

A person wearing a white helmet and a dark shirt is standing next to a red mountain bike on a dirt path in a forest. The path is covered with fallen leaves, and the trees are tall and thin, with some showing autumn foliage. The background is slightly hazy, suggesting a misty or foggy day.

YORK REGION DRAFT CLIMATE CHANGE ACTION PLAN

MARCH 2020

The logo for York Region, featuring a stylized bird or wing shape above the text "York Region".

York Region

Attachment 1



Mayor
Frank Scarpitti
City of Markham



Regional Councillor
Don Hamilton
City of Markham



Regional Councillor
Jack Heath
City of Markham



Regional Councillor
Joe Li
City of Markham



Regional Councillor
Jim Jones
City of Markham



Mayor
David Barrow
City of Richmond Hill



Regional Councillor
Joe DiPaola
City of Richmond Hill



Regional Councillor
Carmine Perrelli
City of Richmond Hill



Mayor
Maurizio Bevilacqua
City of Vaughan



Chairman & CEO
Wayne Emmerson

A Message from York Region Chairman and CEO and Members of Regional Council



Regional Councillor
Mario Ferri
City of Vaughan

Climate change has both immediate and long-lasting impacts on our infrastructure, health care, human services, emergency services, natural systems and economies. Changes to the climate are also impacting how we plan communities and deliver programs.

York Regional Council recognizes the importance of addressing climate change and has long been committed to taking action to mitigate the impacts and improve climate resiliency.

Through endorsement of Vision 2051, the Sustainability Strategy and the Corporate Clean Air Plan, we are reducing greenhouse gas emissions, piloting electric buses and integrating climate change considerations into infrastructure design and asset management.

These actions, combined with good planning and robust infrastructure, provide a solid foundation to build the York Region Climate Change Action Plan.

Developed over two years and based on the principles of sustainable urban development, this plan addresses climate mitigation and adaptation from a corporate and community perspective. By working in alignment with local, provincial and federal levels of government, we are providing benefits to residents and businesses to create more sustainable lifestyles and help our communities thrive under changing climate conditions.

We are continuously improving our programs and services to provide convenient, efficient and sustainable options to our growing community.



Mayor
John Taylor
Town of Newmarket



Regional Councillor
Tom Vegh
Town of Newmarket



Regional Councillor
Gino Rosati
City of Vaughan



Regional Councillor
Linda Jackson
City of Vaughan



Mayor
Margaret Quirk
Town of Georgina



Regional Councillor
Robert Grossi
Town of Georgina



Mayor
Tom Mrakas
Town of Aurora



Mayor
Virginia Hackson
Town of East Gwillimbury



Mayor
Steve Pellegrini
Township of King



Mayor
Iain Lovatt
Town of Whitchurch-Stouffville



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ACKNOWLEDGMENTS

This report reflects accumulated knowledge, insights and expertise of a wide range of people within Regional government, in our nine local municipalities, at other organizations, and across the community. York Region extends its thanks and appreciation.

YORK REGION AT A GLANCE

WE ARE COMMITTED TO
DELIVERING QUALITY SERVICES:

- Children's Services
- Court Services
- Economic Development
- Forestry
- Housing Services
- Long-Term Care
- Paramedic Services
- Planning
- Police Services
- Public Health
- Regional Roads
- Social Assistance
- Transit
- Waste Management
- Water

Comprised of
9 MUNICIPALITIES



TOTAL POPULATION ESTIMATE
1,192,600
(as of September 30, 2018)

Source: York Region, Corporate Services, Long Range Planning Branch, based on Statistics Canada data and CMHC Housing Completion data. Note: Population totals do not total to estimated population due to rounding.

WHAT DOES YORK REGION DO?

York Region offers a wide range of programs and services in 15 key areas ranging from children's services to water and wastewater infrastructure. As an upper-tier municipality, York Region works through various plans and processes to ensure delivery of high quality programs and services to meet the evolving needs of our communities.



INTRODUCTION

The Intergovernmental Panel on Climate Change determined the need for urgent action to reduce carbon emissions by 2030 to avoid catastrophic climate change impacts. The need for urgent action is equally significant for Canada, Ontario¹ and York Region. Canada's climate is projected to warm at twice the global rate and this accelerated pace of warming is anticipated regardless of the emissions scenario resulting from human activity.²

York Region has already experienced effects of climate change with higher average temperatures, increased extreme heat and rainfall and more extreme weather events.³

As a result of this warming, York Region has experienced the following impacts:

- › Blacklegged ticks that can spread Lyme Disease are increasing in York Region as a result of warmer temperatures⁴
- › Extended season for road maintenance as a result of less predictable patterns for snow and ice storms
- › Heat island effect in areas of increased urbanization
- › Flooding as a result of extreme rain events (as in the spring of 2019 when 52mm of rain fell in 12 hours)
- › Power outages and tree loss as a result of ice storms (as in December 2013)
- › Need to increase capacity of wastewater infrastructure to adapt to more extreme weather events

These and other impacts are expected to increase with further warming of our climate.

¹ Annual Report, 2019 of the Office of the Auditor General of Ontario Reports on the Environment

² Bush, E. and Lemmen, D.S., editors (2019): *Canada's Changing Climate Report*; Government of Canada, Ottawa, ON. 444 p.

³ Fausto, E., Milner, G., Nikolic, V., Briley, L., Basile, S., Behan, K., and Trainor, E. 2015. *Historical and Future Climate Trends in York Region*. Ontario Climate Consortium: Toronto, ON: pp.48.

⁴ York Region Vector Borne Diseases Statistics, September 19, 2019

York Region recognizes the need to address climate mitigation and adaptation from a corporate and community perspective. This commitment is identified in Vision 2051 and the York Region Official Plan. Initial efforts to address climate change occurred through implementing the Sustainability Strategy in 2007 and Corporate Clean Air Strategy in 2008.

