A Climate Action Plan For Waterloo Region

LIVING SMARTER IN 2020

CLIMATE ACTION WR

November 2013 | Full Version

A STORY OF COMMUNITY COLLABORATION

There have been a great number of contributors – both individuals and organizations – to the development of this Climate Action Plan and we are proud to recognize them all by name in the List of Contributors at the end of this document (p. 68). The community collaboration that has resulted in this plan would not have been possible without the leadership and commitment of the ClimateActionWR lead organizations and partners, the resources and capacity provided by the grantors, and the participation and passion offered by contributors from across Waterloo Region. Thank you for all that you have done, and all that you will continue to do to contribute to making Waterloo Region a community to be proud of.

Grantors

FCM Federation of Canadian Municipalities / Fédération canadienne des municipalités – Green Municipal Fund / Fonds municipal vert

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WHAT IS THIS DOCUMENT?

Climate change is a challenge we often view on a global scale. And while there's no question that international measures are necessary, solutions are also needed at national, provincial, and local levels. As you read this, other cities and towns across Canada are already decreasing their total greenhouse gas emissions in order to reach a community reduction target. To join this nation-wide effort, the Climate Action Plan was developed with input from people across our community in order to provide Waterloo Region with a relevant course of action for addressing climate change at a local level.

With this Climate Action Plan acting as a guiding direction for our collective efforts, Waterloo Region is set to reduce greenhouse gas emissions by 6% from our 2010 levels, while at the same time improving the quality of life across the region. The recommendations, actions, and strategies detailed in the following pages outline how we can work collaboratively to achieve this target by 2020. Take a look. Because if you live or work in Waterloo Region, you'll find that you're an important part of this solution too.

MESSAGE FROM POLITICAL LEADERS

"We are pleased to see the ongoing collaboration and innovation that this action plan embodies. The results of this initiative and approach to implementation significantly leverages community resources to help fulfill our commitments to the Federation of Canadian Municipalities Partners for Climate Protection program. As our community continues to grow, the plan should aid in ensuring that Waterloo Region will continue to be a thriving and sustainable community for current and future generations."

Mayor Doug Craig, City of Cambridge

Mayor Brenda Halloran, City of Waterloo

Chair Ken Seiling, Region of Waterloo

Mayor Carl Zehr, City of Kitchener

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GLOSSARY OF TERMS

Term	Definition
Best Management Practices	Approaches based on evidence and conventional wisdom that are regarded as the most effective and practical for delivering superior results and desired objectives.
Carbon Sequestration	The capture and long-term storage of carbon dioxide or other forms of carbon through natural or artificial processes.
Climate Change	A long-term change in the weather conditions of a region, due to natural processes or human-induced changes in the composition of the atmosphere.
Climate Change Mitigation	Actions taken to decrease the GHG emissions that cause climate change.
Climate Change Adaptation	Actions taken to lower the risks posed by the consequences of climatic changes.
Co-benefits	The benefits that result from programs or policies being implemented for various reasons at the same time.
Infrastructure Deficit	The added investment that would be required to maintain infrastructure at the appropriate service levels and in a good state of repair.
Low-Carbon Economy	An economy that has a minimal output of greenhouse gas (GHG) emissions.

Acronym	Definition
CO_2	Carbon Dioxide: a naturally occurring gas, also a by-product of burning fossil fuels, land use changes and other industrial processes.
CO_2e	Carbon Dioxide equivalent: the gas against which other greenhouses gases are measured to describe how much global warming a given type and amount of GHG may cause.
FCM	Federation of Canadian Municipalities
GHG	Greenhouse Gases: gases that contribute to the greenhouse effect by absorbing solar radiation and warming the Earth's surface.
GJ	Gigajoules: a measurement unit for energy
ICI	Industrial, Commercial, and Institutional: includes manufacturing establishments, goods and/or services, retailers, and for-profit and not-for profit institutions (e.g. schools, hospitals, places of worship etc.).
PCP	Partners for Climate Protection: a network of Canadian municipal governments that have committed to reducing greenhouse gases and acting on climate change.

MESSAGE FROM THE STEERING COMMITTEE

A COMMON DIRECTION FOR LIVING SMARTER IN 2020

The document you're holding had its genesis in 2009. Perhaps fittingly, it was at the launch of the University of Waterloo's new School of Environment, Enterprise and Development that a number of key collaborators on this action plan first came together in-person. Many individual phone calls and conversations had been started in the months leading up to this event, but it was there that many of us found one another in the same room. During a break between sessions, various shoulders were tapped, an impromptu meeting spot was chosen, and a circle was formed where it became clear that developing a plan of this kind was a shared interest of many across Waterloo Region. So we got to work, together.

Fast forward four years and it is no surprise then that this Climate Action Plan galvanizes a shared direction for so many across our community – including the Region and Cities of Cambridge, Kitchener and Waterloo; five local energy utilities; post-secondary institutions; the business community; passionate residents, the list goes on. Perhaps most telling: the actions identified in this plan are not solely the responsibility of our local government. Rather, the leadership taken by municipal governments are complemented by those of other stakeholders and community leaders who have participated in this process.

This action plan represents a significant step towards improving our local quality of life and in doing so taking leadership in a global effort to reduce the impacts of climate change. It brings together so many assets, conversations, ideas and of course, actions. It provides a platform for focusing and strengthening our collective efforts. However, we expect the majority of this story - Waterloo Region's transition to a low-carbon economy - is still to be written.

This is a story we're excited to be a part of. Even more though, we're excited that you're a part of it - together, we'll chart a course for living smarter not just in 2020, but beyond.

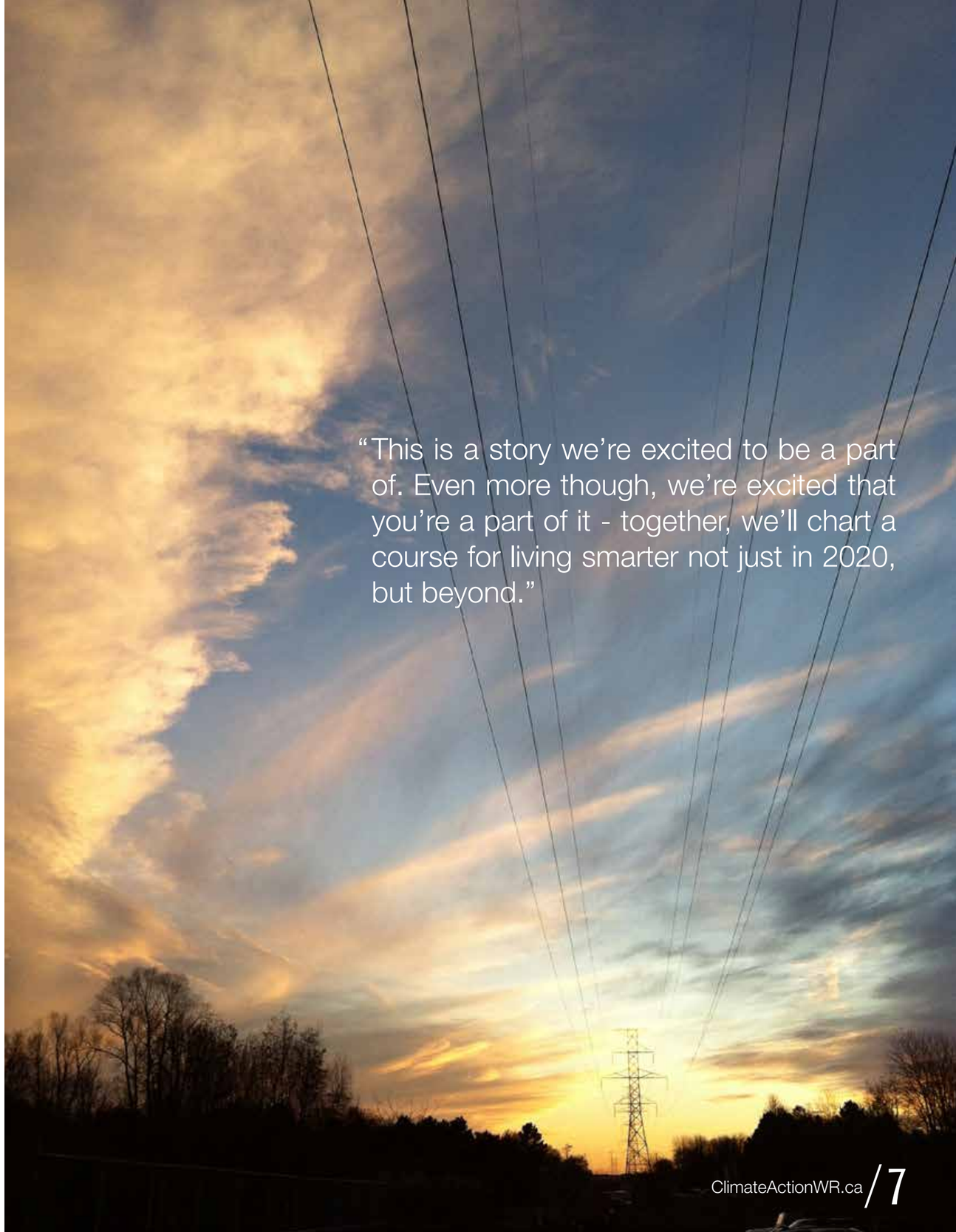
Onwards,

ClimateActionWR Steering Committee
2009 - 2013

Mike Morrice
Sustainable Waterloo Region

Mary Jane Patterson
REEP Green Solutions

David Roewade
Region of Waterloo



1.0 The Challenge and the Opportunity

Throughout Waterloo Region a strong sustainability network is taking shape. The leaders involved in this network include governments, businesses and organizations, environmental professionals, academics, and engaged community members. This growing network includes the very people needed to accelerate region-wide action on climate change. As the concentration of greenhouse gas (GHG) emissions in the atmosphere increases, more heat is trapped closer to the earth's surface, which raises the temperature of the air, ocean, and water, and changes the conditions in which we live[1]. To respond to this challenge in Waterloo Region, various programs and solutions are already working to mitigate the growth of greenhouse gases and adapt to the effects of climate change that we're experiencing firsthand.

To leverage these various efforts, this Climate Action Plan was developed as a collective direction for municipal and community leaders to take action that results in local GHG emission reductions. There is a significant opportunity to work collaboratively towards achieving a common GHG reduction target, strengthening our local economy, reducing the costs of infrastructure renewal, increasing energy security, and improving the public health and air quality of Waterloo Region. As we reach our goals through continued action, we'll realize the vision set out in this Climate Action Plan: Waterloo Region as an innovative and forward-thinking community where we work together to achieve environmental sustainability.

1.1 HOW DOES CLIMATE CHANGE AFFECT OUR COMMUNITY?

Over the past few years, the local effects of global climate change have become increasingly clear. Climatic changes are contributing to factors affecting our living conditions, such as the increased frequency and severity of extreme weather events, like heat waves, intense rainfall, strong winds, and temperature fluctuations above or below the long term average[2,3]. Weather effects such as these are being felt worldwide—from droughts across the horn of Africa[4], to Hurricane Sandy in New York City[5], to flooding in major Canadian centres like Calgary and Toronto. In July of 2013—at the same time that this Climate Action Plan was being developed—Waterloo Region experienced two severe rainstorms that saw trees uprooted, cars and homes damaged from falling debris, and widespread power outages. These storms came at a cost; our local utility companies spent over $500,000 on cleanup and power restoration, numerous claims were filed with area insurance companies, and some local businesses were forced to remain closed for an extended time due to flooding or structural damage.

Tackling GHG emission reductions is no longer only an environmental concern, but a financial and a health care imperative that impacts the development of prosperous, sustainable communities.

Climate change is also contributing to shifting seasonal conditions, which directly impact the way we live. A recent modelling exercise performed by the Grand River Conservation Authority predicts that local trends will move towards longer, warmer, drier summers and shorter, wetter winters with more frequent melts[6]. These seasonal shifts are affecting both our societal and natural systems. Take local agriculture—an important economic driver and Waterloo Region's largest land use activity[7]—which is currently facing challenges due to month-to-month weather variability as part of long-term climatic trends. During the 2012 growing season, summer-like temperatures arrived unexpectedly in March followed by colder temperatures in April. These unseasonable conditions caused permanent damage to some crops, including a loss of approximately 90% of Ontario's apple crop. Challenges like these, affecting farming costs and practices, in turn impact our food prices and the availability of local food options.

The continued increase of GHG emissions at or above current rates will cause further warming and spur changes during the 21st century that are very likely to be larger than those experienced during the 20th century[8]. These changes are expected to create both financial and health care concerns for governments at all levels. Between 1980 and 2004, the costs of damage due to climate change, such as storm damage and flooding, totalled more than $1.4 trillion worldwide[9]; a number that will likely continue to increase. In addition, predictions affecting human well-being include changes to the range and transmission of infectious disease, food insecurity, increased health issues, and reduced access to safe water. A local study focusing on Waterloo Region urban centres[10] found vulnerable populations, like people experiencing homelessness, at even greater risk. For local municipalities, tackling GHG emission reductions is no longer only an environmental concern, but a financial and a health care imperative that impacts the development and maintenance of prosperous, sustainable communities.

1.2 WHAT IMPACT DOES OUR COMMUNITY HAVE ON CLIMATE CHANGE?

The Intergovernmental Panel on Climate Change (IPCC) - in its latest report released only days before this Climate Action Plan was finalized—concludes that it is now extremely likely—at a level of scientific certainty over 95% - that human influence has been the dominant cause of climate change since the mid-20th century.[11]

Waterloo Region currently has an opportunity to implement smart solutions across the community that can mitigate the further effects of climate change. Local action is critical, considering that the activities of individual residents and businesses, when measured cumulatively, produce a significant source of global GHG emissions.

With municipalities having direct control or indirect influence over approximately 44% of GHG emissions in Canada, collectively they are well positioned to show leadership in reducing our national emissions levels[12]. Areas within municipal influence that affect energy use and GHG emissions include building construction, local land use, agricultural practices, transportation patterns, and economic development. By implementing and supporting policies and programming focused on climate change mitigation, municipalities can take steps that directly impact local reduction levels.

Cities across the world are demonstrating that community-scale actions lead to measurable GHG reductions, cost savings through efficiency, business investment, and improvements to quality of life for their residents[13]. It is this opportunity—to create positive impacts on both climate change and community development—that exists for Waterloo Region today.

1.3 PART OF A NATION-WIDE EFFORT: PARTNERS FOR CLIMATE PROTECTION PROGRAM

The ClimateActionWR collaboration is guided by the five-milestone framework provided by the Partners for Climate Protection (PCP) program, which is offered in partnership between the Federation of Canadian Municipalities (FCM) and ICLEI Local Governments for Sustainability. Through the PCP program, participating municipalities from Waterloo Region are part of a network of more than 240 Canadian municipalities—representing over 80% of Canada's population—that have committed to reducing GHGs and acting on climate change. From 2008 to 2012, PCP members reported annual reductions of 1.8 million tonnes of GHGs and $2.3 billion invested at the local level[14]. Milestones associated with the PCP framework, and timelines for reaching these milestones in Waterloo Region, are shown in Figure 1.1.

The PCP program encourages municipalities to create both a Corporate Action Plan to address GHG emissions resulting from municipal operations (e.g. municipally-owned facilities and fleet) as well as a Community Action Plan to cover GHG emissions from all residents, businesses, and institutions in the greater community. The Region of Waterloo, City of Cambridge, City of Kitchener, and City of Waterloo are all participating members of the PCP program. These four municipalities collaborated to achieve Community Milestones 1 to 3 together. Although the Townships of North Dumfries, Wellesley, Wilmot, and Woolwich are not currently members of the PCP program, township staff and Council were invited to contribute to the development of this Climate Action Plan. Participating in the PCP program ensures that Waterloo Region can benefit from the lessons learned in communities across Canada who are well down the path towards achieving GHG reductions.

Figure 1.1 Partners for Climate Protection Program Milestones

*Milestone completion is pending approval by local Regional and City Councils, as well as FCM/ICLEI.

Individually, the participating PCP municipalities are at various stages of completing their Corporate PCP Milestones 1 to 3. While this corporate-level work was started voluntarily through the PCP program, as of 2013 municipalities are also required under Ontario Regulation 397/11 of the Green Energy Act to report on their energy consumption and GHG emissions, and to develop and implement a five-year energy conservation and demand management plan starting in 2014.

1.4 THE BENEFITS OF LOCAL ACTION

A broad range of community stakeholders developed the Climate Action Plan to provide direction for taking targeted actions that achieve a range of community benefits and contribute to the community GHG reduction target. As area leaders implement the plan, our collective efforts will contribute to continued community development by strengthening our local economy, reducing the costs of infrastructure renewal, increasing energy security, and improving the public health and air quality of Waterloo Region.

Strengthening Our Local Economy

Mitigation projects, like those in this plan, encourage the growth of the region's low-carbon economy by creating new jobs and boosting other related sectors across Waterloo Region. The importance of fostering a local low-carbon economy is evident considering that:

- The low-carbon economy is growing faster than the rest of the Canadian economy, with annual domestic spending on low carbon goods and services expected to rise from $7.9 million in 2010 to $36-60 billion in 2050, depending on the impact of climate policies[15].
- A recent study estimated that the local green economy has a total of 196 businesses, with a value of $1.04 billion dollars generated[16].
- A growing number of local organizations, representing more than 13% of Waterloo Region's workforce, are currently committed to GHG reductions[17].
- By implementing projects that achieve community sustainability goals, local municipalities are better positioned to attract green sector companies and skilled employees.

Reducing the Cost of Infrastructure Renewal and Adaptation

Investing in low-carbon infrastructure and programs that reduce GHGs, adapt to climate change, and produce cost savings is necessary to slow the increase of local infrastructure costs. Taking action to mitigate negative impacts on regional infrastructure is important considering that:

- Various factors have contributed to the region's $265 million infrastructure deficit and a persistent backlog of maintenance, replacement, and expansion[18].
- Climate change impacts increase the potential of rising infrastructure renewal costs, such as changing stormwater management demands.
- Smart solutions, like growing our community's bike culture, result in significant cost savings. For example, reducing parking spaces can result in savings up to $4,000 per space in urban areas[19], while constructing a one kilometre bike lane costs $35,000-150,000 compared to $690,000 for a one kilometre vehicle lane[20].

Increased Energy Security

Improving energy security in Waterloo Region ensures that a reliable, affordable source of energy is available to maintain the daily functions of our homes and businesses. Managing our energy use and supply is essential considering that:

- The electricity system is currently vulnerable to outages caused by extreme weather events and strain during peak periods, which has direct cost implications for residents and businesses.
- Energy conservation is a valuable resource for maintaining a strong energy system as it defers the need to invest in new generation and transmission capacity. At 3 cents per kWh in 2011 the cost to deliver energy-efficiency programs across Ontario has proven to be more cost effective than developing other forms of electricity infrastructure[21].
- Conserving energy, enhancing local energy infrastructure, and increasing production within the region's boundaries provides our community with more control over where and how energy is generated, delivered, and consumed[22].

Improved Public Health and Air Quality

Local projects that encourage more active transportation, increase public transit use, and decrease emissions contributing to smog will result in improvements to air quality, healthy active living, and the increased well-being of our residents. Controlling factors affecting air quality and health lead to multiple benefits for the region considering that:

- In 2012, 15 smog advisory days were issued in the Waterloo-Wellington region[23]. The transportation sector is estimated to be responsible for 65% of the emissions of nitrogen oxides and volatile organic compounds which contribute to smog. Between 2002 and 2006, in Cambridge, Kitchener and Waterloo, there were an estimated 932 hospital admissions for cardiovascular and respiratory problems related to exposure of these air contaminants[24].
- Using active and low-carbon forms of transportation, such as walking, biking, or public transit, increases personal health while avoiding emissions that contribute to smog.
- For example, by shifting travel to transit and out of private cars, the rapid transit project is anticipated to reduce annual Criteria Air Contaminants by 325 tonnes in 2031 (in addition to GHG reductions). This reduction in local air pollutants is expected to decrease hospital admissions, saving the health care system an estimated $10.5 million during the first 25 years of the project[25].

As leaders across Waterloo Region use the recommendations in this Climate Action Plan to reduce GHG emissions, improvements to our local economy, infrastructure costs, energy options, and air quality will result. In turn, new communities participating in the PCP program will learn from our shared successes and implement their own local action plans that contribute to our nation-wide efforts towards achieving a positive impact on climate change.

2.0 We're Ready to Respond in Waterloo Region

Even when the benefits of local action are clear, taking steps to mitigate climate change can seem like an ambitious goal. How can one community make measurable progress towards reducing GHG emissions at a local level in a way that makes an impact on the global scale? With our community leaders working together to implement a well-defined Climate Action Plan, Waterloo Region is positioned to do just that. And by fostering community-wide participation to implement the plan, reaching our region's 2020 GHG reduction target is not only possible, but probable.

2.1 LEVERAGING OUR COMMUNITY'S STRENGTHS

Waterloo Region is a diverse community that demonstrates strong leadership in areas like technology, manufacturing, entrepreneurship, agriculture, economic development, education, arts, and culture. The region is made up of three urban municipalities: Cambridge, Kitchener, and Waterloo; and four rural townships: North Dumfries, Wellesley, Wilmot, and Woolwich. With a current population of approximately 559,000[26], and an expected population increase to over 740,000 by 2031[27], Waterloo Region is one of the fastest-growing areas in Ontario and is named under the provincial growth plan legislation as a "place to grow".

Waterloo Region's political structure is composed of the seven local area governments mentioned above, as well as a regional government. This provides a unique context for governance decisions and for assignment of civic responsibilities between the two levels of municipal government. In addition, Waterloo Region's geographic reach stretches across both urban and rural landscapes and lifestyles. The range of governance expertise shown across Waterloo Region—from understanding both urban and rural interests, to the development of varying economic strategies, to the promotion of individual community cultures—creates a collective advantage when working collaboratively.

Local leaders have a wide range of experience, including practical project implementation, policy planning, and community programming that will help propel Waterloo Region's sustainability efforts forward. By sharing expertise, focusing innovations on smart solutions, and bringing these solutions to the community at large, we are well positioned in Waterloo Region to reach our climate action goals and to inspire similar action in other municipalities across Canada.

2.2 THE TIME IS RIGHT FOR A COMMUNITY CLIMATE ACTION PLAN

The leadership of the region's sustainability network is continuing to strengthen with a growing representation from local governments, businesses, organizations, and community members. We now have the right people in the right places to successfully implement a community-wide Climate Action Plan. As global GHG emission levels increase, the need for local action also increases. To that end, this Climate Action Plan was developed so we can further the success of our collective efforts with a focus on the following scopes:

- **Climate change mitigation** through GHG emission reductions that contribute to our community's quality of life. Climate change adaptation is recognized as a critical concurrent step.
- Achievable **action between now and 2020**.
- Initiatives that fall within the jurisdiction of **local** organizations within Waterloo Region.
- **A collaborative approach** that encourages local governments and community leaders to actively participate in a harmonized process to develop and implement the plan.

Building on existing resources and unifying our efforts…

The Climate Action Plan is interconnected with a number of existing policies, programs, and activities led by the community and local governments. The plan aims to build on these existing resources as well as support the development of new ones. Through the Climate Action Plan, policy directions—such as those in municipal Official Plans, Transportation Master Plans, or Environmental Strategic Plans for example—are coalesced from a climate change perspective and connected with the need for the implementation of actions, community programs, and projects.

Concurrently, the Climate Action Plan will bring new and existing programs to the larger sustainability network, so that all local actions are recognized in achieving our community GHG reduction target. Ultimately, the plan provides a collective direction for everyone to continue to build from as part of a unified effort.

2.3 The Climate Action Plan:
DEVELOPED THROUGH COMMUNITY COLLABORATION

ClimateActionWR is a collaboration between local organizations and community members who support the implementation of a region-wide Climate Action Plan. When implemented, the plan will leverage Waterloo Region's collective efforts towards achieving a community-scale GHG reduction target that leads to higher quality of life throughout the region.

