HAMPTON

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FINAL REPORT

PARTNERS FOR CLIMATE PROTECTION PROGRAM

MILESTONE 1 – CORPORATE GREENHOUSE GAS EMISSIONS INVENTORY & FORECAST

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DILLON CONSULTING

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EXECUTIVE SUMMARY

The Town of Hampton (the Town) joined the Federation of Canadian Municipalities' (FCM) Partners for Climate Protection (PCP) program in 2004. The PCP program consists of a five Milestone approach that begins by developing a greenhouse gas (GHG) emissions inventory for the municipality (Corporate GHG inventory). In addition, the PCP program involves setting emissions reduction and energy efficiency targets, developing an implementation plan, monitoring these reductions, and publicly reporting the results.

The purpose of this report is to document completion of a Corporate GHG Emissions Inventory for the baseline year of 2006 for the Town of Hampton, as well as a business-as-usual forecast and a preliminary list of recommendations to assist with future emissions reduction efforts.

In 2006, the Town's baseline level of GHG emissions is estimated to be 1,124 tonnes of eCO_2. In that same year the Town spent $289,502 on fuel and energy costs. The building sector accounted for the majority of GHG emissions at 58%, while streetlights, vehicle fleet, sewer and waste each accounted for 22%, 14%, 5% and 1% respectively. The primary source of GHG emissions was electricity (79%) followed by Diesel (9%), Propane (6%), Gasoline (5%) and Waste (1%). The largest contributor to GHG emissions was the Hampton Community Center. Additional emissions information was gathered for 2007 to 2010 and has also been included in this report for analysis purposes. In the Town's business-as-usual forecast, an increase in emissions to 2,153 tonnes of eCO_2 is predicted.

Several emission reduction opportunities and recommendations are provided in this report to assist the Town of Hampton in developing their own Local Action Plan for reducing corporate GHG emissions.

1.0 INTRODUCTION

The climate of the Earth is changing. Part of this change is due to natural variations that have been taking place for millions of years but increasingly, human activities that release heat-trapping gases into the atmosphere are warming the planet by contributing to the 'greenhouse effect'. Greenhouse gases such as carbon dioxide, methane and nitrous oxide act as a blanket and reduce the amount of the earth's radiation that can escape into space. The result is an overall warming of the lower atmosphere and the earth's surface. The increase in amounts of greenhouse gases emitted to the atmosphere is a result of the increased combustion of fossil fuels such as coal, oil and natural gas. This increase is expected to result in an increase in global temperatures and an increase in the severity and frequency of extreme weather events. Greenhouse gas emissions can also contribute to poor air quality.

In 2004 the Town joined the PCP program as recommended by the Town's Environment Committee. The Town's rationale for joining the PCP program was a desire to reduce greenhouse gas emissions that contribute to climate change, provide a more environmentally friendly and livable community, conserve energy and reduce energy related expenditures.

1.1 Purpose

This GHG emissions inventory and forecast has been compiled to meet the corporate component of Milestone One of the PCP Program. The results of this inventory will provide a starting point for the Town to identify and assess areas where corporate energy savings and emission reductions can be achieved. This information will be used to complete Milestones 2 and 3 of the PCP program which involve setting reduction targets for both corporate and community emissions and Milestone 3, which includes development of a Local Action Plan to identify emission reduction strategies.

1.2 Format

This report is divided into five sections. **Section 1.0 Introduction** presents a brief outline of the purpose of this report. **Section 2.0 Background**, provides background information on the PCP Program, the Town of Hampton and the methodology used to prepare this GHG inventory and forecast. **Section 3.0 Corporate GHG Inventory** presents a summary of corporate GHG emissions for the baseline year of 2006 and examines changes in emissions between 2006 and 2010. **Section 4.0 Corporate GHG Forecast** outlines the results of a Business-As-Usual Forecast for corporate GHG emissions for the year 2016. **Section 5.0 Recommendations** outlines suggested recommendations to be considered by the Town to assist with continued corporate emissions reduction efforts.

2.0 BACKGROUND

2.1 About PCP

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

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

This five-milestone framework is intended to help municipal governments take action to reduce GHG emissions from the community and municipal operations, protect the climate and provide other benefits such as those outlined below.

Benefit	Overview
Cost Savings	Increasing energy efficiency, purchasing renewable energy and developing local renewable energy sources means financial savings for your municipal government and for households and businesses in your community.
Job Creation & Local Economic Development	Creating new markets for renewable energy technologies, energy efficiency and sustainable public transit can stimulate your community's economy and increase competitiveness.
Reduced Traffic Congestion	Promoting public transit, cycling, low-emissions vehicles, car sharing, and active transportation encourages residents in your community to choose more affordable and environmentally friendly travel modes, improving mobility, safety, and public health.
Improved Air Quality	Reducing pollutants and airborne particles improves air quality and reduces the incidence of respiratory diseases.

The corporate emissions inventory is organized into five sectors: buildings, vehicle fleet, outdoor lighting, wastewater and potable water, and solid waste collected at facilities owned and operated by the Town. A brief overview of each sector is provided on the following page.

Sector	Overview
Buildings	The buildings sector typically accounts for a significant proportion of municipal government operations emissions and it offers significant potential for emission reduction actions. This sector includes all buildings owned by the Town, including buildings leased or rented to others. The fuel or energy sources most commonly used for buildings are electricity, natural gas, fuel oil and propane.
Vehicle Fleet	Like the buildings sector, the vehicle fleet also accounts for a large portion of total emissions from municipal government operations and offers the potential for significant emissions reductions. The fuels most commonly used for vehicle fleets are gasoline and diesel fuel. This sector includes all vehicles owned and operated by the Town including personal vehicles used for municipal business.
Lighting	The lighting sector includes outdoor lighting such as overhead street lights, playing field lights, parking lot lights and traffic signals. Generally, lighting accounts for less than 10 per cent of the total emissions of municipal government operations. Nevertheless, significant cost savings can be realized. The conventional energy source for this sector is electricity.
Wastewater & Potable Water	Emissions related to wastewater and potable water are highly variable in municipal government inventories. This sector includes infrastructure for sanitary sewers, storm water and potable water that is owned by the Town. The conventional energy source for wastewater and potable water infrastructure is electricity, although other energy types (e.g. natural gas, fuel oil, and propane) may be used at some facilities for space heating.
Solid Waste	Emissions from solid waste, mainly CH_4, enter the air directly as the waste decomposes. The solid waste sector is the only sector in the inventory in which emissions are not calculated based on burning fuel directly or indirectly in the generation of electricity. The information required is the mass of solid waste generated by all municipal government operations. If mass data are not available, the mass can be estimated. The estimate is based on the total volume of solid waste either known or derived in a separate estimation technique.

2.2 Community Profile

According to the most recent Statistics Canada data, Hampton had a population of 4,004 in 2006. Located 35 km northeast of Saint John, New Brunswick, the town is bisected by the Kennebecasis River, the largest tributary of the St. John River. The town's rolling hills, waterways, farmland, wildlife and world-renowned marsh areas are enjoyed by residents and visitors alike. Natural features and heritage, such as wetlands, rivers, waterways and escarpments, play a major role in defining the character of the Town.

The Town has recently adopted a new Municipal Plan, which includes components of an Integrated Community Sustainability Plan (ICSP) and Zoning By-law. The Plan was developed in close consultation with the community and provides direction for the community to realize sustainability objectives for its environmental, economic, governance, social and cultural dimensions. The overall purpose of this Plan is to function as a community development tool

that will guide development within the Town over the next 30 years. It is intended that the plan will undergo a comprehensive review every 10 years.

Hampton has a number of buildings and sites, both residential and commercial, which reflect the Town's unique history. Types of land uses in the town are divided into 6 categories: Commercial, Residential, Conservation Area, Recreation and Open Space, Institutional and Agricultural. A brief overview of each land use category is provided below.

Land Use	Overview
Commercial	Over time, significant areas in Hampton have developed around major transportation routes, including the river, railway line and the Trans Canada Highway. The older commercial areas in the Town still retain many original heritage buildings and features. The current focus of economic activity in the Town of Hampton is along Main Street.
Residential	The Town retains a single residential zone, which permits a wide variety of residential uses. Much of the existing housing in the Town is single-family detached homes. In 2010, the Town issued $8 million in building permits for 24 new housing units.
Conservation Areas	Areas located alongside the Kennebecasis River, Ossekeag Creek, Beamers Creek and Darlings Lake, are protected under the Municipal Plan as conservation areas.
Recreation & Open Space	The Town provides a full range of recreational facilities including playing fields, tennis courts, basketball courts, arena and outdoor pool. Open Space amenities in the Town include parks, playing fields, trails, lookouts and playgrounds.
Institutional	These areas include properties occupied by schools, churches, community centers, emergency services and other government buildings. The most significant concentration of institutional uses is found along Main Street adjacent to the Ossekeag Creek, where the Community Centre, Schools and Fire Department are located.
Agriculture	Although farming within Town boundaries has declined over the last half of the century, there are still a number of farms located within the Town with varying degrees of farming activity.

2.3 Methodology

This inventory was prepared in accordance with the FCM Partners for Climate Protection Guidance Document *Developing Inventories for Greenhouse Gas Emissions and Energy Consumption*.

Data for energy consumption (electricity, propane, etc.) for buildings, streetlights and wastewater facilities have been collected from a series of invoices and bills. Travel logs and invoices from NB Power, Superior Propane and Irving Oil were collected and entered into the *Inventory Quantification Support Spreadsheet (2011)* provided by PCP, tracking consumption and cost. Data for fuel consumption and electricity use for buildings, vehicle fleet, streetlights

and sewage were collected from a series of invoices and bills. Data for waste was estimated – as suggested by PCP – by estimating the number of times bins were emptied per week and the volume of each bin.

The PCP Calculator was updated to include the 2010 New Brunswick electricity generation emissions factor. This emission factor was provided from the New Brunswick Department of Energy via personal communication. The equivalent carbon dioxide coefficient (eCO_2) for electricity is based on the annual average amount of fossil fuel (coal, natural gas, oil) used at New Brunswick's electricity power plants. As New Brunswick's electrical generation mix changes from year to year so does the eCO_2 electricity coefficient. This means that GHG emissions associated with electricity consumption in the Region can vary year to year even if there is no significant change in energy usage. In fact, when a municipality reduces its energy mix consumption, its GHG emissions may even increase if the provincial fossil fuel mix significantly increases. Since GHG emissions associated with electricity generation can vary annually, these changes must be considered when interpreting the annual GHG emission trends for the Town.

The baseline year being used for this inventory and forecast is the year 2006. This was the earliest year that contained a sufficient amount of accessible information that could be used to create the inventory. Additional information was gathered from 2007 to 2010 and has also been included in this report for analysis purposes.

Direct emissions data was used for this inventory when available. Direct emissions are those produced immediately upon consumption of energy by an end user within the boundaries of the municipality. Indirect emissions are those produced by an energy utility upstream of consumption by the end user.

For example, when natural gas-fired furnace or water heater is operating it is creating a direct emission: natural gas is burned, and air pollutants are emitted directly into the air. Conversely, when a light bulb is switched on it creates an indirect emission, because the actual emissions are produced upstream at a power plant, which may be burning fossil fuel to produce the electricity.

3.0 CORPORATE GHG INVENTORY

This section provides a summary of corporate GHG emissions for the baseline year of 2006 and examines changes in emissions between 2006 and 2010. Following a brief summary of 2006 in Section 3.1, each of the remaining subsections in Section 3.0 outlines GHG and cost information for each sector of corporate operations: buildings, vehicle fleet, streetlights, corporate solid waste and water and wastewater systems. The information on each sector is organized into three components: (1) Overview, (2) 2006 Baseline and (3) Trends 2006 – 2010. Detailed inventory data has been included in **Appendix A**.

3.1 Summary (2006)

The Corporate GHG Emissions Inventory has been compiled for the baseline year of 2006. The inventory includes emissions resulting from all municipal corporate operations and services. The inventory is categorized into the five previously mentioned sectors of corporate operations. The emissions generated in each of these sectors are outlined in Table 1 and explained in further detail in the remainder of Section 3.0. Figure 1 illustrates the percentage of total corporate emissions by sector for 2006.

Table 1 - Energy Costs and eCO_2 Emissions by Sector, 2006

Sector	Total e CO_2 (t)	Total Cost ($)
Buildings	655	142,782
Vehicle Fleet	154	71,616
Streetlights	251	65,974
Sewage	55	9,130
Corporate Waste	9	-
Total	***1,124***	***289,502***

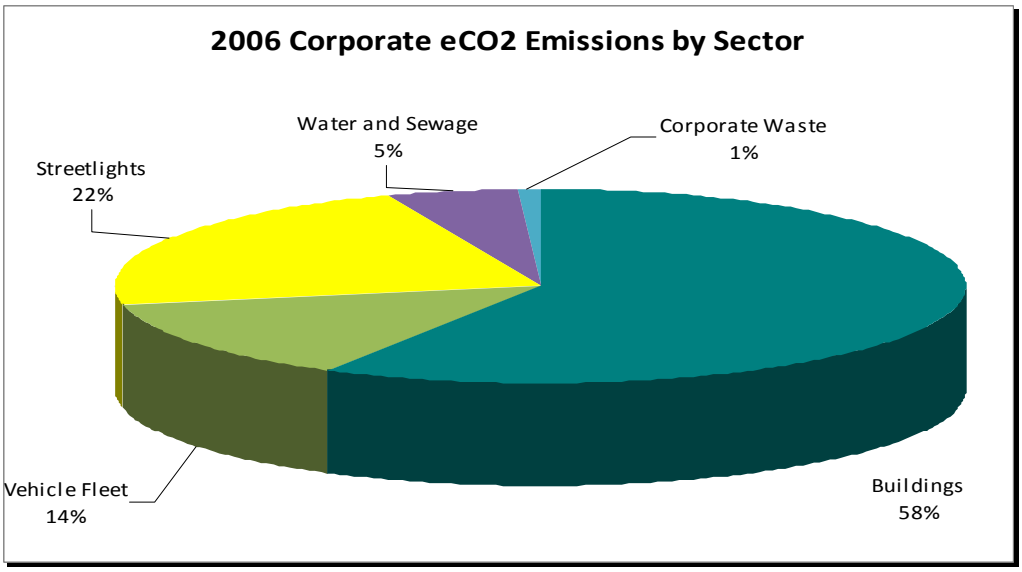


Figure 1 – Corporate eCO_2 Emissions by Sector, 2006

At 58%, buildings account for the majority of all emissions generated by the Town. Streetlights account for 22%, whereas vehicle fleets account for 14%. Sewage and Corporate Waste account for 5% and 1% of emissions respectively.

Just as emissions can be attributed to a sector of corporate operations, they can also be attributed to an energy source. Table 2 and Figure 2 illustrate the energy sources responsible for corporate emissions and related costs.

