



REGIONAL MUNICIPALITY OF YORK
CORPORATE GREENHOUSE GAS INVENTORY
AND
LOCAL ACTION PLAN

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November 17, 2004

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1 BACKGROUND

In July 2002 the Region of York contracted ICLEI Energy Services (IES) to prepare a Corporate Greenhouse Gas (GHG) Emissions Inventory and Local Action Plan. This report is a summary of those findings.

2 INTRODUCTION – GHG EMISSIONS ANALYSIS

The GHG emissions analysis summarized in this report was done in part for the Region to meet their commitments in the Partners for Climate Protection (PCP). PCP is a national program implemented by the Federation of Canadian Municipalities and ICLEI that brings Canadian municipal governments together to reduce the local production of greenhouse gas (GHG) emissions and improve quality of life. Currently, over 110 municipal governments belong to PCP and over 570 municipalities participate in ICLEI's program internationally. The Region joined the PCP in 2002.

PCP Members follow a five-milestone process:

- ◆ Milestone One: Take Stock
 - ◆ Complete a GHG inventory and forecast. PCP provides software to measure energy use and emissions for both municipal operations and the community. Use 1994 or the year with the best available data for the base year; forecast energy use and emissions for the next 10 or 20 years for municipal operations and the community.
- ◆ Milestone Two: Set a Reduction Target
 - ◆ Establish a reduction target. Preferred targets are 20 per cent reduction in GHG emissions from municipal operations, and a minimum six per cent reduction for the community, both within 10 years of joining PCP.
- ◆ Milestone Three: Develop a Local Action Plan
 - ◆ Develop and finalize a local action plan that aims to reduce emissions and energy use in municipal operations and the community.
- ◆ Milestone Four: Implement the Plan
 - ◆ Create strong collaboration between municipal government and community partners to carry through on commitments and maximize benefits from GHG reductions.
- ◆ Milestone Five: Measure Progress
 - ◆ Maintain support by monitoring, verifying and reporting greenhouse gas reductions.

IES's GHG emissions analysis consists of three parts: Milestone One, Two and Three.

Milestone One is a GHG emissions inventory, which involves a summary, analysis and forecast of the energy consumption, energy costs, landfilled waste and the corresponding GHG emissions.

A typical PCP Milestone One report would include a community and corporate sections. The community section focuses in on the GHG emissions of the residential, commercial, industrial, transportation and community waste sectors and the corporate section centers on municipal buildings, vehicle fleet, streetlights, water and sewage operations and municipally produced waste. Under the PCP protocol, the regional governments don't have community sectors per se. The responsibility for completely community GHG analyses for the residents living with the Region falls upon the local area municipalities. Therefore, Milestone One for the Region of York only includes the corporate sector.

Milestones Two and Three do not need to be done in order, in fact many municipalities choose to design their Local Action Plans before they set an emissions reduction target to ensure the target is attainable. The Local Action Plan in this report is a summary of GHG measures that can lead the Region towards reducing GHG emissions. Ultimately, the GHG emission impact of measures is combined and analyzed in order to recommend a GHG reduction target.

2.1 METHODOLOGY

At the on-set of this project an interdepartmental team of Regional staff were brought together to develop a plan of action (Appendix A). The departments represented on the team were chosen because they were necessary for the collection of data or they were involved in activities that related to the GHG analysis directly or indirectly. The following departments were on the team:

- Community Services and Housing
- Finance
- Health Services
- Police
- Corporate Services
- Transportation and Works

One of the first tasks for the team was to determine the years for which IES would perform the GHG Emissions Inventory. A major factor to be considered when choosing an inventory year is the availability of energy consumption data from which to calculate GHG emissions. A thorough analysis of the state of historic data availability within the Region led the team to choose the year 2000. It was resolved that attempting to collect data for any years before 2000 would require large amounts of staff time that would likely prove unsuccessful since complete records were not routinely kept.

The team also decided that natural gas and vehicle fuel consumption data would be derived using departmental energy costs for 2000 provided by the Finance department. With energy costs data, energy consumption can be estimated where the average energy costs are known. Subsequently, the GHG emissions can be calculated based on GHG emissions coefficients for each unit of energy. With the data supplied in this manor, IES was able to calculate GHG emissions at the departmental level. This methodology is considered a 'top-down' approach to data collection, whereas a 'bottom-up' approach would involve summarizing data from each facility or fleet vehicle. A bottom-up approach allows for a much more detailed analysis, but it also requires much more time and effort dedicated to data collection. The team resolved that the results of the top-down approach would suit their needs and where more a more detailed analysis was required

for a specific sector or department it would be used to supplement the inventory produced by the top-down approach.