2009-2010

REEP Green Solutions (REEP), Sustainable Waterloo Region (SWR), and the Region of Waterloo worked closely with a University of Waterloo student research group to assess the feasibility of developing a community GHG action plan and reduction target.

2011

- Resources were acquired to hire a full-time Project Manager.
- In March, The Climate Collaborative partnership between REEP, SWR, and the Region of Waterloo became official.
- Partnerships were solidified with the Cities of Cambridge, Kitchener, and Waterloo.
- $180,000 in initial funding was granted from the Ontario Trillium Foundation and The Kitchener and Waterloo Community Foundation, which leveraged resources from the municipalities and in-kind support from REEP and SWR.

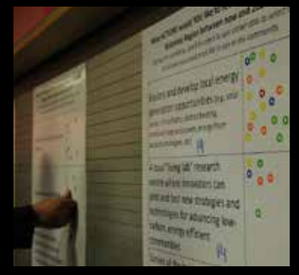
EARLY 2012

- The lead organizations, area municipalities, and local energy utilities worked together to complete a community-scale GHG emissions inventory and forecast in May. This work achieved Community Milestone 1 of the PCP program for all four participating local municipalities (City of Cambridge, City of Kitchener, City of Cambridge and Region of Waterloo).
- The collaborative secured an additional $140,000 in funding from the Green Municipal Fund to continue work into the action planning phase.

LATE 2012

- In June, a stakeholder workshop was held and community engagement efforts ramped up throughout the rest of the year.
- The Climate Collaborative underwent a transformation to launch ClimateActionWR as its new public presence, including a new logo, website, and social media.
- The kick-off meeting for the sector-focused Task Forces was held in November.

2013



- Advice and input was sought from community stakeholders through the Community Forum Series in March, ongoing Task Force meetings, an online discussion board, and social media.
- The Climate Action Plan document was prepared and presented to all four Regional and City Councils for approval in Fall of 2013. If approved, this plan will encompass Milestone 2 (setting an emissions reduction target) and Milestone 3 (developing a local action plan) of the PCP program.

2.3.1 The ClimateActionWR Collaboration

ClimateActionWR is a growing collaboration between different sectors, disciplines, and interests across the Waterloo Region community. A collaborative approach to this work has been vital to facilitate the sharing of expertise and the optimization of resources between active community participants. REEP Green Solutions (REEP), Sustainable Waterloo Region (SWR), and the Region of Waterloo have worked together as lead organizations for the collaboration since 2011, along with valuable partnership from the Cities of Cambridge, Kitchener, and Waterloo, and local electric and natural gas utilities.

The roots of this work lead back to a research project undertaken in 2009-10 by four University of Waterloo Environment & Business students under the direction of REEP and SWR. The project focused on exploring the feasibility and expected benefits of developing a community-wide GHG reduction target and action plan, and concluded that there was strong rationale for pursuing this work locally in a collaborative manner.

REEP and SWR began to reach out to other community stakeholders, including the Region of Waterloo, where a commitment had just been made in April 2010 to address corporate and community emissions through the PCP program (see Section 1.3). The Cities of Kitchener and Waterloo had also previously signed on to the PCP program and at the time Cambridge was actively developing a Corporate Sustainability Plan (and would later follow this with a resolution to join the PCP program as well). This created a natural alignment between the ambitious idea initiated by the non-profit organizations and the commitments made by local municipalities to pursue a community-scale climate action plan.

In early 2011, REEP, SWR, and the Region formalized their partnership as The Climate Collaborative and hired a full-time Project Manager to secure the financial resources and partnerships necessary to take the initiative to the next level. Key to the growing collaboration was the participation of the local electric and natural gas utilities. In 2012, staff from Cambridge and North Dumfries Hydro, Kitchener Utilities, Kitchener-Wilmot Hydro, Union Gas, and Waterloo North Hydro all became important contributors. They worked together with the lead organizations and area municipalities to gather the local expertise and usage data necessary to complete a community-scale GHG Emissions Inventory and Forecast, as detailed in Section 3.1.

With area municipalities and local energy utilities backing the vision of a community-wide climate action plan, the collaborative launched its new public presence in late 2012: ClimateActionWR. A website and social media channels were used to grow the collaboration and foster two-way communication with the community at large.

2.3.2 How The Community Helped Shape The Plan

During the past few years, a wide variety of people across Waterloo Region were engaged in a conversation about local climate action. The feedback received helped create a collective focus for the Climate Action Plan leading to an overall vision, goals, ideas for actions, and an implementation strategy. In addition to ongoing partnership development among lead organizations, the majority of community engagement activities occurred between June 2012 and September 2013 through the four interconnected phases of engagement shown in Figure 2.1. Input was provided through a number of avenues as detailed in Table 2.1, including a Steering Committee, four sector-focused Task Forces, consultations with Council and municipal staff, public forums, an online discussion board, and social media.

After the plan is complete, building continued engagement in the community is a key objective for the implementation phase. The following considerations should be made in order to learn from the existing engagement efforts:

- Regular reporting on results will be critical in continuing to build momentum and interest within the community.
- Sustained effort and creative techniques will be needed to facilitate open dialogue among a wider range of people in the community.
- Strengthening relationships that have been forged to date with key community stakeholders, task force members, and partners will be a vital part of implementation.

The full Community Engagement and Outreach Report can found in Appendix D.

Figure 2.1 Phases of Community Engagement & Plan Development

Developing the Engagement Strategy

JUNE - SEPTEMBER 2012

In June 2012, a workshop was held to determine how the community could best participate in the development of the Climate Action Plan. Following the workshop, the project team defined an engagement strategy that would help achieve Milestones 2 and 3, created the project website, and developed a brand and social media identity.

Defining a Vision and Goals

SEPTEMBER 2012 - MARCH 2013

The four Task Forces were formed in the fall of 2012 and were first tasked with contributing to the development of a vision for local climate action and goals to help realize this vision. Feedback on the vision and goals was also offered by the community-at-large in subsequent phases such as at the three Community Forums and through online channels. The final vision statement can be found in Section 3.2.

Action Planning

JANUARY - JUNE 2013

The Task Forces, community members, project team, and municipal staff all contributed input to the scoping exercise to determine actions currently underway as well as potential opportunities for future reduction efforts. These lists were then assessed and refined by a technical consultant using pre-established criteria, while also collecting reference cases and quantifying the estimated GHG reduction where possible. Further details on the Actions and Opportunities can be found in Sections 3.4 and 3.5.

Finalizing the Plan and Implementation Strategy

JUNE - SEPTEMBER 2013

Based on all in-person and online conversations held with community stakeholders and technical recommendations, the project team synthesized the information into a draft plan. During this stage, advice and input was gathered from local politicians, municipal staff, and Task Force members specifically on the target-setting approach and implementation strategy. In September 2013, the plan was finalized and prepared for review and approval by the Regional and three local City Councils.

Table 2.1 A Snapshot of Community Participation

ENGAGEMENT ACTIVITIES	TIMING	PARTICIPATION
Steering Committee. Provided overall strategic direction to the project manager, facilitation team, and technical team, and gave final approval of material developed.	Met every 3-4 weeks from Fall 2010 to present	SWR Executive Director, REEP Executive Director, Region of Waterloo Sustainability Office
Staff and Volunteers. Staff provided direction to volunteers and the consulting team and provided overall project management. Volunteers provided support and capacity for implementation of the engagement strategy.	Ongoing	1 – full-time project manager (3 years) 4 – interns (4 months each) 6 – dedicated volunteers (1,200 hours combined)
Municipal Partners. Municipal partners supported the action plan development by steering the initiative through municipal processes, and providing feedback and inputs through group meetings, document review and other correspondence.	Group meetings approx. once per quarter	8 staff regularly involved
Stakeholder Workshop. Two identical workshops were held to gain input to the process of community engagement that would contribute to the development of the Climate Action Plan.	June 2012	50 participants
Task Forces. Four Task Forces were established with members from the following sectors: Residential Energy, Industrial, Commercial & Institutional (ICI) Energy, Transportation, and Agriculture & Food. Through meetings and document review, members advised on developing the vision and goals, identifying and prioritizing actions, and refining the implementation strategy.	5 meetings between November 2012 and June 2013	46 Task Force members from 28 organizations
Community Forums. Three community forums were held across the region. The forums provided background information and perspectives from a panel of community leaders, and offered an opportunity for input on the vision, goals, and actions in the Climate Action Plan.	March 2013	130 participants
Project Website and Social Media. Online tools were utilized on an ongoing basis to share information about the project and to receive feedback. (www.climateactionwr.ca and @ClimateActionWR)	November 2012 – present	2,100 unique website visits (13,537 page views) 126 Facebook likes 250 Twitter followers
Online Discussion Board. An interactive tool was used to seek public input on the draft vision, goals, strategic directions, and actions in the plan.	November 2012 – July 2013	46 registered users, 110 ideas were posted and received 307 votes and 62 comments.
Meetings and Presentations. Presentations were made to key stakeholders including municipal staff committees and Citizen's Environmental Advisory Committees. Information was shared through presentations and booths at a variety of community events, and by working with graduate students at University of Waterloo.	January 2012 – Fall 2013	Ongoing

3.0 A Plan for Action

By working together, local municipalities and community stakeholders will put the Climate Action Plan in motion to achieve the outlined actions, opportunities, and goals that can result in a 6% reduction of local GHG emissions by 2020. Through their collaborative climate leadership, Waterloo Region will see increased efficiencies in homes, workplaces, transportation, agriculture, and waste management that lead to stronger local economies and improved quality of life across the region.

3.1 Our Community Carbon Footprint

In May 2012, ClimateActionWR completed a community-wide GHG emissions inventory and forecast for Waterloo Region. Local governments, non-profit organizations, and electric and gas utilities collaborated to gather the local expertise and usage data necessary to complete the inventory using 2010 as a base year. With this baseline measurement, we can now monitor progress towards achieving our community GHG reduction target by 2020.

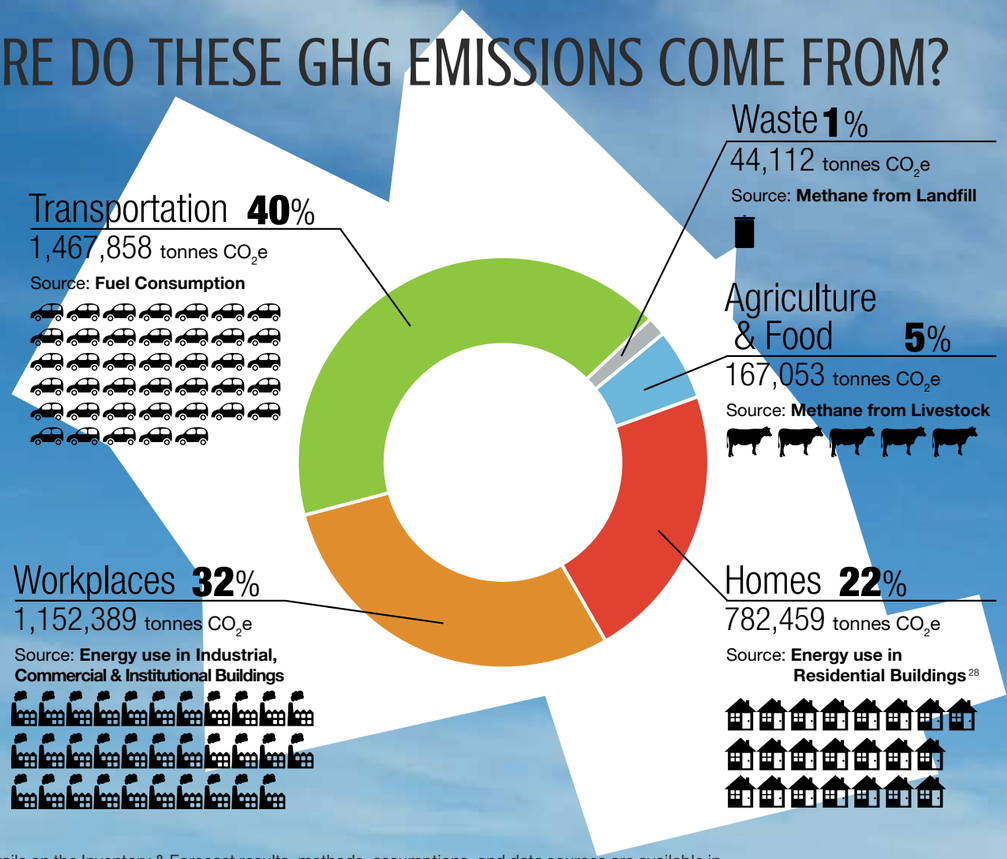
In 2010, the activities of residents and businesses in Waterloo Region produced...

3.6 million tonnes of greenhouse gas (GHG) emissions (CO_2e)

OR

6.67 tonnes of GHGs per person

WHERE DO THESE GHG EMISSIONS COME FROM?



Transportation 40%
1,467,858 tonnes CO_2e
Source: **Fuel Consumption**

Waste 1%
44,112 tonnes CO_2e
Source: **Methane from Landfill**

Agriculture & Food 5%
167,053 tonnes CO_2e
Source: **Methane from Livestock**

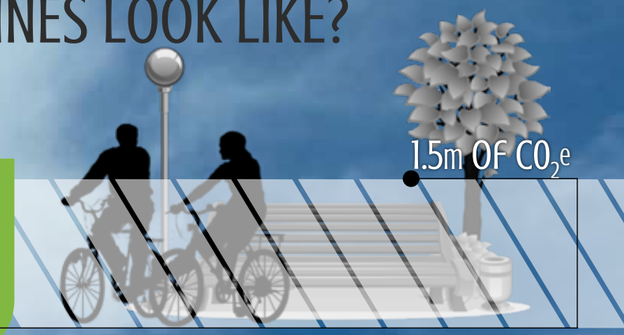
Workplaces 32%
1,152,389 tonnes CO_2e
Source: **Energy use in Industrial, Commercial & Institutional Buildings**

Homes 22%
782,459 tonnes CO_2e
Source: **Energy use in Residential Buildings**[28]

Complete details on the Inventory & Forecast results, methods, assumptions, and data sources are available in the Inventory & Forecast Report and a related technical data management manual (see Appendix D for details).

WHAT DOES 3.6 MILLON TONNES LOOK LIKE?

ALTHOUGH WE CAN'T ACTUALLY SEE GHGS IN THE AIR, IF WE VISUALIZED THE 3.6 MILLION TONNES OF CO_2e PRODUCED IN 2010 SPREAD OUT AS A "BLANKET" OVER THE LAND AREA OF WATERLOO REGION, IT WOULD BE 1.5 METRES THICK.

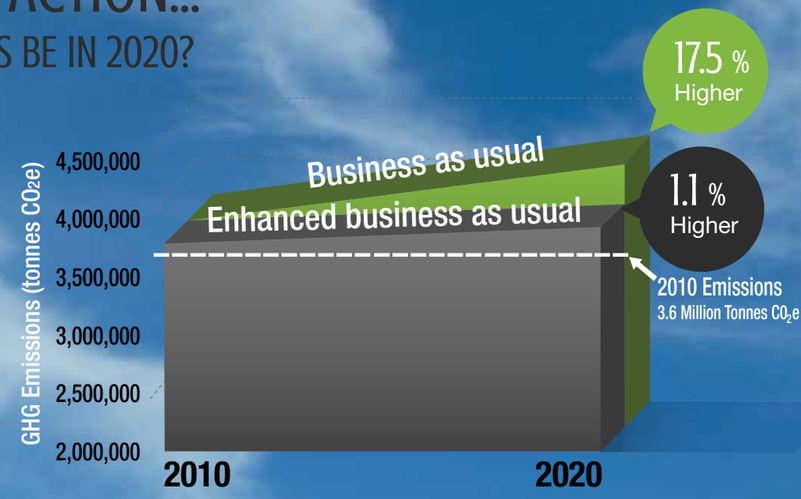


IF WE DON'T TAKE ACTION...

WHAT WILL OUR EMISSIONS BE IN 2020?

If no local actions are implemented to reduce GHG emissions between now and 2020, and population continues to grow at projected rates, then our emissions will grow by 17.5%. This is the "Business-As-Usual" Forecast.

But there is good news here—we expect that emissions will not grow this much based on improvements to the provincial electricity grid and vehicle fuel efficiency standards. After taking these factors into account, emissions are expected to grow to 1.1% above baseline by 2020. This is the "Enhanced Business-as-Usual" Forecast.



THE IMPORTANT QUESTION IS: HOW MUCH LOWER DO WE NEED TO GO?

Committing to a local reduction target below the Enhanced Business-as-Usual forecast is the way that our community can contribute to a global effort to reduce the impacts of climate change.

HOW IS ONE TONNE OF GHGs PRODUCED?

Everyday activities that add up to 1 tonne of GHGs:

- **16** Round-trip drives to Toronto
- **1** Year of electricity use in the average home
- **42** BBQ propane tanks

3.2 Action Plan Framework

The Climate Action Plan was developed on a framework that enables municipalities and community stakeholders to take collaborative action towards reducing GHG emissions across our region. The core components of the plan ensure that collaborating partners are equipped with the goals, actions, and direction necessary to achieve a region-wide GHG reduction target by 2020.

VISION

The cross-section of community members developing the Climate Action Plan envisioned *Waterloo Region as an innovative and forward-thinking community where we work together to achieve environmental sustainability.*

APPROACHES

To move us towards this vision, the Climate Action Plan acts as a collective direction for reducing community-wide GHG emissions through the following approaches:

- Building on existing community resources,
- Facilitating collaborative opportunities,
- Pursuing multiple success factors, such as a stronger economy, enhanced quality of life, and overall environmental sustainability,
- Measuring and monitoring our progress, and,
- Committing to continuous improvement.

COMMUNITY GHG REDUCTION TARGET

As actions are taken throughout the region to reduce GHG emissions, the 6% community GHG reduction target provides a guidepost for measuring our collective progress over time (p.28).

FOCUS AREAS

The plan aims to improve five focus areas that were identified as the highest sectors of community GHG emissions in the inventory and forecast results (p. 29). These areas also cover areas of municipal management including stationary energy consumption (e.g. electricity), transportation planning and land use, and water and waste management infrastructure. The five focus areas are: homes, workplaces, transportation, agriculture & food, and waste.

GOALS & STRATEGIC DIRECTIONS

Partners can use the goals listed within each focus area to direct their efforts towards achieving specific objectives, while the strategic directions describe potential approaches for working toward these goals.

ACTIONS & OPPORTUNITIES

An ongoing list will provide an overview of actions that are currently being led or investigated by partner organizations, opportunities that show good potential to create local reductions, and further considerations to keep on the radar for future reduction efforts (p. 46). The initial scoping of local actions and opportunities has helped us to understand our capacity to move towards the goals and community GHG reduction target.

IMPLEMENTATION STRATEGY

Key to the collaborative success of the Climate Action Plan is the implementation strategy that sets out supportive governance and administrative structures, including a Leadership Committee with representation from across the community. Through regular monitoring and reporting, local municipalities can gauge the effectiveness of collective reduction efforts, address areas for improvement, and celebrate our successes along the way (p. 58).

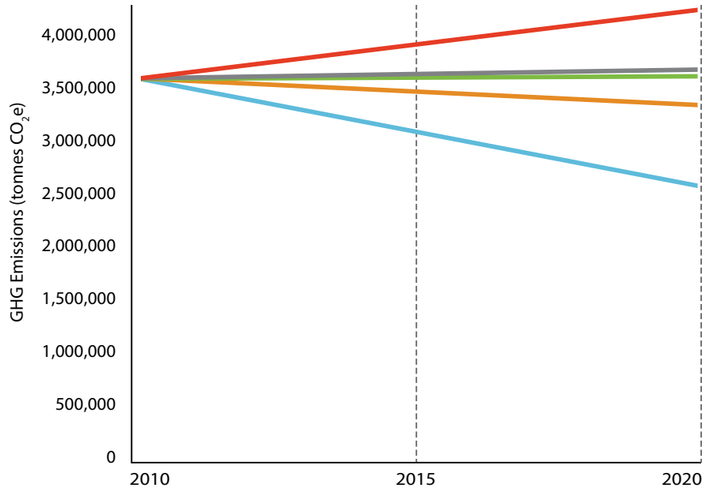
3.3 COMMUNITY GHG REDUCTION TARGET

After consultations with the community and municipalities convened through ClimateActionWR, **a community GHG reduction target of 6% below 2010 levels by the year 2020** is recommended for Waterloo Region. This target strikes a balance between a level that is achievable and one that is ambitious as it includes GHG reduction estimates for many initiatives currently in the plan yet still requires continued innovation and implementation of additional actions to be identified in the future.

To achieve this GHG reduction target of 6%, our overall emissions in 2020 will need to be at a level that is 842,148 tonnes lower than what is expected under a business-as-usual scenario. Figure 3.1 illustrates the relationship between the baseline, forecast levels, and the reduction target. As shown in Figure 3.2, reductions resulting from federal and provincial regulations are expected to account for two-thirds of this amount, or 585,784 tonnes. To build on this significant foundation and meet the 6% target, our community will need to work together to implement local actions that collectively reduce at least 256,364 tonnes.

This is the equivalent of taking over 56,000 cars off the road between now and 2020. As an indication of our capacity to meet this target, the actions and opportunities that can be quantified in Appendix B are estimated to have a total GHG reduction potential of 184,739 tonnes. There is significant potential within this region to develop the partnerships and stimulate the innovation required to achieve the additional 71,625 tonnes in reductions needed to meet the target. These reductions beyond those that are currently quantified in the action plan could be achieved through increased uptake of existing programs or implementation of new initiatives.

Figure 3.1 Waterloo Region Baseline, Forecast, and Community GHG Reduction Target



		% above or below baseline	Total 2020 tonneage (tonnes CO_2e)	Difference from baseline (tonnes CO_2e)
	Business-as-usual forecast	17.5% above	4,239,187	+ 625,316
	Enhanced business-as-usual forecast (see section 3.1)	1.1% above	3,653,403	+ 39,532
	2010 baseline	0%	3,613,871	0
	Waterloo Region community reduction target	6% below	3,397,039	- 216,832
	IPCC recommended reduction target for developed countries	10-40% below (25% shown as mid-range on graph)	2,710,403	- 903,468

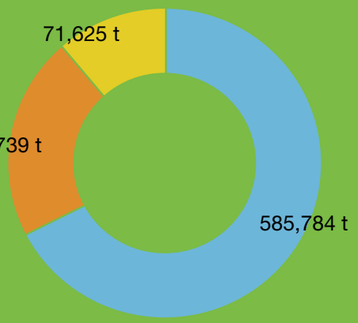
Additional considerations behind the recommended 6% by 2020 target:

- **This is an absolute reduction target** even though there is significant population growth occurring in the region: projections include 100,000 more people in 40,000 households[29] and almost 80,000 new vehicles owned locally by 2020[30].
- **Current economic constraints** make it challenging for governments, businesses, institutions, and residents to invest significant capital in the short-term at a time when many existing program expenses are being cut.
- **It can take a significant amount of time** to move from concept to implementation, when reductions are realized. For example, between now and 2020, the action that is expected to deliver the largest GHG reduction—75,000 tonnes—is the Regional Transportation Master Plan (RTMP) for which planning began well before the current timeframe.

As introduced in Section 2.2, the scope of this plan applies to emission sources and reduction measures that fall within the jurisdiction of local organizations in Waterloo Region. It is recognized that concurrent efforts at other levels of control are important as well. Recommendations from scientific assessments—such as those from the Intergovernmental Panel on Climate Change (IPCC)—conclude that a level of mitigation in the range of 10-40% below 1990 levels by 2020 is necessary across developed countries. This recommended level of emissions reduction includes emission sources and reduction measures that fall within local control (such as those discussed in this plan) as well as those at other levels of control (e.g. air travel, shipping, heavy industrial production). Our collective work represents the measures that are within local control and contribute toward the overarching global reduction goals.

