



NVCA Climate Change Strategy and Action Plan 2016-2018

Milestone 1 — Initiating the Strategy

Approved August 26, 2016



Nottawasaga Valley
Conservation Authority

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Background

Globally, various levels of governments have accepted climate change as a reality.

Climate Change is a fact in our daily living – raising the cost of our food, causing extreme weather that damages property and infrastructure, threatening outdoor activities we love....

It affects every aspect of our lives, so it is our collective responsibility to fight climate change together to ensure our children benefit from a cleaner planet.

*Honourable Glen Murray
Ontario Minister, Environment and Climate Change*

Canada has committed to a “new approach to global climate action” built on:

- Fact based decision making and robust science;
- Recognition of the necessity of transitioning to a low-carbon, climate-resilient economy;
- Strong collaboration with provinces...to take concrete climate action; and
- Support for climate-resilient development and adaption in countries that need it.

Provincially, the Ministry of the Environment and Climate Change has:

- Posted a Climate Change Discussion Paper;
- Developed a Climate Change Strategy; and
- Passed legislation followed by Ontario’s Five Year Climate Change Action Plan – 2016 to 2020.

A number of conservation authorities and municipalities have followed suit by developing their own climate change strategies.

On June 24, 2016, the Nottawasaga Valley Conservation Authority’s Board of Directors approved the development of a **NVCA Climate Change Strategy and Action Plan** based on the “Local Governments for Sustainability” (ICLEI) framework.

NVCA's Strategic Plan – Vision, Mission, Goals, Objectives

NVCA's 2014-2018 Strategic Plan provides an overarching set of key principles that should be considered when developing the ***Climate Change Strategy and Action Plan***:

NVCA Vision – Innovative watershed management supporting a healthy environment, communities and lifestyles

NVCA Mission – Working together to lead, promote, support and inspire innovative watershed management.

NVCA Strategic Goals and Objectives

Strategic Direction - Protect, Enhance & Restore

- Goal: To protect, enhance and restore the watershed to support a healthy environment, healthy communities and healthy lifestyles by anticipating and taking action to address watershed impacts and pressures.
- Objectives: Protect life and property from hazards, and protect, enhance and restore watershed health and promote sustainable development.

Strategic Direction – Learn & Discover

- Goal: To inspire others - through active collaboration, leadership and innovation - to take action to improve the health of the watershed, and to cultivate greater knowledge of the watershed to advance effective decision making.
- Objectives: Promote the watershed and the NVCA, and seek new knowledge and share information.

Strategic Direction – Connect

- Goal: To connect people to the environment through outdoor watershed experiences.
- Objectives: Connect people with the watershed, and promote partnerships and collaboration.

