



MEMORANDUM

To: Mayor Bonnette and Members of Council
From: Planning and Infrastructure
Mem No. MEM-PI-2017-0018
Subject: Climate Change Adaptation Plan – Project Update 1
Date: April 3, 2017

PURPOSE OF THE MEMORANDUM:

The purpose of this memorandum is to provide Council with an update on progress made to date on the Town's Climate Change Adaptation Plan project, as of April 3 2017. It is also to provide a status update on a new potential funding source that has been made available by the Federation of Canadian Municipalities (FCM) to support municipal climate change adaptation planning, and to seek Council's direction regarding two draft letters that Town staff have prepared for the Provincial Minister of Environment and Climate Change as well as the Federal Minister of Environment and Climate Change.

BACKGROUND:

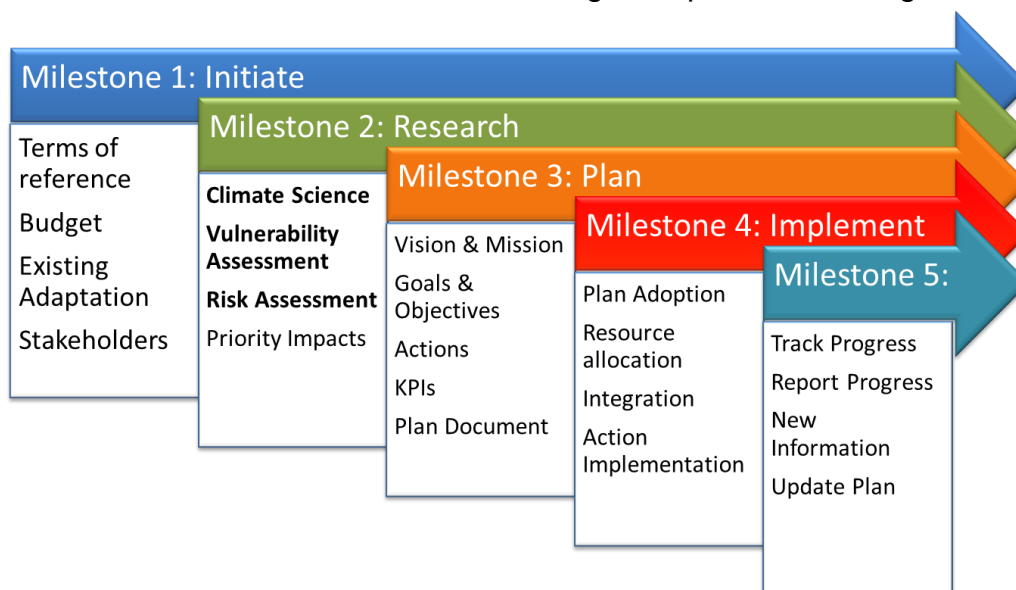
Through Council's 2014-2018 Strategic Action Plan, Council identified the development of a Climate Change Adaptation Plan as a priority project for Council's current term.

In April of 2016, the Honourable Glenn Murray, Provincial Minister of the Environment and Climate Change, delivered a presentation to Town Council expressing a desire to partner with select leading Ontario municipalities to explore innovative actions to support the Province's mandate on climate change. In November 2016, Mayor Bonnette sent a letter to Minister Murray outlining 15 potential joint projects.

Through report No. P&I-2017-0002, dated January 13, 2017, Council approved the Terms of Reference for the development of a Climate Change Adaptation Plan for the Town of Halton Hills. The Terms of Reference outline five project milestones that are consistent with ICLEI Canada's Building Adaptive & Resilient Communities' (BARC)

climate change adaptation planning framework. The BARC Milestone Framework is illustrated in Figure 1 below.

Figure 1: BARC Five Milestone Climate Change Adaptation Planning Framework.