Achieving a 6% reduction by 2020 is our first step towards mitigating the growth of GHG emissions. As we take action across the region, the reduction target will act as a guidepost for measuring our collective progress over time.

Figure 3.2 Expected Sources of Reduction to Meet 6% Target by 2020



- GHG reductions potential due to provincial coal phase-out & federal vehicle fuel efficiency standards.
- Local GHG reductions if actions and opportunities quantified in this plan are implemented.
- Local GHG reductions needed through increased uptake of existing programs or new initiatives.

Total Reduction from 2020 BAU to Target Level of 6% Below Baseline = 842,148 tonnes

3.4 FOCUS AREAS

The Climate Action Plan aims to improve five focus areas that were identified as the highest sectors of community GHG emissions in the inventory and forecast results. These areas also cover areas of municipal management including stationary energy consumption (e.g. electricity), transportation planning, land use, some agricultural activities, and water and waste management infrastructure.

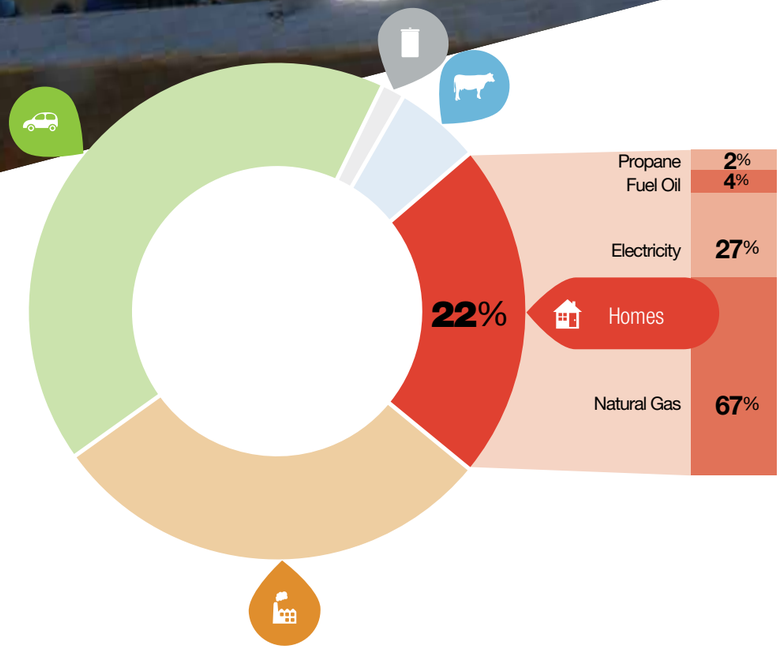
◀ The five focus areas

Focus Area: **HOMES**

omes are major energy consumers in Waterloo Region accounting for 50% of our community's natural gas consumption and 30% of electricity use.

As we go about our daily activities, energy is consumed for heating and cooling, and using electrical power (for everything from lights to appliances to hair dryers). As a result, 22% of total local GHG emissions in Waterloo Region in 2010 came from the use of electricity and fuel consumption (natural gas, propane, and fuel oil) in our homes.

This makes pursuing energy efficiency opportunities in the residential sector and rethinking the ways we supply our homes with energy a key focus area of the Climate Action Plan. By improving energy efficiency, residents can experience increased home comfort and decreased direct energy costs. Indirect benefits will also include improved local air quality through reduced smog caused by energy production, decreased infrastructure costs and strengthened energy security through diversification of energy supply, and increased employment and volunteer opportunities associated with energy retrofit activities.



Focus Area: **HOMES**

GOALS

✓ To reduce average energy use in households while maintaining or increasing home comfort.

✓ To increase local and renewable energy supply to the residential sector.

Progress in this focus area will be tracked by measuring at minimum: total GHG emissions from the residential energy sector; and energy use per household (GJ/household).

STRATEGIC DIRECTIONS

1. Encourage energy conservation through behaviourial change and equipment upgrades that enable residents to require less energy in the first place.
2. Increase the efficiency of existing building stock through retrofit and adaptive reuse.
3. Encourage practices for energy efficiency that are beyond the Ontario Building Code when new homes and multi-residential buildings are constructed.
4. Build capacity by educating and connecting the range of involved industry partners, including: contractors, developers, inspectors, real estate agents, and home improvement stores.
5. Increase residents' literacy on energy usage levels and how they translate to environmental and economic impact in order to stimulate a culture of conservation.
6. Promote the development of a more compact urban form with higher residential densities and a broader range of housing types (e.g. apartments and other multiple dwellings can achieve energy savings through shared walls or centralized heating and cooling systems).
7. Use financial mechanisms such as incentives to stimulate more extensive retrofits and implementation of renewable generation technology in residential buildings in order to drive deeper and longer-lasting energy savings.

CONNECTIONS TO COMMUNITY PLANS & POLICIES:

- Regional/Municipal Official Plans
- Regional/Municipal growth management strategies
- Utility energy conservation targets
- Kitchener Strategic Plan for the Environment/City of Waterloo Environmental Strategy

For example, the Regional Official Plan states, "The Region and/or Area Municipalities will ensure that development occurring within the Urban Area is planned and developed in a manner that, [among other stipulations] promotes building designs and orientations that incorporate energy conservation features and the use of alternative and/or renewable energy systems." [31]

EXAMPLE ACTIONS & OPPORTUNITIES:

The following are examples of initiatives that have been identified to-date through the ClimateActionWR process:

Utility Incentive Programs:
Reduce natural gas and electricity consumption through various incentive programs offered by gas and electric utilities for the residential sector.

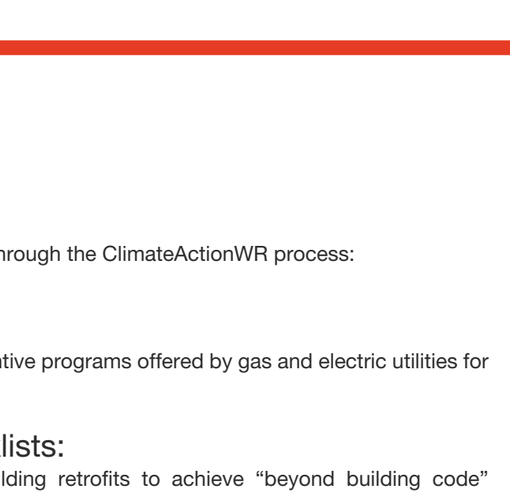
Green Building Standards, Toolkits and Checklists:
Investigate strategies for encouraging new developments and building retrofits to achieve "beyond building code" construction and performance.

Renewable Energy Generation:
Work with local energy distributors to explore and develop renewable energy generation opportunities, including local renewable energy districts and cooperatives, and application of geothermal, solar hot water and PV net metering solutions.

Local Improvement Charge (LIC) Financing for Energy Retrofits:
Use an existing municipal tool called Local Improvement Charges to cover the upfront costs of energy retrofits and renewables for homeowners.

For a complete description of actions and opportunities, see section 3.5 and Appendix B.

THERE IS A GOOD FOUNDATION TO BUILD ON



Thousands of residents across Waterloo Region have already taken steps to reduce energy use in their homes. Many have received energy assessments through the ecoENERGY program from local delivery agents like REEP Green Solutions[32], which has evaluated approximately 10% of the region's eligible housing stock (single/semi/row house and some multi-unit residential apartment buildings).

By following the energy-saving recommendations, these residents are now collectively reducing over 21,000 tonnes of CO_2 emissions and saving an average of $385 per home per year in energy costs. Other residents have improved their energy efficiency through programs offered by the local electric and natural gas utilities distribution companies, such as the Home Assistance Program that reduces the energy burden for those on a limited income[33].

Victoria Common in a central neighbourhood of Kitchener offers an example of incorporating on-site energy supply into residential development including solar energy, geothermal heating and cooling, and a cogeneration system.

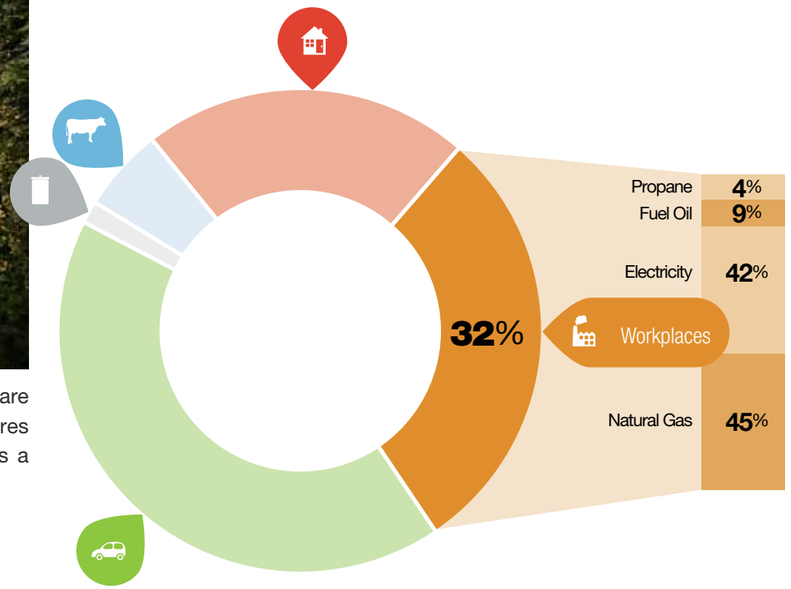
Focus Area: WORKPLACES

The places where we work make up a significant portion of the built environment in our community.

There are electronics, lighting, and equipment that need power and spaces to heat and cool. Our workplaces—a mix of industrial, commercial, and institutional (ICI) buildings—account for 50% of overall natural gas consumption, 70% of electricity use, and a resulting 32% of total local emissions (1,152,389 t CO2e). An important focus area of the Climate Action Plan is to support organizations to decrease the carbon impact of workplaces. There are opportunities to reduce energy costs for business owners and local institutions, and to get employees excited about working in healthier, lower impact, more productive environments.

By supporting sustainability leadership in workplaces across Waterloo Region, we can also continue to differentiate our community as one with a thriving sustainability cluster, creating opportunities to add new jobs in the green technology and energy sectors, securing more stable energy sources for local industry, and attracting more firms from the fast-growing low-carbon economy.

A living wall and natural lighting are two of the main sustainable features at Cambridge City Hall, which is a LEED Gold certified building.



Focus Area: WORKPLACES

GOALS

- ✓ To increase the number of local organizations measuring and publicly reporting their energy use and carbon impact.
- ✓ To increase Waterloo Region's profile among national leaders in the research, development, and sales and service of clean technology innovation and renewable energy.
- ✓ To reduce average energy usage per square metre in ICI buildings.
- ✓ To increase the amount and diversity of local energy supply to our region's workplaces.

Progress in this focus area will be tracked by measuring at minimum: total GHG emissions from the ICI energy sector; and energy use per square metre of ICI sector space (GJ/m^2).

STRATEGIC DIRECTIONS

1. Continue to boost the literacy and action taken by all sectors of the business community in response to the compelling business case for sustainability and rising energy costs.
2. Enable and support local organizations to take up action by developing plans, setting GHG reduction targets, and measuring their progress towards those targets.
3. Encourage a culture of information sharing and support where local organizations have access to input and guidance, shared knowledge, and collaborative opportunities.
4. Facilitate energy conservation activities by publishing sector-specific reference data, benchmarks and best practices, and by providing supportive tools (e.g. technological, financial).
5. Incentivize practices for construction and renovation that achieve energy efficiency above the Ontario Building Code.
6. Celebrate leadership by sharing the successes of first movers and pilot projects, and then translating those best practices into mainstream use and larger uptake.

CONNECTIONS TO COMMUNITY PLANS & POLICIES:

- Regional/Municipal Official Plans
- Local economic development strategies
- Regional/Municipal growth management strategies
- Utility energy conservation targets
- Regional/municipal corporate sustainability plans (City of Cambridge Corporate Sustainability Plan, City of Waterloo Environmental Strategy, Region of Waterloo Environment Sustainability Strategy, Kitchener Strategic Plan for the Environment)
- Regional Corporate Strategic Plan

For example, the Economic Development Strategy for the City of Cambridge includes actions such as "building and promoting the Clean-Tech/Alternative Energy sectors" as part of their understanding that "the 21st Century economy must be a green economy, and that to succeed in that economy it must build an economic development strategy that rests upon the pillar of ecological sustainability." [34]

EXAMPLE ACTIONS & OPPORTUNITIES:

The following are examples of initiatives that have been identified to-date through the ClimateActionWR process:

Corporate sector reduction commitments:
Increase the number of organizations setting GHG reduction targets as Pledging Partners of the Regional Carbon Initiative.

Utility Incentive Programs:
Reduce natural gas and electricity consumption through various incentive programs offered by gas and electric utilities for the commercial sector.

District Energy Systems:
Conduct a district energy feasibility study to identify opportunities within Waterloo Region (applies to the Homes focus area as well).

Municipal (Corporate) GHG Reduction Plans:
Demonstrate municipal leadership by implementing Corporate Plans that reduce energy and emissions across municipally-owned facilities and fleet.

Zero-Impact Sustainability Incubator:
Explore the potential for a zero-impact demonstration building that showcases sustainable building technologies, serving as a hub and spurring further growth across Waterloo Region's emerging sustainability cluster.

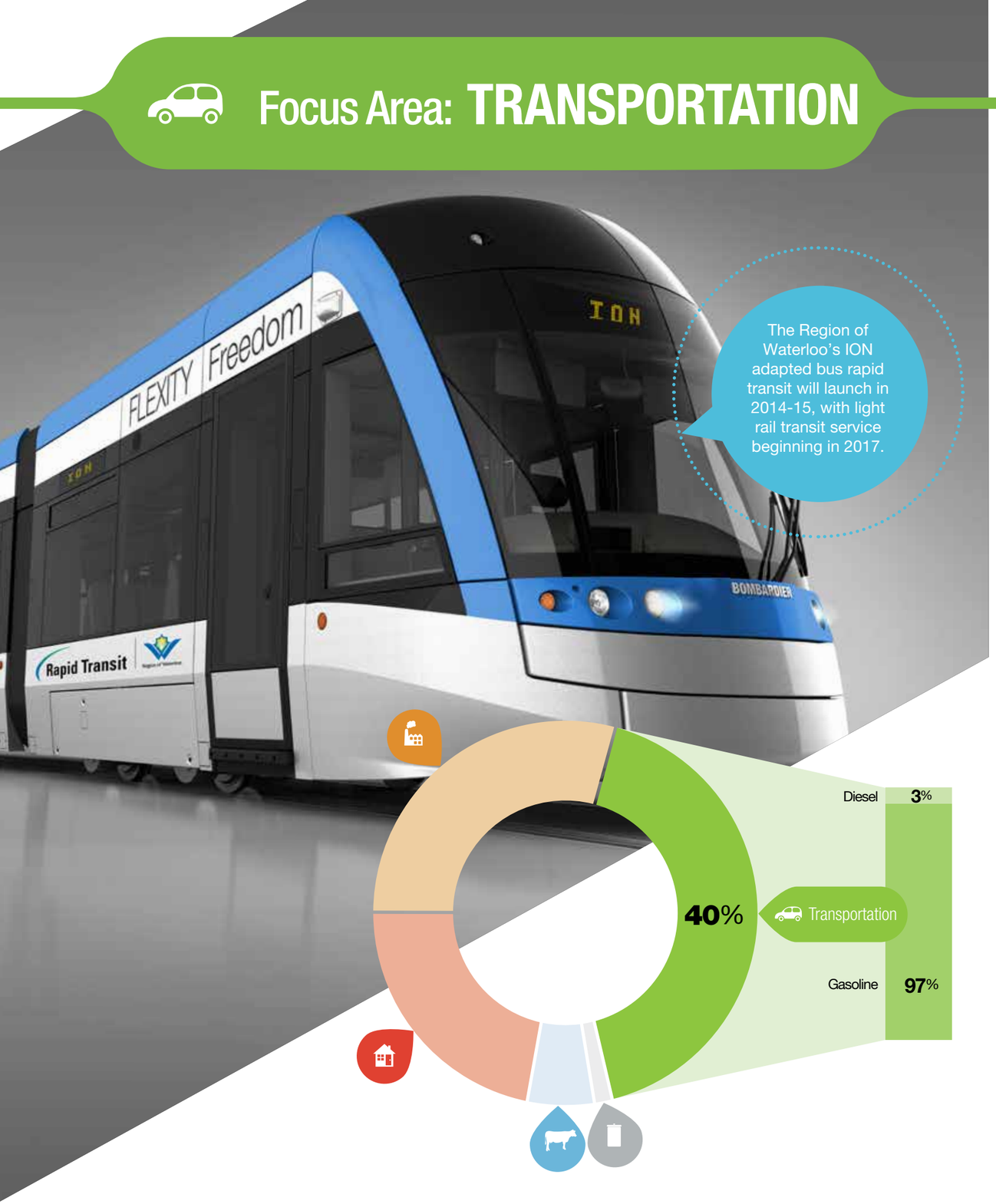
For a complete description of actions and opportunities, see section 3.5 and Appendix B.

WORK HAS ALREADY BEGUN...

A significant number of organizations across Waterloo Region are leading the way towards increased profitability, by reducing their carbon footprint and conserving energy across the ICI sector. For example, through the Regional Carbon Initiative (RCI), more than 60 organizations, representing over 13% of the workforce in Waterloo Region, have already made commitments to reduce their organization's carbon impact, or have intention to do so. To-date, these commitments add up to 45,000 tonnes, or the equivalent of taking 10,000 cars off the road every year.

As a Pledging Partner of the RCI, Wilfrid Laurier University (WLU) has made a commitment to reduce its carbon impact by 25% over the next 10 years. Towards this goal, WLU recently sub-metered all of its main buildings with electricity, natural gas, and water meters - a project that was made possible through an investment from the President's Innovation Seed Fund. The meters (*pictured above with Ray Robichaud, Director of Business and Facilities Operations, Dan Dawson, AVP Student Services and PISF board member, and Claire Bennett, Sustainability Coordinator*) feed utility information into an energy management system as well as an online dashboard for the university and greater community to see. Another local institution, the University of Waterloo, has long been using district energy to efficiently heat buildings on campus. Their most recent energy and cost-saving project (profiled on page 52) will result in an annual saving of 2,000,000 m^3 of natural gas and a GHG reduction of 4,200 tonnes of CO_2e.

Focus Area: TRANSPORTATION



The Region of Waterloo's ION adapted bus rapid transit will launch in 2014-15, with light rail transit service beginning in 2017.

Reliable and efficient transportation systems are increasingly recognized as the backbone of sustainable economies and communities.

The environmental sustainability of those systems is a significant consideration, which is demonstrated in Waterloo Region where the transportation sector is the largest source of local emissions, accounting for 40% of total GHG emissions measured through local fuel consumption. Whether it's for business, work, recreation or social activities, we rely on a variety of transportation modes to move people and goods from point A to point B.

Increasing the number of trips we take by transit, bike, or by walking instead of by car helps us to live healthy, active lifestyles, decreases local air pollution that causes adverse health effects and reduces GHG emissions.

A growing bike culture: Councillor Berry Vrbanovic and Josh Joseph, Transportation Demand Management Coordinator, City of Kitchener (pictured above), were among the dozens of people who gathered throughout the summer of 2013 for Community Bike Rides along the King Street "sharrows" in Downtown Kitchener.

Focus Area: TRANSPORTATION

GOALS

✓ To increase the use of sustainable transportation modes (e.g. transit, cycling, walking, carsharing, carpooling).

✓ To increase the energy efficiency and decrease GHG emissions from motorized transportation.

Progress in this focus area will be tracked by measuring at minimum: total GHG emissions from the transportation sector; and fuel consumption per capita (litres divided by population).

STRATEGIC DIRECTIONS

1. Reduce overall transportation demand and encourage lower commuting distances by promoting a more compact urban form with a diverse mix of land uses.
2. Seek ways to improve the efficiency of our transportation system and move the most people with the least amount of overall energy required.
3. Support technological developments and innovations that will provide lower-carbon energy sources for motorized transportation (e.g. alternative fuels).
4. Enhance the sustainability of the transportation network by continuously improving low-carbon mode options that are considered to be safe, affordable, available, and desirable.
5. Give priority to active transportation as a viable travel option and also as part of a healthy lifestyle through efforts such as developing active transportation routes and integrated regional trails, and clearing trails and sidewalks in the winter.

CONNECTIONS TO COMMUNITY PLANS & POLICIES:

- Regional/Municipal Transportation Master Plans
- Active Transportation Master Plans
- Trails/Pathway Master Plans
- Infrastructure Master Plans
- Air Quality in Kitchener Report

For example, the Regional Transportation Master Plan was developed with a goal to "support sustainable development by providing and maintaining a transportation system that supports sustainable growth in both urban and rural areas and reduces transportation contributions to climate change."[35]

EXAMPLE ACTIONS & OPPORTUNITIES:

The following are examples of initiatives that have been identified to-date through the ClimateActionWR process:

Regional Transportation Master Plan & Mode Shifting:
Continue implementation in order to achieve projected shifts in transportation modes (e.g. decrease in single-occupant vehicle (SOV) trips through increased use of public transit, active transportation and carpooling).

Regional Electric Vehicle Charging Network Planning:
Support consumer adoption of 1,000 electric vehicles across the region (e.g. through installation of public charging stations, education and awareness, etc.).

Region-wide Anti-Idling Campaign/Bylaw:
Continue region-wide efforts to reduce vehicle idling time through education campaigns and by-laws.

Employer Commuting Outreach:
Establish TravelWise (currently in pilot phase) as a long-term program with measurable impact across member organizations to reduce SOV commuting.

Local Car Share System:
Expand privately-operated shared vehicle systems, such as Community CarShare, to provide alternatives/supplements to personal vehicle ownership.

For a complete description of actions and opportunities, see section 3.5 and Appendix B.

WE'RE ALREADY ON THE MOVE...

Over the past decade, a significant amount of time and energy has been dedicated to long-term transportation planning and active transportation infrastructure investments in Waterloo Region. There has been a steady increase in transit ridership growing from 10 million rides in 2000 to over 20 million in 2012 due to the iXpress, transit passes for university students, expanded service areas and enhanced routes as well as more individualized marketing approaches.

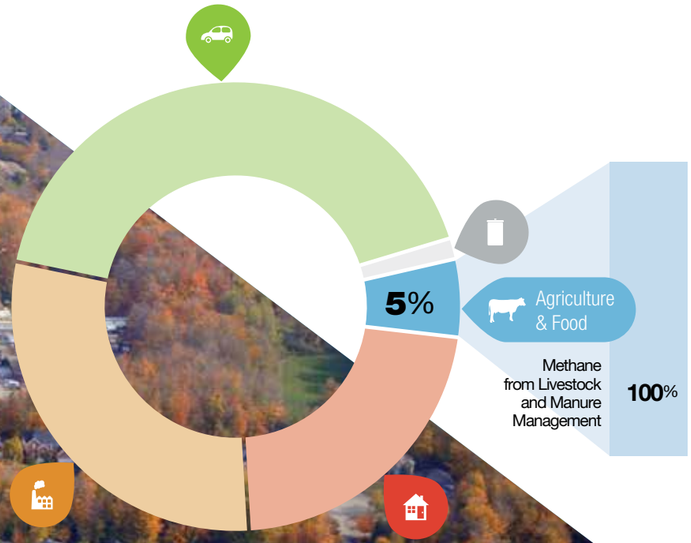
Employers also play a significant role in shaping employee travel patterns, and the Region of Waterloo's TravelWise program is an example of a local initiative that is achieving success. The 20 TravelWise member organizations, which represent over 23,000 employees across Waterloo Region, have reported commuting trips by transit, cycling, carpooling, walking, or teleworking. These employees are saving an estimated $4.6 million in avoided annual fuel costs and avoid an estimated 8,100 tonnes of C02 at the same time. Community CarShare is another growing local resource with over 1,000 current members who access shared vehicles as an alternative or supplement to personal vehicle ownership.