Table 2- Energy Costs and eCO_2 Emission by Source, 2006

Energy Type	Total Use	Total e CO_2 (t)	Total Cost ($)
Electricity	2,190,173 kWh	898	196,634
Diesel	37,727 L	101	39,151
Gasoline	20,761 L	51	26,203
Propane	34,052 L	65	27,514
Waste	19 t	9	-
Total	***-***	***1,124***	***289,503***

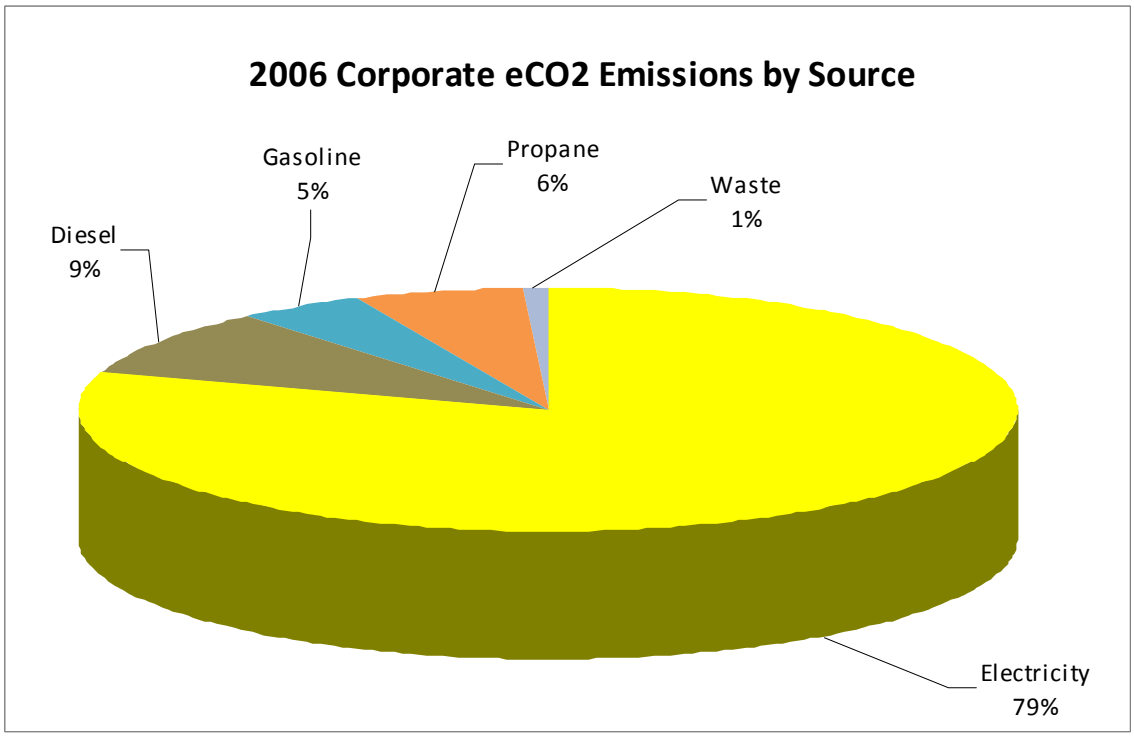


Figure 2 – Corporate eCO_2 Emissions by Source, 2006

At 79%, electricity use accounted for the majority of all corporate GHG emissions in 2006. This is followed by diesel at 9%, propane at 6%, gasoline at 5%, and waste at 1%.

3.2 Buildings

(1) OVERVIEW

The town currently owns and maintains a total of ten (10) municipal buildings:

1. Equipment Depot (works garage)
2. Hampton Fire Hall
3. Hampton Arena (community centre, pool, Parks garage)
4. Provincial Building
5. Centennial Building
6. Library
7. River Centre
8. Tourist Bureau
9. Tennis Court
10. Railway Crescent

Data is available for each of these facilities from 2006 to 2010 except for the River Centre. Construction of the River Centre was completed towards the end of 2007; as a result, no River Centre data is available for 2006 and most of 2007.

(2) 2006 BASELINE

Buildings accounted for 58% of total corporate emissions (655 tonnes of eCO_2) in 2006.

As shown in Table 3, the Hampton Arena (which also includes a community centre space, pool and the Parks Garage) was by far the most expensive facility to operate and also produced the majority of emissions in 2006.

Table 3 - Summary of emissions and costs for buildings, 2006

Building	Total eCO_2 (t)	Total Cost ($)
Hampton Arena (community centre, pool, Parks Garage)	405	78,713
Provincial Building	73	15,881
Centennial Building	48	10,606
Hampton Fire Hall	32	7,628
Equipment Depot (works garage)	17	4,326
Library	11	2,855
Railway Crescent	3	869
Tourist Bureau	2	543
Tennis Court	0	109
River Centre	-	-
Total	***591***	***121,530***

The Equipment Depot, Fire Hall, Provincial Building, Centennial Building and Library each accounted for moderate amounts of cost and emissions while the Tourist Bureau, Tennis Court and Railway Crescent accounted for very small amounts of costs and emissions. Costs and emissions associated with the River Centre are not available for 2006 because construction of the facility was not completed until midway through 2007.

In 2006, all emissions from buildings resulted from a combination of electricity use and propane consumption.

(3) TRENDS 2006 – 2010

Between 2006 and 2010 total GHG emissions from municipal buildings and facilities increased from 655 tonnes of eCO_2 to 797 tonnes in 2010, an increase of 21.6%. Similarly, total cost also increased during that time period, rising from $142,782 in 2006 to $169,374 in 2010 – a 19% increase.

Table 4 summarizes costs and emissions generated from electricity and propane consumption in municipal buildings and facilities between 2006 and 2010. The Hampton Arena consistently accounted for the majority of emissions and costs each year (62% in 2006 and 58% in 2010). The Arena, together with the Fire Hall, Provincial Building and Centennial Building accounted for 97% of building emissions in 2006 and 94% in 2010. With the exception of the Equipment Depot, the River Centre and the Park N Ride, emissions for each municipal building and facility increased between 2006 and 2010. In general, it appears that the majority of facilities showed a steady increase in emissions between 2006 and 2009 but showed a decreased between 2009 and 2010.

Table 4 - Summary of costs and emissions for facilities, 2006-2010

	2006		2007		2008		2009		2010	
Building	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)
Hampton Arena	406	79,455	500	94,526	528	84,449	536	88,579	461	93,071
Hampton Fire Hall	65	21,967	98	8,655	102	8,329	137	22,888	110	22,254
Provincial Building	73	15,881	84	19,428	88	16,073	91	16,505	77	17,276
Centennial Building	48	10,606	80	16,715	77	13,572	72	13,082	56	12,762
Equipment Depot	46	10,497	22	5,346	70	5,308	56	14,345	41	12,066
River Center	-	-	4	905	29	5,757	28	5,553	22	5,014
Library	11	2,855	21	4,709	18	3,514	15	3,039	21	4,996
Railway Crescent	3	869	4	1,077	4	897	5	997	4	1,059
Tourist Bureau	2	543	2	510	2	425	2	410	3	833
Tennis Court	0	109	0	95	1	146	0	38	0	43
Park N Ride	-	-	8	1,961	-	-	-	-	-	-
TOTAL	655	142,782	825	153,926	919	138,470	941	165,435	797	169,374

Although it is not immediately clear what caused the decrease between 2009 and 2010, Table 5 lists total building energy use, NB electricity emissions coefficient and total emissions for each year between 2006 and 2010.

Table 5 - Summary of building energy use, NB Electricity eCO_2 coefficients and emissions, 2006-2010

	Total Building Energy Use			NB Electricity eCO_2 Coefficients	Total eCO2 (t)
	Electricity (kWh)	Propane (L)	Diesel (L)		
2006	1,442,888	32,805	0	0.41	**655**
2007	1,672,329	41,227	0	0.45	**816**
2008	1,475,179	39,532	0	0.55	**919**
2009	1,484,687	52,931	449	0.55	**941**
2010	1,510,134	40,458	1,036	0.462	**797**

Table 5 shows that total building electricity usage increased slightly (about 2%) between 2009 and 2010 while diesel usage increased moderately and propane use decreased. Conversely, the NB electricity eCO_2 coefficient showed a significant decrease between 2009 and 2010; had the coefficient remained the same as in 2009, total eCO_2 for 2010 would have been approximately 930t, which would have been very comparable to the 941t of total eCO_2 recorded for 2009. This appears to indicate that the decrease in building emissions for 2010 may be primarily a result of a decrease in the NB electricity eCO_2 coefficient, rather than the result of a downward consumption trend.

Further investigation into the electricity consumed by each building (see Table 6 and Figure 3) shows variability between electricity usage in each building from year to year. This is in contrast to the steady increase in total building emissions (and emissions coefficient) from 2006 to 2009. This appears to support the supposition that increase in emissions is primarily related to increases in the provincial electricity coefficient.

Table 6 – Electricity use by building, 2006-2010

		Total Electricity Use (kWh)				
ID	**Building**	**2006**	**2007**	**2008**	**2009**	**2010**
1	Equipment Depot	41,283	49,432	47,945	48,261	42,644
2	Hampton Fire Hall	78,240	84,480	79,540	84,240	80,800
3	Hampton Arena	987,096	1,102,911	949,576	966,549	988,619
4	Provincial Building	177,520	186,850	159,300	164,730	165,890
5	Centennial Building	116,880	178,200	140,000	130,080	122,280
6	Library	27,557	45,972	32,742	27,642	45,263
7	River Center		9,410	53,120	50,760	48,420
8	Tourist Bureau	5,112	4,488	3,730	3,504	6,964
9	Tennis Court	1,025	821	1,316	326	344
10	Railway Crescent	8,175	9,765	7,910	8,595	8,910
	TOTAL	**1,442,888**	**1,672,329**	**1,475,179**	**1,484,687**	**1,510,134**
	Total # of buildings	**9**	**10**	**10**	**10**	**10**

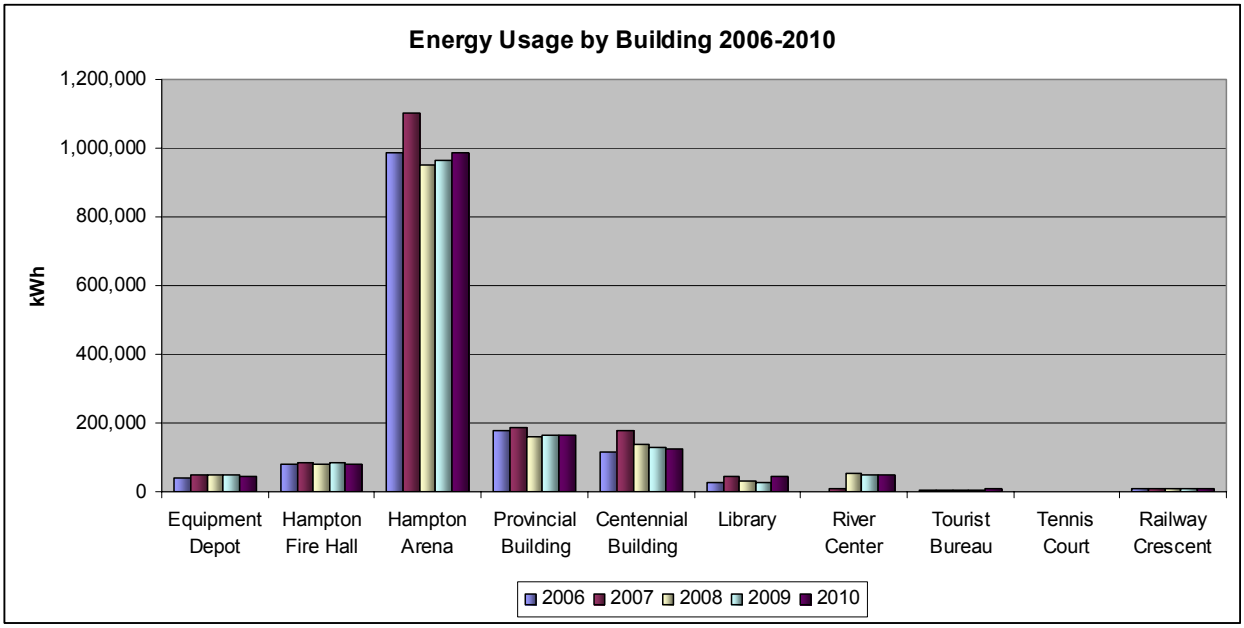


Figure 3 – Energy Usage by Building, 2006-2010

Although total cost increased between 2006 and 2010, costs for individual buildings showed more variability during this period. For example, although the Arena produced 500 tonnes of eCO_2 in 2007 and increased to 528 tonnes in 2008, cost actually *decreased* from $94,526 to $84,449. This variability is primarily due to price changes in the economy for the use of electricity, propane, gas, etc. During this time period, the Arena continued to be by far the most expensive building to operate as well as the building producing the highest GHG emissions.

3.3 Vehicle Fleet

(1) OVERVIEW

As of 2010, the Town owns and operates 32 vehicles. The vehicle types vary widely (e.g. zamboni, woodchipper, trucks, mowers, etc) and are used for a variety of uses. The Town has acquired and sold or discarded several vehicles between 2006 and 2010; a master list of Town vehicles during this period has been included in **Appendix B**. The corporate vehicle fleet captured by this inventory includes all those vehicles used by the Town of Hampton for its business and operations. Data on personal vehicle use for Town business has also been included.

(2) 2006 BASELINE

The vehicle fleet accounted for 14% of total corporate emissions (154 tonnes of eCO_2) in 2006.

As shown in Table 7, the ambulance accounted for the highest GHG emissions (approximately 18% of vehicle fleet emissions) and cost within the vehicle fleet. Each of the remaining vehicles accounted for less than 8% of total vehicle fleet emissions (13 tonnes of eCO_2 or less).

Table 7 - Summary of emissions and costs for buildings, 2006

Vehicle	Total e CO_2 (t)	Total Cost ($)
Ambulance	28	10,665
Equipment Truck 103	13	4,999
Truck 554 (Dump Truck 117)	10	3,933
Truck 560 (Equipment Truck 121)	10	3,860
Truck 557 (Truck 120)	10	3,808
Truck 550 (Truck 100)	9	3,842
Loader 533 (Loader 2003)	8	3,046
Equipment Truck 104	8	3,037
Truck 551 (Truck 113)	7	2,670
Truck 569 (Equipment Truck 96)	6	2,711
Personnel Vehicle Travel	6	7,669
Truck 572 (Equipment Truck 2000)	5	2,193
Tank #1 (Pump # 4)	5	1,866
Tank # 2	5	2,014
Loader 536 (1980 Loader)	4	1,610
Motorized Equipment (Sm. Equipment & Repairs)	4	1,738
Tractor 529 (Equipment Tractor)	4	1,486
Tank # 6	3	1,321
Rescue # 3	2	922
Pumper #4 (Pump # 1)	2	797
Truck 563 (2006 International)	2	667
Zamboni	2	6,129
Grader 557 (Road Grader)	1	301
Tractor/Mower 527 (Farm Tractor & Mower)	0	187
Compressor	0	145
Total	***154***	***71,616***

In 2006, emissions from the vehicle fleet resulted from a combination of gasoline, diesel and propane consumption.