In 2016, Town staff were accepted as a participant in ICLEI Canada’s Great Lakes Climate Change Adaptation Project (GLCCAP). ICLEI Canada established the GLCCAP to help participating municipalities initiate several steps required under the second BARC Milestone. These steps are bolded under Milestone 2 in Figure 1, above.

In March 2017, the Federation of Canadian Municipalities (FCM) announced the establishment of the Municipalities for Climate Innovation Program (MCIP) to support municipal climate change mitigation and adaptation efforts. On March 15th 2017, FCM launched the Plans and Studies Grant under the new MCIP, which provides municipalities with grants of up to \$175,000.00 to develop plans and studies to adapt to the impacts of climate change.

COMMENTS:

1. Project Update:

As a participant in ICLEI Canada’s GLCCAP, Town staff were provided with a number of resources to initiate several steps required under BARC Milestone 2. This included a climate science report tailor-made for Halton Hills as well as training and material to undertake a Vulnerability Assessment and a Risk Assessment.

In exchange, Town staff were required to:

1. Host a vulnerability Assessment workshop;
2. Host a Risk Assessment workshop; and
3. Produce an end-of-project report for ICLEI Canada.

Vulnerability Assessment Workshops

Town Staff held 2 Vulnerability Assessment workshops: one for staff on February 16th 2017 and one for community stakeholders on February 22nd 2017. Participants at both workshops were asked to complete 2 activities:

The first activity involved reviewing 25 staff-developed climate impact statements, and recommend additional statements if necessary. A climate impact statement describes both an effect of climate change (i.e. increasing freeze-thaw cycles) and a consequence of that effect (i.e. increasing stresses on roads). Participants developed 9 additional climate impact statements during this exercise.

The second activity involved generating a vulnerability rating for each of the 34 climate impact statements by assessing the Town's sensitivity and adaptive capacity to the given climate impact statement.

Risk Assessment Workshops

Town staff held 2 Risk Assessment workshops: one for staff on March 2nd 2017 and one for community stakeholders on March 8th 2017. Participants at both workshops were asked to complete 1 activity.

The activity involved generating a risk score for each of the 34 climate impact statements by assessing the likelihood of occurrence as well as the social, environmental and economic consequences of the given climate impact statement.

End-of-Project Report for ICLEI Canada

Town staff produced and submitted an end-of-project report for ICLEI Canada on March 29th 2017. The report outlined town staff's experience participating in the GLCCAP, the methodology used at the workshops, lessons learned, and ideas for improvement. The submission of the report marked the fulfillment of the all Town's obligations as a participant in ICLEI Canada's GLCCAP.

Great Lakes Climate Change Adaptation Project Workshop Results

During the workshops, participants developed a total of 34 climate impact statements and then generated a vulnerability rating and a risk score for each climate impact statement.

Town staff then prioritized the climate impact statements by multiplying the vulnerability rating and the risk score for each impact statement, and ordering the impact statements from highest to lowest.

NOTE: The results of the workshops do not form the final prioritization of climate impacts for Halton Hills nor do they form the final deliverables of Milestone 2. The

workshop results will be supplemented by additional research and information. As outlined in the Terms of Reference, a refined climate science report and a technical assessment of the Town's buildings and infrastructure need to be completed. However, the launch of the FCM MCIP Plans and Studies Grant now opens up possibilities that were not available when the Terms of Reference were written.

2. FCM's Municipalities for Climate Innovation Program - Plans and Studies Grant:

FCM recently launched the new Plans and Studies grant program in March 2017. The grant provides up to \$175,000.00 per project, is currently accepting applications, does not have a specific application submission window and promises a 60 day turnaround time for application decisions.

The project Terms of Reference were written prior to the launch of this grant program and the project was scoped based on funding available at the time. As originally envisioned, the Town's Climate Change Adaptation Plan would be developed using the BARC framework - a well-established and respected process that has been used by several Canadian municipalities in the past.

