



City of Fredericton
FIRST TO KYOTO
COMMUNITY UPDATE
Toward Milestone Five
for Greenhouse Gas Emissions Reduction and Monitoring

PREPARED FOR: The Federation of Canadian Municipalities (FCM)
ICLEI – Local Governments for Sustainability
Partners for Climate Protection (PCP)

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1 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 Background

In 2000, the City of Fredericton joined Partners for Climate Protection (PCP) as administered by the Federation of Canadian Municipalities (FCM). The City then began a project called 'First to Kyoto' aimed at reducing the greenhouse gas (GHG) emissions of the corporation/municipal operation by 20 percent below benchmark levels (2000) by 2010; as well as community emissions by 6 percent over the same time period.

Corporate GHG Reduction Journey

Early in 2006 the City of Fredericton submitted its First to Kyoto Corporate Action Plan for Greenhouse Gas Emissions Reduction for municipal operations. The report presented that the City's corporate greenhouse gas emissions increased by 1.96 percent between 2000 and 2004. PCP accepted the results, and Fredericton was awarded Milestones 1 through 3 of the PCP Five Milestone Framework. Then Milestone 4 was awarded in 2008 for Implementation of the Action Plan and related GHG reduction activities for municipal operations. Finally, Milestone 5 was awarded in 2009 for continued Monitoring Progress and Reporting Results of the Corporate GHG Reduction Action Plan.

Community GHG Reduction Journey

In May 2008 the City submitted to FCM its First to Kyoto Community Action Plan for Greenhouse Gas Emissions Reduction. The measurement process was conducted for the 2000 to 2004

measurement period and community-generated GHGs were held relatively flat – increasing by just 0.47 percent over this timeframe.

The community sector includes residential, commercial/industrial, and institutional actors within the City of Fredericton. PCP accepted the submission, and the City was awarded Milestones 1 through 3.

This was an encouraging result, particularly in light of ongoing and escalating development the city. However, it was realized that in order to comply with the 6 percent reduction commitment by 2010, aggressive action on the part of individual and corporate/institutional citizens was required. To address this the Green Matters greenhouse gas reduction campaign had been launched in June 2007. The City was subsequently awarded Milestone 4 for implementation of the Community Action Plan via the public Green Matters campaign aimed at supporting Fredericton citizens in reducing their carbon footprint.

1.2 Introduction to this Report

This Community Action Plan Update Report, submitted for achievement of PCP's final Milestone 5 (Monitoring Progress and Reporting Results), provides the measurement results of the Fredericton's community-generated GHG emissions over the period of 2000 through 2009 (with adherence to the GHG emission accounting protocol of the PCP program; and supported by 3rd party validation of the emissions calculations – see Appendix).

The Action Plan submitted in 2008 measured emissions between 2000 and 2004; and this report presents the full period from 2000 to 2009 in order to measure progress against the City's ultimate commitment of a 6 percent reduction in community emissions by 2010 (measurement to be undertaken in 2011 upon data availability).



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As discussed in the 2008 Community GHG Inventory and Action Plan, the City of Fredericton's benchmark year is 2000 due to unavailable data for the recommended 1990 base year. At that time, PCP accepted the 2000 base year for all future work.

The GHG emissions presented in this report are those that are released by the residences, commercial and industrial enterprises, and institutional actors such as universities and non-municipal government agencies. The categories required to collect and evaluate GHG emissions data are as follows:

1. Electricity
2. Natural Gas
3. Fuel Oil
4. Diesel
5. Propane
6. Vehicles
7. Solid Waste

1.3 Summary of Findings

Calculations for the 2000 to 2009 timeframe indicate total community carbon dioxide emissions in 2000 were 647,578 tonnes; and in 2009 were 652,801 tonnes. This represents an increase of 5223 tonnes of CO₂ emissions over this period (or 0.8%).

Fredericton's population between 2000 and 2009 grew by 14 percent. This means that per capita GHGs (tonnes/person) went down by 12 percent over this time period. Maintaining virtually flat total GHG emissions in the face of a growing population; and a achieving a large reduction in per capita emissions over this time frame is viewed as a success.

1.4 Overview of Next Steps ~ Beyond Milestone 5

The City and community of Fredericton continues to implement and support progressive GHG and total environmental footprint reduction activities. Examples of this commitment are presented below.

The City's **Green Matters** program

(www.greenmattersfredericton.ca) is evolving to encompass a 'full spectrum sustainability' approach, incorporating environmental, social and economic sustainability as we live, work, move, play and go to school here in Fredericton. And new GHG emissions reductions targets will be set in 2011, once final 2010 calculations are complete.

There is a growing interest among institutional and corporate citizens in reducing GHGs, which is increasingly being considered to be not only cost effective but also good for business and organizational sustainability. Due to this new business reality, in 2008, the Fredericton **Green Shops** program (www.greenshopsfredericton.ca) was launched. This program is a voluntary program for small to medium-sized (SME) businesses, which seeks to engage the business community in efforts to reduce the City's overall environmental footprint. The program promotes, supports, and rewards environmental stewardship by guiding participating businesses through a series of actionable items (in the categories listed below), which simultaneously reduce their environmental footprint and operating costs. The program boasts nearly 70 members and the number continues to climb. The categories addressed by the Green Shops program are:

1. Energy Efficiency and Fuel Switching
2. Recycling and Waste Management
3. Transportation
4. Water Conservation
5. Products and Services



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This program has evolved from a City-led initiative to a full business community partnership between: The City of Fredericton, Fredericton Chamber of Commerce, Downtown Fredericton Inc., and Business Fredericton North. The Green Shops Advisory Board also includes Efficiency New Brunswick and annually rotating Green Shops members.

In Spring 2010 the City launched its **Green Matters Certified** program as a 1-year pilot project, to determine applicability and efficacy for a range of non-commercial community sectors. This environmental stewardship program came as a result of interest in the Green Shops program from non-commercial entities, and focuses on longer-term sustainability of organizations as they work to reduce their environmental footprint through tangible actions.

Green Matters Certified is designed to complement the already operational Green Shops business program, and will engage the following community sectors:

1. Community/non-government organizations (NGOs) & and non-profit sector;
2. Educational Sector: elementary, middle and high schools; colleges and universities;
3. Large enterprises/organizations;
4. Government entities and Crown Corporations;
5. Faith-based institutions;
6. Festivals, events and fairs.

Additionally, over the 2000 to 2009 time period of these GHG data calculations, the Province of New Brunswick and the Government of Canada have offered strong technical support programs and financial incentives for homeowners to reduce GHG emissions via energy

efficient home retrofits. These programs will factor strongly into future community GHG reduction progress.



2 METHODS AND RESULTS

2.1 Data Provision

The current exercise offered opportunities to refine and improve data collection methods compared to the 2000–2004 GHG inventory and measurement process. In the future, the City will continue to work with data providers to both collect and report on consumption rates in a way that is more comprehensive, disaggregated, and easier to assemble into formats that allow calculations of greenhouse gas emissions.