(3) TRENDS 2006 – 2010

Between 2006 and 2010 total GHG emissions from the vehicle fleet decreased from 154 tonnes of eCO_2 to 140 tonnes in 2010, a decrease of 9%. Similarly, total cost also decreased during that time period, changing from $71,616 in 2006 to $63,733 in 2010 – an 11% decrease.

Table 8 summarizes costs and emissions generated from gasoline, diesel and propane consumption of the municipal vehicle fleet between 2006 and 2010. This information is divided into municipal vehicles and personal vehicles used on municipal business. The number of municipal vehicles (not including personal vehicles) is also provided. Detailed emissions and cost information for each municipal vehicle can be found in **Appendix C**.

Table 8 - Summary of costs and emissions for vehicle fleet, 2006-2010

	2006		2007		2008		2009		2010	
Vehicle	eCO_2 (t)	Cost $)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)
Municipal Vehicles	148	63,947	192	79,960	149	66625	167	62,298	135	56,563
Personal Vehicles	6	7,669	5	6,908	4	6,233	5	7,883	5	7,170
TOTAL	154	71,616	197	86,868	153	72,858	172	70,181	140	63,733
TOTAL # OF VEHICLES	25		25		26		26		33	

As shown in Table 8, although total GHG emissions from the vehicle fleet decreased overall between 2006 and 2010, emissions fluctuated greatly, alternating between increases and decreases. These fluctuations occurred despite the fact that the overall size of the vehicle fleet remained relatively constant until 2010 when seven (7) new vehicles were added. There does not appear to be a discernable trend to the data. Fluctuations may be due to replacement of older (less fuel efficient) vehicles with newer (more fuel efficient) vehicles, and varying year to year usage. Additional investigation and future data collection will be required in order to confirm the cause of fluctuations. There was also significant variability in cost from year to year; however, this is likely due primarily to price changes in the economy for the use of various fuels.

3.4 Streetlights

(1) OVERVIEW

There has been a gradual increase in the number of streetlights since 2006 increasing from 454 lights to 502 streetlights as of 2010. Categories of streetlights found within the Town include dusk to dawn lights, lights only, lights on a concrete pole, lights on wood pole, photo-controlled and flashing lights. These lights can be found throughout the town along streets, parking lots, ball fields and tennis courts.

(2) 2006 BASELINE

Streetlights accounted for 22% of total corporate emissions (251 tonnes of eCO_2) in 2006

As shown in Table 9, the majority of streetlights in Hampton fall under the 'Light only (100 W)' category; these lights account for the highest proportion of GHG emissions (approximately 85% of streetlight emissions) and cost for streetlights in Hampton.

Table 9 - Summary of emissions and costs for streetlights, 2006

Light Category	Total # of Lights	Total eCO_2 (t)	Total Cost ($)
Light only (100 W)	388	214	56,208
Photo-controlled (150 W)	18	6	1,467
Light with wood pole (100 W)	16	12	3,032
Light with concrete pole (100 W)	10	9	2,262
Hampton Ballfield	5	4	1,081
Light only (150 W)	4	3	828
Light only (200 W)	2	2	496
Flashing Light	2	1	383
Tennis Court	1	1	145
Photo-controlled (100 W)	1	0	60
Dutch Point Ballfield	7	0	11
Crosswalk	0	-	-
Main Street Lights	0	-	-
Light with wood pole (200 W)	0	-	-
Park N Ride	0	-	-
Total	***454***	***251***	***65,974***

(3) TRENDS 2006 – 2010

Between 2006 and 2010 total GHG emissions from streetlights increased from 251 tonnes of eCO_2 to 313 tonnes in 2010, an increase of nearly 25%. Similarly, total cost also increased during that time period, rising from $65,974 in 2006 to $78,042 in 2010 – an 18% increase.

The number of streetlights in Hampton increased between 2006 and 2010 from 454 to 502 (Table 10). New lights added during this period were categorized as either Light only (100 W), Light with wood pole (100 W), Photo-controlled (150 W) or Main Street Lights.

Table 10 - Summary of number of streetlights by type, 2006-2010

	Number of Streetlights				
Light Category	2006	2007	2008	2009	2010
Light only (100 W)	388	388	390	398	402
Light with wood pole (100 W)	16	17	18	18	37
Photo-controlled (150 W)	18	18	18	18	18
Light with concrete pole (100 W)	10	10	10	10	10
Dutch Point Ballfield	7	7	7	7	7
Photo-controlled (100 W)	1	1	7	7	7
Main Street Lights			6	6	6
Hampton Ballfield	5	5	5	5	5
Light only (150 W)	4	4	4	4	4
Light only (200 W)	2	2	2	2	2
Flashing Light	2	2	2	2	2
Tennis Court	1	1	1	1	1
Park N Ride		1			1
TOTAL	454	456	470	478	502

As shown in Table 11 on the following page, the 'Light only (100 W)' streetlights accounted for the majority of streetlight emissions and cost during the 2006 to 2010 period. Overall streetlight emissions increased from 251 tonnes of eCO_2 to 313 tonnes in 2010, an increase of nearly 25%. This increase is likely due to a combination of the addition of new streetlights and increased hours of usage; further analysis is required to confirm the cause of the increase. The overall cost of streetlights increased between 2006 and 2010; however, the total cost alternatively increased and decreased from year to year. This variability is likely due primarily to price changes in the economy for electricity between 2006 and 2010.

Table 11 - Summary of costs and emissions for streetlights, 2006-2010

Light Category	2006		2007		2008		2009		2010	
	eCO_2 (t)	Cost $)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)
Light only (100 W)	214	214	238	58,631	278	58,629	276	60,187	255	62,547
Light with wood pole (100 W)	12	12	13	3,298	17	3,547	16	3,592	28	7,552
Light with concrete pole (100 W)	9	9	10	2,401	11	2,352	11	2,382	9	2,442
Photo-controlled (150 W)	6	6	6	1,530	7	1,526	7	1,546	6	1,584
Hampton Ballfield	4	4	6	1,542	4	881	6	1,216	3	704
Light only (150 W)	3	3	4	864	4	861	4	872	3	818
Light only (200 W)	2	2	2	518	2	516	2	523	2	536
Photo-controlled (100 W)	0	0	0	63	1	264	2	446	2	457
Main Street Lights	-	-	-	-	2	317	2	491	2	624
Tennis Court	1	1	1	151	1	150	1	152	1	156
Flashing Light	1	1	1	399	2	418	2	432	1	356
Light with wood pole (200 W)	-	-	-	-	-	-	-	-	1	237
Dutch Point Ballfield	0	0	0	24	0	28	0	28	0	29
Park N Ride	-	-	8	1,961	-	-	-	-	-	-
Crosswalk	-	-	0	118	-	-	-	-	-	-
TOTAL	251	65,974	290	71,499	330	69,489	330	71,867	313	78,042
TOTAL # OF LIGHTS	454		456		470		478		502	

3.5 Corporate Solid Waste

(1) OVERVIEW

Waste volumes generated at Town facilities have not been quantified in the past and therefore must be estimated. Data was gathered from each municipal department (Leisure Services, Municipal Building, Fire Hall, Works Department and the River Centre) on the quantity of garbage bags produced during the course of a week and an estimated average weight for each garbage bag. The resulting information was used to calculate an estimate of annual emissions from corporate waste. It is assumed that amount of corporate waste has been relatively constant since 2006; therefore, data resulting from the 2011 estimate has been assumed as constant during the 2006 to 2010 period.

(2) 2006 BASELINE/2006-2010 OVERVIEW

Corporate waste accounted for 1% of total corporate emissions (9 tonnes of eCO_2) in 2006

Based on the assumptions outlined above, Table 12 summarizes the emissions for corporate waste from 2006 to 2010. It is assumed that the amount of corporate waste has remained constant between 2006 and 2010.

Table 12 - Summary of emissions and costs for corporate waste, 2006

Year	Waste to Landfill (t)	Total eCO_2 (t)
2006	19	9
2007	19	9
2008	19	9
2009	19	9
2010	19	9

3.6 Water and Wastewater Systems

(1) OVERVIEW

The Town owns and operates 3 lift stations – Cemetery Road, Fairmount Drive and Dutch Point – all of which are used to pump sewage from a lower elevation to a higher elevation. Dutch Point is the most recently constructed and became operational in 2008. Emissions from these lift stations resulted from electricity use.

(2) 2006 BASELINE

Water and wastewater systems account for 5% of total corporate emissions (55 tonnes of eCO_2) in 2006.

As shown in Table 13 below, the Cemetery Road lift station produced the vast majority of emissions associated with municipal water and wastewater systems (96%) in 2006. No 2006 data is available for the Dutch Point Sewage Lift Station because it was not constructed until 2008.

Table 13 - Summary of emissions and costs for water and wastewater systems, 2006

Facility	Total eCO_2 (t)	Total Cost ($)
Cemetery Road Sewage Lift Station	53	8,535
Fairmont Drive Sewage Lift Station	2	595
Dutch Point Sewage Lift Station	-	-
Total	***55***	***9,130***

(3) TRENDS 2006 – 2010

Between 2006 and 2010 total GHG emissions from the water and wastewater systems increased from 55 tonnes of eCO_2 to 109 tonnes in 2010, an increase of 98%. Similarly, total cost also increased during that time period, rising from $9,130 in 2006 to $19,015 in 2010 – an increase of 108%.

As shown in Table 14, although the Cemetery Road lift station continued to emit the highest amount of GHG between 2006 and 2010, the Dutch Point Sewage lift station constructed in 2008 is also a significant source of GHG emissions associated with the water and wastewater system (19% of water and sewage system emission in 2010). Treatment of construction related water/pumping by the other stations and operation of the new stations once it was constructed accounts for a significant portion of the increase in total eCO_2 emission and cost during the 2006 to 2010 period.

In addition to construction of the new lift station, there was also an increase in total eCO_2 emission every year for each station. There are several factors that may have contributed to this increase: construction of Dutch Point in 2008/2009 would have added additional demand on Cemetery Road pumping station; there was significant construction pumping in 2009; and 2009 was also a year with several significant rain events. Based on this information, it is anticipated that – barring significant rain events or new construction – future emissions should be comparable to those recorded for 2010.

Table 14 - Summary of costs and emissions for water and wastewater systems, 2006-2010

	2006		2007		2008		2009		2010	
Facility	eCO_2 (t)	Cost $)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)
Cemetery Road Sewage Lift Station	53	8,535	56	9,368	77	10,465	99	13,121	84	13,238
Dutch Point Sewage Lift Station	-	-	-	-	28	5,488	30	6,162	21	4,876
Fairmont Drive Sewage Lift Station	2	595	3	675	4	858	6	1,166	4	901
TOTAL	55	9,130	59	10,043	109	16,811	135	20,449	109	19,015

4.0 CORPORATE GHG FORECAST

The PCP program requires that an emissions forecast be prepared to illustrate how emissions might grown under a Business-as-Usual (BAU) scenario. The BAU projected emissions for each sector in 2021 are listed in Table 15; assumptions associated with the forecast are also listed.

Table 15 – Business-as-Usual emissions estimate for by sector, 2021.

Corporate Sector	Assumptions	2006 Total Recorded eCO_2 (t)	2021 Total Projected eCO_2 (t)
Buildings	No new buildings will be added to the building portfolio. Consumptive rates between 2006 and 2010 were analyzed indicating a general annual increase and a linear regression analysis was used to project a conservative 2021 BAU emissions.	655	1,356
Vehicle Fleet	Fleet will be replaced overtime with standard vehicles (i.e. no electric, hybrids, etc) but total fleet size will remain constant. Consumptive rates between 2006 and 2010 were averaged to project 2021 BAU emissions.	154	163
Streetlights	The number of new streetlights will continue to increase at a comparable rate to the increase between 2006 and 2010. Consumptive rates between 2006 and 2010 were analyzed and a linear regression analysis was used to project a conservative 2021 BAU emissions.	251	516
Corporate Waste	The amount of corporate waste produced will be comparable to the 2011 present-day estimate.	9	9
Water and Wastewater	No new facilities, no significant rain events, no significant new construction. BAU 2021 emissions will be comparable to 2010 emissions.	109	109
	Total	***1,124***	***2,153***

The estimates listed in Table 15 assume no substantive change in the emissions intensities associated with electrical generation in New Brunswick.

5.0 RECOMMENDATIONS

A series of recommendations have been identified through development of the Corporate GHG Emissions Inventory. These are outlined in detail below.

5.1 Data Compilation Guide

One of the challenges of creating and updating a corporate GHG inventory is data acquisition. A suggested guide to compiling data has been developed to assist with that process and is included in **Appendix D**.

5.2 Data Management

Data management techniques and procedures play an important role in the quality of data that is available for future inventory and monitoring endeavours carried out by the Town. Several data management recommendations have been identified through the process of creating this inventory. These are listed below.

Sector	Data Management Recommendation
Vehicle Fleet	Log vehicle kilometres travelled (VKT) for town vehicles through annual odometer readings.
Vehicle Fleet	Keep all personal travel logs in a single folder labelled 'Travel Logs' rather than filing individually by staff person name.
Vehicle Fleet	Keep a master file of old and new codes for vehicles within the vehicle fleet, including a brief description of the type and purpose of each vehicle.
Corporate Waste	Develop a data tracking system for corporate waste by department to track corporate waste data.
General	Develop and maintain a central indicator files (e.g. number of staff, hours of building operation, size of building, etc). Data in paper format should be transposed into electronic format in a timely manner. Develop and adopt a Quality Control/Quality Assurance procedure to ensure accurate transfer from paper to digital format.

5.3 Emissions Reduction

Through a review of past research carried out by the Town and a review of best practices being carried out by other municipalities, a number of recommendations have been identified to assist the Town with future GHG reduction efforts. These have been included in **Appendix E**.

REFERENCES

Partners for Climate Protection. 2009. *Developing Inventories for Greenhouse Gas Emissions and Energy Consumption: A Guidance Document for Partners for Climate Protection in Canada.* Available online at: http://www.fcm.ca/Documents/reports/PCP/Developing_Inventories_for_Greenhouse_Gas_Emissions_and_Energy_Consumption_EN.pdf

Partners for Climate Protection. 2010. *Inventory Quantification Support Spreadsheet.* Available online at: http://fcm.ca/home/programs/partners-for-climate-protection/milestone-framework/milestone-1.htm.