However, the new grant has opened up the potential to increase the level of funding available to complete the Plan. Town staff are keen to apply to this grant as the additional funding would enable the Town to go well beyond the minimum standards set by BARC; break new ground in municipal climate change adaptation planning and create a genuinely innovative and first-in-Ontario scenario-based Climate Change Adaptation Plan.

The research Milestone (Milestone 2) of the BARC framework requires that municipalities assess the risks, vulnerabilities and opportunities arising from climate change now and into the future. As a participant in ICLEI's GLCCAP, Town staff have hosted the workshops mentioned above to begin compiling this information. While useful, the information produced during these workshops is qualitative in nature as it is essentially a reflection of the opinions of the various participants on climate change.

Town staff's desire is to supplement this information with an empirically-based geospatial analysis of the projected impacts of climate change on the Town's environmental, social, cultural, and economic systems and a geospatial natural capital assessment. This additional information would then be used to develop an innovative and nimble scenario-based plan that can better account for the uncertainty of future GHG emissions and climate impacts.

Using three GHG emission scenarios (high, medium, low) developed for the Intergovernmental Panel on Climate Change's Assessment Report 5 published in 2014, the Town would map out the projected effects of changing annual average temperatures, increasing extreme temperature events, changing precipitation, and increasing extreme weather events (i.e. ice, snow, drought, wind etc.) on the Town's

various community systems in its urban and rural areas. In addition, Halton Hills would undertake a Town-wide natural capital assessment exercise to identify and map out natural areas and features that provide crucial ecosystem services (i.e. flood mitigation, carbon sequestration, heat refuge etc.), and which if conserved/enhanced/restored, would enhance the Town's ability to leverage the environment to remain resilient to climate change. These additional steps would increase the granularity of the data available; enable the Town to identify sub-municipal areas that are particularly vulnerable or resilient to climate change and to develop appropriate policies/programs.

The above mentioned steps will enhance the empirical strength of the Research Milestone, reduce the level of uncertainty (real or perceived) and provide our decision makers with a robust platform from which to select appropriate actions.

If the Town is able to complete the above-mentioned steps during Milestone 2, the Town will have the information needed to develop a highly innovative and flexible scenario-based Climate Change Adaptation Plan. When compared to a conventional prescriptive plan, a scenario-based plan is better equipped to manage future-based uncertainty as flexibility is built in. In the context of climate change, a scenario-based plan is especially appropriate because of the inherent uncertainty of future greenhouse gas emissions and climate change impacts.

A scenario-based Climate Change Adaptation Plan would include a number of potential actions for various climate change challenges as well as triggers which would enable the selection of specific actions under a given set of circumstances, or if one or more conditions are met. A scenario-based Climate Change Adaptation Plan can also contain universal actions that would be implemented no matter which scenario arises, and is therefore also able to include the effective aspects of a conventional plan as well. Town staff believe that scenario-based planning is the future of climate change adaptation planning, and are prepared to take a leading role in exploring and developing this new approach.

In order to complete these important, but additional steps, the Town will need to obtain additional funding, as the resources currently dedicated to the project will not be sufficient. A successful application under FCM's MCIP Plans and Studies Grant would fulfill this resource gap. However, due to the uncertainty of obtaining additional funding from FCM, staff are also exploring additional funding streams.

3. Letters to the Provincial and Federal Ministers of Environment and Climate Change

Draft Letter to Honourable Glenn Murray, Minister of Environment and Climate Change (MOECC), Government of Ontario

As a follow-up to Minister Murray's April 2016 speech to Town Council, staff prepared a letter in November 2016 outlining 15 potential joint project ideas that support the Province's direction on climate change and the Town's sustainability leadership. Although Town staff have been in regular contact with MOECC staff, an official response to the November 2016 letter has not yet been received by the Town. As a result, Town staff have prepared a draft follow-up letter for Minister Murray that recommends that MOECC and the Town establish a partnership on two specific projects: the Town's Green Development Standards update (scheduled for 2018) and the Town's Climate Change Adaptation Plan. The draft letter is attached to this memo as Appendix 1. With regards to the Climate Change Adaptation Plan, the letter concludes by requesting financial and technical assistance from the MOECC to complete the additional steps described above.