Data, by source, were provided as follows:

1. Electricity for residential/commercial/ industrial sectors: total kWh consumption provided by NB Power and corporate (municipal operations) numbers subtracted from the total.
2. Natural Gas for residential/commercial/ industrial sectors: total cubic meter consumption provided by Enbridge Gas NB and corporate numbers subtracted from the total.
3. Fuel oil: calculated based on studies performed by City of Fredericton well protection department and Enbridge Gas NB.
4. Transportation: total VKT (vehicle kilometres travelled) for provincial vehicles is provided by the latest Canadian Vehicle Survey prepared by the Department of Transportation.
5. Total community solid waste: provided by the Fredericton Region Solid Waste Commission.

2.2 Calculation Methodology Notes

Fuel Oil

Calculations for this category were based on existing known data as follows:

- It is known that 75% of the houses in Fredericton were built after 1970, the year after which electric heating became most common.
- A study conducted by Enbridge Gas confirmed that oil users for heating are about 17% of the homes in Fredericton.
- It is known that many houses built before 1970 switched their heating from oil, to electric or natural gas, particularly after the Well field Protection Policy (discussed in detail in the subsequent section) in the downtown area.
- Some houses built after 1970 still went with oil instead of electricity. Assuming that the number of houses built before 1970 (and switched their heating source to electric or natural gas) is equal to the number of houses built after 1970 that used oil for their heating system, it is concluded that:
 1. 75% of the houses use electricity for their heating system
 2. 8% of the houses use natural for their heating system
 3. 17% of the houses use oil for their heating system

Knowing the gigajoule (GJ) of natural gas enables the calculation of the GJ of oil (4 times). And also knowing that the GJ of natural gas are input figures, and the efficiency of natural gas boilers is about 10% more than the efficiency of oil boilers, then the GJ of oil must be multiplied by a factor of 1.1. (Note that 25.773 litres of oil are



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equivalent to 1 GJ). Furthermore, calculating the residential use and dividing it by 2 will yield the non-residential consumption of fuel oil.

Vehicles/Transportation (Gasoline and Diesel)

As approved by ICLEI, the methodology used data from a national survey of Canadian driving patterns. From this, was obtained the number of vehicles registered in the City of Fredericton for 2000–2009, the total number of kilometres traveled (VKT) in New Brunswick, and the total number of vehicles registered in New Brunswick. The average number of VKT per vehicle per year in the province was calculated, and then multiplied by the number of vehicles registered in the City.

Natural Gas

Natural gas data were provided by Enbridge, and were broken down into residential and commercial categories. Note that there was virtually no natural gas consumption in 2000, so the data are for 2009 only.

Propane

Propane use in Fredericton is minimal, and between 2000 and 2009 the majority of propane use was switched to natural gas because it was less expensive, greener and more convenient.

2.3 GHG Measurement Results

Data analysis was facilitated by the standardized Excel spreadsheets provided by FCM/PCP. Once the data were entered into the spreadsheets, the emissions levels were displayed in a table, and calculations of changes in greenhouse gas emissions overall and by source were carried out.

The results are displayed in Table 1 below, and source tables are provided as an electronic appendix to this report.

**TABLE 1 – Community Greenhouse Gas Emissions by Source
2000–2009 (tonnes eCO₂)**

Year	Electricity	Natural Gas	Fuel Oil	Propane	Vehicles	Solid Waste	TOTAL eCO ₂ (T)
2000	344827	0	74757	1885	219731	6377	647578
2009	365395	38280	20457	0*	222695	5976	652802
<i>Absl. Chg</i>	20568	38280	-54300	-1885	2964	401	5224
<i>%Chg</i>	6.0	n/a	-72.6	n/a	1.3	-6.3	0.08
<i>Per capita %Chg</i>							-11.6

* due to all propane users switching to natural gas (between 2000 and 2009) because it is less expensive, greener and more convenient.



3 GREENHOUSE GAS EMISSIONS ANALYSIS

Overall, the City of Fredericton's community greenhouse gas emissions increased by just 0.8% between 2000 and 2009. Emissions went from 647,578 T of CO₂in 2000 to 652,802 T in 2009.

Given that the population of Fredericton increased 14% between 2000 and 2009, this relatively flat total GHG emissions result translated into an impressive 12% reduction in per capita emissions during this timeframe.

3.1 Community GHG Emissions by Source

Figures 1 and 2 show the proportion, by source, of total community emissions in 2000 and 2009. As depicted, the greatest contributors to GHG emissions at the community level in Fredericton are electricity, vehicles (gasoline and diesel combined), and fuel oil in 2000. Electricity and vehicles are also the top contributors in 2009, but fuel oil as a share of total emissions dropped drastically to 3% from 11%, and natural gas increased from 0% to 6%.

Thus, given the magnitude and proportion of their contribution to the overall community GHG emissions picture, the electricity and vehicle categories are the most obvious focus for future emissions reductions activities.

Figure 1 – 2000 Community Emissions by Sector (% of total)

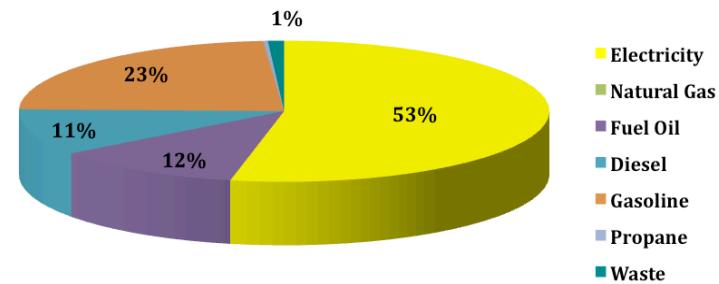
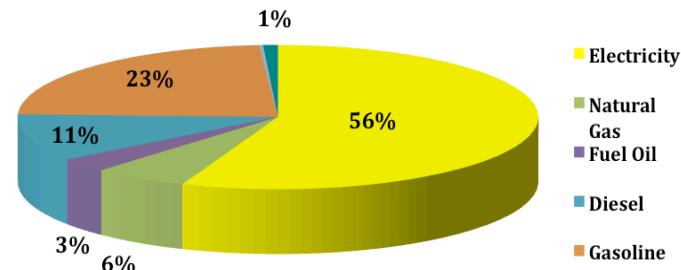


Figure 2 – 2009 Community Emissions by Source (% of total)





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Electricity and Heat (including Natural Gas, Fuel Oil, Propane)

Electricity includes all greenhouse gas emissions associated with electricity consumption for heat, lights, and hot water in Fredericton's homes, businesses, and institutions. As depicted in Figures 1 and 2, electricity comprised approximately 53% of Fredericton's community GHG emissions in 2000, and rising to 56% in 2010. This increase is largely attributed to new builds and development in the City over this timeframe.

Fuel oil is used to heat homes and buildings, and represents a much smaller proportion of the community's overall emissions – 11% in 2000 and dropping dramatically to 3% in 2009 due to fuel-switching away from this energy source, and supported by the Wellfield Protection Program described below.