Once this inventory project was already underway, the Region started to develop its online Energy & Environmental Management System (EEMS). The staff working on the EEMS were gathering energy use information for the Region and tracking it in an online database. The team resolved that it would be most beneficial to the inventory project to use the information collected for the EEMS as the basis for GHG calculations (a switch from the top-down approach to the bottom-up approach). Therefore, the inventory project was put on hold while staff developed the EEMS and passed the information on to ICLEI. The earliest year with complete data was 2001, therefore it was used in place of 2000 data for the analysis. GHG emissions were calculated based on the consumption data provided via the EEMS and the 2000 GHG emissions coefficient for Ontario's provincial electricity grid¹.

¹ 2000 electricity GHG emissions coefficient = 3.14E-4 t/kWh (includes the 3 major GHGs, carbon dioxide, nitrous oxide and methane).

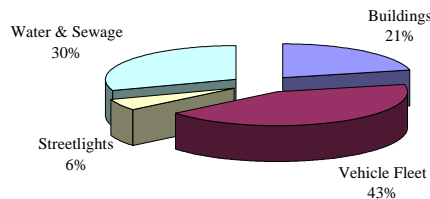
3 INVENTORY SUMMARY

Table 1 displays a summary of the Region's corporate energy consumption, GHG emissions and energy costs according to sectors. In total, 614,838 GJ² (gigajoules) of energy were consumed within corporate operations, costing over \$11 million and emitting over 46,000 t (tonnes) of GHG emissions. A detailed analysis of the contributions from each sector is provided in subsequent sections of this report.

Table 1 - 2001 Inventory Summary

Sector	Energy (GJ)	Costs (\$)	GHG (t)
Buildings	143,802	1,625,677	9,899
Vehicle Fleet	281,331	5,448,840	19,636
Streetlights	29,560	725,154	2,582
Water & Sewage	160,145	3,496,381	13,988
Total	614,838	11,296,051	46,105

Figure A – 2001 GHG Emission by Sector



Forty-three percent of the GHG emissions from municipal operations were from fuel use in the vehicle fleets, while 30% was from water and sewage operations, 21% were from buildings, and 6% were from streetlighting.

Figure B - 2001 Energy & Cost by Sector

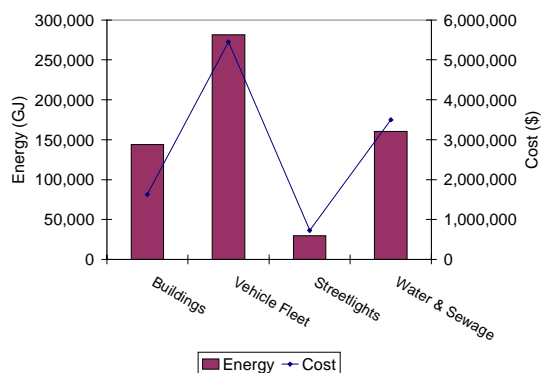


Figure B illustrates that the vehicle fleet sector uses the largest portion of energy and subsequent energy costs. The vehicle fleet consumed over 280,000 GJ of energy and cost over \$5.4 million. Buildings and water and sewage operations used 143,802 GJ and 160,145 GJ of energy respectively and cost over \$1.6 million and \$3.4 million each. Streetlighting's impact is quite small in comparison, using only 29,560 GJ of energy and costing just over \$725,000.

² The gigajoule (GJ) is the standard unit of energy in electronics and general scientific applications. One joule is defined as the amount of energy exerted when the force of one newton is applied over a displacement of one meter.

4 BUILDINGS

Table 3 displays the electricity and natural gas consumption, GHG emissions and energy cost data for all the municipal buildings within the Region. In 2001, the Region's buildings used 20,463,608 kWh³ (kilowatt hours) of electricity, costing \$1,580,179 and resulting in 6,435 t of GHG emissions. Natural gas consumption in the Regions buildings amounted to 1,842,688 cum⁴, costing \$270,963, and resulting in 3,464 t of GHG emissions.

Table 2 - 2001 Building Sector Summary by Fuel Type

Energy Type	Energy (kWh or cum)	Energy (GJ)	Cost (\$)	GHG (t)
Electricity (kWh)	20,463,608	73,669	1,580,179	6,435
Natural Gas (cum)	1,842,688	70,133	270,963	3,464
Total		143,802	1,851,142	9,899

Figure C - Building Sector GHG Breakdown by Energy Type

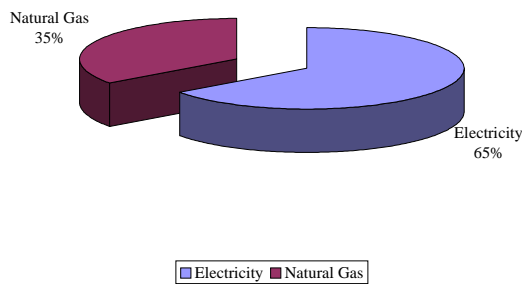


Figure C illustrates the breakdown of building related GHG emissions by energy type. Electricity usage was responsible for 65% of the total building sector's emissions while natural gas consumption was responsible for 35%.