The York Region Climate Change Action Plan (Action Plan) builds upon foundational work and key policies that have guided climate-related action at York Region. Through this Action Plan, York Region continues to expand the use of a climate change lens on its own activities and inspires others to do the same. The Action Plan:

- › Outlines the projected impacts of climate change on York Region
- › Describes and prioritizes actions needed in three priority areas: Resilient Communities and Infrastructure, Low Carbon Living, and Supporting an Equitable Transition
- › Identifies the role York Region will play in implementing actions, and
- › Provides a framework for all levels of government, businesses and communities to work together

The intent of these actions is to maintain residents' quality of life, minimize disruptions to the natural environment, avoid significant costs over the coming decades and to ensure communities in York Region continue to thrive under changing climate conditions.





CLIMATE CHANGE and its POTENTIAL IMPACTS on YORK REGION

CLIMATE CHANGE is HERE

Climate change occurs when long-term weather patterns are altered through natural or human causes. Global warming, a rise in the average global temperature, is one aspect of climate change.

Scientific evidence shows human activity is a major contributor to climate change. Burning fossil fuels release carbon dioxide and other heat-retaining gases into the atmosphere. The build up of these gases creates a “greenhouse” effect that raises temperatures globally and has other profound climatic effects.⁵

Canada’s climate has warmed and will continue to warm in the future, driven by human influence. Canada’s Changing Climate Report, identifies Canada’s climate has been and is projected to continue warming at twice the global rate.⁶ Effects of widespread warming are evident in many parts of Canada and are projected to intensify in the future.⁷

Any benefits resulting from climate change, such as longer growing seasons and increased agricultural yields, will be outweighed by long-term changes in York Region’s climate from both warming and more extreme weather. Impacts from the changing climate have already begun:

- › According to data from Lake Simcoe Region Conservation Authority, average annual air temperature in northern York Region has increased by 1.1 °C over the last 30+ years, starting in the 1980s
- › From 1985 to 2015, southern Ontario, including York Region, saw more frequent and powerful rain and snow storms, greater temperature volatility and more episodes of extreme heat
- › In August 2009, a powerful tornado touched down in Vaughan, with clean up costs to the city of \$730,000, not including the cost of replacing 1,800 street trees
- › In December 2013, an ice storm across eastern North America resulted in widespread and prolonged power outages and 27 deaths. York Region spent \$20 million in clean-up costs
- › In June 2019, heavy spring rains and rapid snow melt resulted in localized flooding in close proximity to wastewater infrastructure in Aurora, East Gwillimbury and Newmarket

⁵ Definition of Climate Change. (2017, October 5). Retrieved from <https://davidsuzuki.org/what-you-can-do/what-is-climate-change/>

⁶ Bush, E. and Lemmen, D.S., editors (2019): *Canada’s Changing Climate Report*; Government of Canada, Ottawa, ON. 444 p.

⁷ Bush, E. and Lemmen, D.S., editors (2019): *Canada’s Changing Climate Report*; Government of Canada, Ottawa, ON. 444 p.

There are significant benefits to acting quickly to prepare for climate change including avoiding future damages and associated costs, new jobs through transition to a low-carbon economy, improved air quality by reducing greenhouse gas emissions, and delivering co-benefits to vulnerable populations and businesses.

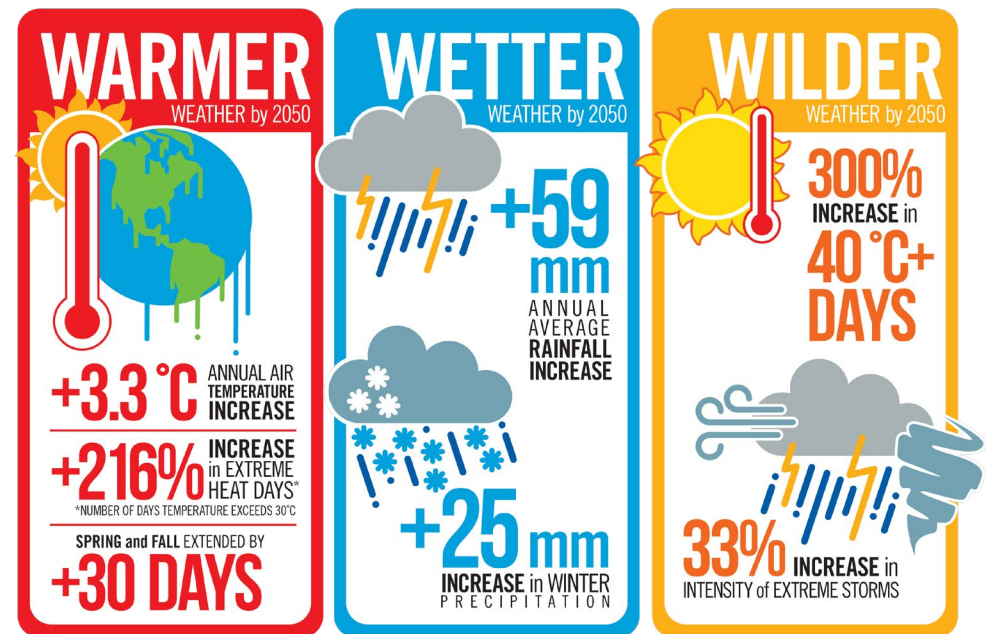
CLIMATE will CONTINUE to CHANGE

Climate-related impacts under high and low-emission scenarios project two very different futures for Canada.⁸ Scenarios with substantial and rapid warming illustrate the effects continued increases in greenhouse gas emissions will have in Canada. Limited warming will only occur if Canada and the rest of the world substantially reduce greenhouse gas emissions meaning everyone has a role to play.