Understandably, GHG emissions from the Natural Gas category increased over this time frame. However, natural gas has replaced higher-emissions historical alternatives, such as oil, propane, and electric. There were no natural gas installations in Fredericton in 2000; but by the end of 2008 installations had increased significantly (to upwards of 3000 residential and commercial customers). Between 2001 and early 2008, Enbridge Gas calculated that 25% of residential installations during this period were conversions from electric central heat and hot water. Enbridge Gas forecasts installation growth (residential and commercial combined) of more than 50% by 2012, over 2008 figures.

Given that electricity is the largest source of community emissions, and because 75% of Fredericton homes were built after 1950, and are therefore likely to contain electric heat, home retrofits represent the most potent means of reducing our community GHG emissions. Continuing to encourage retrofitting homes and buildings in the

community, that are heated with electricity, by fuel-switching to less carbon intensive alternative energy sources, will ensure emissions from electricity continue to drop; and will presumably result in a reduction in fuel oil use as well.

Another contributing factor to a reduction in fuel oil use in the City is the Fredericton's Wellfield Protection Program which provided incentives for homeowners located on Zone A through C of the City's Wellfield to switch from fuel oil use to another form of energy for heating.

Recognizing the inherent risk in petroleum storage in Zone A, the City offered \$1000 to residential property owners who converted to an alternate heat source from home heating oil and have their petroleum storage tank removed prior to February 2007. The incentive dropped to \$500 for the period between February 2007 and February 2008. And in the final year of the program from February 2008 to February 2009, the incentive dropped to \$250.

The program was a success, with an 85% conversion rate (76 out of 90 eligible properties had their fuel oil tank removed and switched to another form of heating). Similar mandatory restrictions are in place for commercial, industrial, institutional and multi-unit residential properties on the Wellfield. And the conversion requirements will move to Zone B of the Wellfield by 2011. And by 2019, all Zone A properties must have their oil tanks removed (with removed sooner based on tank age).

This program coupled with the advancement of natural gas pipelines and connections throughout the City in the 2008–2010 time period is anticipated to result in a reduction in the high emissions heating options (electricity and fuel oil) in the next measurement period.



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Vehicles

This category includes personal vehicles, public transit, and commercial/industrial vehicles. GHG emissions generated from gasoline and diesel vehicles were 219,731 in 2000 and 222,695 in 2009 (increase of 1.3%). The proportion of total community GHGs that are comprised of vehicle-generated emissions stayed consistent at 34% over this time period (23% gasoline, and 11% diesel). However, it is also to be noted that a small portion of transportation-related emissions come from propane (less than 1%).

There is much evidence to suggest that changing people's driving patterns will prove to be much more difficult than changing household energy use. However, rising gas prices may mean the market itself will lead in terms of reducing emissions from vehicles, both due to less driving by individuals, as well as advancement in vehicle technology around fuel-efficiency, hybrid technologies, etc.

Solid Waste

The Waste category includes all GHG emissions associated with waste materials generated by the community's daily life. GHG emissions from Solid Waste were 6377T in 2000 and 5976 in 2009 – this represents a 6.3% reduction over this time period.

It is recognized that the contribution of solid waste to the community's overall GHG output is relatively small (1%). However, it is also recognized that this sector is a key player in terms of the community's perceptions around creation of a sustainable city. This means reducing waste in general (total tonnage of waste to the landfill and recycling programs); but also to divert waste from the landfill via increased uptake of the recycling program.

Fredericton Region Solid Waste Commission (FRSWC) has measured an increase in the diversion rate – from landfill to recycling, between

2005 and 2008 due to the addition of four City-provided centralized recycling depots servicing students and apartment dwellers, for which there does not yet exist curbside recycling. To respond to this increase FRSWC is in the process of expanding its Material Recovery Facility for increased storage.

Recycling and backyard composting is conversely related to curbside waste – as recycling and composting increase it is expected that the tonnage of curbside waste will drop. And as citizen knowledge around sustainable living practices increases, their waste stream decreases. This is due to change in habits such as: buying goods with less or recyclable packaging, generating less waste through using less, composting a portion of their waste stream, and taking advantage of reuse, resale, and other second hand programs.

Also of significant consequence in terms of GHG reduction from this sector, FRSWC's Landfill Gas Management System (LGMS), launched in 2006 (the first of its kind in New Brunswick), captures greenhouse gases and flares them off. The destruction rate of GHGs collected is greater than 99.9%. And negotiations of the Methane to Power Project with NB Power are underway, which would allow use of the gas as a source of energy.

At present there is no means for the municipality to track solid waste other than community curbside waste (i.e. that generated by commercial, industrial, institutional players, nor apartment buildings). But it can be assumed that the LGMS generally offsets the emissions from these sectors.

All of this, coupled with new environmental policies directed at regulating amount of residential and commercial curbside waste; and advancement in the City's recycling program to include multi-unit and commercial buildings, would continue to ensure that solid waste is a shrinking portion of overall community GHG emissions.



4 PROGRAMS ENGAGING THE COMMUNITY TO REDUCE GHGS

The City of Fredericton has undertaken a variety of progressive initiatives, both internally and externally, to reduce Fredericton's greenhouse gas emissions and total environmental footprint. The City understands the important leadership role it can play in the community, and many of its environmental initiatives lie at the interface between the municipal government and the citizens it serves. By demonstrating strong corporate leadership the City of Fredericton has laid the groundwork necessary to encourage individual, corporate, and institutional citizens to reduce their own emissions, and indeed their total environmental footprint.

As presented in Section 1.4, in 2007 with the launch of the Green Matters program, the City of Fredericton began the journey of engaging citizens and the broader organizational and corporate community in reducing greenhouse gas emissions within their control. The commitment has grown to include the Green Shops program for businesses, and the Green Matters Certified program for non-commercial organizations, faith-based institutions, educational institutions, conferences, festivals, events, as well as government and crown corporations. These programs are discussed in detail in the following sections.



4.1 *Green Matters*

The Green Matters program (www.greenmattersfredericton.ca) is the public/community component of the

City's environmental and GHG reduction efforts. The program was originally designed to encourage and support the community to reduce overall GHG emissions by 6 percent by 2010 (over the year 2000), consistent with original Kyoto Protocol targets (new targets to be set in 2011). The Green Matters program continued to evolve since 2007; and now incorporates broader sustainability goals encompassing the full spectrum of environment, economic and social considerations as they related to creation of a liveable, vibrant and healthy community of the future.

Green Matters' multi-tiered approach combines a strong educational and motivational component via the program website and events with a social marketing and communications component to encourage citizens to make small and large changes to reduce their emissions by adjusting their lifestyles to more environmentally-friendly ways of living, playing, traveling, and working in their city. The strategy behind Green Matters recognizes that community engagement and environmental social marketing are the only way to create sustained and long-term positive environmental change amongst a large group of citizens and groups.

The Green Matters program began unofficially in April 2007 with Fredericton's first **Climate Change Summit**. The Summit was a full-day event involving community, business, and institutional leaders and representatives. The Summit began the engagement process by alerting business and community leaders that Fredericton had a goal in terms of greenhouse gas reduction and that their part in it was significant. The overarching message was that not only was climate change happening, but it was happening here at home and solutions are required.