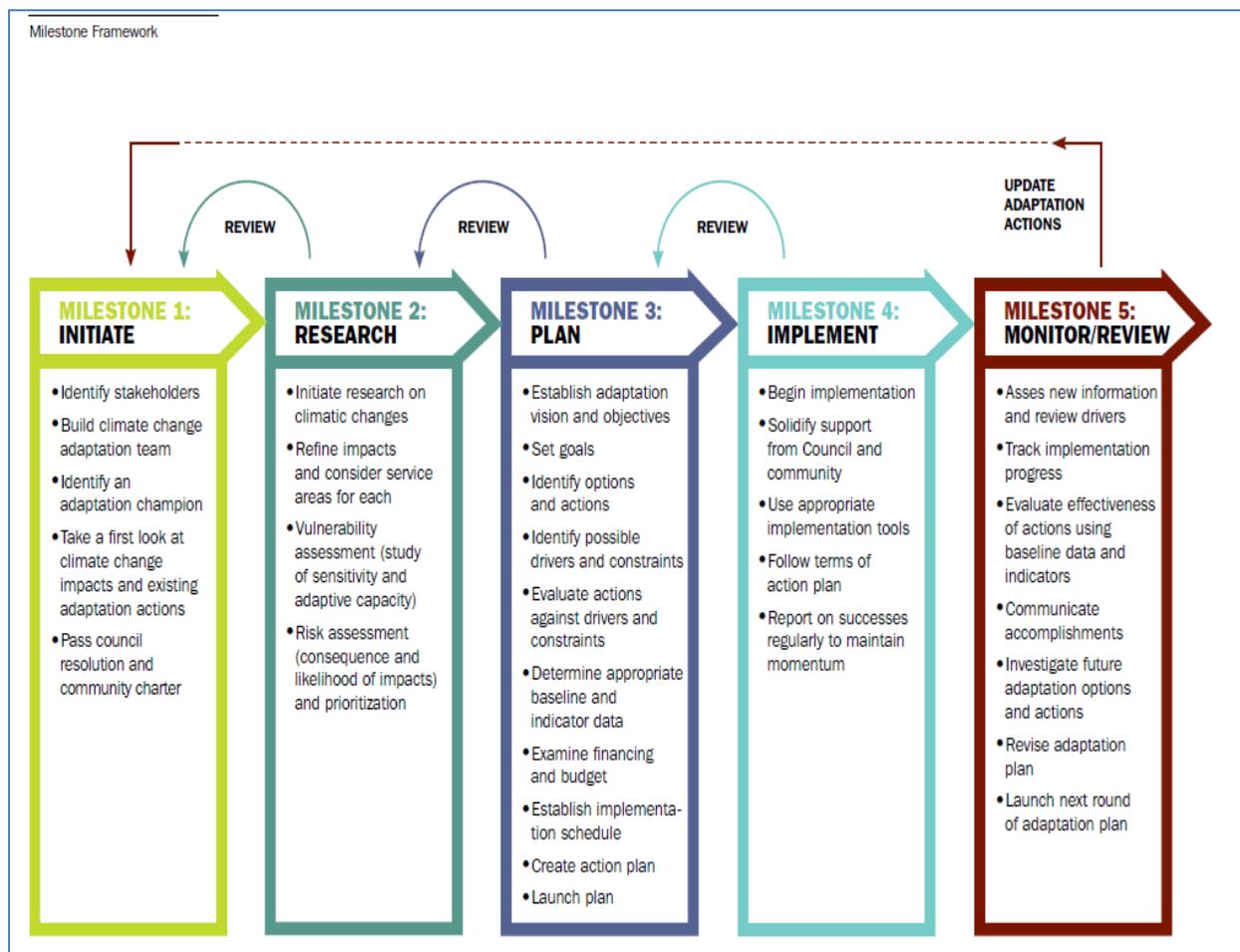
NVCA’s Climate Change Vision

NVCA’s strategic vision, mission, goals and objectives offer an important link in addressing a draft NVCA Climate Change Vision:

NVCA’s Climate Change Strategy and Action Plan will support global, federal and provincial goals by focusing on our watershed to support climate change adaption and mitigation.

NVCA’s Climate Change Strategy Framework

NVCA is committed to the following strategy framework, as presented in *Changing Climate, Changing Communities: Guide and Workbook for Municipal Climate Adaptation*, 2014, by ICLEI Canada:



The following sections respond to each of the action items listed in “Milestone 1: Initiate” of the climate change strategy framework.

Setting the Stage – Initial Climate Change Research

Climate Change in the Context of the Nottawasaga Valley

In conjunction with the increasing concentration of greenhouse gases, it is certain that temperatures globally have been rising since the late 19th century and even more notably since the late 1940s onwards:

...each of the past three decades has been successively warmer at the Earth's surface than all previous decades in the instrumental record.¹

Reconstruction of past climates using ice core, tree rings and other datasets indicate it is very likely that in the Northern Hemisphere the 30 year period from 1983 to 2012 was the warmest in the past 800 years. Temperatures in the Northern Hemisphere have been climbing faster than the global average. Importantly, it is extremely likely that human activities have caused more than half of the warming observed since 1951.

