Township of Langley

Corporate Greenhouse Gas Emissions Reduction Plan

Final Report

Submitted to:
Township of Langley -
Water Resources and
Environment Department

Submitted by:
The Sheltair Group

June 2, 2006

Summary

Background

The Township of Langley is a participant in the Partners for Climate Protection (PCP) Program, implemented through the Federation of Canadian Municipalities (FCM). The program is a five milestone framework to develop and implement greenhouse gas (GHG) reduction activities at the corporate and community level. The Township joined in early 2001, and has completed PCP Milestone 1 of the program to develop a baseline inventory of emissions.

Objective

This project entails developing a corporate greenhouse gas (GHG) management plan for the Township to meet PCP Milestones 2 (establish a target) and 3 (develop an action plan).

Methodology

Using the data from the Milestone 1 report, as well as additional utility information, research, and interviews and discussions with Township managers, the energy and GHG emission profiles were updated to 2004. Two forecasts of GHG energy emissions were then generated, which were used to evaluate emission reduction options and define a reduction target for the Township.

Energy and Emission Profiles

An emissions profile (i.e. a snap-shot of all emissions at one point in time) has been developed for the years 2000 and 2004 - building on the Milestone 1 profiles generated for 1995, 1999, and 2003. The energy consumption and associated GHG emissions have changed over the past decade due to substantial changes in the infrastructure that the Township operates.

The energy uses that generate the majority of the GHGs attributable to Township activities are building operations (notably the aquatic centers) and vehicle fleet operations.

Forecast Scenarios

Two forecast scenarios of energy consumption and GHG emissions were made. Both scenarios account for increased population as well as potential new facilities defined in the Township's ten year capital plan.

The first, a business-as-usual forecast called "BAU_{2000} Forecast", estimated the future emissions based on the operating condition in the baseline year (2000). This forecast does not include recent energy conservation efforts such as signal light replacements, energy efficient lighting retrofits at three major civic buildings, or

the new municipal facility, which is targeting to achieve LEED™ Silver status, nor does it include any future energy reduction activities.

The second scenario called the "Emission Reduction Plan (ERP) forecast", includes the conservation efforts since 2000 as well as the estimated effects of a determined course of energy reduction in the future.

Results

GHG emissions profile results are summarized in Table S-1 for the year 2000 (proposed baseline year), and the 2010 emissions based on the two scenarios developed. Year 2000 emissions are estimated at 5160 tonnes of CO_2 equivalent. The BAU_{2000} forecast predicts that emissions will increase by 19% by 2010 if no emission reduction actions are taken. The emission reduction scenario forecasts that emissions will decline by 11.7% from the year 2000 as a result of recent and future actions.

***Recommendation**: That the Township adopt a GHG Emissions Reduction Target of "10% below year 2000 levels by the year 2010".*

Table S-1: GHG Forecast Summary

Scenario and Year	Emissions (t CO2e)	Change from 2000 (t CO2e)	Change from 2000 (%)
2000 Baseline	5160	--	--
2010 BAU_{2000}	6150	+ 990	+ 19.2
2010 Reduction Plan	4555	- 605	- 11.7

Note: " t CO2e " = tonnes of CO2 equivalent emissions

Actions

Through discussions with Township staff, research, and reviews of the emission profiles, a set of proposed actions is defined. These actions, highlighted in the report, include reducing energy consumption in existing and future facilities, increasing usage of biodiesel and promoting "GHG awareness" amongst staff. These actions require a substantial commitment, and are based on other projects that have typically achieved acceptable payback returns.

Implementation

An implementation strategy has been proposed. The desire is to integrate GHG reduction activities with other corporate environmental, energy reduction, and sustainability related activities. A reporting structure has been recommended to ensure the follow through on proposed actions.

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Abbreviations

CBIP	Commercial Building Incentive Program
CEP	Community Energy Plan
CO_2	Carbon Dioxide
DSM	Demand Side Management
ERM	Emission Reduction Measures
FCM	Federation of Canadian Municipalities
GHG	Greenhouse Gas
GJ	Gigajoules (one billion joules)
GWh	Giga Watt Hour (1 million kWh)
GVRD	Greater Vancouver Regional District
HVAC	Heating Ventilation and Air Conditioning
LAP	Local Action Plan (for Greenhouse Gas Emission Reduction)
LEED	Leadership in Energy and Environmental Design
OCP	Official Community Plan
PCP	Partners for Climate Protection Program
SFD	Single Family Dwelling
tCO_2e	tonnes Carbon Dioxide Equivalent
ToL	Township of Langley

Acknowledgements

This report was prepared by Ron Macdonald with guidance and input from Innes Hood of The Sheltair Group. Ryan Schmidt was the Township project manager.

