



# Community Climate Change Action Plan

Partners for Climate Protection: Milestones 2 and 3

January 2013

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# Executive Summary

Niagara Region's climate change work program looks at both mitigation and adaptation, within the Niagara Region corporation and in the community. This report focuses on Niagara's Community Climate Change Action Planning.

For purposes of Niagara's approach to climate change, the following definitions of mitigation and adaptation are used:

**Mitigation:** reducing Greenhouse Gas Emissions

**Adaptation:** reducing the risks and maximizing the benefits from anticipated climate change and where possible, taking advantage of opportunities

In January of 2009, Regional Council endorsed Niagara's participation in the Federation of Canadian Municipalities' Partners for Climate Protection (PCP) Program. This program outlines five milestones for municipalities to work through to take action on climate change, both corporately and the community.

In September 2010 Regional Council endorsed the 2006 Community GHG Emissions Inventory, satisfying the requirements of Milestone One. A Community engagement strategy was developed soon after to develop a Emission Reduction Target and Action Plan to meet milestones two and three of the PCP Program. An initial workshop was held in December of 2010, at which point an opportunity for collaboration with a research project underway at Brock University was identified. This research project led to stakeholders being identified and further community collaboration activities, which the Region continued to participate in and work towards the Emission Reductions Target and Action Plan collaboratively. A workshop was held in June 2012 to develop the vision and high level goals of the Action Plan, and subsequent workshops were held over the fall of 2012 to add more detailed actions and verify the vision and goals. A online survey also provided additional feedback to the process. The combined results of this process are found within this Action Plan.

Milestones 2 and 3 will be met by the completion of this community action plan as well as the corporate action plan, completed alongside this report.

# Partners for Climate Protection

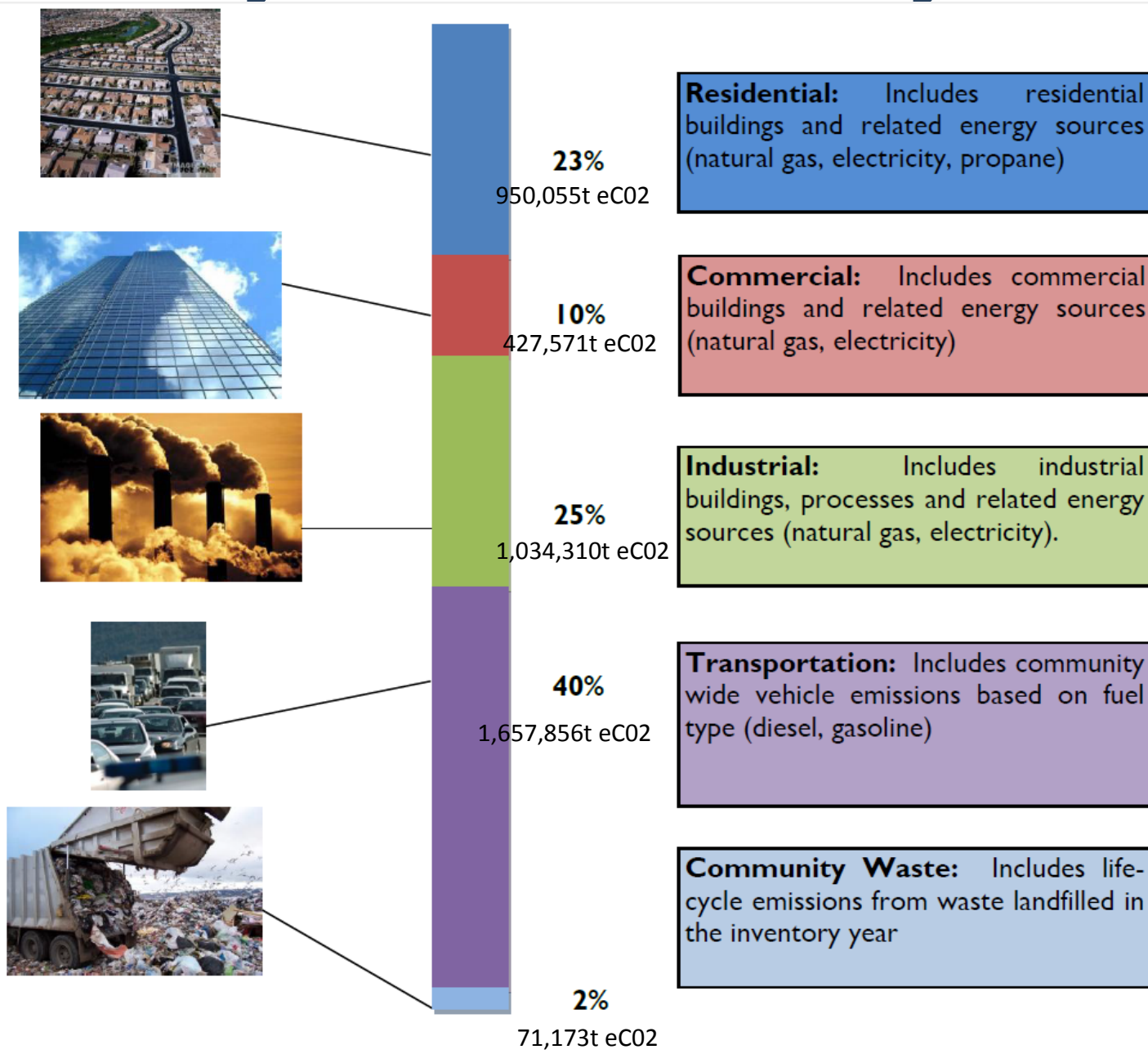
The Partners for Climate Protection (PCP) Program is a network of municipal governments that have committed to reducing greenhouse gas (GHG) emissions and acting on climate change. PCP is administered by the Federation of Canadian Municipalities (FCM) in partnership with the International Council for Local Environmental Initiatives (ICLEI). It consists of a five milestone framework to guide municipalities to reduce greenhouse gas emissions by:

1. Creating a greenhouse gas emissions inventory and forecast;
2. Setting an emissions reductions plan;
3. Developing a local action plan;
4. Implementing the local action plan or a set of activities; and
5. Monitoring progress and reporting results.

Since the program's inception in 1998, 223 municipalities have joined PCP, making a public commitment to reduce emissions. These members cover all provinces and territories, and account for more than 80% of the Canadian population. Locally, both the City of St. Catharines and the City of Welland are members of the PCP Program.

This Community Action Plan has been compiled to fulfill the requirements of the corporate component of Milestone Two and Three of the Partners for Climate Protection Program.

# Summary of 2006 Community GHG Emissions



**Emissions Forecast**

*From the 2006 Corporate GHG Inventory: "if Niagara community continues with the 'business as usual' scenario defined above, by 2020 the Community could be generating 4,981,162 tonnes of eCO2. Compare that to the 2006 baseline of 4,140,966, which represents an overall increase of more than 840,196 tonnes of eCO2, or 20.3% in total emissions growth."*

\* For more information on the 2006 Community GHG Emissions Inventory, please see a link to the full document in the Appendix of this report. (pg. 31)

# Background Information

## The Niagara Region

- The Niagara region is located in southern Ontario, Canada, between Lake Ontario and Lake Erie. Niagara has a total area of 1,852 km<sup>2</sup> with a population of 431,346 (2011 Census).
- There was a 0.9 growth rate in population between 2006 and 2011.
- Niagara Region is a Regional municipality, which includes 12 local municipalities. These local municipalities are diverse in nature, ranging from primarily rural townships such as Wainfleet and West Lincoln to the urban centre of St. Catharines.
- There is a population density of 232.9 people per km<sup>2</sup>.
- Some unique features in Niagara are:
  - The Niagara Escarpment begins in Niagara-on-the-Lake and travels East-West through the Region.
  - Niagara's eastern border is an International Border, with New York State, USA on the other side of the Niagara River.
  - Niagara Falls is both a popular tourist attraction and large producer of hydro electricity.
  - Agriculture is a strong economic driver in Niagara, due to the quality of soil, and the micro-climate created by the Escarpment.
  - The Welland Canal runs between Lake Ontario and Lake Erie as a shipping route to by-pass Niagara Falls.
  - Manufacturing has traditionally been a large employment base for Niagara.
  - The region is also home to two post-secondary educational institutions: Niagara College and Brock University.



