



# Climate Change Strategy

2025 - 2034

January 25, 2024



**KAWARTHA  
CONSERVATION**

Discover • Protect • Restore

# About Kawartha Conservation

## Who we are

We are a watershed-based organization that uses planning, stewardship, science, and conservation lands management to protect and sustain outstanding water quality and quantity supported by healthy landscapes.

## Why is watershed management important?

Abundant, clean water is the lifeblood of the Kawarthas. It is essential for our quality of life, health, and continued prosperity. It supplies our drinking water, maintains property values, sustains an agricultural industry, and contributes to a tourism-based economy that relies on recreational boating, fishing, and swimming. Our programs and services promote an integrated watershed approach that balance human, environmental, and economic needs.

## The community we support

We focus our programs and services within the natural boundaries of the Kawartha watershed, which extend from Lake Scugog in the southwest and Pigeon Lake in the east, to Balsam Lake in the northwest and Crystal Lake in the northeast – a total of 2,563 square kilometers.

## Our history and governance

In 1979, we were established by our municipal partners under the *Ontario Conservation Authorities Act*.

The natural boundaries of our watershed overlap the six municipalities that govern Kawartha Conservation through representation on our Board of Directors. Our municipal partners include the City of Kawartha Lakes, Region of Durham, Township of Scugog, Township of Brock, Municipality of Clarington, Municipality of Trent Lakes, and Township of Cavan Monaghan.



**KAWARTHA  
CONSERVATION**

Discover • Protect • Restore

### **Kawartha Conservation**

277 Kenrei Road, Lindsay ON K9V 4R1

T: 705.328.2271 F: 705.328.2286

[GenInfo@KawarthaConservation.com](mailto:GenInfo@KawarthaConservation.com)

[KawarthaConservation.com](http://KawarthaConservation.com)

# Executive Summary

Kawartha Conservation is committed to addressing climate change challenges with this 10-Year Climate Change Strategy that prioritizes tangible results. This strategy focuses on activities such as data collection, information sharing, knowledge exchange, and support for climate mitigation and adaptation.

In response to the urgency of climate change, Kawartha Conservation presents this comprehensive strategy designed to confront the evolving climate conditions affecting communities in the City of Kawartha Lakes, the Municipality of Trent Lakes, the Township of Brock, Township of Scugog, the Municipality of Clarington, and the Township of Cavan-Monaghan. The goal is to foster collaboration among these municipalities, through the work that we do, enhancing regional resilience.

Kawartha Conservation's 10-Year Climate Change Strategy envisions a sustainable future that harnesses valuable data sources, such as [climatedata.ca](http://climatedata.ca), and builds upon the work of member municipalities to create a roadmap for safeguarding natural heritage and promoting resilient ecosystems.

## Alignment with Strategic Plan

Aligned with our Strategic Plan, the pillars of Protect and Restore, Engage and Inspire, and Innovate and Enhance underscore our approach, with specific objectives and outcomes for each:

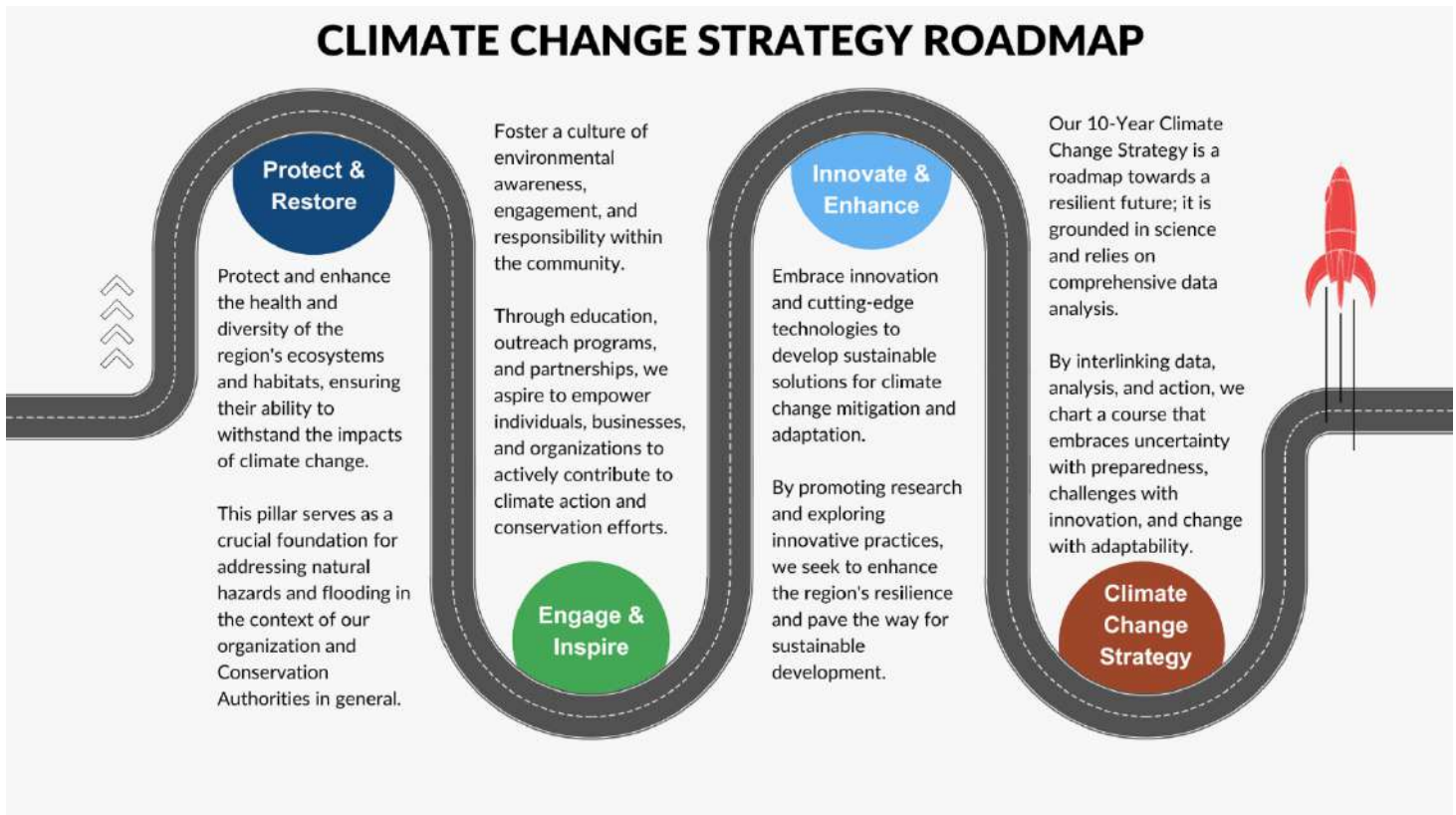


Figure 1. Climate Change Strategy Roadmap

## 1. Protect and Restore

**Objective:** To safeguard and rejuvenate the natural environment in our region.

**Outcomes:**

- Implement conservation measures to protect vulnerable ecosystems.
- Restore and enhance natural habitats, including reforestation and wetland restoration.
- Reduce environmental impacts through sustainable land management and water quality improvement initiatives.

## 2. Engage and Inspire:

**Objective:** To actively involve the public in climate change awareness and action.

**Outcomes:**

- Organize community outreach and educational programs to raise awareness of climate change issues.
- Foster a sense of stewardship and responsibility for the environment among residents.
- Encourage public participation in conservation efforts, such as volunteering, citizen science, and environmental education.

## 3. Innovate and Enhance

**Objective:** To drive innovation in climate change mitigation and adaptation strategies.

**Outcomes:**

- Develop and implement new technologies and practices for sustainable resource management.
- Promote green infrastructure and sustainable urban planning to mitigate the effects of climate change.
- Facilitate research and development partnerships to create novel solutions for climate resilience.

By implementing these objectives and achieving these outcomes within the Protect and Restore, Engage and Inspire, and Innovate and Enhance pillars, we aim to create synergies that make the most of existing programs and services provided by Kawartha Conservation. Furthermore, we leverage the valuable work already undertaken by our member municipalities to establish robust partnerships and programming that effectively combat climate change in our region. This comprehensive and integrated approach ensures a holistic response to the challenges posed by climate change and fosters a sustainable and resilient future for our communities.

Kawartha Conservation's 10-Year Climate Change Strategy signifies a unified commitment and approach to watershed health and conservation. By recognizing the interconnectedness of our member municipalities, we forge a path towards a resilient and thriving future. Together, we can work hand in hand with the community and partners to protect our natural heritage.

# Table of Contents

About Kawartha Conservation .....	2
Executive Summary .....	3
List of Tables .....	6
Table of Figures.....	6
Acknowledgements .....	7
The <i>Conservation Authorities Act</i> : A brief Overview .....	8
Climate Change Vulnerabilities and Risks.....	10
Climate Change and a Municipal Overview.....	16
City of Kawartha Lakes.....	18
Municipality of Trent Lakes.....	19
Durham Region.....	20
Township of Brock.....	21
Township of Scugog.....	22
Municipality of Clarington .....	23
Township of Cavan-Monaghan.....	24
Conservation Authority Mission.....	26
Strategic Actions.....	27
Conclusion .....	35
Appendix.....	36

# List of Tables

Table 1. 30-Year Average Annual Temperature Projections Based on Emission Scenarios (2024-2054) .....15

Table 2. 30-Year Average Total Precipitation Projections Based on Emission Scenarios (2024-2054) .....15

# Table of Figures

Figure 1. Climate Change Strategy Roadmap .....3

Figure 2. Average Annual Total Precipitation Projections (2024 – 2054, High Emission Scenario) ..... 14

Figure 3. Average Annual Air Temperature Projections (2024 - 2054, High Emission Scenario) ..... 14

Figure 4. Kawartha Conservation Watershed Map..... 17

Figure 5. 30-Year Average Annual Air Temperature Projections for Coboconk ..... 37

Figure 6. 30-Year Average Annual Total Precipitation Projections for Coboconk ..... 37

Figure 7. 30-Year Average Annual Air Temperature Projections for Lindsay ..... 38

Figure 8. 30-Year Average Annual Total Precipitation Projections for Lindsay ..... 38

Figure 9. 30-Year Average Annual Air Temperature Projections for Kinmount ..... 39

Figure 10. 30-Year Average Annual Total Precipitation Projections for Kinmount ..... 39

Figure 11. 30-Year Average Annual Air Temperature Projections for Bobcaygeon..... 40

Figure 12. 30-Year Average Annual Total Precipitation Projections for Bobcaygeon..... 40

Figure 13. 30-Year Average Annual Air Temperature Projections for Manilla ..... 41

Figure 14. 30-Year Average Annual Total Precipitation Projections for Manilla ..... 41

Figure 15. 30-Year Average Annual Air Temperature Projections for Port Perry ..... 42

Figure 16. 30-Year Average Annual Total Precipitation Projections for Port Perry ..... 42

Figure 17. 30-Year Average Annual Air Temperature Projections for Blackstock ..... 43

Figure 18. 30-Year Average Annual Total Precipitation Projections for Blackstock ..... 43

Figure 19. 30-Year Average Annual Air Temperature Projections for Clarington..... 44

Figure 20. 30-Year Average Annual Total Precipitation Projections for Clarington..... 44

Figure 21. 30-Year Average Annual Air Temperature Projections for Cavan-Monaghan..... 45

Figure 22. 30-Year Average Annual Total Precipitation Projections for Cavan-Monaghan..... 45

## Acknowledgements

We would like to acknowledge that many Indigenous Nations have longstanding relationships, both historic and modern, with the territories upon which we are located.

Today, this area is home to many indigenous peoples from across Turtle Island. We acknowledge that our watershed forms a part of the treaty and traditional territory of the south-eastern Anishinaabeg.

It is on these ancestral and treaty lands that we live and work. To honour this legacy, we commit to being stewards of the natural environment and undertake to have a relationship of respect with our Treaty partners.

This plan was written by Nathan Rajevski and John Chambers. Special thanks to all the staff at Kawartha Conservation for providing feedback into the development of this document, with special thanks and acknowledgement to:

Mark Majchrowski	Chief Administrative Officer
Nancy Aspden	Acting Director, Integrated Watershed Management
Jonathan Lucas	Director, Corporate Services
Tanner Liang	Water Quality Specialist
Brett Tregunno	Aquatic Biologist
Rob Stavinga	Watershed Resources Technician

This document may be cited as:

Kawartha Conservation. 2024. Climate Change Strategy 2025 - 2034. Kawartha Conservation, Lindsay, Ontario. pp 47



**Kawartha Conservation**  
277 Kenrei Road, Lindsay ON K9V 4R1  
T: 705.328.2271 F: 705.328.2286  
[GenInfo@KawarthaConservation.com](mailto:GenInfo@KawarthaConservation.com)  
[KawarthaConservation.com](http://KawarthaConservation.com)

# The *Conservation Authorities Act*: A brief Overview

In the realm of tackling climate change, the legal framework that guides the actions of conservation organizations holds paramount importance. The *Conservation Authorities Act* stands as a pivotal piece of legislation that outlines the duties and responsibilities of entities like Kawartha Conservation in addressing and adapting to the challenges posed by our changing climate.

Enacted with the goal of safeguarding Ontario's natural resources and mitigating natural hazards, the *Conservation Authorities Act* sets forth a clear purpose for conservation authorities. Among its core provisions, the *Conservation Authorities Act* emphasizes the prudent management of natural resources, flood and erosion control, and land use planning to ensure the long-term sustainability of our environment.

Within the context of climate change, the *Conservation Authorities Act* plays a vital role in directing conservation authorities to acknowledge and incorporate climate change considerations into their planning and decision-making processes. This directive recognizes that climate change poses unprecedented challenges that necessitate comprehensive and proactive strategies.

Under the *Conservation Authorities Act's* umbrella, Kawartha Conservation assumes several key responsibilities and mandates in the realm of climate change adaptation and mitigation:

- I. ***Watershed Planning and Management*** – tasked with preparing plans that reflect the changing climate conditions. This involves assessing the potential impacts of climate change on water resources and communities within the watershed.
- II. ***Development Review and Regulation*** – Regulate development activities within the watershed to ensure they are built safely with respect to a climate-resilient understanding of natural hazard features and develop programs and services to achieve this. This includes consideration such as floodplain management, erosion control, and sustainable land use practices to mitigate climate-related risks.
- III. ***Public Awareness and Education*** – Engaging the public and promoting awareness about climate change and its potential ramifications. Kawartha Conservation is entrusted with educating communities, fostering collaboration, promoting sustainable behaviours that align with the climate change strategy.
- IV. ***Collaboration and Partnerships*** -Recognizing the interconnectedness of climate change impacts, the act encourages collaboration between Kawartha Conservation, other government agencies, and stakeholders. This collaborative approach facilitates the development of comprehensive and effective climate change strategies.

The legislated requirements articulated in the *Conservation Authorities Act* empower Kawartha Conservation to take a proactive stance in addressing and adapting to climate change. By embracing these mandates, Kawartha Conservation is poised to foster resilience, steward natural resources, and protect communities in the face of our changing climate.



In a broader sense, Kawartha Conservation has a responsibility and requirement to support its member municipalities through the additional following areas:

- **Floodplain Management and Regulation:** Under the *Conservation Authorities Act*, Conservation Authorities have the authority to regulate and manage development in flood-prone areas. They establish regulations to guide construction and land use within floodplains to mitigate flood risks and safeguard lives and property.
- **Flood Forecasting and Warning:** Conservation Authorities in Ontario are mandated to monitor meteorological conditions, water levels, and other factors that could lead to flooding. They issue flood forecasts and warnings to inform the public and local authorities, enabling preparedness and effective response to potential flood events.
- **Climate Change Adaptation:** Conservation Authorities, under the *Conservation Authorities Act*, must account for climate change projections and the associated risks as they relate to natural hazards. This involves integrating climate change data into flood forecasting, planning, and mitigation efforts to address evolving conditions and challenges.
- **Natural Hazard Mitigation:** Conservation Authorities are entrusted with a broader mandate, which encompasses the management of various natural hazards, not limited to floods. They must identify, assess, and develop strategies to mitigate these hazards, including erosion, landslides.
- **Emergency Management and Response:** Conservation Authorities play a pivotal role in emergency management and response during flood events. They collaborate closely with local emergency services and municipal governments by providing flood and weather information, helping to ensure a coordinated and effective response to flooding.
- **Environmental Protection:** The *Conservation Authorities Act* requires Conservation Authorities to protect and conserve natural ecosystems. This includes managing water resources and ecosystems susceptible to flood impacts and climate change effects.
- **Public Education and Outreach:** Conservation Authorities, as per the legislation, engage in public education and outreach programs to raise awareness about flood risks and promote community preparedness and resilience.
- **Resource Management:** Conservation Authorities have responsibilities related to water resource management, essential for mitigating the environmental consequences of flooding.
- **Community Engagement:** Collaboration with local communities, government agencies, and stakeholders is a fundamental aspect of the mandate outlined in the *Conservation Authorities Act*. Such collaboration ensures the effectiveness of flood forecasting, preparedness, and response efforts.