Statistics Canada. 2007. *Hampton, New Brunswick (Code1305007)* (table). *2006 Community Profiles*. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E

APPENDIX A

DETAILED INVENTORY DATA
2006-2010

•Corporate Inventory Summary 2006

Municipal government: Town of Hampton

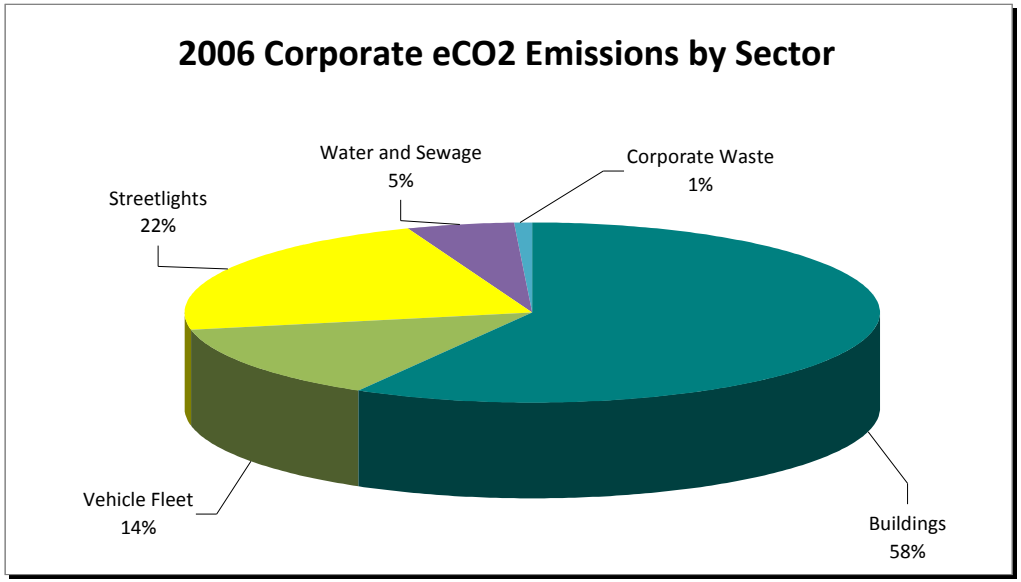
Inventory Year: 2006

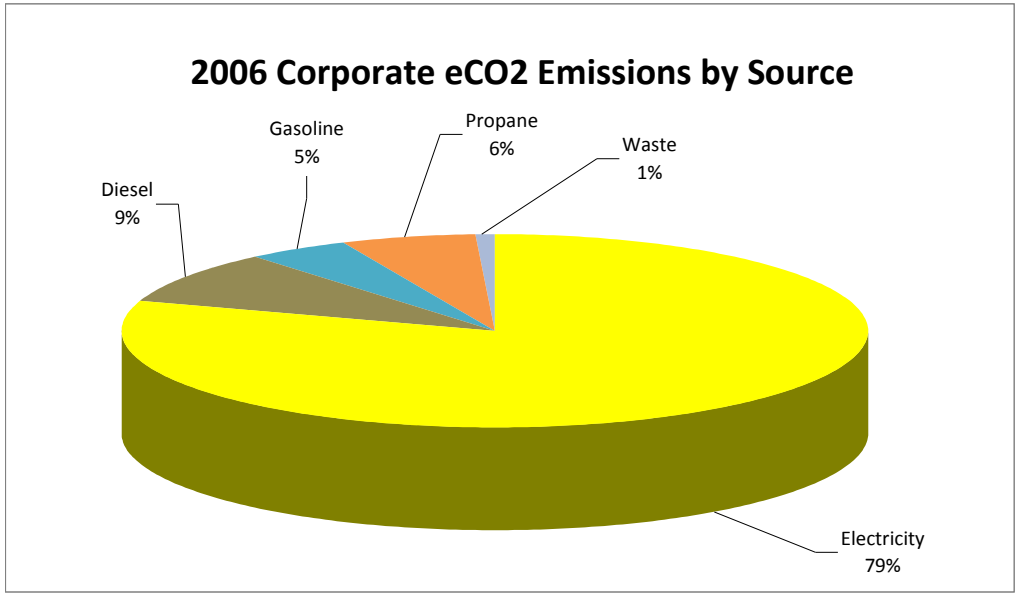
Energy Costs and eCO_2 Emissions by Sector

Sector		Total Cost ($)	Total eCO_2 (t)
Buildings		142,782	655
Vehicle Fleet		71,616	154
Streetlights		65,974	251
Water and Sewage		9,130	55
Corporate Waste		-	9
Total		**289,502**	**1,124**

Energy Costs and eCO_2 Emission by Source

Energy Type		Total Use	Total Cost ($)	Total eCO_2 (t)
Electricity		2,190,173	196,634	898
Natural Gas		0	0	0
CNG		0	0	0
Diesel		37,727	39,151	101
District Energy		0	0	0
Ethanol Blend (10%)		0	0	0
Biodiesel (B5)		0	0	0
Biodiesel (B10)		0	0	0
Biodiesel (B20)		0	0	0
Fuel Oil		0	0	0
Gasoline		20,761	26,203	51
Propane		34,052	27,514	65
Waste		-	-	9
Total		**-**	**289,503**	**1,124**





Buildings 2006

Corporate Inventory

Description:

		Electricty (kWh)			Propane (L)			Indicators		Total			
ID	Building or Building Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Operating Hours	Floor Area (1000 m^2)	Total Cost ($)	Total eCO_2 (t)	Cost ($)/$m^2$	eCO_2 (t)/m^2
1	Equipment depot (shop)	41,283	4,326	17	10,703	6,171	29		1.22632	10,497	46	8.56	0.04
2	Hampton Firehall	78,240	7,628	32	21,054	14,339	33		0.92996	21,967	65	23.62	0.07
3	Hampton Community Center (Arena)	987,096	78,713	405	1,048	742	2	5114	2.317	79,455	406	34.29	0.18
4	Provincial Building	177,520	15,881	73					0.90562	15,881	73	17.54	0.08
5	Centennial Building	116,880	10,606	48					0.42066	10,606	48	25.21	0.11
6	Library	27,557	2,855	11					0.1951	2,855	11	14.63	0.06
7	Tourist Bureau	5,112	543	2					0.16388	543	2	3.32	0.01
8	Tennis Court	1,025	109	0					0.03484	109	0	3.13	0.01
9	Railway Crescent	8,175	869	3						869	3	#DIV/0!	#DIV/0!
	Total	**1,442,888**	**121,530**	**592**	**32,805**	**21,252**	**63**	**5114**	**6.19338**	**142782.34**	**654.98385**	**23.05**	**0.11**

Vehicle Fleet 2006

Corporate Inventory

Description: *Vehicles in red were not used in present year.*

		Gasoline (L)			Gasoline (KM)			Diesel (L)			Propane (L)			Indicators		Total					
ID	Vehicle or Vehicle Group Name	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Vehicle Kilometers	# of Vehicles	Total Cost (	Total eCO_2 (t)	Total Cost ($)/km	Total Cost ($)/# of Vehicles	Total eCO_2 (t)/km	Total eCO_2 (t)/# of Vehicles
1	Personnel Vehicle Travel				20,596	7,669	6							20596		7,669	6	0.37	#DIV/0!	0.37	#DIV/0!
2	Zamboni										1,117	6,129	2		1	6,129	2	#DIV/0!	6129	#DIV/0!	1.73
3	Equipment Truck 96	2,552	2,684	6				30	27	0					1	2,711	6	#DIV/0!	2711	#DIV/0!	6.31
4	Truck 100	3,825	3,794	9				44	48	0					1	3,842	9	#DIV/0!	3842	#DIV/0!	9.45
5	Equipment Truck 104	3,142	3,037	8											1	3,037	8	#DIV/0!	3037	#DIV/0!	7.66
6	Truck 113	2,730	2,651	7							19	19	0		1	2,670	7	#DIV/0!	2670	#DIV/0!	6.69
7	Dump Truck 117							3,793	3,933	10					1	3,933	10	#DIV/0!	3933	#DIV/0!	10.18
8	Truck 120							3,639	3,808	10					1	3,808	10	#DIV/0!	3808	#DIV/0!	9.77
9	Equipment Truck 121	8	9	0				3,721	3,851	10					1	3,860	10	#DIV/0!	3860	#DIV/0!	10.00
10	Equipment Truck 2000	2,155	2,193	5											1	2,193	5	#DIV/0!	2193	#DIV/0!	5.26
11	Equipment Tractor	56	67	0				1,332	1,420	4					1	1,486	4	#DIV/0!	1486	#DIV/0!	3.71
12	Sm. Equipment & Repairs	1,546	1,701	4				22	20	0	17	17	0		1	1,738	4	#DIV/0!	1738	#DIV/0!	3.86
13	Tank # 2	1,926	2,014	5											1	2,014	5	#DIV/0!	2014	#DIV/0!	4.70
14	Tank # 6	8	7	0				1,283	1,314	3					1	1,321	3	#DIV/0!	1321	#DIV/0!	3.46
15	Rescue # 3	35	33	0				836	855	2	34	34	0		1	922	2	#DIV/0!	922	#DIV/0!	2.38
16	Pump # 1							766	797	2					1	797	2	#DIV/0!	797	#DIV/0!	2.05
17	Pump # 4	10	10	0				1,842	1,856	5					1	1,866	5	#DIV/0!	1866	#DIV/0!	4.97
18	2006 International							686	667	2					1	667	2	#DIV/0!	667	#DIV/0!	1.84
19	1980 Loader							1,533	1,610	4					1	1,610	4	#DIV/0!	1610	#DIV/0!	4.11
20	Loader 2003							2,908	3,046	8					1	3,046	8	#DIV/0!	3046	#DIV/0!	7.80
21	Farm Tractor & Mower	115	132	0				56	54	0					1	187	0	#DIV/0!	187	#DIV/0!	0.43
22	Road Grader							271	301	1					1	301	1	#DIV/0!	301	#DIV/0!	0.73
23	Ambulance	88	99	0				10,198	10,523	27	40	42	0		1	10,665	28	#DIV/0!	10665	#DIV/0!	27.64
24	Compressor							142	145	0					1	145	0	#DIV/0!	145	#DIV/0!	0.38
25	Equipment Truck 103	111	104	0				4,625	4,874	12	20	21	0		1	4,999	13	#DIV/0!	4999	#DIV/0!	12.71
	Total	**18,304**	**18,534**	**45**	**20,596**	**7,669**	**6**	**37,727**	**39,151**	**101**	**1,247**	**6,262**	**2**	**20596**	**24**	**71,616**	**154**	3.47720237	2984	0.01	6.41

Water & Sewage 2006

Corporate Inventory

Description: *Insert comments here. (ie. represents*

		Electricty (kWh)			Total	
ID	Facility or Facility Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)	Total eCO_2 (t)
1	Sewage Lift Station	128,530	8,535	53	8,535	53
2	Fairmont Drive Lift Station	5,600	595	2	595	2
	Total	**134,130**	**9,130**	**55**	**9,130**	**55**

Streetlights 2006

Corporate Inventory

Description: *Represents entire streetlights portfolio*

		Electricty (kWh)			Indicator		
ID	Streetlight Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	# of Streetlights	Total Cost ($)/Streetlight	Total eCO_2 (t)/Streetlight
1	Hampton Ballfield	10,170	1,081	4	5	216.21	0.83
2	Tennis Court (Dusk to Dawn)	1,360	145	1	1	144.60	0.56
3	Light only (100 W)	521,285	56,208	214	388	144.87	0.55
4	Light only (150 W)	7,790	828	3	4	207.01	0.80
5	Light only (200 W)	4,668	496	2	2	248.10	0.96
6	Light with concrete pole (100 W)	21,282	2,262	9	10	226.23	0.87
7	Light with wood pole (100 W)	28,525	3,032	12	16	189.51	0.73
8	Photo-controlled (100 W)	569	60	0	1	60.47	0.23
9	Photo-controlled (150 W)	13,801	1,467	6	18	81.50	0.31
10	Flashing Light	3,600	383	1	2	191.40	0.74
11	Dutch Point Park	106	11	0	7		
	Total	**613,155**	**65,974**	**251**	**454**	**145.32**	**0.55**

•Waste 2006

Corporate Inventory

Description: Number of emplyees was taken for the month of August 2011. This number includes volunteer firefighters.

Waste to landfill (t): 19

eCO_2 Emissions (t): 9

Indicator	*Indicator Value*	*Total eCO_2/Indicator*
Number of employees	*85*	*0.11*

Department	Waste to landfill (t)
Municipal Building	2
Leisure Services	8.38
Fire Hall	2
Tourist Bureau/River Center	4.14
Works department	2.6
Total	19.12

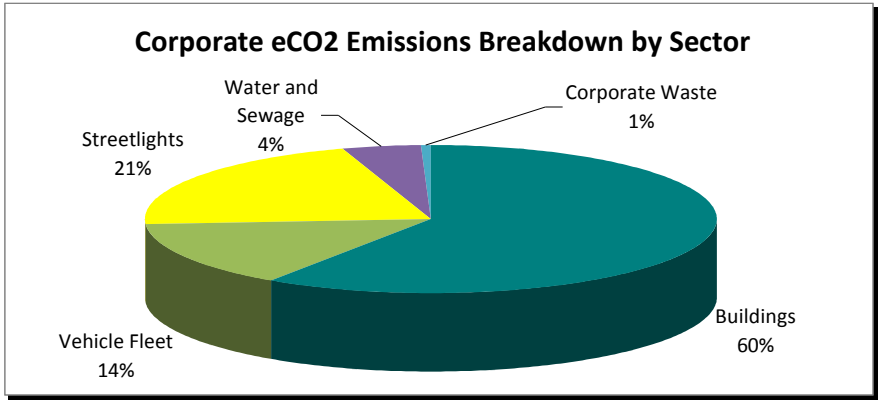
Corporate Inventory Summary 2007

Municipal government: Town of Hampton

Inventory Year: 2007

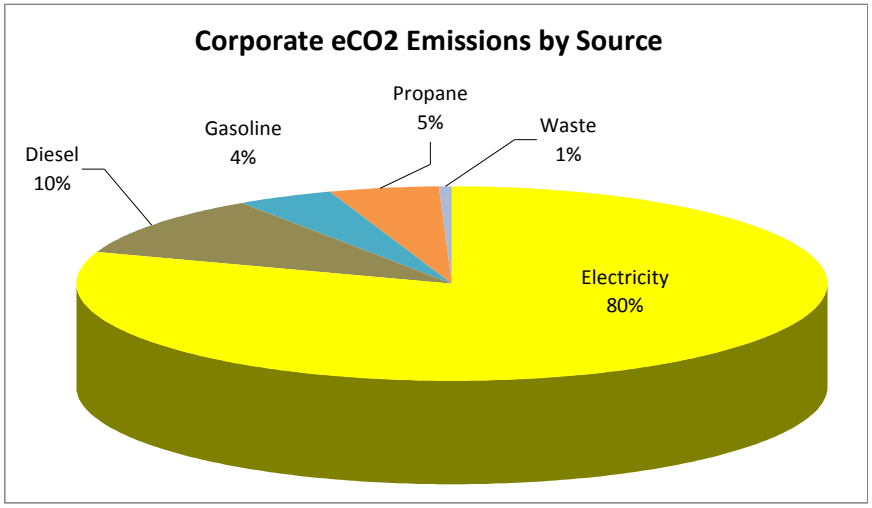
Energy Costs and eCO_2 Emissions by Sector

Sector		Total Cost ($)	Total eCO_2 (t)
Buildings		151,965	816
Vehicle Fleet		86,868	197
Streetlights		71,499	290
Water and Sewage		10,043	59
Corporate Waste		-	9
Total		**320,375**	**1,371**