Draft Letter to Honourable Catherine McKenna, Minister of Environment and Climate Change, Government of Canada

Town staff have prepared a draft letter (attached to this memo as Appendix 2) to Minister McKenna proposing a collaboration on three issues related to climate change. The draft letter is a follow-up to two others sent by the Town in late 2016 and early 2017. Although Town staff have been in contact with federal staff, an official response letter has not yet been received by the Town. In the latest draft letter, the Town is proposing to collaborate with the Federal Ministry of Environment and Climate Change on the development of the Town's Climate Change Adaptation Plan.

CONCLUSION:

By hosting the vulnerability and risk assessment workshops and completing the participant report, Town staff have both initiated the Climate Change Adaptation Planning Project and fulfilled the requirements of ICLEI's Great Lakes Climate Change Adaptation Project. During the workshops 34 climate impact statements were developed and prioritized. The workshop results are not final, and need to be supplemented with additional information.

As a result of FCM's new funding opportunity, staff are preparing a grant application to seek additional funding to expand the scope of the project to increase the empirical strength of the data that will be used to identify appropriate climate change adaptation actions.

In addition, Town staff have prepared two draft letters for the Provincial and Federal Ministers of Environment and Climate Change requesting support and additional resources to further supplement and/or substitute the FCM funding application. As a result of these funding requests and the uncertainty of obtaining any additional funding, Town staff will report back to Council with the outcomes of the funding requests and the associated implications for the scope of the project.

Lastly, staff are requesting that Council provide direction to staff to forward the draft letters for the Provincial and Federal Ministers of the Environment and Climate Change to the Mayor's Office for signature.

Respectfully submitted,

Gabriel Clarke MES, BA
Acting Manager of Sustainability

Reviewed and Approved by,

John Linhardt, MCIP, RPP
Executive Director of Planning Services
and Chief Planning Official

Brent Marshall
Chief Administrative Officer

Appendix 1 to Memo No. MEM-PI-2017-0018:
March 27, 2017

The Honourable Glen Murray
Minister of the Environment and Climate Change, MPP
Ministry of the Environment and Climate Change
11th Floor, Ferguson Block
77 Wellesley Street West
Toronto, Ontario M7A 2T5

Implementation of the Proposed Halton Hills – MOECC Climate Change Partnership Framework

Dear Minister Glen Murray:

During your April 2016 visit to the Town of Halton Hills, you called for a “Coalition of the Willing” or municipalities to “step up” to take meaningful and timely action on the most pressing challenge facing our society – climate change. In your remarks to Council, you stated that: “If you [Halton Hills] take [this challenge on], I will be here a lot...”

We gladly accepted your challenge. Building on our long-standing sustainability leadership, in a letter to you dated November 21, 2016, I responded with a comprehensive Framework for our partnership. We referred to it as the proposed “Halton Hills – Provincial Strategic Climate Change Partnership Framework”. It delivered on the priorities of the Climate Change Action Plan.

Despite the urgent call to action, I have not yet received a response to our proposal for being part of the “Coalition of the Willing”. I am aware of ongoing conversations between Town staff and staff in your office, as well as consideration of the results of the Cap-and-Trade auction(s).

However, as I am sure you will agree, there is urgency to act now. Halton Hills stands ready to mobilize real progress in addressing climate change. This progress can be duplicated across Ontario and result in transformative action. Halton Hills can be a model low-carbon community that can be replicated across Ontario and beyond – leading to the streamlined implementation of Ontario’s Climate Change Action Plan.

