Partners for Climate Protection Milestone 3: Local Action Plan to Reduce Greenhouse Gas Emissions in the Town of Hampton

September, 2014

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Introduction

Over the last 150 years, there has been growing evidence to prove that the earth's climate is changing. Climate conditions vary naturally over time, but the pace at which our climate is changing is too rapid to believe that it is natural. Humans are accelerating the rate at which the climate is changing by producing large amounts of greenhouse gases (GHG's) which accumulate in the atmosphere (Environment Canada, 2013). GHG's are generated from burning fossil fuels such as petroleum products, coal and natural gas; which are used to heat & cool buildings, for transportation and are also generated during the decomposition of solid waste (FCM, 2014).

The Federation of Canadian Municipalities developed the PCP program to decrease GHG emissions and promote sustainable development within Canadian municipalities (FCM, 2014). Milestone 1 consists of developing a GHG emissions inventory for corporate and community emissions. An emissions inventory is developed to give the community a snapshot of their current GHG emissions and provide a future GHG emissions forecast. Milestone 2 consists of choosing an emissions reduction target and a timeline to reduce emissions (i.e. 20% below 1990 levels). Setting a target will give the community a clear goal to work toward and a timeline for doing so. Milestone 3 is to develop a Local Action Plan (LAP) outlining a strategy for reaching emission reduction goals.

Community Profile

Hampton is a small community located 35km Northeast of Saint John, New Brunswick. Hampton borders along the Kennebecasis River, a tributary of the Saint John River. The town is home to 4,004 people and 1,669 residences (Statistics Canada, 2012). The 132 commercial buildings in Hampton contain grocery stores, restaurants, gas stations and auto parts & hardware stores. There is not a large amount of industry in Hampton, and there are only two industrial buildings within the town.

Hampton joined the PCP program in 2004 and completed a corporate GHG emissions inventory in 2011 and a community inventory, completed in 2014, as part of

Milestone 1. Milestone 2 was also completed in 2014 when emissions targets for corporate and community sectors were chosen. The chosen targets include a 20% reduction of emissions in the corporate sector by 2024, and a 6% reduction of emissions in the community sector by 2024. This report will complete the requirements for Milestone 3 by outlining a LAP to reduce GHG emissions in the Town of Hampton.

Summary of Emissions & Forecast

Corporate Summary

Corporate emissions for the Town of Hampton were reported by Dillon Consulting in *Partners for Climate Protection Program Milestone 1-Corporate Greenhouse Gas Emissions Inventory & Forecast* (2011), and showed total corporate GHG levels for the Town to be 1,124 tonnes (t) of GHG's in 2006. Buildings were the largest source of corporate emissions in Hampton, coming in at 58% of the municipal emissions budget. Streetlights were 22%, the vehicle fleet produced 14%, water and sewage accounted for 5% and solid waste was found to be 1% of total corporate GHG emissions in Hampton (Figure 1). The Arena (includes community center, pool, and Parks Garage) accounted for 69% of corporate building emissions. A new corporate building was built in 2008 (Lighthouse River Center) and its emissions were 29 t eCO_2. Electricity use accounted for 79% of emissions in the corporate sector.