Figure D - Building Sector Energy & Cost by Energy Type

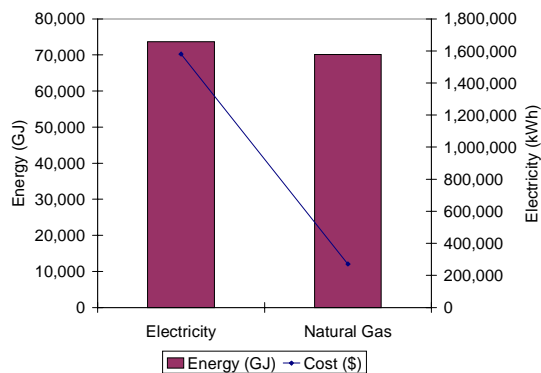


Figure D demonstrates that while the electricity and natural gas provide close to the same amount of GJ of energy, natural gas does so much more cost efficiently. For the 73,669 GJ of electricity used in the building sector, the related cost was nearly \$1.6 million (21.45 \$/GJ or 0.08 \$/kWh). Natural gas delivered 70,133 GJ of energy for nearly 1/6th the cost (\$45,498) (3.86\$/GJ or 0.15\$/cum).

³ The kilowatt-hour (kWh) is a unit of energy equivalent to one kilowatt (1 kW) of power expended for one hour.

⁴ The cubic meter (CUM) is a unit of volume commonly used in natural gas measurements.

4.1 BUILDINGS – DEPARTMENTAL ANALYSIS

The electricity consumption information was available at a departmental level, which facilitated a departmental analysis of energy consumption, costs and GHG emissions. Natural gas could not be included in this analysis since the consumption information was not available at the departmental level.

Table 3 and Table 4 display the total departmental electricity consumption costs and GHG emissions. The final three columns of Table 4 demonstrate the percentage allocation of electricity consumption, costs and GHG emissions to each department. In total, the Region's buildings used 73,669 GJ of electricity in 2001, with \$1.58 million in costs and 6,435 t of GHG emissions.

Some of the department names were shortened simply due to space limitations. They are defined as follows:

- CS & H – Community Services & Housing
- CS – Corporate Services
- P & D – Planning & Development
- T & W – Transportation & Works
- Health – Health Services

Table 3 – 2001 Building Electricity by Department

Department	Electricity		
	Energy (kWh)	Cost (\$)	GHG (t)
CS & H	3,795,709	307,735	1,194
CS	6,493,244	497,068	2,042
Finance	379,981	28,660	119
Health	3,736,386	278,864	1,175
P & D	126,657	9,553	40
Police	3,539,441	277,491	1,113
T & W	2,392,190	180,808	752
Total	20,463,608	1,580,179	6,435

Table 4 - 2001 Building Electricity Summary

Department	Energy (GJ)	Cost (\$)	GHG (t)	Energy (%)	Cost (%)	GHG (%)
CS & H	13,665	307,735	1,194	19%	19%	19%
CS	23,376	497,068	2,042	32%	31%	32%
Finance	1,368	28,660	119	2%	2%	2%
Health	13,451	278,864	1,175	18%	18%	18%
P & D	456	9,553	40	1%	1%	1%
Police	12,742	277,491	1,113	17%	18%	17%
T & W	8,612	180,808	752	12%	11%	12%
Total	73,669	1,580,179	6,435	100%	100%	100%

Figure E - Building Electricity GHG Emissions by Department

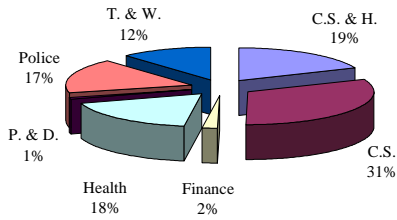
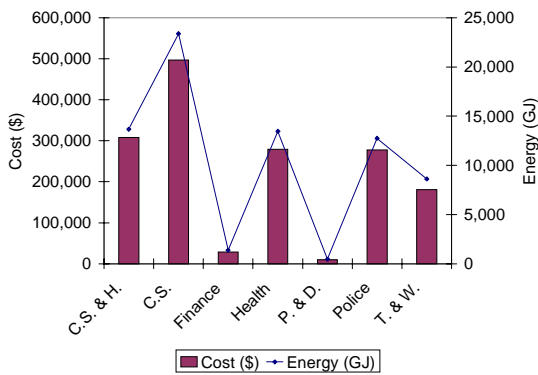


Figure E illustrates the electricity GHG emissions breakdown by department. The four largest emitters of GHGs were Corporate Services, Community Services and Health, Health, and Police at 34%, 19%, 18% and 17% respectively.

