and 35% reported that when they do talk to others about climate change, they feel ignored or dismissed.

Despite striking presence of negative thoughts and beliefs, most respondents also reported positive thoughts such as thinking that small actions to combat climate change matter (76%), that there is still hope for the future (68%), that they are motivated to take climate change action in their community (66%), and that humanity can adapt to these challenges (53%). When asked whether they themselves can contribute to the improvement of the climate change situation, most respondents (over 54%) reported that they “agree” or “strongly agree,” while 29% reporting that they “neither agree nor disagree,” and 14% report that they “disagree” or “strongly disagree” for a sample mean of 2.45 (SD 0.99) on a scale from 1-5 (Figure 2). When asked whether they believe that together we can do something about climate change, positive responses increased with 79% reporting that they “agree” or “strongly agree,” while over 8% reported that they “neither agree nor disagree,” and over 10% reported that they “disagree” or “strongly disagree” for a sample mean of 1.93 (SD 1.09) on a scale from 1-5 (Figure 3).





Using an open-ended question, the survey also asked participants that are experiencing negative feelings about climate change to share what kind of supports, programs, and/or resources do and/or would help them cope with their feelings. The responses were reviewed using NVivo software and coded into key themes. Example responses under each theme are summarized in Table 1.

TABLE 1. Themes and examples of programs, supports, and resources that do and/or would help young people to cope with negative feelings about climate change.

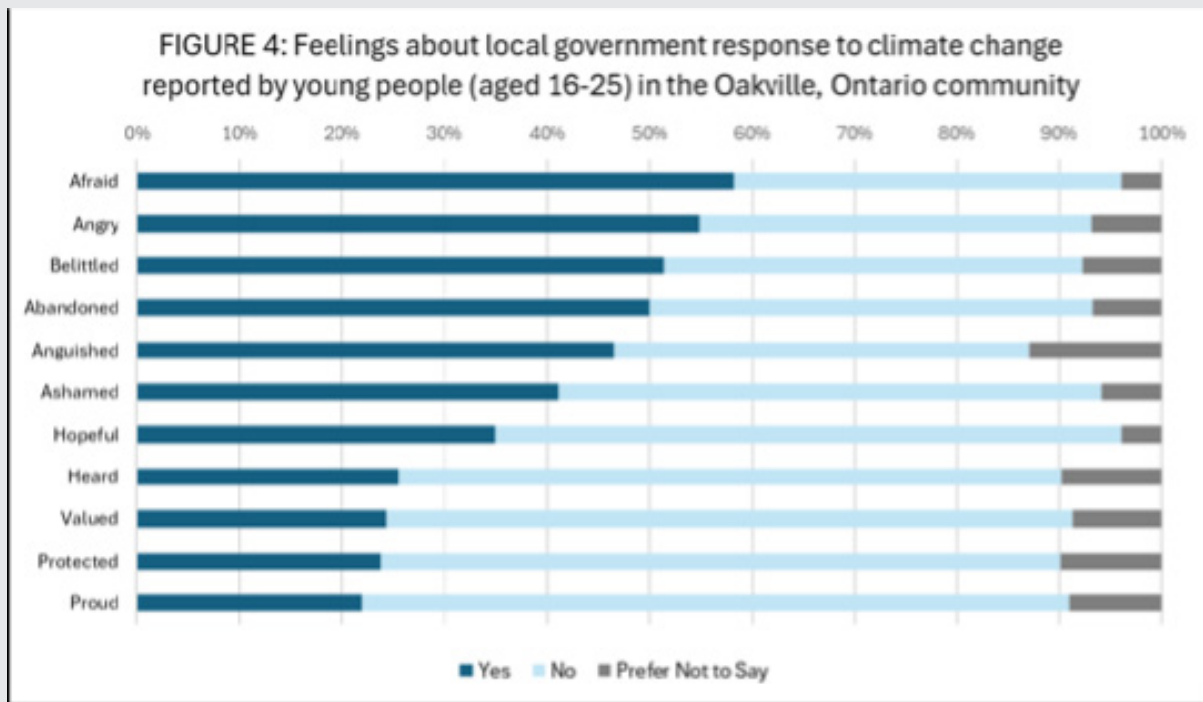
Theme	Examples of Coping Programs/Supports/Resources
Climate action	<ul style="list-style-type: none"> • Individual day-to-day changes to improve the <u>climate</u> • Volunteering • Climate-oriented events (e.g. tree plantings) • Self-education • Making climate-aware personal decisions • Following the work of climate activists, leaders, and organizations • Participation in groups dedicated to climate <u>action</u> • Holding corporations accountable • Increasing public awareness • Finding optimistic news about climate action
Interpersonal support	<ul style="list-style-type: none"> • Group <u>therapy</u> • Individual therapy • Networks of friends and family
Self-care	<ul style="list-style-type: none"> • Mindfulness and meditation • Journaling • Reading the Bible • Nature-based therapy • Art
Escapism	<ul style="list-style-type: none"> • Youtube videos • Going to the movies • Eating favorite foods
Doing Nothing/Avoidance	<ul style="list-style-type: none"> • Ignore <u>it</u> • Nothing/no supports • Acceptance