Climate change projections⁹ predict that by 2050, if present trends continue, York Region could expect to experience:

- An increase in annual mean temperature by as much as 2.7 to 3.6°C above current levels, bringing hotter summers and winters
- A longer growing season by as much as 30 days each in both spring and fall
- A 59+ mm increase in annual average rainfall with more precipitation occurring in the winter months
- More than twice as many days above 30°C (26 days a year versus the current average of 12) and several days that exceed 40°C annually
- More frequent rain, hail, freezing rain and snowstorms
- A 33% increase in the intensity of extreme storms

PREDICTED CLIMATE TRENDS for YORK REGION by 2050



SOURCE: ONTARIO CLIMATE CONSORTIUM

⁸ Bush, E. and Lemmen, D.S., editors (2019): *Canada's Changing Climate Report*; Government of Canada, Ottawa, ON. 444 p.

⁹ Fausto, E., Milner, G., Nikolic, V., Briley, L., Basile, S., Behan, K., and Trainor, E. 2015. *Historical and Future Climate Trends in York Region*. Ontario Climate Consortium: Toronto, ON: pp.48.



ASSESSING FUTURE IMPACTS

Impacts of climate change could be costly. Residents and businesses could face increased costs of recovery from more frequent power outages and damage to property caused by flooding, hail, ice, snow and wind.

Transportation networks may face additional challenges due to road closures or difficult driving conditions. Farmers may need to adjust their operations as some crops could no longer be grown in York Region.

Rising temperatures may impact health through increased number of extreme heat events and the spread of mosquitoes and ticks which may transmit disease.

Tourism, particularly ice fishing on Lake Simcoe, may suffer due to warmer winters and less ice cover.

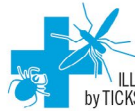
POSSIBLE FUTURE IMPACTS of CLIMATE CHANGE

WHAT are the RISKS for YORK REGION?

IF WE DON'T ACT NOW, the COSTS and CONSEQUENCES WILL GROW

HEALTH

HEALTH IMPACTS from
HEAT EXPOSURE
and SUMMER AIR
POLLUTION



CHANGES in
ILLNESSES CARRIED
by TICKS and MOSQUITOS



RISK of INJURY and PROPERTY DAMAGE
from EXTREME WEATHER EVENTS

ENVIRONMENT

IMPACTS on FORESTS
from INSECTS,
DISEASE and FIRE



LOSS of AQUATIC and
TERRESTRIAL HABITAT



INCREASED SUMMER DROUGHT STRESS

ECONOMY

INCREASED
ENERGY USE

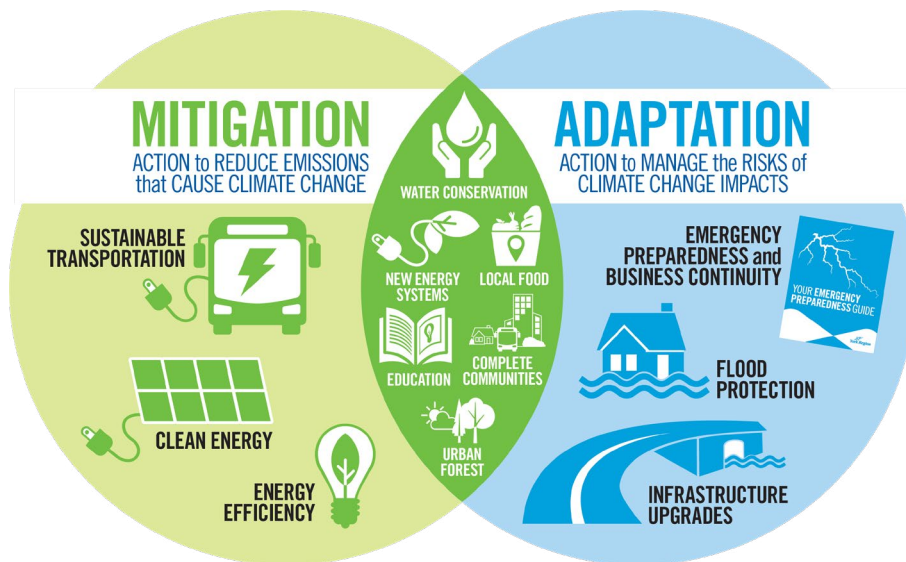


CHANGES to
the FOOD SYSTEM



GREATER RISKS to HOMES, BUSINESSES
and INFRASTRUCTURE





BRINGING TOGETHER MITIGATION and ADAPTATION

Addressing climate change calls for two approaches: mitigation and adaptation. Mitigation refers to reducing greenhouse gas emissions in order to slow human-induced global warming. Even with substantial mitigation efforts York Region, will continue to feel and need to adapt to climate change impacts. Adaptation refers to taking action to reduce negative impacts associated with existing and future climate change.

Integrating efforts to mitigate and adapt is the most effective way to manage climate change risks. The Intergovernmental Panel on Climate Change has suggested this approach as an efficient way of making communities more resilient over the long term by building both types of action into strategies, plans and policies. The graphic gives examples of actions related to mitigation, adaptation, or both.