Problems with the data quality have made it impossible to have the same level of confidence as is possible with historical temperature records. However, studies conducted for the Inter-governmental Panel on Climate Change have noted with high confidence that an increase in precipitation has occurred in the Northern Hemisphere.¹

As an initial effort to assess the applicability of these observations to the Nottawasaga Valley, temperature and precipitation data reaching as far back as 1866 were examined from three weather stations in the watershed: Barrie (1866-1985), Barrie Water Pollution Control Centre (1977-2006) and Midhurst (1947-1996). Utilizing data from each of these sources a continuous monthly dataset from 1965 to 2006 was assembled. Trends identified in this 41-year period were compared with trends identified by the Intergovernmental Panel on Climate Change – Assessment Report 5 for a similar time period: 1951 to 2012 (60 years).

Assembling the Data

As mentioned, temperature and precipitation data were gathered from three weather stations in the Nottawasaga Valley. Monthly values were extracted from the stations' datasets using the first available record for each month from the following stations:

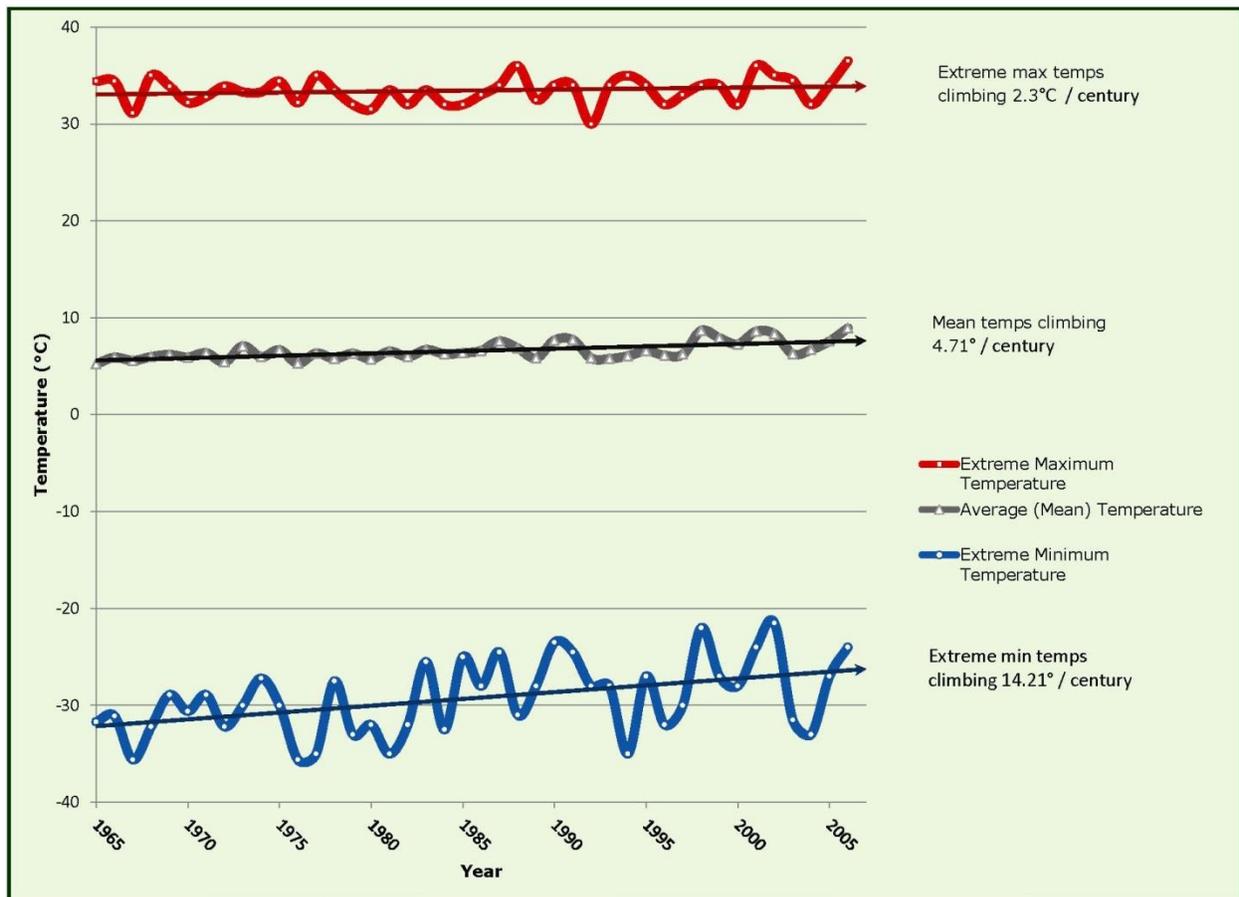
¹ Source: Inter-governmental Panel on Climate Change (IPCC) Working Group 1, Assessment Report 5 (AR5), 2013, p.161. Note that all global/continental data in this section is taken from this same report.