b) Feelings and perspectives about social dimensions of climate change education and action and the role of community institutions



When asked about their level of reassurance by their local government’s action on climate change, nearly 46% of respondents reported being “not at all reassured” and the next most common response was “unsure/do not know” (over 24%). Nearly 14% of respondents indicated feeling “a little reassured,” 11% felt “moderately reassured” and just under 4% indicated feeling “very” or “completely reassured.” When asked about their perception of local governmental responses to climate change, a majority of respondents agreed with negative statements including my local government is “failing young people in our community” (71%), “betraying me and/or future generations” (57%), “lying about the effectiveness of the actions their taking” (64%), and “dismissing people’s distress” (63%). Far fewer respondents agreed when responding to positive statements, such as my local government is “protecting me, the planet, and/or future generations” (19%), “taking my concerns seriously enough” (21%), and “doing enough to avoid a climate catastrophe” (24%).

Survey data indicates respondents experience negative feelings about the local government’s response to climate change, with the majority feeling afraid (58%), angry (55%), belittled (52%), and abandoned (50%). The feelings least reported by respondents were positive feelings including proud (22%), protected (23%), and valued (24%) (Figure 4).





Q12: We asked respondents an open-ended question about what they thought the most important action our local government should take in response to climate change. The responses were reviewed using NVivo software and coded into key themes. Example responses under each theme are summarized in Table 2.

TABLE 2. Themes and suggested local government actions in response to climate change.

Theme	Examples of Suggested Local Government Actions
Reducing GHGs	<ul style="list-style-type: none"> • Planting more trees • Planting native species • Land restoration and <u>preservation</u> • Stimulating individual and collective action • Corporate accountability and increased pollution penalties for corporations • Turn <u>select</u> roadways into pedestrian-only zones to reduce car emissions
	<ul style="list-style-type: none"> • Reduce fossil fuel <u>use</u> • Incentives to reduce single-occupant vehicle <u>use</u> • Lead by example • Treat climate change like a true local and global emergency – prioritize climate change <u>issues</u> • Increase discussion of climate change • Stop suburban sprawl
Carbon Taxes	<ul style="list-style-type: none"> • Tax fossil <u>fuels</u> • Increase fossil fuel taxes
Improved Waste Resource Mgmt.	<ul style="list-style-type: none"> • Plastics ban • Improve the recycling <u>program</u> • Increase monitoring of waste and recycling programs • More programs to reduce food waste in grocery <u>stores</u> • Biodegradable plastics • Increased fines for littering and <u>dumping</u> • Organize more community cleanup events
Laws and Policies	<ul style="list-style-type: none"> • Increased transparency on climate action • Provide services to people impacted by climate <u>change</u> • Mandatory guidelines for adoption of sustainable energy • Laws and regulations to push companies to net <u>zero</u> • Pressure businesses to be more eco-friendly