Figure F - Building Electricity & Costs by Department



Thirty-two percent (23,376 GJ) of the electricity consumed was from the Corporate Services department, as illustrated in the line and the right y-axis on Figure F. The bar and the left y-axis illustrate that Corporate Services also had the highest energy costs, at \$497,068 (31%). Community Services & Health, Health and the Police departments shared the next level of energy consumption and costs.

5 VEHICLE FLEET

Table 5 summarizes the total costs, energy consumption and GHG emissions from all the vehicles within the Region's vehicle fleet. Included are Transportation and Works (T&W), police, Emergency Medical Services (EMS), transit, as well as staff's personal vehicles used for Regional purposes.

In total, 5.4 million was spent of vehicular energy use within the Region, amounting to over 19,000 t of GHG emissions.

Table 5 - 2001 Vehicle Fleet Summary

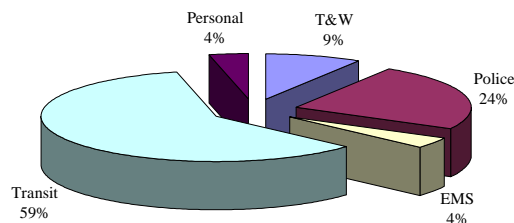
Sub-Sector	Cost (\$)	Energy (GJ)	GHG (t)
T&W	463,598	25,301	1,757
Police	1,340,000	69,008	4,703
EMS	187,687	10,712	752
Transit	2,270,025	165,669	11,697
Personal	1,187,530	10,641	726
Total	5,448,840	281,331	19,636

Table 6 contains the costs, consumption and GHG emissions for each sub-sector and each fuel type. It demonstrates that the majority of the GHG emissions result from diesel use. Gasoline use is significant in the Region's profile, and propane use accounts for only a small fraction.

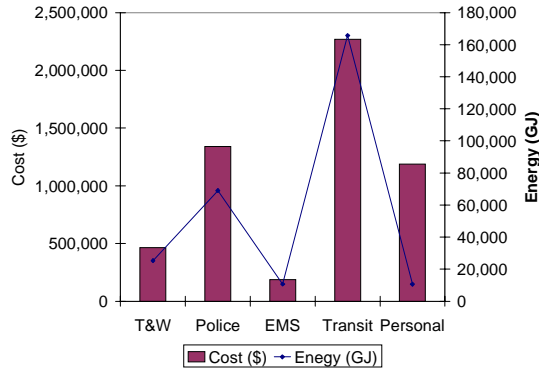
Table 6 - 2001 Vehicle Fleet Summary data by Fuel Type

	Gasoline			Diesel			Propane		
	Cost (\$)	Energy (L)	GHG (t)	Cost (\$)	Energy (L)	GHG (t)	Cost (\$)	Energy (L)	GHG (t)
T&W	99,198	127,090	300	323,745	496,112	1,355	40,655	66,841	102
Police	1,340,000	1,991,000	4,703						
EMS	33,370	46,167	109	154,317	235,572	643			
Transit				2,270,025	4,283,065	11,697			
Personal	1,187,530	307,019	726						
Total	2,660,098	2,471,276	5,838	2,748,087	5,014,749	13,695	40,655	66,841	102

Figure G- Vehicle Fleet GHG Emissions by Sub-Sector



Fifty-nine percent of the vehicle fleet's GHG emissions were from transit vehicles, followed by 24% from Police, 9% from T&W, and 4% from both EMS and Personal vehicles.

Figure H - Vehicle Fleet Energy Costs & Consumption by Sub-Sector

Transit vehicles accounted for the majority of energy costs (\$2.3 million) and consumption (165,669 GJ). Emergency Medical Services accounted for the smallest amount of energy costs (\$187,687) and consumption (10,712 GJ).

The personal vehicles appear to be the most inefficient when comparing the overall costs to the amount of energy used. However, the costs analyzed for personal vehicles included the total amount reimbursed to staff members,

which is intended to cover more than just energy costs (i.e. deterioration and insurance).

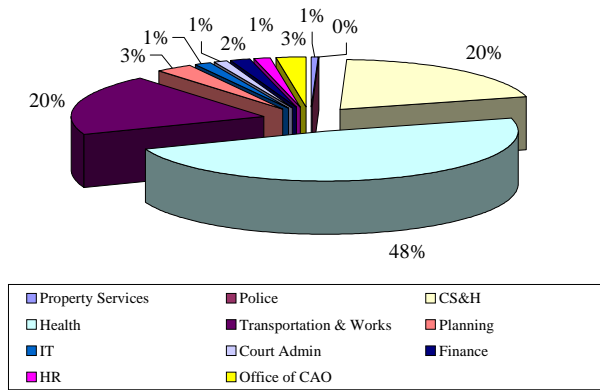
Therefore, to evenly compare the efficiencies between sub-sectors, only the energy costs should be considered.