Numerous Township staff contributed to this report by providing knowledge, experience, and information. This included (in no specific order): Ryan Schmidt; Harb Chohan; Brad Badelt; Rene Payer; Terry Veer; Earl Erickson; Bill Lindahl; John McQueen; Wyatt Babcock; Timo Siira; Dellarae Sawchuk, and Colin Wright. A special acknowledgement is made to Harb Chohan, who assembled a thorough dataset for the Milestone 1 baseline report.

Further utility data was provided by Dina Matterson of BC Hydro, and Hans Mertins of Terasen Gas.

The effort of these people is appreciated.

1 Introduction

1.1 Background

1.1.1 Climate Change and Greenhouse Gas Emissions

Human activities - primarily the burning of fossil fuels - are resulting in increased concentrations of carbon dioxide and other greenhouse gases (GHGs) in the atmosphere. These excess GHGs accelerate the heat trapping 'greenhouse effect' within the atmosphere, and contribute to global climate change. The effects of climate change include disruptions to our climate and weather systems, with resulting impacts to the natural systems that humans rely upon. These changes are expected to occur within a few decades, and some researchers believe the effects are already observable.

1.1.2 The Kyoto Protocol and Canada's Commitments to Reductions

The Kyoto Protocol is an international agreement to manage greenhouse gas emissions. Canada is signatory to the agreement which came into force in 2005. In the agreement Canada has committed to reducing its total emissions of greenhouse gases to 6% below 1990 levels by the year 2012.

Over the past 15 years, Canada's emissions have increased from 596 million tones to 740 million tones per year - an increase of 24% [1]. Thus, meeting a target reduction of 6% below the baseline year has become a substantial challenge.

An important comment about the Kyoto commitments is that they describe the total emissions of GHGs. That is, these emissions are not on a basis of per person, or per dollar of GPD. Even though the nation's population and economy will grow, the available amount of emissions does not. This will entail a continued effort for efficiency improvements and conservation.

1.1.3 The Partners for Climate Protection Program

Climate change is a global issue, yet addressing it will require countless local actions worldwide. In Canada, the Federation of Canadian Municipalities (FCM) has developed the Partners for Climate Protection (PCP) Program to guide municipal governments towards reducing GHG emissions. The PCP program defines a process for municipal governments to quantify their GHG emissions and then to develop and implement action plans that can achieve emissions reductions.

[1] http://www.ec.gc.ca/pdb/ghg/inventory_report/2003_factsheet/2003Factsheet_e.cfm#s1

The PCP program consists of five milestones:

1. Conduct a baseline emission analysis for municipal operations and the community.
2. Establish GHG reduction targets for both municipal operations and the community.
3. Develop a local action plan outlining action items to reduce energy use and greenhouse gas emissions from municipal operations and throughout the community.
4. Establish a program to implement action items that will reduce GHG emissions.
5. Continue to monitor, verify, and report GHG reduction achievements and amend the action plan accordingly to reflect new strategies.

Over 125 municipalities from across Canada have joined the PCP program including 39 in BC[2]. Of the municipalities in BC that have joined the PCP program, as of January 2006, two municipalities have achieved Milestone 4 (City of North Vancouver and Whistler), and the City of Vancouver has developed a local action plan in accordance with Milestone 3. The remainder of the participating municipalities are in the process of collecting baseline information or developing their management plans (Milestones 1, 2, and 3).

1.1.4 Corporate vs. Community Actions

GHG Emissions Reduction Plans address a municipality's GHG emissions, including both corporate (municipal operations) and community sources.

- **Corporate GHG emissions** result from the energy consumption and solid waste generated during the delivery of municipal services and operation of facilities. Primary sources are: i) the combustion products from natural gas and liquid fuels, ii) the indirect emissions created during the generation of consumed electricity, and iii) the decay products of waste generated by the municipality.

  The uses associated with these emissions are building operations (heat and lighting), vehicle fleet operations, and infrastructure operations (water, wastewater, and solid waste). Many actions that can reduce corporate emissions are within the powers of municipal Council and staff.