The risks associated with climate change, natural hazards, and flood forecasting and warning, as addressed by Conservation Authorities under the *Conservation Authorities Act*, include heightened flood frequency and severity, increased erosion, habitat loss affecting the resilience of landscapes, and infrastructure damage. To address these risks, Conservation Authorities in Ontario must continually adapt their strategies, stay informed about the latest scientific data, and continually monitor and collect local data, while adhering to best practices to protect communities and the environment.

# Climate Change Vulnerabilities and Risks

Climate change poses a multitude of risks and vulnerabilities. As the earth's temperature continues to rise due to the accumulation of greenhouse gases, we are confronted with a range of interconnected challenges that affect our future, including changes in air temperature and precipitation trends.

Increases in air temperature have a wide variety of compounding effect that will have a significant impact on freshwater lakes, streams, forests, and wetlands.<sup>4</sup>

One of the other major risks of climate change is an increase in extreme weather events, including more intense rainfall, prolonged droughts, and devastating wildfires. These events can cause widespread damage to properties and infrastructure, disrupt essential services such as energy, drinking water, and transportation, and can result in the loss of life.

While acknowledging the challenges posed by fluctuating water levels and their impact on hydrological systems, it is important to consider the broader implications of climate change, including the potential benefits to the local agricultural community. Changes in climate patterns, particularly the reduction in colder days, can contribute to an extended growing season, providing a unique advantage for agriculture in the region.

This shift towards fewer cold days may enhance crop productivity and diversify agricultural opportunities, enabling farmers to cultivate a wider variety of crops or extend their growing periods. Such changes could lead to increased agricultural yields and potentially open new avenues for local economic development in farming communities.

However, it is crucial to balance these potential benefits with the challenges. Fluctuating water levels will affect hydrological systems including changes to stream flow and groundwater discharge. Increased runoff from urban and rural areas will further degrade water quality by introducing greater levels of nutrients, sediment, and contaminants into water bodies, while also increasing the risk of flooding within certain areas.<sup>4</sup> Increased risks to freshwater fauna are also a major impact of climate change as habitat loss and degradation increases, alongside increases in pollution and the spread of invasive species.<sup>4</sup>

## Environmental Impacts

In this critical section of our 10-Year Climate Change Strategy, we focus on unraveling the complex web of risks and vulnerabilities posed by climate change. Our aim is to provide a thorough understanding of how these changes impact ecosystems, economies, and the well-being of communities within our member municipalities. To achieve this, we delve into detailed climate projections, examining trends in temperature and total precipitation across various locations within the Kawartha Conservation watershed.

These projections are a window into our potential future climate realities. By incorporating a range of emission scenarios, we account for different levels of greenhouse gas emissions, offering a spectrum of possible outcomes. This approach allows us to not just anticipate but actively visualize the potential shifts in our climate.

Understanding these scenarios is crucial for our strategic planning. It enables us to tailor our efforts in adapting to and mitigating the impacts of climate change. By comprehensively assessing these varied climate projections, we equip ourselves with the knowledge necessary to make informed decisions and take proactive steps toward safeguarding our environment and communities against the imposing challenges of climate change.

## Climate

- Changes in climate can contribute to changes in air temperature patterns.<sup>1</sup>
- Changes in precipitation trends, shifting rainfall patterns, heavier rainfall, and a greater risk of flooding and low water/drought situations.<sup>2</sup>
- Changes in climate can contribute to more frequent extreme weather events, along with less predictable weather patterns.<sup>2</sup>
- Climate change can increase the frequency and severity of wildfires due to an increase in air temperature and extended periods of drought.<sup>3</sup>

## Aquatic Ecosystems (lakes, streams, and rivers)

- Increased temperature due to a changing climate can result in an increased spread of more invasive species.<sup>4</sup>
- Climate change can cause degraded levels of biodiversity within waterbodies due to increases in temperature.<sup>4</sup>
- Alterations in climate can elevate water temperatures, leading to consequences for aquatic ecosystems, including habitat degradation and displacement.<sup>4</sup>
- Climate change can cause changes in the hydrological cycle, resulting in altered flow and water quality.<sup>4</sup>
- Climate change can lead to reduced survival rates of cold-water fish species as rising water temperatures not only create unfavorable conditions but also decrease dissolved oxygen levels, adversely affecting aquatic life.<sup>4</sup>

## Wetlands

- Rise in air temperatures leads to increased evaporation and transpiration, ultimately causing the depletion of wetlands as water levels diminish.<sup>4</sup> This can also result in poorer-quality wetlands and reductions in carbon sequestration capacities.<sup>4</sup>

---

<sup>1</sup> [Government of Canada: Causes of climate change](#)

<sup>2</sup> [Conservation Ontario: Climate change](#)

<sup>3</sup> [Government of Canada: Climate change and fire](#)

<sup>4</sup> [A Summary of the Effects of Climate Change on Ontario's Aquatic Ecosystems](#)

- Changes to normal duration, timing and elevation of annual and seasonal water levels will cause alterations in habitat and natural succession of wetlands.<sup>4</sup>

## Economic Impacts

- Increased frequency and severity of weather events necessitate higher spending on infrastructure repairs and upgrades.
- Altered temperature and precipitation patterns negatively impact agricultural productivity, leading to decreased crop yields and higher costs for farmers, exemplified by drought-affected grain production.
- Extreme temperatures result in greater energy consumption for heating and cooling, increasing costs for households and businesses, as observed during prolonged heatwaves.
- The insurance industry faces higher premiums and payouts due to more frequent severe weather events, directly affecting the finances of individuals and businesses in areas prone to natural disasters.
- Climate change disrupts water supplies and water quality, leading to increased costs for treatment and impacting both municipal and industrial water users, particularly in regions experiencing altered rainfall patterns.

Significant economic burdens arise from managing and responding to climate-related emergencies like floods and wildfires, placing a heavy financial load on governments and communities.

## Human Health

- Rising temperatures can cause more heat related diseases and illnesses.<sup>5</sup>
- Increased risk of human harm from natural disasters and extreme weather events.<sup>5</sup>
- Reduced air quality, resulting in breathing problems and higher risk of heart disease and strokes.<sup>5</sup>
- Increased diseases carried by insects, such as Lyme disease and West Nile virus.<sup>5</sup>
- Increased exposure to solar ultraviolet radiation (UV) that can cause skin related cancers and diseases.<sup>5</sup>
- Increased impacts on mental health in individuals more susceptible to climate change related impacts.<sup>5</sup>
- Changes in air temperature and precipitation can cause ideal environments for water-borne pathogens. Changes in water quality stemming from climate change can promote poor water quality and increase risk of algae and pathogen blooms.

---

<sup>5</sup> [Haliburton, Kawartha, Pine Ridge District Health Unit: Climate Change](#)

## Climate Projections

Climate projections involve modeling the Earth's future climate, often extending into the 2100s, by considering various scenarios for greenhouse gases and atmospheric conditions. All projections in this section have been sourced from an online portal ([Climatedata.ca](https://climatedata.ca)) that allows Canadians to access future projections for various climate scenarios for both temperature and precipitation information.

[Climatedata.ca](https://climatedata.ca) is a collaborative data portal that involves a wide variety of partners.

- Environment and Climate Change Canada (ECCC)
- The Computer Research Institute of Montréal (CRIM)
- CLIMAtlantic
- Ouranos
- The Pacific Climate Impacts Consortium (PCIC)
- The Prairie Climate Centre (PCC)
- HabitatSeven

All projections contain a level of uncertainty related to their estimates of the future due to the evolution of population, energy use, technology, and political choices. Climate projections function as a great tool for meteorologists and climatologists when looking for ways to help mitigate the effects of climate change.

The below tables and graphs outline a set of 30-year (2024-2054) projections for various locations within the Kawartha Conservation watershed that focus on the average annual temperature and average total precipitation. Low emission scenarios assume that greenhouse gas emissions are going to peak and then begin to decline, whereas a high emission scenario suggests that greenhouse gas emissions will continue to rise.

\*Note that some datasets have significant differences from one location to another. These are not outliers; they are just representing the changes in data based off geographical location.

**Annual Average Total Precipitation and Air Temperature Projections across all Municipalities**

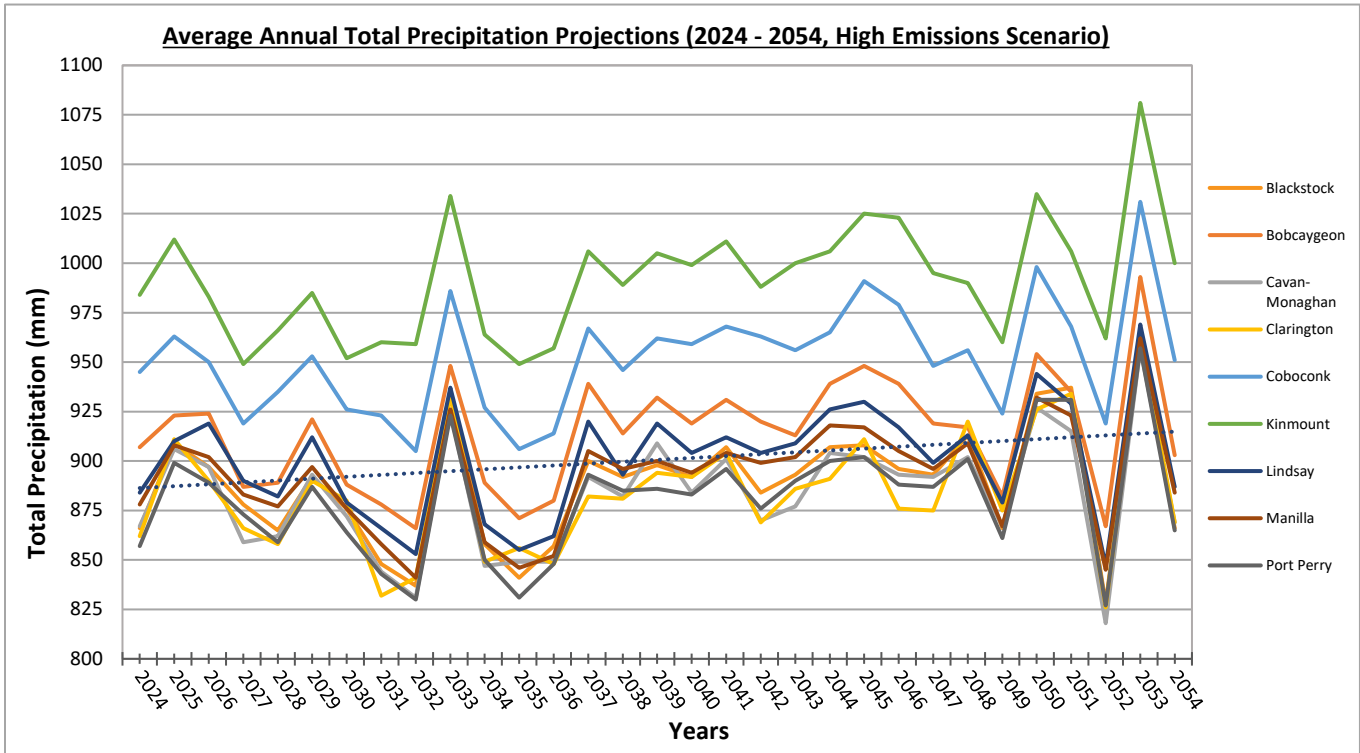


Figure 2. Average Annual Total Precipitation Projections (2024 – 2054, High Emission Scenario)

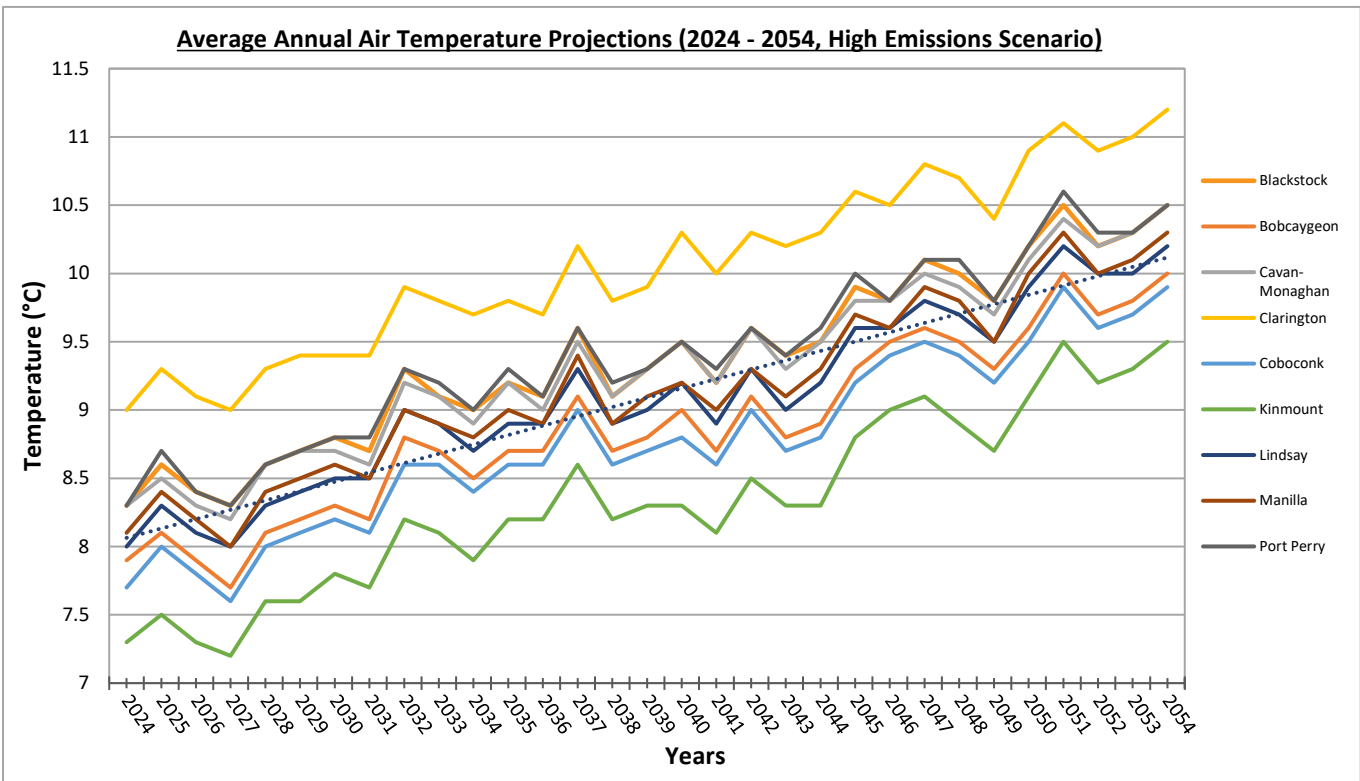


Figure 3. Average Annual Air Temperature Projections (2024 - 2054, High Emission Scenario)

**Average Annual Temperature Projections Based on Emission Scenarios (30-Year, 2024-2054)**

*Table 1. 30-Year Average Annual Temperature Projections Based on Emission Scenarios (2024-2054). Shaded rows indicate similar or different regional municipalities.*

<b><u>Location</u></b>	<b><u>1971-2000 Average Temperature</u></b>	<b><u>Low Emission Scenario Average Temperature Projection (2024-2054)</u></b>	<b><u>High Emission Scenario Average Temperature Projection (2024-2054)</u></b>
Kinmount	5.5 °C	7.8 °C	8.3 °C
Lindsay	6.2 °C	8.6 °C	9.1 °C
Bobcaygeon	6.0 °C	8.3 °C	8.9 °C
Coboconk	5.9 °C	8.2 °C	8.8 °C
Clarington	7.1 °C	9.5 °C	10.1 °C
Manilla	6.3 °C	8.6 °C	9.2 °C
Port Perry	6.5 °C	8.9 °C	9.4 °C
Blackstock	6.4 °C	8.8 °C	9.3 °C
Cavan-Monaghan	6.4 °C	8.8 °C	9.3 °C

**30-Year Average Total Precipitation Projections on Emission Scenarios (2024-2054)**

*Table 2. 30-Year Average Total Precipitation Projections Based on Emission Scenarios (2024-2054)*

<b><u>Location</u></b>	<b><u>1971-2000 Average Annual Precipitation</u></b>	<b><u>Low Emission Scenario Average Total Precipitation Projection (2024-2054)</u></b>	<b><u>High Emission Scenario Average Total Precipitation Projection (2024-2054)</u></b>
Kinmount	948mm	981mm	991mm
Lindsay	883mm	897mm	900mm
Bobcaygeon	892mm	907mm	914mm
Coboconk	929mm	941mm	951mm
Clarington	872mm	882mm	883mm
Manilla	873mm	889mm	892mm
Port Perry	857mm	878mm	881mm
Blackstock	878mm	886mm	888mm
Cavan-Monaghan	863mm	880mm	882mm

# Climate Change and a Municipal Overview

This section examines the challenges local communities face while striving to provide vital services in line with their Strategic Plans, Healthy Environment Plans, and Climate Change Action Plans. These documents help manage risks and vulnerabilities related to a changing climate.