Energy Costs and eCO_2 Emission by Source

Energy Type		Total Use	Total Cost ($)	Total eCO_2 (t)
Electricity		2,446,555	233,507	1,101
Natural Gas		0	0	0
CNG		0	0	0
Diesel		52,734	54,878	142
District Energy		0	0	0
Ethanol Blend (10%)		0	0	0
Biodiesel (B5)		0	0	0
Biodiesel (B10)		0	0	0
Biodiesel (B20)		0	0	0
Fuel Oil		0	0	0
Gasoline		22,285	26,746	54
Propane		42,255	32,363	65
Waste		-	-	9
Total		**-**	**347,494**	**1,371**



•Buildings 2007

Corporate Inventory

Description: *Insert comments here. (i.e. represents*

		Electricty (kWh)			Propane (L)			Indicators		Total					
ID	Building or Building Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Operating Hours	Floor Area (1000 m^2)	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)/Operating Hour	Cost ($)/$m^2$	eCO_2 (t)/Operating Hour	eCO_2 (t)/m^2
1	Equipment Depot	49,432	5,346	22					1.22632	5,346	22	#DIV/0!	4.36	#DIV/0!	0.02
2	Hampton Fire Hall	84,480	8,655	38	39,034	24,919	60		0.92996	8,655	98	#DIV/0!	9.31	#DIV/0!	0.11
3	Hampton Community Center (Arena)	1,102,911	94,526	496	2,193	2,200	3	5114	2.317	94,526	500	18.48	40.80	0.10	0.22
4	Provincial Building	186,850	19,428	84					0.90562	19,428	84	#DIV/0!	21.45	#DIV/0!	0.09
5	Centennial Building	178,200	16,715	80					0.42066	16,715	80	#DIV/0!	39.73	#DIV/0!	0.19
6	Library	45,972	4,709	21					0.1951	4,709	21	#DIV/0!	24.14	#DIV/0!	0.11
7	Tourist Bureau	4,488	510	2					0.16388	510	2	#DIV/0!	3.11	#DIV/0!	0.01
8	Tennis Court	821	95	0					0.03484	95	0	#DIV/0!	2.73	#DIV/0!	0.01
9	Railway Crescent	9,765	1,077	4						1,077	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	River Center	9,410	905	4					0.21683	905	4	#DIV/0!	4.17	#DIV/0!	0.02
	Total	**1,672,329**	**151,965**	**753**	**41,227**	**27,119**	**64**	**5114**	**6.41021**	**151964.74**	**816.205047**	**29.72**	**23.71**	**0.16**	**0.13**

Vehicle Fleet 2007

Corporate Inventory

Description: *Vehicles in red were not used in present year.*

		Gasoline (L)			Gasoline (KM))			Diesel (L)			Propane (L)			Indicators		Total					
ID	Vehicle or Vehicle Group Name	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Vehicle Kilometers	# of Vehicles	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)/km	Total Cost ($)/# of Vehicles	Total eCO_2 (t)/km	Total eCO_2 (t)/# of Vehicles
1	Personnel Vehicle Travel				18,434	6,908	5							18434		6,908	5	0.374754801	#DIV/0!	0.37	#DIV/0!
2	Zamboni										958	5,170	1		1	5,170	1	#DIV/0!	5170.22	#DIV/0!	1.48
3	Equipment Truck 96	2,279	2,293	6				330	361	1					1	2,654	6	#DIV/0!	2654.22	#DIV/0!	6.45
4	Truck 100	3,120	2,971	8				366	382	1	37	39	0		1	3,392	9	#DIV/0!	3391.72	#DIV/0!	8.65
5	Equipment Truck 104	5,976	5,836	15											1	5,836	15	#DIV/0!	5836.05	#DIV/0!	14.58
6	Truck 113	1,466	1,445	4											1	1,445	4	#DIV/0!	1444.82	#DIV/0!	3.58
7	Dump Truck 117							7,537	7,925	20					1	7,925	20	#DIV/0!	7925.03	#DIV/0!	20.23
8	Truck 120							7,059	7,432	19					1	7,432	19	#DIV/0!	7431.97	#DIV/0!	18.94
9	Equipment Truck 121	113	124	0				4,077	4,153	11					1	4,277	11	#DIV/0!	4276.78	#DIV/0!	11.22
10	Equipment Truck 2000	2,257	2,224	6											1	2,224	6	#DIV/0!	2224.42	#DIV/0!	5.51
11	Equipment Tractor	61	63	0				1,475	1,517	4					1	1,580	4	#DIV/0!	1579.62	#DIV/0!	4.11
12	Sm. Equipment & Repairs	1,662	1,739	4							10	10	0		1	1,749	4	#DIV/0!	1749.21	#DIV/0!	4.07
13	Tank # 2	2,006	2,024	5				63	67	0					1	2,090	5	#DIV/0!	2090.48	#DIV/0!	5.06
14	Tank # 6	137	129	0				1,456	1,516	4					1	1,645	4	#DIV/0!	1644.73	#DIV/0!	4.24
15	Rescue # 3	57	62	0				622	637	2					1	699	2	#DIV/0!	699.17	#DIV/0!	1.81
16	Pump # 1	8	8	0				764	779	2					1	786	2	#DIV/0!	786.33	#DIV/0!	2.07
17	Pump # 4	33	34	0				1,132	1,181	3					1	1,215	3	#DIV/0!	1215.17	#DIV/0!	3.12
18	2006 International	187	181	0				8,359	8,742	22					1	8,924	23	#DIV/0!	8923.74	#DIV/0!	22.89
19	1980 Loader	166	139	0				2,707	2,844	7					1	2,983	8	#DIV/0!	2983.21	#DIV/0!	7.67
20	Loader 2003							5,997	6,312	16					1	6,312	16	#DIV/0!	6312.43	#DIV/0!	16.09
21	Farm Tractor & Mower	158	160	0				44	46	0					1	206	1	#DIV/0!	205.82	#DIV/0!	0.50
22	Road Grader							250	232	1					1	232	1	#DIV/0!	232.25	#DIV/0!	0.67
23	Ambulance	169	159	0				10,047	10,285	27	18	19	0		1	10,464	27	#DIV/0!	10463.52	#DIV/0!	27.40
24	(Compressor)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
25	(Equipment Truck 103)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
26	Wood Chipper							187	224	1					1	224	1	#DIV/0!	223.51	#DIV/0!	0.50
27	Water Tank & Trailers	233	247	1				263	243	1	5	5	0		1	495	1	#DIV/0!	495.31	#DIV/0!	1.28
	Total	**20,086**	**19,838**	**49**	**18,434**	**6,908**	**5**	**52,734**	**54,878**	**142**	**1,027**	**5,244**	**1**	**0**	**24**	**86,868**	**197**	#DIV/0!	3619.50	#DIV/0!	8.23

•Water & Sewage 2007

Corporate Inventory

Description: *Insert comments here. (ie. represents*

		Electricty (kWh)			Total	
ID	Facility or Facility Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)	Total eCO_2 (t)
1	Sewage Lift Station	124,580	9,368	56	9,368	56
2	Fairmont Drive Lift Station	6,120	675	3	675	3
	Total	**130,700**	**10,043**	**59**	**10,043**	**59**

Streetlights 2007

Corporate Inventory

Description: *Insert comments here. (ie. represents entire streetlights portfolio)*

		Electricty (kWh)			Indicator		
ID	Streetlight Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	# of Streetlights	Total Cost ($)/Streetlight	Total eCO_2 (t)/Streetlight
1	Hampton Ballfield	13,500	1,542	6	5	308.37	1.22
2	Tennis Court (Dusk to Dawn)	1,357	151	1	1	150.84	0.61
3	Light only (100 W)	529,031	58,631	238	388	151.11	0.61
4	Light only (150 W)	7,794	864	4	4	215.93	0.88
5	Light only (200 W)	4,670	518	2	2	258.81	1.05
6	Light with concrete pole (100 W)	21,646	2,401	10	10	240.10	0.97
7	Light with wood pole (100 W)	29,730	3,298	13	17	193.98	0.79
8	Photo-controlled (100 W)	569	63	0	1	63.07	0.26
9	Photo-controlled (150 W)	13,806	1,530	6	18	85.01	0.35
10	Flashing Light	1,502	399	1	2	199.39	0.34
11	Dutch Point Park	219	24	0	7	3.43	0.01
12	Park N Ride (Dusk to Dawn)	18,657	1,961	8	1	1,961.22	8.40
13	Crosswalk	1,045	118	0		#DIV/0!	#DIV/0!
	Total	**643,526**	**71,499**	**290**	**456**	**156.80**	**0.64**

Waste 2007

Corporate Inventory

Description: Number of emplyees was taken for the month of August 2011. This number includes volunteer firefighters.

Waste to landfill (t): 19

eCO_2 Emissions (t): 9

Indicator	*Indicator Value*	*Total eCO_2 /Indicator*
Number of employees	*85.00*	*0.11*

Department	Waste to landfill (t)
Municipal Building	2
Leisure Services	8.38
Fire Hall	2
Tourist Bureau/River Center	4.14
Works department	2.6
Total	19.12

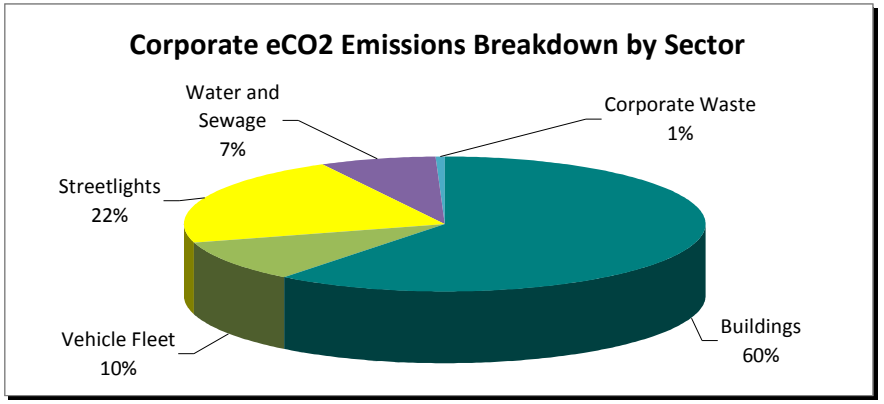
Corporate Inventory Summary 2008

Municipal government: Town of Hampton

Inventory Year: 2008

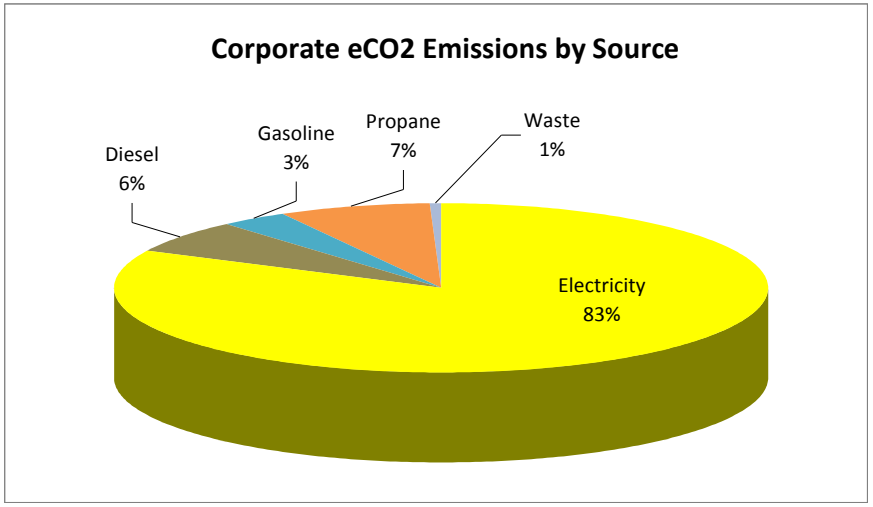
Energy Costs and eCO_2 Emissions by Sector

Sector		Total Cost ($)	Total eCO_2 (t)
Buildings		138,470	919
Vehicle Fleet		72,858	153
Streetlights		69,489	330
Water and Sewage		16,811	109
Corporate Waste		-	9
Total		**297,628**	**1,520**



Energy Costs and eCO_2 Emission by Source

Energy Type		Total Use	Total Cost ($)	Total eCO_2 (t)
Electricity		2,273,215	224,770	1,250
Natural Gas		0	0	0
CNG		0	0	0
Diesel		36,683	42,609	98
District Energy		0	0	0
Ethanol Blend (10%)		0	0	0
Biodiesel (B5)		0	0	0
Biodiesel (B10)		0	0	0
Biodiesel (B20)		0	0	0
Fuel Oil		0	0	0
Gasoline		20,056	25,669	49
Propane		43,112	25,465	114
Waste		-	-	9
Total		**-**	**318,513**	**1,520**



•Buildings 2008

Corporate Inventory

Description: *Insert comments here. (i.e.*

		Electricty (kWh)			Propane (L)			Indicators		Total					
ID	Building or Building Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Operating Hours	Floor Area (1000 m^2)	Total Cost (	Total eCO_2 (t)	Total Cost ($)/Operating Hour	Cost ($)/$m^2$	eCO_2 (t)/Operating Hour	eCO_2 (t)/m^2
1	Equipment Depot	47,945	5,308	26	15,986	8,514	44		1.23	5,308	70	#DIV/0!	4.33	#DIV/0!	0.06
2	Hampton Fire Hall	79,540	8,329	44	21,469	11,230	59		0.93	8,329	102	#DIV/0!	8.96	#DIV/0!	0.11
3	Hampton Community Center (Arena)	949,576	84,449	522	2,077	1,140	6	5114	2.32	84,449	528	16.51	36.45	0.10	0.23
4	Provincial Building	159,300	16,073	88					0.91	16,073	88	#DIV/0!	17.75	#DIV/0!	0.10
5	Centennial Building	140,000	13,572	77					0.42	13,572	77	#DIV/0!	32.26	#DIV/0!	0.18
6	Library	32,742	3,514	18					0.20	3,514	18	#DIV/0!	18.01	#DIV/0!	0.09
7	Tourist Bureau	3,730	425	2					0.16	425	2	#DIV/0!	2.59	#DIV/0!	0.01
8	Tennis Court	1,316	146	1					0.03	146	1	#DIV/0!	4.20	#DIV/0!	0.02
9	Railway Crescent	7,910	897	4						897	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	River Center	53,120	5,757	29					0.22	5,757	29	#DIV/0!	26.55	#DIV/0!	0.13
	Total	**1,475,179**	**138,470**	**811**	**39,532**	**20,885**	**108**	**5114**	**6.41**	**138470.28**	**919.4738**	**27.08**	**21.60**	**0.18**	**0.14**

•Vehicle Fleet 2008

.