Focus Area: AGRICULTURE & FOOD

Food is something we can all find a common interest in. In Waterloo Region and many other communities, there is a rapidly increasing interest in understanding where and how our food is produced, its quality, and what the associated impacts are to our environment, economy and health.

The greenhouse gas impact of the local agricultural sector is estimated based on data available from Statistics Canada regarding methane emitted from livestock and accounts for 5% of total local emissions (167,053 t CO_2e).

Although the current methodology does not account for emissions from fuel used in agricultural equipment, crop and fertilizer emissions, or the energy costs associated with importing/exporting food over long distances, these activities do impact global sustainability. We can strengthen our local food security by optimizing the efficiency of local food production on the farmland available to us in Waterloo Region. When we reduce the environmental impact of the food choices we make, we will unlock economic opportunities associated with a robust local food production, processing and distribution system—from farms to forks. Proper manure management and land stewardship within agricultural resources helps to protect water quality and sensitive environmental areas as well as potentially mitigating climate change[36].



GOALS

- ✓ To increase the land area used as agricultural land, parks and natural areas to capture its value for contributing to a healthy ecosystem, including carbon sequestration.
- ✓ To increase the use of agricultural waste as input to local and renewable energy production.
- ✓ To better understand and quantify the non-livestock agricultural impacts on local emissions in order to identify more actions and opportunities for improvement.

Progress in this focus area will be tracked by measuring total GHG emissions from livestock and manure management at minimum. Other indicators will need to be developed for this focus area in consultation with community partners.

STRATEGIC DIRECTIONS

1. Protect against development of agricultural land.
2. Support conservation and rehabilitation of ecological systems in rural areas.
3. Provide opportunities for education and experiential learning related to food production and associated GHG and environmental impacts.
4. Encourage locally-led low impact and/or renewable energy production in the agricultural sector.
5. Optimize the efficiency of local food production on available land.
6. Increase the number and diversification of producers, processors and distributors of local food to integrate consumers and producers across urban and rural communities.

CONNECTIONS TO COMMUNITY PLANS & POLICIES:

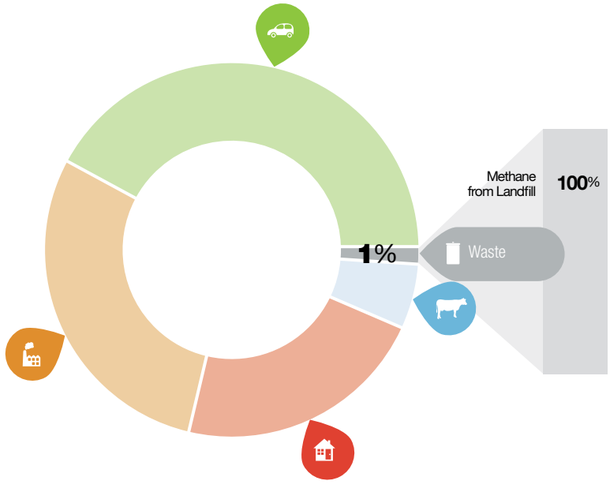
- Waterloo Region Food Charter [37]
- Regional Official Plan

SEEDS HAVE ALREADY BEEN SOWN...

For over a decade, the Rural Water Quality Program[38] has been offered in partnership through the Region of Waterloo and the GRCA. This program supports farmers and land owners in optimizing manure management practices and proper nutrient management which lessens the release of N_2O emissions from fertilizers and protects water quality. The Foodlink Buy Local Buy Fresh program is an existing community collaboration that supports local food producers by connecting them to local consumers. The Region of Waterloo Food Systems Roundtable contributes as a networking and policy-making group working on building a strong voice for a healthy food system in Waterloo Region.

Focus Area: WASTE

In 2010, 1% (44,112 t CO_2e) of total GHG emissions from activities within Waterloo Region resulted from the solid waste that enters into our local landfill. These emissions are in the form of methane, which is a potent GHG that has over 20 times the global warming potential as carbon dioxide (CO_2). Organic waste is the primary source of methane (CH_4) generation in a municipal landfill as it decomposes in an oxygen-deprived (anaerobic) environment. When the same organic materials decompose in an oxygenated environment – such as a backyard composter or the municipal organics digester – methane gas is not produced.



GOALS

- ✓ Optimize use of existing waste management infrastructure, diversion programs, and community services.
- ✓ Explore alternative energy recovery options from waste.
- ✓ Manage landfill operations to minimize emissions.

Progress in this focus area will be tracked by measuring total emissions from the landfill as well as per capita (tonnes of GHGs divided by community population).

CONNECTIONS TO COMMUNITY PLANS & POLICIES:

The Region of Waterloo is currently in the midst of developing a new Waste Management Master Plan which is expected to be approved in 2014. As the scope of the master plan addresses the next 20 years and beyond, future progress reports of the Climate Action Plan may be able to better address some of the strategic synergies between waste management and GHG reduction. Waste is also connected to the policies within the Regional Corporate Strategic Plan.

EFFORTS ARE ALREADY UNDERWAY...

It is estimated that around 40% of household garbage is made up of organic material which represents a great opportunity to prolong the life of available landfill space, reduce odours from the landfill and decrease GHG emissions. The Region of Waterloo's organic "green bin" diversion program is available to approximately 132,000 households. Currently, around 10,000 tonnes of organic waste is diverted from the local landfill annually and turned into reusable compost. In 2012, over 5,000 tonnes of greenhouse gas emissions were avoided by diverting residential organic waste from the local landfill via the Region's Green Bin program.

3.4.1 ANOTHER GHG CONSIDERATION: WATER MANAGEMENT

The workplace focus area reports the GHG emissions from the industrial, commercial, and institutional sector, which includes local water management activities such as pumping and treating drinking water and wastewater. In 2010, approximately 80 million kilowatts of electricity and 800,000 cubic metres of natural gas were used for water management in the region (excluding distribution), which translates to about 13,400 tonnes of GHG emissions. With increasingly stringent water quality standards and continuing population growth, energy consumption from water use is expected to grow in Waterloo Region.

Municipalities can help mitigate water-related increase in energy consumption and emissions by implementing water conservation and efficiency initiatives and by measuring progress using specific indicators such as GHGs per unit of pumped/treated water. The Region of Waterloo is also exploring modifications to a few of its wastewater treatment plants with potential GHG emission reductions from improved facility operations such as combined heat and power generation using biogas.

Community actions are also important for reducing treated water use and related energy needs, as well as implementing practical solutions to help reduce the quantity and increase the quality of water that flows off of properties (e.g. rain barrels, cisterns, permeable paving and rain gardens). In many cases, these climate change adaptation practices also help reduce the need for treated water by capturing and re-using rainwater instead.

For more details on community water use and GHG management, please refer to Appendix A

RAIN workshop participants put the finishing touches on a rain garden at Laurier's Aboriginal Student Centre.

3.5 Actions & Opportunities

The Climate Action Plan identifies specific initiatives (programs, projects, or activities) that will help Waterloo Region achieve the plan's goals and the community GHG reduction target of 6%. These initiatives are categorized as actions, opportunities, and further considerations.

3.5.1 Identifying Reduction Initiatives

A broad list of potential reduction initiatives was first gathered through Task Force brainstorming, community input, and technical team recommendations based on best management practices (BMP) research. In order to sort through these ideas, a two-step screening process was developed. In the first step, a set of questions was used to determine if each potential initiative was relevant to the scope of the plan, including:

- Can it be implemented between 2011 and 2020?
- Does it have the potential to reduce GHG emissions within the five focus areas measured within the inventory?
- Is there authority to implement it by (an) organization(s) within Waterloo Region?
- Does this action have a measureable outcome with the potential to be implemented on a larger scale?

In the second step, a different set of questions (outlined in Table 3.1) was used to determine how to organize the potential initiatives into the categories of: actions, opportunities, or further considerations.

Actions are distinct because they are currently being implemented or investigated by one or more specific lead partners. Actions may include initiatives that are already underway and have potential for continued growth (e.g. Regional Carbon Initiative, Community Car Share), as well as new initiatives already being considered for implementation (e.g. Streetlight Retrofits, Electric Vehicle Infrastructure). Other characteristics of an action include identification of several enabling or supporting stakeholders, a timeline for implementation, and ideally, a quantified GHG reduction impact and estimated costs. An initial list of actions identified to-date for Waterloo Region is provided in Appendix B and will be updated on an ongoing basis.

Opportunities are initiatives that have strong potential for creating GHG reductions and for which there are solid reference cases and best practices to follow from other communities (e.g. District Energy Systems, Green Building Standards). These initiatives require further local feasibility assessment and partnership development (including commitment from a lead partner) in order to become implementable actions. Some of the most promising opportunities for Waterloo Region are detailed in Section 3.5.5, and the full list is provided in Appendix B.

A list of **further considerations** will also be maintained to capture initiatives and ideas suggested by stakeholders and for which the potential for contributing to GHG reductions requires further assessment. With more support, research and commitment from a lead partner, these suggestions could be developed into actions. In some cases, a further consideration could be applied as a complementary tool paired with an action or opportunity to increase its impact (e.g. a neighbourhood carbon footprint campaign could be used to increase the uptake of a financing program offered for home energy retrofits). A list of the further considerations that have been identified to-date for Waterloo Region is provided in Appendix B and will be updated on an ongoing basis during the implementation phase.

Table 3.1 Screening Process Questions for Categorizing Actions, Opportunities, and Further Considerations

Screening Process Questions	Actions	Opportunities	Further Considerations
Is a lead partner(s) actively implementing or investigating this action?	✓ Lead partner(s) currently implementing or investigating	x Potential leads and collaborators are identified	x Not identified
Estimated local GHG reduction potential?	✓ Estimated based on local data, where possible	✓ Estimated based on reference cases, where possible	x Not estimated
Are there reference cases to follow from other communities?	✓ Yes, reference cases will be used where necessary for actions still in investigation stage	✓ Solid reference cases to follow, but further local feasibility assessment required	x Not collected
Have the costs and potential funding sources for the action been identified?	✓ Identified and quantified, where possible	x In some cases, ballpark estimations based on reference cases	x Not estimated

In addition to the main questions outlined above, when considering actions and opportunities for implementation, other questions that are important to consider include:

- Is there currently a strong case for co-benefits (environmental, economic, and social)?
- Does this initiative align with the goals of other municipal and community policies and plans?
- Has community and stakeholder support been demonstrated?
- Has there been thought of how the behavioural change necessary to support this initiative will be achieved?
- Does pursuing this initiative demonstrate leadership and innovation?

3.5.2 Approval and Implementation of Actions

The Climate Action Plan and reduction target will be recommended for approval by all participating municipalities within Waterloo Region. However, it is important to recognize that for those actions that still require further development and project-based approval before being considered for implementation between now and 2020, this approval will occur through the autonomous decision-making and budgetary process of each lead partner (and collaborators where applicable). This plan does not fully quantify costs or assign specific responsibilities to each action. The implementation strategy will help support the process of moving actions into approval and implementation.

This initial scoping of local actions and opportunities helped to inform the process of setting a reduction target by understanding our community's potential to achieve measurable reductions. The lists referenced in Appendix B are meant to represent a snapshot of activities, programs and projects that are currently reducing GHGs in Waterloo Region, or show potential for contributing in the future. These lists are not static and will be continuously evaluated, updated and prioritized as the proposed Leadership Committee begins the implementation, monitoring and reporting phase (see Section 4.1). The Climate Action Plan does not exist in isolation; instead it is part of a larger sustainability network of organizations and initiatives in our region and provides a platform for the variety of actions related to climate change mitigation that will continuously emerge. Furthermore, the actions are complementary or already a part of many existing strategies and master plans in progress within the region.

3.5.3 Recognizing Movement Builders

Contributing to the success of our local sustainability network are "movement builders" that help to build the low-carbon culture of Waterloo Region and to make long-term societal changes. These movement builders may not always undertake projects that directly result in quantifiable reductions, but are critical for supporting the education, awareness, and community connections required for other actions to be successful. Examples of significant movement builders include:

- The Community Renewable Energy Waterloo (CREW) organization that works throughout the community to spread awareness and energy conservation education to a wide demographic range;
- TransitionKW that facilitates conversations about our community's resiliency and ability to adapt to climate change;
- Alternatives Journal that contributes through their ability to spread environmental messages in publications and at community events; and
- *rare* that focuses on fostering biodiversity and strong forest environments, which contributes to sequestering carbon.

These activities - and many more - demonstrate that our community has a strong network of existing resources which support our political leaders, citizens, businesses and institutions looking for opportunities to make environmental improvements in our daily lives and work.

Grade 4 & 5 students at Blessed John Paul II Catholic Elementary School learn about how to save energy at home from instructor Lien Lien during a CREW's Kids and Community Power $aving classroom training session in early 2013.

3.5.4 Benefits Analysis of Select Actions & Opportunities

When the connections are made between local activities, emission sources, and the resulting benefits, we can see how GHG reductions are closely related to improvements in our local quality of life as evidenced through broad examples in Section 1.4. To examine benefits on an initiative-specific level, an analysis was undertaken for a selection of the identified Actions and Opportunities. This analysis considered the multiple economic, environmental, and social benefits that could be realized when these actions are brought to implementation, and the findings are summarized in Appendix C.

Thirteen initiatives were assessed through an econometric model based on their calculated investment expenditures, energy savings, and labour requirements for implementation, as well as additional qualitative benefits where input data was not available. Highlights of the econometric study include:

- $350 million value added to local economy
- Generation of almost 5,400 person years of employment
- Local household and business savings of over $21 million

The re-spending of annual savings is expected to sustain an additional 132 full-time equivalent jobs and augment the local fiscal base by $375,000 annually. Overall, this analysis concluded that the economic impact results show clearly that environmental initiatives can also boost the local economy by creating meaningful employment opportunities, increase household disposable incomes, and amplify the strength of the local economy. These results demonstrate that while projects may begin for GHG reduction reasons, the benefits can multiply—or "snowball"—to have an increasing breadth and depth of social, economic, and environmental impact across the community (see Figure 3.3).

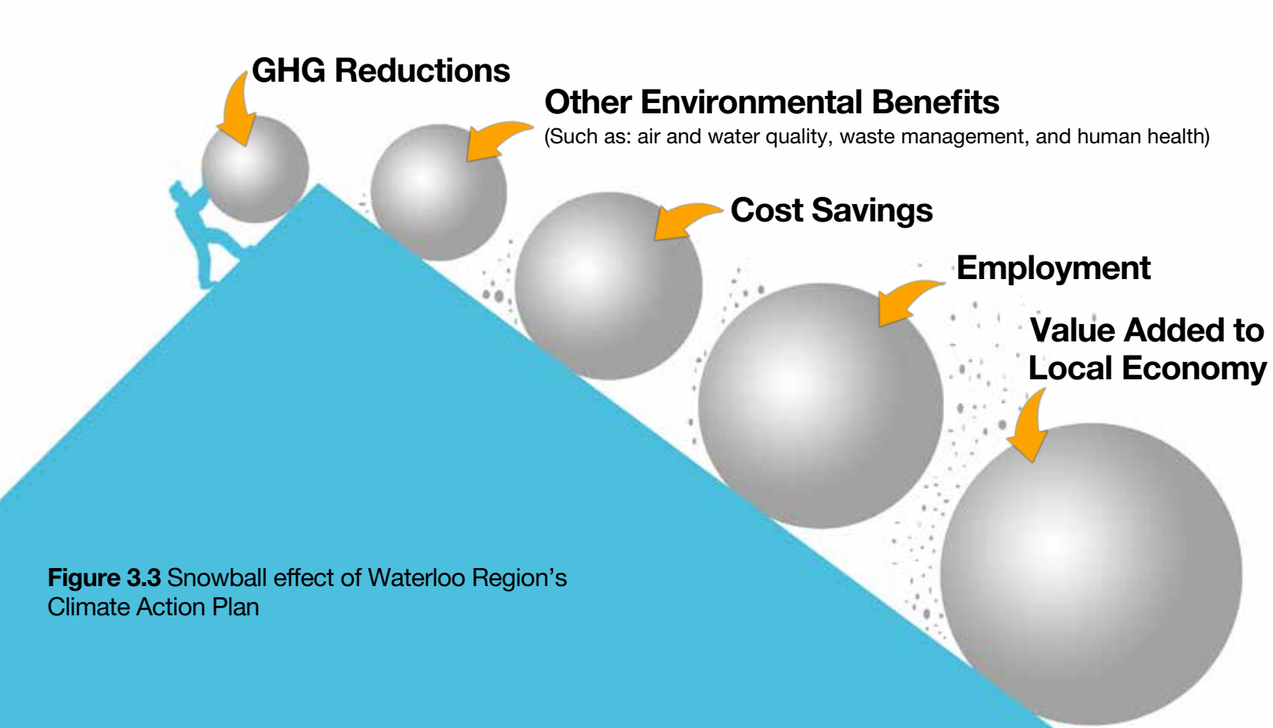


Figure 3.3 Snowball effect of Waterloo Region's Climate Action Plan

3.5.5 Spotlight on Promising Initiatives for Waterloo Region

As introduced in Section 3.5.1, through the process of developing the Climate Action Plan, there have been a number of actions and opportunities identified that have strong potential for contributing to GHG reductions locally. These initiatives require further feasibility assessment and partnership development (including commitment from a lead partner) in order to be implemented by the year 2020. Four of these promising initiatives are spotlighted below—in no particular order—to provide a general description and a sample of the impacts experienced by other communities where they have been successfully implemented:

- Development of a District Energy System
- Green Building Standards, Toolkits, and Checklists
- Local Improvement Charge (LIC) Financing for Energy Retrofits
- Hybrid Taxi Incentive Program

These initiatives in particular were selected primarily based on the magnitude of their potential impact to reduce emissions, availability of BMP case study research in a Canadian context, as well as the relevance and plausibility in the community context of Waterloo Region. All of these were identified by participants and community members in the action planning process. In particular, Green Building Standards and District Energy Systems were among the most popular topics of discussion for those community members present at the ClimateActionWR Community Forum events in March 2013 [39].

In addition to those highlighted in detail below, there are many other promising initiatives that were examined within the action planning process. One example includes the provision of electrical vehicle charging infrastructure to encourage consumer uptake of these zero tail-pipe emission vehicles. This also improves local air quality and saves drivers significant fuel expenditures as electricity is a cleaner power source at a fraction of the cost of gasoline and diesel fuel. Another example is local renewable energy generation such as run of river hydro-electricity, solar thermal hot water heating, and geothermal heating/cooling of buildings. Local utilities and other stakeholders are actively exploring the most feasible options within Waterloo Region which can improve energy security for the community, a critical element of economic development. Through the implementation phase, it will be imperative to continue collaborative discussions to build knowledge, conduct feasibility assessments, and gain stakeholder support for implementing these and other promising initiatives that can help achieve the benefits outlined within this plan.

DEVELOPMENT OF A DISTRICT ENERGY SYSTEM

Background and Overview:

In Canada, 60 to 80 percent of the energy consumed by households and community buildings is used for space and water heating[40]. In a more-conventional type of system, the generation of heat is decentralized, meaning it is produced independently onsite by a gas-fired boiler or furnace. In a district heating system, heat is generated at a single cogeneration (combined heat and power) plant and distributed in a heat-carrying fluid to a group of buildings via a network of underground insulated piping (as shown in Figure 3.4). A heat exchanger, located in each serviced building, connects the customer's heating system to the district heating network.

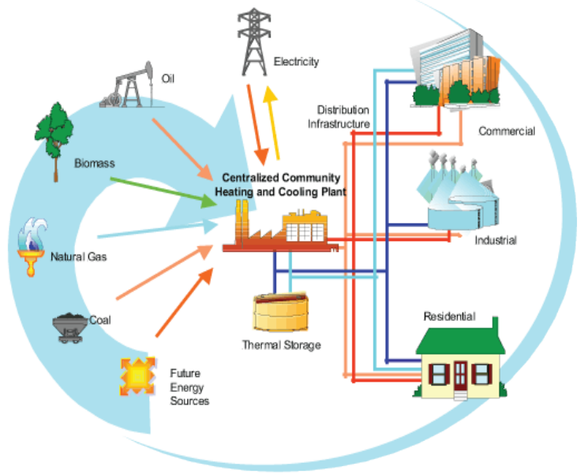


Figure 3.4 Schematic of inputs and outputs for community district energy system

District energy (DE), or district heating systems, have several advantages compared to conventional systems. District heating systems often provide higher performance and better pollution control than conventional in-building systems. These systems tend to be best suited to densely-populated urban areas, but can also be optimized for less dense areas where heat loads can be shared between a cluster of two or more adjacent buildings (e.g. sport and recreation centres, arenas, community centres, hospitals, business parks, etc.). The other advantage of DE systems is that they can incorporate a variety of energy sources. DE systems can be fueled by traditional fossil fuels, such as natural gas, or by alternative energy sources, such as biomass (e.g. wood waste), biofuel, geothermal or solar energy. Excess waste energy from industrial processes can also be used for district heating, depending on the amount of heat and the temperature at which it is released into the environment.

In August 2013, the University of Waterloo completed the largest, single conservation project for the year through the Union Gas EnerSmart conservation program. Through the project, waste heat is turned into energy at their central utility power house which then provides heat through a district network to 65 buildings on campus. This project will conserve over 2,000,000 m^3 of natural gas per year resulting in an annual GHG reduction of 4,200 tonnes of CO_2e.

Trevor Kanerva (second from left), chief engineer at University of Waterloo, hosts Sarah Brown (ClimateActionWR), Jackie Caille (Union Gas) and Hugh Cumming (Union Gas) for a tour of the new heat recovery energy conservation project on campus in August 2013.

Reference Cases:

As of 2008, there were approximately 80 district heating networks operating in Canada, including communities such as Hamilton and Markham[41]. Between 2009 and 2012 this number has grown, with many district energy systems projects led or developed in partnership with municipal governments, including Calgary, Strathcona County, Vancouver, and Toronto—to name a few. Evidence from established district energy utilities suggests that municipalities are well positioned to develop these types of subsidiary or joint venture organizations. Markham District Energy Inc., a district energy utility owned by the City of Markham, has operated a district heating system in Markham Centre since 2001. The system was expanded in 2009 and again in 2010 to include two additional energy plants, and in 2012, the utility commissioned a fourth energy plant to begin serving a new district energy grid in Markham East. The City of North Vancouver's award-winning Lonsdale Energy Corporation has experienced similar success since it began operations in 2003, and continues to connect new municipal, commercial and residential buildings to its downtown system each year. This can become an added economic development feature offered to developers and businesses looking to locate in areas where this DES infrastructure development has been established as it can be expanded in a modular manner.

As a GHG reduction strategy, district energy has significant potential, as shown through a sample of projects in Table 3.2. The size and scale of these projects tend to result in large annual GHG reductions, which can range between 1,000 tonnes for a small to medium gas-fired system to upwards of several thousand tonnes for larger networks that integrate combined heat and power and/or renewable energy systems. That being said, district energy systems have high upfront capital costs and typically require outside financing in the form of senior government contributions (via federal and provincial grants/funds), low-interest loans and/or private sector investments. However, the capital, replacement, and maintenance costs for individual building owners to connect to a DES are less expensive than owning and operating their own equipment.

Table 3.2 Sampling of District Energy Reference Cases in Canada

PROJECT	OPERATIONAL SINCE	COST	ENERGY SOURCE (CAPACITY)	GHG REDUCTION VS. CONVENTIONAL HEATING (TONNES CO_2E/YR)
Lonsdale Energy Corporate (North Vancouver, BC)	2003	$8,000,000	Natural Gas (6 MW), supplemented by solar thermal	4,070
Revelstoke Community Energy Corporation (Revelstoke, BC)	2004	$7,000,000	Biomass (1.5 MW), with propane backup (1.75 MW)	3,200
Centre in the Park Community Energy System (Strathcona County, AB)	2005	$8,500,000	Natural Gas (9 MW)	1,100
Southeast False Creek Neighbourhood Energy Utility (Vancouver, BC)	2009	$30,000,000	Sewage heat recovery (2.7 MW), Natural Gas (16 MW)	7,500
Regent Park Energy Inc. (Toronto, ON)	2009	$60,000,000	Natural Gas (11 MW in 2009; 30 MW in 2016)	8,000+

Next Steps for Exploring this Opportunity in Waterloo Region:

- Conduct a district energy feasibility study to identify opportunities within Waterloo Region. Based on similar studies undertaken by other Canadian municipalities, this type of assessment could be completed at a cost of approximately $200,000 - $300,000 with up to 50 per cent of these costs eligible for an FCM Green Municipal Fund (GMF) grant. The assessment would identify cost of operation, the type of energy source used and its generation capacity, as well as the GHG emission reduction potential.