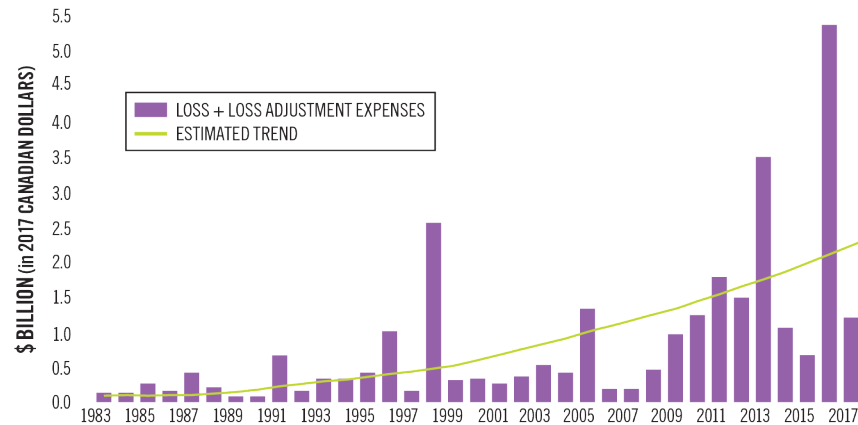
Low impact development provides a good example of how adaptation and mitigation benefits can be achieved at the same time. In low impact development, natural processes and landscaping are used to manage stormwater and the greenery stores carbon providing mitigation benefits.

In addition to being more cost-effective, integration may make actions more attractive to stakeholders by providing opportunities to address multiple priorities or achieve multiple co-benefits and may increase eligibility for federal and provincial funding opportunities.



ACTING NOW to AVOID HIGHER COSTS LATER

CATASTROPHIC INSURED LOSSES* from NATURAL DISASTERS in CANADA - 1983 to 2017



* Insured Losses for a given disaster are deemed catastrophic when they total \$25 million or more. Catastrophic losses for a year are the sum total of insured losses from these natural disasters. Source: Insurance Bureau of Canada (January 2018)

This graph from the Insurance Bureau of Canada shows rising expenses resulting from natural disasters occurring more frequently, at least in part due to climate change. Large scale annual losses due to natural disasters are becoming increasingly commonplace, and in recent years, expenses often exceed \$1 billion CAD per year. The cost of responding to extreme weather events is estimated to range from 5 and 25% of Canada's gross domestic product.¹⁰

The National Round Table on the Environment and the Economy estimates that, at a national level, the economic costs of failing to address climate change risks could be between \$21 and \$43 billion a year by 2050. Ontario would incur the largest absolute economic impact.¹¹

Building on existing actions and making new investments to give York Region greater climate change resiliency will help minimize the high costs and severe impacts of inaction.

Research and real world experience show the benefits of being proactive:

- ▶ The Round Table Report concluded that "adapting to climate change is both possible and cost-effective,"¹² citing return on investment as great as 1:38 for some adaptation actions (that is, every \$1 invested now results in \$38 of savings later)
- ▶ The Canadian Federal Disaster Mitigation and Adaptation Fund is a \$2-billion, 10-year program to help communities build infrastructure needed to better withstand natural hazards such as floods, wildfires, earthquakes and droughts. To qualify, proposed projects must show an expected return on investment ratio of more than 2:1

WORKING TOGETHER is VITAL

Regional and local municipal governments are leading the way to address climate change issues in Canada through municipal policy and citizen engagement. Strategic partnerships and collaboration around climate change issues and actions are essential to improving community resiliency. York Region is positioned to facilitate co-ordinated and co-operative action on many fronts that bring benefits to households and businesses, create more sustainable lifestyles and maintain a thriving community.

¹⁰ National Round Table on the Environment and the Economy: Paying the Price: The Economic Impacts of Climate Change for Canada (March 2011)

¹¹ National Round Table on the Environment and the Economy: Paying the Price: The Economic Impacts of Climate Change for Canada (March 2011)

¹² National Round Table on the Environment and the Economy: Paying the Price: The Economic Impacts of Climate Change for Canada (March 2011)



CLIMATE CHANGE ACTION PLAN

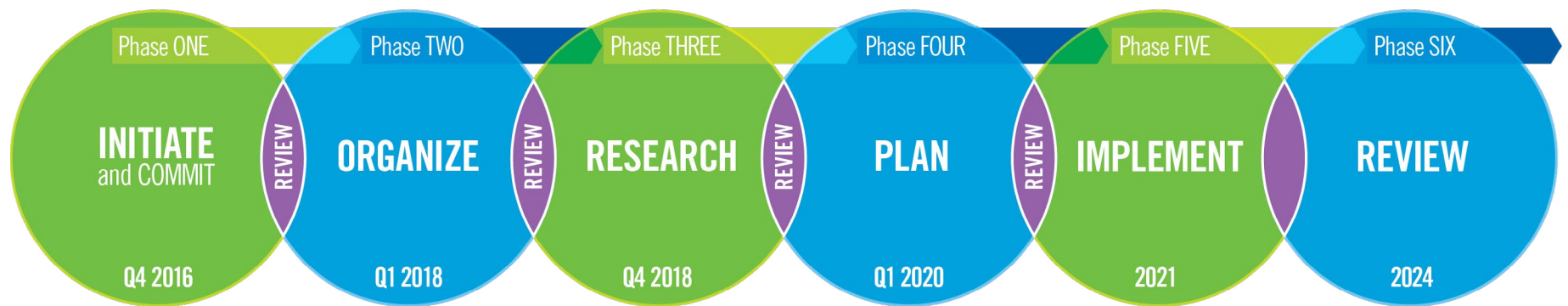
HOW the PLAN was DEVELOPED

The Action Plan was developed using a framework specific to York Region's context and the preferred approach of addressing both climate mitigation and adaptation simultaneously.

The framework aligns with the Partnership for Climate Protection and Building Adaptive and Resilient Communities Programs, delivered by Local Governments

for Sustainability, a global network of more than 1,750 local and regional governments committed to sustainable urban development.

This graphic identifies how the original and subsequent versions of the Action Plan will be developed, monitored and reviewed.



York Region's process involves this progressive work:

Phase ONE: The Initiate and Commit Phase was started by establishing the Internal Climate Change Working Group in Q4 2016. Building on Council's commitment to address climate change, the working group began the process of examining how York Region would be impacted by a changing climate.