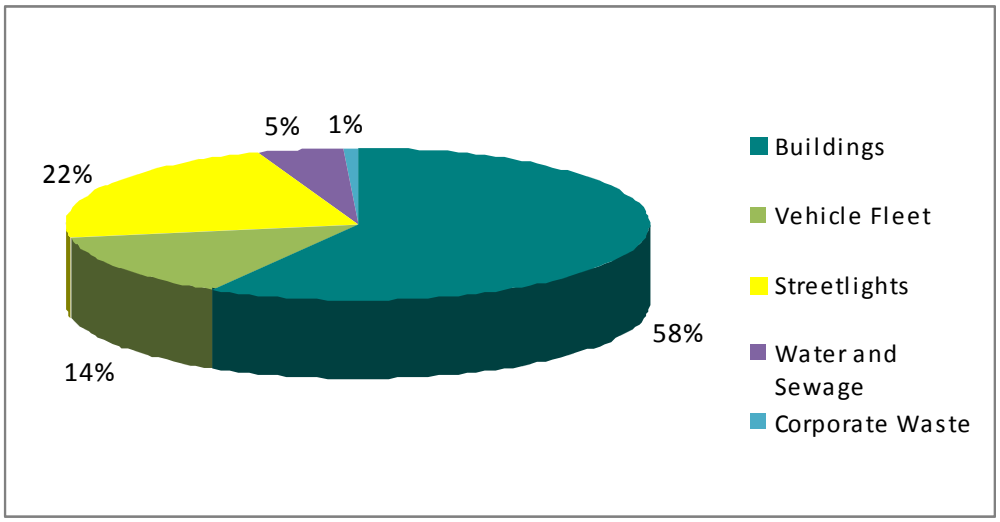

Figure 1: Corporate emissions by sector in the Town of Hampton, 2006.

A forecast of corporate emissions (Figure 2) represents a business as usual scenario (BAU), baseline emissions, and a 20% reduction in emissions from 2006-2024. A BAU scenario shows:

- Corporate GHG's increase by 1029 t eCO_2 (53%) if preventative actions are not taken.
- Baseline emissions that do not change through the passage of time.
- A targeted 20% emission reduction, if achieved, decreases emissions from 1,124 t eCO_2 to 899 t eCO_2.

Corporate emissions will have to decrease by 131 t for buildings, 31 t for vehicle fleet, streetlights 51 t, sewage- 11 t, and 1.8 t for waste in order to reach a 20% reduction goal.

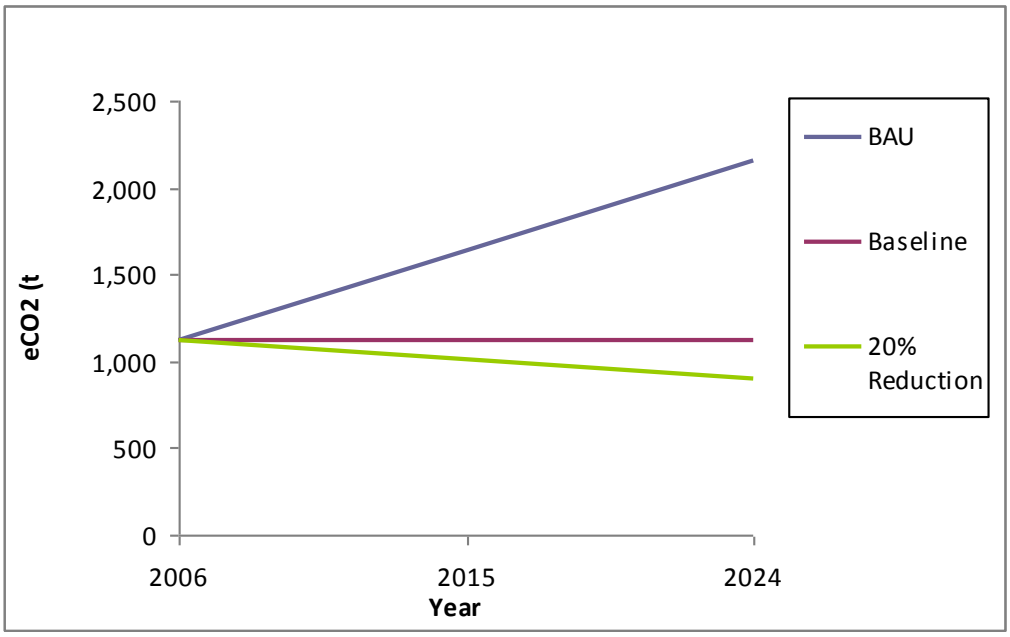

Figure 2: Corporate emissions forecast in a Business as Usual scenario and a 20% reduction below 2006 baseline emissions in the Town of Hampton.

Community Summary

Hampton's community GHG emissions were determined to be 39,493 t eCO_2, using power usage data (provided by NB Power), national energy use statistics (Natural Resources Canada), population census data (Statistic Canada) and solid waste data

(provided by the Fundy Region Solid Waste Commission). Residential properties account for 93% of community stakeholders, 6.9% are commercial businesses, and 0.1% are industrial stakeholders. Transportation emissions were the highest at 41% of the total community emissions in Hampton. Emissions in the residential sector were 40% of total community emissions, 18% in the commercial sector and 0.25% in the industrial sector. Solid waste accounted for 1% of GHG emissions in Hampton (Figure 3). 643 t of solid waste was diverted from the landfill through recycling and composting.