GREEN BUILDING STANDARDS, TOOLKITS, AND CHECKLISTS

Background and Overview:
In a rapidly growing community like Waterloo Region, achieving community-wide GHG reductions will require a suite of actions that attempt to limit or offset GHG emissions associated with new residential, industrial, commercial, and institutional developments within the community. Accommodating new residents and businesses often put upward pressure on community emission levels. In this context, many municipalities are beginning to adopt voluntary green building standards, sustainable building "checklists" and/or guidelines to encourage new development to achieve "beyond building code" energy efficiency and performance standards. Strategies vary from one jurisdiction to another; however, the basic premise of a community green building standard is to provide incentives for developers that voluntarily adopt more energy efficient or sustainable building practices. These incentives can take the form of reduced development charges (i.e. a Development Charge Refund similar to the City of Toronto's, explained below), density bonusing (i.e. permitting additional floor area over a base threshold of permitted density), or an expedited review process for buildings that meet higher construction and performance standards.

Reference Cases:
Green building standards and sustainability screening processes have been adopted by a variety of Canadian municipalities, both large and small. In 2009, the City of Toronto adopted the Toronto Green Standard, which is a two-tiered set of performance measures with supporting guidelines for sustainable site and building design. The standard, which applies to all new low-rise and mid- to high-rise buildings, requires all new planning applications to document compliance with a set of minimum ("Tier 1") environmental performance measures. Applicants also have the option of voluntarily adopting a second set of higher environmental performance measures outlined within the standard ("Tier 2"), in which case they are eligible for a Development Charge Refund. Similarly, with $85,000 from FCM's GMF covering just over a third of their costs, the Cities of Brampton, Richmond Hill, and Vaughan are currently working together to develop sustainability guidelines for development and redevelopment projects. The metrics will not only aim to reduce energy consumption and GHG emissions, but will also help ensure the appropriate and efficient use of land as well as promote water conservation, waste reduction, improved mobility and connectivity, and enhanced natural heritage systems and urban forests. This unique cooperative partnership will allow each of the partner municipalities to move towards being carbon neutral and help develop a consistent set of guidelines across the three municipalities. Other notable examples of green building standards include the City of Vancouver's Green Homes Program and Higher Buildings Policy, the City of North Vancouver's Density Bonusing Program, and the Town of Canmore's Sustainability Screening Process.

This 1890's triple brick building at 40 King Street in Waterloo was gutted and retrofitted to achieve a 70% energy use reduction.

Next Steps for Exploring this Opportunity in Waterloo Region:

- Review existing green building standards, toolkits, and checklists from other communities to identify the most appropriate option for the region.
- Once a preferred approach (or short list of preferred approaches) is chosen, and its specific requirements have been developed, test it using workshops with stakeholders. The requirements should then be refined based on the input received during the workshops.
- Additional studies or peer reviews should also be conducted to provide further credibility for the final option chosen.
- To develop this project, funding options should be explored such as FCM's GMF.

HYBRID TAXI INCENTIVE PROGRAM

Background and Overview:
Gasoline-electric hybrid vehicles are being used increasingly by businesses and residents as a way to decrease fuel consumption, save money and reduce GHG emissions. Unlike battery-operated electric vehicles, which derive all their power from a battery pack that requires regular charging, hybrid electric vehicles (HEVs) combine an electric motor with a traditional gas-powered engine. The electric motor stores energy in batteries, which reduces the vehicle's reliance on the engine and its corresponding fuel consumption. Since the batteries are charged using a regenerative braking system that captures energy lost during braking, hybrid vehicles do not require additional charging infrastructure and can be fueled at gas stations like conventional vehicles.

HEVs use considerably less fuel than conventional vehicles. For example, the average fuel efficiency for a 2010 Toyota Camry is approximately 8.9 L/100 km, whereas the 2010 Toyota Camry Hybrid model has an average fuel efficiency rating of 5.7 L/100 km—a reduction of 36 per cent.[42] In this context, hybrid vehicles are well-suited to Canada's taxi industry, where the average fleet vehicle can travel upwards of 100,000 km per year.[43] Hybrid taxis are now commonplace in many Canadian cities, particularly in Metro Vancouver and British Columbia's Capital Regional District, where a regulation implemented in 2007 requires all new taxi vehicles operating within these regions to be "eco-friendly" (defined as a fuel efficiency of 6.8 L/100 km or less for midsized vehicles).

Reference Cases:
According to regional licensing data, there are approximately 333 taxi vehicles operating within Waterloo Region. Although some taxi companies, such as Kitchener City Cabs, have begun incorporating hybrid vehicles within their fleets, most taxi vehicles operating within the region are conventional Toyota Camry or Ford Crown Victoria full-size vehicle models. An incentive program that encourages taxi vehicle operators to advance their fleet transition to low-emission or hybrid models could therefore achieve considerable fuel savings and GHG emission reductions. For example, if 280 of the 333 taxi vehicles operating within the region (85 per cent[44]) were converted to hybrid models, annual fuel savings would be an estimated 983,500 L of gasoline and $1.3 million in fuel savings at current retail prices, with a corresponding GHG reduction of 2,300 tonnes per year.

Hail a Hybrid from Climate Change Central's taxi incentive program in Alberta.

The purpose of an incentive program, which could take the form of reduced licensing fees[45] for taxi operators that use hybrid or low-emission vehicles, would be to offset the higher capital costs associated with purchasing hybrid vehicles. Based on previous incentive programs offered by the governments of British Columbia, Ontario, Prince Edward Island, Quebec, and Manitoba, as well as two hybrid taxi pilot programs undertaken in Alberta and the City of Toronto, the size of a hybrid taxi incentive program would most likely need to be in the range of $2,000 to $5,000 per vehicle conversion. The total cost to implement an incentive program within Waterloo Region could therefore be estimated at $560,000 - $1,400,000.

Next Steps for Exploring this Opportunity in Waterloo Region:

- Review different types of taxi incentive programs currently offered by other communities in Canada to identify additional opportunities, barriers, and costs in order to assess the type of incentive that would be best suited for the region.
- Explore potential funding sources that could support the implementation of a hybrid taxi incentive programs.

The solar thermal heating system installed at the REEP House for Sustainable Living is an example of an energy-saving technology that homeowners could add to their property through the LIC Financing Tool

LOCAL IMPROVEMENT CHARGE FINANCING FOR ENERGY RETROFITS

Background and Overview:
With the end of the Federal ecoEnergy incentive in 2012, residents lost a key motivator to make their homes more energy efficient. While a limited number of utility incentive programs remain, energy retrofit activity has drastically declined, impacting not only our local contractors and suppliers, but also our progress on mitigating climate change.

At the end of October 2012, municipalities became empowered to take action at the local level with a new tool to reduce their community GHG emissions. The provincial government amended the Ontario Municipal Act, 2001 (O.Reg. 586/06) to allow Local Improvement Charges (LICs) to be used to finance energy retrofits, renewable energy projects, and water upgrades on private property. LICs are already used by municipalities to finance capital improvements that are in the public benefit, like sidewalks and sewers. By expanding the use of LICs to cover energy improvements, LIC financing offers an innovative way to reduce energy use and GHG emissions.

In a residential LIC financing program, municipalities cover the upfront capital costs of energy upgrades for homeowners who voluntarily agree to have the retrofit work done. Homeowners repay the obligation at a low interest rate on their property tax bill over 10-20 years, allowing the utility bill savings to help offset part of the loan repayment, and the City to recoup the cost. Because the financing is tied to the property and not the homeowner, any outstanding payments automatically transfer to the new owner at the time the house is sold. Homeowners also have the ability to pay off the financing in its entirety at the time the house is sold if preferred.

The LIC financing mechanism offers a new way for people to finance their home energy upgrades, and overcomes two major barriers—namely the high upfront costs and longer payback periods of investing in more substantial energy improvements. However, the financing itself is just one piece of a larger program to spur people to take action. A strong LIC financing program would act as a single portal, combining access to attractive financing with a strong educational component, links to contractors and energy auditors, and integration with existing electric and gas utility incentives.

The program could achieve increased uptake via a community-scale (neighbourhood) approach, which leverages local leaders and champions, word of mouth testimonials from peers, and on-the-ground marketing and outreach to create the buzz and excitement needed to motivate action. Paired with an attractive financing program, the community-scale approach can result in increased impact; the Changing the Climate in Cully initiative was a four month pilot in Portland, Oregon that found four times more uptake using a community-scale approach versus surrounding areas which only offered an attractive financing program for energy upgrades.[46]

Reference Cases:
The LIC financing counterpart in the United States is known as Property Assessed Clean Energy (PACE) financing. Multiple American jurisdictions have launched residential and/or commercial PACE programs over the last five years. Examples include[47]:

- The Sonoma County Energy Independence Program which launched in March 2009 has completed over 1,800 residential projects, totaling over $60M in financing to-date.
- The PACE HERO program in Western Riverside County launched in 2012, and has already approved 5,800 residential applications totaling $105 million in financing, with 1,368 completed projects.

Since LIC financing for energy improvements became possible in Ontario, many cities in this province have also taken an interest. Thanks to a project called Collaboration on Home Energy Efficiency Retrofits In Ontario (CHEERIO), which was initiated by the Toronto Atmospheric Fund and led by the Clean Air Partnership, Ontario municipalities now have a common LIC pilot framework, tools and templates to locally adapt. Experience in Canada is evidenced through these examples:

- Halifax Regional Municipality launched a turn-key LIC financing pilot program in 2013 called Solar City, with the goal of installing 1,000 solar water heating systems on residential properties.
- The City of Toronto, in part thanks to the work done by CHEERIO, is launching a $20M, three year LIC pilot program in late 2013[48]. The program will include both energy and water upgrades, with the goal of having 1000 single-family homes and 10 multi-unit residential (with 1000 units total) participating.

Next Steps for Exploring this Opportunity in Waterloo Region:
- Allocate staff time at interested municipalities to explore the potential of implementing an LIC program locally.
- Convene a multi-stakeholder Working Group to advise on aspects of local program design and feasibility.

4.0 Implementation Strategy

With the effects of climate change continuing to impact the quality of life in Waterloo Region, our strongest recourse is to act now. By forming a Leadership Committee with cross-community representation and assigning a dedicated Plan Manager we will be well positioned to reach our GHG reduction target. This recommended leadership team will coordinate the implementation, monitoring, and reporting activities happening concurrently through to 2020 that enable our community to achieve PCP Milestone #4 (Implementation) and Milestone #5 (Monitoring and Reporting) through these key objectives:

A. **Collaborate** among municipalities and other organizations to optimize collective impact.

B. **Move** actions towards implementation, advance opportunities, and identify new initiatives for consideration.

C. **Engage** the community by facilitating open dialogue and increasing stakeholder participation in local programs.

D. **Monitor** action and **report** measurable results.

4.1 IMPLEMENTATION AND ONGOING COLLABORATION

The Implementation Strategy outlines the governance and administrative structures that will help move proposed projects into action in order to fulfill the goals of this plan and ultimately meet our community's GHG reduction target. The strategies in this section focus on the first three objectives listed on the previous page. Strategies for the fourth objective are outlined in Section 4.2: Monitoring and Reporting Process.

To achieve measurable results we need to focus on the following **KEY OBJECTIVES:**

ACTIVITIES that will help us meet these objectives:

A COLLABORATE AMONG MUNICIPALITIES AND OTHER ORGANIZATIONS TO OPTIMIZE COLLECTIVE IMPACT.

To fully achieve successful implementation we need to optimize our collective local capacity to pursue action and track progress over time. To do this we will leverage the knowledge, resources, and leadership of the partnerships established to-date through the ClimateActionWR collaboration. Municipalities will continue to work alongside local energy utilities, academic institutions, conservation authorities, businesses and not-for-profit sector partners to reach our community GHG reduction target.

A1. Continue coordination among municipalities in order to leverage efficiencies in implementation, and provide consistent messaging to all community stakeholders involved.

A2. Mobilize a range of community stakeholders as active participants in the planning, implementation, and monitoring of actions through community partnerships.

A3. Establish a Leadership Committee, with representation from across sectors of the community to oversee the strategic direction of the Climate Action Plan and drive implementation forward.

A4. Assign overall plan implementation to a Plan Manager who will work alongside the Leadership Committee to lead the ongoing coordination of implementation, monitoring, and reporting tasks. In addition, the Plan Manager will manage ClimateActionWR communications and facilitate partnership development amongst stakeholders as required to foster ongoing implementation of actions and advancement of opportunities.

B MOVE ACTIONS TOWARDS IMPLEMENTATION, ADVANCE OPPORTUNITIES, AND IDENTIFY NEW INITIATIVES FOR CONSIDERATION.

Strategies to achieve this objective will help identify the proposed actions that are appropriate for approval based on their ability to result in successful implementation, multiple benefits, and measurable GHG reductions between now and 2020. Actions will be advanced and re-prioritized on an ongoing basis according to evolving circumstances and new developments. As actions identified in the Climate Action Plan are implemented, opportunities will be advanced based on the completion of background research, feasibility assessments, and further partnership development. The Plan Manager and Leadership Committee will work with interested stakeholders on an ongoing basis to identify new potential initiatives for further consideration and evaluation.

B1. Lead an iterative assessment process through the Leadership Committee including preparation of status updates on implementation and advancement of opportunities according to work completed, evolving circumstances, new information, and partnership development.

B2. Support lead partners to develop action implementation plans which could include support for: establishing action-specific sub-committees (where none already exist); conducting technical and legal feasibility assessments; gaining community feedback; finding and engaging implementing partners; and preparing business plans and/or financial analyses along with securing required resources.

B3. Facilitate working groups to move opportunities forward on an as-needed basis as identified by the Leadership Committee and Plan Manager. Working groups – which may be established on a sector-focused basis or specific to a particular opportunity – will pursue the advancement of opportunities by exploring research and development of the concept, rallying community interest, finding and engaging potential implementing partners, and gathering advice from subject matter experts and reference cases.

C ENGAGE THE COMMUNITY BY FACILITATING OPEN DIALOGUE AND INCREASING STAKEHOLDER PARTICIPATION IN LOCAL PROGRAMS.

Continued external communication and community engagement is necessary in order to build on the existing momentum that has been achieved through the action plan development phase. Through access to engagement tools and forums, stakeholders can contribute to an open and ongoing dialogue regarding action implementation and exploration of opportunities. Facilitating continued community conversation is also intended to stimulate appreciation for each individual stakeholder's role in reducing emissions and thus, encourage their participation in local programs.

C1. Develop and maintain communication tools to raise awareness about the Climate Action Plan, connect users to information about local programs, provide opportunities to submit information (such as through an online actions map[49]), and celebrate progress being made on local GHG reductions.

C2. Provide a point of contact to address inquiries, ideas, and feedback from external organizations, individuals and media outlets.

C3. Host community events to re-engage the community-at-large in action planning and implementation by sharing progress to-date and facilitating open dialogue on the key opportunities that could move forward into action.

4.2 MONITORING AND REPORTING PROCESS

To achieve measurable results we need to focus on the following **KEY OBJECTIVE:**

D MONITOR ACTION AND REPORT MEASUREABLE RESULTS.

To substantiate our community efforts, a process of monitoring and reporting will help evaluate whether the collective actions being implemented are achieving progress towards the GHG reduction target of 6% by 2020. Monitoring and reporting—which is the last objective of the overall Implementation Strategy—includes activities and processes that will let us know where progress is being made, identify where course corrections are needed, and ensure that continued reporting occurs with key audiences.

ACTIVITIES that will help us meet this objective:

D1. Monitor and collect results of community actions from lead partners on an annual basis including implementation status and resulting impact (quantifiable GHG reductions and related environmental, economic, and social benefits). Monitoring the results of specific initiatives will be housed within a comprehensive database and support the Leadership Committee to consider and evaluate where efforts should be prioritized, as well as to promote engagement and discussion within the community. A summary of the inputs, analysis, outputs and reporting audiences for this process is provided in Figure 4.1.

D2. Report and share results periodically with City and Regional Councils, and the community-at-large. The collective results of community actions and implementation progress—as gathered through D1—will be shared with the community and City and Regional Councils periodically, and incorporated into existing reporting processes where possible (e.g. Strategic Plan annual report cards). This will highlight significant successes and gaps, by evaluating performance against goals for each focus area of this plan. The periodic reporting may also be incorporated into the community events proposed as activity C3 above.

D3. Develop the capacity and commitment to conduct a full "re-inventory" process as frequently as possible to measure progress towards the target. Although, as noted above, it's important to monitor the results of implementing specific actions, it is the periodic re-inventory process that provides the "big picture" information that is necessary to assess the community's overall performance towards its GHG reduction target. As all of the necessary data for a re-inventory becomes available 9 - 15 months after any given calendar year, an inventory of 2014 for example could be completed in the 2015/2016 timeframe. After the complete re-inventory of data from the year 2020, a full refresh of the plan will be necessary to re-align the plan's vision, goals, and actions with community priorities, and reassess target-setting beyond 2020.

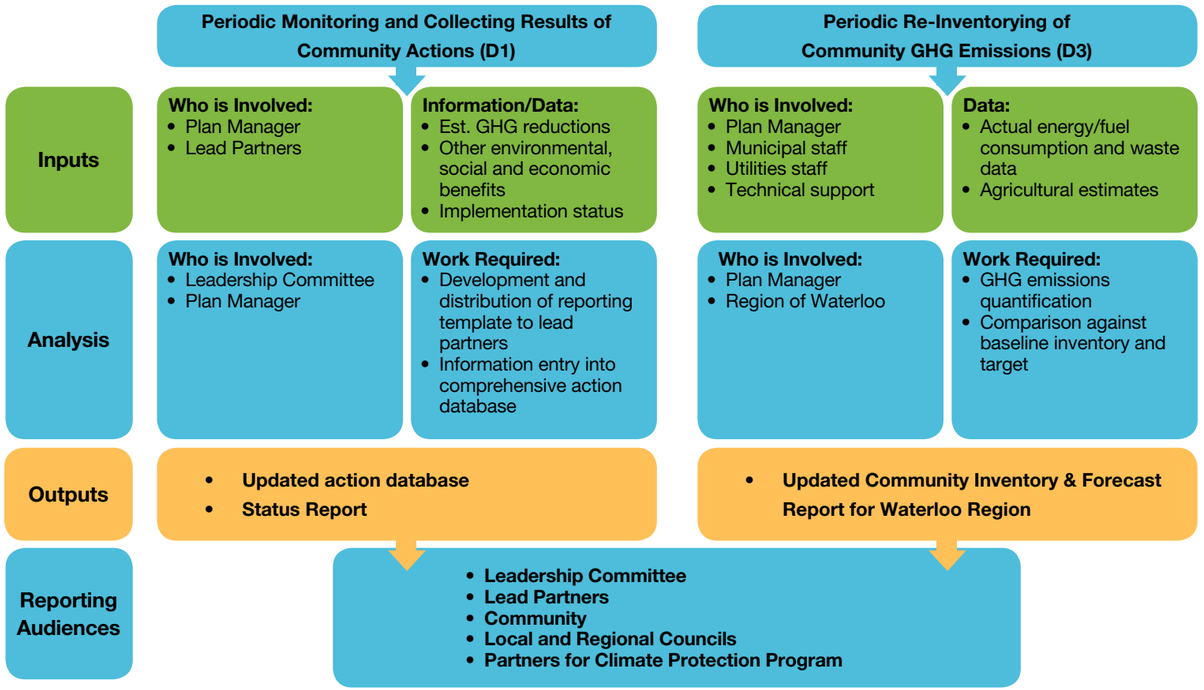
The updated inventory should be compiled, to the highest degree possible, using methods that are consistent with those used to develop the baseline emissions inventory. This will help to ensure that any observed changes in emission levels reflect actions and behaviour within the community rather than methodological discrepancies between inventory years. Through the ClimateActionWR process, steps have been taken to ensure that the baseline GHG inventory is as replicable as possible, relying on data sets and activity estimates that are relatively easy to access and that will prove most replicable going forward. These methods have been outlined in a comprehensive Inventory Data Management Manual, which provides a clear audit trail and should serve as a guideline for future inventory replications. A summary of the inputs, analysis, outputs, and reporting audiences for this process is provided in Figure 4.1.

D4. Submit progress reports to the Partners for Climate Protection program to achieve PCP Milestones 4 & 5. According to the timelines in Table 4.1, progress reports and results will be submitted to the FCM and ICLEI for approval of PCP Milestones 4 & 5 completion for the Region of Waterloo, City of Cambridge, City of Kitchener, and City of Waterloo. Setting the Implementation Strategy into motion will allow participating local municipalities to apply for approval for PCP Milestone 4 (Implementation). Performing the re-inventory and showing evidence of other ongoing monitoring efforts will qualify towards approval of PCP Milestone 5 (Monitoring and Reporting).

Table 4.1 Proposed Monitoring And Reporting Timelines

SIGNIFICANT CHECKPOINTS	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Approval of Action Plan and Reduction Target (Milestones 2 - 3: Nov./Dec. 2013)	X									
Set Implementation Strategy into motion and seek approval for Milestone 4 (D4)		X								
Monitor implementation of actions (D1)		X	X	X	X	X	X	X	X	X
Complete re-inventory using 2015 data (D3)				X	X					
Submit report to FCM for Milestone 5 (D4)					X					
Complete re-inventory using 2020 data (D3) and full refresh of plan to re-align goals and actions and reassess target beyond 2020 (D5)									X	X

Figure 4.1 Processes for Annual Monitoring Versus Periodic Re-Inventorying



4.3 FUNDING FOR IMPLEMENTING ACTIONS

Each action will need to go through the appropriate feasibility study, review and approval process before it is implemented as explained in Section 3.5. Several actions identified within the plan have already done so and are in the process of being implemented (since the 2010 base year). Many actions will also have a clear business case where the energy savings result in a reasonable payback period which justifies the upfront investment and a routine approval. For other actions that demonstrate valuable benefits, yet are small pilot projects or have longer payback periods, the resources of lead partners may need to be supplemented by external funding sources at the local, provincial, and national scale. Including but not limited to the list below. For example, to implement the LED Streetlight Retrofit action, the lead partner municipalities could access programs offered by electrical utility providers. In another example, to support the feasibility exploration of a district energy system or water management program locally, stakeholders working directly with the local Cities or Region could access financial resources from the Green Municipal Fund administered by the Federation of Canadian Municipalities.