Phase TWO: In the Organize Phase, staff began to build internal capacity, identifying and communicating with stakeholders. This included confirming information, research and resources and the framework required to develop the Action Plan. The framework was endorsed by Council in Q4 2017.

Phase THREE: The Research Phase included assessing climatic change, assessing climate vulnerabilities and impacts, and undertaking a best practices review and scan of leading jurisdictions. Staff also inventoried existing internal and external actions that directly or indirectly address climate change.

Phase FOUR: The Plan Phase builds on consultation activities and research carried out earlier in the process to address mitigation and adaptation from the corporate and community perspective including a community stakeholder workshop held in Q2 2019. This Phase includes establishment of an overarching goal, and identification of priority action areas. Once received by Council the draft Action Plan will be released for further comment.

Phase FIVE: The Implementation Phase will officially start with Council endorsement of the Action Plan as well as establishment of a monitoring and evaluation framework.

Phase SIX: In the Review Phase, monitoring and reporting will occur annually. The Action Plan will be reviewed after 5 years to allow course correction if required.



York Region has undertaken the following actions to support development and implementation of the Action Plan, including:

- › Commissioned Regional climate projections
- › Conducted a corporate risk scan to identify the most likely and severe risks it faces from climate change under current forecasts. This scan identified the following priority risks:
 - Significant costs resulting from damage to Regional buildings, roads, wastewater systems, street trees and other infrastructure
 - More disruptions to services, including communications, energy, water and wastewater, and transportation
- Higher demand for emergency shelter, housing, medical and social supports, particularly for vulnerable populations
- Greater and more complex demands on emergency services
- › Engaged staff across the corporation to identify emerging climate-related initiatives and concerns, helping to determine priorities for corporate actions in the Action Plan
- › Engaged local municipal staff to identify opportunities for alignment and partnership on climate initiatives
- › Hosted a community climate change workshop to discuss potential impacts of climate change with community stakeholders, obtain feedback

on impacts being felt on the ground, and seek input into roles, responsibilities and actions at the community-wide scale

- › Updated the Corporate Energy and Conservation Demand Management Plan to identify actions to reduce corporate emissions in alignment with Vision 2051

Community greenhouse gas emissions reduction targets will be identified, through the York Region Energy and Emissions Plan, and aligned with provincial and federal targets and Vision 2051. The York Region Energy and Emissions Plan will be aligned with, and support, existing municipal energy plans and inform the Regional Official Plan Update.



Photo courtesy of Toronto and Region Conservation Authority

PLAN BUILDS on a STRONG FOUNDATION

York Region Council has shown leadership in addressing climate change by endorsing the Sustainability Strategy in 2007 and Corporate Clean Air Strategy, in 2008. Council's commitment is further outlined in Vision 2051 and the York Region Official Plan.

This Action Plan builds on this previous work and several existing Regional directions and initiatives:

- › **Land use planning.** Decisions in this area have enormous impact on how new and existing communities will manage climate change impacts. York Region Official Plan is already taking action to ensure more complete communities are built, which offer a wealth of benefits for climate change mitigation and adaptation. These include reduced reliance on automobiles, applying low impact design approaches, incorporating trees and green spaces and fostering a stronger sense of community. The award-winning New Communities Guidelines, released in 2013, support implementation of the Official Plan in these areas. York Region has demonstrated leadership by adopting a Corporate Sustainable Building policy building on experience with green building programs such as LEED, and Living Building Challenge.
- › **Infrastructure and asset management.** The Region relies on more than \$12.3 billion worth of assets to deliver important services for water and wastewater, waste management, transit and roads, often in partnership with local municipalities. Several programs are in place to plan and manage Regional infrastructure, including master plans for transportation, water and wastewater, and waste management, a corporate asset management plan, business continuity plans and a climate change risk assessment (for transportation and water and wastewater). York Region increasingly recognizes the key role green infrastructure plays in both mitigating and adapting to climate change, and is looking at asset management and planning practices with a climate change lens.



- › **Natural heritage and forestry.** Natural systems help to mitigate and adapt to climate change. Ecosystem-based approaches provide multiple benefits, including carbon sequestration, regulating climate, improved air quality and water storage, and enhanced well-being of residents. They provide these benefits in very cost-effective ways. York Region has demonstrated a commitment to protection, enhancement and restoration of green spaces. The Region has put in place forward-thinking programs for forest management, urban forestry, green infrastructure, and land securement preserving and restoring natural areas.
- › **Emergency management programs and plans.** York Region and its municipal partners work together on emergency management programs and plans. Annual Hazard Identification and Risk Assessment is undertaken to identify significant threats and considers climate trends and future climate projections as part of this process.
- › **Enterprise risk management.** Corporately, York Region has an Enterprise Risk Management practice that facilitates the identification of potential risks that could impact the services York Region delivers from an operational and strategic perspective.

Recognizing Climate change as a strategic risk, York Region's Enterprise Risk Management practice considers climate trends and future climate projections as part of this process.

- › **Waste management.** Circular economy has the potential to increase resilience to climate change by extending the life of materials and products and decreasing dependence on raw materials, which allows for greater adaptability and flexibility. As an economic system focused on elimination of waste and continual use of resources, the circular economy aims to:
 - Reduce waste and the negative environmental impacts associated with waste;
 - Reuse, repair, repurpose, and recycle used products and packaging;
 - Maximize capacity and efficiency of waste processing technologies
 - Improve environmental, economic, and social outcomes; and
 - Prioritize access over ownership where consumers collaboratively share, use, and focus on what the product provides rather than the product itself



Through the SM4RT Living Plan, York Region and its local partners continue to show leadership by pursuing waste reduction targets through innovating and inspiring behaviour change resulting in less waste. In particular, the Region has created a commitment to reduce waste through a circular economy system.