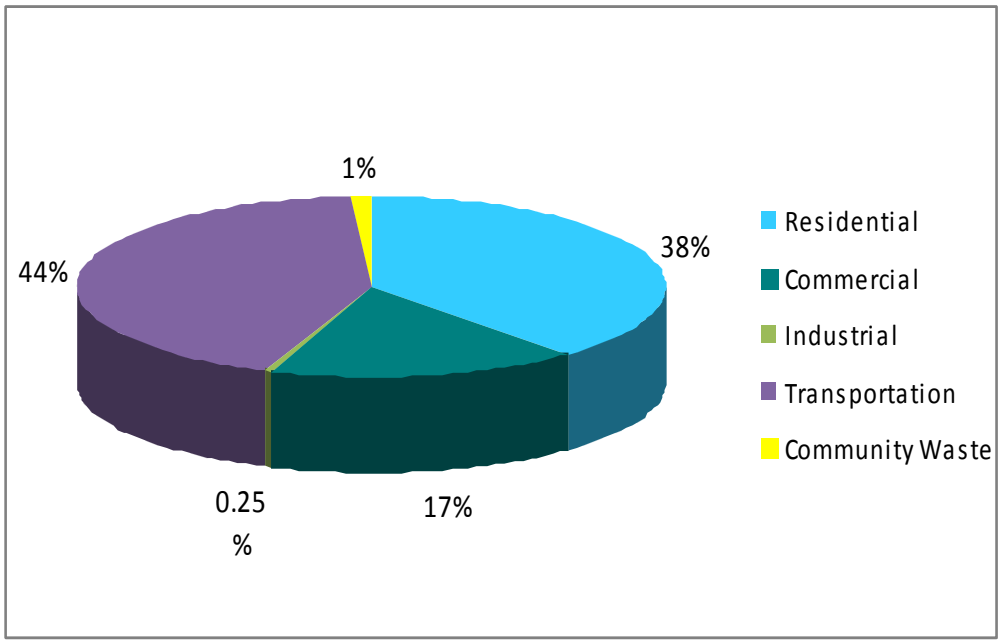

Figure 3: Community emissions by sector in the Town of Hampton, 2006.

Hampton's community BAU (Figure 4) shows:

- GHG emissions in Hampton will increase by 10,229 t eCO_2 (25%) from 2006-2024 due to an estimated increase in population.
- Baseline emissions that do not change over the passage of time.
- A targeted 6% decrease in emissions that will reduce GHG from 39,493 t eCO_2 to 37,123 t eCO_2.

Community emissions would have to decrease by 939 t in the residential sector 417 t in the commercial sector, 6 t in the industrial sector, 983 t in the transportation sector, and 24 t in the solid waste sector to reach a 6% reduction and meet our goal.