1. Barrie
2. Barrie Water Pollution Control Centre (WPCC)
3. Midhurst

A continuous dataset lasting 41 years from January 1965 to December 2006 was created. The Midhurst station provided the majority of data used for 1965 to 1977, while the Barrie WPCC station provided the majority of 1977 to 2006. Monthly temperatures from each year were averaged to find the mean annual temperature. The hottest month of each year was selected as the extreme maximum annual temperature. The coldest month of each year was selected as the extreme minimum annual temperature. Total precipitation from each month was added to find total annual precipitation. The data was then plotted onto graphs for further analysis and can be found in the following sections.

Temperature Observations

The graph that follows conveys the temperature trends that have been observed over the 40 year span of 1965 to 2006.



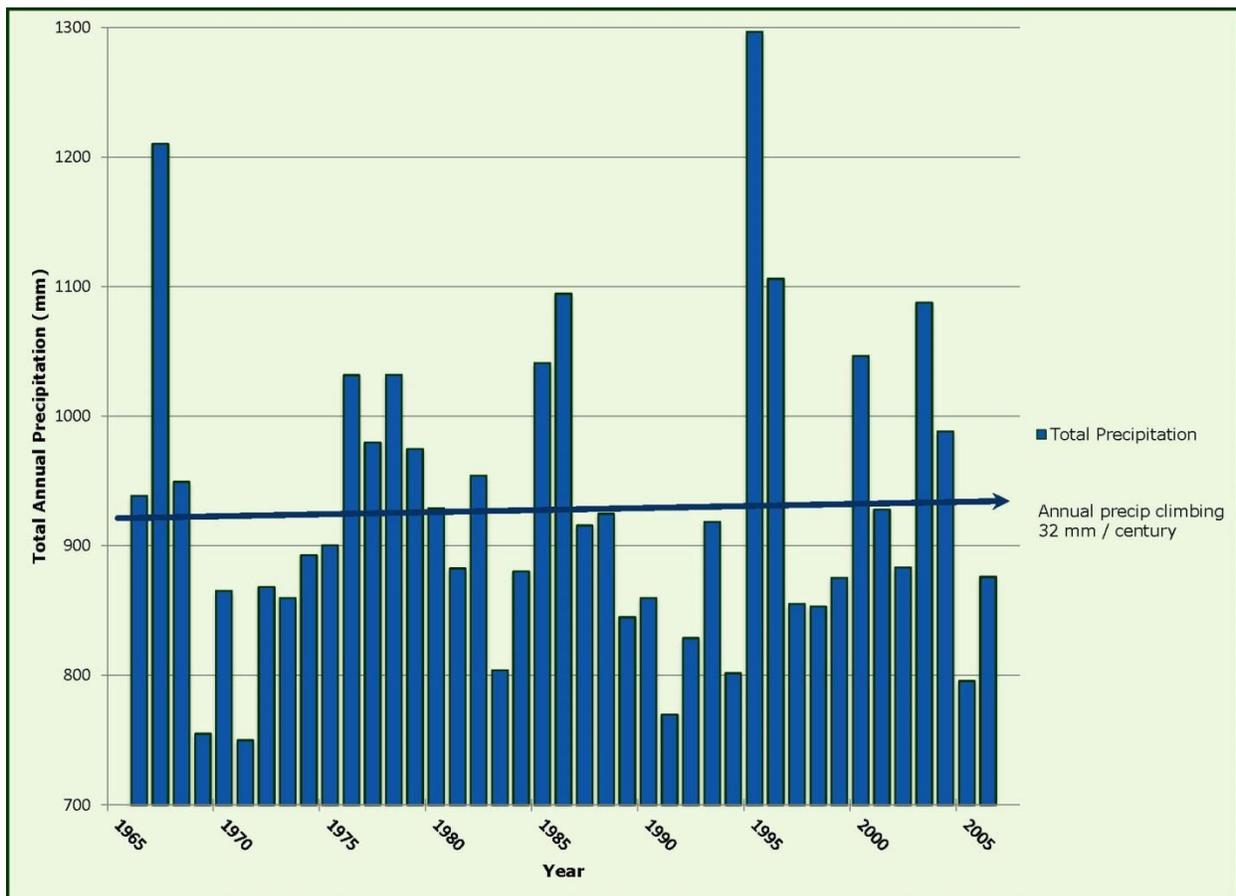
While global temperatures climbed 0.72°C degrees over the 60 year span of 1951 to 2012, temperatures climbed more than two and a half times that much in two-thirds the amount of time in the Nottawasaga Valley. In just 40 years (1965 – 2006) average yearly temperatures climbed 1.93°C.