Transportation & Transit	<ul style="list-style-type: none"> • Promote carpooling and public <u>transit</u> • Improve and prioritize <u>transit</u> • Reduce car-dependent <u>infrastructure</u> • Free transit • Electrified transit • Promote electric vehicle use
Energy Systems	<ul style="list-style-type: none"> • Implement and encourage the use of renewable <u>energy</u> • Funding green initiatives • Funding renewable energy projects
Education	<ul style="list-style-type: none"> • Make climate change a part of K-12 and post-<u>secondary</u> education for everyone • Action plans that aren't about expensive solutions • Disseminate trustworthy information
Nothing	<ul style="list-style-type: none"> • Local government is too small to have a direct impact

Related to climate change education, a majority of respondents (over 76%) believe that the formal education system (K-12, college, or university) should be doing “a lot more” or “somewhat more” to educate young people about climate change. Nearly 14% responded “about the same,” less than 7% responded “less” or “a lot less,” and 3% responded either “unsure/don’t know” or “prefer not to say.” Participants responded very similarly to a question about the extent to which they believe the formal education system should focus more on the social and emotional dimensions of climate change (described as “developing the emotional intelligence and/or interpersonal skills that enable learners to constructively cope with the emotions and feelings about climate change and its impacts and to more effectively collaborate, negotiate, and communicate with others to address climate change”), again with over 76% responding “somewhat more” or “a lot more,” 12% responding “about the same,” nearly 8% responding with “unsure/don’t know” or “prefer not to say,” and only 4% responding with “less” or “a lot less.”

Another open-ended question was used to ask participants that are experiencing negative feelings about climate change to share what they believe to be the most important thing the formal education system can do to support their mental and emotional health in the context of climate change. The responses were reviewed using NVivo software and coded into key themes. Example responses under each theme are summarized in Table 3.

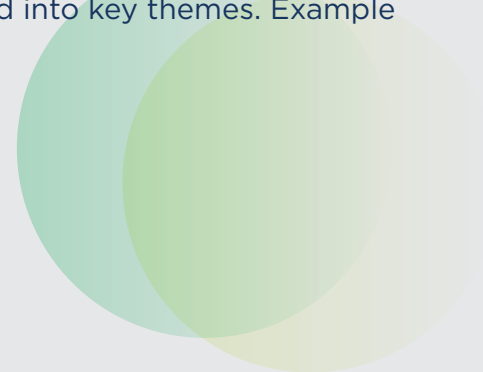




TABLE 3. Themes and suggested supports for mental and emotional health in the context of climate change within the formal education system (K-12, college, university).

Theme	Examples of Suggested Supports within the Formal Education System
Education	<ul style="list-style-type: none"> • Provide accurate information • Teach/talk openly about reality and consequences of climate change • Focus on good news along with bad news • Teach us about potential solutions and specific actions • Teach about climate from a very early age • Increase focus on major threats, corporate impacts and current dangers • Provide students with knowledge and tools to combat greenwashing
Reassure and Empower	<ul style="list-style-type: none"> • Help us build community and work together on solutions • Engage students in constructive activities (e.g. planting trees) • Reassure us and motivate us to do better • Provide hope for the future • Provide a student climate advisor • Reassure that it will take community and time to fix climate change • Provide avenues to advocate for systemic change • Encourage protests for rights • Stop talking like the world is ending, give regular positive updates • Provide monthly progress updates
Support Solutions	<ul style="list-style-type: none"> • Actively fight climate change • Provide resources and funding to implement solutions • Incentives and showcases for teams working on climate solutions • Encourage art and creativity
Support Mental Health and Well-Being	<ul style="list-style-type: none"> • Provide more free counseling services and therapy • Incorporate self-care, mindfulness, and wellness into curriculum • Create in-person and online support groups around the climate crisis





3. DISCUSSION AND RECOMMENDATIONS

Replicating and extending the methodology from Hickman et al. (2021) and Galway & Field (2023), our research similarly finds considerable climate anxiety among youth in Oakville, Ontario. Our findings illustrate a range of negative personal emotions and worry around the broad topic of climate change. Consistent with the prior global and national studies referenced above, many respondents indicated feeling sad, anxious, afraid, powerless, and hopeless. A distinct majority also described their responses to these emotions as producing depression and anger. Some participants indicated feelings of grief, hurt and despair, while a slim minority expressed optimism and hope. Overall, the findings align closely with the results of the prior studies, confirming the conclusions of these researchers that sadness, anxiety, and fear are the predominant emotional responses for youth facing the reality of the climate crisis.