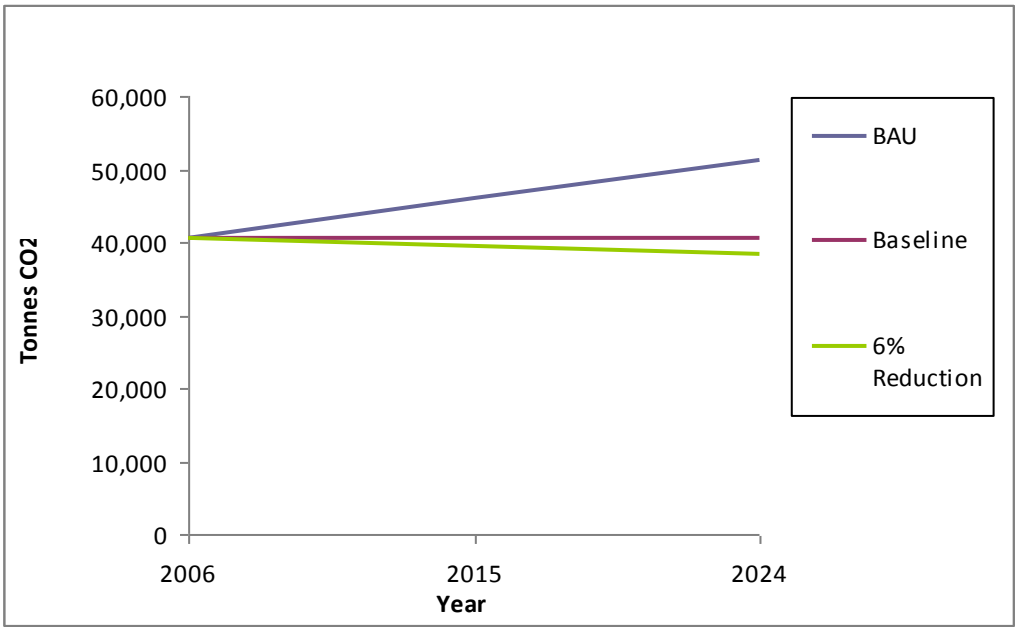

Figure 4: Community emissions forecast in a Business as Usual Scenario, and a 6% reduction below 2006 baseline emissions in the Town of Hampton.

Local Action Plan

The Town of Hampton's Local Action Plan was developed by reviewing the Town's Municipal Plan which lays out future goals for the Town and also by meeting with Committees of Council for stakeholder consultation and input. The Town of Hampton relies on resident volunteers to staff what are known as Committees of Council. These committees are comprised of members of the public who had specific skills or interest in various aspects of the Town. The Committees of Council for the Town of Hampton are as follows:

1. Public Works and Utilities Committee
2. Tourism and Economic Development Committee
3. Environment Committee
4. Leisure Services Committee
5. Planning and Advisory Committee

These committees were utilized as stakeholders as they were seen as representatives of the general public and could provide input and ideas toward this plan.

After meeting with the Committees of Council for discussion and input, quantitative and qualitative goals were set with each goal being delegated to a responsible department or committee (Table 1). In order to achieve the set goals a list of possible actions was developed (Table 2). Many of the developed goals & actions align with the Town of Hampton's Municipal Plan, By-Law 189-10, enacted in 2010. (Goals and actions that align with the Municipal Plan (M.P.) are referenced in Appendix A).

Table 1: Quantitative and qualitative goals for greenhouse gas reduction for a) Corporate Operations and b) Community Operations the Town of Hampton from 2006-2024.

Goals				
Corporate Operations	**Quantitative**	**Qualitative**	**Responsible Department (Quantitative/ Qualitative)**	**How reduction will be measured**
Buildings	Retrofit buildings to increase efficiency	New infrastructure be built using "green" building design (M.P. Section 4.5.2.5.)	Head of respective department	Electricity use
Fleet	Reduce use and buy more efficient vehicles when new ones are needed	Adopt an anti-idling policy (weather permitting)	Works, Parks	Invoices from fuel company
Streetlights	Replace streetlights with LED bulbs	Review lighting standards to decrease light pollution and increase energy conservation (M.P. Section 5.1.7.1.)	Works	Electricity use
Water & Wastewater		Educate public about water conservation (M.P. Section 3.1.2.)	Environment Committee, Communications	Electricity use
Solid Waste	Begin composting and recycling in municipal buildings		All	Tonnage

Goals				
Community Operations	**Quantitative**	**Qualitative**	**Responsible Department (Quantitative/Qualitative**	**How Reduction will be measured**
Residential	Retrofit buildings to increase efficiency	Educate public on energy efficiency and renewable technologies (M.P. Section 5.1.7.2)	Building & Development /Environment Committee, Communications	Electricity use
Commercial	Retrofit buildings to increase efficiency	Educate public on energy efficiency	Economic & Planning Committee, Hampton Area Chamber of Commerce (HACC)/ Communications	Electricity use
Industrial	Retrofit buildings to increase efficiency	Encourage new industrial buildings to embrace "green" building design	Building & Development	Electricity use
Transportation	Develop a commuter bus transit system (COMEX) to Saint John (removes 40 cars from the road daily)	-Promote use of COMEX and reducing km traveled -Promote use of active modes of transportation (M.P. Section 4.5.2.7.) -Develop study of transportation needs in Hampton (M.P. Section 5.1.2.9.)	/Communications, Leisure Services	-Determine more accurate numbers for vehicles in Town of Hampton -Measure bus ridership -Monitor rideshare pages
Solid Waste	Further promote compost and recycling plans already in place	Develop a pollution prevention and recycling strategy (M.P. Section 5.1.6.2.)	Environment Committee, Communications	Tonnage
Other	Plant trees to sequester carbon		Environment Committee, Parks	Biomass