If current trends continue:

- Average monthly temperatures in 2065 will be 4.71°C warmer than in 1965
- Extreme maximum monthly temperatures will rise 2.53°C to an average of 33.05°C
- Extreme minimum monthly temperatures will rise 14.21°C to an average of -18.04°C

Precipitation Observations

The graph below conveys the precipitation trends that were observed over the same 40 year period of 1965 to 2006.



The Nottawasaga Valley experienced a 13 mm per year (1.4%) increase in rainfall over the study period. This observation is in accordance with the trend of small positive changes in the amount of annual precipitation received in the Northern Hemisphere.

If the current trend continues, total annual precipitation will climb from 921.3 mm per year to 952.7 mm per year (a 3.4% increase).

NVCA’s Internal Climate Change Team

The NVCA will have several teams who will each play critical roles in the development of the Climate Change Strategy and Action Plan.

NVCA Internal Team	Roles and Responsibilities
<p>NVCA Board Members</p>	<ul style="list-style-type: none"> • Our governing body – the Board of Directors – will oversee all aspects of the Climate Change Strategy and Action Plan development and approval, including all policies, programs, and budget related to the Strategy and Action Plan. • The Board will approve all Staff Reports associated with the 5 Milestones of the Climate Change Strategy. • The Board will approve the Climate Change Action Plan. • The Board members may participate in stakeholder meetings. • The Board members will promote the Climate Change initiative with their respective municipalities.
<p>Lead NVCA Team</p> <ul style="list-style-type: none"> • Gayle Wood, CAO – Team Lead • Glenn Switzer, Director, Engineering and Technical Services • Fred Dobbs, Manager, Stewardship Services • Lyle Wood, GIS Analyst • Kris Robinson, GIS Technician (Co-op) • Heather Kepran, Communications Coordinator • Laurie Barron, Coordinator, CAO and Corporate Services 	<ul style="list-style-type: none"> • Our lead team will develop the Terms of Reference (staff report) for approval of the Board of the Climate Change initiative. • Our lead team will complete staff reports for all Five Milestones of the initiative. • The lead team will conduct relevant research with the assistance of the Universities of Waterloo, Western and McMaster. • The lead team will ensure implementation of the Five Millstones of the initiative. • The lead team will coordinate stakeholder workshops and produce reports. • The lead team will coordinate all publications, stakeholder input, external communications and communications planning.

NVCA Internal Team	Roles and Responsibilities
Supporting NVCA Team <ul style="list-style-type: none"> • Senior Management Team • Management Team 	<ul style="list-style-type: none"> • The Senior Management and Management Teams will be involved in reviewing Stakeholder input, and responding to the proposed NVCA Action Plan in terms of their program initiation.
NVCA Staff	<ul style="list-style-type: none"> • The full team will be involved in responding to an initial baseline questionnaire. • The full team will be involved in the review of the final draft Climate Change Strategy and Action Plan.