Consistent with these negative emotional patterns, participants indicate negative thoughts and beliefs around the impact of climate change on their futures. Strong majorities report a sense that people have failed to care for the planet, creating a frightening future where opportunities are diminished, security and livelihood are threatened, and much natural beauty has been destroyed.

Predictably these manifestations of climate anxiety have an adverse effect on the mental health of this cohort, with over 80% of participants reporting that concerns about climate have at least “a little” impact on their mental health with 46% reporting moderate or worse impacts.

Nevertheless, our community’s youth demonstrate remarkable resilience, relying on several coping strategies to manage their mental health. Engagement in climate action, building interpersonal relationships, active pursuit of self-care are common among these. Some participants indicated a reliance on “escapism” or avoidance behaviour.

Survey responses on the effectiveness of local government actions skew overwhelmingly negative, with participants reporting fear and anger around sentiments that they are belittled and abandoned by climate change policies and programs. Many were unsure or unaware of local government action, suggesting that current approaches to engaging this group may be insufficient. A majority of respondents agreed with negative statements that local government is “failing young people in our community”, “betraying me and/or future generations”, “dismissing people’s distress”, and “lying about the effectiveness of the actions they are taking.” A similar majority believes that the formal education system (K-12, college, or university) should be doing “a lot more” or “somewhat more” to educate young people about climate change, including the social and emotional dimensions of climate change (i.e., developing the emotional intelligence and/or interpersonal skills that enable learners to constructively cope with emotions and feelings about climate change and its impacts, and to more effectively collaborate, negotiate, and communicate with others to address climate change).

Our data corroborate the findings of Galway & Field (2023) that “young people feel powerless and betrayed and do not feel cared for, valued, or protected when it comes to climate change.” Galway & Field concluded that young people need to be heard by adults and require deliberate engagement in decision-making processes. We agree with the general direction the authors express and feel there is sufficient evidence in the Oakville survey to suggest that this community’s youth are looking for far greater involvement.



First, a majority report positive beliefs that small actions to combat climate change matter, that there is still hope for the future, that they are motivated to take climate change action in their community, and that humanity can adapt to these challenges. Most report feeling capable of contributing to improvement of the climate change situation and that together we can do something about climate change. Qualitative responses to the question about what our educational system can do to support appear to confirm this general sense that change is possible. Most respondents wished to be engaged honestly, openly, and meaningfully on climate change. Though many wished to be reassured that there are tangible and practical solutions to the climate crisis, they express little appeal to being coddled with sugar-coated news, given the urgency and severity of our current situation.

Second, participants identified a wide range of actions that can be implemented at local scale around greenhouse gas emissions reduction, improved waste resource management, improvements to transit and decarbonizing energy systems.

Our conclusion, in consideration of the survey data, is that while Oakville youth are angry, anxious, and disillusioned at being left out of decisions that affect their futures, they still believe that change is possible, and they wish to be meaningfully engaged. We agree with Galway & Field that youth voices need to be heard more loudly within government and also observe that meaningful climate action is a commonly indicated antidote to climate anxiety. Oakville's youth are looking for more direct engagement, opportunities, and education to combat and cope with negative feelings about climate change and declining mental health.

Our community, our institutions and organizations, and our government have an opportunity and responsibility to design and implement youth councils, action groups, task forces and coalitions to empower, inform, listen, and involve youth in advancing climate solutions. Through these means, we not only mobilize a highly motivated and highly impacted segment of our community, but the data suggest that this would also do much to reduce climate anxiety and improve their mental health.