Since the official launch of the program in June 2007, Green Matters has had significant impact on thought processes and behaviours of Fredericton's individual and corporate/institutional citizens. The



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Green Matters program provides a vehicle for the type of comprehensive community engagement required to make the transition from status quo to a new and more environmentally conscious Fredericton. The program is aimed at reducing community greenhouse gas emissions from all sources: transportation, waste, energy, and water usage.

The uniqueness of Green Matters is built on the City's commitment to foster grassroots change in the community. Launched by the municipality, it served to complement the efforts taken through municipal operations to reduce greenhouse gas emissions in the community.

The Green Matters brand has become a household name in Fredericton. In the recent Citizen Attitude Survey, over 90% of those surveyed had a good understanding of Green Matters. The brand has also helped to build a strong reputation for Green Matters, and in turn, for Fredericton's Green Shops program for businesses.

Green Matters has also been the springboard for additional programming. Green Shops, as mentioned above, has earned an international reputation for supporting businesses in tangible action to become more sustainable. Looking ahead, Green Matters seeks to achieve the same reputation with Green Matters Certified (to be discussed in subsequent sections).

Green Matters has spearheaded many unique public engagement and recognition events; but also supports and promotes connection with national and international events. These are described in detail on the following pages.

Mayor's Environmental Award

The Mayor's Environmental Award began in January 2008. Each year the Mayor honours, on a quarterly basis, businesses, organizations or individuals that are dedicated to reducing the community's environmental footprint and raising awareness about environment issues. The award is presented at a City Council meeting, and recipients are chosen based on their environmental efforts and at the recommendation of Council and Staff.

TD / Green Matters Essay Contest (February)

Held annually since 2008, the contest is open to school-aged children in four categories: elementary (grades K-2/ grades 3-5); middle school; and, high school in Districts 1 and 18.

In the themed essay contest, students are asked to write about a different topic each year that relates to the notion of why the environment matters, and give ideas about what they can do to make the environment locally, and globally, a better place. One year they were asked to write a letter to the Prime Minister's Office on what he needed to do for the environment. Letters were then mailed to the PMO's office. There has been an outstanding response to the contest with upwards of 600 submissions received in one year.

Winning essays are posted on the Green Matters website, and winners the past two years have been presented with a monetary prize and a certificate on Earth Day, at a special screening of Disney's Nature movies: Earth and Oceans. There is also a school prize, with the school submitting the most essays as a percentage of total school population receiving a library of environment-themed books.



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Earth Hour (March)

For three years now Fredericton has joined hundreds of communities around the world to participate in Earth Hour. Earth Hour is a project of World Wildlife Fund International, the world's largest and most experienced independent conservation organization. It was held for the first time in March 2007 in Sydney, Australia with more than 2.2 million people participating.

In Fredericton, the municipality, Provincial Government, universities, businesses and individuals participated by turning their lights out for an hour, and some even took it one step further, by turning off appliances, and turning down thermostats.

A number of activities and events have been held in support of Earth Hour. An example is a Green Matters partnership with the Royal Astronomical Society of Canada (RASC) to have a booth at the Boyce Farmers Market with information on Earth Hour and green lighting solutions.

As well, in participation with the Regent Mall, Green Matters, RASC and Science East teamed up to present Science East's infamous planetarium set up at Regent Mall, free of charge. The public was invited to experience all the wonders of the universe: explore planets, constellations, galaxies, nebulae and star clusters through images from the Hubble telescope and take an unforgettable trip through space.

Earth Day (April)

Each year, on April 22, Green Matters celebrates Earth Day by promoting sustainability and educating about why Earth Day is celebrated. In 2009 and 2010, Green Matters partnered with Empire Theatres to put on a special screening of the new Disney Nature movies – Earth and Oceans. The special screening was open to the

public, and local schools received special invitations as the event was held in conjunction with the presentation of the Green Matters / TD Essay Contest Winners presentation. Both screenings were sold out!

Arbor Day (May)

Arbor Day is celebrated in New Brunswick on the third Thursday in May. Each year a tree is planted in honour of trees everywhere.



Environment Week (June)

Canadian Environment week is held each year during the first week of June, coinciding with World Environment Day on June 5. World Environment Day was designated in 1973 by the United Nations to encourage people around the world to become active agents of change for sustainable development and environmentally friendly practices.



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For the past three years Green Matters celebrated Environment Week by partnering in, and hosting and sponsoring, a variety of events for the public. The following outlines the typical events held during the week:

- Clean Air Day – JD Irving and Green Matters partner to give away tree seedlings at City Hall.
- Commuter Challenge – The new Fredericton Bike Park held its official Launch and Open House from 7am to 10am at 335 Queen Street, next to the Police Station. Coffee was provided free for those who brought a reusable mug. Mayor Brad Woodside was on hand for the official opening. Local bike shop, The Radical Edge, hosted free bike clinic, offering bike tune-ups, and brake and tire pressure checks, and donated two bike helmets at door prizes. Commuter Challenge Registration and Clean Air Day giveaways took place at both Kings Place and the south end of the Walking Bridge. Volunteers from the NB Lung Association and Katimavik were on hand providing registration
- Green Matters and the Conservation Council of New Brunswick co-sponsored a free screening of Rachel Carson's 'A Sense of Wonder'. The screening took place in the auditorium at the Charlotte Street Arts Centre. The film was preceded by "The Story of Stuff" – a fast-paced, fact-filled look at the underside of our production and consumption patterns.
- Green Shops Social to announce a new Community Partnership with business organizations; development of a new website; and honor new members and those improving their status.
- Tree seedling giveaway at the local farmer's market
- Presentations to schools and other community groups

- Public library activities – storytime, crafts, and songs

Free Transit Day (September)

A day each September, coinciding with Fredericton's world-renowned Harvest Jazz and Blues Festival, is declared Free Transit Day in Fredericton. All city transit buses operated at no cost to patrons for the entire day. This event was held to complement the Harvest Jazz and Blues Festival's green initiatives and Park and Ride program.



2 Degrees Tour

In November 2009, David Noble, the founder and Principal of 2degreesC, presented an inspiring discussion around climate change entitled 'Where Climate Change meets Sustainable Inspiration'. The event was co-sponsored by Green Matters, and the UNB Faculty of Forestry and Environmental Management and held at the Wu Conference Center on the UNB Campus. The presentation was made free for the public, through the sponsors, and was very well attended.

Noble founded 2degreesC in 2003. The organization is dedicated to advancing collective action and transformational change in response to the global climate crisis. He has led its evolution from a solo operation exclusively in Canada to a networked practice with partners and activities all around the world.



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Noble, who grew up in Fredericton, now makes his home in Guelph, Ontario, is a published author and editor and has contributed to several major national and international publications on climate change. In the last year, he has visited both the Arctic and the Antarctic with a group of artists and scientists, including Canadian musicians Feist, Martha Wainright and Robert Swan, the first person in history to walk to both poles. He has also trained with Al Gore and is a volunteer presenter with The Climate Project.