Description: *Vehicles listed in red were not used in present year.*

		Gasoline (L)			Gasoline (KM))			Diesel (L)			Propane (L)			Indicators		Total					
ID	Vehicle or Vehicle Group Name	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Vehicle Kilometers	# of Vehicles	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)/km	Total Cost ($)/# of Vehicles	Total eCO_2 (t)/km	Total eCO_2 (t)/# of Vehicles
1	Personnel Vehicle Travel				14,744	6,233	4							18434		6,233	4	0.34	#DIV/0!	0.34	#DIV/0!
2	Zamboni										3,534	4,532	5		1	4,532	5	#DIV/0!	4532.11	#DIV/0!	5.46
3	Equipment Truck 96	2,045	2,148	5											1	2,148	5	#DIV/0!	2147.54	#DIV/0!	4.99
4	Truck 100	3,037	3,257	7				145	202	0					1	3,459	8	#DIV/0!	3458.74	#DIV/0!	7.80
5	Equipment Truck 104	3,132	3,244	8											1	3,244	8	#DIV/0!	3243.54	#DIV/0!	7.64
6	Truck 113	1,966	2,226	5							16	17	0		1	2,243	5	#DIV/0!	2242.73	#DIV/0!	4.82
7	Dump Truck 117	479	389	1				1,270	1,267	3					1	1,655	5	#DIV/0!	1655.48	#DIV/0!	4.58
8	Truck 120							6,446	7,732	17					1	7,732	17	#DIV/0!	7731.8	#DIV/0!	17.30
9	Equipment Truck 121	330	340	1				3,496	4,436	9	30	32	0		1	4,808	10	#DIV/0!	4808.47	#DIV/0!	10.23
10	Equipment Truck 2000	2,264	2,520	6											1	2,520	6	#DIV/0!	2519.89	#DIV/0!	5.52
11	Equipment Tractor	270	319	1				1,563	1,722	4					1	2,040	5	#DIV/0!	2040.44	#DIV/0!	4.85
12	Sm. Equipment & Repairs	1,213	1,564	3											1	1,564	3	#DIV/0!	1564.32	#DIV/0!	2.96
13	Tank # 2	952	1,138	2				24	27	0					1	1,165	2	#DIV/0!	1164.85	#DIV/0!	2.39
14	Tank # 6	213	164	1				1,061	1,450	3					1	1,614	3	#DIV/0!	1614.44	#DIV/0!	3.37
15	Rescue # 3	375	352	1				747	916	2					1	1,268	3	#DIV/0!	1268.03	#DIV/0!	2.92
16	Pump # 1	174	155	0				566	780	2					1	935	2	#DIV/0!	935	#DIV/0!	1.94
17	Pump # 4	214	209	1				1,616	2,136	4					1	2,345	5	#DIV/0!	2344.95	#DIV/0!	4.86
18	2006 International							8,192	9,663	22					1	9,663	22	#DIV/0!	9662.6	#DIV/0!	21.98
19	1980 Loader	66	54	0				4,176	3,432	11					1	3,486	11	#DIV/0!	3485.96	#DIV/0!	11.37
20	Loader 2003	656	543	2				5,103	6,405	14					1	6,948	15	#DIV/0!	6947.91	#DIV/0!	15.29
21	Farm Tractor & Mower	110	148	0											1	148	0	#DIV/0!	148.41	#DIV/0!	0.27
22	Road Grader	245	193	1				718	789	2					1	981	3	#DIV/0!	981.19	#DIV/0!	2.53
23	(Ambulance)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
24	Compressor							260	369	1					1	369	1	#DIV/0!	369	#DIV/0!	0.70
25	(Equipment Truck 103)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
26	Wood Chipper	250	169	1				126	145	0					1	314	1	#DIV/0!	314.28	#DIV/0!	0.95
27	Water Tank & Trailers	84	113	0				127	144	0					1	257	1	#DIV/0!	256.63	#DIV/0!	0.55
28	2009 International	225	194	1				1,046	993	3					1	1,187	3	#DIV/0!	1186.59	#DIV/0!	3.36
	Total	**18,297**	**19,435**	**45**	**14,744**	**6,233**	**4**	**36,683**	**42,609**	**98**	**3,580**	**4,581**	**6**	**0**	**25**	**72,858**	**153**	#DIV/0!	2914.33	#DIV/0!	6.12

•Water & Sewage 2008

Corporate Inventory

Description: *Insert comments here. (ie. represents*

		Electricty (kWh)			Total	
ID	Facility or Facility Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)	Total eCO_2 (t)
1	Sewage Lift Station	139,250	10,465	77	10,465	77
2	Fairmont Drive Lift Station	7,560	858	4	858	4
3	Dutch Point (Sewer)	51,490	5,488	28	5,488	28
	Total	**198,300**	**16,811**	**109**	**16,811**	**109**

Streetlights 2008

Corporate Inventory

Description: *Lights listed in red were not used in present year.*

		Electricty (kWh)			Indicator		
ID	Streetlight Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	# of Streetlights	Total Cost ($)/Streetlight	Total eCO_2 (t)/Streetlight
1	Hampton Ballfield	7,740	881	4	5	176.16	0.85
2	Tennis Court (Dusk to Dawn)	1,301	150	1	1	150.05	0.72
3	Light only (100 W)	505,823	58,629	278	390	150.33	0.71
4	Light only (150 W)	7,430	861	4	4	215.28	1.02
5	Light only (200 W)	4,452	516	2	2	258.02	1.22
6	Light with concrete pole (100 W)	20,295	2,352	11	10	235.23	1.12
7	Light with wood pole (100 W)	30,607	3,547	17	18	197.08	0.94
8	Photo-controlled (100 W)	2,252	264	1	7	37.65	0.18
9	Photo-controlled (150 W)	13,170	1,526	7	18	84.80	0.40
10	Flashing Light	3,601	418	2	2	208.80	0.99
11	Dutch Point Park	247	28	0	7	4.01	0.02
12	(Crosswalk)			0			
13	Main Street Lights	2,819	317	2	6	52.78	0.26
	Total	**599,736**	**69,489**	**330**	**470**	**147.85**	**0.70**

Waste 2008

Corporate Inventory

Description: Number of emplyees was taken for the month of August 2011. This number includes volunteer firefighters.

Waste to landfill (t): 19

eCO_2 Emissions (t): 9

Indicator	*Indicator Value*	*Total eCO_2/Indicator*
Number of employees	*85.00*	*0.11*

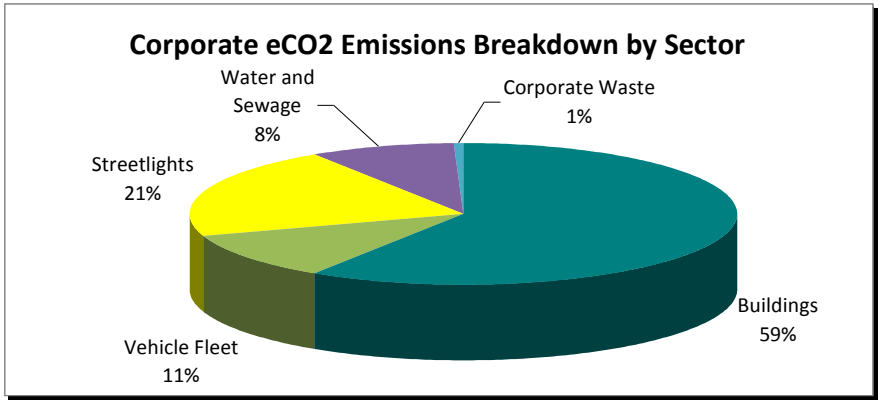
Department	Waste to landfill (t)
Municipal Building	2
Leisure Services	8.38
Fire Hall	2
Tourist Bureau/River Center	4.14
Works department	2.6
Total	19.12

•Corporate Inventory Summary 2009

Municipal government: Town of Hampton
Inventory Year: 2009

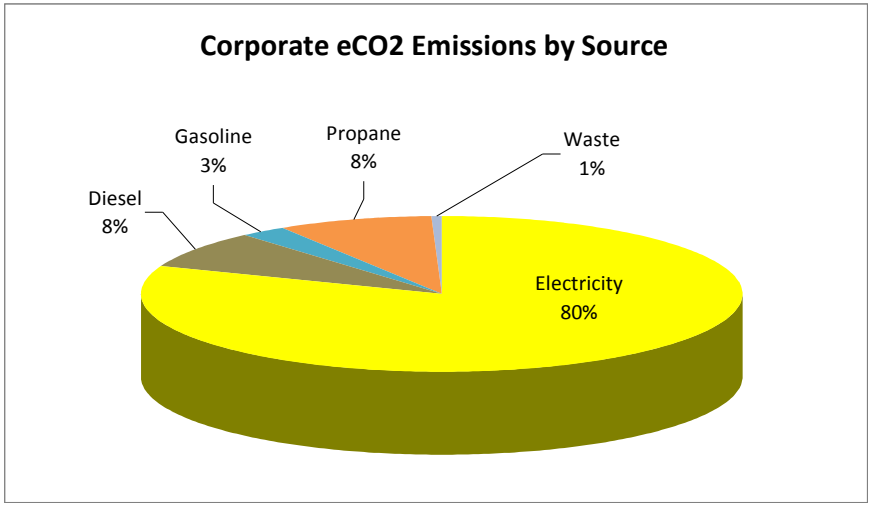
Energy Costs and eCO_2 Emissions by Sector

Sector		Total Cost ($)	Total eCO_2 (t)
Buildings		165,435	941
Vehicle Fleet		70,181	172
Streetlights		71,867	330
Water and Sewage		20,449	135
Corporate Waste		-	9
Total		**327,932**	**1,587**



Energy Costs and eCO_2 Emission by Source

Energy Type		Total Use	Total Cost ($)	Total eCO_2 (t)
Electricity		2,330,392	233,955	1,282
Natural Gas		0	0	0
CNG		0	0	0
Diesel		45,737	41,983	123
District Energy		0	0	0
Ethanol Blend (10%)		0	0	0
Biodiesel (B5)		0	0	0
Biodiesel (B10)		0	0	0
Biodiesel (B20)		0	0	0
Fuel Oil		0	0	0
Gasoline		16,933	21,078	41
Propane		58,798	30,916	132
Waste		-	-	9
Total		**-**	**327,932**	**1,587**



Buildings 2009

Corporate Inventory

Description: *Insert comments here. (i.e. represents*

		Electricty (kWh)			Propane (L)			Diesel (L)			Indicators		Total					
ID	Building or Building Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Total Use	Total Cost ($)	Total eCO_2 (t)	Operating Hours	Floor Area (1000 m^2)	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)/Operating Hour	Cost ($)/$m^2$	eCO_2 (t)/Operating Hour	eCO_2 (t)/m^2
1	Equipment Depot	48,261	5,428	27	18,141	8,683	28	449	234	1		1.22632	14,345	56	#DIV/0!	11.70	#DIV/0!	0.05
2	Hampton Fire Hall	84,240	8,964	46	33,109	13,924	91					0.92996	22,888	137	#DIV/0!	24.61	#DIV/0!	0.15
3	Hampton Community Center (Arena)	966,549	87,623	532	1,681	956	5				5114	2.317	88,579	536	17.32	38.23	0.10	0.23
4	Provincial Building	164,730	16,505	91								0.90562	16,505	91	#DIV/0!	18.23	#DIV/0!	0.10
5	Centennial Building	130,080	13,082	72								0.42066	13,082	72	#DIV/0!	31.10	#DIV/0!	0.17
6	Library	27,642	3,039	15								0.1951	3,039	15	#DIV/0!	15.58	#DIV/0!	0.08
7	Tourist Bureau	3,504	410	2								0.16388	410	2	#DIV/0!	2.50	#DIV/0!	0.01
8	Tennis Court	326	38	0								0.03484	38	0	#DIV/0!	1.09	#DIV/0!	0.01
9	Railway Crescent	8,595	997	5									997	5	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	River Center	50,760	5,553	28								0.21683	5,553	28	#DIV/0!	25.61	#DIV/0!	0.13
	Total	**1,484,687**	**141,639**	**817**	**52,931**	**23,562**	**123**	**449**	**234**	**1**	**5114**	**6.41021**	**165435.22**	**941.00**	**32.35**	**25.81**	**0.18**	**0.15**

Vehicle Fleet 2009

Corporate Inventory

Description: *Vehicles listed in red were not used in present year.*

		Gasoline (L)			Gasoline (KM))			Diesel (L)			Propane (L)			Indicators		Total					
ID	Vehicle or Vehicle Group Name	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Vehicle Kilometers	# of Vehicles	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)/km	Total Cost ($)/# of Vehicles	Total eCO_2 (t)/km	Total eCO_2 (t)/# of Vehicles
1	Personnel Vehicle Travel				17,845	7,883	5							18434		7,883	5	0.43	#DIV/0!	0.43	#DIV/0!
2	Zamboni										5,851	7,338	9		1	7,338	9	#DIV/0!	7338	#DIV/0!	9.03
3	Equipment Truck 96	1,005	884	2				424	378	1					1	1,262	4	#DIV/0!	1262	#DIV/0!	3.59
4	Truck 100	4,333	3,798	11				737	681	2					1	4,479	13	#DIV/0!	4479	#DIV/0!	12.55
5	(Equipment Truck 104)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	Truck 113	340	325	1											1	325	1	#DIV/0!	325.4	#DIV/0!	0.83
7	Dump Truck 117	550	499	1				4,887	4,284	13					1	4,783	14	#DIV/0!	4782.86	#DIV/0!	14.45
8	Truck 120	812	676	2				5,174	4,776	14					1	5,452	16	#DIV/0!	5451.93	#DIV/0!	15.86
9	Equipment Truck 121	88	69	0				2,180	1,973	6					1	2,042	6	#DIV/0!	2042.22	#DIV/0!	6.06
10	Equipment Truck 2000	1,417	1,310	3											1	1,310	3	#DIV/0!	1309.8	#DIV/0!	3.46
11	Equipment Tractor	308	269	1				1,840	1,687	5					1	1,956	6	#DIV/0!	1955.56	#DIV/0!	5.69
12	Sm. Equipment & Repairs	875	831	2				52	51	0					1	881	2	#DIV/0!	881.4	#DIV/0!	2.27
13	Tank # 2	570	496	1				134	126	0					1	622	2	#DIV/0!	622.2	#DIV/0!	1.75
14	Tank # 6	535	474	1				910	835	2					1	1,309	4	#DIV/0!	1308.75	#DIV/0!	3.75
15	Rescue # 3	109	103	0				251	234	1	16	16	0		1	353	1	#DIV/0!	352.97	#DIV/0!	0.96
16	Pump # 1	213	185	1				501	472	1					1	657	2	#DIV/0!	657.1	#DIV/0!	1.86
17	Pump # 4	562	489	1				746	689	2					1	1,179	3	#DIV/0!	1178.7	#DIV/0!	3.37
18	2006 International	996	920	2				10,185	9,542	27					1	10,462	30	#DIV/0!	10462	#DIV/0!	29.76
19	1980 Loader	109	81	0				1,660	1,514	4					1	1,595	5	#DIV/0!	1595.34	#DIV/0!	4.72
20	Loader 2003	419	380	1				4,950	4,511	13					1	4,891	14	#DIV/0!	4891.37	#DIV/0!	14.30
21	Farm Tractor & Mower	139	126	0											1	126	0	#DIV/0!	126	#DIV/0!	0.34
22	Road Grader	101	97	0				1,594	1,493	4					1	1,590	5	#DIV/0!	1590	#DIV/0!	4.52
23	(Ambulance)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
24	Compressor	100	90	0				30	28	0					1	118	0	#DIV/0!	118	#DIV/0!	0.32
25	(Equipment Truck 103)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
26	Wood Chipper							32	29	0					1	29	0	#DIV/0!	29	#DIV/0!	0.09
27	(Water Tank & Trailers)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
28	2009 International	947	847	2				7,877	7,409	21					1	8,256	23	#DIV/0!	8255.82	#DIV/0!	23.45
29	2003 Dodge Truck	60	54	0				110	97	0					1	152	0	#DIV/0!	151.77	#DIV/0!	0.44
30	New Dodge Truck	217	190	1				1,014	941	3					1	1,131	3	#DIV/0!	1131.36	#DIV/0!	3.25
	Total	**14,804**	**13,195**	**36**	**17,845**	**7,883**	**5**	**45,288**	**41,749**	**122**	**5,867**	**7,354**	**9**	**0**	**25**	**70,181**	**172**	#DIV/0!	2807.24	#DIV/0!	6.88