Building on the proposed Partnership Framework, I respectfully request that we engage in more detailed discussions at the earliest possible time in regards to the following two priorities:

1. Green (Sustainable) Development Standards

Goal: To ensure an expedited and transformative shift towards innovative, sustainable and climate-ready development through the completion of the next generation of “Sustainable Development Standards” that can be readily replicated across Ontario.

Halton Hills has in place an award-winning and highly flexible set of Green Development Standards. These Standards exceed the minimum *Building Code* requirements by focusing on energy and water conservation, community design, environmental protection, transportation, communication and innovation. The Standards are resulting in more sustainable, high-performance and efficient development. Compliance with the Standards has been highly successful, with the majority of development applicants (residential and non-residential) exceeding the Standards' requirements.

The Town will soon be initiating an update of its Green (Sustainable) Development Standards. This will be a holistic opportunity to integrate numerous MOECC priorities related to climate change, including climate change readiness, net zero development, and updates to various pieces of legislation including the *Planning Act*, *Provincial Policy Statement*, *Building Code* and *Municipal Act*.

Via a partnership with the Province, Halton Hills can demonstrate the economic feasibility of the next generation of sustainable development and/or Net Zero construction; scalability of the technology; assess market demand; put forth strategies for marketing, promotion and education of potential customers; address supply-chain challenges; engage the building industry (including trades); assess the feasibility of offering both monetary and non-monetary incentives; studying long-term maintenance costs; verifying long-term utility savings; developing supporting municipal land use policies and addressing any regulatory challenges; developing standard technical specifications; identifying potential labeling programs; exploring mortgage financing tools; and capacity building for industry trades and municipal staff.

Preparing the Sustainable Development Standards will include putting in place Key Performance Indicators to track implementation. The creation of a “Net Zero and Sustainable Development Zone” with a flexible regulatory environment and/or incentives in order to encourage large scale commercially-viable Net Zero development in the Greater Toronto Area context will be explored.

The development of an energy strategy that recommends alternate energy systems to significantly reduce greenhouse gas emissions; raise resiliency; fast-track the shift to a low-carbon economy; identify innovative opportunities for integrating renewable energy into the grid; reduce energy costs; and expand green economy employment will be included.

A focus on retrofitting existing communities will also be included. This will facilitate a shift in energy efficiency, lower energy costs, position Halton Hills to be ready for the low-carbon economy, assess the feasibility of retrofitting existing buildings with Net Zero

and/or 'Net Zero Ready' technology, and offer targeted programs/incentives for emission reductions and energy conservation.

Implementation will entail forming partnerships with key stakeholders to ensure a collaborative and integrated approach, including (for example) provincial and federal ministries/agencies, BILD, EnerQuality, Canadian Home Builders' Association, CMHC, MaRS Discovery District, Canada Green Building Council, academia, local land owners, utilities, financial institutions, insurance providers, trades, supply chain manufacturers, marketing and communications experts, plus any appropriate industry working groups and pilot projects. We will also incorporate aspects of an ongoing Secondary Plan process for a new 1000 acre community in Halton Hills.

2. Climate Change Adaptation Plan

Goal: To develop a highly-innovative and transferable Climate Change Adaptation Plan to raise community responsiveness and resiliency to the impacts of climate change.

Halton Hills has recently started to develop a Climate Change Adaptation Plan. The Plan's development is one of Council's strategic priorities. Aside from being aligned with ICLEI Canada's "Building Adaptive and Resilient Communities (BARC)" five Milestone framework, the Plan will include a number of innovative elements that go far beyond the BARC framework. These elements will assist partner municipalities, Conservation Authorities and the Province in achieving their climate change objectives.

As a participant in ICLEI Canada's "Great Lakes Climate Change Adaptation Project", the Town has hosted a number of workshops with community stakeholders to compile climate change vulnerability and risk information. Halton Hills will supplement this information with an empirically-based geospatial analysis of the projected impacts of climate change on the Town's environmental, social, cultural, and economic systems. This information will be used to develop an innovative and nimble scenario-based Plan that can better account for the uncertainty of future greenhouse gas emissions and climate impacts.