### Demographic Information about Niagara:

- Median age of residents is 44.1 , which is above the national average.
- There is on average 2.9 persons per household in Niagara,.
- 64% of those living in private dwellings live in single, detached homes, which is above the Ontario and national average.

Stats from: 2011 Census Data

### From 2006 until now..

The Niagara Region has undergone some changes since the 2006 Inventory data was collected that have an impact on our greenhouse gas emissions.

- The Niagara Region has had minimal population growth, and has continued to have a higher than average median age.
- The Niagara economy has begun to transition from a predominantly traditional manufacturing economy as a result of the economic downturn. Economic development continues to be a high priority in the Region.
- While the Region continues to be primarily a single vehicle dependent community, a Regional transit pilot project was begun in 2011 providing connections between the three municipal transit systems in Welland, Niagara Falls and St. Catharines. Niagara-on-the-Lake also launched a transit vehicle.

### Emission Indicators

	Number of units	Square Footage
<b>Residential Buildings</b>	174,685 (2011 census)	Unknown.
<b>Commercial Units</b>	Unknown.	Unknown.
<b>Industrial Units</b>	Unknown.	Unknown.



# Niagara's Approach to Action Planning

The Vision and Goal statements were developed based on ideas expressed at the June 2012 Climate Action Forum, ideas shared by Action Planning team participants and over 50 individuals who participated in the online survey to review the draft vision and goal statements. Niagara's vision is:

**“The Niagara community is working to mitigate, adapt and prepare for climate change by developing solutions to reduce greenhouse gas emissions and improve community quality of life and resiliency for future generations.”**

## VISION ELEMENTS FROM JUNE 2012 FORUM

Natural wonderland	Model
Environmental decision making	Action
Collaborative governance	Influential
Quality of life	Risk takers
Inclusive	Humility
Accountable	Adaptive
Mitigating	Responsive
Ecosystem health	Health system
Technology	

## The Planning Framework

The Corporate Climate Action Plan supports the implementation of the Sustainable Niagara plan within the Community. The actions listed within the plan support embedding the sustainability principles into the community culture, and contribute towards the Region reaching a number of its sustainability goals, such as Ecosystems and Natural Areas, Health and Security, and Built Environment. This also supports other community initiatives such as the Niagara Research and Planning Council's Living in Niagara report and the development of the Niagara Knowledge Exchange, and the efforts of the various environmental organizations in Niagara.

# Goal Statements

1. Build a collective consciousness of climate change, climate impacts in Niagara and the capacity to address them.
2. Organize local action through partnership, community engagement, and leadership.
3. Reduce community waste created by human activities through reduction, conservation, re-purposing, reuse, and recovery.
4. Improve human health and air quality through emission reductions and support of renewable energies.
5. Advance climate smart agricultural production practices that focus on adapting production to meet changing climates while maximizing food production and equitable access for residents.
6. Develop an efficient, healthy transportation network across all areas of Niagara that incorporates all modes of transportation and includes connections outside the region.
7. Preserve, restore, and expand natural systems while also improving the health of local watersheds.
8. Advance actions supporting the green economy, local economic development, and entrepreneurship to move towards greater regional economic prosperity.
9. Demonstrate leadership through sustainable approaches to the design, construction and retrofit of buildings and built form across Niagara.
10. Develop emergency management plans and resilient infrastructure to ensure community safety which includes during extreme weather events.

# GHG Emissions Reduction Target

The Niagara region's target is to reduce GHG Emissions by 6% below 2006 by 2016 and by 10-15% below 2006 by 2030.



## What is One Tonne of GHGs?

- In high season, there are 2,832 tonnes of water per second flowing over Niagara Falls.
- Approximately 10,000 iPhones weigh 1 tonne.
- The volume of one tonne of GHGs would fill a two-storey, three-bedroom house.



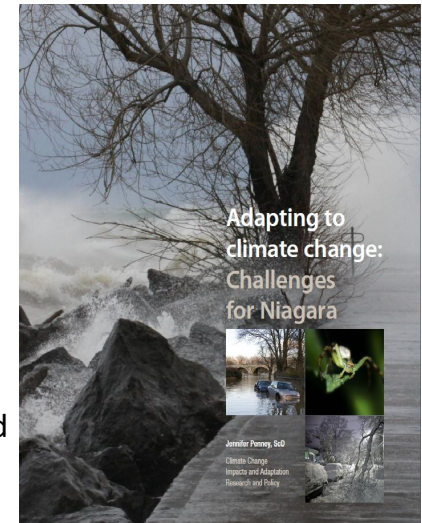
# Climate Change Adaptation

Through a partnership with Brock University and Niagara Region, and funded through the Region's WaterSmart Program, a paper was commissioned to better understand how climate change might impact Niagara. The paper, "[Adapting to Climate Change: Challenges for Niagara](#)", authored by Dr. Jennifer Penney, was released in June of 2012. It was developed with the expectation that it would be a valuable resource to the many organizations and individuals working together to address the challenges of climate change in Niagara.

The author notes that while there are likely to be some positive effects from climate change, such as the fertilization effect of increased carbon dioxide, opportunities for more "hot crop" production, better conditions for warm climate grapes, less stress for fruit trees and a longer tourist season, the negative impacts are likely to outweigh the positive effects.

Some of the examples of the negative impacts of climate change cited by Dr. Penney that are particular pertinent to the Niagara Region are:

- Damage to crops from increased heat and extreme weather
- Increased challenge and cost to the water treatment systems
- Increased stress on ground water supplies and shortages for rural residents
- Basement flooding from overwhelmed storm water and sewage systems
- An increase in vector borne diseases, heat-related illnesses, deaths and worsening of respiratory ailments
- Increased emergency management costs for emergency personnel, rising insurance premiums and increased health care costs
- Impact on most forms of transportation, buildings and subsequent impact on the economy



In developing the Community Action Plan, this report was used to inform the adaptation actions listed within the report. These actions are noted in the Action Plan tables contained within the Report.

# **PRIORITY NEW ACTIONS**

# Community-wide Green Roof Strategy

Action Title	Community-Wide Green Roof Strategy
Goal	The Action Plan will contribute to achieving reduced GHG emissions in the residential, commercial and institutional sector, which accounts for 88% of community emissions
Description	Encourage the use of green roofs in new building projects across all sectors by delivering a delegation presentation to Niagara municipalities that looks at both by-laws and incentives Explore opportunities to integrate green roofs into Community Improvement Plan criteria (Note: Green roofs provide 7 points toward LEED certification)
Indicators	<i>Quantitative:</i> GHG reduction of approximately 1,000 eCO <sub>2</sub> /8,333 m <sup>2</sup> of green roof <i>Qualitative:</i> Advertising for properties starts include the added benefits of green roofs to buyers and tenants
Targets	Reduction of 1,000 eCO <sub>2</sub> One project in each municipality
Lead and Partners	Niagara Climate Change Action Plan volunteers (Lead) Community Partners: Niagara Region, local municipalities, businesses, developers, institutions, Brock student volunteers
Cost	This is dependent on volunteer resources
Timing	Short-term goal – April 2013 Long-term goal – April 2014/2015
Implementation Steps	Prepare delegation presentation for Welland (first municipality) Deliver delegation presentation to Welland Upon its success/delivery, modify for next local municipality and repeat process until all local municipalities have been reached