Table 7 displays the personal vehicle travel allowance data by department. In total, nearly \$1.2 million in reimbursements were distributed by the Region for the use of personal vehicles for Regional purposes. This is the result of an estimated 307,019 L of gasoline use amounting to 726 t of GHG emissions.

Table 7 - 2001 Personal Vehicle Travel Allowance Summary

Department	Gasoline (L)	Energy (GJ)	GHG (t)	Cost (\$)
Property Services	1,613	56	4	\$6,238
Police	487	17	1	\$1,883
CS&H	61,811	2,142	146	\$239,082
Health	148,825	5,158	352	\$575,645
Transportation & Works	60,161	2,085	142	\$232,699
Planning	9,807	340	23	\$37,934
IT	4,209	146	10	\$16,281
Court Admin	3,374	117	8	\$13,051
Finance	4,639	161	11	\$17,942
HR	4,162	144	10	\$16,098
Office of CAO	7,931	275	19	\$30,677
Total	307,019	10,641	726	1,187,530

Figure I - Travel Allowance Breakdown by Sub-Sector



Nearly half (48%) of the travel allowance was distributed to the Health department, followed by 20% for Police and 20% for Com. Services & Housing. The rest of the departments fall between 0% and 3%.

5.1 VEHICLE FLEET – PCP METHODOLOGY

Under the methodology used in the Partners for Climate Protection (PCP), transit vehicles would fall under the community inventory rather than the corporate inventory. The rationale behind this is that transit services the needs of the broader community and any measures to reduce transportation and transit related GHG emissions within the community would have to involve the public. In this sense, GHG emissions associated with transit are not under full control of the municipality, and should therefore fall to the community. GHG emissions that are within the control of the municipality are reserved for the corporate inventory; building, water & sewage, streetlighting and corporate waste.

The vehicle fleet analysis summarized in the section above included the Region’s transit fleet at the request of the Region. Below is a summary of the Region’s fleet analysis without the transit fleet, which is in-line with the PCP reporting requirements.

Table 8 summarizes the energy costs, consumption and GHG emissions for the Region’s vehicle fleet (without transit vehicles). In total, 115,662 GJ of energy was used, costing over \$3.1 million and resulting in 7,938 t of GHG emissions.

Table 8 - 2001 Vehicle Fleet Summary Without Transit

	Cost (\$)	Consumption (GJ)	GHG (t)
T&W	463,598	25,301	1,757
Police	1,340,000	69,008	4,703
EMS	187,687	10,712	752
Personal	1,187,530	10,641	726
Total	3,178,815	115,662	7,938

Figure J - Vehicle Fleet GHG Breakdown Without Transit

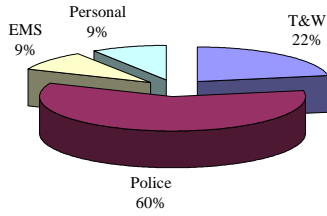


Figure J illustrates that the Police department was responsible for 60% of the Region’s vehicle fleet emissions. Transportation and Works vehicles causes 22% and personal and Emergency Medical Services vehicles causes 9% each.

Figure K - Vehicle Fleet Energy & Cost Breakdown Without Transit

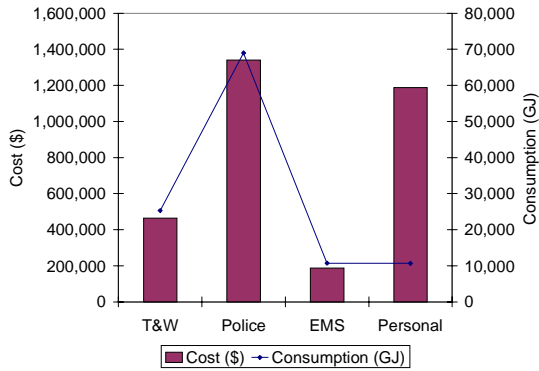


Figure K demonstrates that the Police department vehicles use the most fuel and have the highest fuel costs. Personal vehicles also have high costs, but it must be noted that the costs presented here are the total reimbursement costs, which reflect not only fuel costs, but also insurance and deterioration.

6 STREETLIGHTS

Table 9 displays the 2001 energy consumption, GHG emissions and energy cost data for all the streetlighting the Region provides. The Region is responsible for the traffic signals and intersection illumination at 518 intersections. The local municipalities within the Region are responsible for the streetlighting on the roads within their boundaries, therefore their energy consumption and associated GHG emissions should be accounted for in their own GHG reporting.

In total, the Region used 8,210,973 kWh of electricity to power streetlightings in 2001. This came at a cost of \$725,154 (average rate of 0.09\$/kWh) and resulted in 2,582 t of GHG emissions.