- Energy Conservation Programs: A number of energy conservation programs for home and business make it easier to manage energy use by offering rebates and incentives for certain energy saving activities to residents, homeowners, landlords and business owners. For electricity use, the saveONenergy programs are offered through all three local electric utilities and funded through the Ontario Power Authority, while both Union Gas and Kitchener Utilities offer energy conservation programs related to natural gas use.
- Green Municipal Fund (GMF): The Federation of Canadian Municipalities funds plans, feasibility studies, and capital projects of municipal governments and their partners with the goal of reaching higher standards of air, water and soil quality, and climate protection. Municipalities, who are Partners for Climate Protection members and have completed their plan, can apply for GMF funding in order to update the plan, or cover the costs associated with the GHG reductions.
- Ontario's Municipal Energy Plan (MEP) Program: Ontario is supporting local energy planning by introducing the MEP Program to help municipalities set goals and implementation plans to better meet their local energy needs and conservation opportunities. Small to medium size municipalities will receive 50% of eligible costs, up to $90,000, to develop integrated energy plans that align infrastructure opportunities and land use planning in order to build strong communities, powered by clean, reliable and affordable energy.
- Ontario Trillium Foundation (OTF), The Community Program, Operating Grants: The OTF provides funding through the Community Program for projects that have primarily a local impact. These operating grants help cover an organization's ongoing program costs, up to $75,000 per year for a maximum period of five years.
- Region of Waterloo Community Environmental Fund, Sustainability Grants: The Region of Waterloo provides funding to support community-based environmental initiatives. Actions with the Climate Action Plan fit the criteria for a Sustainability Demonstration Projects Grant because they focus on implementing tangible projects that reduce GHG and air emissions, and promote energy conservation and waste reduction/diversion. The grant would cover costs essential to implementing actions, up to $15,000 per initiative.
- City of Kitchener Community Environmental Improvement Grant (CEIG): CEIG helps organizations work towards increasing community awareness of environmental resources and encourage them to be involved in the solution to building a cleaner, healthier, more sustainable community.
- The Kitchener and Waterloo Community Foundation (KWCF): KWCF looks to enhance the quality of life for Kitchener-Waterloo residents through investing in innovative solutions to improving our community.

Other methods of accessing resources that an organization might use internally are: to establish an internal revolving fund to reserve the cost savings resulting from energy or sustainability projects specifically for resourcing future sustainability projects, or to access a guaranteed savings ESCO contract to third-party finance and manage major energy and deferred maintenance for a period anywhere from 10-20+ years.

4.4 OUR OPPORTUNITY IS AT HAND

Over the past few years, Waterloo Region has experienced more frequent extreme weather events, intense floods, droughts, abnormal climate fluctuations, and smog alerts due to poor air quality. Economic challenges have resulted due to storm cleanup costs, renewing and enhancing infrastructure, and sustaining agricultural resources. We've also experienced increased local energy demands and hospital visits associated with air pollution.

At the same time, a local response has formed across the community. Governments have developed new sustainability initiatives, environmental non-profits have taken hold, and local utilities have rolled out energy saving programs. In addition, businesses have increased their sustainability measures, movement builders have raised awareness, residents have adopted energy-reducing solutions, and environmental companies have laid the foundation for a viable local low-carbon economy.

These efforts position us well to take the next step and **to act on the opportunity at hand**. By coming together as a community and sharing our resources and ideas, we can make greater progress. This Climate Action Plan is the collective, collaborative direction we can follow to propel our sustainability efforts forward. And by doing so, we can reach our **6% GHG reduction target** and make our community an even better place to live and work in 2020 and beyond.

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Maplewood, Stephen Edgar, p.27

Bike Rack, James LaPointe , p.27

Train, Samantha Saechao, p.28

Air Conditioner, saveONenergy, p.31

E**nergy Audit,** REEP Green Solutions, p.33

Cambridge City Hall, Tomasz Adamski, p. 34

Industrial Building, saveONenergy, p.35

Energy Meters, Wilfrid Laurier University, p.37

Light Rail Transit Vehicle, Region of Waterloo, p.38

Community Bike Ride, Rebecca Londner, p.39

Bus & Bike, Region of Waterloo, p.41

Countryside Line, Region of Waterloo, p.42

Watermoo, Andrea Arbuthnot, p.43

Recycle Bins - Riya Subramonian, p.45

Rain Garden, REEP Green Solutions, p.45

Programmable Thermostat, REEP Green Solutions p.46

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40 King Street, Stephen Edgar, p.54

Hail a Hybrid, Climate Change Central, p.55

Solar Thermal, REEP Green Solutions, p.56-57

Bike Commuter, Rebecca Londner, p.58-59

Solar Array, Region of Waterloo, p.60-61

Hespeler, Mike Morrice, p.63

Green Roof, Rebecca Petricevic, p. 64

Hands, Medea Rasheed, p.66-67

Patio Furniture, City of Kitchener, p.72

Art Contest Winners

In early 2013, ClimateActionWR held a Youth Art Contest for Waterloo Region residents aged 12 to 24. Entries were accepted in any art medium to answer the question: What does local action on climate change look like? Congratulations to Jean and Natasha on their winning entries!

Roots of Climate Change, **Jean Wang**

Art Contest winner, Age 12-17 category

"A map of our city is located on the ground and provides the foundation for our tree of life. On the right side, positive actions such as creating more efficient public transportation and working together to create awareness are giving the tree opportunity to grow. This tree then bears fruits such as a healthier, beautiful environment where we can all appreciate nature. The left side demonstrates the catastrophic results of disregarding climate change. Overall, the artwork demonstrates that we have the power to work together to conserve our natural environment and protect the beautiful living things in our world."

Close-up, **Natasha Koo**

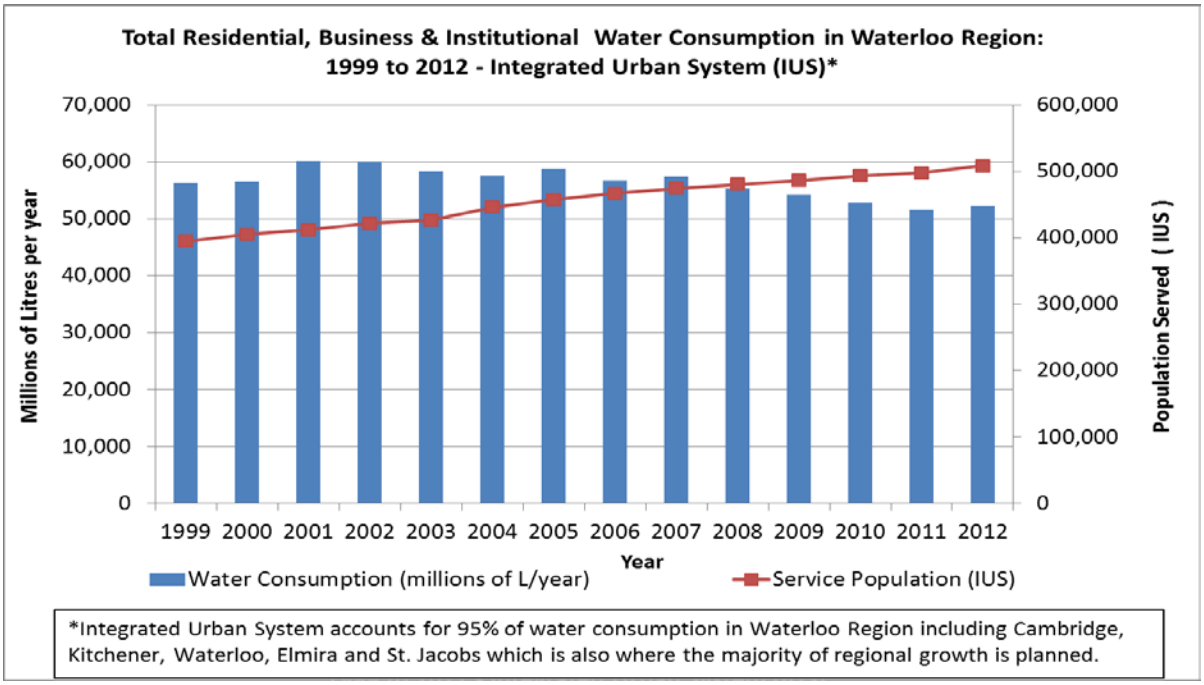
Contest winner, Age 18-24 category

"Climate change is caused by numerous sources but the symptoms are demonstrated by minuscule greenhouse gases that we can't even see. From the accumulation of such small particles, the result and potential effects of climate change are humbling. I think everyone should begin to look more closely and live more consciously."

APPENDIX A: Community Water Use and GHG Management

The Region of Waterloo provides water and wastewater processing and treatment to the local community. As mentioned in section 3.4.1, these essential processes use a lot of energy equating to over 13,000 tonnes of GHG emissions annually (based on 2010 data). Therefore water efficiency and conservation in the community is important for both sustainable management of this natural resource as well as for GHG mitigation.

The Region has had a Water Efficiency Master Plan (WEMP) in place for many years which includes programs such as low-flow toilet rebates, rain barrel sales, financial support for some rain harvesting re-use systems and several programs for the industrial, commercial and institutional sector in addition to the Regional water conservation by-law (e.g. lawn watering and car washing restrictions). The collective impact of these programs is one of the contributing factors to the decline of water consumption in Waterloo Region over the past several years despite an increase in population as illustrated in the graph below. Water consumption per person has decreased by 22% since 1999. Approximately 0.11 kilograms of GHGs are avoided for every 1000 litres of water saved. Based on 2012 community water consumption data compared to 2010, over 51,000 kg of GHG emissions were avoided.



Source: Region of Waterloo, (annual) Water and Wastewater Monitoring Reports

More information on the Region's water efficiency conservation programs is available at the following website: http://www.regionofwaterloo.ca/en/aboutTheEnvironment/Conservation2.asp

APPENDIX B: Chart of Actions, Opportunities and Further Considerations in Waterloo Region

The following list of actions, opportunities and further considerations[1] has been derived from an initial scoping process that took place through the engagement phase of developing the Climate Action Plan. This list represents a snapshot of activities, programs and projects that are currently contributing to greenhouse gas reduction in Waterloo Region, or show potential for contributing in the future. This list is not static and will be continuously updated as the proposed Leadership Committee begins the implementation and monitoring phases. As described in Section 3.5.2, this plan does not fully quantify costs, and although Lead Partners (for actions) and Potential Partners and Collaborators (for opportunities) have been identified in this chart, this does not represent a commitment by that organization to implement that initiative in all cases. Further development and project-based approval may be necessary before any given action is considered for implementation between now and 2020.

Actions in Waterloo Region

Action Name & Description	*Lead Partner(s)*	Collaborator(s)	Status & Timing	Impacts & Benefits	
				Impacts Analysis *(See Appendix C & Section 3.5.4)*	GHG Reduction Potential* (tonnes CO_2e)[2]
Regional Electric Vehicle Charging Network Planning: Support consumer adoption of 1,000 electric vehicles across the region (e.g. through installation of public charging stations, education & awareness, etc.).	• ***Lead: Region of Waterloo, Sustainable Waterloo Region, various public and private sector stakeholders***	• Government of Ontario: Electric Vehicle Incentive Program, Electric Vehicle Charging Incentive Program	In Progress	✓	2,950

[1] Clarification between actions, opportunities and further considerations is provided in Section 3.5.1

[2] GHG Reduction Potential is estimated based on data currently available. Detailed notes on the calculations behind each GHG reduction amount are documented in the Actions Database Spreadsheet which is available upon request (refer to Appendix C). There may be instances where reductions resulting from one program (ex. saveONenergy programs) are also captured under another program (ex. Regional Carbon Initiative). Although double-counting is something to be wary of in general, in this case it's important to note that these numbers will not be aggregated into one sum-total tally for the reporting process (see Section 4.2).

Action Name & Description	*Lead Partner(s)*	Collaborator(s)	Status & Timing	Impacts & Benefits	
				Impacts Analysis ***(See Appendix C & Section 3.5.4)***	**GHG Reduction Potential*** (tonnes CO_2e)[2]
Regional Transportation Master Plan: Projected shifts in transportation modes (i.e. decrease in SOV trips) as a result of the Regional Transportation Master Plan and associated policy, programming and infrastructure (e.g. education outreach, expanded bus service, rapid transit, more bike lanes and connected communities designed for alternative transportation modes, etc)	• ***Lead: Region of Waterloo, Grand River Transit***	Area municipalities	In Progress: 2013 – 2020	✓	75,000
Region-wide Anti-Idling Campaign/Bylaw: Projected impacts from a region-wide anti-idling campaign or by-law. Goal: to reduce average idling time from 7 minutes to 3 minutes per day.	• ***Leads: Region of Waterloo, area municipalities***		Further development required – exists in different formats in each City		3,000
Community Bike Share Systems: 1. **Community Access BikeShare:** Building on a successful pilot program in 2011, The Working Centre aims to further expand and test a bike share program with 100 bikes and 10 distribution stations. It's estimated that the program will engage 200 members in the first year. 2. **Grand River Public Bike Share:** The pilot will comprise of an initial pilot launch of 100 bicycles and 10 docking stations in the Waterloo Research Park and business area, the University of Waterloo campus, Wilfrid Laurier University campus, Uptown Waterloo area.	• ***Lead 1: The Working Centre*** • ***Lead 2: GRPBS***	Collaborators 1: • City of Kitchener Local Environmental Action Fund • Kitchener and Waterloo Community Foundation • Ontario Centres of Excellence • Region of Waterloo Community Environmental Fund Collaborators 2: • City of Waterloo • Corporate partners	In Progress: 2013 – 2014		15

Action Name & Description	*Lead Partner(s)*	Collaborator(s)	Status & Timing	Impacts & Benefits	
				Impacts Analysis *(See Appendix C & Section 3.5.4)*	GHG Reduction Potential* (tonnes CO_2e)[2]
LED Streetlight Retrofit: Conversion of streetlights to energy-efficient LED fixtures.	• ***Lead: Region of Waterloo, area municipalities***	• Local electrical utilities (rebates)	Pilot projects implemented – expansion under consideration	✓	920
Local Car Share System: Expand privately-operated shared vehicle systems, such as Community CarShare, in order to provide alternatives/supplements to personal vehicle ownership. Expansion could be facilitated by integrating car share specific parking into the development review process, developing "Car share anywhere agreements", and providing car share parking in public facilities and on-street.	• ***Lead: Community CarShare, various private MUSH sector stakeholders***		In Progress: 2010 – 2020	✓	1,700
Employer Commuting Outreach: Recognizing the significant influence that employers play in shaping employee travel patterns, establish TravelWise (currently in pilot phase) as a long-term program with measurable impact across member organizations to reduce SOV commuting.	• ***Leads: Region of Waterloo & Sustainable Waterloo Region***		In Progress: 2011 – 2020		To be calculated, data is available
Maximum Vehicle Parking & Minimum Bicycle Parking Requirements in Zoning By-laws: Revise zoning standards to include maximum parking requirements in areas that are well serviced by transit, to prevent over-supply of parking in transit oriented areas. Amend zoning by-laws to address minimum bicycle parking requirements, including short-term visitor, and longer-term, secure resident and employee bicycle parking infrastructure.	• ***Leads: City of Cambridge, City of Kitchener, City of Waterloo***		Under consideration		Not quantifiable

Action Name & Description	*Lead Partner(s)*	Collaborator(s)	Status & Timing	Impacts & Benefits	
				Impacts Analysis *(See Appendix C & Section 3.5.4)*	GHG Reduction Potential* (tonnes CO_2e)[2]
Union Gas Commercial and Industrial Conservation & Demand Management (CDM) Initiatives 2011 – 2015: Reductions in energy consumption through initiatives targeting the commercial and industrial sectors.	• ***Lead: Union Gas***		In progress: 2011 – 2015	✓	49,115
Union Gas Residential Conservation & Demand Management (CDM) Initiatives 2011 – 2015: Reductions in energy consumption through CDM initiatives targeting the residential sector.	• ***Lead: Union Gas***		In progress: 2011 – 2015	✓	3,815
Kitchener Utilities Residential CDM Initiatives 2011 – 2015: Reductions in natural gas consumption through Kitchener Utilities Residential Conservation & Demand Management Initiatives.	• ***Lead: Kitchener Utilities***		In progress: 2011 – 2015		To be determined
Kitchener Utilities Commercial and Industrial CDM Initiatives 2011 – 2015: Reductions in natural gas consumption through Kitchener Utilities Commercial Conservation & Demand Management Initiatives.	• ***Lead: Kitchener Utilities***		In progress: 2011 – 2015		To be determined
Local Electricity Distributor Energy Conservation & Demand Management (CDM) Initiatives 2011 – 2014: Reductions in electricity consumption and demand through the saveONenergy energy conservation programs targeting the residential, commercial, institutional and industrial sectors, delivered by local electricity distribution companies (LDCs).	• ***Leads: Cambridge and North Dumfries Hydro, Kitchener-Wilmot Hydro, Waterloo North Hydro***	• Ontario Power Authority • Local Distribution Companies • Channel Partners (service providers, contractors, distributors, etc.)	In progress: 2011 – 2014		6,200 *(In future monitoring phases, will try to separate the data between residential and ICI sectors)*

Action Name & Description	*Lead Partner(s)*	Collaborator(s)	Status & Timing	Impacts & Benefits	
				Impacts Analysis *(See Appendix C & Section 3.5.4)*	GHG Reduction Potential* (tonnes CO_2e)[2]
Corporate (commercial/business) Sector Reduction Commitments: The Regional Carbon Initiative enables organizations to make ambitious yet realistic GHG emission reduction targets.	• ***Lead: Sustainable Waterloo Region***		Ongoing program (began in 2009)		6,180
Installation of CHP/cogeneration units at three WWTPs: Installation of new biogas combined heat and power units at three of the Region's WWTPs.	• ***Lead: Region of Waterloo***		Under consideration		2,000
Water Efficiency Target: The 2006 Water Efficiency Master Plan Update has set out to achieve a cumulative water savings target of 8,146 m3 per day (1.8 million gallons per day) by 2015.	• ***Lead: Region of Waterloo***		In progress: 2007 – 2015 New WEMP target expected in 2014		108
HVAC Retrofits at Regional buildings: Six different HVAC retrofit projects in various Regional buildings. This is one of the recommended actions for 2011-2019 identified in the RoW Corporate GHG Action Plan.	• ***Lead: Region of Waterloo***		In progress: 2011 – 2019	✓	480
Furnace Upgrades in Regional Housing Units: 650 furnace upgrades in Regional Housing units. This is one of the recommended actions for 2011-2019 identified in the RoW Corporate GHG Action Plan.	• ***Lead: Region of Waterloo***		In progress: 2011 – 2019	✓	250
City of Cambridge Corporate (municipal) GHG Reduction Initiatives: Corporate GHG reductions undertaken by the City of Cambridge.	• ***Lead: City of Cambridge***		In Progress: 2010 – 2020		1,000
City of Kitchener Corporate (municipal) GHG Reduction Initiatives: Corporate GHG reductions undertaken by the City of Kitchener.	• ***Lead: City of Kitchener***		Under consideration		To be determined

Action Name & Description	*Lead Partner(s)*	Collaborator(s)	Status & Timing	Impacts & Benefits	
				Impacts Analysis ***(See Appendix C & Section 3.5.4)***	**GHG Reduction Potential*** (tonnes CO_2e)[2]
City of Waterloo Corporate (municipal) GHG Reduction Initiatives: Corporate GHG reductions undertaken by the City of Waterloo. Key projects underway/upcoming include: 1) Energy Efficient & Greenhouse Gas Emission Reducing Retrofits in City of Waterloo Facilities (to be implemented 2013-2014), 2) Corporate Energy & Greenhouse Gas (GHG) Action Plan (to be implemented 2013-2018 with a new 5 year plan due under the Green Energy Act in 2019) and 3) potential solar/green roof installations at three facilities 2015-2017.	• ***Lead: City of Waterloo***		In Progress: 2012 – 2020		1,000
REEP/ecoEnergy Residential Energy Retrofits 2011-2012: Energy savings from home energy retrofits undertaken in 2011 and 2012 through the ecoEnergy program.	• ***Lead: REEP Green Solutions***	**Collaborator:** City of Kitchener's Local Environmental Action Fund (for pre-1970s homes in Kitchener)	Complete: 2011 – 2012	✓	2,855
Green Bin Organics Diversion: GHG reductions achieved as a result of expanding Green Bin/organics diversion 2010-2020 which helps reduce methane production within the Region's landfill.	• ***Lead: Region of Waterloo***		In progress: 2010 – 2020	✓	6,890
Landfill Gas Flaring: Portable flaring of methane at landfill before it reaches concentrations suitable for energy generation.	• ***Lead: Region of Waterloo***		Implemented as of 2011	✓	7,105

Opportunities in Waterloo Region

Opportunity Name & Description	Potential Partners & Collaborators	Approx. Timing	Impacts & Benefits	
			Impacts Analysis *(See Appendix C & Section 3.5.4)*	GHG Reduction Potential* (tonnes CO_2e/yr)
Local Improvement Charge (LIC) Financing for Energy Retrofits (*see Section 3.5.5)*: Use of the LIC tool by municipalities to cover the upfront costs of energy retrofits and renewables for homeowners. Homeowners repay the cost at a low interest rate over 10-20 years as a fee on their property tax bill, with their utility bill savings helping to offset the repayments. The repayments stay with the property when the house is sold, and do not affect personal debt levels. Uptake of this tool could be enhanced through a Community-scale Residential Energy Retrofit Program and/or Neighbourhood Carbon Footprint Campaigns.	• Municipalities • REEP Green Solutions (currently leading research and exploration) • Neighbourhood Associations	Not implemented, 2013-2020		8,433
Renewable Energy Generation: Work with local energy distributors to explore and develop local energy generation opportunities, including local renewable energy districts and co-operatives, and application of geothermal, solar hot water and PV net metering solutions. Could also include investigating the feasibility of generating a local energy supply through distributed bioenergy plants, including manure management and biogas recovery opportunities for Waterloo Region's farming community, and potential for using other locally sourced biological material (brush cuttings, green bin compost, surrounding industry, etc).	• Utilities • Municipalities • Community Stakeholders, as self-identified	• Not implemented	✓	To be determined

Integrated Community Energy Solutions Interconnect various energy sources, technologies and infrastructure in order to maximize energy performance, secure energy reliability, cut costs and reduce GHGs. At the community level, this means integrating existing and potential energy assets (such as electricity, natural gas and renewables) while managing energy needs and harnessing the potential energy productivity of community assets, including land, buildings, water and wastewater, waste and transportation systems. Interim steps that could move us towards adopting ICES locally include: * ***District Energy Feasibility Study and Strategy* (*see Section 3.5.5) -*** Conduct a district energy feasibility study and subsequent region-wide strategy to identify opportunities for developing de-centralized, low-carbon district energy systems throughout the region that decrease the emissions produced by individual sources . City of Guelph, Town of Hearst, Town of Surrey and City of Saskatoon have completed relevant GMF-funded district hearing feasibility studies. (Anticipated cost for feasibility study: $200,000 - $300,000, GMF grant may be available for up to 50% of eligible costs to a maximum of $175,000). *** *Combined Heat & Power (CHP)*** – Encourage the adoption of combined heat and power by first: a) conducting a survey of heat and power requirements across large users to identify opportunities for cogeneration systems or waste heat sharing (program could be developed to facilitate "matching" of energy users), and b) facilitating an event or meeting to provide information and host discussions about CHP opportunities.	• Municipalities • Utilities • Universities • Community Stakeholders, as self-identified	Not implemented	✓	Feasibility study could determine reduction potential of integrated community energy solutions. For example, case studies of district energy systems have shown reductions in the range of 1,000 – 8,000 tonnes annually

Green Building Standards, Checklists and Toolkits (*see Section 3.5.5)*: Investigate strategies for encouraging new developments and building retrofits to achieve "beyond building code" construction and performance. Strategies used in other municipalities include a Green Building Standard and/or Green Building Toolkit or Checklist as part of the development review or building permit processes. In return for integrating sustainable techniques for construction, operating and maintenance, developers/builders may be offered incentives like density bonusing (used by City of Waterloo, for example), decreased development charges, or expedited development review processes. Although some practices are in place already, there is opportunity for looking at a comprehensive approach across the region that would drive deeper and more consistent green building practices.	• Municipalities • residential & commercial builders association • Building Owners and Managers Association • Canada Green Building Council • Other community stakeholders, as self-identified	Not implemented	✓	To be determined
Zero-Impact Sustainability Incubator: A zero-impact demonstration building that showcases sustainable building technologies and serves as a hub for Waterloo Region's sustainability-focused organizations and green start-ups. Similar in concept to the Accelerator Centre and Communitech Hub/Tannery model, this space would become a sustainable business catalyst that would provide opportunities for networking and collaboration to spur economic development across Waterloo Region's emerging sustainability cluster.	• Sustainable Waterloo Region • City Economic Development Depts. • Building tenants • Green Hub	Under exploration		To be determined
Low Emission or Hybrid Taxis & Limousines (*see Section 3.5.5)*: Develop a program to shift all taxies and limousines operating in the region to low emission or hybrid electric models.	• Region of Waterloo	Not implement-ed		2,300

List of Further Considerations for Waterloo Region

Transportation Sector

- **Parking Pricing Strategies:** Ensure that parking pricing strategies encourage alternative modes of transportation by ensuring monthly parking charges for well-located parking stalls are, at minimum, the same cost as a monthly transit pass.
- **Personal Vehicle Fuel Efficiency Campaign:** Facilitate a region-wide campaign to educate residents on potential savings in fuel costs and GHG emissions that can be achieved by purchasing low-emission or fuel-efficient personal vehicles.
- **Transportation Pricing Study:** Initiate a study to investigate and provide concrete recommendations on the feasibility of key transportation pricing mechanisms in Waterloo Region and the associated potential impacts towards reducing SOV trips and promoting alternative modes
- **Warning Labels on Gasoline Pumps**: Explore the potential for the municipality (having authority under the Municipal Act to do so) to require the use of warning labels on gasoline pumps to raise awareness/effect behaviour change.
- **CNG/LNG Fuelling Stations:** Support the creation of Compressed Natural Gas/Liquefied Natural Gas (CNG/LNG) fueling stations along major highways in the region
- **CNG/LNG Use in Fleets:** Explore the potential for private sector and MUSH (municipalities, universities, schools and hospitals) sector fleet vehicles to convert to CNG.
- **Coordinate School Bus Routes and Auto Traffic:** To avoid traffic idling behind school buses during pick-up and drop-off hours, investigate optimizing bus routes and communicating to drivers so they avoid the routes.