•Water & Sewage 2009

Corporate Inventory

Description: *Insert comments here. (ie. represents*

		Electricty (kWh)			Total	
ID	Facility or Facility Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)	Total eCO_2 (t)
1	Sewage Lift Station	180,360	13,121	99	13,121	99
2	Fairmont Drive Lift Station	10,030	1,166	6	1,166	6
3	Dutch Point (Sewer)	54,860	6,162	30	6,162	30
	Total	**245,250**	**20,449**	**135**	**20,449**	**135**

Streetlights 2009

Corporate Inventory

Description: *Lights listed in red were not used in present year.*

		Electricty (kWh)			Indicator		
ID	Streetlight Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	# of Streetlights	Total Cost ($)/Streetlight	Total eCO_2 (t)/Streetlight
1	Hampton Ballfield	11,700	1,216	6	5	243.20	1.29
2	Tennis Court (Dusk to Dawn)	1,269	152	1	1	152.00	0.70
3	Light only (100 W)	501,415	60,187	276	398	151.22	0.69
4	Light only (150 W)	7,266	872	4	4	218.03	1.00
5	Light only (200 W)	4,354	523	2	2	261.50	1.20
6	Light with concrete pole (100 W)	19,848	2,382	11	10	238.20	1.09
7	Light with wood pole (100 W)	29,923	3,592	16	18	199.53	0.91
8	Photo-controlled (100 W)	3,716	446	2	7	63.71	0.29
9	Photo-controlled (150 W)	12,881	1,546	7	18	85.89	0.39
10	Flashing Light	3,601	432	2	2	216.00	0.99
11	Dutch Point Park	245	28	0	7	4.00	0.02
12	(Crosswalk)			0			
13	Main Street Lights	4,237	491	2	6	81.83	0.39
	Total	**600,455**	**71,867**	**330**	**478**	**150.35**	**0.69**

Waste 2009

Corporate Inventory

Description: Number of emplyees was taken for the month of August 2011. This number includes volunteer firefighters.

Waste to landfill (t): 19

eCO_2 Emissions (t): 9

Indicator	*Indicator Value*	*Total eCO_2 /Indicator*
Number of employees	*85.00*	*0.11*

Department	Waste to landfill (t)
Municipal Building	2
Leisure Services	8.38
Fire Hall	2
Tourist Bureau/River Center	4.14
Works department	2.6
Total	19.12

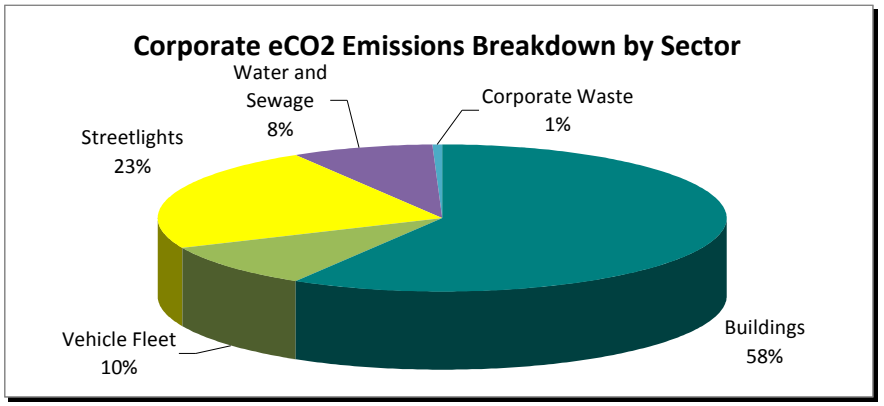
•Corporate Inventory Summary 2010

Municipal government: Town of Hampton

Inventory Year: 2010

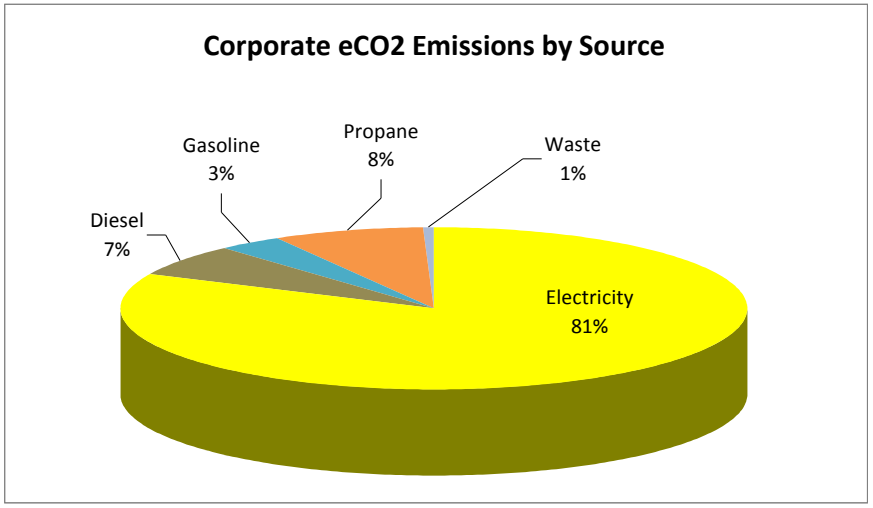
Energy Costs and eCO_2 Emissions by Sector

Sector		Total Cost ($)	Total eCO_2 (t)
Buildings		169,374	797
Vehicle Fleet		59,561	129
Streetlights		78,042	313
Water and Sewage		19,015	109
Corporate Waste		-	9
Total		**325,992**	**1,357**



Energy Costs and eCO_2 Emission by Source

Energy Type		Total Use	Total Cost ($)	Total eCO_2 (t)
Electricity		2,423,720	244,915	1,120
Natural Gas		0	0	0
CNG		0	0	0
Diesel		33,288	34,234	89
District Energy		0	0	0
Ethanol Blend (10%)		0	0	0
Biodiesel (B5)		0	0	0
Biodiesel (B10)		0	0	0
Biodiesel (B20)		0	0	0
Fuel Oil		0	0	0
Gasoline		18,734	24,147	46
Propane		45,240	26,868	104
Waste		-	-	9
Total		**-**	**330,164**	**1,368**



•Buildings 2010

Corporate Inventory

Description: *Insert comments here. (i.e. represents*

	Electricty (kWh)			Propane (L)			Diesel (L)			Indicators		Total					
Building or Building Group Name	**Total Use**	**Total Cost ($)**	**Total eCO_2 (t)**	**Total Use**	**Total Cost ($)**	**Total eCO2 (t)**	**Total Use**	**Total Cost ($)**	**Total eCO_2 (t)**	**Operating Hours**	**Floor Area (1000 m^2)**	**Total Cost ($)**	**Total eCO_2 (t)**	**Total Cost ($)/Operating Hour**	**Cost ($)/$m^2$**	**eCO_2 (t)/Operating Hour**	**eCO_2 (t)/m^2**
Equipment Depot	42,644	4,965	20	12,201	6,439	19	1,036	662	3		1.22632	12,066	41	#DIV/0!	9.84	#DIV/0!	0.03
Hampton Fire Hall	80,800	8,905	37	26,635	13,349	73					0.92996	22,254	110	#DIV/0!	23.93	#DIV/0!	0.12
Hampton Community Center (Arena)	988,619	92,005	457	1,622	1,066	4				5114	2.317	93,071	461	18.20	40.17	0.09	0.20
Provincial Building	165,890	17,276	77								0.90562	17,276	77	#DIV/0!	19.08	#DIV/0!	0.08
Centennial Building	122,280	12,762	56								0.42066	12,762	56	#DIV/0!	30.34	#DIV/0!	0.13
Library	45,263	4,996	21								0.1951	4,996	21	#DIV/0!	25.61	#DIV/0!	0.11
Tourist Bureau	6,964	833	3								0.16388	833	3	#DIV/0!	5.08	#DIV/0!	0.02
Tennis Court	344	43	0								0.03484	43	0	#DIV/0!	1.23	#DIV/0!	0.00
Railway Crescent	8,910	1,059	4									1,059	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
River Center	48,420	5,014	22			0			0		0.21683	5,014	22	#DIV/0!	23.12	#DIV/0!	0.10
Total	**1,510,134**	**147,858**	**698**	**40,458**	**20,854**	**96**	**1,036**	**662**	**3**	**5114**	**6.41021**	**169374**	**796.6983541**	**33.12**	**26.42**	**0.16**	**0.12**

•Vehicle Fleet 2010

Corporate Inventory

Description: *Vehicles listed in red are no longer in use.*

		Gasoline (L)			Gasoline (KM))			Diesel (L)			Propane (L)			Indicators		Total					
ID	Vehicle or Vehicle Group Name	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2	Total Use	Total Cost ($)	Total eCO2 (t)	Total Use	Total Cost ($)	Total eCO2 (t)	Vehicle Kilometers	# of Vehicles	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)/km	Total Cost ($)/# of Vehicles	Total eCO_2 (t)/km	Total eCO_2 (t)/# of Vehicles
1	Personnel Vehicle Travel				16,264	7,170	5							16264		7,170	5	0.44	#DIV/0!	0.440850959	#DIV/0!
2	Zamboni										4,782	6,014	7		1	6,014	7	#DIV/0!	6014	#DIV/0!	7.38
3	Truck 569 (Equipment Truck 96)	1,300	1,256	3				19	19	0					1	1,275	3	#DIV/0!	1275	#DIV/0!	3.22
4	Truck 550 (Truck 100)	1,141	1,192	3				3,652	3,794	10					1	4,986	13	#DIV/0!	4986	#DIV/0!	12.58
5	(Equpment Truck 104)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	Truck 551 (Truck 113)	542	545	1				5,162	5,507	14					1	6,052	15	#DIV/0!	6052	#DIV/0!	15.17
7	Truck 554 (Dump Truck 117)	1,491	1,515	4				4,130	4,345	11					1	5,860	15	#DIV/0!	5860	#DIV/0!	14.72
8	(Truck 120)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	Truck 560 (Equipment Truck 121)	279	276	1				2,066	2,097	6					1	2,373	6	#DIV/0!	2373	#DIV/0!	6.22
10	Truck 572 (Equipment Truck 2000)	439	461	1				2,355	2,380	6					1	2,841	7	#DIV/0!	2841	#DIV/0!	7.39
11	Tractor 529 (Equipment Tractor)	258	262	1				1,303	1,313	3					1	1,575	4	#DIV/0!	1575	#DIV/0!	4.13
12	Motorized Equipment (Sm. Equipment & Repai	29	29	0											1	29	0	#DIV/0!	29	#DIV/0!	0.07
13	Tank #2	133	124	0											1	124	0	#DIV/0!	124	#DIV/0!	0.32
14	Tank #6	95	89	0				401	409	1					1	498	1	#DIV/0!	498	#DIV/0!	1.31
15	Rescue #3	187	186	0				302	309	1					1	495	1	#DIV/0!	495	#DIV/0!	1.27
16	Pumper #4 (Pump # 1)	145	143	0				302	300	1					1	443	1	#DIV/0!	443	#DIV/0!	1.16
17	Tank #1 (Pump # 4)	578	596	1				1,891	1,922	5					1	2,518	6	#DIV/0!	2518	#DIV/0!	6.48
18	Truck 563 (2006 International)	545	519	1											1	519	1	#DIV/0!	519	#DIV/0!	1.33
19	Loader 536 (1980 Loader)	859	1,045	2				4,094	4,396	11					1	5,441	13	#DIV/0!	5441	#DIV/0!	13.08
20	Loader 533 (Loader 2003)	252	240	1				359	357	1					1	597	2	#DIV/0!	597	#DIV/0!	1.58
21	Tractor/Mower 527 (Farm Tractor & Mower)							355	346	1					1	346	1	#DIV/0!	346	#DIV/0!	0.95
22	Grader 557 (Road Grader)	475	481	1				407	464	1					1	945	2	#DIV/0!	945	#DIV/0!	2.25
23	(Ambulance)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
24	(Compressor)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
25	(Equipment Truck 103)															0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
26	Woodchipper 339							21	24	0					1	24	0	#DIV/0!	24	#DIV/0!	0.06
27	Equipment (Water Tank & Trailers)	1,188	1,170	3				115	116	0					1	1,286	3	#DIV/0!	1286	#DIV/0!	3.21
28	Truck 566 (2009 International)	1,922	1,891	5											1	1,891	5	#DIV/0!	1891	#DIV/0!	4.69
29	Truck #5 (2003 Dodge Truck)	96	93	0											1	93	0	#DIV/0!	93	#DIV/0!	0.23
30	Truck 573 (New Dodge Truck)	1,388	1,338	3				35	35	0					1	1,373	3	#DIV/0!	1373	#DIV/0!	3.48

Water & Sewage 2010

Corporate Inventory

Description: *Insert comments here. (ie. represents*

		Electricty (kWh)			Total	
ID	Facility or Facility Group Name	Total Use	Total Cost ($)	Total eCO_2 (t)	Total Cost ($)	Total eCO_2 (t)
1	Sewage Lift Station	182,680	13,238	84	13,238	84
2	Fairmont Drive Lift Station	7,590	901	4	901	4
3	Dutch Point (Sewer)	46,150	4,876	21	4,876	21
	Total	**236,420**	**19,015**	**109**	**19,015**	**109**

Streetlights 2010

Corporate Inventory

Description: *Lights listed in red were not used in present year.*

ID	Streetlight Group Name	Electricty (kWh) Total Use	Total Cost ($)	Total eCO_2 (t)	Indicator # of Streetlights	Total Cost ($)/Streetlight	Total eCO_2 (t)/Streetlight
1	Hampton Ballfield	5,850	704	3	5	140.80	0.54
2	Tennis Court (Dusk to Dawn)	1,268	156	1	1	156.00	0.59
3	Light only (100 W)	551,018	62,547	255	402	155.59	0.63
4	Light only (150 W)	6,661	818	3	4	204.50	0.77
5	Light only (200 W)	4,355	536	2	2	268.00	1.01
6	Light with concrete pole (100 W)	19,855	2,442	9	10	244.20	0.92
7	Light with wood pole (100 W)	61,248	7,552	28	37	204.11	0.76
8	Photo-controlled (100 W)	3,717	457	2	7	65.29	0.25
9	Photo-controlled (150 W)	12,877	1,584	6	18	88.00	0.33
10	Flashing Light	2,901	356	1	2	178.00	0.67
11	Dutch Point Park	246	29	0	7	4.14	0.02
12	(Crosswalk)			0			
13	Main Street Lights	5,251	624	2	6	104.00	0.40
14	Light with wood pole (200 W)	1,919	237	1	1	237.00	0.89
	Total	**677,166**	**78,042**	**313**	**502**	**155.46**	**0.62**

Waste 2010

Corporate Inventory

Description: Number of emplyees was taken for the month of August 2011. This number includes volunteer firefighters.