The information below highlights how Kawartha Conservation's 10-Year Climate Change Strategy and 10-Year Environment Monitoring Strategy<sup>17</sup> aligns with our member municipalities' efforts. It's worth noting that the 10-Year Climate Change Strategy also considers various reports, management plans<sup>6</sup>, and technical reports<sup>7</sup> in its recommendations and actions. These initiatives further support Kawartha Conservation's core mission and vision, which include environmental protection and restoration, community engagement, and ongoing innovation.

While the member municipalities within the Kawartha Conservation watershed share common climate change challenges, each area also faces its own unique set of vulnerabilities and risks. Our member municipalities include the City of Kawartha Lakes, the Municipality of Trent Lakes, the Municipality of Clarington, the Township of Scugog, The Township of Cavan-Monaghan, and the Township of Brock. These municipalities, collectively, confront issues like extreme weather events, shifting precipitation patterns, and habitat disruptions due to rising temperatures. However, the specific geography, ecosystems, and local characteristics of each municipality give rise to distinct challenges. For instance, some areas might be more prone to flooding, while others may face more drought or water quality concerns. Recognizing these differences is crucial for developing effective strategies to address the complex landscape of climate change within the Kawartha Conservation watershed.

---

<sup>6</sup> [Kawartha Conservation Plans and Reports](#)

<sup>7</sup> [Kawartha Conservation Technical Reports](#)



# Kawartha Conservation Watershed Map

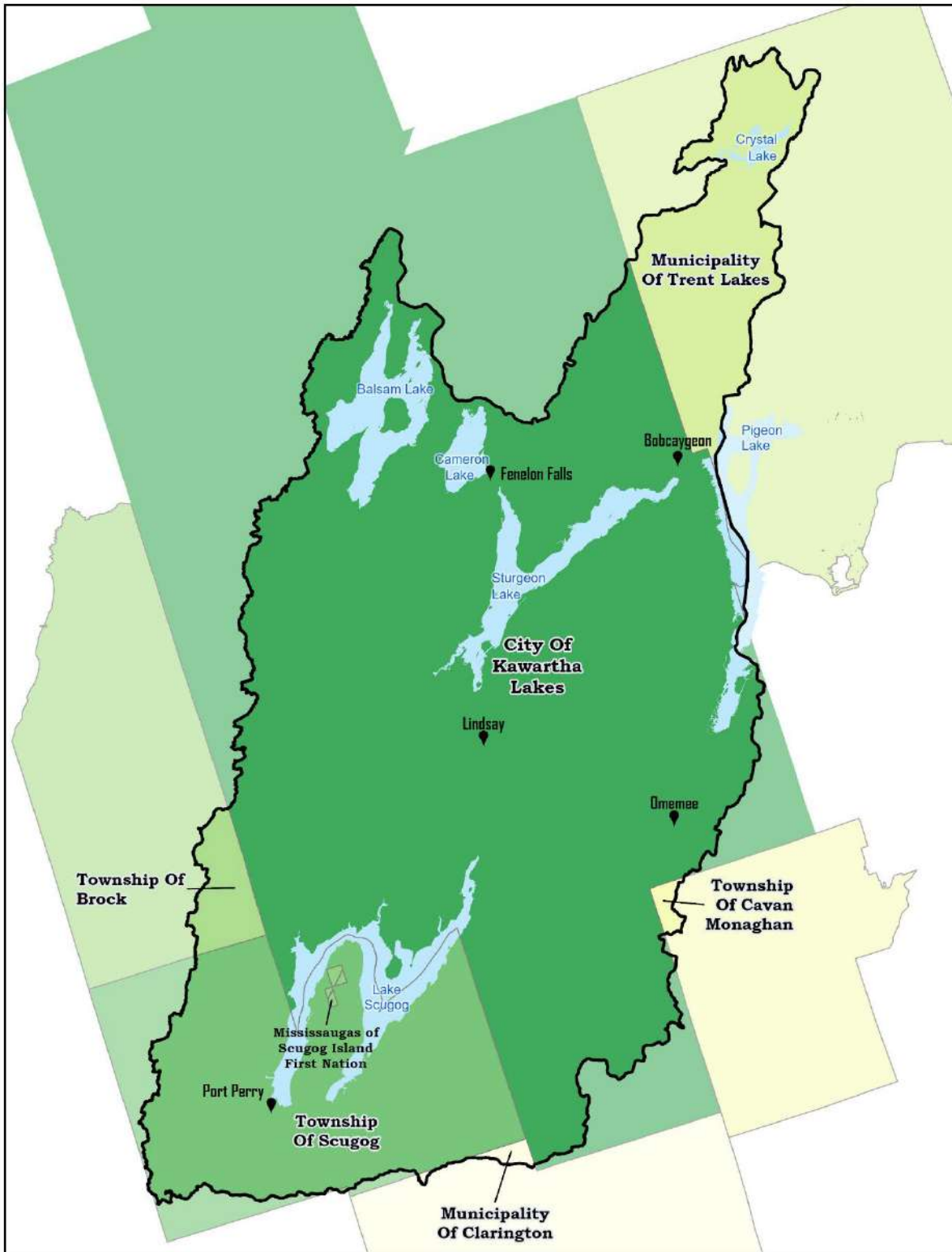


Figure 4. Kawartha Conservation Watershed and Member Municipalities Map

# The City of Kawartha Lakes

The City of Kawartha Lakes is a single-tier municipality located in central Ontario. It has a population of approximately 80,000<sup>8</sup>. Its land area is roughly 3,059 km<sup>2</sup> in size and is the second largest single tier municipality in Ontario by land area after Greater Sudbury.

The main population centres are Lindsay (population 22,367)<sup>9</sup>, Bobcaygeon (population: 3,576)<sup>10</sup>, Coboconk, Kinmount (135)<sup>11</sup> and Manilla (9,102)<sup>12</sup>

Kawartha Lakes includes more than 250 lakes and rivers, as well as five Trent-Severn Waterway locks.

The majority of Kawartha Conservation's watershed, 1,788 km<sup>2</sup> or 72 per cent, is located within the City of Kawartha Lakes boundary.

## Alignment with Strategic Plan

The City of Kawartha Lakes has demonstrated a strong commitment to environmental sustainability and climate change mitigation in their 2020-2023 Strategic Plan. A cornerstone of this plan is 'A Healthy Environment', which focuses on key goals like increasing waste reduction and diversion, executing the Healthy Environment Plan, enhancing water quality, developing a Green City Charter, and safeguarding natural areas and prime agricultural land.

The Healthy Environment Plan of the City of Kawartha Lakes places significant emphasis on effectively managing and reducing the impacts of climate change. Central to this plan is the protection, management, enhancement, and restoration of critical natural resources, including forests, wetlands, and lakes. This focus on preserving vital ecological assets is a primary aspect of the Healthy Environment Plan<sup>13</sup>.

Kawartha Conservation's 10-Year Climate Change Strategy aligns closely with these objectives. Our strategy, as outlined in our Strategic Plan<sup>14</sup> and Environmental Management Plans<sup>15</sup>, includes rigorous conservation efforts focused on essential areas such as lakes, shorelines, woodlands, and wetlands across the Kawartha Lakes region. The core aim of our plan is to protect and rejuvenate these crucial natural elements, ensuring the long-term health of the Kawartha Watershed. Our approach involves proactive engagement in environmental initiatives, such as reforestation projects, comprehensive wetland assessments, and the strategic evaluation of approaches to address climate change, resonating with the City of Kawartha Lakes' vision for a healthy environment.

---

<sup>8</sup> [2021 Population Census: City of Kawartha Lakes](#)

<sup>9</sup> [2021 Population Census: Lindsay](#)

<sup>10</sup> [2021 Population Census: Bobcaygeon](#)

<sup>11</sup> [City Facts Population: Kinmount](#)

<sup>12</sup> [2021 Population Census: Manilla](#)

<sup>13</sup> [City of Kawartha Lakes Healthy Environment Plan](#)

<sup>14</sup> [Kawartha Conservation 2022-2026 Strategic Plan](#)

<sup>15</sup> [Kawartha Conservation: Lake and Environmental Management Plans](#)

## Municipality of Trent Lakes

Nestled in the northwestern quadrant of the County of Peterborough, the Municipality of Trent Lakes boasts a distinctive natural landscape. Covering a vast land area of approximately 861 km<sup>2</sup>, this region is characterized by the Precambrian Shield and numerous small lakes, including Crystal Lake, the only cold-water lake within Kawartha Conservation's jurisdiction. This unique geological and ecological composition presents a compelling opportunity for concentrated conservation efforts.

As the municipality's borders are shaped by remarkable landmarks like Gannons Narrows to the southeast and the village of Kinmount to the north, and the appearance of many smaller waterbodies and wetlands north of the chain of Kawartha Lakes, it becomes apparent that this area is a pivotal point for both ecological and economic activities, making it a strategic focal point for initiatives aimed at preserving these fragile ecosystems and promoting sustainable, tourism-driven economic growth.

### Alignment with Strategic Plan

The Trent Lakes Climate Change Action Plan<sup>16</sup>, initiated by the Municipality of Trent Lakes, represents a proactive approach to tackling the health challenges posed by extreme climate events. This plan primarily focuses on adapting to the evolving climate dynamics and reducing contributions to climate change. Key initiatives include nurturing and protecting natural assets through restoration projects, tree planting campaigns, wetland protection, and shoreline revitalization on both private and municipal lands. These efforts are critical in informing the community about severe weather and flooding risks.

The Trent Lakes Climate Change Action Plan emphasizes the importance of community and partner awareness regarding climate change impacts and the vital role of youth education in fostering proactive responses. This aligns seamlessly with Kawartha Conservation's emphasis on community engagement and inspiration within the Kawartha Lakes communities. The plan involves comprehensive outreach through education and awareness initiatives, crafting strategies that yield community benefits and learning opportunities.

Kawartha Conservation's 10-Year Climate Change Strategy aligns with the Municipality of Trent Lake's efforts to address climate change. Our work advances strategic environmental and community initiatives, enhancing climate resilience, environmental preservation, and raising climate awareness. The plan particularly resonates with the "Protect and Restore" aspect of Kawartha Conservation's Strategic Plan<sup>14</sup>, focusing on preserving lake shorelines and natural features through Lake Management Plans and the implementation of those plans. It also includes a commitment to forest regeneration programs in partnership with landowners and communities.

Complementing these efforts, Kawartha Conservation's 10-Year Environmental Monitoring Strategy<sup>17</sup> is instrumental in monitoring local weather and climate parameters for accurate flood forecasting. This involves tracking precipitation and water levels across the watershed and surveying snow courses in the region, providing a detailed understanding of local climate patterns. The strategy is crucial for managing extreme weather events and flooding and focuses on monitoring water quantity in rivers and streams.

---

<sup>16</sup> [Greater Peterborough Area Climate Change Action Plan: Trent Lakes](#)

<sup>17</sup> [Kawartha Conservation Environmental Monitoring Strategy](#)

This helps in assessing both high-water and low-water conditions, proactively addressing the long-term impacts of climate change on the environment.

## Durham Region

The Region of Durham is a diverse and dynamic area characterized by its unique location, varied geography, and considerable size. Nestled in the heart of Southern Ontario, Durham encompasses a vast and vibrant expanse east of Toronto, with much of the population extending from Lake Ontario to the northern reaches of the Oak Ridges Moraine and more rural areas extending as far as the southeastern shores of Lake Simcoe. With a population of approximately 700,000<sup>18</sup> spanning over 2,500 km<sup>2</sup>, Durham's terrain ranges from picturesque waterfronts along Lake Ontario to rolling hills and verdant farmlands, offering a diverse range of natural landscapes that include urban centers, rural communities, and conservation areas. This multifaceted region, with its blend of urban and rural, fosters a rich diversity of cultures and opportunities for its residents and visitors alike.

### Alignment with Strategic Plan

On January 29, 2020, Durham Regional Council voted to declare a climate emergency. To act on this direction, Region of Durham is implementing programs to:

- Build more resilient infrastructures, communities, and natural systems to reduce the impacts of climate change, and
- Reduce greenhouse gas emissions and strive to be a carbon neutral community.

Durham Region's commitment to combat and adapt to the challenges posed by climate change closely mirrors key aspects of Kawartha Conservation's Strategic Plan. Notably, the Region's Climate Adaptation Plan<sup>19</sup> seamlessly aligns with Kawartha Conservation's core pillars of "Protect and Restore," "Engage and Inspire," and "Innovate and Enhance."

Durham Region's dedication to environmental protection, as outlined in its Climate Adaptation Plan, merges with Kawartha Conservation's "Protect and Restore" pillar. By spearheading strategies aimed at reducing greenhouse gas emissions and preserving natural areas, the region plays a pivotal role in the safeguarding and rejuvenation of essential ecosystems. This robust alignment mirrors the shared mission of both entities: to preserve and revitalize the natural environment and its invaluable resources.

Durham Region's Climate Adaptation Plan<sup>19</sup> places a strong emphasis on community engagement, education, and outreach, firmly aligning with Kawartha Conservation's objective to "Engage and Inspire" communities to actively participate in conservation efforts. By fostering public awareness and inspiring residents to become responsible stewards of the environment, a strong alignment forms with Kawartha

---

<sup>18</sup> [2021 Population Census: Durham Regional Municipality](#)

<sup>19</sup> [Durham Community Climate Adaptation Plan 2016](#)

Conservation's vision of fostering a collective sense of responsibility in the safeguarding and appreciation of the natural world.

Durham Region's forward-thinking approach, including substantial investments in sustainable infrastructure, renewable energy, and eco-conscious transportation solutions, neatly parallels Kawartha Conservation's commitment to innovation and the continual enhancement of environmental protection efforts. The shared objective is to improve the efficiency and effectiveness of these initiatives to meet the challenges posed by climate change head-on.

## **Township of Brock**

The Township of Brock, a lower-tier municipality within the Region of Durham, is located on the eastern shore of Lake Simcoe approximately 1.5 hours northeast of Toronto. The municipality represents three distinct urban areas, numerous hamlets, and beautiful countryside. While agriculture is the largest employer, a full range of commercial and industrial businesses are located within the urban areas of Beaverton, Cannington, and Sunderland.

The geographical allure of Township of Brock is enhanced by its proximity to Lake Simcoe and the Trent-Severn Waterway, rendering it a popular year-round destination for both summer and winter tourism. The Township's geographical area spans approximately 423 km<sup>2</sup>, providing a home to a population of around 11,645 residents<sup>20</sup>.

### **Alignment with Strategic Plan**

The Township of Brock has identified specific climate change concerns, which are integrated into the Durham Region Corporate Climate Action Plan<sup>19</sup>. This summary outlines key strategic initiatives to address these challenges. Many of these initiatives align with the core principles of Kawartha Conservation.

A significant aspect of the Township of Brock's Climate Action Plan is to reduce net carbon emissions and minimize the carbon footprint, which resonates with our commitment to addressing climate change within our "Protect and Restore" pillar. We plan to collaborate with local agricultural partners, support agricultural initiatives, and promote stewardship activities such as tree planting within our watershed, thereby reducing our carbon footprint across the watershed.

The Township of Brock's mission emphasizes leadership, collaboration, creativity, environmental stewardship, and delivering excellent services. These goals align with Kawartha Conservation's commitment to environmental protection, community engagement, and innovation within the Kawartha Conservation watershed region.

The Township of Brock aims to enhance the safety and quality of waterways, green spaces, parks, and farmlands while adopting eco-friendly practices to address climate change. We collaborate with the

---

<sup>20</sup> [2021 Population Census: Township of Brock](#)

Township of Brock and other partners to address local water challenges, implement lake management plans, and work towards improving the environment within our jurisdiction.

The Township of Brock also focuses on fostering vibrant communities and residents' well-being. This aligns with our initiatives to promote mental health and wellness, as well as our efforts to communicate the effects of climate change to a broader audience.

These aligned efforts, outlined in our Strategic Plan<sup>14</sup>, play a vital role in our work within the Kawartha Conservation watershed. Our commitment to support our partners through collaborative programs and initiatives will benefit both our communities and the environment we aim to protect as climate challenges evolve in our region.

## Township of Scugog

The Township of Scugog is a distinctive township within the Regional Municipality of Durham that rests to the northeast of Toronto and lies just north of Oshawa. The vibrant heartbeat of the township is Port Perry, which stands as its anchor and most populous center. With a resident population of approximately 22,500<sup>21</sup>, the Township of Scugog covers an area of about 475 km<sup>2</sup>.

A notable geographical feature within this township is Lake Scugog, poised between Port Perry and Lindsay, and serving as an integral component of the Trent Severn Waterway. The lake receives inflow from a network of streams and rivers, many originating in the Oak Ridges Moraine.

Flowing northward through Lindsay into Sturgeon Lake, the Scugog River serves as the conduit through which the lake's waters eventually exits. In totality, the watershed area spans 141 km<sup>2</sup>, while Lake Scugog itself encompasses an area of 66 km<sup>2</sup>.