Industrial, Commercial & Institutional Sector

- **Energy Innovation Living Lab:** Establish a "Living Lab" within Waterloo Region to encourage innovators to pilot and test new strategies for advancing low-carbon, energy efficient solutions for communities.
- **Energy Benchmarking Program:** Encourage the local use of an incentive-based program (such as Portfolio Manager launched in 2013) to engage local ICI property owners in energy benchmarking and disclosure, target setting and energy efficiency/conservation.
- **Small Office Sustainability Reporting -** Reference case: Green Shops Program – Fredericton
- **Green Building Business Park –** The development of a green business park through the creation of an incentive/rebate program for the construction of environmentally sustainable buildings.
- **Micro Combined Heat & Power**

Residential Sector

- **CREW's KIDs, Children's Energy Efficiency Program:** Enhance the existing program that educates school children on energy efficiency appliances and understanding the rating system. Enable them to do efficiency audits at home and to measure the quantifiable results.
- **Neighbourhood Carbon Footprint Campaign:** Develop a campaign to provide homeowners with quantitative information about their neighbourhood average residential carbon footprint and energy usage.
- **Consolidate Utilities Information:** Consolidate utilities information for homeowners so that residents receive one, holistic, itemized tally of their water and energy usage, and tracking over time of usage and impacts like CO_2 emissions.
- **Energy Labeling on Homes for Sale:** Establish a local energy efficiency labeling standard for homes for sale, represented by symbols and ratings, to raise awareness among homebuyers and realtors of energy efficiency as an important consideration when buying or selling a home.

Agriculture Sector

- **On-farm CO_2 Sequestration:** Create CO_2 sequestration on a farm-level by encouraging select land use practices. Practices may include: planting trees to increase forested areas, encouraging conservation tillage and sustainable farming techniques, and restoring cultural or ecologically significant land areas.
- **Encourage Low Carbon Diets:** Reduce the demand for carbon-intensive food such as beef through programs such as "Meatless Mondays" or encouraging increased vegetarian content in diets.
- **Local Biogas Power Generation:** Identify energy production opportunities for the Region through local biogas generation using locally sourced biological material, such as brush cutting, farm waste and compost.

Waste Sector

- **Food Waste Campaign:** Explore strategies for reducing food waste from field to fork for consumers, business, government and institutions. Create a network for distributing food waste to those who need it, utilizing a system for grocery stores and restaurants to contribute.
- **Backyard Composting Program:** Establish a small-scale backyard composting program to influence how residents view backyard waste.

Cross-Sector

- **Sustainability Financing Projects** such as: a **local endowment fund** for sustainability projects (large capital invested, principal kept intact and interest used for funding sustainability projects) or **local trust** for sustainability projects (capital redistributed on an ongoing basis.

APPENDIX C: Estimated Impacts of Select GHG Reduction Actions & Opportunities Over 10 Years (2011-2020)

Climate Action Plan	A. Environmental Benefits			B. Regional Economic Benefits in Waterloo Region of Total Investment and Incremental Expenditures				C. Social Benefits in Waterloo Region		
	GHG Reduction at 2020 T CO2e/yr.	Local Air Quality	Other Env. Benefits[1]	Total Investment and Incremental Expenditures	Gross Economic Activity	Value Added to Local Economy	Tax Revenue to Local Government	Household & Business Savings	Health	Employment (Person Years)
Regional Transportation Master Plan (enabling more sustainable modes of travel e.g. transit, carpooling, cycling, walking)	⇩	+		$$$$$	$$$$$	$$$$$	$$$$$	NA	+	👥👤
Union Gas Commercial and Industrial Conservation & Demand Management (CDM) Initiatives 2011-2015	⇩			$$$$	$$$$$	$$$$$	$$	$$		👥👤
Community-wide Residential Energy Retrofits with loan element (e.g. LIC/PAPER): 2013-2020	⇩		+	$$$	$$$$	$$$$	$$	$$[2]	+	👥
Union Gas Residential Conservation & Demand Management (CDM) Initiatives 2011-2015	⇩			$$$	$$$$	$$$	$$	$$		👥
Landfill Gas Solar Flaring	⇩	+	+	$	$$	$$	$	0	+	👤
Green Bin Organics Diversion	⇩		+	$$$	$$$$	$$$$	$$	0		👥👤
LDC Conservation & Demand Management (CDM) Initiatives 2011-2014	⇩			NA	NA	NA	NA	NA		NA
Corporate (commercial/business) sector reduction targets & best-practice sharing (SWR's Regional Carbon Initiative)	⇩	+		NA	NA	NA	NA	NA	+	NA
Regional Anti-Idling Campaign/Bylaw	↓	+		NA	NA	NA	NA	NA	+	NA
1000 Electric Vehicles on the road in the Region by 2020 via provision of community-network of charging stations	↓	+		$$	$$$	$$	$	$$	+	👤
REEP/ecoEnergy Residential Energy Retrofits 2011-2012	↓			$$$	$$$	$$$	$	$	+	👤
Development of a 7.5 MW District Energy System	↓		+	$$	$$$	$$	$	$		👤
Installation of CHP/cogeneration units at three WWTPs	↓		+	NA	NA	NA	NA	NA		NA
Low Emission or Hybrid Taxis & Limousines	↓	+		$	$	$	$	$	+	👤
LED Streetlight Retrofit (3 Cities and Region)	↓			$$$	$$$$	$$$	$$	$$		👥
HVAC Retrofits/Upgrades at Regional Buildings	↓			$$	$$	$$	$	$		👤
Expanded Local Car Share System	↓	+		$$	$$	$	$	$	+	👤
Furnace Upgrades in Regional Housing Units	↓			$$	$$	$$	$	$		👤
Community Water Efficiency Master Plan	↓		+	NA	NA	NA	NA	NA		NA
Community Bike Share System	↓	+		NA	NA	NA	NA	NA	+	NA

Footnotes: 1) Includes, water conservation, climate adaptation, sustainable waste management; 2) Estimated savings $750/household/year;

Legend

+ = Positive benefit (unquantified)

NA = Not available

↓ = < 5000 Tonnes GHG reduction

⇩ = 5,000 to 10,000 Tonnes GHG reduction

⇩ = >10,000 Tonnes GHG reduction

$ = <$1 million (M)

$$ = $1 M to $10 M

$$$ = $10M to $50 M

$$$$ = $50M to $100M

$$$$$ = >$100 M

👤 = up to 500 Employment person years

👥 = 500 to 1000 Employment person years

👥👤 = >1000 Employment person years

APPENDIX D: Supplementary Resources, including Community Engagement Report

In addition to the information provided in this Climate Action Plan document, there are a number of supplementary resources that provide additional information related to the process of plan development, or act as tools to support the ongoing implementation, monitoring and reporting process. These resources are described in brief below and are either attached to this plan, available for download on the climateactionwr.ca website, or available upon request by email to sustainability@regionofwaterloo.ca

1. Attached here below

- **Community Engagement Report** – *September 2013*
  The Community Engagement Report provides a description and results of the range of engagement activities that occurred over the period of June 2012 to July 2013. The report includes recommendations for continuing to facilitate engagement opportunities moving forward.

2. Available for download on the climateactionwr.ca website

- **Actions Database Spreadsheet –** *August 2013*
  The Actions Database spreadsheet contains detailed information about each Action and Opportunity currently identified (action name, description, lead partner, jurisdiction, sector, estimated GHG impact, associated costs, multiple benefits, data, reference cases, and other notes). This database is set up as a tool to use in the ongoing collection of information on the actions, and also tracks the cumulative reductions by sector.

- **Task Force Meeting 1: Summary Report** – *November 2012*
  On November 14th, 2012, 46 engaged Task Force members gathered for their first official meeting. This summary report was prepared to capture the meeting discussions and main outcomes of this significant first meeting of the Task Forces as a large plenary group. Meeting minutes of the 4 subsequent Task Force meetings – 3 of which took place as smaller, independent Task Force groups - are also available on request.

- **Community Energy and Climate Action Workshop – Facilitator's Summary** – *July 2012*
  On June 21 2012, 50 people from the community came together at the Community Energy & Climate Action Workshop to learn about the work of ClimateActionWR (then the Climate Collaborative) and discuss planned and potential action to develop a Community Action Plan. The facilitator's summary gives an overview of the workshop activities as well as findings from discussions that took place.

- **Community Greenhouse Gas Inventory and Forecast Report for Waterloo Region – May 2012 (updated March 2013)**
  In May of 2012, ClimateActionWR completed a community-scale GHG emissions inventory for Waterloo Region using 2010 as a base year. This report summarizes the inventory process, GHG emissions data collected and 10-year emission forecast out to the year 2020. The inventory shows the "carbon footprint" of Waterloo Region through local energy use, traffic volume, waste sent to landfill, and some agricultural activities. *The Report was updated in March 2013 to reflect a reassessment of the transportation sector emissions.*

- **Inventory Data Management Manual - May 2012 (updated March 2013)**
  To complement the summary Discussion Paper, the Inventory Data Management Manual contains a robust and detailed discussion of the methods, assumptions and data sources used to prepare the 2010 community-scale Inventory & Forecast. Documenting this information at the time of inventory completion was critical in order to provide the resource needed when the time comes to perform a "re-inventory" to measure and report on progress. The replicability of these methods, using the IDMM as a guide, will provide for consistent reporting against the baseline.

3. **Available upon request by email to** sustainability@regionofwaterloo.ca

- **Inventory & Forecast Spreadsheet –** *May 2012*
  The Inventory & Forecast spreadsheet is a tool to capture all of the inputs, calculations and results of the community GHG emissions and inventory completed for Waterloo Region, 2010-2020.

- **The Economic Impact of the Climate Action Plan for Waterloo Region –** *August 2013*
  In addition to the summary results presented in Section 3.5.5 and Appendix C, the full study completed by Econometric Research Limited is available upon request. This study quantifies the likely economic impacts of the suite of 13 specific initiatives that have been fully specified and whose costs are quantified, by assessing their costs, savings and contributions to the economy of the Waterloo Region and Ontario.

Developing the Climate Action Plan for Waterloo Region through Community Collaboration

Community Engagement and Outreach Report

Prepared by Lura Consulting for:
ClimateActionWR
August 2013

1 Introduction

ClimateActionWR is a collaboration between local organizations and community members who support the implementation of a region-wide Climate Action Plan. When implemented, the plan will leverage Waterloo Region's collective efforts towards achieving a community-scale GHG reduction target that leads to better quality of life throughout the region. The Climate Action Plan is focused on climate change *mitigation*, outlines strategies for reducing emissions at the *local level*, and is being developed through *community engagement and collaborative planning*. Community engagement and outreach was a key component of ClimateActionWR's planning process. At the beginning of Milestone 2, a Community Engagement Strategy was developed to ensure that key audiences within the region would have an opportunity to contribute their input to the development of the Action Plan. A number of engagement and outreach activities occurred from June 2012 – October 2013 including: a Steering Committee, four sector-focused Task Forces, consultations with Council and municipal staff, public forums, individual face-to-face conversations, presentations, display booths, an online discussion board, and Facebook and Twitter. As a result, the Action Plan includes a vision, goals, strategic directions, actions, opportunities and a plan for implementation – all of which were defined through conversations with the community.

1.1 Purpose of this Document

The feedback and advice received through the community engagement process has been integrated into the Climate Action Plan and supporting materials. This report focuses on the methods used and results of the community engagement process, it is meant to be an appendix of the Climate Action Plan which provides highlights of the engagement process.

1.2 Communication Goals of ClimateActionWR

As set-out early in the process, the communication goals and objectives of community engagement were:

Communication Goals		Objectives	
CG1	Demonstrate the value of community-level climate change action planning	*CG1*	Show what emissions arise from our community activities
		CG1	Emphasize the co-benefits of reducing GHGs and make connections to issues people care about
		CG1	Highlight local initiatives and where there are opportunities to make additional reductions
		CG1	State the risks of inaction
CG2	Provide a unified voice on climate change actions and impacts in Waterloo Region	*CG2*	Facilitate connections among like-minded community members and foster strong collaborative relationships
		CG2	Fairly recognize and communicate the contributions and impact of all partners and community members

Communication Goals		Objectives	
CG3	Cultivate a strong sense of community ownership for the action plan	*CG3*	Provide opportunities for joint decision-making
		CG3	Engage the general public and stakeholders in action planning and target setting based on their interests/needs
		CG2	Demonstrate progress on FCM/PCP milestones
		CG3	Encourage bold targets and actions among community members

1.3 Guiding Principles

Key guiding principles of our engagement process included:

- Build on the success of work already accomplished;
- Use innovative and creative approaches to inspire a sense of ownership and action;
- Focus on tracking and reporting the results of the public feedback;
- Respect diversity – in opinions, how people like to get involved/contribute, cultural differences, etc.;
- Be flexible and continually adapt to improve the engagement process;
- Integrate and cross promote media and information;
- Promote the 'viral' spread of information; and,
- Continuously measure our progress and tracking input.

2 A Collaborative Approach

2.1 Planning Process and Timeline

In addition to ongoing partnership development among lead organizations, the majority of community engagement activities occurred between June 2012 and September 2013 through the following four interconnected phases of engagement: 1) Setting the Stage; 2) Defining our Vision (Goals and Actions); 3) Action Planning; and 4) Finalizing the Plan and Implementation Strategy.

1. Developing the Engagement Strategy
June – September 2012
In June 2012, a workshop was held to determine how the community could best participate in the development of the Climate Action Plan. Following the workshop, the project team defined an engagement strategy that would help achieve Milestones 2 and 3, created the project website, and developed a brand and social media identity.

2. Defining a Vision and Goals
September 2012 – March 2013
The four Task Forces were formed in the fall of 2012 and were first tasked with contributing to the development of a vision for local climate action and goals to help realize this vision. Feedback on the vision and goals was also offered by the community-at-large in subsequent phases, such as at the three Community Forums and through online channels. The final vision statement can be found in Section 3.2.

3. **Action Planning**

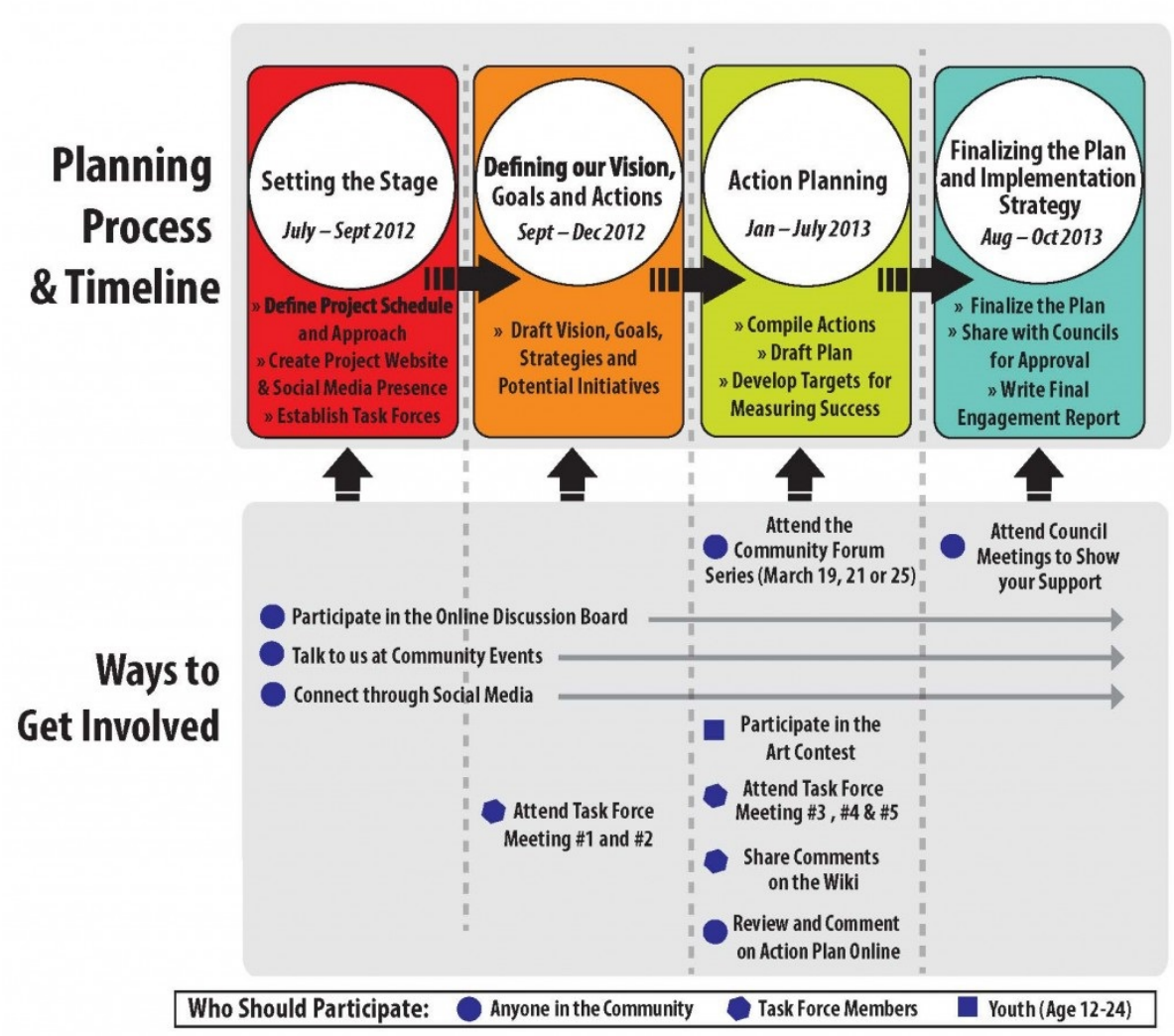
January – June 2013

The Task Forces, community members, project team, and municipal staff all contributed input to the scoping exercise to determine actions currently underway as well as potential opportunities for future reduction efforts. These lists were then assessed and refined using pre-established criteria by a technical team, while also collecting reference cases and quantifying the estimated GHG reduction where possible. Further details on the Actions and Opportunities can be found in Section 3.5.

4. Finalizing the Plan and Implementation Strategy

June – September 2013

Based on all in-person and online conversations held with community stakeholders and technical recommendations, the project team culminated the information into a draft plan. During this stage, advice and input was gathered from local politicians, municipal staff and Task Force members specifically on the target-setting approach and implementation strategy. In September 2013, the Plan was then finalized and prepared for review and approval by the four Regional and City Councils.

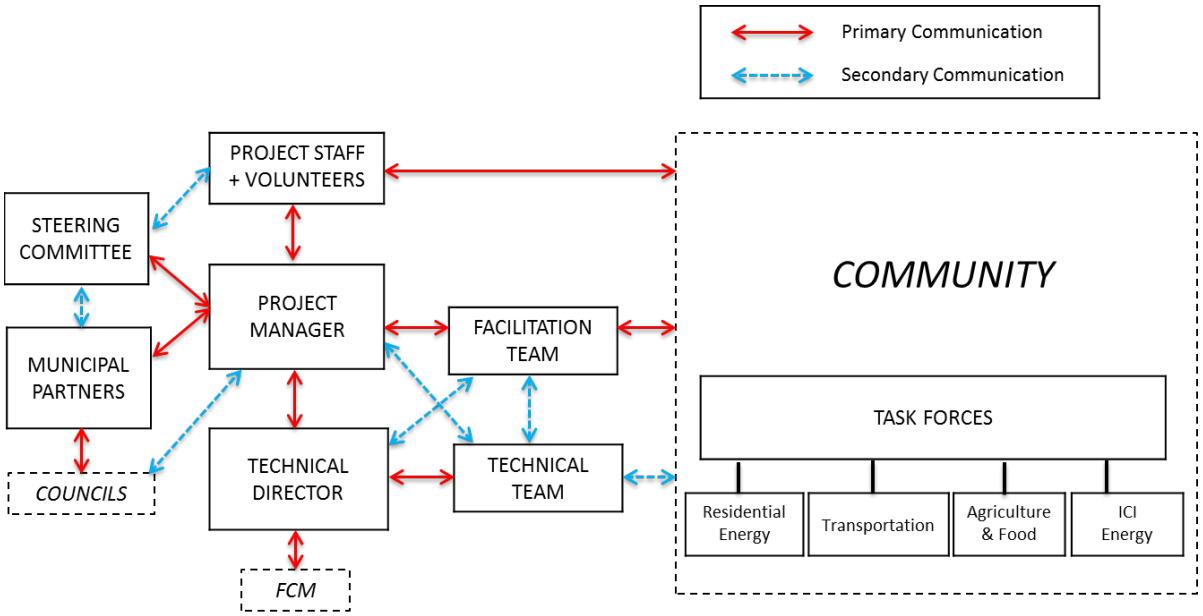


2.2 Governance Structure

A number of community leaders were targeted and involved in the development of the Action Plan. The list below provides an overview of the players who were involved (for more information about key audiences in regard to community engagement please see Section 6).

- **Project Manager** – provided direction to volunteers and facilitation team for the implementation of the community engagement activities and partnership development
- **Technical Director** – provided direction to technical team, and oversaw the development of the technical scope of work.
- **Volunteers** – provided support and capacity for implementation of the engagement strategy.
- **Steering Committee** – provided overall strategic direction to the project manager, facilitation team, and technical team, and final approval of material developed.
- **Regional and Local Municipal Councils and Environmental Advisory Committees** – received periodic updates from municipal staff (or project manager); will be asked for approval of the Plan and reduction targets.
- **Regional and Local Municipal Staff** – received regular updates from project manager; provide insight to current conditions, and input to defining vision, goals, strategic directions, potential actions, and advice on implementation.
- **Task Forces** – worked on specific thematic aspects of the plan to contribute expertise and local knowledge, and ensure that community interests are considered in developing the Plan.
- **Community (includes Groups, Organizations, and Public)** – engaged through various avenues in developing the Plan throughout the process and inspired towards sense of ownership and action, this also includes targeted audience engagement.

The governance structure can be seen below:



2.3 What we Heard

- **When communicating about the Climate Action Plan, it is important to demonstrate integration opportunities and co-benefits across sectors.** While some have found it intuitive to realize the co-benefits that exist between GHG reduction strategies and other community goals; some have not. Co-benefits and cross-sector integration will continue to be important to emphasize especially when moving into the implementation phase.