Campaigns

Green Matters has carried out a series of public campaigns educating on various facets of environmental consciousness. The campaigns, typically based on seasons, are:

- Green Up Your Act – Reduce, Reuse, Recycle (Reducing waste)
- Every Drop Counts – Reducing your water usage (Reducing water consumption)
- Smart Steps. Cool Savings. (Reducing energy use)
- Green Your Ride – Reduce your travelling footprint (Alternative transportation)

For more information see www.greenmattersfredericton.ca.

Why Green Matters is Successful

The success of Green Matters is due largely in part to the willingness of the community to engage in a grassroots effort to make change. The City and community at large continue to encompass and strengthen the key ingredients required to ensure it decisively forges ahead to educate the public about the value of being environmentally conscious, while putting in place the components necessary to build a sustainable community into the future:

- Interested and educated citizens making large and small life changes each day to reduce their environmental footprint;
- Engaged and active business community beginning to embrace principles of environmental stewardship as integral to their bottom line;
- Large institutions and organizations, such as The Province of New Brunswick and the University of New Brunswick, continuing to work in partnership with the City to reduce their significant environmental footprint; and,
- Committed and progressive City staff, Mayor and Council.

Green Matters has successfully engaged our community. This is evidenced by a 12% per capita drop in GHG emissions over the 2000 to 2009 period.

Further positive results of successful Green Matters public engagement, programming, and events are presented below:

- Since 2007, 10,000 tree seedlings have been given away to Frederictonians for planting. The average tree sequesters 0.73 metric tonnes of carbon in its lifetime. Thus 10,000 trees given away in Fredericton, over their lifetime, will offset 7300 tonnes of CO₂.
- NB Power calculated that due to participation in Earth Hour in 2010, New Brunswick avoided 4.4 tonnes of CO₂ being emitted into the atmosphere. Fredericton's portion of this was nearly 1 tonne or 20% of the total.



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- Earth Day movie screenings have reached out to over 300 people, including a large child and youth component due to partnership with the school district and local schools.
- Over 100 presentations have been made in schools, local non-profits, for service groups, and other events.
- Various Environment Week events in June draw out thousands of people in various capacities (commuter challenge, movies, etc.). All of which raises awareness about environmental issues and puts a face and ownership on 'addressing climate change here at home'.
- In 3 years, thousands of people have participated in local Earth Hour events, including well over 600 people going through ScienceEast's Planetarium.



emissions, while setting the stage for a new sustainable business status quo in Fredericton

4.2 *Green Shops*

With the success of Green Matters, the commitment shown by residents, and intense interest by the business community; the decision came in 2008 that the City would pilot a project aimed at engaging the business community and asking for their partnership in reducing greenhouse gas

Fredericton Green Shops (www.greenshopsfredericton.com) was born in the Fall of 2008, after a successful pilot of 7 businesses demonstrated the value of the program.

Green Shops evolved to become what is now a unique business community partnership between the City of Fredericton, Enterprise Fredericton, the Fredericton Chamber of Commerce, Business Fredericton North, Efficiency New Brunswick, and Downtown Fredericton Inc. It is a citywide multi-stakeholder partnership designed to:

- Reduce Fredericton business's ecological footprint
- Stimulate green innovation and business practices
- Strengthen the business/community relationship
- Solidify Fredericton's global reputation as a forward-thinking community

The program is aimed at reducing Fredericton's environmental impact by supporting, promoting and rewarding environmental stewardship within the business community. Though Green Shops is focused on the business community, the program ultimately benefits the entire community as people interact with businesses and organizations in small and large ways each day.

The program's daily operations are managed by a Green Shops Coordinator, under the direction of the City's Green Matters Team. The coordinator audits new businesses, provides support and assistance to existing members, performs implementation evaluations with participating businesses, updates the program website, ensures that the communication strategy is efficiently implemented, and promotes the program to potential new members.



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The overall strategic direction, advisement, and vision for the program is provided by an Advisory Board comprised of representatives from the partner organizations, as listed previously, as well as yearly rotating membership from two Green Shops program members.

How Green Shops Works

Participating businesses are encouraged to implement environmental efficiencies (actionable items), which simultaneously reduce their environmental impact and operating costs. The actionable items have been grouped in categories that include: Energy Efficiency and Fuel Switching; Recycling and Waste Management; Transportation; Water Conservation; and Products and Services.

Participating businesses are assessed/audited by the Green Shops coordinator when they join the program and annually thereafter. During each assessment, the coordinator will determine which of the actionable items are applicable to the business' situation, as well as identify which actionable items have been successfully implemented to date. The resultant percentage of implemented applicable actionable items is the business' program score; this score is recalculated each year. Innovative actionable items may be added to the program based upon suggestions by the coordinator or participating businesses; any new actionable items will be considered applicable beginning with the following annual assessment period so as to give businesses an opportunity to implement them.

Each assessment will also result in the production of a case study which will be posted on the program's website. The case study will showcase the participating business' current level of environmental commitment as well as future aspirations that are documented in a 'goal-setting' section. Each participating business is invited to establish a goal for the following 12-month period. The goal could

be specific, such as implementing a particularly demanding actionable item, or more general, such as participating in wider community environmental efforts. During the following assessment period, the coordinator will review the business' commitment in light of its stated goal.

All participating businesses are recognized as a Fredericton Green Shop. And above that, businesses achieving the following program scores are awarded increasing member status (bronze, silver or gold):

- Bronze member: 30–49%
- Silver member: 50–69%
- Gold member: ≥ 70%

The program has been designed to be flexible and adaptive to the changing Fredericton business realities and advancing environmental best practices. In this regard, it is of paramount importance that participating businesses record data when they implement an actionable item. The data allows the Green Shops coordinator to determine which actionable items are the most successful in terms of reducing environmental impact and a business' operating costs. The data further highlights the environmental efficiencies that require additional support and perhaps even highlight some actionable items that should be incorporated into the program in the future. In short, data are required to help the Green Shops coordinator keep the program on track. The data, including cost savings, reduction in energy used, water conserved, or fuel saved, is used to continue to improve and evolve the Green Shops program. Green Shops is intended to provide support and guidance yet remain flexible enough to be applicable to all commercial sectors in Fredericton, and through the program's resources, each participating business develops its own unique trajectory of environmental commitment.



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Capability and technology to measure greenhouse gas emissions reductions related to specific actionables is being planned into future evolution of the program.

Benefits & Recognition

There are many benefits of the Green Shops program in Fredericton. It engages local businesses to make environmentally wise decisions, including recycling, energy efficiency, waste management strategies, green procurement practices, no idling policies, and limited use of plastic bags. These actions ultimately lead to reducing greenhouse gas emissions within the business itself, and the commercial sector in general. An important component of the Green Shops program is a declaration of environmentally aware business principles, which can be marketed through many mediums including print media and websites.

All participating Green Shops are given an official Fredericton Green Shops window decal. The decal matches the program logo that is clearly positioned on all public relations material in order to increase its degree of social recognition. Additional Bronze, Silver, and Gold Member decals are supplied when a participating business reaches the required credit threshold.