### Alignment with Strategic Plan

The Township of Scugog is strongly dedicated to looking after the well-being of its residents and the local communities. They've shown consistent support by making sure both the communities and the natural surroundings are protected. The blueprint guiding their endeavors is contained within their updated Strategic Plan<sup>22</sup>. This plan reflects their clear emphasis on protecting local infrastructure, promoting economic growth, building strong community relationships, all while coexisting in a balanced way with a healthy natural environment. The alignment between Scugog's plan and Kawartha Conservation's Strategic Plan is evident, with both plans supporting and complementing each other for the benefit of the communities they serve. An important part of the Township's updated strategic plan is about making communities stronger. They want to create safe and healthy places where people can connect and be involved. This commitment is similar to what we are trying to do through our Strategic Plan. We want to encourage and motivate local communities by showing how we can all make a good difference for the

---

<sup>21</sup> [2021 Population Census: Township of Scugog](#)

<sup>22</sup> [2023-2026 Township of Scugog Strategic Plan](#)

environment. We are also dedicated to offering programs and projects that help people's mental health and overall well-being in the areas around us.

The Township of Scugog is really focused on keeping the natural environment safe, improving it, and bringing it back to a good state. This shows their strong promise to leave something good for the future generations. They continue to work on several program areas, like working to improve water quality, anticipating, and preparing for a changing climate, and reducing the impact on the environment. This focus matches with what we are trying to do. We also care a lot about keeping the watersheds healthy and looking after the natural places. These similar goals are a big part of our own Strategic Plan<sup>22</sup>.

The Township of Scugog also outlined in their Strategic Plan that focusing on improving water quality, recreational opportunities and aesthetics is a critical part of their strategic priorities. One of the important things outlined in our Strategic Plan<sup>14</sup> and the 10-year Climate Change Strategy is to make sure our lakes are healthy and well-looked-after, and we do this by carefully planning how we manage them, through Lake Management Plans and the implementation of actions identified in the plans.

Working together with Kawartha Conservation and other partnered groups, the Township of Scugog initiated the Lake Scugog Enhancement Project (LSEP) which is dedicated to elevating Port Perry Bay's recreational potential and enhancing water quality<sup>23</sup>. LSEP's objectives encompass addressing diminished water depth, sediment accumulation, non-native aquatic flora, bay water quality, shoreline ecosystems, and tourism appeal. The project also presents opportunities to augment navigable depth, expand recreational access for boating, paddling, and fishing, improve stormwater treatment, reduce invasive plant growth, boost tourism, and enhance fisheries productivity in Lake Scugog.

## Municipality of Clarington

The Municipality of Clarington is a large lower-tier municipality, covering about 611 km<sup>2</sup>. It includes four main towns and 13 small communities. In this area, the Municipality of Clarington has a lot of wonderful things to offer. There are scenic waterfront trails along Lake Ontario, and numerous farm properties and operations that are protected by the Greenbelt, plus the beautiful Oak Ridges Moraine. The Municipality of Clarington is a part of the bigger Regional Municipality of Durham and has a population of 101,427<sup>24</sup>.

### Alignment with Strategic Plan

The Municipality of Clarington's Corporate Climate Action Plan is a comprehensive strategy that outlines key initiatives across various municipal departments, all aimed at addressing the challenges posed by climate change. This plan focuses on understanding the local impact of climate change on physical, ecological, social, and economic aspects of the community. The Municipality of Clarington's Climate Action Plan<sup>25</sup> lays out specific goals and actions to mitigate the effects of climate change, particularly regarding infrastructure, parks, and the local environment. In anticipation of higher temperatures,

---

<sup>23</sup> [Lake Scugog Enhancement Project](#)

<sup>24</sup> [2021 Population Census: Municipality of Clarington](#)

increased precipitation, and more extreme weather events, the municipality is proactively monitoring temperature, precipitation, and water levels to improve flood communication and protect residents, infrastructure, and the environment.

The Municipality of Clarington's Climate Action Plan<sup>25</sup> is dedicated to environmental sustainability, promoting tree growth in urban and rural areas, reducing road salt usage, and enhancing road surfaces to minimize environmental impact. The plan emphasizes the need for swift action and outlines clear steps to safeguard these critical aspects. Notably, the Municipality of Clarington's goals and strategies align closely with the objectives of Kawartha Conservation, whose Strategic Plan focuses on community involvement, environmental preservation, and watershed health. These efforts complement Kawartha Conservation's flood prediction and monitoring initiatives, reinforcing their shared commitment to proactive flood preparedness.

These collaborative efforts also harmonize with the objectives outlined in our 10-year Environmental Monitoring Strategy, which centers on gathering water quality data from streams and rivers through programs like the Provincial Water Quality Monitoring Network (PWQMN) program, in partnership with the Ministry of the Environment, Conservation, and Parks<sup>17</sup>.

The Municipality of Clarington's climate change plan is rooted in community engagement and education, much like our own mission. Both plans aim to strengthen the community's resilience by providing educational programs and support. This shared objective of raising awareness and empowering the community aligns seamlessly with our commitment to offer learning opportunities, educational programs, and activities that promote mental well-being.

## **Township of Cavan-Monaghan**

Resting within Peterborough County, the Township of Cavan-Monaghan spans approximately 308 km<sup>2</sup> of mostly rural expanse with an approximate population 10,000<sup>26</sup>. The landscape houses several hamlets and villages, including Bailieboro, Cavan, Fraserville, Ida, Mount Pleasant, Springville, Five Mile Turn, and the historical village of Millbrook.

The Township of Cavan-Monaghan lies twenty kilometres southwest of the City of Peterborough and is an approximately 90-minute drive northeast of Toronto.

### **Alignment with Strategic Plan**

The Township of Cavan-Monaghan's Corporate Climate Action Plan is an important document that covers a lot of detailed strategies across several departments. Their focus is mainly on how to deal with the varying issues that might come with a changing climate. Their plan is all about making things better and helping the municipality handle the changes that will happen because of climate change, like how it affects the environment, people, and the broader municipality.<sup>27</sup>

---

<sup>25</sup> [Municipality of Clarington 2021 Corporate Climate Action Plan](#)

<sup>26</sup> [2021 Population Census: Township of Cavan-Monaghan](#)

<sup>27</sup> [Canva Monaghan Community and Corporate Action Plan](#)



Improving ecological balance within the local community stands as a key objective in Cavan-Monaghan's Climate Action Plan. The municipality's targeted approach towards protecting and enhancing natural assets is a central point of focus within this action plan. Encouraging local communities to plant trees on public and private properties, while supporting local conservation authorities tree planting programs is a critical piece within this action plan.

A main strategy the Township of Cavan-Monaghan has established within their Climate Change Action Plan<sup>27</sup> is to cultivate awareness and education around the impacts that climate change can have on our local infrastructures, environment, and people. Supporting local organizations' efforts in providing awareness to communities about climate change is a valued action outlined by the municipality.

Elements of the Cavan-Monaghan Climate Action Plan mirrors priority areas established within Kawartha Conservation's Strategic Plan, aiming to continuously implement forest regeneration programs within local communities and with private landowners, all while expanding connections with our municipal partners. We both believe that engagement and education emerge as a core component of climate action, where seeking to educate communities and individuals by providing data driven information, education and awareness is key.

# Conservation Authority Mission

“The core purpose of Conservation Authorities is to undertake watershed-based programs to protect people and property from flooding and other natural hazards, and to conserve natural resources for economic, social and environmental benefits.”

The 10-year Kawartha Conservation Climate Change Strategy is firmly rooted in the purpose of conservation authorities, as reflected in provincial mandates and municipal priorities. This revolves around two key responsibilities: safeguarding people and property from natural hazards, particularly flooding, and conserving natural resources to generate economic, social, and environmental benefits.

In the context of climate change, our commitment to this purpose gains increased significance. Climate change poses a significant challenge that affects all aspects of our lives. Conservation authorities play a crucial role in responding to these challenges by devising targeted solutions to enhance resilience in communities, businesses, and individuals.

Our efforts go beyond environmental stewardship. We actively work to minimize risks associated with climate change and extreme weather events. Our focus is on protecting lives, property, and the fabric of our communities through practical programs and initiatives.

Our role also extends to balancing environmental conservation and economic growth. By advocating for sustainable practices, green infrastructure, and responsible resource management, we contribute to long-term economic stability and prosperity.

Our mandate includes education and empowerment. Through partnerships, educational campaigns, and capacity-building activities, we equip individuals, businesses, and local governments with the knowledge and tools needed to drive meaningful climate action.

The 10-year Kawartha Conservation Climate Change Strategy is a direct manifestation of our mandate and the pressing need to address climate challenges. It signifies our commitment to building resilience, progress, and environmental harmony. As we navigate the uncharted waters of climate change, we remain steadfast in fulfilling our mandate, securing a vibrant, and sustainable future for all.

# Strategic Actions

This strategy is firmly anchored in our organization's overarching pillars of "Protect and Restore," "Engage and Inspire," and "Innovate and Enhance." These pillars serve as the guiding principles that steer our mission toward a sustainable and resilient future for our communities and the natural environment.

Within this framework, our Strategic Actions delineate the concrete actions that constitute the backbone of our Climate Change Strategy. These actions are purposeful steps toward addressing the pressing challenges posed by climate change while staying true to our core values and strategic objective. We work to collectively strive to protect and restore our environment, engage and inspire our communities, and innovate and enhance our approaches for a more sustainable and climate-resilient future.

The following are a listing of our Strategic Actions arranged by the pillars identified in our corporate strategic plan, and strategic actions sorted under common themes of relevance.

## PROTECT AND RESTORE

### Strengthening water resilience through enhanced conservation and protection

- Implement a comprehensive public awareness campaign to promote water conservation practices among households, businesses, and public institutions in the region. Provide educational materials, workshops, and online resources to raise awareness about the importance of responsible water use.
- Promote and encourage a collaborative program involving local communities, businesses, and government agencies to conduct regular clean-up and restoration events focused on water bodies. Engage volunteers and partners to remove litter, pollutants, and invasive species from lakes, rivers, and streams, while also implementing measures to prevent pollution and maintain water quality.
- Initiate an educational campaign tailored to schools and community organizations, emphasizing the significance of responsible water use and protection in the context of a changing climate. Craft compelling educational resources, coordinate workshops, and facilitate interactive, hands-on learning activities that empower the younger generation to champion local water resources.

### Nurturing agricultural resilience in a changing climate

- Implement a comprehensive educational campaign targeting farmers and landowners to promote the adoption of sustainable agriculture and land management practices.
- Collaborate with local agricultural experts and community organizations to develop a series of targeted resources and workshops. These resources will provide farmers in the Kawartha Conservation watershed with practical guidance on integrating sustainable practices into their existing operations, focusing on techniques that improve soil health, water efficiency, and biodiversity.

## **Cultivating climate resilience through comprehensive ecosystem restoration and monitoring**

- Implement a comprehensive native tree planting program across the Kawartha Watershed, focusing on both current suitability and future adaptability to changing climate conditions. Collaborate with local arborists, ecologists, and community groups to select a mix of native tree species that thrive in the region's current climate, while also considering species that are likely to flourish as warmer weather becomes more prevalent due to climate change.
- Collaborate with planning departments and developers to incorporate tree planting and greening of new construction and development projects. Develop guidelines for integrating trees and green spaces into urban designs, ensuring that new developments contribute to urban tree canopy growth and enhance overall ecosystem health.
- Continue tallgrass and wetland restoration projects to support climate resilience across Kawartha Conservation's administrative region.

## **Protecting and enhancing natural spaces for future generations**

- Develop a detailed technical report to identify watersheds with lower resiliency, prioritizing them for conservation efforts. This report could involve collaboration with local communities, Indigenous groups, and conservation organizations to determine areas needing urgent protection and enhancement. The focus will be on identifying protected zones, restoring degraded ecosystems, and creating wildlife corridors to improve ecological connectivity.
- Consider exploring partnership opportunities with municipalities during the planning process, for long-term protection of lands within setback or buffer areas. This approach represents a potential opportunity to enhance conservation efforts and ecological stability in critical zones.
- Regularly review and update our program area strategic plans to integrate climate change considerations. These updates will focus on strengthening the role of natural spaces in climate change mitigation and adaptation. Strategies will include habitat restoration, invasive species management, and planting native species to enhance biodiversity and climate resilience, particularly in tallgrass prairies and wetlands.
- Support ecological research and monitoring programs to better understand the impacts of climate change on local ecosystems, including tallgrass prairies and wetlands. Use these insights to guide adaptive management strategies that bolster ecosystem health and resilience.
- Engage in community outreach and education initiatives to raise awareness about the importance of protecting and enhancing natural spaces like tallgrass prairies and wetlands. Encourage community involvement in conservation efforts and promote sustainable practices that support the health of these vital ecosystems.

## **Climate monitoring and natural hazard preparedness**

- Develop a thorough climate monitoring network, in partnership with member municipalities, educational institutions, and local communities, in line with legislative requirements related to climate change, natural hazards, and hydrological cycle management. This system will supply

real-time data on crucial weather parameters such as air and water temperature, precipitation volume and intensity, and wind direction and strength. Such data is essential for responding to severe weather events and potential flooding, in adherence to natural hazard management mandates.

- Review future climate change impacts related to natural hazards, including existing and future floodplains, for inclusion of climate change considerations in their development or update.

## **Reducing greenhouse gas emissions for climate action**

- Implement carbon reduction actions through Kawartha Conservation's operations. These actions should include energy efficiency measures, replacement of gas operated equipment, transportation initiatives, and waste reduction efforts to minimize the organization's carbon footprint.
- Conduct a comprehensive 'carbon audit' of Kawartha Conservation's operations, potentially in partnership with academic institutions. This audit will assess and quantify the organization's current greenhouse gas emissions, providing a data-driven foundation to inform and guide future carbon reduction initiatives and strategies.

## **Enhancing climate resilience through targeted science and data collection**

- Initiate focused research and data collection projects, such as conducting climate vulnerability analyses on regulated features, examining the impact of precipitation changes on runoff amounts, and understanding shifts in water quality in lakes and rivers. This data-centric approach will provide critical insights for informed decision-making and effective climate adaptation strategies.

# **ENGAGE AND INSPIRE**

## **Empowering communities through climate change education and engagement**

- Develop and implement a community outreach and education program that raises awareness about the local and regional impacts of climate change and promotes local actionable solutions. This program will include workshops, seminars, public forums, and online resources to empower community members to take informed steps towards mitigating climate change and adapting to its effects.
- Implement an educational campaign to raise awareness about the importance of source water protection and educate the public on what it entails. Develop educational materials, host community workshops, engage schools, and collaborate with local media to disseminate information about source water, its vulnerabilities, and the actions individuals can take to preserve and safeguard these vital resources.
- Develop and launch an educational initiative focused on raising climate change awareness within the community, highlighting how human activities impact lake health and contribute to climate change. Through workshops, public talks, online resources, and collaboration with local schools,

engage residents and businesses in understanding the interconnectedness of climate change and lake ecosystems. Promote sustainable practices that reduce carbon emissions and support lake resilience.

- Review and update existing Lake Management Plans to incorporate climate change considerations. Evaluate changes in water quality, temperature patterns, and other relevant factors caused by a changing climate. Develop adaptive strategies to safeguard lake ecosystems and water quality.
- Develop an educational campaign that emphasizes the critical role of wetlands in climate change adaptation and mitigation strategies. Utilize a variety of communication channels, including workshops, webinars, informational materials, and interactive exhibits, to educate communities, decision-makers, and stakeholders about how wetlands can help absorb carbon, mitigate flooding, and enhance overall climate resilience.
- Continue to implement workshops and field trips in collaboration with local schools, community groups, municipal representatives, and landowners. These events will focus on showcasing the specific functions of wetlands in climate adaptation and mitigation, such as flood control, carbon sequestration, and biodiversity support. Use these opportunities to engage participants in hands-on wetland restoration activities, such as planting native vegetation and creating natural buffers.
- Develop and deliver a comprehensive educational campaign aimed at promoting the principles and benefits of Low Impact Development (LID) practices within the community. This campaign will involve workshops, webinars, informational materials, and interactive tools to inform residents, businesses, and local decision-makers about how LID techniques can mitigate the impacts of climate change, such as flooding and heat island effects, while fostering sustainable growth.

### **Amplifying local climate impact awareness through social media campaigns**

- Launch a targeted social media awareness campaign focused on educating the local community within Kawartha Conservation jurisdiction about the specific impacts of a changing climate. Utilize engaging visual content, infographics, videos, and real-life stories to convey the effects of climate change on local ecosystems, water resources, agriculture, and communities. Facilitate online discussions and provide resources for individuals to take climate-friendly actions.

### **Empowering farming stewardship for climate-positive impact**

- Collaborate on and seek opportunities for provision of programs that offer farmers within the region opportunities to participate in climate-resilient stewardship projects. Collaborate with local agricultural organizations, providing financial incentives and technical support for initiatives such as manure storage, livestock fencing, agroforestry, and soil health improvement. These projects will enhance farm sustainability, reduce greenhouse gas emissions, and promote climate-smart agricultural practices.