# Engaging all of Niagara in Climate Change Action

Action Title	Engaging All of Niagara In Climate Change Action
Goal	<p>Raise awareness of the Niagara Knowledge Exchange (NKE)</p> <p>Provide service to those engaged in the issue of climate already</p> <p>Engage, empower, and inspire climate change action</p>
Description	<p>Build the Niagara Climate Change section of the NKE</p> <p>Create a connection on Living in Niagara website to climate change</p> <p>Identify a source of funding and apply for financial support to appoint a knowledge broker</p> <p>Build on the existing Sustainable Niagara inventory of individuals and organizations active in the area of climate change</p> <p>Create an outreach and education strategy including series of media</p> <p>Create an inventory of documents and resources relating to climate change that are accessible via the NKE</p>
Indicators	<p>Establishment of a connection on the Living in Niagara website</p> <p>Successful development of the inventory</p> <p>Access or use of the inventory (e.g. web hits)</p> <p>List and number of media releases</p> <p>Number of new people per year on mailing list</p>
Targets	<p>Knowledge broker hired by September 2013; Inventory created by March 2014; Trade booth at Ecofest March 2014; Facilitate Ecofest 2015</p>
Lead and Partners	<p>Engagement and Outreach Action Planning Team (Lead)</p> <p>Niagara Research and Planning Council (Organizational Support)</p> <p>Region and municipalities for letter of support; Climate Action Niagara, Niagara Federation of Agriculture (North and South), school boards, Walker Industries, Rankin, wineries, Brock University and Niagara College can provide in-kind support</p>
Cost	<p>The cost of writing the grant (in kind); The cost of a full-time position obtained through securing a grant.</p>
Timing	<p>Ongoing</p> <p>Six month process to submit a funding application (July 1, 2013)</p> <p>Foundational structure of the Climate Change Action portion of the Niagara Knowledge Exchange within 1-2 years if funding received</p>
Implementation Steps	<p>Prepare and submit application for funding.</p>

# ONGOING AND POTENTIAL NEW ACTIONS



# Local Food

CURRENT ACTIONS IN NIAGARA				
Project	Description	Status	Organization	Potential Emission Reductions
<a href="#">Agricultural Action Plan</a>	This action plan for agricultural viability prepared by the Region of Niagara Agricultural Task Force and endorsed by Niagara Regional Council, identifies steps that can be taken to ensure that agriculture in the Region will thrive into the 21st century.	Ongoing	Niagara Region	Unknown
<a href="#">Community Gardening</a>	Climate Action Niagara assists members of the community with the establishment and maintenance of neighbourhood community gardens in order to provide residents with access to local food and encourage regional food security. As part of the local food program, Climate Action Niagara volunteers also provide workshops on growing local food, food storage, and canning.	Ongoing	Climate Action Niagara	Nominal
<a href="#">Horticultural Production Systems</a>	Vineland Research and Innovation Centre researchers explore ways to use biocontrols tools against insect pests and the evaluation of natural agents to provide growers and landscapers with safe and effective ways to eliminate pests and weeds.	Ongoing	Vineland Research and Innovation Centre	Nominal
<a href="#">Local Food Action Plan</a>	Niagara's Local Food Action Plan outlines actions that will help Niagara's food industry grow.	Ongoing	Niagara Region	Nominal
<a href="#">Local Food Lunches</a>	Staff at Vineland Research and Innovation Centre are able to participate in local food "lunch and learn" sessions where they can learn how to cook and prepare locally grown food by a Niagara Chef.	Ongoing	Vineland Research and Innovation Centre	Nominal
<a href="#">Greater Golden Horseshoe Food and Farming Strategy</a>	Strategy that spans across the GTA-Niagara area to support aligned work to support local food and agriculture production. The focus on local food consumption supports climate change, by limiting the amount of shipping needed for food and supports local food security issues.	Report is Completed. Implementation is Ongoing.	Niagara Region	N/A
<a href="#">Good Food Box Program</a>	The Good Food Box is a fresh food distribution program that gives people a chance to buy local fresh fruits and vegetables once a month at affordable prices. Boxes are available for pickup at host sites across the area.	Ongoing.	Bridges Community Health Centre	N/A

**N E W   A C T I O N S**

Action Name	Description	Reference Cases	Lead Organizations	Estimated GHG Reduction	Estimated Costs
Local Food Map	<ul style="list-style-type: none"> <li>• Elements of this is completed, needs coordination</li> <li>• Ensure it includes farmers markets / stalls</li> </ul>	De Salaberry	Province CAN	N/A	NA
Fruit tree trail	<ul style="list-style-type: none"> <li>• Fruit trees will be mapped using GPS by student volunteers</li> </ul>		Climate Action Niagara	N/A	NA
Expanding public gardens	<ul style="list-style-type: none"> <li>• Condo/Apartment Dwellers can access space free or rent</li> <li>• Can be tied to anti-poverty strategies</li> <li>• Map existing community gardens in Niagara to know what groups are working in the community, size of plots</li> </ul>	Edmonton		N/A	
Network of Organic Materials Supplier/ Sources	<ul style="list-style-type: none"> <li>• Find end users that can use organic waste for soil remediation</li> <li>• Key element of successful implementation is effective source separation</li> <li>• Connecting people with resources and information to handle their own organic waste</li> </ul>				

**O T H E R   I D E A S   F O R   A C T I O N**

<ul style="list-style-type: none"> <li>• Education opportunity for youth to learn about farming</li> <li>• Downtown Food Coop</li> <li>• Farmers market (after hours availability)</li> <li>• Canning exchange</li> </ul>	<ul style="list-style-type: none"> <li>• Local food distribution centre</li> <li>• Urban farming such as spin farming (intensive farming) in yards</li> <li>• Young farmers mentorship/ Internship program</li> </ul>
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# Built Form and Transportation

## CURRENT ACTIONS

Project	Description	Status	Organization	Potential Emission Reductions
<a href="#">Building Operations</a>	The YMCA of Niagara has implemented a number of sustainable building practices to increase the efficiency of their building operations including designing new buildings to LEED standards, motion sensor / automatic lighting, low flow shower heads, HVAC system improvements, and regular tracking of facility utility bills.	Ongoing	YMCA of Niagara Region	Low - Medium
<a href="#">Building Operations</a>	Brock University is committed to continuously improving the operating efficiencies of campus buildings through the implementation of their Energy Conservation Plan. Specific actions (2007-2009): -Lighting retrofit: Replaced over 3,000 T12 fluorescent lamps with T8s. -LED Streetlighting: Replaced HPS fixtures with more energy efficient LED technology. -De-energizing Unused Transformers: -Campus Heating: Reduced the campus heating set point by 1°C & increased the air conditioning set point by 1°C. -Tower Ribbon Lights + Parking Lot Lighting adjustments	Ongoing	Brock University	190 tonnes
<a href="#">New Construction</a>	Brock University has prepared an architecture policy for the construction of new buildings on campus that dictates that new facilities adhere to LEED Silver Standards or better.	Ongoing	Brock University	Low - Medium
<a href="#">Sustainability Building Practices</a>	On an ongoing basis, DSNB retrofits building infrastructure to encourage sustainable actions and use resources in an efficient manner (e.g. water bottle refilling stations, solar panels).	Ongoing	District School Board of Niagara	
<a href="#">Active Transportation</a>	Climate Action Niagara participates in local transportation planning and hosts workshops on active transportation in Niagara.	Ongoing	Climate Action Niagara	Low
<a href="#">Anti-Idling for Police Services</a>	In partnership with the Ministry of Government Services, four NPC enforcement vehicles have been retrofitted with a battery assisted module that eliminates idling while vehicles are not being operated.	Complete	Niagara Parks Police, Niagara Regional Police, and the Ministry of Government Services OPS	Low