Using the three greenhouse gas emission scenarios developed for the Intergovernmental Panel on Climate Change's Assessment Report 5, the Town will map out the projected effects of changing annual average temperatures, increasing extreme temperature events, changing precipitation, and increasing extreme weather events on the Town's various community systems in its urban and rural areas. In addition, Halton Hills will undertake a town-wide natural capital assessment to identify natural areas and features that provide crucial ecosystem services (i.e. flood mitigation, carbon sequestration, etc.), and which if conserved/enhanced/restored, would enhance the Town's ability to leverage its natural capital assets to remain resilient to climate change.

The above mentioned steps will enhance the empirical strength of the research, reduce the level of uncertainty, and provide our decision makers with a robust platform from which to select appropriate actions.

In order to undertake the geospatial analysis, however, a partnership with the MOECC is critical. Technical and financial assistance will enable the Town to develop a truly innovative and leading-edge Climate Change Adaptation Plan, create a national template for municipal Climate Change Adaptation Planning that enhances the BARC framework, and enable the Province to demonstrate continued leadership on the crucial issue of climate change adaptation.

To conclude, the timing for a strategic partnership between the MOECC and the Town of Halton Hills is opportune. Our proposal addresses the urgency posed by climate change – both in terms of mitigation and adaptation.

At Halton Hills, we share your passion for action on climate change. We understand the need for urgent and transformative action. We are part of the “Coalition of the Willing”.

I look forward to your response at your earliest convenience so that we can make this partnership a reality.

Sincerely,

Mayor Rick Bonnette
Town of Halton Hills

cc.:
Brent Marshall, Town of Halton Hills, CAO

Appendix 1 to Memo No. MEM-PI-2017-0018:

March 30, 2017

The Honourable Catherine McKenna
Minister of Environment and Climate Change
Environment and Climate Change Canada
House of Commons
Ottawa, Ontario
K1A 0A6

**Partnership Implementation Between the
Town of Halton Hills and the Ministry of Environment and Climate Change**

Dear Minister Catherine McKenna:

In my letters to you dated December 21, 2016 and January 30, 2017, I highlighted the Town of Halton Hills' long-standing commitment to being a leader in thinking globally while acting locally. This entails leadership and innovation in the field of sustainability which matches the Federal government's priorities, especially those related to climate change, low-carbon economy, renewable energy, trade, business growth, job creation, innovation and tourism.

In my letters I sought an opportunity to meet with you and your senior advisors to discuss in more detail ways in which your Ministry and the Town can collaborate to achieve our mutual objectives.

Collaboration between the Ministry of Environment and Climate Change and Halton Hills will assist you in delivering on the mandate of ensuring a sustainable economy, reducing greenhouse gas emissions, creating a low-carbon economy and protecting communities from the challenges of climate change.

Our partnership would also be closely aligned with the priorities of the 2017 Budget, in particular its focus on a low-carbon economy, deployment of low-carbon vehicle infrastructure, clean technology, green infrastructure, building retrofits, net-zero construction, energy efficiency, and disaster mitigation and adaptation.

In Halton Hills, we understand the challenges posed by climate change. We understand the need for urgent and transformative action now. To address these challenges, we have and continue to implement innovative actions to address climate change mitigation and adaptation. To ensure that we are as impactful as possible, however, close collaboration with our Federal partners, in particular the Ministry of Environment and Climate Change, is critical.

Despite that, I have not yet received a response to our proposal for exploring collaboration opportunities. Nonetheless, I do recognize that there are ongoing conversations between Town staff and policy advisors in your office. One of the points of discussion has been the need for your staff to gain more in-depth familiarity with the Town's many innovative actions. This additional detail has now been provided to your staff.