- › **Economic development.** Services provided by the Region include market intelligence and innovation, business investment, small business start-up, export development, location selection assistance, local business connections and providing access to government funding programs.

With good farmland and proximity to large urban centres, the Region boasts a food system that extends from growing and harvesting crops and livestock to processing and transporting food to consumers. York Region is committed to protecting its agricultural sector and local food opportunities, and its Agriculture and Agri-food Strategy supports innovation in the agricultural sector, including improved farming practices and greater use of technology. Applying a climate change lens to this strategy is increasingly important as farmers feel the impacts of a longer growing season, less winter protection and more extreme weather.

- › **Community supports.** Often in partnership with others, York Region provides community supports to those in need through programs for housing, public health, paramedic services, childcare and children's services, and services for seniors, including a Seniors Strategy.

Climate change can exacerbate challenges for vulnerable residents and may result in increased need for services and supports.

- › **Energy management.** The Energy Conservation and Demand Management Plan, updated in 2019, aims to mitigate climate change by reducing greenhouse gas emissions under York Region's control and influence. A particular focus is transit and corporate fleet operations, which account for more than 60% of York Region's total emissions. Other sources include energy for water and wastewater systems and to heat buildings. The goal of the plan is to reduce emissions by approximately 60,000 tonnes a year by 2051 compared to 2014. The plan also aligns with York Region's Vision 2051, which sets an aspirational goal of net-zero corporate greenhouse gas emissions.

This Action Plan continues to integrate and build on these existing initiatives.



HOW this ACTION PLAN will be USED and IMPROVED

The Action Plan identifies actions across a range of areas identified as priorities from a climate change perspective. Some actions are aimed at mitigating impacts, others at adapting to changes, and some are designed to do both.

Each action also identifies the primary area of impact, indicating whether the action influences York Region's operation, has a larger community-scale impact or both. The timeframe provides an implementation scale for short (one to two years), medium (two to three years) and long term (four to five years) actions.

GOAL, OUTCOMES and PRIORITY ACTION AREAS

This plan is founded on the following **goal**:

Working together, the strong, caring and safe communities of York Region will continue to thrive under changing climate conditions

To achieve the following **outcomes**:

- › **Reduce Greenhouse gas emissions** with a long-term goal of becoming a net-zero Region by 2050
- › **Increase resilience and capacity of the Region** to withstand and respond to current and future climate events

The Action Plan has been developed as a living document. Although the impacts of climate change are already being felt, its long-term consequences continue to evolve and the effects of mitigation efforts are still uncertain. As the plan rolls out, the Region and its partners will learn lessons and gain new information and knowledge.

York Region and its partners need to be flexible and agile in implementing this Action Plan. An agile approach will allow the Region to fine-tune identified actions and add new ones to take advantage of opportunities, adapt to unexpected events and trends, and learn from other leading jurisdictions.

Achieving the outcomes involves three **Priority Action Areas**:

- › **Resilient Communities and Infrastructure**
- › **Low Carbon Living**
- › **Supporting an Equitable Transition**

Each Priority Action Area has several actions associated with it, as outlined in the following sections.

PRIORITY ACTION AREA: RESILIENT COMMUNITIES and INFRASTRUCTURE

The following priority action area supports increasing capacity to adapt. The Region will continue to guide and encourage the creation of complete communities. The Region will also work to ensure infrastructure systems are built and maintained for both the current and future climate.

COMMUNITY RESILIENCY ACTIONS:

ACTION 1	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Track, report, and identify actions required to adapt to the migration of invasive species	Partner	Local Municipalities, Conservation Authorities and Provincial Government	Adaptation	Community	Short
ACTION 2	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Integrate climate change considerations into existing and new municipal planning and development tools (e.g. climate change by-laws, development guidelines)	Lead	Local Municipalities and Development Industry	Adaptation and Mitigation	Community	Medium
ACTION 3	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Conduct a vulnerability assessment on natural systems and integrate adaptive actions into watershed planning	Partner	Local Municipalities, Conservation Authorities and Provincial Government	Adaptation	Community	Medium



COMMUNITY RESILIENCY ACTIONS: CONTINUED

ACTION 4	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Assess the role natural systems play in mitigating and adapting to climate change	Partner	Local Municipalities, Conservation Authorities and non-governmental organizations	Adaptation and Mitigation	Community	Long
ACTION 5	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Enhanced building energy and water performance in new and existing buildings through performance targets and benchmarking within the community	Partner	Local Municipalities, Utility Companies, Businesses and Development Industry	Mitigation	Community	Long

ROBUST INFRASTRUCTURE ACTIONS:

ACTION 6	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Adopt emission reduction targets and guidelines for low-carbon infrastructure construction practices	Lead	Local Municipalities and Industry Associations	Mitigation	Corporate	Short
ACTION 7	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Undertake climate change vulnerability and risk assessments on all Regional infrastructure, systems and assets using a common methodology	Lead	Local Municipalities and Development Industry	Adaptation	Community and Corporate	Medium
ACTION 8	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Prioritize infrastructure and asset repairs in climate vulnerable areas using the asset management framework	Lead	Local Municipalities, Conservation Authorities and Community Agencies	Adaptation and Mitigation	Community and Corporate	Long



PRIORITY ACTION AREA: LOW CARBON LIVING

Reduced greenhouse gas emissions are critical to mitigating climate change, and also offer near-term benefits to the Region and its residents, like improving local air quality.

Low-carbon living also relies on changing attitudes about how we purchase, use and dispose of consumer goods, and food.

While Regional actions are important, the Action Plan recognizes actions by individual residents and business also needed to achieve net-zero greenhouse gas emissions and zero waste by 2051.