<a href="#">Nodes and Corridors</a>	Developing a strategy for intensification around major corporate centres.	Q4 2012	Integrated Community Planning, Niagara Region	
<a href="#">Active Transportation Summit and Forum</a>	To increase knowledge and support for active transportation investments and awareness of roles and decision makers and influencers have in moving active transportation forward.	2012	Niagara Region	
<a href="#">Electric Cars</a>	In partnership with the Ministry of Government Services, NPC has been supplied two Mercedes Smart cars that are 100% electric car. Employees can use these vehicles to travel to area meetings and events as part of a pilot project.	Complete	Niagara Parks Commission Ministry of Government Services OPS Green Office	Low
<a href="#">Environmental Purchasing Criteria</a>	On requests for proposals, the DSBN encourage vendors to showcase sustainable products and services offered by their company as a value-added component to their submission.	Ongoing	District School Board of Niagara	Low
<a href="#">Hybrids &amp; Fleet Management</a>	By the end of 2010, 10 per cent of Horizon's fleet was comprised of hybrid vehicles - one of the largest fleets of hybrid vehicles of any LDC in Ontario.	Ongoing	Horizon Utilities	10 tonnes
<a href="#">Multi-Modal Transportation</a>	Brock University advocates for improved transit in the community and each student is provided with transit passes. In addition, there is a carpooling program for employees in the parking services division.	Ongoing	Brock University	Medium - High
<a href="#">Niagara Region Transit</a>	A pilot project offering service for inter-municipal transit between Welland, St. Catharines, Niagara Falls, Thorold, Port Colborne and Fort Erie.	Ongoing	Niagara Region	High
<a href="#">Safe Cycling for Fun and Health</a>	BikeNiagara is a new organization that has developed a program called Safe Cycling for Fun and Health that is offering a series of free, two hour bicycle education sessions called Getting Started, Cycling Safely and Training. The goals of the program seek to encourage more cycling at all interest and competence levels by improving the capability of cyclists and promoting bicycle safety.	Ongoing	BikeNiagara	Low
<a href="#">Smart Grid Planning</a>	Horizon has provided its customers with smart metres as part of their participation in smart grid planning.	Ongoing	Horizon Utilities	High
<a href="#">Using Beet Juice to Reduce Road Salt</a>	The Niagara Region is using a sugar beet juice compound to reduce the amount of salt on the roads by as much as 30 per cent. The sugar beet juice compound, also known as "organic liquid de-icing", is made of equal parts salt brine and the by-product of sugar beet juice refining. The liquid is applied to dry roads as an anti-icing agent, or as pre-wetting agent to help salt stick to the ground.	Ongoing	Public Works, Niagara Region	Low

<u>Form and Support Active Transportation Citizen Groups</u>	Bring Together and build the capacity of champions in each municipality so that they can seek improvements to the built environment to support walking and cycling.	Ongoing	Public Health, Niagara Region	
<u>Economic Value of Active Transportation and the Impact of the Built Environment on Well-being</u>	To facilitate the exchange of information regarding the economic value of active transportation, to increase awareness and to better inform decision makers of all the potential benefits of active transportation to the well-being and vitality of communities in Niagara.	Ongoing	Public Health, Niagara Region	
<u>Increasing driver awareness and knowledge of safely sharing the road with cyclists</u>	To increase information and examples of safely sharing the road with cyclists in the official MTO's driver's handbook.  To increase policy that driver education companies must include education about sharing the road with cyclists into their teaching. (in class, and in car)  To increase knowledge of current motorists about the rights and responsibilities of cyclists and how to share the road with cyclists.	Ongoing	Public Health, Niagara Region	
<u>Active Transportation Strategy</u>	Implementation of a fully integrated transportation system, providing transportation alternative for people to travel to where they work, shop and live.	Ongoing.	Niagara Region	Transportation Strategy and Complete Streets aspects are underway.
<u>Transportation Demand Management RPPA</u>	TDM policies will help balance the modal share and provide additional opportunities other than the automobile for travel. Policies will also create opportunities to maximize transportation infrastructure and reduce the amount of unnecessary trips.	Ongoing.	Niagara Region	
<u>Complete Streets for Niagara</u>	Development of model official plan policies which enable municipalities to develop alternative transportation opportunities.	Ongoing.	Niagara Region	Policy development work is currently underway.
<u>Local Community Improvement Planning</u>	Assistance to local municipalities in developing Community Improvement Plans that support redevelopment and intensification of older urban areas and retrofits of older buildings.	Ongoing.	Public Works, Niagara Region	

<u>School Travel Planning– Pilot Projects</u>	Organized active transportation plans, policies and programs that support walking or cycling to school	Pilot has been completed for 2012/2013	Public Health, Niagara Region	
<u>Walkability Checklists</u>	Promote positive attitudes and support for walkable communities and compile data on the walkability of Niagara’s communities.	Ongoing	Public Health, Niagara Region	

**NEW ACTIONS**

Action Name	Description	Reference Cases	Lead Organizations	Estimated GHG Reduction	Estimated Costs
Green Building Practices	Promote benefits of new home green standards, mixed use planning, Brownfield development	North Durham Integrated Community Sustainability Plan	Ontario ME&I, OPA LDC’s	Reduce emissions by 20% (for set of actions)	\$50,000/yr. coordination (other Activities included)
	Align municipal government permitting practices with green development				

**OTHER IDEAS FOR ACTION FOR BUILT FORM**

- Roof strategy – “Make Your Roof Work for You” – green, white, solar
- Address condo rules to allow for solar panels
- Create an inventory of climate change resources
- Integrate climate change footprinting into school curriculum through curriculum kits
- Re-use industrial lands, brownfields and buildings
- MicroFIT and FIT (also under renewable)
- Permit clotheslines in condos/new development
- Kids from after school programs participate in field trips or volunteering activities
- Create a business competition for reducing emissions
- Responsible building development
- Hold more ecotours
- Develop bioswales

**OTHER IDEAS FOR ACTION FOR TRANSPORTATION**

- Eliminate the drive-thru coffee shops and fast food restaurants
- Provide community bicycles
- Better public transit and public railways
- Car share/pool network – Smart Commute
- Shared bus programs
- Regional anti idling bylaws
- Enforcement of idling bylaws
- Install safety guards for trucks
- Reduce idling for motor coaches/Spare the Air (Target Peace Bridge, drive thru, anti-idling campaign)
- Create a cycling culture –enhance through supportive policy, advocacy, awareness, bike festival, parking, path improvements
- Partner with commercial and industrial sector to plant vegetation on their building sites
- Limiting urban sprawl

# Community Engagement and Outreach

CURRENT ACTIONS				
Project	Description	Status	Organization	Potential Emission Reductions
<a href="#">Living in Niagara Report</a>	The Living in Niagara Report is an inventory of critical indicators of quality of life in Niagara. To prepare the report, NRAPC works collaboratively with organizations from across Niagara and hosts community engagement sessions to include stakeholders in the planning and reporting process.	Ongoing	Niagara Research and Planning Council	N/A
<a href="#">Advocacy</a>	Climate Action Niagara encourages local governments to implement policies and plans that seek to address issues related to urban forestry, climate change, and active transportation.	Ongoing	Climate Action Niagara	N/A
<a href="#">Advocacy</a>	Albert Zappitelli is a community advocate for renewable energy in Niagara Region. He lobbies local politicians to improve subsidies for renewable energy and raise awareness about the viability for businesses, residents, and organizations to gain self-sufficiency.	Ongoing	Albert Zappitelli	N/A
<a href="#">Annual "Day of Reflection"</a>	Each year, the Sustainability Committee at Niagara College invites staff to participate in a day of reflection where they can collectively brainstorm new ideas for helping the College become more sustainable.	Ongoing	Niagara College	N/A
<a href="#">Awareness</a>	Climate Action Niagara delivers presentations and workshops on the impacts of climate change on the community.	Ongoing	Climate Action Niagara	N/A
<a href="#">Awareness/ Education</a>	The Environmental Coordinator develops and leads environmental awareness campaigns to encourage staff and students to reduce waste and energy consumption.	Ongoing	Niagara College	N/A
<a href="#">Community Climate Action Planning</a>	Working with community members, the NCCN is facilitating the development of an Action Plan to address climate change in Niagara.	Ongoing, Completion by March 2013	Niagara Climate Change Network	N/A
<a href="#">Community Funding and Participation</a>	As part of a commitment to community sustainability, Horizon funds and participates in local Niagara sustainability initiatives.	Ongoing	Horizon Utilities	N/A