## **Engaging communities in stewardship-led climate action initiatives**

- Implement a community-driven stewardship program that engages local volunteers in active restoration activities, such as tree planting, shoreline restoration, and habitat enhancement, across Kawartha Conservation's managed lands.
- Launch a series of guided interpretive hikes and nature education programs on Kawartha Conservation's conservation lands, focusing on showcasing the impacts of climate change on local ecosystems and biodiversity.
- Work with youth-focused environmental stewardship programs that involves local schools and youth groups in hands-on conservation activities, emphasizing the importance of preserving natural habitats for climate resilience.
- Organize community workshops and forums that bring together residents, businesses, and local organizations to discuss climate change impacts and potential solutions related to watershed management and flood resilience.

## **Engaging municipalities, committees, and municipal leaders**

- Enhance engagement with municipalities through active participation in municipal advisory committees, attendance at public information sessions, and provision of expert recommendations during their engagement processes. Additionally, conduct information sessions for councillors to build upon and extend the collaborative work already underway with local government bodies.

## **Spearheading climate action through corporate services initiatives**

- Establish an internal Green Team comprising staff members from various departments to drive sustainability initiatives within Kawartha Conservation. Develop and implement a staff engagement program that encourages sustainable practices in the workplace.

# **INNOVATE AND ENHANCE**

## **Enhancing local climate understanding with expanded data collection**

- Collaborate with meteorological experts and research institutions to expand our network of weather monitoring stations, ensuring comprehensive coverage across the Kawartha watershed. This expansion will enable us to capture vital data on climate variables, including precipitation, air temperature, and wind patterns, laying a foundational base for other partners to build upon and contribute further data.
- Upgrade and extend the current water level monitoring network to address spatial data gaps and enhance its capability to record data during extreme events like floods and droughts. This enhancement will provide crucial insights into how these extreme climate events impact water levels across the watershed.

- Develop and implement a robust monitoring network for tracking climate impacts on streams, rivers, lakes, and forests. This network will utilize a combination of static monitoring locations and portable devices, such as temperature loggers. Data will be gathered on various environmental parameters like tree cover, soil moisture, and temperature. These efforts will align with addressing information needs to assess climate change impacts, ensuring a comprehensive approach to understanding and mitigating these effects.

### **Navigating climate-driven shifts in tourism dynamics across seasons**

- Collaborate with local tourism associations and environmental organizations to develop educational campaigns that highlight the importance of sustainable and climate-resilient tourism practices. Create engaging content, including videos, brochures, and interactive workshops, to inform visitors about the local impacts of climate change and the role they can play in minimizing their ecological footprint. Encourage tourists to choose low-impact activities, support eco-friendly initiatives, and respect natural habitats.

### **Empowering communities with a web-based climate monitoring dashboard**

- Develop and launch an interactive web-based dashboard that provides real-time access to climate change monitoring data and key metrics relevant to the local community. Collaborate with climate experts, data analysts, and web developers to design a user-friendly platform. Populate the dashboard with information on temperature trends, precipitation patterns, and other relevant climate indicators to promote informed decision-making and engagement.

### **Promoting woodlot and wetland care and enhancement**

- Launch a community-driven initiative that provides incentives and technical support for conserving and restoring woodlots and wetlands within the watershed. This program, developed in collaboration with local landowners, conservation groups, and government agencies, will focus on preserving existing woodlots and wetlands, as well as encouraging the planting of new ones. Offer resources for tree planting, wetland rehabilitation, habitat restoration, and sustainable management practices, all aimed at enhancing carbon sequestration, supporting biodiversity, and bolstering climate resilience.



## **Measuring local and regional climate effects through key indicator monitoring**

- Ensure that future monitoring programs include the measurement of climate-related variables such as air and water temperature, and precipitation. Ensure that future monitoring programs within the Kawartha watershed, include the measurement of climate-related variables such as air and water temperature, and precipitation. This initiative will involve setting up a strategic network of climate monitoring stations to collect localized climate data. Collaboration with climate experts and research institutions will be key to guarantee precise data collection and analysis. Additionally, creating an accessible online platform will be crucial to display this real-time climate data specific to the region.
- Integrate Geographic Information System (GIS) technology to create an interactive online platform that allows developers and the public to visualize climate vulnerability assessments for different areas within the Kawartha Conservation watershed. This platform will provide insights into potential climate risks for planning and decision-making.

## **Protecting and enhancing natural spaces**

- Implement a pilot project that utilizes drone technology for assessing and monitoring the health of ecosystems within Kawartha Conservation's conservation lands. Drones will be used to collect high-resolution imagery, helping to identify potential stressors and changes caused by climate impacts.

# **TRANSPARENCY AND REPORTING**

## **Monitoring the climate impact of tree planting**

- Implement an annual reporting mechanism that consolidates flood and low water education, outreach efforts, and condition statements within the Kawartha watershed. Collaborate with local emergency management agencies, community organizations, and water resource experts to gather comprehensive data on public awareness initiatives, outreach events, and water level conditions. Develop detailed reports that highlight achievements, challenges, and the region's overall preparedness for climate-induced flood and low water events.
- Create an annual precipitation report for the Kawartha watershed, focusing on compiling and analyzing watershed-based precipitation data. Collaborate with regional conservation authorities and meteorological agencies to ensure the collection of accurate and current information. This report will present a detailed visualization of precipitation trends, capturing variations, anomalies, and long-term shifts to guide climate adaptation and mitigation efforts.
- Integrate findings from the annual precipitation report into the tree planting report. Utilize the precipitation data to inform and enhance tree planting strategies, ensuring they align with the observed climate trends and contribute effectively to the region's climate resilience efforts.
- Develop a method to distill complex indicators of climate change into a few easily understood metrics, such as air temperature, water temperature, runoff amounts, and changes in a short-list of climate-sensitive organisms or habitats. This approach will involve synthesizing complex

climate data into accessible and relatable indicators, providing a clearer understanding of climate change impacts for both experts and the public. This initiative will enhance the communication and understanding of climate change issues within the Kawartha watershed, aiding in more effective public engagement and policy development.

- Establish a unified annual reporting system for tree planting initiatives across the Kawartha watershed, encompassing both urban and rural areas. This system will involve collaboration with municipalities, local governments, community groups, and landowners to collect detailed data on the number of trees planted, species diversity, and reforestation targets. The aim is to compile and publish a comprehensive report annually, highlighting the collective impact of these tree planting efforts on enhancing climate resilience and aiding in climate change mitigation and adaptation throughout the region.

# Conclusion

In our 10-Year Climate Change Strategy for the Kawartha watershed, we envision a resilient future for our communities, residents, and businesses. This strategy is not just a vision, but a practical roadmap designed to inspire action and foster collaboration in facing climate challenges and seizing opportunities.

The strategy encompasses several key themes, all geared towards sustainability and adaptation. Under "Protect and Restore," we focus on preserving natural spaces, enhancing biodiversity, protecting watersheds, and strengthening ecosystems. We will measure success through clear strategies and performance indicators, guiding our actions and monitoring progress.

"Engage and Inspire" highlights the importance of community participation. We aim to educate, raise awareness, and motivate grassroots actions against climate change. Our performance indicators will track the effectiveness of community engagement, adoption of sustainable practices, and participation in climate initiatives.

Through "Innovate and Enhance," we commit to discovering creative solutions for climate resilience, leveraging technology, innovation, and partnerships. The impact of these innovative projects on the environment will be assessed through specific performance indicators.

Transparency and accountability are fundamental to our approach. We plan to consistently evaluate our progress and communicate these findings to stakeholders, ensuring that our actions remain aligned with our climate goals. Our strategy includes performance indicators to foster transparency and enhance collaboration with partner municipalities.

A more detailed document accompanying this strategy will outline specific approaches, timelines, and budgets for each activity, ensuring a comprehensive and actionable plan.

We call upon individuals, families, businesses, communities, and municipalities in the Kawartha watershed to join us in this transformative journey. Our strategy is an invitation to turn challenges into opportunities, inspire future generations, and safeguard our natural legacy.

We aspire to a future where our watersheds are thriving, climate resilience is ingrained in our actions, and our efforts benefit future generations. Through collaboration, innovation, and unity, we aim to create a sustainable legacy for the Kawartha watershed.

Let's move forward with hope and determination. In the face of challenges, our unity, innovation, and commitment to safeguarding our environment will enable us to overcome climate change. Our journey is purposeful, and our legacy will be one of resilience, courage, and dedication to a climate-resilient future for the Kawartha watershed and its communities. Together, we can achieve this vision.

# Appendix

This appendix presents a series of graphs depicting 30-year projections for annual temperature and precipitation for specific locations in the Kawartha watershed. The data provided offers a detailed and scientific perspective on expected climatic changes, crucial for informed decision-making and strategic planning in the region.

The graphs within this appendix show the anticipated variations in temperature and precipitation on an annual basis across various areas of the Kawartha watershed.

The purpose of this appendix is to provide stakeholders, policymakers, and the community with clear, indications of the projected climate changes in the region.

In the sections that follow, municipality-specific climate projections are outlined, offering a snapshot of the low and high emission scenarios.