Table 9 - 2001 Streetlighting Summary

Streetlights	Electricity (kWh)	Cost (\$)	GHG (t)
All Intersections	8,210,973	725,154	2,582

7 WATER & SEWAGE

Table 10 displays the 2001 water and sewage data, representing the electricity, costs and GHG emissions associated with running the Region's water and sewage facilities, including both regular function of the buildings and the processing of the water and sewage. In total, 44,484,724 kWh of electricity were used, resulting in \$3,496,381 in costs and 13,988 in GHG emissions.

Table 10 – 2001 Water & Sewage Summary

Water & Sewage	Electricity (kWh)	Cost (\$)	GHG (t)
All facilities	44,484,724	3,496,381	13,988

8 MEASURES ANALYSIS

The Measures Analysis section provides a summary of the impact of historic and future GHG reduction activities, a.k.a. measures. It is necessary to know the impact or expected impact of measures in order to set a GHG reduction target that is feasible yet challenging. Some of the measures summarized in this analysis are currently being implemented by the Region, while others are potential measures IES is suggesting the Region could implement as part of their Local Action Plan to meet their GHG reduction target.

In order to gain a better understanding of the Region's future GHG emissions, three different GHG emission forecast scenarios were developed: **Business As Usual (BAU)**, **Conservative**, and **Optimistic**, based on:

- projected growth in population and corporate operations
- effectiveness of historic and current GHG emission reduction initiatives implemented by the Region
- effectiveness of GHG emission reduction initiatives implemented by other municipalities and corporations

Table 11 summarizes the annual GHG emission reductions from the different measures the Region is currently implementing or could implement in the future. The tonnes of reductions under the Conservative and Optimistic scenarios are presented separately. Following Table 11 is a description of each measure and an explanation of how the emission reductions were estimated. The Current Measures summary also includes a brief description of some of the initiatives the Region is part of that do not necessarily have quantifiable emission reductions attributed to them.

Table 11 - Conservative & Optimistic Measures Forecast Summary

Measure	Conservative Forecast	Optimistic Forecast
	--- Estimated Annual GHG Reductions (t) ---	
<i>Current</i>		
Green Fleet & Auto Trip Reduction Plan	1,150	1,530
LED Retrofit & Replacement Program	1,070	1,380
Building Energy Feasibility Studies	870	3,050
<i>Future</i>		
Water & Sewage Facility & Process Improvements	2,200	5,540
Total	5,290	11,500

8.1 CURRENT MEASURES

8.1.1 AUTO TRIP REDUCTION PLAN

The Region is developing an automobile reduction plan that will explore ways of reducing automobile use and dependency within the corporation and the community at large. They currently provide Regional employees with subsidized transit fares in the amount of 50%, offer compressed work weeks, and are investigating a carpooling initiative to be approved by council.

The Region is also leading the Smart Commute Initiative in partnership with GTA municipalities and the City of Hamilton. The Smart Commute Initiative proposes a new organization to promote transportation demand management practices and reduce greenhouse gas emissions from transportation across the region. At the core of the proposal are the establishments of GTA-wide carpooling, vanpooling and care sharing programs along with a string of TMAs across the GTA.

The Region also works with The Black Creek Regional Transportation management Association (BCRTMA) to assist in the development and implementation of transportation management solutions within the community.

This measure was not incorporated into the forecast for the Region's corporate target because the impact of the measures will be seen in the community-at-large GHG emission profile.

8.1.2 GREEN FLEETS PLAN

The Region's Green Fleet's Plan investigates use of alternative fuels, operating and maintenance procedures in Regional vehicles in the Police, Emergency Medical Services and Transportation and Works Departments. Components of the plan have yet to be implemented.

Municipal green fleet and trip reduction programs commonly demonstrate successes GHG reductions of 15% to 20%. The Conservative Forecast was estimated at 15%, or 1,150 t of GHG reductions in vehicle fleet emissions and the Optimistic Forecast applies a 20%, or 1,530 t reduction in GHG emissions.

8.1.3 LED RETROFIT & REPLACEMENT PROGRAM

The Region has authorized a \$4.7 million program to install new energy efficient light emitting diode (LED) traffic signals. The LED Retrofit installation began in 2003 that will see existing incandescent traffic signals upgraded over the next three years. LED signals are easy to maintain, provide greater signal visibility and use up to 90 per cent less energy to operate. At a 90% improvement in efficiency it is expected that the LED program will save 4.4 million kWh of electricity a year, which amounts to approximately \$436,000 in annual energy cost savings (a 6-year payback period) and 1,380 t of annual GHG emissions. A more modest 75% improvement in efficiency was applied to the conservative forecast.

8.1.4 BUILDING ENERGY FEASIBILITY STUDIES

The Region has received funding from the Federation of Canadian Municipalities (FCM) Green Municipal Enable Fund (GMEF) to implement a series of building and energy audits over a three-year period. The audits will lead to the creation of a building condition inventory and an asset renewal strategy to support increased expenditures on equipment, operations and building components. A host of innovative energy efficient and environmentally responsible technologies will be considered.