<a href="#">EcoFest</a>	Climate Action Niagara hosts Niagara's greenest trade show local producers/suppliers of sustainable products can showcase their work and network with others who have a passion for sustainability.	Ongoing	Climate Action Niagara	N/A
<a href="#">EcoSchools Programs</a>	DSBN participates in Ontario EcoSchools which is an environmental education and certification program for grades K-12 that helps school communities develop both ecological literacy and environmental practices to become environmentally responsible citizens and reduce the ecological footprint of schools. To date, 40 schools from across Niagara region have chosen to participate in the program.	Ongoing	District School Board of Niagara	N/A
<a href="#">Eco-Conferences</a>	Yearly, DSBN hosts an eco-conference where 5-10 students per school can come together to hear environmental speakers and talk about ideas for reducing their schools ecological footprint.	Ongoing	District School Board of Niagara	N/A
<a href="#">Education</a>	Climate Action Niagara hosts regular "ecoworkshops" at local schools to educate students about vermiculture, permaculture, plant propagation, land stewardship, tree health assessments, etc.	Ongoing	Climate Action Niagara	N/A
<a href="#">Education/ Training</a>	The NHBA provides education and training to builders, renovators, suppliers, contractors and related industry professionals (e.g. workshops on building code changes, seminars on energy efficiency).	Ongoing	Niagara Home Builders Association	Low - Medium - High
<a href="#">Educational Programming</a>	NPCA offers a diversity of environmental education programs for youth including tree planting at area schools, working with kids on the importance of natural species and environmental protection, and participating in the Niagara Water Children's Festival.	Ongoing	Niagara Peninsula Conservation Authority	Low
<a href="#">Green Committee</a>	The NPC Green Committee is an interdepartmental committee that meets bi-monthly to discuss strategies for reducing the organization's environmental footprint. The committee also explores ways to encourage employee buy-in for corporate sustainability initiatives.	Ongoing	Niagara Parks Commission	N/A
<a href="#">Internship Programs</a>	YMCA of Niagara Region provides internships program for 20 week internships to help individuals gain on the job training and mentorship as they enter the job market. In particular, the YMCA utilized the Environmental Internship Program to identify facility/operations improvements that could be made to become more sustainable.	Ongoing	YMCA of Niagara Region	N/A
<a href="#">Leave No Trace</a>	NPC adheres to the ethical standards and principles for "Leave No Trace Canada"	Ongoing	Niagara Parks Commission	N/A
<a href="#">Newsletter</a>	Climate Action Niagara regularly distributes newsletters to notify their membership about upcoming community events and to provide current information related to environmental sustainability and climate change.	Ongoing	Climate Action Niagara	N/A



<a href="#">Neighbourhood Committees</a>	Upon completing a school yard planting program, Climate Action Niagara establishes neighbourhood liaisons to take care new plants over the summer months while students are no longer at school.	Ongoing	Climate Action Niagara	N/A
<a href="#">Niagara Community Design Awards</a>	Annual awards to recognize and celebrate excellence in community design in Niagara region.	Ongoing	Niagara Region	N/A
<a href="#">Niagara Environmental Awards</a>	Annual awards for individuals, businesses, community groups, non-profits, schools and families who have made significant contributions to safeguarding Niagara's natural environment.	Ongoing	Niagara Region	N/A
<a href="#">Sustainability Advocacy</a>	Sustainable Niagara investigates, promotes and support programs initiatives that support sustainability in Niagara region (e.g. website, participation on municipal committees, publications in local newspapers, Carshare Niagara, Downtown Food Co-op).	Ongoing	Sustainable Niagara	N/A
<a href="#">Sustainability Committee</a>	Niagara College has an interdepartmental sustainability committee that focusses on improving sustainability on campus through education/awareness, monitoring, and operational efficiency.	Ongoing	Niagara College	N/A
<a href="#">Sustainability Coordinating Committee</a>	A interdepartmental (academic and administrative) committee is established which examines policies and programs that focus on improving campus sustainability.	Ongoing	Brock University	N/A
<a href="#">Niagara Sustainability Initiative</a>	Niagara Sustainability Initiative (NSI) connects government, industry, community and academia to advance environmental and economic performance in the Niagara region. NSI's initial primary goal is the reduction of GHG emissions through The Carbon Project. Although initial focus will be on GHG reduction, the future vision for NSI is an organization that will advance performance in various sustainability issues within the Niagara region.	Ongoing	Niagara Sustainability Initiative	N/A

#### O T H E R I D E A S F O R A C T I O N

<ul style="list-style-type: none"> <li>• Work with Niagara Research and Planning Council to utilize the Niagara Knowledge Exchange about how to engage the community in GHG/ Climate change priorities for Niagara region</li> <li>• Tweet Streets</li> <li>• Profiling and exhibiting best practices</li> <li>• Increase amount of local subsidies for green power generation, land allocation etc. to attract investment in these sectors</li> <li>• Educational institutions are involved</li> </ul>	<ul style="list-style-type: none"> <li>• Start a WIKI for Niagara Climate Change Action Plan</li> <li>• Supporting Climate Action Niagara</li> <li>• Engage individuals and small businesses in the process of making Niagara more "green", holding public "Green Fairs" and information sessions to stimulate public discussion and volunteering could be a potential program to pursue.</li> <li>• Encourage new tech firms through grants and lower taxes.</li> <li>• Expanding green industries</li> </ul>
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# Energy

## CURRENT ACTIONS

Project	Description	Status	Organization	Potential Emission Reductions
<a href="#"><u>Employee Energy Conservation Committee</u></a>	The EECC meets bi-monthly with representatives from department to track and manage energy use across local schools. The committee explore opportunities for efficiency upgrades, creates energy efficiency educational campaigns, and tracks energy consumption for each school.	Ongoing	District School Board of Niagara	Low - Medium
<a href="#"><u>Energy Conservation</u></a>	Horizon is a leader in delivering energy conservation programs to residential and business customers (e.g. great refrigerator roundup, peaksaver program, electricity retrofit incentive program, power savings blitz, small business lighting program).	Ongoing	Horizon Utilities	High
<a href="#"><u>Strategic Energy Plan</u></a>	The Strategic Energy Plan was established to track utility usages over time, conduct building/lighting retrofits, and effectively manage energy use on NPC properties. In the past 3-4 years, electricity consumption on NPC properties has decreased by 7%.	Ongoing	Niagara Parks Commission	Unknown
<a href="#"><u>Sustainable Energy</u></a>	To reduce utility costs and their overall environmental impact, the Zappitelli family installed the following on their property: 10 kW microfit solar system, 10 kW Net-Metering Solar System, a Geothermal Heating/Cooling System, and a demonstration Wind Turbine. The Zappitelli's also offer regular tours of their property for those interested in renewable energy.	Complete	Albert Zappitelli	Low

**N E W   A C T I O N S**

Action Name	Description	Reference Cases	Lead Organizations	Estimated GHG Reduction	Estimated Costs
Residential energy retrofit program	Engage in education and outreach campaigns that promote the use of efficient lighting (natural lighting, LEDs, etc.) and renewable fuels to residents, businesses, and industry	North Durham Integrated Sustainability Plan	Ontario Ministry of Energy and Innovation, OPA LDC's	N/A	\$50,000/yr. coordination (all activities)
Community education					
Renewable energy and alternatives in residential sector	Encourage use of renewable energy and alternatives in residential sector – solar water heating; conversion to natural gas; conversion to geothermal; promote green energy purchase options; community renewable energy cooperative; Community Energy Map	Town of Caledon	Municipalities and utilities	N/A	\$15,000/yr. coordination  \$2000/yr. performance measurement