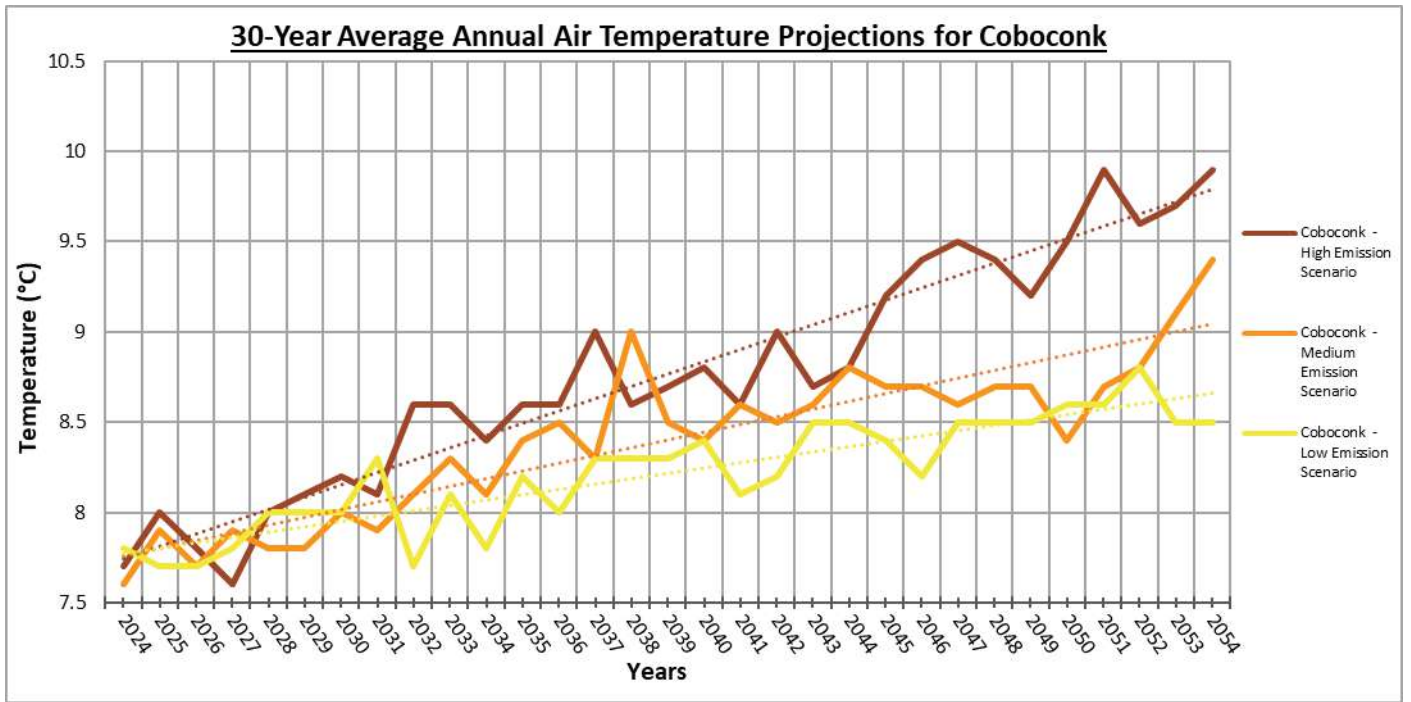


Figure 5. 30-Year Average Annual Air Temperature Projections for Coboconk

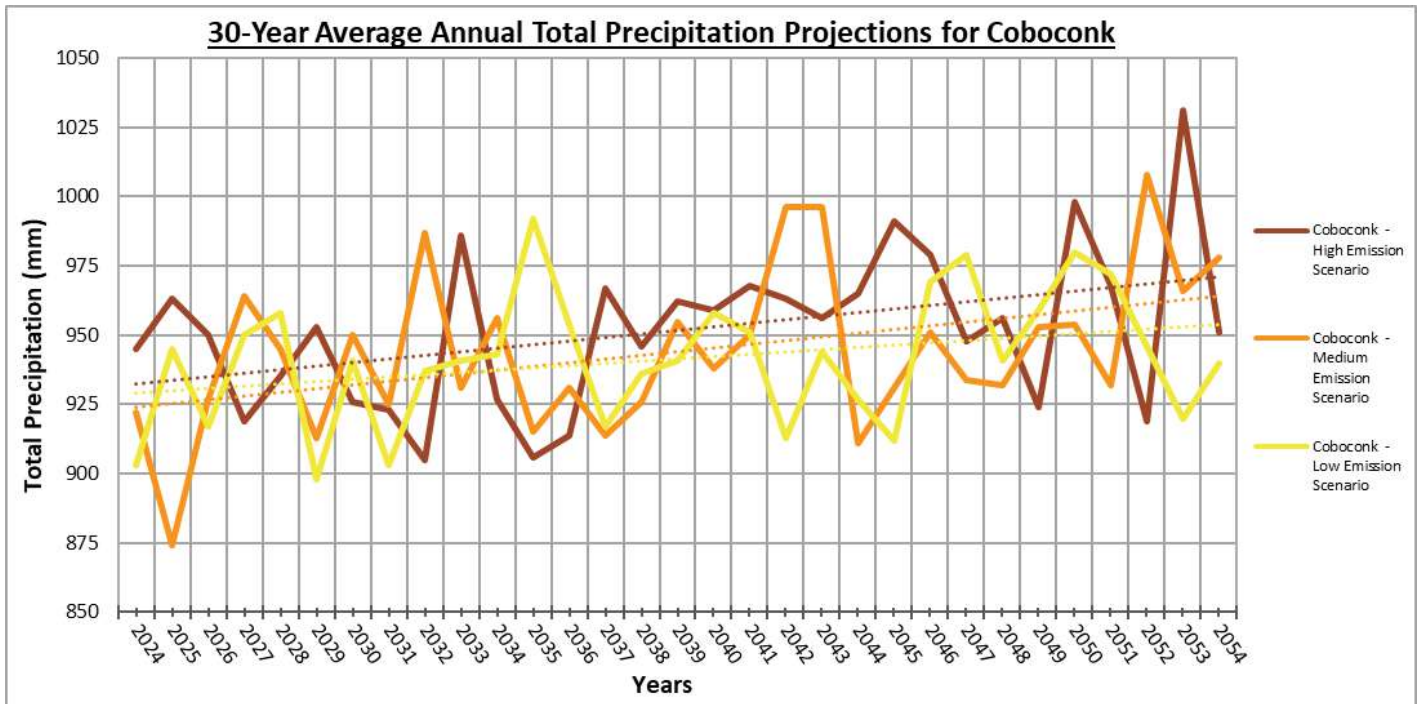


Figure 6. 30-Year Average Annual Total Precipitation Projections for Coboconk

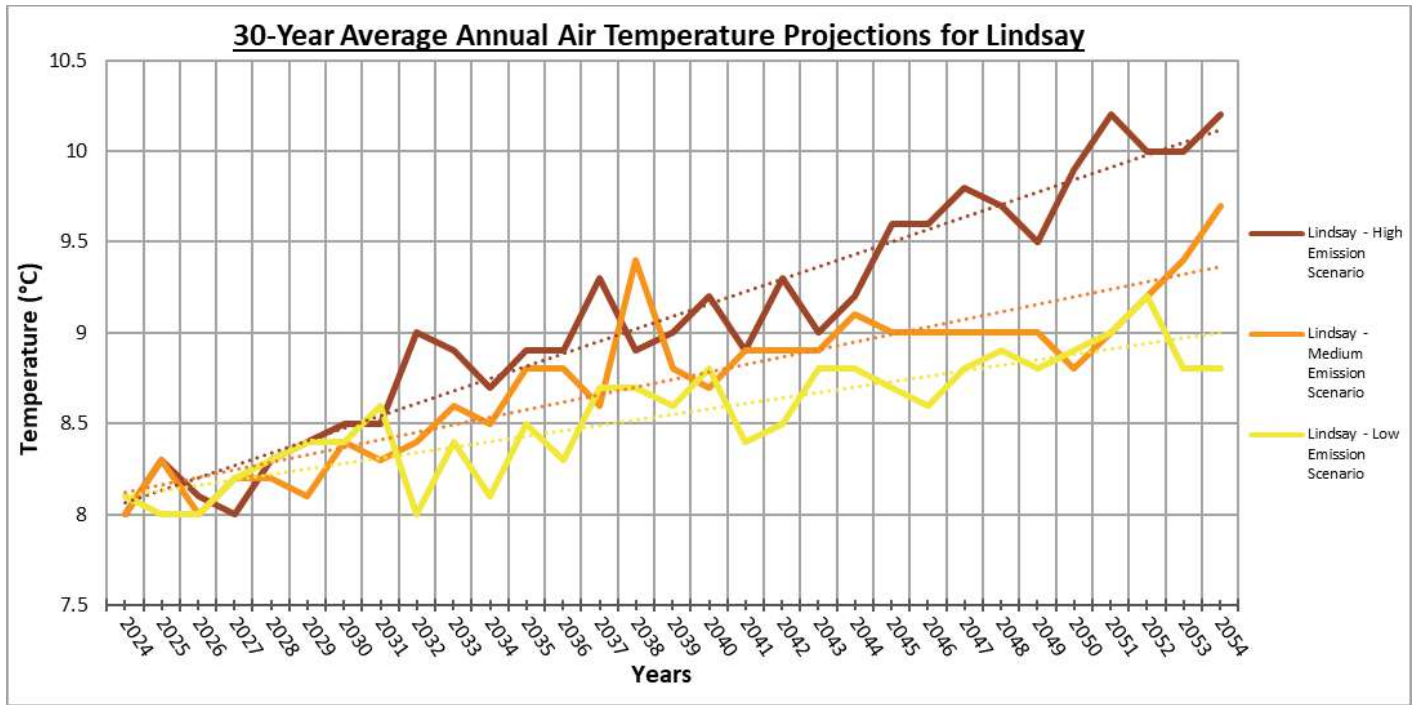


Figure 7. 30-Year Average Annual Air Temperature Projections for Lindsay

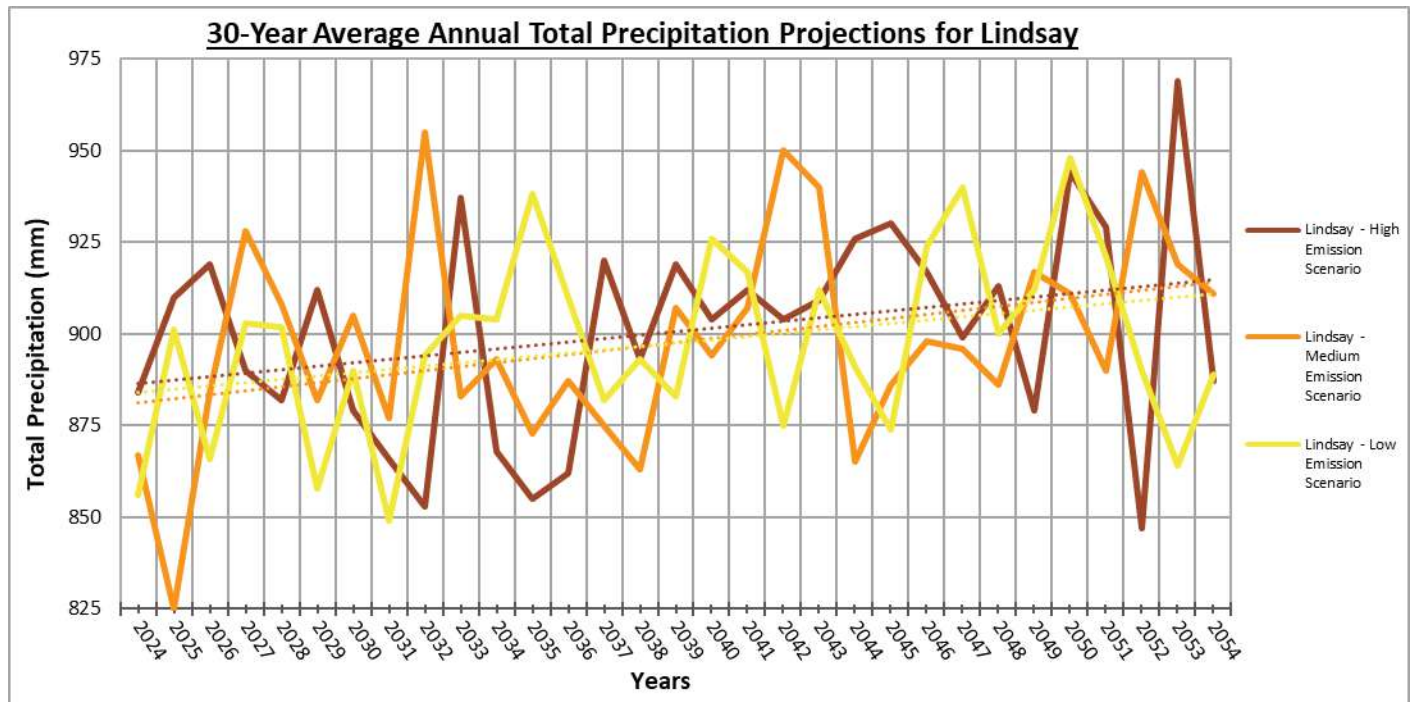


Figure 8. 30-Year Average Annual Total Precipitation Projections for Lindsay

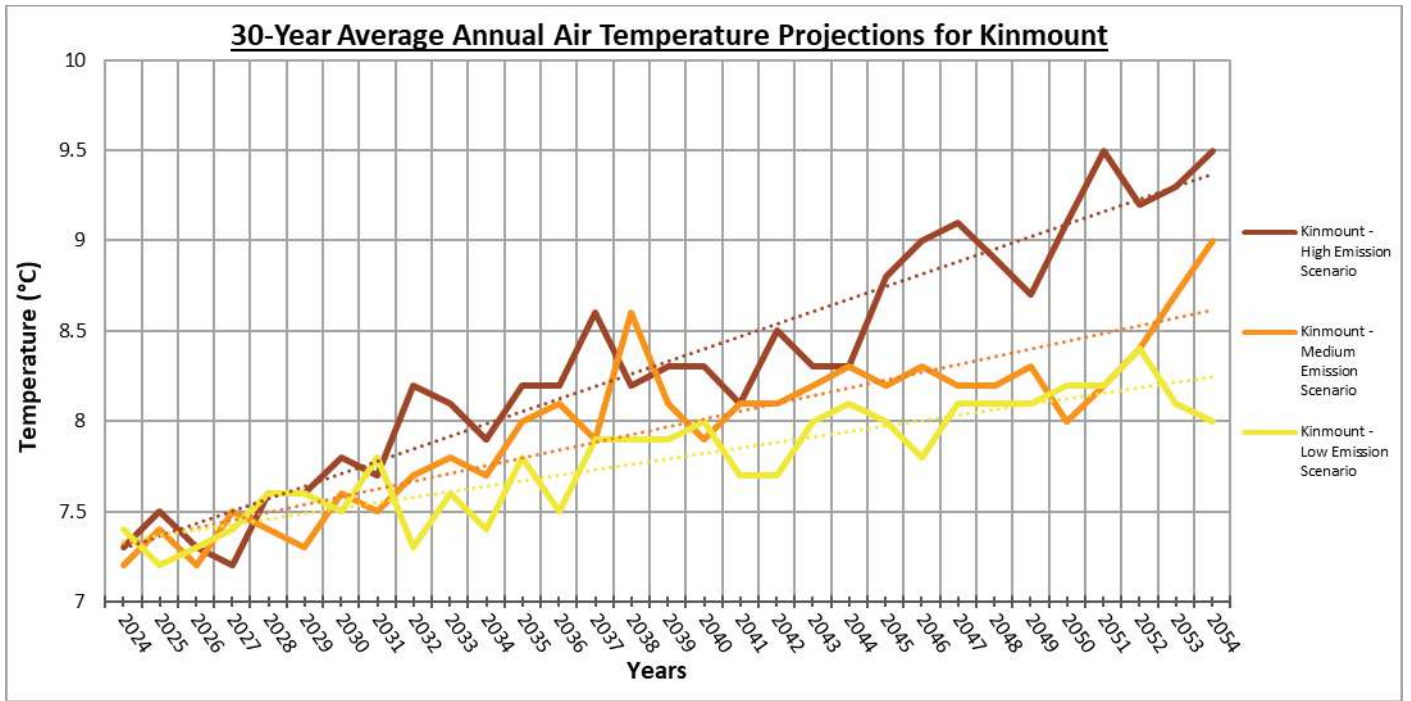


Figure 9. 30-Year Average Annual Air Temperature Projections for Kinmount

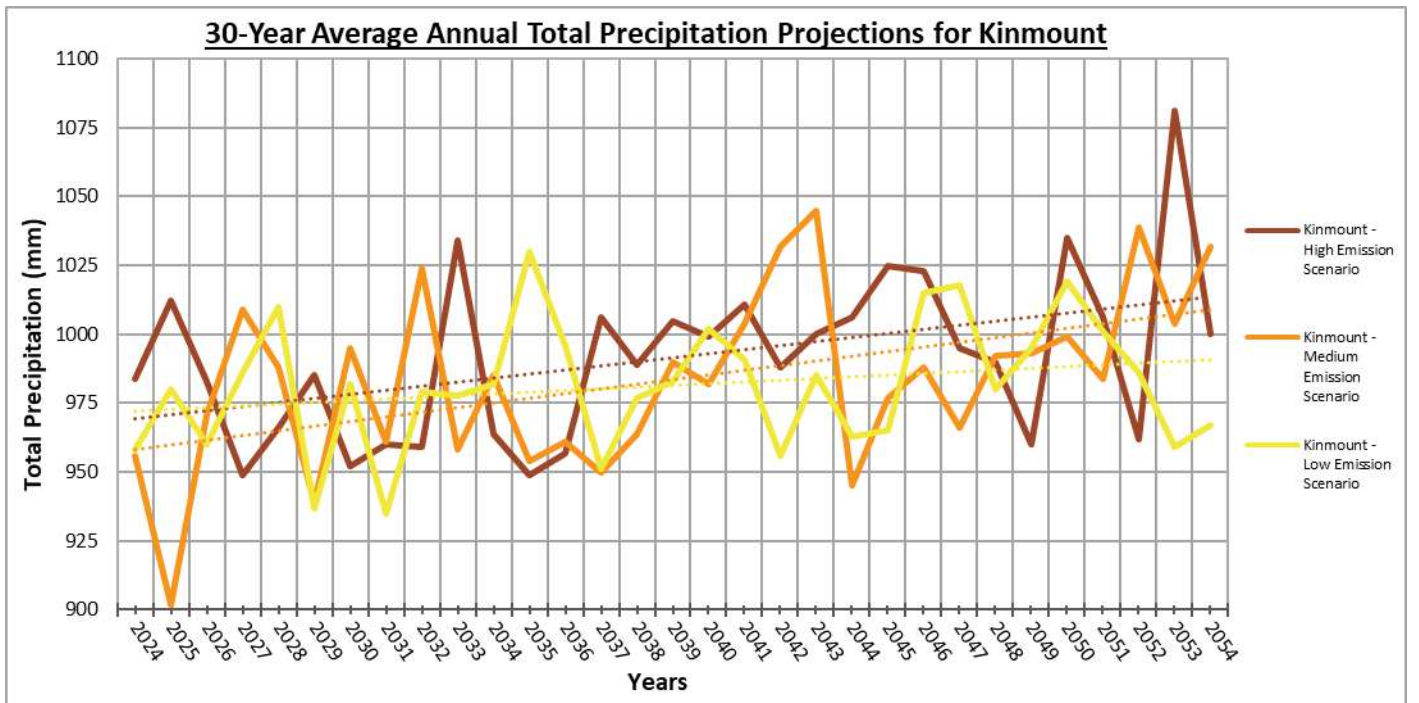


Figure 10. 30-Year Average Annual Total Precipitation Projections for Kinmount