- **There was continued interest to see accountability for the process and criteria that are used to select and promote actions**.

- **Understanding growth and development (e.g. Places to Grow Act and subsequent development plans or proposals) should be part of the conversation.** The community may respond better to actions like rapid transit or intensification if they understand the policies around growth, the potential development within the region and GHG reduction potential around those developments.

- **Green building and development standards and energy-related programs were actions with particularly high interest, while transportation-related actions were not selected as frequently.** There may have been less interest in discussing transportation-related actions because these issues have been heavily discussed in this community recently (i.e. local commitment to develop an LRT system).

- **The area of local food and agriculture, although not a huge contributor to lessening local GHG emissions, is a topic that attracts a lot of attention**.

- **People continue to wonder where funding for the actions will come from,** with a particular interest in not only project-specific funding, but also consistent and long-term resources for sustained programming.

- **The question about how we reach more community members and organizations outside of our typical circles is still at the forefront of people's minds.** There continues to be insufficient awareness among the general populous about the need to act locally on climate change, and about the programs and opportunities that exist.

- **Continue to engage participants as advisors or partners throughout implementation.** All participants have done tremendous work informing plan development; ongoing wide-spread participation of stakeholders should be considered as part of the implementation strategy.

- Top voted-on ideas received through the **Online Discussion Board** included: the draft Climate Action Plan vision; changing land use practices to increase carbon sequestration; convert streetlights to energy efficient LED fixtures; a region-wide anti-idling campaign and bylaw; road diets' for improved pedestrian and cyclist safety; encouraging clothesline use; building on existing community resources; and, financing for sustainability projects. Each received five or more votes of agreement. Community members commented, providing input such as:

    - Perceptions of whether an action is likely to make a difference
    - The need to make actions acceptable and easy to engage in; the need to give people options
    - Co-benefits of proposed actions
    - Requesting, or providing, more details on the proposed action
    - Observations of what is currently happening in the community
    - Suggestions of how an action could be tweaked to be more feasible
    - Information from other scientific sources
    - Examples from other communities, and
    - Concerns about related environmental issues.

- Conversations and interactions that occurred on **Twitter** contributed to connecting ClimateActionWR to a wider audience by sharing news of interest, receiving input and feedback, promoting events, thanking partners and participants, making connections, and giving responses to requests for information and input. Some sample tweets we received were as follows:
    - REEP Green Solutions (@REEPGreen): “Impressive citizen & political engagement last night @ClimateActionWR's community forum! Looking forward to the plan”
    - Alternatives Journal (@AlternativesJ): “@ClimateActionWR here in Waterloo Region offers a useful model for mitigating climate change on a regional level.”
    - Berry Vrbanovic (@berryonline): ”Want input into our region's Climate Action Plan - attend @ClimateActionWR forum this Thurs from 5-7pm @TheMuseum”
    - GSCT (@RL_GSCT): “@ClimateActionWR is in the studio with me talking about their Climate Action Plan. Listen in!”
    - ICLEI_Canada (@ICLEI_Canada): “.@ClimateActionWR We compare GHG reductions to: removing cars from the road, replacing old appliances, or installing residential SHW systems”
    - Don Grant (@sharethewheel): “Check out @ClimateActionWR for a great example of a community partner process leading to #sustainability actions”
    - Sarah Colvin (@sarah_colv): “Excited to be a panelist @ClimateActionWR upcoming Community Forum. Have your say and shape our actions.”
    - James T. LaPointe (@JLaPointe_TDM): “I'm getting more & more excited about @ClimateActionWR as we discuss transportation + GHG reduction solutions throughout W.Loo Region”

2.4 Participation

Through various mechanisms a stakeholders participated in the development of the Climate Action Plan for Waterloo Region.

Consultation/Engagement Event	Timing	Participation
Steering Committee	Began meeting regularly in Fall 2010 every 3-4 weeks	Mike Morrice (SWR Executive Director), Mary Jane Patterson (REEP Executive Director), Dave Roewade (Region of Waterloo Sustainability Office)
Staff and Volunteers		1 – full-time Project Manager (2.5 years) 4 – interns (4 months each) 6 – volunteers (approx. 1,100 hours total)
Municipal Partners		8 staff regularly involved
Task Forces	November 2012 – Fall 2013	46 Task Force members from 28 organizations
Stakeholder Workshop	June 2012	50 participants
Community Forums	March 2013	130 participants
Online Discussion Board		By the end of July 2013, the board had 46 registered users. 110 ideas were posted and received 307 votes and 62 comments.
Facebook	November 2012 – Fall 2013	126 likes
Twitter	November 2012 – Fall 2013	246 followers
Website	November 2012 – Fall 2013	2,100 unique visits (13,537 page views)
Mailing List	Ongoing	161 subscribers

4 Community Engagement and Outreach Activities – Face-to-face

The following section provides an overview of the face-to-face engagement that was conducted.

4.1 Community Energy & Climate Action Workshop

On Thursday June 21, 2012, approximately 50 people from the community came together at two workshops to learn about the work of ClimateActionWR and discuss planned and potential action to develop a Community Action Plan in Waterloo Region. Through these workshops a list of initiatives and their connections emerged as well as ideas and suggestions for engagement activities that could take place during the action planning phase.

4.2 Municipal Engagement

Over the course of plan development, local politicians, committee members and staff representing each of the four local municipal governments were engaged in a variety of ways:

Municipal Stakeholder Group	Method of Engagement	Focus of Discussions
Local politicians (Mayors/Regional Chair/ Councillors)	• All Mayors and Councillors from 8 municipalities were invited to provide input to the process and specifically into the approach to target-setting and finalizing the Action Plan. In response to this, 5 Councillors took part in a session held on June 7th, 2013 and 1:1 meetings were held with 3 additional Councillors who were unable to attend the group session. • Update presentations to Council were made periodically throughout the plan development, especially at the time of inventory completion in June 2012 all Councils received either an update presentation or a memo.	• Overall project updates. • Overview of Milestone 1 completion. • Request for specific feedback on: target-setting approach, and proposed strategy for ongoing implementation and administration of the plan towards achieving PCP Milestones 4 & 5.
Environmental Advisory Committees (generally consisting of 8-12 citizens, 1-2 Councillors, and a staff liaison)	• Presentations made to committees in Cambridge, Kitchener and Waterloo over the course of two years, periodically at the discretion of the staff liaison.	• Overall updates on the initiative. • Asked for their general feedback as well as input to specific questions about engagement process.

Municipal Stakeholder Group	Method of Engagement	Focus of Discussions
Senior Management	• In June and July 2013 staff contacts led a process of consulting with senior administration at each municipality.	• Received an overview draft version of the Climate Action Plan, and were asked for their advice on key questions of target-setting approach and implementation approach.
Staff – Direct Contacts	• Ongoing participants throughout the process participating in groups meetings alongside the Steering Committee approximately once per quarter, as well as contributing other advice and feedback in between meetings.	• Acted as first point of contact to collaborative group • Contributed input to key decisions, feedback on drafts, and coordinated efforts and communications across municipalities.
Staff – Other Contacts and staff committees	• Municipal staff across other departments also participated on Task Forces, or were briefed through their participation on internal committees such as the Sustainable Task Force at the City of Cambridge.	• Provided their subject matter expertise in areas such as Transportation, Planning Building, Economic Development, etc.

4.3 Task Forces

In total, 46 people from 28 organizations participated on Task Forces over the course of 9 months. The intent of the Task Forces (TF) was to bring community partners together in smaller "work groups" to identify actions/projects that encourage greenhouse gas emission reductions in our community, as well as help to review and refine the overall goals and targets that are being developed. In short, the Task Forces played a key role in the development of the Climate Action Plan by advising the ClimateActionWR Steering Committee, and more specifically on the following:

- The development of an overall vision and goals for ClimateActionWR;
- Identification, analysis and prioritization of specific initiatives/actions for their topic area (see below) that will help achieve the overall vision and goals;
- The development of actions based on expertise, experience and knowledge;
- The implementation of actions based on expertise and interests;
- The development of achievable yet ambitious GHG emission reduction targets for Waterloo Region related to their sector focus area (see below); and,
- Be informed by community views and perspectives identified through ClimateActionWR's overall community engagement program.

Four Task Forces were established to focus in the following ***sector areas***:

1) Residential Energy;
2) Industrial, Commercial and Institutional (ICI) Energy;
3) Transportation; and
4) Agriculture & Food.

There was not a Task Force focused specifically on the waste sector due to the fact that waste is a regionally operated sector and a Waste Management Master Planning process is currently taking place that includes significant stakeholder engagement.

Task Forces were comprised of a range of 6-16 members each, representing a range of interests from industry, utilities, government, agriculture, academia and community organizations. Individuals were invited to participate based on demonstrated expertise and specialized knowledge. Participation in the Task Forces was voluntary, and was based on the individual's willingness and availability to participate; the list of Task Force meetings is in the table below. For a full list of Task Force members please see the list of *Contributors to ClimateActionWR* within the main Climate Action Plan document.

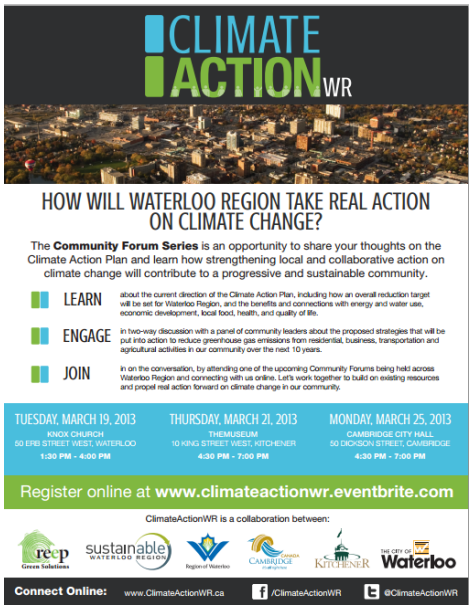
	Format	Meeting Topics	Date & Host Location
Meeting #1	Plenary with 4 break-out sessions by Theme Group	Vision and Goals, Endorsing Terms of Reference	• November 14, 2012 – Enermodal Engineering, Kitchener
Meeting #2	Independent Task Force Meetings	Screening Criteria & Initial Brainstorming on Actions	• Residential TF: Dec. 4, 2012 - REEP House, Kitchener • Transportation TF: Dec. 11, 2012 – University of Waterloo, Waterloo • ICI Energy TF: Dec. 13, 2012 – Wilfrid Laurier University, Waterloo • Agriculture TF: Jan. 10, 2013 – Canada's Technology Triangle, Kitchener
Meeting #3	Independent Task Force Meetings	Actions Brainstorming Continued	• Residential TF: Feb. 11, 2013 - REEP House, Kitchener • Transportation TF: Feb. 11, 2013 – Waterloo Catholic District School Board, Kitchener • ICI Energy TF: Feb. 11, 2013 – Union Gas, Waterloo • Agriculture TF: Feb. 14, 2013 – Grand River Conservation Authority, Cambridge
Meeting #4	Independent Task Force Meetings	Action Plan Framework & Discussion of	• Residential TF: March 8, 2013 – REEP House, Kitchener • Transportation TF: March 6, 2013 – Region of Waterloo, Kitchener

	Format	Meeting Topics	Date & Host Location
		Actions	• ICI Energy TF: March 6, 2013 – Cambridge & North Dumfries Hydro, Cambridge • Agriculture TF: March 14, 2013 – Martin's Fruit Farm, Wellesley
Meeting #5	Plenary with two date options	Implementation Strategy & Building the Case for Local Action	• Session A: June 25, 2013 – Region of Waterloo Public Health, Waterloo • Session B: June 28, 2013 - Region of Waterloo, Kitchener

4.4 Community Forums

On March 19, 21 and 25, 2013, ClimateActionWR held a series of Community Forums in order to facilitate an in-person engagement activity with the following goals:

- Increase community awareness and understanding of the purpose and work of ClimateActionWR, and the value of a community Climate Action Plan.
- Provide community members across Waterloo Region with the opportunity to offer input into the Climate Action Plan, thus encouraging community ownership and buy-in that will lead to future participation.
- Inspire participants to begin (or continue) the important conversation about climate change in Waterloo Region, including sparking conversation on the Climate Action Plan that will be sustained beyond the event through other engagement formats such as the online Discussion Board and social media.



Forum #1	***Forum #2***	***Forum #3***
Tuesday, March 19th	Thursday, March 21st	Monday, March 25th
2 - 4pm	5 - 7 pm	5 - 7 pm
Knox Church, Waterloo	THEMUSEUM, Kitchener	Cambridge City Hall
Attendance: 41	Attendance: 50	Attendance: 39

In total, 130 people attended the Community Forum Series. The format for each forum included a short open house, an overview presentation, a dotmocracy selection activity on a short-list of actions, a panel discussion and a workshop discussion focused on actions selected during dotmocracy. Comments and input from participants were sought throughout.

Community Forum participants select topics of interest at Knox Church in Waterloo on March 19, 2013.

4.5 Events Attended

In addition to hosting community forums, the Project Team attended a number of community events and meetings to give presentations or engage in more informal "places and spaces" conversations. The following table provides an overview of the events and meetings attended.

Event Name & How ClimateActionWR participated	Event Date	Location
ECOFest'12 – community booth	June 2, 2012	Waterloo Regional Museum
Sustainability in the Park – community booth	September 30, 2012	Waterloo Park
Uptown Waterloo Farmers Market – community booth	October 11, 2012	Waterloo Town Square
Greening Sacred Spaces Network Workshop: Water – A sacred resource! – short presentation	October 24, 2012	Stirling Avenue Mennonite Church
THE MUSEUM Environmental Fair – community booth	November 3, 2012	THEMUSEUM
Waterloo Region Environmental Networking Forum – short presentation	Dec. 5, 2012	St. John the Evangelist Anglican Church
Grand River Conservation Authority (GRCA): Adapting to Climate Change – participant	February 20, 2013	GRCA headquarters
Sustainable Waterloo Region Evening of Recognition – video feature	April 18, 2013	Waterloo Inn
Sustainability Networking Forum – participant	April 20, 2013	Kitchener City Hall
Youth Forum (Compass Kitchener) – keynote presentation	April 24, 2013	Kitchener City Hall
ECOFest'13 – community booth	June 1, 2013	Waterloo Regional Museum
Regional Carbon Initiative Event Series (Educational Forums & Technical Workshops) – participant	8 events (June 2012 to June 2013)	Various (Cambridge, Kitchener, Waterloo)

5 Community Engagement and Outreach Activities – Online

The following section provides an overview of the online engagement activities that were conducted.

5.1 Project Website

A project website – www.climateactionwr.ca - was launched in the fall of 2012 and used throughout the development of the plan to share information and host opportunities for input.

5.2 Online Discussion Board

The discussion board was launched in January 2013. ClimateActionWR used the discussion board to elicit community feedback in three phases. From January to March 2013, the overall vision and approach statement for the Climate Action Plan were up for feedback. From March to May, the board was open for input on potential actions to include in the Plan. In June, the online discussion board campaign wrapped up with a chance to provide feedback on draft short lists of actions (clearly defined initiatives with quantified benefits and identified lead partners) and opportunities (potential actions).

Image: Discussion Board Landing Page

5.3 Social Media

A Facebook Page (ClimateActionWR) and Twitter (@ClimateActionWR, and #climateactionWR) identity was created to provide updates about progress and upcoming events within the community. Members of the project team also periodically wrote blog entries that were posted on the Sustainable Waterloo Region blog[3]. The @ClimateActionWR twitter account was launched in the fall of 2013 and grew to have 240 followers by the end of July 2013. ClimateActionWR received attention and engagement from numerous local community members through Twitter.

[3] http://www.sustainablewaterlooregion.ca/blog/author/sarah-brown/

@ClimateActionWR was mentioned or re-tweeted by the following notable local people and organizations, among other community members:

- Kitchener Mayor Carl Zehr
- Waterloo Mayor Brenda Halloran
- K-W MP Peter Braid
- Kitchener Councillor Berry Vrbanovic
- Waterloo Councillor Jeff Henry
- Grand River Transit
- Greater KW Chamber of Commerce
- Alternatives Journal
- Daytime 20
- City of Waterloo
- City of Cambridge
- Region of Waterloo
- Township of North Dumfries
- ICLEI Canada
- WWF Canada
- Federation of Canadian Municipalities

5.4 Art Contest

Young people were asked to submit their creative ideas about what local action on climate change looks like. The winning entries will be showcased in the final plan. The flyer promoting the contest is included here.

The project team promoted the contest through a variety of forums, however participation numbers were not as high as hoped. This was potentially due to the fact that the contest was not integrated within school curriculum or that the timing of the art contest was too late in the year.

Image: Art Contest Flyer

5.5 Action Mapping

A webpage inviting people to submit existing actions was made available online[4] and could continue to be promoted and used throughout the implementation phase as part of a commitment to continued engagement.

6 Communication Tools

The following section provides an overview of the communication tools used to communicate the project.

[4] http://www.climateactionwr.ca/learn-more/existing-actions/

6.1 Brand Identity

Image: Logo developed for ClimateActionWR

"The Climate Collaborative" was the name used to describe the partnership and the project from March 2011 until the fall of 2012. In October 2012, the Climate Collaborative underwent a transformation as the partnership officially launched *ClimateActionWR* as its new public presence. This identity includes a new logo, website and social media components – all designed to facilitate community engagement and active participation while working collectively towards Milestone 2 and 3 of the framework. Primary emphasis is on the words "ClimateAction" while the "WR" is of secondary emphasis. This means that the "WR" can be dropped and replaced with other words to describe different aspects of the project, as shown through the examples in below. This flexibility will allow the brand to carry through from the current community engagement and action planning stage through to implementation stages later on. The logo uses engaging and hopeful colours, as well as intentional graphics that display action, community and collaboration as the core foundations of our work.

For specific municipalities:	To categorize by sector…
ClimateAction: Waterloo Region	ClimateAction: In the Home
ClimateAction: Cambridge	ClimateAction: In Business
ClimateAction: Kitchener	ClimateAction: On the Move
ClimateAction: Waterloo	ClimateAction: At the Curb
	ClimateAction: In Agriculture

6.2 Local Media

Local news media outlets helped to raise awareness about the Action Plan.

- July 2011 – Press release announcing original project funding from the Ontario Trillium Foundation and The Kitchener and Waterloo Community Foundation (KWCF)
- June 2012 – Press release regarding completion of Inventory & Forecast (Milestone 1).
- March 2013 – Press release announcing Green Municipal Fund grant and promoting Community Forum Series
- In early March 2013, print advertisements ran in The Record promoting the Community Forum Series
- On March 18th, Sarah Brown, Project Manager, spoke on the Rogers Daytime Show to promote ClimateActionWR and the upcoming Community Forums.
- On March 20th, Sarah Brown, Project Manager, was invited on to the Gary Doyle Show on 570 News Radio to talk about ClimateActionWR and the upcoming Community Forums.

6.3 Other Promotion

A promotional video was produced to highlight the partnerships of ClimateActionWR and the connections between GHG reduction and quality of life. This video[5] was released to a crowd of over 400 at Sustainable Waterloo Region's Evening of Recognition event and is now hosted on the ClimateActionWR website.

7 Engagement Activities by Audience

The key audiences for the plan development fell into the following four categories:

- **Core:** This audience worked together to directly participate in the development of the plan by sitting on task forces and/or will be asked to participate as partners in the implementation stage.
- **Involved:** This audience was involved in helping to develop the plan and was consulted throughout this process for their ideas and feedback.
- **Supportive:** This audience reviewed information at key points and provided input when required and generally agree with the mandate of ClimateActionWR.
- **Peripheral:** This audience was kept informed about the project at key milestones.

For each audience a number of engagement activities were used. The following table provides an overview of those activities as well as the potential level of engagement or involvement for each audience.

Target Audience	Engagement Activity	Category of Engagement
Municipalities (Managers, Staff, Committees of Council, Council)	• Invitations to participate on Task Forces • Presentation/update • Invitations to Community Forums • Focused Discussions	• Core (when participating on a Task Force) • Supportive
Key Stakeholders/Potential Partners (Energy Utilities, Academia & Education, Business & Industry, Community Organizations, Environmental Organizations, Health, Food & Agriculture)	• Task Force meetings • Community Forums • On-line Discussion Board • Social media • Presentations and events	• Core (when engaged on Task Forces) • Involved (if not participating on a Task Force)
Residents	• Community Forums • Website • On-line Discussion Board	• Involved

[5] Video is available online at: http://www.youtube.com/watch?v=U0oQT4z6tgM

Target Audience	Engagement Activity	Category of Engagement
	• Social media • Presentations and events	
Youth & Students	• Website • Social media • Youth Contest	• Involved
Provincial & Federal Government Entities	• Occasional updates	• Peripheral

8 Conclusion

Moving forward the goal of the collaborative partners is to continue to work together on implementation of the Action Plan. As such, building and continuing to enhance the engagement efforts that were undertaken during PCP Milestones 1, 2 and 3 will be key to the success of implementation and the achievement of Milestones 4 and 5. The following considerations should be made in order to build on the existing engagement efforts.

- **Regular reporting on results will be critical in continuing to build momentum and interest within the community.** Now is the time for an interesting and thought provoking conversation about climate mitigation, as well as adaptation. There is interest for Waterloo Region to be a leader in climate action across Canada – this was specifically apparent during the public forums. As progress is achieved, regular updates on progress should be made to all target audiences.

- **Further effort will be needed in order to engage people outside of the typical circles.** There continues to be insufficient awareness among the general populous about the need to act locally on climate change, and about the programs and opportunities that exist. These need to be promoted. It will be important to continue to invite people to participate – in order to broaden the reach, new networks will need to be targeted; the existing database of participants should continue to be used as a method of getting the word out regularly. However, because large community engagement campaigns take a lot of time and money, it will be important to balance the efforts of engagement with the project resources available.

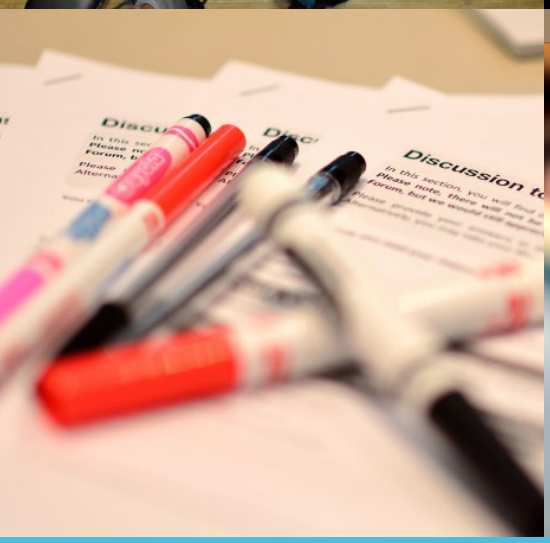
- **Continue to engage task force members and partners throughout implementation.** All participants have done tremendous work informing plan development; ongoing wide-spread participation of stakeholders should be considered as part of implementation strategy, perhaps through a series of action focused working groups. Without this level of participation, the implementation workload will fall on to few shoulders and involve limited resources and isolated initiatives. Engagement and partnership development in

this regard concerning Integration of efforts, leveraging of resources and further collaboration will be critical moving forward. In addition to this, the Steering Committee and Project Team should consider expanding the partnership approach to be one that offers scalable options for partnership. This could be designed to include participation options open to municipalities, businesses, organizations, institutions, non-profits, other groups, and individuals. The partnership approach will be included as option in the plan's implementation component.

- **Demonstrate integration opportunities and co-benefits across sectors.** While some have found it intuitive to realize the co-benefits that exist between GHG reduction strategies and other community goals; some have not. Co-benefits and cross-sector integration will continue to be important to emphasize especially when moving into the implementation.

Engagement and outreach will not end once the plan is complete; the project team is committed to continuing to involve community members by reaching out and engaging in meaningful discussions with a solid representation of interested community members. For more information about implementation and how this will be done please see Section 4 of the Climate Action Plan.

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