**O T H E R   I D E A S   F O R   A C T I O N**

<ul style="list-style-type: none"> <li>• Green fund</li> <li>• Develop incentive programs for residential and commercial energy efficiency</li> <li>• Expand partnerships with energy companies</li> <li>• Develop or expand environmental recognition for eco-buildings</li> <li>• Support job creation in the clean energy sector</li> <li>• Continue with solar and renovation incentive programs</li> <li>• Minimum Energy Standards for Home Resale</li> <li>• Advocate for a National Energy Strategy</li> <li>• HVAC Efficiency Programs</li> </ul>	<ul style="list-style-type: none"> <li>• Local specific building code</li> <li>• Identify partnerships with retailers and manufacturers</li> <li>• Support research and innovation in energy efficiency and creation</li> <li>• Advocate for planners to consider creating policies that support renewable energy projects</li> <li>• Partner with commercial and industrial sector to use alternative energy sources</li> <li>• Economic Development Strategy to promote jobs for “Green Energy Capital of Canada”</li> <li>• Pilot MicroFit program (CAN is looking for a site)</li> </ul>
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# Waste

CURRENT ACTIONS				
Project	Description	Status	Organization	Potential Emission Reductions
<a href="#">School Composting</a>	Select schools across DSBN participate in school-wide composting to increase school waste diversion.	Ongoing	District School Board of Niagara	Depends on amount of waste that is composted annually.
<a href="#">Solar Trash Compactors</a>	To help increase the efficiency of waste collection, the NPC purchased solar trash compactors to reduce the number and frequency of waste collection trips.	Ongoing	Niagara Parks Commission	Data not yet available.
<a href="#">Waste Management</a>	In order to minimize waste on Brock's campus, regular waste audits (annual and spot checks) are conducted to ensure that university is exceeding minimum waste diversion rates. Recently the university has purchased a cardboard bailing facility to improve cardboard recycling on campus.	Ongoing	Brock University	Require the results of the waste audit to calculate.
<a href="#">Recycling</a>	Blue/Grey Box/Cart recycling collection program for the residential sector and industrial, commercial and institutional (IC&I) properties that are eligible for the service and wish to participate in the program. The Blue/Grey Box program was expanded to include plastic packaging with the numbers 3 and 7 to the Blue Box program in the spring of 2012 (all numbered plastic packaging are now accepted), which increases diversion and decreases the amount of material disposed. The associated campaign to promote the proper recycling of all plastics and program expansion to include all numbered plastics was also completed.	Ongoing	Niagara Region	NA
<a href="#">Organic Waste Management</a>	Organics collection for the residential sector and industrial, commercial and institutional (IC&I) properties that are eligible for the service and wish to participate in the program. The Region is actively expanding organics collection to multi-residential buildings and downtown businesses. Review feasibility of introducing organics collection as part of the special events recycling programs. It is working to maximize capture of organics and participation in the program by all sectors serviced through outreach, communication and program promotion.	Ongoing	Niagara Region	NA
Construction & Demolition Material Recycling Program	Investigate and implement potential diversion options for maximizing capture of MHSW materials through pilots and other studies	Ongoing	Niagara Region	NA

<a href="#">Drop-off Depots</a>	Drop-off depots at Regional landfill facilities that accept a range of materials for diversion, including: Blue/Grey Box recyclables, organics, electronics, tires, batteries, construction and demolition material and reusable clothing – a subset of this material is also accepted at the Region’s Recycling Centre;	Ongoing	Niagara Region	NA
<a href="#">Hazardous Waste Management</a>	Household Hazardous Waste permanent depot and 17 mobile event days;	Ongoing	Niagara Region	NA
<a href="#">Environment Days (E-Days)</a>	Environment Days (E-Days) hosted in conjunction with the Household Hazardous Waste Depots and include partnerships with local organizations. E-Days provide residents a one-stop location to properly dispose of household hazardous waste and to drop-off reusable or recyclable materials.	Ongoing	Niagara Region	NA
<a href="#">Backyard Composting</a>	Backyard Composting Program, including subsidized composter sales and promotion.	Ongoing	Niagara Region	NA
<a href="#">Smart Gardening Program</a>	The Region launched the Smart Gardening program which was one of the first multi-faucet programs in Ontario at that time. The program’s primary goal is to motivate Niagara residents, businesses and recreational property owners to implement environmentally friendly lawn and garden practices e.g. focus on grasscycling, composting, water conservation, avoidance of pesticides and ice melting. Received two Recycling Council of Ontario Waste Minimization Awards.	Ongoing	Niagara Region	NA
Awareness and Education at Special Events	Special events recycling program combined with staffed information booths where appropriate.	Ongoing	Niagara Region	NA
Enviro Guide	The first annual Enviro Guide was released to promote the reuse of products by providing residents a directory of organizations within Niagara that accept new and gently used items. The Guide also provides information on current waste management services provided by the Region.	Ongoing	Niagara Region	NA
Banning Gras Clippings in Curbside Organics Collection	A ban of grass clippings in the curbside organics collection program was implemented to reduce collection and processing requirements (which reduces greenhouse gas emissions and costs), but also results in a healthier lawn with less need for fertilizer and watering.	Ongoing	Niagara Region	NA
Niagara’s Residential Diversion Target Review	Niagara’s current residential waste diversion target is set at 65% diversion by 2012. The review considers: <ul style="list-style-type: none"> <li>- Current diversion performance,</li> <li>- Current service levels &amp; contract arrangements,</li> <li>- Other municipal diversion rates/targets,</li> <li>- Results of completed public engagement on this issue.</li> </ul>	Ongoing	Niagara Region	NA

Community Waste Management Social Marketing and education	<p>The Region leads social marketing, outreach and education programs, and targeted campaigns to maximize diversion and reduce disposal. Activities include:</p> <ul style="list-style-type: none"> <li>Outreach activities with schools, community groups and daycares and participation in local parades.</li> <li>Continuation of awards programs for residents e.g. It Takes Three.</li> <li>Continuation of web-based contests e.g. Recycle and Win and Waste Diversion Hero contest.</li> <li>Updates to the 3Rs web based search tool to address resident confusion regarding what item goes in which stream. The resident or any service user can type in a material on the webpage and instructions on how to handle that material and similar items will be returned to the user.</li> <li>Interactive presentations and workshops for summer camps, daycares, community groups and general public.</li> <li>Public outreach displays at shopping malls, home shows, farmer's markets, local festivals and other high traffic public venues.</li> <li>Annual distribution of the Collection Guide.</li> <li>Free special events recycling program.</li> <li>Promotion and education strategy for public space recycling program.</li> <li>Use of social media e.g. Facebook and Google ads for targeted campaigns.</li> <li>Development and updates to program brochure series.</li> </ul>	Ongoing	Niagara Region	NA
Educational Centre	An interactive educational centre at the Recycling Centre is being designed and constructed in 2012.	Ongoing	Niagara Region	NA
Gold Star Award Program	The Gold Star award program was launched in an effort to encourage proper Blue and Grey Box recycling at the curb i.e. to maximize program participation and reduce contamination. Niagara residents who have outstanding weekly recycling habits are recognized as Gold Star recyclers. The program consists of a series of visual waste audits of the material set out for weekly curbside collection. Households that receive high marks on material preparation receive a Gold Star recycling box to recognize their efforts. Regional staff randomly selected neighbourhoods from across Niagara to audit.	Ongoing	Niagara Region	NA
Waste Electrical and Electronic Equipment Collection Program	Waste Electrical and Electronic Equipment (WEEE) Collection Program Investigate and implement potential diversion options for maximizing waste electrical and electronic equipment (WEEE) collection and recycling.	Ongoing with a 3-month collection pilot being implemented	Niagara Region	NA
Humberstone Landfill Gas Collection and Flare System	Completion of Phase 1 of the Humberstone Landfill gas collection and flare system (LGCFs), which will reduce GHG emissions, is slated for Dec 2012 – April 2013. Phase 1 will be in commission by mid-2013 and Phase 2 is scheduled for 2014 – 2015, followed by Phase 3 in 2016-2017.	Ongoing	Niagara Region	NA