Since this project is still in the feasibility stage, it is difficult to predict the specific outcomes related to energy consumption and GHG emissions. However, performance improvements of at least 35% are targeted. Therefore, as an estimate, the Optimistic Forecast applies a 35% decrease in building related GHG emissions and the Conservative Forecast applies a more modest 10% decrease.

8.1.5 CORPORATE SMOG ALERT RESPONSE PLAN (SARP)

A Smog Alert Response Plan (SARP), Corporate Actions and Expanded Notification will be developed by the Corporate Clean Air Task Force. Existing Health Services activities are in place

to ensure that in the event of a smog alert, the public is notified and recommended anti-smog actions are considered. The SARP will help to reduce York Region's contribution to poor air quality while providing potential solutions for improving air quality. Before the GHG reductions of such a plan can be estimated there would need to be research into the effectiveness of the warning system on citizen's transportation habits. Therefore, the effects of the Corporate Smog Alert Response Plan has not been modeled for the Conservative or Optimistic Forecasts.

8.1.6 WATER FOR TOMORROW PROGRAM

The Water for Tomorrow Program is the Region's Long Term Water Strategy to improve water use efficiency. It commenced in July of 1998 and is designed to save 19 million litres of water per day within 8 years (2006). As of November 2002, the Program has saved an estimated 13.5 million litres of water per day. The savings to date represent the average daily demand of 50,900 people or 14,550 households⁵.

8.1.7 GREEN PROCUREMENT

The Region's Green Procurement Plan incorporates the procurement of environmentally friendly products and services into the Region's purchasing by-law. It is part of the Corporate Clean Air Steering Committee's initiatives under the Health Services Department. This plan will be formalized through the Corporate Clean Air Task Force. York Region applies the Governments Incorporating Procurement Policies to Eliminate Refuse (G.I.P.P.E.R.'s) Guide to Environmental Purchasing, 3rd edition when purchasing goods and services. G.I.P.P.E.R.'s goal is to investigate, develop and promote effective government purchasing policies and practices that will contribute to continued reductions in waste generation and have least harmful affects on the environment.

8.1.8 OPTIMIZE WORKS

Following an external review, the Water and Wastewater Branch implemented the "OPTimize Works" program. The name was derived from the three principle concepts driving the project: Organization, Practices and Technology. The intent of the program is to identify the current practices of the Region's operations and maintenance functions and compare them to industry best practices and develop an implementation program that takes advantage of any opportunities that would contribute to the improvement of services and delivery performance.

8.1.9 GTA CLEAN AIR COUNCIL

The Region is a founding member of the Greater Toronto Area Clean Air Council (GTA-CAC). The Council is an inter-governmental working group with a mission to help reduce smog across the GTA. Its history began with the June 2000 Smog Summit where all three levels of government committed to new individual and joint clean air actions through the signing of the Intergovernmental Declaration on Clean Air. On June 21, 2004, political representatives from all levels of government convened to sign the Inter-governmental Declaration on Clean Air at the 5th annual Smog Summit committing GTA-CAC members to new clean air actions in an ongoing effort to improve air quality.

8.1.10 CORPORATE CLEAN AIR TASK FORCE

The Corporate Clean Air Task Force has a mandate to identify, develop and recommend department-specific corporate clean air actions. All actions and action plans are incorporated into a comprehensive Regional Air Quality Policy. A fundamental goal of the task force is to demonstrate leadership in air quality initiatives throughout York Region, and encourage area

⁵ Report No 1. Transportation & Works Committee, Meeting held on Jan 9, 2003.

municipalities, York Region residents, industry and other organizations to incorporate such initiatives into their activities and operations.

8.1.11 20/20 THE WAY TO CLEAN AIR

20/20 The Way to Clean Air is a community based social marketing program designed to reduce home energy use and vehicle use by 20 percent. The Region's Health Services Department administers the program in York Region in partnership with other GTA Health Units, the Clean Air Partnership and other connector services. 20/20 The Way to Clean Air is promoted in schools, workplaces and in the community.

8.2 FUTURE RECOMMENDED MEASURES

8.2.1 WATER & SEWAGE FACILITY & PROCESS IMPROVEMENTS

The Region achieved a 5% reduction in energy and emissions in 2001 from its water and sewage sector, which amounted to 1,110 t of annual GHG savings. These savings were not attributed to a specific retrofit, but came from general improvements in the energy efficiency of the facility and the treatment process. The Region should consider further reducing energy consumption, costs and GHG emissions by initiating an energy efficiency program. Typically energy efficiency retrofits can lead to 25% reductions in energy use, therefore the Conservative Forecast anticipates an additional 10% savings, while the Optimistic Forecast anticipates an additional 25% savings.