Actions below will help support and accelerate the move to reduced carbon emissions in the way we live, work and play.

REDUCING EMISSIONS ACTIONS:

ACTION 9	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Establish community-wide greenhouse gas emission reduction targets	Lead	Local Municipalities, Community Stakeholders, Businesses and Development Industry	Mitigation	Community and Corporate	Long
ACTION 10	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Increase use of more sustainable modes of transportation, such as walking, cycling and transit, and community adoption of electric and low-emissions vehicles	Lead/Partner	Local Municipalities, Provincial Government and Businesses	Mitigation	Community and Corporate	Long

FOOD SYSTEMS ACTIONS:

ACTION 11	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Promote a sustainable and resilient food system	Partner	York Region Federation of Agriculture, Agriculture Industry and York Region Food Network	Adaptation	Community	Long

CIRCULAR ECONOMY ACTIONS:

ACTION 12	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Support waste prevention and circular economy practices in York Region	Partner	Local municipalities, Academic Institutions, Community Stakeholders , Businesses and Residents	Mitigation	Community and Corporate	Long

ACTION 13	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Identify resources and opportunities that show program alignment to support a circular economy approach through regional and local climate mitigation projects	Partner	Local municipalities, Academic Institutions, Community Stakeholders , Businesses and Residents	Mitigation	Community and Corporate	Long

PRIORITY ACTION AREA: SUPPORTING an EQUITABLE TRANSITION

It is important to assess climate risks and opportunities while working to ensure the health and prosperity of all Regional residents and businesses. Climate change impacts will not affect every resident or every area the same way. Having more information about specific vulnerabilities will be essential in developing the right responses to differing climate change impacts.

The priority actions below aim to support an equitable approach to addressing climate risks and opportunities while working to ensure the health and prosperity of people and businesses.

PREPARED and RESPONSIVE YORK REGION ACTIONS:

ACTION 14	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Include the most severe and likely climate-related risks in Enterprise Risk Management practice	Lead	All Departments	Adaptation	Corporate	Short
ACTION 15	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Integrate future climate information and adaptation planning into York Region's Emergency Preparedness Plans and Business Continuity Plans	Lead	All Departments	Adaptation	Corporate	Short
ACTION 16	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Co-ordinate strategies York Region and its partners can undertake to increase community resilience and emergency preparedness	Lead	Local Municipalities	Adaptation	Community and Corporate	Medium



LOW CARBON ECONOMY ACTIONS:

ACTION 17	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Update existing procurement policies to specify climate-related performance targets	Lead	All Departments	Mitigation	Corporate	Medium

ACTION 18	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Leverage existing programs to support the transition to a low-carbon economy	Partner	Chambers of Commerce, Local Municipalities and Industry Associations	Mitigation	Community	Long

ACTION 19	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Work with vulnerable economic sectors and businesses to increase resiliency to climate change impacts	Lead	All Departments	Mitigation	Community	Long

SUPPORTING RESILIENCE ACTIONS:

ACTION 20	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Complete the York Region Climate Change and Health Vulnerability Assessment and share the findings with internal and external stakeholders	Lead	Local Municipalities, Community Stakeholders and Residents	Adaptation	Community	Short
ACTION 21	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Update policies and plans to ensure safety during extreme weather events (inclement weather policy)	Lead	All Departments	Adaptation	Corporate	Medium
ACTION 22	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Apply an equity lens to prioritizing and supporting climate mitigation and adaptation actions	Partner	Local Municipalities, Conservation Authorities, Academic Institutions and Community Stakeholders	Adaptation	Community and Corporate	Long
ACTION 23	YORK REGION ROLE	POTENTIAL PARTNERS	ACTION TYPE	ACTION AREA	TIMEFRAME
Continue to build relationships with Indigenous communities around resilience	Partner	Indigenous Communities	Adaptation	Community	Long





PRIORITY ACTION AREA: IMPLEMENTATION

Implementing the Action Plan requires the creation of innovative and strong partnerships to enable collaborative climate action. It also requires a commitment to educating and engaging the Region's residents, businesses, local municipalities and others.

IMPLEMENTATION ACTIONS:

ACTION 24	TIMEFRAME
Develop performance indicators to track climate change indicators, greenhouse gas reduction, adaptive action and implementation of this plan	Short
ACTION 25	TIMEFRAME
Develop communication and education strategies on the impacts of climate change and strategies for reducing greenhouse gas emissions and increasing resiliency	Short
ACTION 26	TIMEFRAME
Develop or acquire the data and information needed to integrate climate change considerations into all decision-making (e.g. best available)	Long

APPENDICES

DEFINITIONS

Adaptation: The process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities

Circular Economy: The circular economy is an economic system aimed at eliminating waste and the continual use of resources. Circular systems employ reuse, sharing, repair, refurbishment, remanufacturing and recycling to create a close-loop system, minimizing the use of resource inputs and the creation of waste, pollution and carbon emission

Climate: Climate is usually defined as the average weather or, a statistical description of climate variable such as surface temperature, precipitation and wind over an extended period of time ranging from months to thousands or millions of years. The classic period for averaging these variables is 30 years, as defined by the World Meteorological Organization.

Climate change: Climate change refers to a change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing factors, or to persistent anthropogenic changes in the composition of the atmosphere or in land use.

Climate extreme: The occurrence of a value of a weather or climate variable above (or below) a threshold value near the upper (or lower) ends of the range of observed values of the variable. For simplicity, both extreme weather events and extreme climate events are referred to collectively as 'climate extremes'.

Climate Change and Health Vulnerability Assessment: A study undertaken to better understand how York Region communities may be vulnerable to the impacts of climate change for a health perspective.