The advantages of the Green Shops program have been identified as follows:

- Contributes to reducing Fredericton's ecological footprint
- Stimulates green innovation with business practices
- Strengthens the business/community relationship
- Solidifies Fredericton's global reputation as a forward-thinking city
- Encourages commercial energy audits in Fredericton
- Access to provincial and federal rebates from commercial upgrades
- Provides a recognition as environmental stewards
- Many businesses already partaking in environmental practices have easy access to promote their environmental initiatives
- Instills good environmental practices beyond the workplace
- Avoids tonnage of recyclables in Fredericton's landfill

Businesses are also recognized at a medal ceremony at Fredericton City Council or a Green Shops Social event. The Mayor presents members with their medal, indicating their status. This provides public recognition to the members, and accountability for maintaining or improving their status each year.





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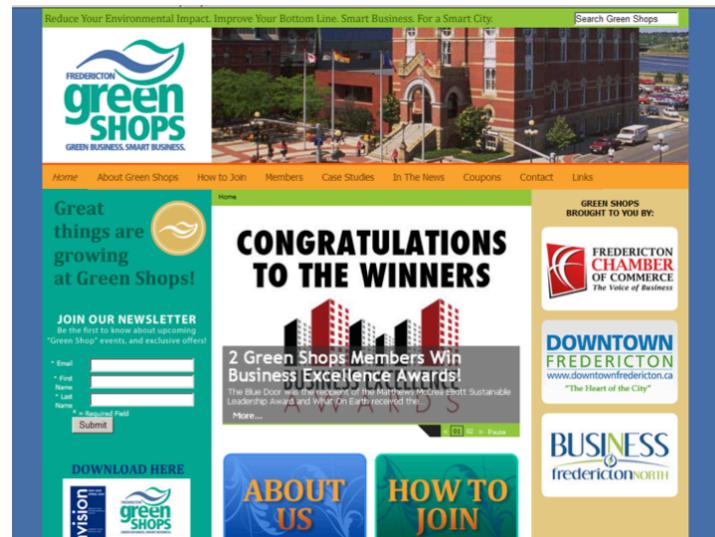
Communications & Engagement

Green Shops marketing and communications is a multi-faceted effort. The Green Shops website – www.greenshopsfredericton.ca – is the main source of public communications, with information about the member businesses, access to the business case studies, new program information and the program workbook. In addition, there is a news section that advises members and the public of events and exciting news or innovative actions another business has taken that may be of interest to other businesses.

This website also acts as a central online repository for environmentally conscious consumers wishing to do business with shops honouring principals of environmental stewardship. Education is required for the public to learn which business are Green Shops and why they have received the designation. The Green Shops coordinator is in constant communication with Green Shops members to guide them and provide advice about what environmental changes can be made in their organizations.

A new website was launched in late 2010 which was built to better serve the member businesses, and the public. It is more interactive, and features the members and their successes more prominently than the original website. Social media mechanisms, such as Facebook and Twitter, are also used to reach a wider audience, and will provide more instant feedback to aid in program evolution.

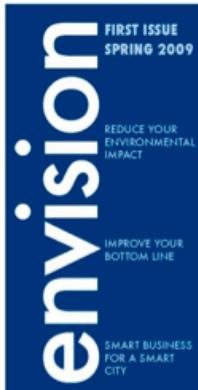
There has already been considerable success with the Green Shops program, and the website will now reach even wider, and will give potential new members a better understanding of the program, while allowing consumers the ability to passively learn about what Green Shops have to offer.



Green Shops also puts out a quarterly newsletter to Green Shops and the wider membership of: Fredericton Chamber of Commerce, Downtown Fredericton Inc., and Business Fredericton North. The ENVISION newsletter updates business on the Green Shops program; relevant environmental and sustainability topics for Fredericton businesses; funding programs; and upcoming events.



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Green Shops is a valuable program for all types of businesses

Whether you are a 'green guru' or a 'green newbie' this program is for you!

Green Shops was developed in 2008 based on an idea proposed by the Conservation Council of New Brunswick (CCNB) to have a long-term and rigorous environmental program for Fredericton businesses.

After an extensive pilot study with 7 businesses from a variety of sectors, Green Shops was launched in November 2008. The program, now in its sixth month, has grown at an unexpected rate! To date, 50 businesses have adopted Green Shops as their environmental management program. For a detailed list of what each member is doing to reduce their environmental impact and improve their bottom line visit www.greenshopsfredericton.ca.

Maybe you have thought of doing something that a Green Shop has already done but have not had the time to start? Or maybe you have no idea how to begin to reduce your environmental footprint. That's where we come in! Green Shops' knowledgeable staff are here to help you get started and support you in your journey to 'green' of your own sort. We will help you find the route that is unique and applicable to your business.

Green Shops was developed with all levels of environmental commitment in mind; from the businesses that are carbon-neutral to those that are just getting started, to the businesses that want to start learning about how to be environmentally responsible. No matter where on the spectrum you are,

did you know?

Green Shops is one-of-a-kind; we are unique in all North America. Other cities have implemented environmental programs geared towards business communities, such as Toronto's "Cool Shops", but they target only one aspect of reducing a business' environmental impact, such as energy efficiency.

Green Shops is a comprehensive approach to reducing a business' total environmental impact with achievable steps ranging from composting organic waste to promoting an active transport strategy for employees. **Fredericton is leading the way and you can be a part of it!**

For more information contact Green Shops Coordinator Ashley Gray at 447-0903 or greenshops@fredericton.ca

Green Shops is Unique

The first of its kind in North America, the "made in Fredericton" Green Shops program is a bold and innovative program, complementing the Green Matters program. Green Shops has become a symbol of

dedication to ensuring that this community is as sustainable as possible, through operations, promotions, and an environmentally conscious business-as-usual mentality in Fredericton.

A number of communities across Canada and the United States look to Fredericton for our innovative programs. Green Shops was conceived, built, piloted and executed in Fredericton, with feedback from key stakeholders. It is an adaptive program, and changes with input from our members.

Why Green Shops is Successful

Since its inception, the program has grown exponentially. As of the time of this application, Green Shops has over 70 members and that number is growing daily. This indicates that the Fredericton business community is receptive to making environmental changes in how they do business, which will positively impact the GHG reduction process for the community via their tangible and tracked actions. The membership numbers for Green Shops and associated actionables are tracked on an ongoing basis to measure progress year-to-year.

Capability to generate associated greenhouse gas reduction figures is being planned for 2011.

4.3 Looking to the Future: Green Matters Certified

One of the advantages to Green Shops is its ability to be replicated and implemented in other communities, under proper direction. There have been municipalities and organizations that have already inquired about adapting the program to their jurisdiction.

Green Shops continues to grow and evolve, and engage the business community and beyond. There was such positive interest in Green



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Shops by non-commercial organizations (requiring different scope than the commercial program which was a program built largely for small-to-medium sized enterprises), that the City began exploring the viability of adding another program to the portfolio. So looking to fill this void a pilot program was put in place called Green Matters Certified. Green Matters Certified was designed as a 1-year pilot project intended to be rolled out if successful in pilot phase. The pilot was desired in order to determine program applicability and efficacy for a range of non-commercial community sectors. Green Matters Certified is designed to complement Fredericton Green Shops.