9 GHG EMISSIONS REDUCTION TARGET SCENARIOS

These three forecast scenarios were constructed in order to obtain a clear picture of the Region's GHG outlook. With this information, the Region will be better able to adopt a GHG emissions reduction target and design a detailed Local Action Plan of implementation to achieve that target.

The details for the three future GHG scenarios are summarized in Table 12. The Business as Usual (BAU) Forecast takes into account the anticipated growth in each sector in the absence of any future measures. For instance, the Region expects 19 new facilities to be transferred under their control, therefore the anticipated increase in energy consumption is factored into the forecast. Also included in the forecast is the fact that the Region installs on average 25 new traffic signals and 25 new streetlights per year.

Both the Conservative and Optimistic Forecasts take into account the anticipated growth in each sector, but also account for the measures outlined in the previous section. If business were to continue as usual to 2010, GHG emissions are expected to increase to 6% above 2001 levels. In the Conservative Forecast Scenario, GHG emissions are anticipated to decrease to 6% below 2001 levels. The Optimistic Forecast Scenario puts 2010 emissions at 19% below 2001 levels.

Table 12 - 2010 GHG Forecast Summary Data

Sector	-- GHG Emissions (t) --		
	BAU 2010	Conservative 2010	Optimistic 2010
Buildings	10,889	10,019	7,839
Vehicle Fleet	19,636	18,486	18,106
Water & Sewage	15,387	13,187	9,847
Streetlighting	2,932	1,862	1,552
Total	48,844	43,554	37,344

Figure L - Regional GHG Scenario Summary

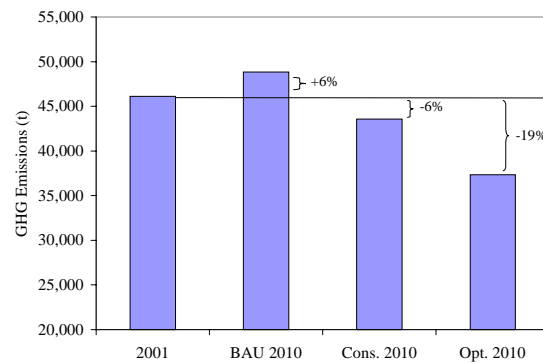


Table 13 – 2010 GHG Forecast Summary

Forecast Scenario	Relation to 2001 GHG Levels
BAU	+6%
Conservative	-6%
Optimistic	-19%

With a good understanding of what future GHG emissions will be under different scenarios based on varying degrees of effort and investment on behalf of the Region, the next task is to choose a GHG emissions target that will be considerably challenging yet realistically feasible.

Many PCP members with established GHG reduction targets have adopted the PCP's preferred targets of a 20% reduction in emissions for municipal operations within 10 years of joining the program. The three future GHG emissions forecasts were developed to ensure the Region adopts a target that is achievable in light of the Region's high population growth and expanded corporate services.

In relation to the year 2001, there are anticipated GHG reductions from both the Conservative and Optimistic Forecast Scenarios. It is recommended that the Region adopt and begin working towards the Conservative Forecast. Once substantial progress have been made towards achieving this target, the Region should revisit its target selection and strive for even further GHG reductions as in the Optimistic Forecast scenario.

Therefore, it is recommended from the results of this analysis that the Region adopts a GHG target of a 6% reduction in GHG emissions by 2010.

10 APPENDIX A – GHG WORKING GROUP PARTICIPANTS

Name & Title	Branch/Department
Dave Brooks	Police
Darwin Trojan	Police
Doug Bertrand, Manager	Corporate Services Dept.
Rob Cribbet	Transportation & Works
Joe Marotta	S & S
Jay Silverstein	Transportation & Works – Solid Waste
Allan Davidson, Manager ISO Quality Assurance	Business Support Services Branch, Transportation & Works Department
Blair Crocker	Emergency Medical Services
Helen Doyle, Public Health Inspection Supervisor	Health Services Department
Barbara McConville	Finance - Budgets
Barry Crowe, Director	Corporate Services Dept.
Jim Dalgleish, Property Manager	Housing & Residential Services, Community Services and Housing Department
Kevin Haley, Senior Public Health Inspector	Environmental Health Team, Health Protection Division, Health Services Department
Guy Hall, Environmental Health Specialist	Health Protection Division, Health Services Department
Omeed El-Zabet, Transportation Engineer - Modeling	Transportation Planning & Approval Branch, Transportation & Works Department
Bill Patterson, Project Manager	Water & Wastewater Branch, Transportation and Works Department
Tracey Forrest, Program Manager, Energy Management	Property Services Branch, Corporate Services Department
Lloyd Dow	York Region Police, Fleets
John Waller	Planning & Development
Ilmar Simanovskis	Transportation & Works
Andy Campbell	Solid Waste Management
Ian Buchanan	Forestry