Table 2: Goals and actions for a) corporate operations, and b) community operations that will decrease greenhouse gases in the Town of Hampton, from 2006-2024.

a) GHG Reduction Actions: Corporate

Goals	Actions
Retrofit buildings to increase efficiency: Community Center upgrades	-Replace lights & install lights on fractional usage system (2006) -Replace mezzanine lighting to LED (2013) -Replace front entrance lights to LED and install motion sensor (2009) -Repair pool outdoor lighting (2013) -Replace heaters in arena (2014) -Install low flow toilets (2008) -Install new lighting in zamboni room (2013/14) -Repair heat pumps at pool (2013) -Build offices in arena for Leisure Services with insulated floors and walls (2006) -Replace thermal blankets for pool with solar blankets (2013) -Continue upgrades & determine feasibility of new facility
Retrofit buildings to increase efficiency: Visitor Information Center Upgrades	-Replace outdoor lighting from incandescent to halogen (2008) -Spray foam insulation (2011) -New Roof (2011) - Windows repaired (2011) -Electrical system updated (2011) -Continue upgrades
Retrofit buildings to increase efficiency: Lighthouse River Center Upgrades:	-Timers on bathroom lights (2010) -LED lights installed (2014) -Continue upgrades
Retrofit buildings to increase efficiency: Equipment Depot	-Replace high pressure sodium lights with T8 fluorescent bulbs (2007) -Continue upgrades
Retrofit buildings to increase efficiency: Library	-New windows and doors (2014) -New roof (2011) -Continue upgrades
New infrastructure be built using "green" building design	-Investigate funding and feasibility of integrating renewable technologies into municipal facilities (M.P. Section 5.1.7.4.) -Integrate sustainable site design into Town planning & development approval processes (MP Section 3.3.1.1.) -Update building codes and bylaws to incorporate green building design
Replace streetlights with LED Bulbs	-Replace streetlights with LED bulbs - Replace Christmas lighting with LED (2009)
Reduce use and increase efficiency in fleet vehicles	-New Zamboni with wider surfacing thus allowing for more ice coverage in less time (2009) - All new vehicles purchased are up to Tier III Standards (2007) -Continue purchasing newer, more efficient vehicles -Adopt an anti-idling policy
Wastewater	-Replace old pumps (2007), continue to replace, as needed
Educate public about water conservation	-Provide/discount on rain barrels -Include information on website
Begin composting in municipal buildings	-Keep a compost receptacle in the kitchen of municipal buildings -Hold an interdepartmental waste reduction challenge

b) GHG Reduction Initiatives: Community

Goals	Actions
Retrofit buildings to increase efficiency: Residential	- Provide free energy audits - New homes must have passive solar heating & lighting and efficiency labeling
Retrofit buildings to increase efficiency: Commercial	- Green business network (GBN) - New buildings require green roofs
Retrofit buildings to increase efficiency: Industrial	- Include industries in GBN - New buildings require green roofs
Educate public on energy efficiency	- Provide information on Efficiency NB energy upgrade incentives and alternative energy systems - Carbon footprint calculator - Environmental speakers - Show environmental documentaries in community theater, town square - NB Climate Futures - Climate change 'toolkit': provide light bulb, pamphlet, cold water detergent, tree, recycled TP, etc. - Climate change section for newsletter - Survey to monitor participation - Promote "Bullfrog Power" to purchase renewable energy for NB's electrical grid
Encourage new industrial buildings embrace "green" building design	-Explore new "green" building by-laws
Promote active transportation	- Develop Trans Canada Trail to link new and existing pedestrian trails (2014) (M.P. Section 5.1.3.1) - Cross walk lights installed on Main Street (2009) - Install roundabout at Centennial, Crawford, and Main St. intersection (2010) - Continue winter maintenance of sidewalks and trails - Development will be designed to link existing or planned pedestrian, jogging and biking trails. - Appropriately located bicycle facilities (M.P Section 3.2.2.1) - Develop signage and way finding strategies for pedestrians and motorists (M.P. Section 3.2.2.3.) - Maintain sidewalks/ road shoulders to for safer pedestrian travel - Achieve Bicycle Friendly community certification (Share the Road) - Promote Explore EcoNB app- shows trans Canada Trail through Hampton - Public lands be secured by council to offer recreation , walking trails and bicycle paths (M.P. Section 4.5.2.10) - Add Public land contribution to subdivision approval process (2010) (M.P. Section 4.5.2.11.)
Develop bus transit system	- Set up community express transit system (COMEX) for residents that commute to Saint John (2007) - Provide incentives for people who ride the bus - Public education on $ saved by riding the bus, emissions saved - Commuter challenge
Promote reducing km travelled	- Community garden (2008) - Promote shopping locally
Further promote composting and recycling	- Limit by weekly garbage to one large container per household (2010) - Provide information from Fundy Region Solid Waste (2010)