Given the urgency of climate change, however, I respectfully request that we fast-track these discussions and plan a meeting at the earliest possible date. Senior Town staff and myself are ready to travel to Ottawa to meet you at your convenience. In addition, if it would be helpful, we would be pleased to arrange a pre-meeting between our staff and your policy advisor(s) to lay the groundwork for our subsequent meeting.

To start more detailed discussions, I respectfully suggest that we focus on the following three priorities which would be highly-effective demonstration or pilot projects:

1. Climate Change Adaptation and Emergency Preparedness

Goal: To develop a highly-innovative and transferable Climate Change Adaptation Plan to raise community responsiveness, enhance resiliency to the impacts of climate change and improve emergency preparedness.

Halton Hills has recently initiated the development of a Climate Change Adaptation Plan. Among other things, this Plan is intended to include an innovative and empirically-based geospatial analysis of the projected impacts of climate change on the Town's environmental, social, cultural, and economic systems. Results of this analysis will be used to develop an innovative and nimble scenario-based Plan that can better account for the uncertainty of future greenhouse gas emissions and climate impacts.

Via a partnership with the Ministry, Halton Hills can be used as a model to develop a 'climate change adaptation template' that can be easily replicated across Canada, thereby, fast-tracking the Ministry's mandate. Community responsiveness to climate change, including emergency preparedness and management of critical infrastructure, will be enhanced.

2. Export of Climate Change Innovation

Goal: To leverage Halton Hills' Sister-City partnership with Wenjiang (Chengdu, China) to elevate Canada's profile in climate change action on the global stage, and grow the 'export' of related knowledge, services and technologies.

As noted in my previous letters, Halton Hills is implementing a comprehensive Action Plan with our Sister-City of Wenjinag (Chengdu, China). Located in southwest China, in Sichuan province, Wenjinag has a population of about 700,000. It is a thriving, diversified and modern city - leading in sustainable development, innovation, high-tech manufacturing, education, agriculture and tourism.

As you know, China is in the midst of transitioning into an “ecological civilization” by focusing on sustainable, green, renewable, low-carbon and quality economic growth. Similarly, Canada is investing in protecting communities from the challenges of climate change and supporting them in the transition toward more sustainable economic growth. Therefore, the timing for our partnership is very opportune.

A key part of our cooperation with Wenjinag is a focus on cooperation and knowledge exchanges in the areas of climate change, low-carbon economy, renewable energy, sustainable development and environmental protection.

In partnership with the Ministry, we can leverage the Town’s partnership with Wenjinag to elevate Canada’s profile in climate change action on the global scale, and, expand the ‘export’ of related knowledge, services and technologies.

3. Green (Sustainable) Development Standards

Goal: To ensure an expedited and transformative shift towards innovative, sustainable and climate-ready development through the completion of the next generation of “Sustainable Development Standards” that can be readily replicated across Canada.

Halton Hills has in place an award-winning and highly flexible set of Green Development Standards. These Standards exceed the minimum *Building Code* requirements and are resulting in more sustainable, high-performance and efficient development.

The Town will soon be initiating an update of its Green (Sustainable) Development Standards. By collaborating with the Town, the Ministry can support expediting the uptake of the next generation of innovative sustainable development technologies across Canada.

These Standards will provide an opportunity to take a holistic approach to transformative community design, including considerations of building design, net-zero construction, energy strategies, alternate energy systems, low-carbon vehicle infrastructure, clean technology, green infrastructure, building retrofits, energy efficiency, low-carbon economy employment, and disaster mitigation and adaptation.

In closing, Halton Hills stands ready to mobilize innovative and transformative progress on climate change. By leveraging the Town's expertise and innovation, the Ministry can fast-track achieving its climate change objectives in an efficient and effective manner.

I look forward to your response at your earliest convenience so that we can start making our partnership a reality.

Sincerely,

Mayor Rick Bonnette
Town of Halton Hills

cc.:
Adam Baylin-Stern, Office of the Minister of Environment and Climate Change
Brent Marshall, CAO, Town of Halton Hills