**N E W   A C T I O N S**

Action Name	Description	Reference Cases	Lead Organizations	Estimated GHG Reduction	Estimated Costs
Take it Back! Program	Program that encourages local businesses to "take back" many of the household materials that they sell, and to ensure they are reused, recycled or disposed of properly.	City of Ottawa: Since its inception, the Take it Back! program has grown from three automotive products taken back by 16 automotive retailers in 1997, to more than 130 different products taken back by over 590 retailers and charitable organizations in 2009. Each year Take It Back! Partners divert over 500 tonnes of material from the municipal landfill.	Municipal/ regional waste department, local environmental organizations, local chamber of commerce, local businesses		

**O T H E R   I D E A S   F O R   A C T I O N**

<p>Three options currently being investigated, for possible implementation between 2013 -2015 are:</p> <ul style="list-style-type: none"> <li>New re-use material drop-off depot to supplement community reuse initiatives (through partnership with non-profit organizations);</li> <li>Furniture, mattress and carpet recycling; and</li> <li>Electronic recycling collection for multi-residential buildings</li> </ul> <p>Focus is currently on diversion and source separation</p>	<p>Potential program expansions could occur in 2015-2017:</p> <ul style="list-style-type: none"> <li>Construction and demolition program could be potentially expanded if end markets develop; and</li> <li>Multi-residential organics program could be expanded to a mandatory program for all buildings (as opposed to the current on request basis).</li> </ul> <p>Explore providing incentives to organizations that can use "waste" that currently can't be recycled</p>
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# Industry, Commercial, Institutions (ICI)

EXISTING ACTIONS				
Project	Description	Status	Organization	Potential Emission Reductions
<a href="#">Carbon Footprint</a>	Calculate the carbon footprint of the Walker Industries group of companies.	Ongoing	Walker Industries	N/A
<a href="#">Carbon Footprint Measurement</a>	In collaboration with the Niagara Sustainability Initiative, Niagara College completed a baseline analysis of the campus's carbon footprint.	Ongoing	Niagara College	N/A
<a href="#">Local Procurement</a>	VRIC events are catered by local service providers and products from Niagara region.	Ongoing	Vineland Research and Innovation Centre	N/A
<a href="#">Sustainability Policy</a>	Horizon Utilities has a sustainability policy which guides the ongoing work of the organization. The policy applies to every department and staff member within the organization.	Complete	Horizon Utilities	N/A
<a href="#">Sustainability Report</a>	Publish a Walker Industries Sustainability Report by 2014.	Ongoing	Walker Industries	N/A
<a href="#">Environmental Management and Planning</a>	NPCA is responsible for the review of planning applications affected by natural environmental hazards and/or natural heritage features to ensure they comply with local and Provincial regulations. It also provides advice to municipalities or others on environmental impacts related to watershed and water resource management.	Ongoing	Niagara Peninsula Conservation Authority	N/A
<a href="#">Sustainability Reporting</a>	Horizon Utilities is the first electric utility in Ontario to make a filing with the Global Reporting Initiative (GRI) and also the first to seek and receive "external assurance" for a GRI filing. For the third consecutive year, Horizon has published a Sustainability-Based Annual Report, focusing on the triple bottom-line of social, environmental and economic considerations.	Ongoing	Horizon Utilities	N/A
<a href="#">Sustainable Purchasing Habits</a>	When purchasing new appliances for buildings on campus, Brock University is committed to buying Energy Star compliant products.	Ongoing	Brock University	Low



<a href="#">Heritage Tree Hunt</a>	The Heritage Tree Hunt is a program that encourages awareness about urban forestry. Residents are able to send in photos of the best trees around Niagara and the trees are then assessed for their age/health.	Ongoing	Climate Action Niagara	N/A
<a href="#">Land Management and Acquisition</a>	Through support of donations and alternative funding mechanisms, NPCA purchases parcels of land that assist the Region in protecting valuable natural communities and ecological corridors.	Ongoing	Niagara Peninsula Conservation Authority	N/A
<a href="#">Native Seed Nursery</a>	As part of the school planting program, Climate Action Niagara hosts regular native walks where they train volunteers to collect seeds for their native seed nursery.	Ongoing	Climate Action Niagara	N/A
<a href="#">Native Species Centre</a>	NPC Staff provide educational programming and outdoor activities related to natural species at local parks.	Ongoing	Niagara Parks Commission	N/A
<a href="#">School Yard Landscape Planning and Implementation</a>	Upon request, Climate Action Niagara works with local schools to complete 5 year design plans for local school yards.	Ongoing	Climate Action Niagara	N/A
<a href="#">Science and Environmental Consultant</a>	DSBN's Consultant for science and environmental studies researches and provides training to teachers to help them integrate new curriculum and environmental awareness into their lesson plans.	Ongoing	District School Board of Niagara	N/A
<a href="#">Project Tree Cycle</a>	In collaboration with the City of Niagara Falls, the NPC recycles trees to use as bark on trail systems. In addition Project Treecycle is an initiative where the NPC accepts Christmas trees from the local community at no charge, and chips them for trail maintenance and for use by the public as well.	Ongoing	Niagara Parks Commission	
<a href="#">Environmental Land Management Plan</a>	In order to effectively manage NPC lands, an Environmental Land Management Plan has been prepared to guide the management and use of natural areas and golf courses.	Ongoing	Niagara Parks Commission	N/A
<a href="#">Environmental Management System</a>	Horizon has established an Environmental Management System which is in compliance with the international environmental standard, ISO 14001. Horizon Utilities continues to manage, control and mitigate environmental risks by conducting monthly site environmental inspections, ongoing training and communication efforts. Need more specifics to determine reduction information.	Ongoing	Horizon Utilities	N/A

<a href="#">Shoreline and Terrestrial Restoration</a>	In collaboration with the NPCA, the Zappitelli family restored their property's shoreline by planting trees, creating watershed buffers, and implementing other erosion control methodologies. In collaboration with the OPA, the Zappitelli family naturalized a significant portion of the 44 acres of land as part of the OPA's Forest Management Plan.	The Shoreline is Complete, and the Terrestrial is Ongoing	Albert Zappitelli	N/A 92 tonnes from the additional trees.
<a href="#">Good Forestry Practices</a>	NPCA administers and enforces Niagara Regions Tree and Forest Conservation By-Law to ensure that tree cutting is carried out in accordance with Good Forestry Practices.	Ongoing	Niagara Peninsula Conservation Authority	Low - Medium
<a href="#">Environmental Management System</a>	Niagara College uses an EMS to monitor, assess, and measure its environmental impact (including waste, energy, and resource consumption). Niagara College has set a goal to reduce its GHG emissions by 10% by 2015, which is a significant reduction. The college's Wine Visitor and Education Centre (WVEC) is carbon zero certified. According to their website, Niagara College purchased 507 tonnes of ISO 14064-2 Verified Emission Reductions to offset the facility's GHG emissions.	Ongoing	Niagara College	High