Funding

Initiatives for the LAP will be worked into the general operating budget for the Town of Hampton. Any other expenses that are not covered under the general operating budget can be supplemented by environmental grants from organizations such as: The New Brunswick Environmental Trust Fund, TD Friends of the Environment, Wal-Mart Evergreen Fund, Greater Saint John Community Fund, NAPECA Community Grants, Oak Foundation Grants, Science Horizons Funding, CN Eco Connexions, Cannon Evergreen Take Root Program, and the Shell Foundation. Funding from these organizations is pending approval.

Council Approval

The local action plan was presented to Hampton's Town Council on September 9th 2014 and was approved by council.

Appendix A

Town of Hampton Municipal Plan 198-10, *Enacted 2010*

3.1.2. Water Resource Management Proposals

1. It is proposed that Council work with the provincial government, adjacent local government bodies and interest groups to develop and deliver programs to assist in the conservation and protection of groundwater and surface water resources.

3.2.2. Greening and Beautification Proposals

1. It is proposed that Council continue efforts to create a vibrant Main Street through beautification and infrastructure improvements to the streetscape, provision of public spaces and appropriately located pedestrian, bicycle and parking facilities.

3. It is proposed that Council develop a Signage and Wayfinding Strategy for pedestrians and motorists.

3.3.1. Balanced Development Proposals

1. To integrate sustainable site design into Town planning approval processes.

4.5.2. Recreation and Open Space Proposals

5. It is proposed that Council employ sustainable practices and energy conservation measures in new and redeveloped facilities.

7. It is proposed that Council develop facilities that are linked and reached by active transportation modes.

10. It is proposed that sufficient and appropriately located public lands will be secured by Council, in order to offer a range of open space opportunities within the Town including parks, running and walking trails, bicycle paths and the conservation of natural areas.

11. It is proposed that Council require as appropriate, that a public land contribution be made as part of the subdivision approval process.

5.1.3. Transportation Proposals

1. It is proposed that development will be designed to link existing or planned pedestrian, jogging and biking trails.

9. It is proposed that Council undertake a study of transportation needs within the Town to address overall road maintenance and improvements, the need for additional parking in the core area, the provision of pedestrian facilities, car pool facilities, bike paths and storage racks, and facilities for overnight and short term parking of commercial vehicles. This study will recommend standards for new development.

5.1.6. Recycling and Waste Disposal Proposals

2. It is proposed that Council develop a Pollution Prevention and Recycling Strategy for the Town with input from and consultation with the Town's residents and businesses.

5.1.7. Energy Proposals

1. It is proposed that Council review the lighting of streets and municipal facilities to reduce light pollution and identify opportunities for energy conservation while maintaining public safety.
2. It is proposed that Council may develop and / or support programs and initiatives that increase the community's knowledge of and access to renewable energy technologies.

Sources

Environment Canada. 2014. *Causes of Climate Change.* Government of Canada.

Dillon Consulting. 2011. Partners for Climate Protection Program: Milestone 1- Corporate Greenhouse Gas Emissions Inventory & Forecast. Town of Hampton.

Federation of Canadian Municipalities. 2014. *Developing Inventories for Greenhouse Gas Emissions and Energy Consumption: A Guidance Document for Partners for Climate Protection in Canada.* Partners for Climate Change. FCM.