Green Matters Certified will engage the following community sectors in a collaborative effort to reduce their greenhouse gas emissions and overall environmental footprint:

1. NGOs (community/non-governmental/non-profit organizations);
2. Educational Sector (elementary, middle and high schools; vocational training, colleges and universities);
3. Government agencies, crown corporations and large institutions;
4. Faith-based organizations; and
5. Festivals, events, fairs and conferences.

The program will promote the principle of organizational environmental stewardship as it relates to the community and seek to engage organizations by promoting the notion that they can take tangible actions that address climate change here at home. The program strongly seeks to increase the long-term sustainable nature of these organizations, measured in terms of reduced operating costs (hence long-term risk) via actions that address energy efficiency, water conservation, reducing operational supplies, materials, use of new environmental technologies, and reaching out to the public via

their memberships, patrons, etc. In a setting of ever increasing prices for fuel, energy, and supplies a community organization that can effectively and quantifiably combine environmental, economic, and organizational sustainability will be welcomed by all non-commercial community sectors.

This new pilot program demonstrates Fredericton's commitment to engaging every stakeholder group in our community and to continue encouraging and educating about sustainability in all facets. While only currently in the pilot stage, Green Matters Certified is anticipated to launch community-wide in the Spring of 2011.

In the coming years, the Green Shops and Green Matters Certified programs will undoubtedly change the way that businesses and non-commercial conduct their operations in Fredericton. It is already evident that the program has been hugely successful in promoting sustainable business practices, and with each new business memberships and each new sector added, the program has the potential to change the path of environmental stewardship in private enterprise.





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4.4 International Recognition for Green Programs

International Liveable Communities Awards

The press release is as follows:

Fredericton (November 9, 2010) – Green Matters and Green Shops, two cutting-edge greenhouse gas reduction initiatives created by the City of Fredericton, received international recognition during the annual International Awards for Liveable Communities (LivCom) which wound up in Chicago this week.

Green Matters, launched by the City in 2007 to encourage residents to make small but important changes to combat climate change, finished second to Porirua, New Zealand in the Socio-Economic Category, with both cities earning gold awards for excellence.

Green Shops, launched in 2008 to encourage Fredericton businesses to reduce their environmental footprint, also received a gold award in the same category finishing fourth, just behind third-place winner Schwalm Eder-Kreis, Germany and ahead of Montreal, winner of a silver medal in fifth. There were 13 cities from around the world represented in the category.

www.fredericton.ca/en/citygovernment/NR2010Nov9LivComGold.asp



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5 SUMMARY TABLE ~ OTHER GHG REDUCTION INITIATIVES CONTRIBUTING TO COMMUNITY RESULTS

GHG Reduction Sector & Initiative	Description	Success Factors	GHG Reduction Impact
<i>FUEL OIL (heating)</i>			
Wellfield Protection Program	Contributed to the reduction in fuel oil use by providing incentives for homeowners located in specific zones of the City's wellfield to switch from fuel oil to another form of energy for heating	The program was a success, with an 85% conversion rate (76 out of 90 eligible properties had their fuel oil tank removed and switched to another form of heating).	The exact contribution of this initiative to the community's total GHG reduction between 2000 and 2009 is difficult to determine, but is represented in the drop in usage of fuel oil and associated GHGs presented in Table 1.
<i>SOLID WASTE</i>			
Landfill Gas Management System (LGMS)	The LGMS, launched in 2006 and the first of its kind in New Brunswick, captures greenhouse gases and flare them off. And negotiations of the Methane to Power Project with NB Power are underway, which would allow use of the gas as a source of energy.	The system will allow an enormous elimination of greenhouse and landfill gas that contributes to climate change when released to the atmosphere. The destruction rate of GHGs collected through the LGMS is greater than 99.9 per cent.	Approximately 60,000 tonnes a year of CO2 equivalent will be eliminated from the atmosphere through the LGMS process.
Centralized Recycling Depot Program	The addition of four City-provided centralized recycling depots servicing students and apartment dwellers, for which there does not yet exist curbside recycling.	Fredericton Region Solid Waste Commission (FRSWC) measured an increase in the diversion rate – from landfill to recycling, between 2005 and 2008 due to the addition of the centralized depots.	The reduction in community waste, as presented in Table 1, of 401 T CO2 or 6.3% can be partly attributed to the expanded recycling program as supported by the increase in the diversion rate.

6 MONITORING & REPORTING

6.1 Maintaining Targets and Setting New Ones

The findings of this GHG emissions measurement process reveals that between 2000 and 2009 the Fredericton community maintained nearly flat (0.8%) GHG emissions; despite growth and development and a 14% increase in population. However, progress toward the Kyoto-based target of a 6% reduction in GHGs for the community by 2010, as committed when joining the Partners for Climate Protection Program in 2000, is still to be determined upon availability of full 2010 community data (to be completed in 2011).

The evidence continues to support progress in reducing community GHGs in the future. Large institutions in Fredericton are continuing to step up to the challenge and have experienced successful energy and GHG reduction results: the City of Fredericton is committed to reducing its corporate emissions by 20% by 2010 and has reduced them by 16% as of 2009; and UNB has already exceeded that goal, as has the non-electricity portion of the Province's buildings in the City.

Similarly, as evidenced by relatively stable (0.6%) vehicle emissions over the time period (despite population growth), driving patterns have been responding to cues from the economy that recognize a future of increasing gas prices. As well, older model fuel-inefficient cars continue to be replaced each year with more fuel-efficient models.

If a community wants to change toward a stronger economy, a vibrant environment, and a healthy, happy public, one means of doing so is to embrace a culture of sustainability at the very root of its engagement. That is the journey Fredericton is embarking on

through its Sustainability Guiding Framework implementation both internally and externally.

Fredericton's Green Matters program provides a vehicle for the type of comprehensive community engagement required to make the transition from business-as-usual to a new green and sustainable future. Similarly, the Fredericton Green Shops program for SMEs, and the new Green Matters Certified Program for non-commercial organizations also provide the vehicle for these sectors of the community to be actively part of a new vision.

6.2 Monitoring and Evaluation Strategy

As stated in the Community Action Plan, in order to meet the goals and targets of the First to Kyoto Initiative (to 2010) and new GHG reduction targets to be laid out for the City operations (corporate) and the community within the year, as well as take advantage of additional opportunities to reduce GHG emissions, it will be necessary to continue monitoring GHGs and evaluating results on an annual basis.

Annual Data Collection

Obtaining data for the sectors/categories required by FCM for greenhouse gas accounting was a significant undertaking. It is necessary to rely largely on external data providers to populate GHG emissions databases. Thus, it will be imperative to streamline the data collection and delivery processes so as to minimize the increase in workload for data providers, and make the data readily accessible for analysis.

Annual GHG Emissions Progress Report

An annual report similar to the current document will be compiled by the City of Fredericton in order to determine by



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category/sector/source where progress has been made on GHG reduction and where new efforts need to be focused.