Referenced Literature

Galway, L. P., & Field, E. (2023). Climate emotions and anxiety among young people in Canada: A national survey and call to action. *The Journal of Climate Change and Health*, 9, 100204. <https://doi.org/10.1016/j.joclim.2023.100204>

Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., & Susteren, L. van. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: A global survey. *The Lancet Planetary Health*, 5(12), e863–e873. [https://doi.org/10.1016/S2542-5196\(21\)00278-3](https://doi.org/10.1016/S2542-5196(21)00278-3)

References

- British Columbia, Chief Coroner (2022) Extreme Heat and Human Mortality: A Review of Heat-Related Deaths in B.C. in Summer 2021 https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf
- BCCIC - British Columbia Council for International Cooperation (2020) Climate Change Induced Internal Displacement in Canada https://www.bccic.ca/wp-content/uploads/2020/11/PDF_Climate-Change-Induced-Internal-Displacement-in-Canada_Mohamed_A_Sept2020-CC-20-02-2164.pdf
- Berry, P., & Schnitter, R. (Eds.). (2022). Health of Canadians in a Changing Climate: Advancing our Knowledge for Action <https://changingclimate.ca/health-in-a-changing-climate/>
- Bush, E. and Lemmen, D.S., editors (2019): Canada's Changing Climate Report
- Canadian Climate Institute (2021) The Health Costs of Climate Change: https://climatechoices.ca/wp-content/uploads/2021/06/ClimateChoices_Health-report_Final_June2021.pdf
- City of Burlington, Town of Oakville and ICLEI Canada (2021) Climate Projections Report <https://pub-oakville.escribemeetings.com/filestream.ashx?DocumentId=5151>
- Climate Risk Institute (2023) Ontario Provincial Climate Change Impact Assessment: <https://www.ontario.ca/files/2023-08/mecp-ontario-provincial-climate-change-impact-assessment-en-2023-08-17.pdf>
- Chase Canada (2023) Climate Change, Population Health and Health Equity <https://chasecanada.org/wp-content/uploads/2023/11/Net-Zero-Rpt-ENG-Nov-7-23.pdf>
- Conservation Halton (2023) Effects of Climate Change on Biodiversity within Conservation Halton's Watersheds - Executive Summary https://www.conservationhalton.ca/wp-content/uploads/2023/09/CC_Biodiversity_ExSummary_FINAL.pdf
- CTV News (2023) Military deploys 350 soldiers to Northwest Territories, 68 per cent of population evacuated <https://www.ctvnews.ca/canada/military-deploys-350-soldiers-to-northwest-territories-68-per-cent-of-population-evacuated-1.6527811#>
- CTV News Montreal (2024) Desjardins no longer offering mortgages for houses in some flood zones <https://montreal.ctvnews.ca/desjardins-no-longer-offering-mortgages-for-houses-in-some-flood-zones-1.6782295>
- Future Energy Oakville (2024) Oakville's Energy Emissions are on the Rise: <https://futureenergyoakville.ca/oakvilles-energy-emissions-are-on-the-rise/>
- Government of Canada (2024) Public Health: Outbreak of Salmonella infections linked to Malichita and Rudy brand cantaloupes <https://www.canada.ca/en/public-health/services/public-health-notices/2023/outbreak-salmonella-infections-malichita-cantaloupes.html>
- Halton Region (n.d.) Heat Warnings <https://www.halton.ca/For-Residents/Environmental-Health/Outdoor-Air-Quality/Heat-Warnings>

Halton Region (n.d.) Lyme Disease <https://www.halton.ca/for-residents/immunizations-preventable-disease/diseases-infections/lyme-disease>

Healthy Plan City (2024) <https://healthyplan.city/en>

InHalton (2023) Air quality in Oakville, Milton, Burlington the worst in Ontario: <https://www.inhalton.com/air-quality-in-oakville-milton-burlington-the-worst-in-ontario/>

Intact Centre on Climate Adaptation (2018) After the Flood <https://www.intactcentreclimateadaptation.ca/wp-content/uploads/2018/06/After-The-Flood.pdf>

IOM - International Organization for Migration (2023) Thinking About Tomorrow: <https://publications.iom.int/books/thinking-about-tomorrow-acting-today-future-climate-mobility>

IPCC (2021): Water Cycle Changes. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter08.pdf

IPCC (2023) Climate Change Synthesis Report Summary for Policymaker: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