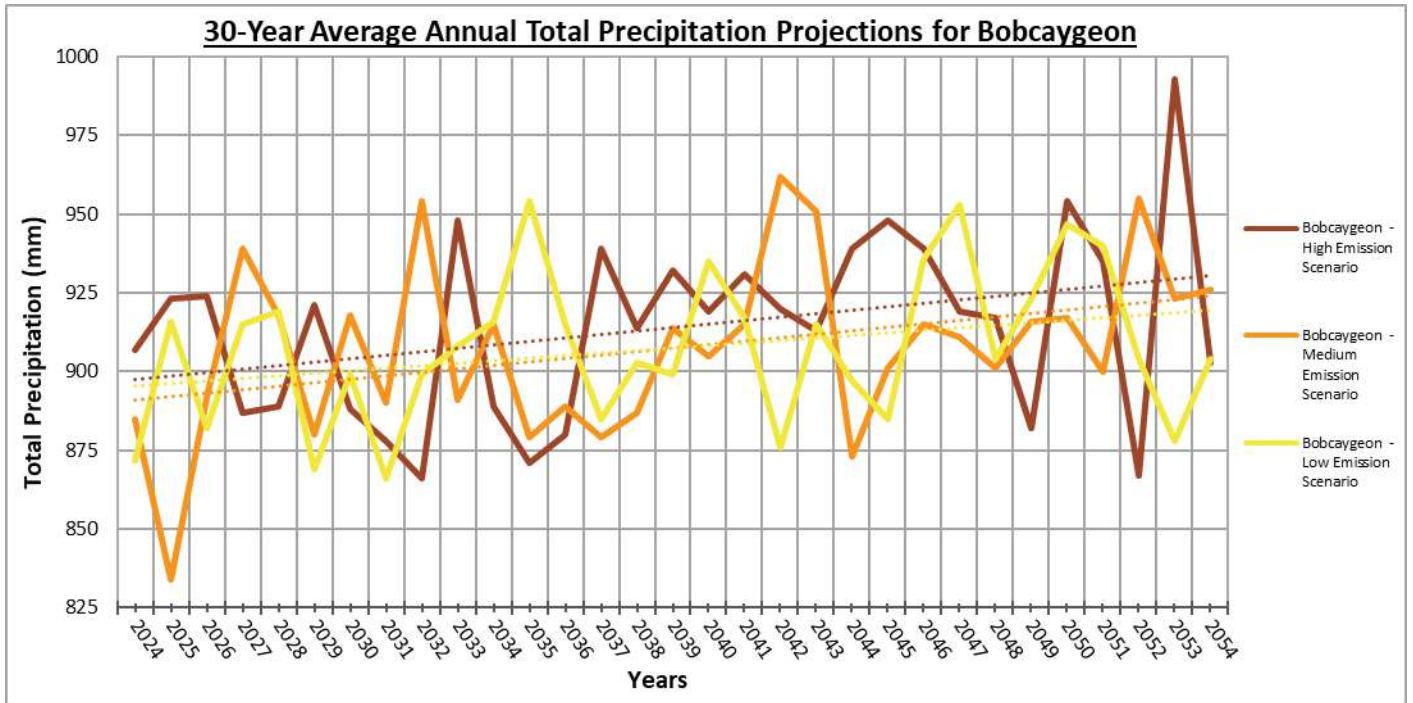


Figure 11. 30-Year Average Annual Air Temperature Projections for Bobcaygeon

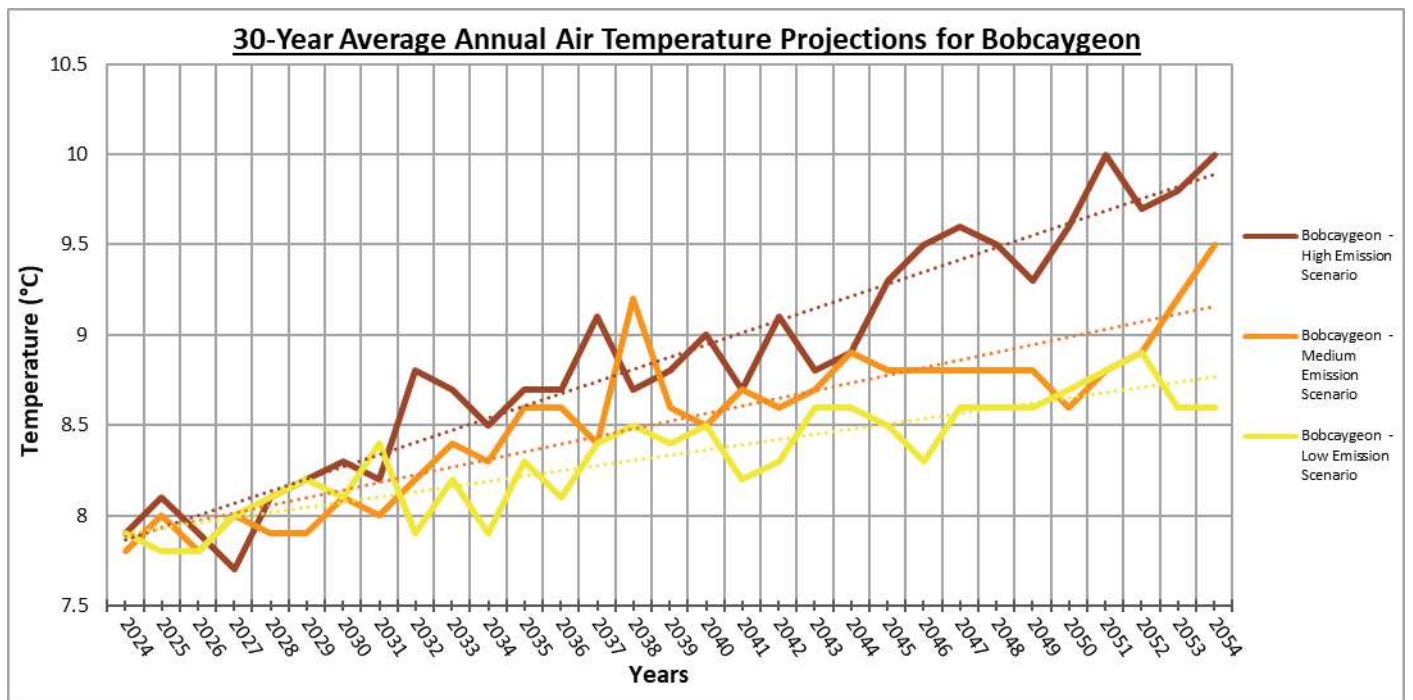


Figure 12. 30-Year Average Annual Total Precipitation Projections for Bobcaygeon



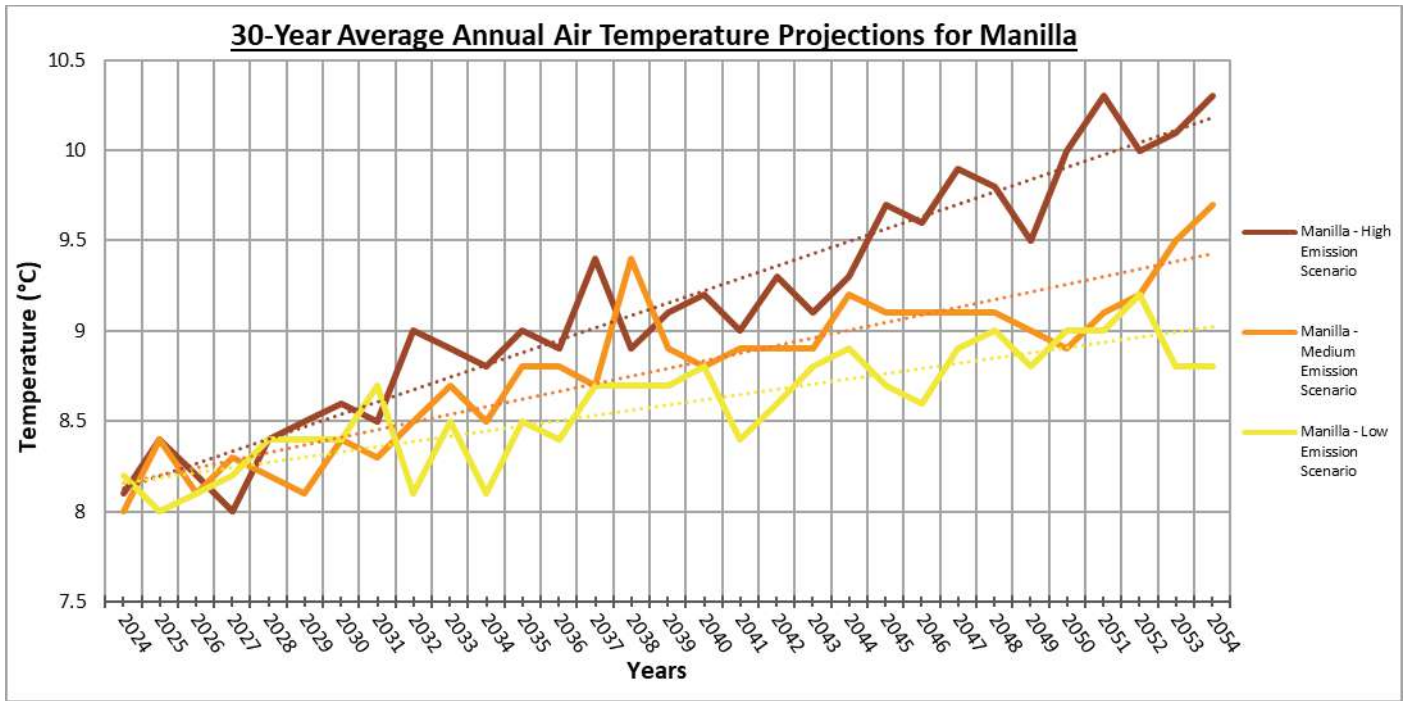


Figure 13. 30-Year Average Annual Air Temperature Projections for Manilla

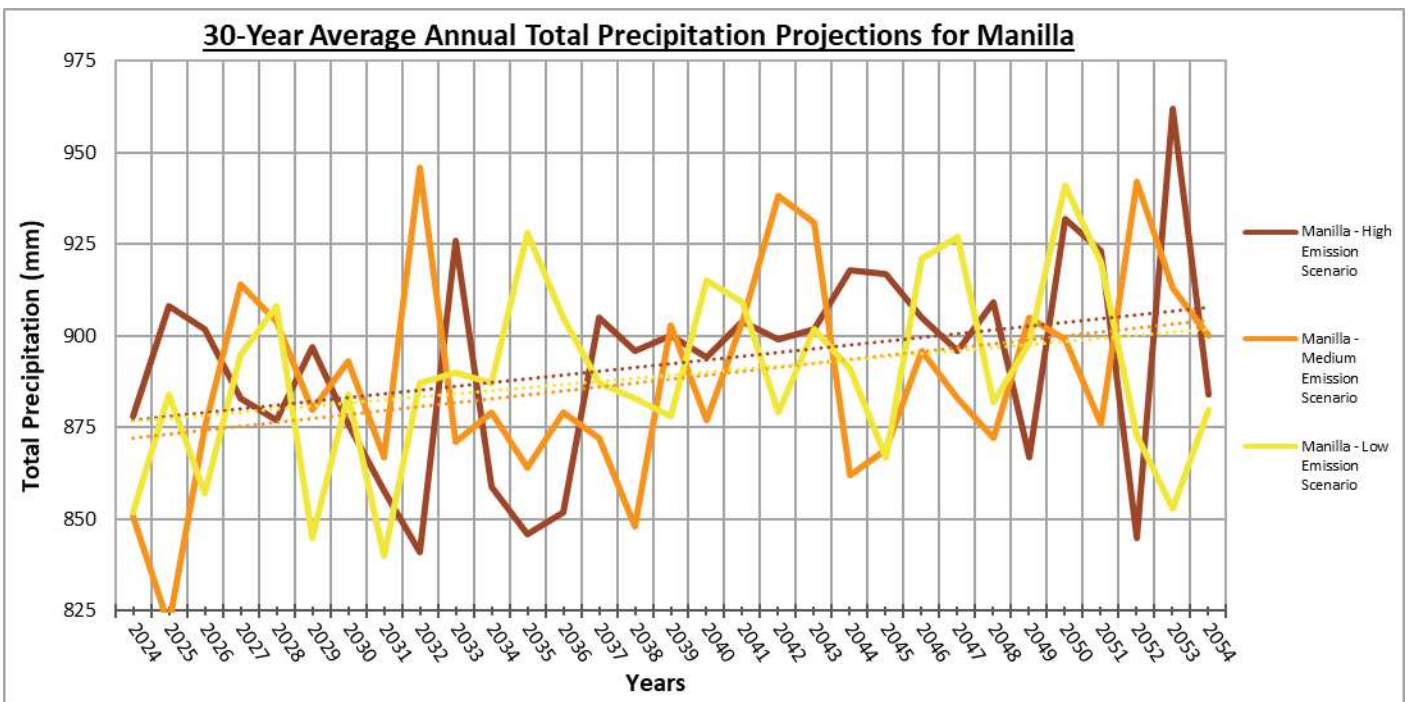


Figure 14. 30-Year Average Annual Total Precipitation Projections for Manilla

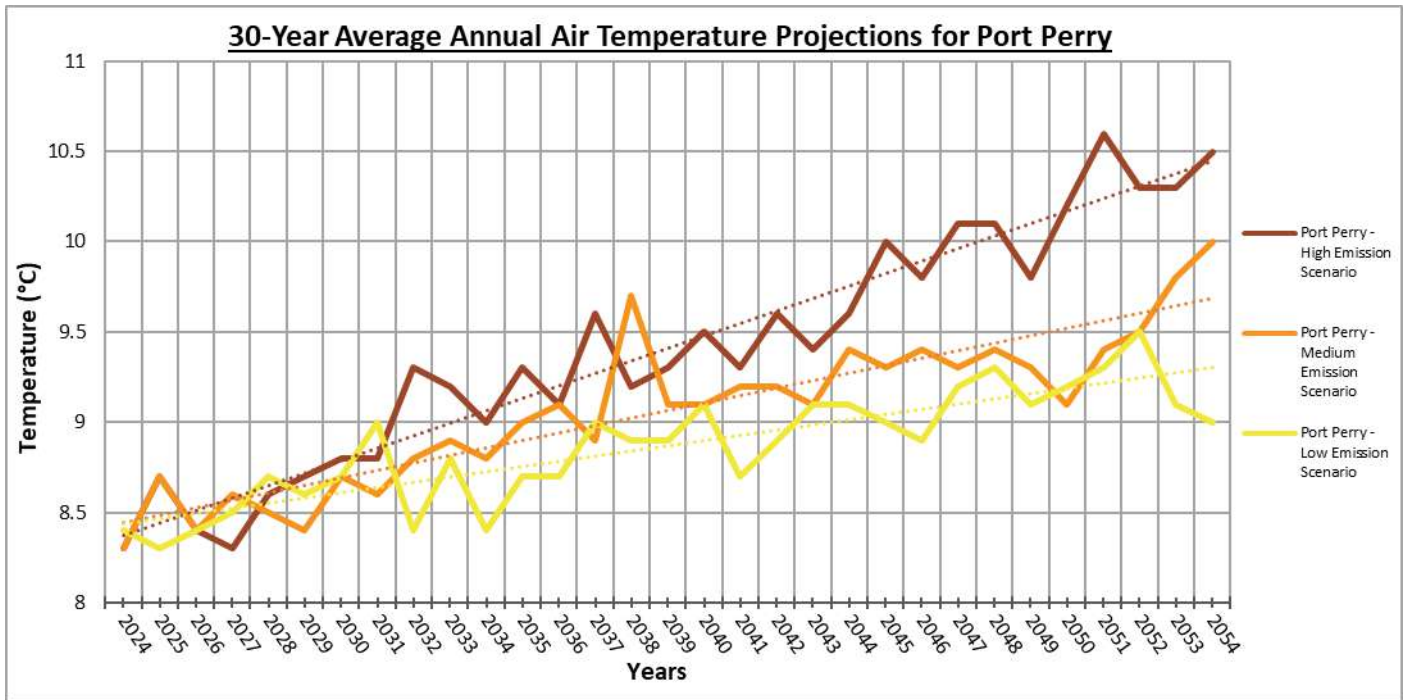


Figure 15. 30-Year Average Annual Air Temperature Projections for Port Perry

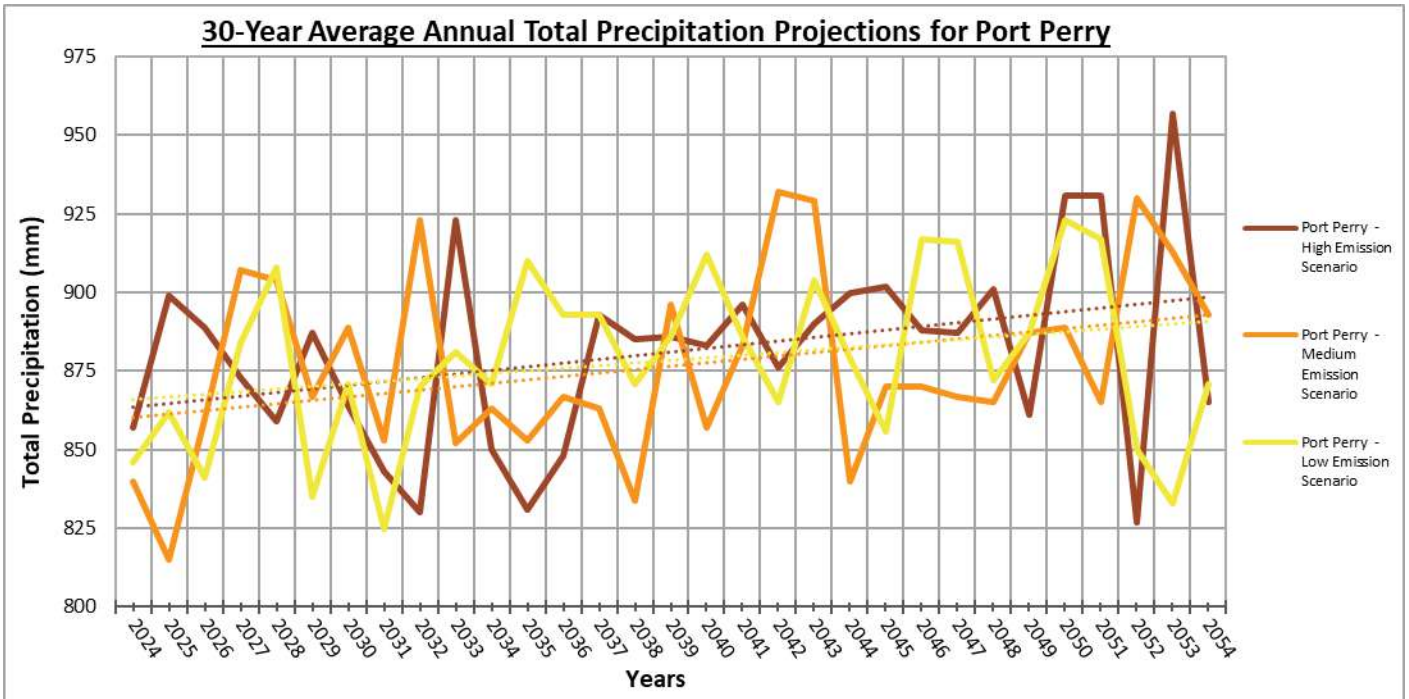


Figure 16. 30-Year Average Annual Total Precipitation Projections for Port Perry