Waste to landfill (t): 19

eCO_2 Emissions (t): 9

Indicator	*Indicator Value*	*Total eCO_2 /Indicator*
Number of employees	*85.00*	*0.11*

Department	Waste to landfill (t)
Municipal Building	2
Leisure Services	8.38
Fire Hall	2
Tourist Bureau/River Center	4.14
Works department	2.6
Total	19.12

APPENDIX B

VEHICLE FLEET MASTER LIST
2006-2010

VEHICLE FLEET - MASTER LIST				
ID	2007	2008	2009	2010
1	Personnel Vehicle Travel	Personnel Vehicle Travel	Personnel Vehicle Travel	Personnel Vehicle Travel
2	Zamboni	Zamboni	Zamboni	Zamboni
3	Equipment Truck 96	Equipment Truck 96	Equipment Truck 96	Truck 569 (Equipment Truck 96)
4	Truck 100	Truck 100	Truck 100	Truck 550 (Truck 100)
5	Equipment Truck 104	Equipment Truck 104		
6	Truck 113	Truck 113	Truck 113	Truck 551 (Truck 113)
7	Dump Truck 117	Dump Truck 117	Dump Truck 117	Truck 554 (Dump Truck 117)
8	Truck 120	Truck 120	Truck 120	Truck 557 (Truck 120)
9	Equipment Truck 121	Equipment Truck 121	Equipment Truck 121	Truck 560 (Equipment Truck 121)
10	Equipment Truck 2000	Equipment Truck 2000	Equipment Truck 2000	Truck 572 (Equipment Truck 2000)
11	Equipment Tractor	Equipment Tractor	Equipment Tractor	Tractor 529 (Equipment Tractor)
12	Sm. Equipment & Repairs	Sm. Equipment & Repairs	Sm. Equipment & Repairs	Motorized Equipment (Sm. Equipment & Repairs)
13	Water Tank & Trailers	Water Tank & Trailers		Equipment (Water Tank & Trailers)
14	Tank # 2	Tank # 2	Tank # 2	Tank #2
15	Tank # 6	Tank # 6	Tank # 6	Tank #6
16	Rescue # 3	Rescue # 3	Rescue # 3	Rescue #3
17	Pump # 1	Pump # 1	Pump # 1	Pumper # 4 (Pump # 1)
18	Pump # 4	Pump # 4	Pump # 4	Tank # 1 (Pump # 4)
19	2006 International	2006 International	2006 International	Truck 563 (2006 International)
20	1980 Loader	1980 Loader	1980 Loader	Loader 536 (1980 Loader)
21	Loader 2003	Loader 2003	Loader 2003	Loader 533 (Loader 2003)
22	Farm Tractor & Mower	Farm Tractor & Mower	Farm Tractor & Mower	Tractor/mower 527
23	Road Grader	Road Grader	Road Grader	Grader 557
24	Wood Chipper	Wood Chipper	Wood Chipper	Woodchipper 339
25	Ambulance			
26		Compressor	Compressor	
27		2009 International	2009 International	Truck 566 (2009 International)
28			2003 Dodge Truck	Truck # 5 (2003 Dodge Truck)
29			New Dodge Truck	Truck 573 (New Dodge Truck)
30				Sweeper (Cat)
31				Truck 590
32				Truck 591
33				Tractor 528
34				Sweeper 545
35				Pumper #2
36				Rescue #7
37				Chiefs Truck (Fire Department)

APPENDIX C

DETAILED EMISSIONS AND COST INFORMATION FOR INDIVIDUAL MUNICIPAL VEHICLES 2006-2010

		2006		2007		2008		2009		2010	
ID	Vehicle	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)	eCO_2 (t)	Cost ($)
1	Personal Vehicles	6	7,669	5	6,908	4	6,233	5	7,883	5	7,170
2	Zamboni	2	6,129	1	5,170	5	4,532	9	7,338	7	6,014
3	Truck 569 (Equipment Truck 96)	6	2,711	6	2,654	5	2,148	4	1,262	3	1,275
4	Truck 550 (Truck 100)	9	3,842	9	3,392	8	3,459	13	4,479	13	4,986
5	Equipment Truck 104	8	3,037	15	5,836	8	3,244	-	-	-	-
6	Truck 551 (Truck 113)	7	2,670	4	1,445	5	2,243	1	325	15	6,052
7	Truck 554 (Dump Truck 117)	10	3,933	20	7,925	5	1,655	14	4,783	15	5,860
8	Truck 557 (Truck 120)	10	3,808	19	7,432	17	7,732	16	5,452	-	-
9	Truck 560 (Equipment Truck 121)	10	3,860	11	4,277	10	4,808	6	2,042	6	2,373
10	Truck 572 (Equipment Truck 2000)	5	2,193	6	2,224	6	2,520	3	1,310	7	2,841
11	Tractor 529 (Equipment Tractor)	4	1,486	4	1,580	5	2,040	6	1,956	4	1,575
12	Motorized Equipment (Sm. Equipment & Repairs)	4	1,738	4	1,749	3	1,564	2	881	0	29
13	Equipment (Water Tank & Trailers)	-	-	1	495	1	257	-	-	3	1,286
14	Tank #2	5	2,014	5	2,090	2	1,165	2	622	0	124
15	Tank #6	3	1,321	4	1,645	3	1,614	4	1,309	1	498
16	Rescue #3	2	922	2	699	3	1,268	1	353	1	495
17	Pumper # 4 (Pump # 1)	2	797	2	786	2	935	2	657	1	443
18	Tank # 1 (Pump # 4)	5	1,866	3	1,215	5	2,345	3	1,179	6	2,518
19	Truck 563 (2006 International)	2	667	23	8,924	22	9,663	30	10,462	1	519
20	Loader 536 (1980 Loader)	4	1,610	8	2,983	11	3,486	5	1,595	13	5,441
21	Loader 533 (Loader 2003)	8	3,046	16	6,312	15	6,948	14	4,891	2	597
22	Tractor/mower 527	0	187	1	206	0	148	0	126	1	346
23	Grader 557	1	301	1	232	3	981	5	1,590	2	945
24	Woodchipper 339	-	-	1	224	1	314	0	29	0	24
25	Ambulance	28	10,665	27	10,464	-	-	-	-	-	-
26	Compressor	0	145	-	-	1	369	0	118	-	-
27	Equipment Truck 103	13	4,999	-	-	-	-	-	-	-	-
28	Truck 566 (2009 International)	-	-	-	-	3	1,187	23	8,256	5	1,891
29	Truck # 5 (2003 Dodge Truck)	-	-	-	-	-	-	0	152	0	93
30	Truck 573 (New Dodge Truck)	-	-	-	-	-	-	3	1,131	3	1,373
31	Sweeper (Cat)	-	-	-	-	-	-	-	-	12	4,793
32	Truck 590	-	-	-	-	-	-	-	-	2	745
33	Truck 591	-	-	-	-	-	-	-	-	3	1,065
34	Tractor 528	-	-	-	-	-	-	-	-	1	474
35	Sweeper 545	-	-	-	-	-	-	-	-	0	136
36	Pumper #2	-	-	-	-	-	-	-	-	3	1,351
37	Rescue #7	-	-	-	-	-	-	-	-	0	77
38	Chiefs Truck (Fire Department)	-	-	-	-	-	-	-	-	1	324
	TOTAL	154	71,616	197	86,868	153	72,858	172	70,181	140	63,733
	TOTAL # OF VEHICLES	25		25		26		26		33	

APPENDIX D

DATA COMPILATION GUIDE

DATA COMPILATION GUIDE

One of the challenges of creating and updating a corporate GHG inventory is data acquisition. A suggested guide to compiling data has been developed to assist with that process and is outlined below.

MAIN FILES TO LOOK FOR:

- Superior Propane, NB Power and Irving Oil
- Go through ALL folders in case some files were misplaced (ex: an Irving Oil file was placed in the "I" folder instead of the "Irving Oil" folder).
- If Travel logs do not have their own folder, go through all files and pull out any travel logs and record the total amount of km traveled and how much it costs

SUPERIOR PROPANE:

- Record BULK PROPANE and FULL CYLINDERS. Do NOT record any rented equipment or empty cylinders
- Record the amount in L for bulk propane (usually for the fire department or Parks garage) and how much it costs (all fees included). Make sure to also record which department the propane is for
- Record the number of cylinders, the weight of the cylinder (ex: 33 pounds) and total cost (all fees included)
- Call Superior propane and ask how many L the tank of said weight can hold, then multiply the total number of cylinders by the volume which one cylinder can hold (this will give you your final volume in L)
- Cylinders of propane are used for the ZAMBONI in the Arena
- Once data is compiled on a separate spreadsheet, total the volume of propane (in L) used in each department, and enter the total volume and total cost into the emissions calculator spreadsheet provided by PCP. Be certain that information is inserted in the correct area (e.g.: Fire Department and Parks Garage will be in the Building section while the Zamboni will be under Vehicle Fleet).

NB POWER:

- FOR ELECTRICITY BILLS OF BUILDINGS:
    - Record the total current use of kWh (Kilowatt-hour)
    - Record charges for electricity you use only, sometimes this is broken down into sections depending on the amount of kilowatt-hours used. These must be added together to get the total cost.
    - Record which building is being billed
    - Enter total cost and total kWh used into spreadsheet in the building section beside the appropriate building

    - Note that the Sewage Lift Station, Fairmount Drive Lift Station and the Dutch point Sewage should be recorded under the Water & Sewage sector.

- FOR ELECTRICITY BILLS OF STREETLIGHTS/ BALLFIELDS
    - Need to go through these bills and record the price for each different category of streetlights BY MONTH.
    - Then divide each price by however many cents one Kilowatt-hour costs for that month (this price can be found under “About your Unmetered services” on each invoice)
    - This will give you the amount of Kilowatt-hours that was used in that category of street lights for that month
    - Add up the calculated Kilowatt-hours and price for each month in a certain category and enter these numbers in the spreadsheet under the “Streetlights” section.

IRVING OIL:

- The bill is broken up into card transactions
- Record the types of fuel (gas, diesel, propane, etc), the quantity in L and how much it costs for each card
- To know which vehicle each card is used for, match the final price of the card with the corresponding price on the summary page (the page with the descriptions and codes for vehicles) this will tell you which vehicle this card was used for
- Total all 12 months of this information for the same vehicle
- Then enter the total volume of whichever type of fuel was used (sometimes there will be more than one type) in L and the final cost corresponding to the appropriate vehicle in the “Vehicle Fleet” section.

WASTE:

Waste must be estimated based on how many garbage bags are produced per week, and how heavy on average one garbage bag is. Contact the heads of the Works department, Leisure Services, Fire Hall, Municipal building and the Tourist Bureau/River Center to obtain this information for each department.

APPENDIX E

EMISSIONS REDUCTION RECOMMENDATIONS

EMISSIONS REDUCTION RECOMMENDATIONS

Recommendations have been identified to assist the Town with future GHG reduction efforts:

Vehicle fleet

- Future purchase or lease of vehicles/equipment should be based, in part, on fuel type and efficiency. Consideration should be given to hybrid and/or multi - fuel vehicles where practical
- Tire pressure on all town vehicles should be checked on a regular basis to ensure maximum fuel efficiency.
- The Town should take steps to become bicycle friendly by sweeping sand and gravel off the sides of the roadways on a regular basis, patching holes and cracks and washouts along the edges of paved roadways rather than just the part where cars normally drive and repairing/raising sunken culverts so that they present less of a hazard to cyclists.
- One component of the Town website should include a place to post opportunities to carpool or share rides.
- Properly maintaining vehicles through regular oil and fuel filter changes, tune-ups and properly inflated tires saves you money by prolonging vehicle life and increasing fuel efficiency.

Waste

- The Town should continue and consider expanding its yard waste collection and composting program. Reducing trips to the landfill reduces CO2 emissions and the town ends up with a valuable resource that it would otherwise have to purchase and transport.
- Efforts should be made locally to increase the participation rate in the municipal compost collection program. Up to 40% of the average household waste is compostable. A quick survey on garbage day (done by the local crow/dog population) generally turns up material which could be better composted.
- The Town could look at alternative waste collection models for ways to reduce municipal waste and increase recycling efforts. By placing a limit on the number of bags of garbage which would be picked up “free” of charge on garbage day and charging for additional bags, the Town could recover some of its costs and at the same time encourage recycling and composting. A tagging system for garbage bags is used in other jurisdictions to achieve this goal.

- The Town can adopt a policy to buy products made from recycled material whenever possible. In most cases, while the purchase price may be higher, the energy costs for production and thus the CO2 emissions produced in the manufacturing process are lower.
- Activities such as the Town wide yard sale every summer provide an excellent opportunity for recycling/reuse of a wide range of items. Adding an event such as a swap fair or a “get it free day” should be considered. University towns have been doing this successfully on an informal basis for years.

Buildings

- The municipality can work with the other levels of government to ensure that residents have ready knowledge of and access to grant programs for energy efficiency.
- The municipality can continue to provide educational opportunities for homeowners through events such as the Hampton Envirofair
- The municipality can provide leadership in any future municipal building projects by including the use of green building practices as part of the tender document and ensuring that whatever structures are built are as energy efficient as possible.
- Any new commercial buildings be encouraged to incorporate carbon neutral heating and cooling devices - e.g. heat recovery systems, air to air or water to air heat exchangers, passive or active solar options.
- Improve windows – conventional windows account for 25% of heat loss in most homes. The efficiency of all window types can be improved by similar investments in caulking, weather stripping and improved glazing.

Wastewater

- Rain barrels: collect and store water runoff from downspouts and gutters for non-potable water use such as flushing toilets, washing clothing or vehicles and watering gardens or lawns. Businesses can save money by reducing their water bill.
- Install aerators and low flow shower heads - Aerating faucets and shower heads mix air with the water stream to maintain water pressure while using less water. Aerators are inexpensive and easy to install and can save large amounts of water and hot water.

Lighting

- Switch to high efficiency lighting – High efficiency lighting and improved lighting design can reduce electrical costs and greenhouse gas emissions. Switching to compact fluorescent or LED lighting also reduces the amount of heat generated by light bulbs, lowering air conditioning costs in the summer.