Stakeholder Advisory Group

Sector	Proposed Representatives
Municipalities (3) 3 municipalities - stakeholder workshops all watershed municipalities consulted on action plan	<ul style="list-style-type: none"> • City of Barrie – Katie Thompson • Township of Mono – Councillor Fred Nix • Town of New Tecumseth – Rick Vatri
Academic Institutions (3)	<ul style="list-style-type: none"> • Georgian Collage – Nicole Barbato and students • Lakehead University – Orillia – Dr. Sreekumari Kurissery • Ryerson University – Claire Oswald
Agricultural Sector (2)	<ul style="list-style-type: none"> • NVCA Agricultural Advisory Committee: • Colin Elliott • Hugh Simpson • Jim Partridge (alternate)
Building Industry (2)	<ul style="list-style-type: none"> • BILD Simcoe Chapter Chair – Cheryl Shindruk • Brookfield Developments – Pete Shut
NGOs (2)	<ul style="list-style-type: none"> • Aware Simcoe – Sandy Agnew • Blue Mountain Watershed Trust Chair – Norm Wingrove
Province (2)	<ul style="list-style-type: none"> • MOECC – Cindy Hood, District Manager • MNRF – Mark Shoreman, District Manager
Federal Government (1)	<ul style="list-style-type: none"> • Environment and Climate Change Canada – Greg Mayne
School Boards (2)	<ul style="list-style-type: none"> • Simcoe Muskoka Catholic District School Board – Brian Beal, Director of Education • Simcoe County District School Board – Kathi Wallace, Director of Education
Business (2)	<ul style="list-style-type: none"> • Free Spirit Tours – Jennie Elmslie • Horseshoe Valley Ski Resort – Rebecca Wesson
Health Unit (1)	<ul style="list-style-type: none"> • Simcoe Muskoka District Health Unit – Marina Whelan
Conservation Authority (1)	<ul style="list-style-type: none"> • Lake Simcoe Region CA – Mike Walters

NVCA's Adaptation Champion

Climate Change Champions	Profile and Role
Dave Phillips	<ul style="list-style-type: none"> • Senior Climatologist, Environment and Climate Change Canada • Publications: "The Climate of Canada", "The Day Niagara Falls Ran Dry" and "Blame it on the Weather" • Originator and author of the "Canadian Weather Trivia Calendar" • Numerous award winner and recipient of three honorary doctorates. Named to the Order of Canada in 2001 • will be the guest speaker at the NVCA's Annual General Meeting on January 27, 2017 and provide media quotes
Dr. Bradley Jon Dibble	<ul style="list-style-type: none"> • Cardiologist, Medical Degree University of Western, Ontario, 1990 • Lives in Midhurst; Practices in Barrie and Newmarket • Appointed to the federal Sustainable Development Advisory Committee in 2009 • Received training from Nobel Laureate and former US Vice President Al Gore • Written book, <i>Comprehending the Climate Crises – Everything you need to Know About Global Warming and How to Stop It</i> • Will provide quotes for media relations

Watershed Climate Change Charter

"Scientific evidence shows climate change is happening now. This consensus that greenhouse gas emissions are seriously affecting Earth's climate and that climate change is having increasing negative global impacts, effects the NVCA watershed's environment and economy.

The NVCA agrees that we need to take responsibility at the local, watershed level and act to address both climate change adaptation and mitigation. We need to prepare for climate change impacts in ways that promote environmental integrity, economic prosperity, and health benefits for all.

It is important for individuals and organizations to share ideas and best practices and coordinate efforts to accomplish these goals as effectively as possible. NVCA agrees that we need to be part of this coordination and conversation".

Councillor Doug Lougheed, Chair NVCA

Approved August 26, 2016

Conclusion

With the adoption of the ***Climate Change Strategy and Action Plan – Milestone 1 – Initiating the Strategy Report***, NVCA can commence Milestone 2 work. The second milestone involves local research, impacts, vulnerability and risk assessments regarding climate change and the NVCA watershed.