Co-Benefits: The benefits that occur in addition to a single prioritized policy goal. In the context of this Plan, these are other benefits that result from a specified action over and above those directly tied to climate change mitigation and adaptation which can increase plan effectiveness.

Co-Harms: Unintended or incidental effects resulting from adaptation and mitigation efforts and can range from being small to highly significant.

Equity: The principle of fairness in burden sharing and is a basis for understanding how the impacts and responses to climate change, including costs and benefits, are distributed in and by society in more or less equal ways. It is often aligned with ideas of equality, fairness and justice and applied with respect to equity in the responsibility for, and distribution of, climate impacts and policies across society, generations, and gender, and in the sense of who participates and controls the processes of decision-making.

Emission Scenario: An emission scenario describes a possible future evolution of emissions of greenhouse gases, and other climate drivers. They assist in climate change analysis, including climate modelling and the assessment of impacts, adaptation, and mitigation. The likelihood of any single emissions path described in a scenario is highly uncertain.

Greenhouse Gases: Greenhouse gases are gases in Earth's atmosphere that trap heat. They let sunlight pass through the atmosphere, but they prevent the heat that the sunlight brings from leaving the atmosphere. The main greenhouse gases are carbon dioxide, chlorofluorocarbons, methane, nitrous oxide, and water vapour.

Intergovernmental Panel on Climate Change: The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.

DEFINITIONS CONTINUED

Mitigation: A human intervention to reduce sources or enhance sinks of greenhouse gases.

Model: Climate models are developed and used at climate research institutions around the world to make projections of future climate, based on future scenarios of greenhouse gas and aerosol forcing

National Assessment Report: Canada's Changing Climate Report is a stand-alone assessment of how and why Canada's climate has changed, and what changes are projected for the future.

Resilience: The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.

Urban Heat Island: An urban area or metropolitan area that is significantly warmer than its surrounding rural areas due to human activities. The main cause of the urban heat island effect is from the modification of land surfaces.

Vulnerability: The tendency or susceptibility to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

REFERENCES


1. Definition of Climate Change. (2017, October 5). Retrieved from <https://davidsuzuki.org/what-you-can-do/what-is-climate-change/>
2. United States Environmental Protection Agency. (2019, August 7.) Green Infrastructure for Climate Resiliency Infographic. Retrieved from <https://www.epa.gov/file/green-infrastructure-climate-resiliency-infographic>
3. Jeffries, Mike. (2019, February 1). Ponds can absorb more carbon than woodland – here how they can fight climate change in your garden. Retrieved from <https://phys.org/news/2019-02-ponds-absorb-carbon-woodland-climate.html>
4. Lane, Timothy. (2017, March 2). Thermometer Rising – Climate Change and Canada’s Economic Future. Retrieved from <https://www.bankofcanada.ca/2017/03/thermometer-rising-climate-change-canada-economic-future>
5. Pengelly, L.D., Campbell, M.E., Cheng, C.S., Fu, C., Gingrich, S.E., Macfarlane, R. 2007. Anatomy of heat waves and mortality in Toronto. Lessons for public health protection. *Canadian Journal of Public Health*, 98(5), 364-368.
6. Decent, Dana and Feltmate, Dr. Blair. (2018, June). *After the Flood: The Impact of Climate Change on Mental Health and Lost time from Work*. Retrieved from Intact Centre on Climate Adaptation website: <https://www.intactcentreclimateadaptation.ca/recent-reports/>
7. National Round Table on the Environment and the Economy. (2011). *Paying the Price: The Economic Impacts of Climate Change for Canada*. Retrieved from the National Round Table on the Environment and Economy website: <http://nrt-trn.ca/wp-content/uploads/2011/09/paying-the-price.pdf>
8. Graham, Drew A., Vanos, Jennifer K., Kenny, Natasha A., Brown, Robert D. (2016). The relationship between neighbourhood tree canopy cover and heat-related ambulance calls during extreme heat events in Toronto, Canada. *Urban Forestry & Urban Greening*, 20, 180 – 186.
9. Denton, F., T.J. Wilbanks, A.C. Abeysinghe, I. Burton, Q. Gao, M.C. Lemos, T. Masui, K.L. O’Brien, and K. Warner, 2014: *Climate-resilient pathways: adaptation, mitigation, and sustainable development*. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y. O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P. R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1101-1131.
10. *IPCC, 2018: Annex I: Glossary* [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press

REFERENCES CONTINUED

11. Hunt A., and Watkiss P. (2011) Climate change impacts and adaptation in cities: A Review of the Literature. *Climatic Change*, 104(1) 13-49. Available at: <http://dx.doi.org/10.1007/s10584-010-9975-6>
12. Stockholm Environment Institute (2015). Low carbon Futures in Canada – the role of urban climate change mitigation. Retrieved from <https://mediamanager.sei.org/documents/Publications/Climate/Cities-low-carbon-future-2015-Canada-briefing.pdf>
13. Bush, E. and Lemmen, D.S., editors (2019): *Canada's Changing Climate Report*; Government of Canada, Ottawa, ON. 444 p.
14. Fausto, E., Milner, G., Nikolic, V., Briley, L., Basile, S., Behan, K., and Trainor, E. 2015. *Historical and Future Climate Trends in York Region*. Ontario Climate Consortium: Toronto, ON: pp.48.

CONTACT INFORMATION

For more information on York Region's Climate Change Action Plan, please call 1-877-464-9675 or visit **york.ca/climatechangeactionplan**

A person wearing a helmet and a blue shirt is riding a red mountain bike on a dirt path through a dense forest. The path is covered in fallen leaves, and the trees are tall and thin, with some showing autumn foliage. The background is slightly hazy, suggesting a misty or foggy day.

YORK REGION DRAFT CLIMATE CHANGE ACTION PLAN

MARCH 2020