#### NEW ACTIONS

Action Name	Action Name	Description	Lead Organizations	Estimated GHG Reduction
Sustainable Business Awards	Creation of an annual award that acknowledges the outstanding contributions of a local business towards community climate change/sustainability goals.	Town of Stony Plain, AB: Every year, the Town of Stony Plain presents the Ambassadors of Action Sustainable Business Award to a local business that has demonstrated its efforts to build upon the four key concepts of the Town's Community Sustainability Plan.	Local government, local chamber of commerce	Minimal
District Cooling	Similar to the concept of district heating, district cooling delivers chilled water to commercial/institutional buildings for their cooling needs.	Halifax Regional Municipality: The world's first geothermal cold storage system. Project involved 5 major components - district heating and cooling, seawater cooling system, borehole cold energy storage system, new high efficiency natural gas boilers, and lighting retrofit. The project covers 5 municipal buildings on the Dartmouth waterfront (30,741 m <sup>2</sup> ). Cost: \$3.6 million - Construction was funded through a partnership between the Halifax Regional Municipality (HRM), the Provincial government and the Federal government's Technology Early Action Measures (TEAM) program, which contributed \$1 million. Annual cost savings: \$350,000. Payback: 8 years.	local energy company, local government, large building/facility operators	Significant (1,000 tonnes+)

<p>District Heating</p>	<p>System for distributing heat generated in a centralized location (or several locations) for residential and commercial/institutional heating requirements (space and water heating).</p>	<p>Strathcona County, AB: A DE system has been built for Centre in the Park, a 4.2 hectare mixed-use, pedestrian-oriented, urban centre in Strathcona County. Heat is generated at the District Energy Centre, a new 3,300 square-foot, LEED Silver-certified facility. Buildings currently served by the DE system include Strathcona County Hall, Festival Place, the Kinsmen Leisure Centre (pool, arena and recreation office), and two apartment buildings. Cost: \$8,536,737. GHG Reduction: 21,000 tonnes.</p> <p>City of Revelstoke, BC: The City constructed a district heating system that uses sawmill wood residue (biomass) from Downie Timber to generate heat for several buildings. The city built the plant and installed piping for the system; operations began in June 2005. Cost: \$4,900,000. GHG Reduction: 3,200 tonnes</p>	<p>Local energy company, local government, large building/facility operators</p>	<p>Significant (1,000 tonnes+) Significant Cost (\$5 million+)</p>
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# Adaptation and Other Related Initiatives

## EXISTING ACTIONS

Project	Description	Status	Organization	Potential Emission Reductions
<b>North Hamstead Trap</b>	In partnership with Brock University the structure acts as a vacuum pulling insects into it. Containers of insects are sorted and studied to test for new insects or invasive species in Niagara	Ongoing.	Environmental Health, Public Health, Niagara Region	This is related to Adaptation versus Mitigation.
<b>Smart Growth Criteria Update</b>	Update the Region's current smart growth criteria. The criteria are used to assess developments for development charges refunds.	Ongoing.	Regional Policy Planning, Niagara Region	
<b>Sustainable Niagara Plan</b>	A 50 year plan reflecting the community vision, goals, and actions, covering all four pillars of sustainability (environment, economy, cultural, social). It also contains a framework for measuring our progress.	Plan completed in 2012. Implementation is ongoing.	Integrated Community Planning, Niagara Region	
<b>Environmental Impact Statement Guidelines</b>	Further potential to add items regarding climate change, such as references to the Adapting to Climate Change report.	Ongoing.	Integrated Community Planning, Niagara	
<b>Beach Testing</b>	We test designated beaches throughout the summer to determine if the water quality can cause a health risk. Beaches are posted unsafe/ closed when water tests show unacceptable levels of E. Coli bacteria. Public Health is also working on predictive modelling to help better predict unacceptable levels of E.Coli through weather monitoring, wave height measurements and real time data collection.	Ongoing.	Public Health, Niagara Region	This is related to adaptation versus mitigation of emissions.
<b>Administration of the Development Charges refund program</b>	Providing Smart Growth incentives for urban redevelopment and intensification, mixed used development, creation of more walkable communities.	Ongoing.	Public Works, Niagara Region	
<b>Vector Borne Diseases</b>	Niagara Region treats high-risk areas throughout the region to kill mosquito larvae.	Ongoing.	Public Health, Niagara Region	This is related to Adaptation.

<b>Excessive Heat and Extreme Cold Alerts</b>	<p>An excessive high heat alert in the Niagara area is initiated in the following circumstances: The humidex is forecast to rise to 40° C or higher. The humidex is forecast to rise to 38° C or higher, and a smog alert. Environment Canada issues a humidex warning for Niagara. Extreme Cold Alerts are issues when temperatures fall below -15° Celsius and when weather conditions are severe enough to warrant alerting the community to the risks involved with prolonged exposure to the outdoors (blizzard, wind chill warning).</p>		Public Health, Niagara Region	This is related to Adaptation.
<b>Participation in watershed planning</b>	<p>Water conservation and on-site stormwater retention and management, reducing energy needed to construct and operate water and stormwater systems;</p>	Ongoing.	Public Works, Niagara Region	This is related to Adaptation.
<b>Watersmart Program</b>	<p>The programs coordinates activities related to the protection, restoration and management of water resources across the Niagara watershed. Funding is one component of the program, but they have also provided educational workshops on climate change related to stormwater management for example.</p>	Ongoing	Niagara Region, NPCA, all municipalities within the watershed, MOE, OMAFRA, Environment Canada.	This is related to Adaptation.
<b>Review and Comment on Planning and Development Applications</b>	<p>Implementing Provincial and Regional planning policies supporting:</p> <ul style="list-style-type: none"> <li>• focusing growth within urban area boundaries, reducing energy use by reducing the need for travel and for infrastructure;</li> <li>• redevelopment; conversion of existing buildings; infill and intensification; and higher densities in new development;</li> <li>• development of nodes and corridors;</li> <li>• mixed use development;</li> <li>• urban design incorporating environmental sustainability and LEED standards;</li> <li>• integration of active transportation and transit into development and infrastructure plans;</li> <li>• coordination of infrastructure planning and development, reducing energy required to construct new infrastructure and making more energy-efficient use of existing infrastructure.</li> <li>• conservation and enhancement of natural heritage, providing carbon sequestration.</li> </ul>	Ongoing.	Public Works, Development Services	This looks at both mitigation and adaptation.

# NEXT STEPS

Creating a GHG Emissions Inventory and Forecast

Setting an Emissions Reduction Target

Developing a Local Action Plan

Implementation a Local Action Plan or a Set of Activities

Monitoring Progress and Reporting Results

\*Five Milestones in the Partners for Climate Protection Program, Federation of Canadian Municipalities

# Implementation and Reporting

- The two new Priority Actions will be implemented by individual Action Teams. The funding for undertaking these will be sourced by the individual Action Teams.
- The ongoing actions will continue based on the individual work plans of the organization they are responsible for. Funding to continue these is dependent on the organization's ability to do so.
- Additional actions as listed in the plan will occur based on interest from the community to undertake them and/or available funding.
- The Niagara Region will continue to support the community's actions through the Secretariat function established under the Sustainable Niagara Plan, until such time as a community organization has the capacity to take on this role.

# Community Involvement

- This Plan was created over a two year period through extensive community involvement, through forums, community collaborative meetings, workshops, an online survey and Action Team meetings.
- The Niagara Region would like to thank the many community members who were involved at the various stages of the development of this plan for their contributions.

# FOR MORE INFORMATION

## **Partners for Climate Protection Program**

<http://www.fcm.ca/home/programs/partners-for-climate-protection.htm>

## **2006 Community GHG Emissions Inventory**

[http://www.fcm.ca/Documents/reports/PCP/Niagara\\_Region\\_2006\\_Community\\_GHG\\_Emissions\\_Inventory\\_EN.pdf](http://www.fcm.ca/Documents/reports/PCP/Niagara_Region_2006_Community_GHG_Emissions_Inventory_EN.pdf)

## **Adapting to Climate Change Report**

<http://www.niagararegion.ca/government/planning/pdf/climatechangerport.pdf>

## **Environment Canada Waste Calculator**

<http://www.ec.gc.ca/gdd-mw/default.asp?lang=en&n=D6A8B05A-1>