In addition, the annual report will provide a framework to track and report on progress in meeting new short, medium, and long-term goals to be laid out in 2011. Likewise, the report will also provide means by which new goals and strategies can be articulated and tracked.

The City of Fredericton will publicly report its corporate and community progress and reductions strategies each year.

Categorical Comparisons

Continued categorical comparisons of community-based emissions, based on the FCM categories (Electricity, Natural Gas, Fuel Oil, Diesel, Propane, Vehicles, Solid Waste), will be important for several reasons.

First, the categorical analysis of data on greenhouse gas emissions provides an opportunity to regularly calculate the relative contribution of each to the community and corporate overall greenhouse gas portfolio. This allows the City to allocate resources to reduction strategies and campaigns with the potential for greatest impact.

Second, this will allow the City to evaluate projects based on the best value for both public and private investment, as based on the sustainability triple bottom line – social, economic and environmental. Third, understanding the intricate and interrelated relationships among the categories is important, particularly as the community forges ahead in setting new GHG reduction targets into the future. This is because there will likely be trade-offs in terms of emissions – for example, in order to reduce private automobile use, the City may choose to increase the number or frequency of buses on the road. This increase in the transit emissions should be justified as

it increases bus usage by the public and reduces community emissions due to personal vehicle use. But all players must recognize this trade-off. Finally, continuing to monitor and publicly report on each of these categories will ensure there is a means of providing ongoing education, both internally, and to the greater public in Fredericton.



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Next Steps in the Greenhouse Gas Reduction Journey

7 SUSTAINABILITY. BY DESIGN.

7.1 Corporate & Community Sustainability

Since the 2006 Corporate Action Plan and 2008 Community Action Plan were developed, the City has not only been implementing documented action plan items; but has also been aggressively setting a new vision and course on the road to a sustainable future which encompasses the equal triad or 'triple bottom line' of: social advancement; economic development; and environmental protection.

This vision of Fredericton's sustainable future fully encompasses both prongs of the greenhouse gas measurement process: corporate/municipal operations; and the community. Developments and advancements in both areas are presented in the following sections.

Energy Analyst

In 2008 an Energy Analyst was hired by the City to focus specifically on reduction in the consumption of energy and hence greenhouse gas emission from all municipally generated sources.

Environmental Purchasing and Asset Management

As part of the City's ongoing commitment to environmental stewardship, in 2009 City Council approved the addition of formalized environmental purchasing specifications to its current purchasing policy. This affects all departmental purchasing and asset management decisions.

Sustainability Framework

In early 2009, a process began to formalize a Sustainability Guiding Framework for the City of Fredericton. The Framework is now completed, and implementation will focus on internal sustainability (municipal operations), as well as all levels of community sustainability.

The Sustainability Framework will include and coordinate the initiatives discussed herein, amongst others and will guide broader perspective and long-range policy and planning components related to 'Smart Growth' and sustainable development. The Framework will encompass the following Impact Areas:

1. Sustainable Municipal Services
2. Liveable Community
3. Environmental Stewardship
4. Economic Vitality
5. Movement
6. Citizen Responsibility & Partnerships

Manager of Sustainable Development

In 2010 a Manager of Sustainable Development was hired by the City to focus specifically the areas of smart growth or future development in a sustainable fashion. This resource will also lead the implementation of the Sustainability Guiding Framework beginning in 2011.



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Environmental Policy Guide ~ Towards a Green & Sustainable Fredericton

An Environmental Policy Guide for the City of Fredericton was researched and prepared in 2008. It will be used as a practical tool as part of the Sustainability Plan to guide Council in making environmental-related decisions on a wide array of areas affecting community life, including but not limited to the following:

- Active transportation advancements (bike lanes, trail system)
- Anti-idling bylaws
- Parking rates
- Water rates
- Waste reduction (e.g. garbage tag system)
- Recycling advancements
- Urban forest protection
- Sustainable development and land use regulations
- New build and renovation regulations re: efficiency standards

Climate Change Report Card

The City of Fredericton is currently working with the Canadian Institute of Planners on the development of a report card intended to assist planning professionals to develop strategies and priorities that identify and articulate adaptation and long-term mitigation strategies to deal with climate change and reduce GHGs in the community. The report card is formatted as a matrix and current GHG mitigation efforts are benchmarked and tracked in order assist in articulating new planning approaches. The report development process has just completed Phase 1, and builds upon Fredericton's past successes and experiences with implementing initiatives that aid in the reduction of the community's carbon footprint, and preparation and mitigation efforts to deal with the impacts of climate change.

7.2 Key Components of Success

The City of Fredericton is committed to setting new short and long-term greenhouse gas reduction targets consistent with other municipal leaders in the country. Fredericton's success in holding GHGs flat in the face of 14% population growth gives confidence that reaching future realistic reduction targets will be successful. Particularly given that targeted community environmental and greenhouse gas reduction programming only began in 2007, and is still largely evolving to maturity.

The City and community at large continue to encompass and strengthen the key ingredients required to ensure it decisively forges ahead to reduce emissions, while putting in place the components necessary to build a sustainable community into the future:

- Interested and educated citizens making large and small life changes each day to reduce their environmental footprint.
- An engaged and active business community that is beginning to embrace principles of environmental stewardship as integral to their bottom line.
- Large institutions and organizations, such as The Province of New Brunswick and the University of New Brunswick, continuing to work aggressively to save costs through reduced energy consumption, of which a natural by-product and benefit is GHG reduction. For evidence of this see:
<http://www.unb.ca/difference/greenercampus.html>
- Committed and progressive City staff, Mayor and Council.



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APPENDIX A – ACKNOWLEDGEMENTS



The City of Fredericton recognizes the valuable advice, input and data provided by the following organizations, individuals, and groups as the City of Fredericton completed Milestones 1 through 5:

Devin Causley
Senior Program Officer, Partners for Climate Protection (PCP)

Megan Meaney
Director, ICLEI–Canada (Local Governments for Sustainability)

Leya Barry
Project Coordinator, ICLEI – Canada

Lisa Scott
Project Coordinator, ICLEI–Canada

City of Fredericton staff of the following Departments:

- Engineering and Public Works
- Finance
- Corporate Services
- Development Services

The Fredericton Pollution Control Commission

The Fredericton Region Solid Waste Commission

University of New Brunswick

NB Power

Enbridge Gas New Brunswick

Dr. Shawn Dalton, Director
Environmental and Sustainable Development Research Center
University of New Brunswick



The City also recognizes the ongoing and critical funding contributions that have allowed the climate change and greenhouse gas reduction programs to grow and thrive. These funders include:

Province of New Brunswick, Climate Change Secretariat, Climate Action Fund

Province of New Brunswick Environmental Trust Fund



APPENDIX B – DATA TABLES

Refer to attached MS Excel data tables (prepared by Jihad Elzamer,
City of Fredericton Energy Analyst. Contact:
Jihad.Elzamer@fredericton.ca).



APPENDIX C – 3RD PARTY VALIDATION REPORT

Refer to attached document: '3rd Party Validation of Partners for Climate Protection data'. Prepared for City of Fredericton. October 2010.