Ministry of the Environment, Conservation and Parks, (2024). Summary of Special Air Quality Statements and Smog and Air Health Advisories 2015 to 2024; Government of Ontario: https://www.airqualityontario.com/aqhi/advisories_stats.php

NASA (2023), Summer 2023 Record High Global Temperatures: <https://svs.gsfc.nasa.gov/5161/>

North American Electric Reliability Corporation (2023) Generator Fuel Supplies, Power Plant Winterization, Load Forecasting Complexity Increase Reliability Risk in North America this Winter: https://www.nerc.com/news/Headlines%20DL/2023-2024%20WRA%20Announcement_Nov_8_2023%20final.pdf

Oakville Community Foundation (2023) Are We Hungry? <https://www.theocf.org/wp2021/wp-content/uploads/2023/06/Are-We-Hungry-2023.5-copy-1.pdf>

Oakville News (2017) Lake Ontario Flood of 2017: Oakville Update: <https://www.oakvillenews.org/local-news/lake-ontario-flood-2017-oakville-update-8476052>

Ontario (n.d.) Monarch: <https://www.ontario.ca/page/monarch>

Public Health Agency of Canada (2019) Increased risk of microbial foodborne diseases with climate change: <https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2019-45/issue-4-april-4-2019/article-5-microbial-foodborne-diseases-climate-change.html>

Public Health Canada,(2023) Lyme Disease:Surveillance; Government of Canada: <https://www.canada.ca/en/public-health/services/diseases/lyme-disease/surveillance-lyme-disease.html>

Public Health Ontario (2022) Let's Talk About Ticks! <https://www.publichealthontario.ca/en/About/News/2022/Tick-Season>

TAF - The Atmospheric Fund (2023) Carbon Emissions Inventory Report 2022, <https://carbon.taf.ca/regions>

Toronto Star (2022) 11th person dies from weekend storm, tens of thousands Ontarians still without power: https://www.thestar.com/news/canada/11th-person-dies-from-weekend-storm-tens-of-thousands-ontarians-still-without-power/article_d9b68b8f-aaa9-5b0e-ae54-45a1dedd2dfb.html

Town of Oakville (2016) Growing Livability: A Comprehensive Study of Oakville's Urban Forest <https://www.oakville.ca/getmedia/1077b939-8f45-4cef-bb02-99f8ddfe8542/itree-growing-livability-report.pdf>

Town of Oakville (2018) Oakville Strategy for Biodiversity: <https://www.oakville.ca/getmedia/a9bfbb8b-1845-4939-b3fa-782dbcab81a6/environment-biodiversity-strategy.pdf>

Town of Oakville (2024) Updated Private Tree Protection Bylaw: <https://pub-oakville.escribemeetings.com/filestream.ashx?DocumentId=67697>

Town of Oakville (n.d.) Flooding: <https://www.oakville.ca/home-environment/stormwater/flooding/>

Town of Oakville (n.d) Tree Diseases, Pests and Invasive Plants: <https://www.oakville.ca/home-environment/trees-woodlands/tree-diseases-pests-invasive-plants/>

UNHCR - United Nations High Commissioner for Refugees (2021), Climate change link to displacement of most vulnerable is clear: [https://news.un.org/en/story/2021/04/1090432#:~:text=Climate%20change%20link%20to%20displacement%20of%20most%20vulnerable%20is%20clear%3A%20UNHCR,-22%20April%202021&text=Weather%2Drelated%20crises%20have%20triggered,\(UNHCR\)%20said%20on%20Thursday](https://news.un.org/en/story/2021/04/1090432#:~:text=Climate%20change%20link%20to%20displacement%20of%20most%20vulnerable%20is%20clear%3A%20UNHCR,-22%20April%202021&text=Weather%2Drelated%20crises%20have%20triggered,(UNHCR)%20said%20on%20Thursday)

UNHCR - United Nations High Commissioner for Refugees (2024), Climate change and disaster displacement: <https://www.unhcr.org/uk/what-we-do/build-better-futures/environment-disasters-and-climate-change/climate-change-and>