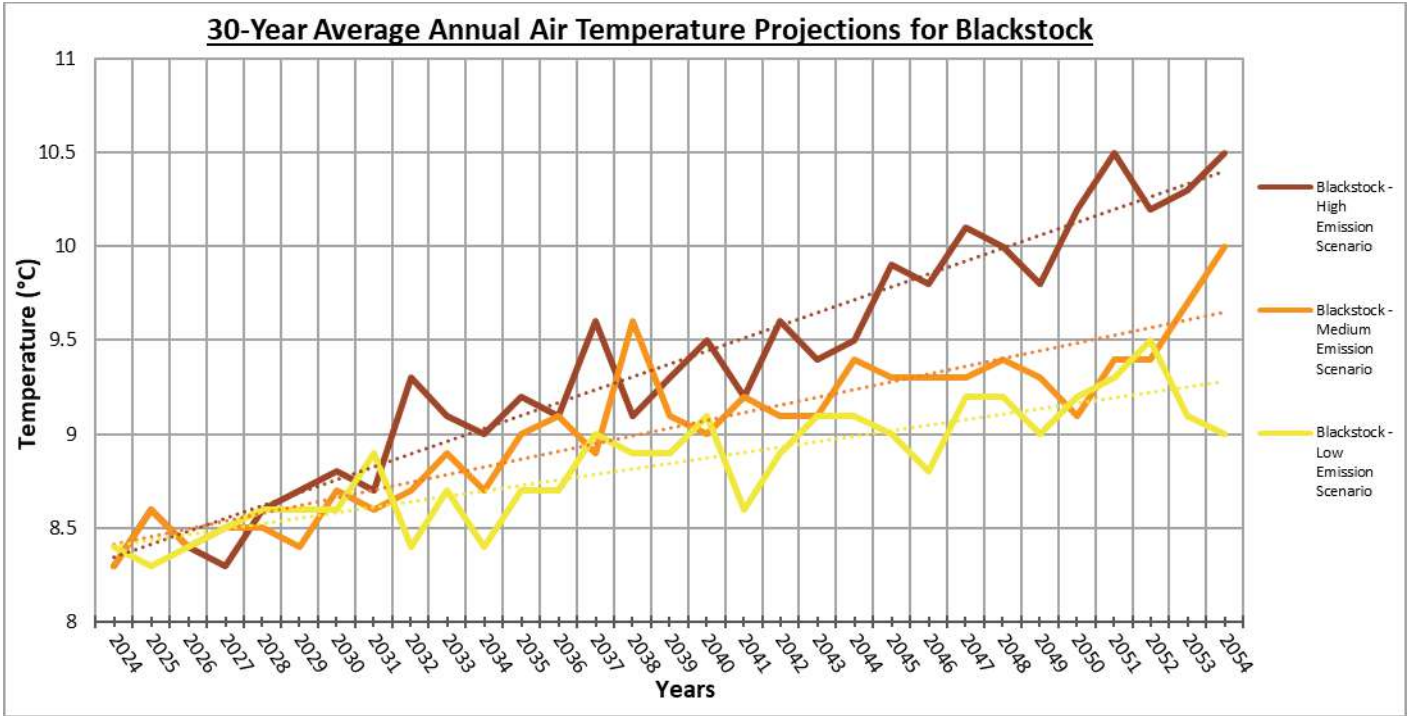


Figure 17. 30-Year Average Annual Air Temperature Projections for Blackstock

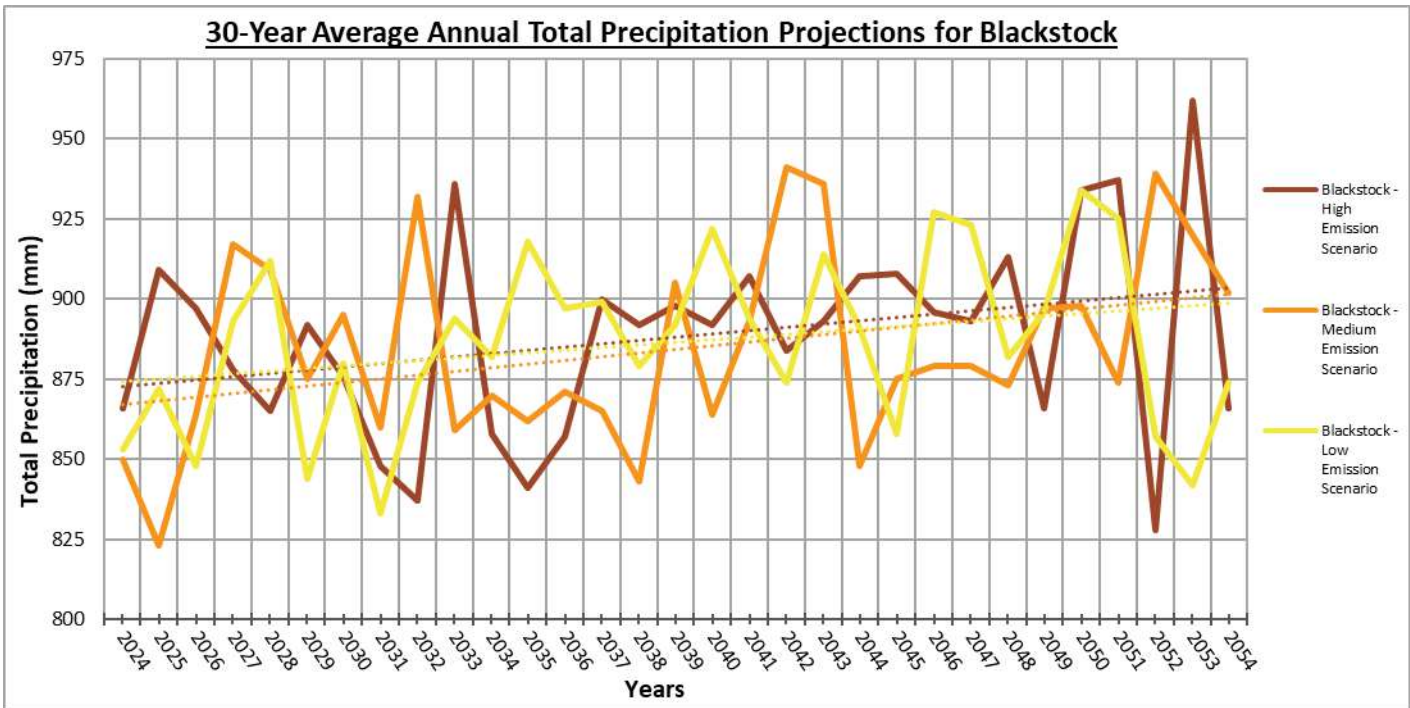


Figure 18. 30-Year Average Annual Total Precipitation Projections for Blackstock.

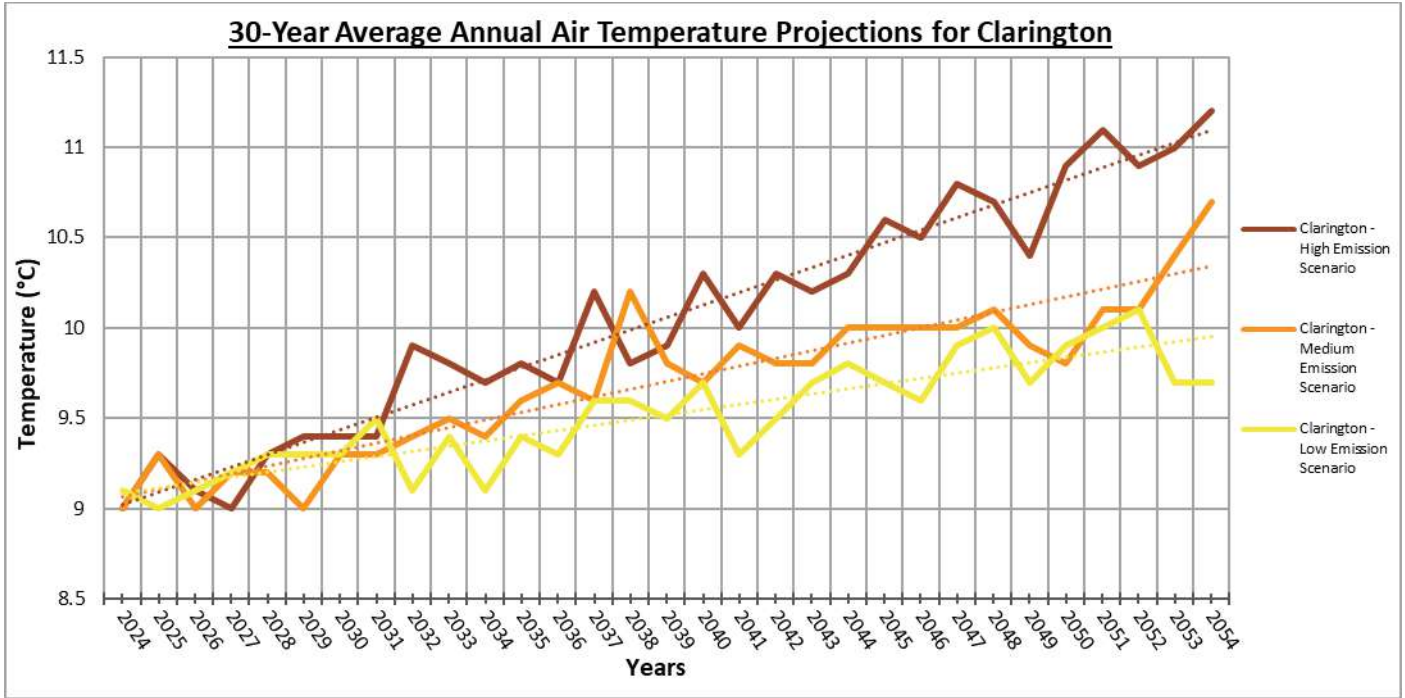


Figure 19. 30-Year Average Annual Air Temperature Projections for Clarington

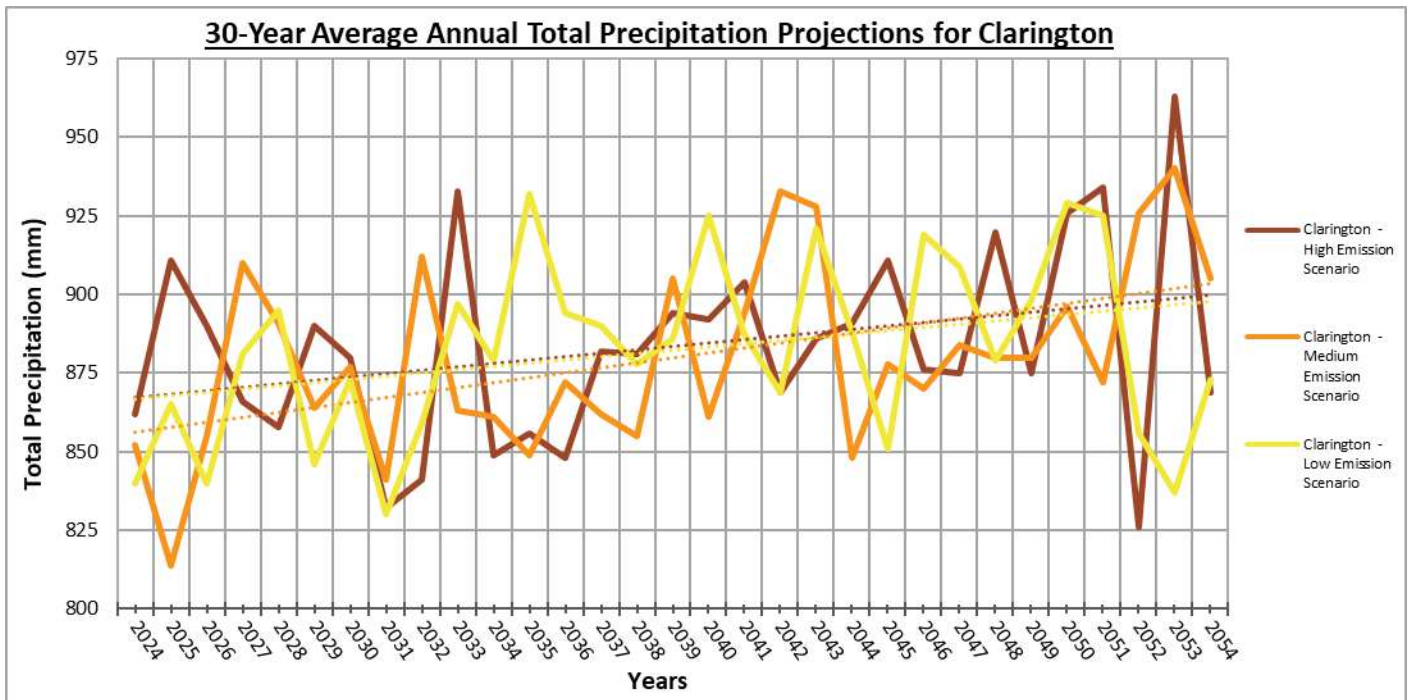


Figure 20. 30-Year Average Annual Total Precipitation Projections for Clarington

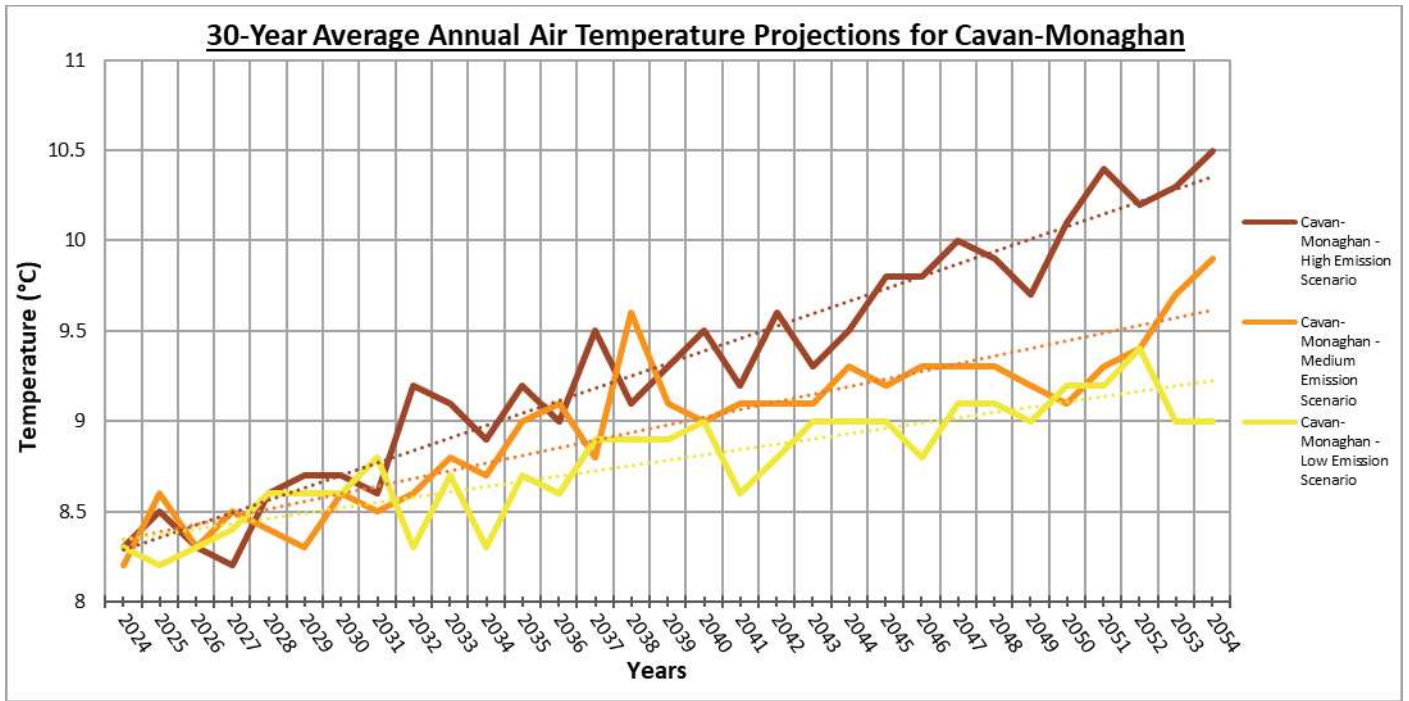


Figure 21. 30-Year Average Annual Air Temperature Projections for Cavan-Monaghan

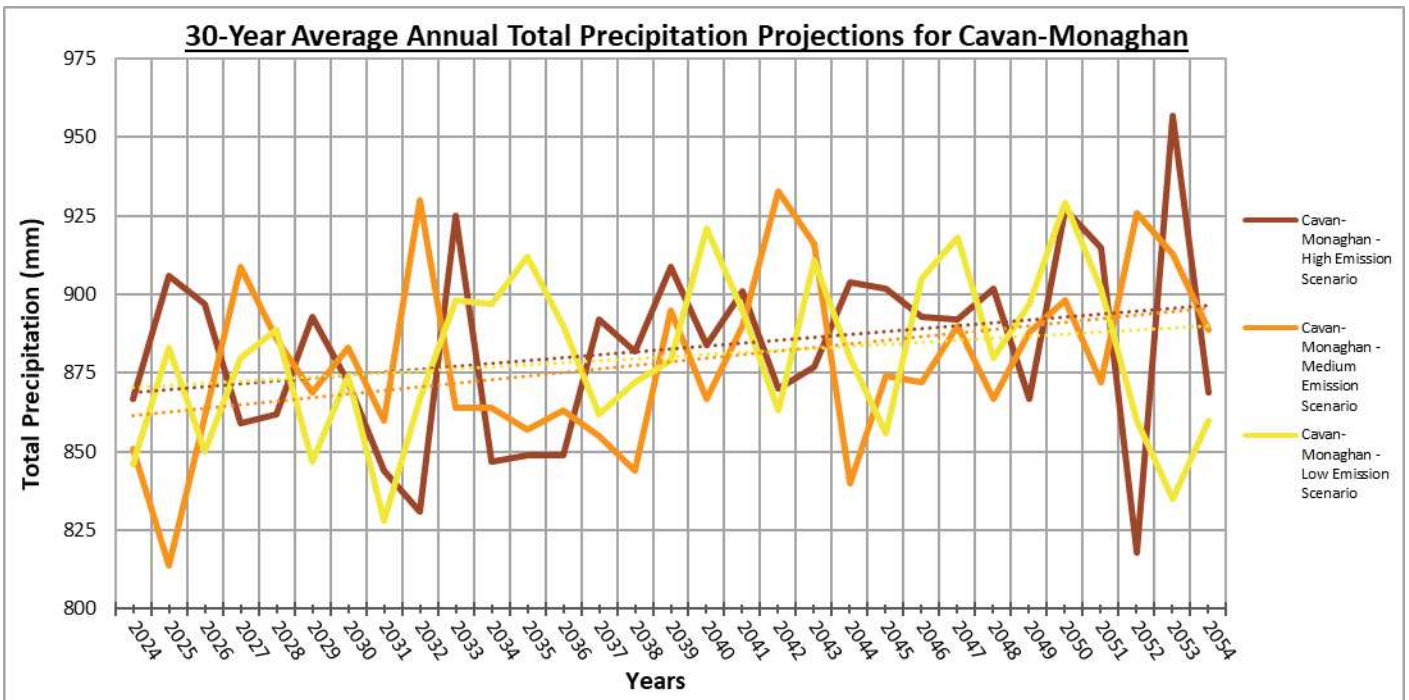


Figure 22. 30-Year Average Annual Total Precipitation Projections for Cavan-Monaghan