- **Community GHG emissions** result from all the energy consumption activities within the community. For most urban areas, the primary sources are the combustion products from natural gas and liquid fuels, and the indirect emissions created during the generation of consumed electricity. There will also be GHG contributions from the decay products of waste generated by residents.

[2] see www.fcm.ca

Uses associated with this energy consumption are primarily water and space heating, transportation, and electricity consumption. Actions that can reduce community emissions are partially within the influence of municipalities, but also require actions by other levels of government and the citizens at large (which can often be assisted or encouraged by the municipality).

1.2 Objectives

This project entails developing a corporate greenhouse gas (GHG) management plan for the Township. This plan is structured according to Milestones 2 and 3 of the Partners for Climate Protection program. Specific objectives of this project are as follows:

- Review the emissions inventory and forecasts created in 2004 and update or revise as appropriate;
- Establish a corporate GHG reduction target in accordance with the PCP program's Milestone 2;
- Develop an Emissions Reduction Plan (ERP) to meet the requirements of Milestone 3;
- Define strategies for the implementation of the plan; and
- Assist with identifying potential funding sources for implementing the plan.

1.3 Project Methodology

This analysis included a background information review; an update of the GHG emissions baseline and forecast; an assessment of reduction opportunities assessment process involving Township staff, and the development of an implementation plan.

1. Background and Situation Review

Available background information was reviewed to better understand the existing and potential future emissions sources operated by the Township. Specific information reviewed included the:

- PCP Milestone 1 report,
- 10 year capital forecasts,
- 2005 - 2009 Financial Plan

2. Update of the GHG emissions baseline and forecasts

The GHG baseline was reviewed and updated to 2004 using updated utility information. A forecast of a "Business as Usual" (BAU) scenario based on the facilities and conditions in place in 2000 was developed. This included a consideration of both the planned and potential future facilities as well as population-based growth of Township services.

An "Emissions Reduction Plan" scenario forecast was developed that included energy reductions, using typical reduction estimates for specific service areas. The scenario evaluation was used to identify a potential target for GHG reduction.

3. Opportunities Identification

Potential opportunities were identified through meetings and interviews with senior Township staff. Options were identified through a brainstorming session that which sought to define management knowledge and comfort with each potential action. The purpose of these meetings and interviews was to compile current and potential emission reduction activities that could form part of Langley's GHG management plan.

4. Implementation Plan

This component focused on developing an implementation plan to manage corporate energy use and GHG emissions, based on the management framework defined and feedback obtained through the consultation process.

2 Situation Analysis and Local Context

An array of factors contributes to how the Township consumes energy and produces GHG emissions. This section provides an overview of these factors.

2.1 The Township's Commitment to Climate Protection

The Township of Langley Council committed its support for the PCP program in 2001 by resolving that:

> "the Township of Langley communicate to the FCM its support for the partners for Climate Protection Program and its interest in participating in the PCP program"[3]

In April 2002, Council indicated its support for the Kyoto Protocol by resolving that:

> "the Township of Langley endorses ratification of the Kyoto Protocol" [4]

A corporate GHG emissions baseline was prepared by Township staff and completed in September 2004[5].

In November 2005, staff sent an update report to Council, informing them of the current work to develop a corporate action plan. [6]

2.2 Location and Geography

The Township of Langley is located in the Lower Mainland region of BC between the Fraser River and the US border (Figure 1). The municipality was incorporated in 1873.

Langley Township has an area of 322 square kilometers making it the second largest municipal area within the Greater Vancouver Regional District (GVRD). It is comprised of several major residential and urban areas (a "Community of Communities") separated by large areas of agricultural land. Much of the agricultural land is contained within the Agricultural Land Reserve. (see Table 1).

[3] Township of Langley Regular Council Meeting Minutes January 15, 2001, available via links from www.tol.bc.ca to http//langley.ihostez.com/contentengine/launch.asp

[4] Township of Langley Regular Council Meeting Minutes April 8, 2002, available via links from www.tol.bc.ca to http//langley.ihostez.com/contentengine/launch.asp

[5] Township of Langley, 2004, *"Township of Langley Greenhouse Gas Inventory and Forecast Report with Recommendations for the Development of a Corporate Action Plan*", prepared by the ToL Environment Department, September 2004.

[6] Township of Langley Regular Council Meeting Minutes November 7, 2005, available via links from www.tol.bc.ca to http//langley.ihostez.com/contentengine/launch.asp

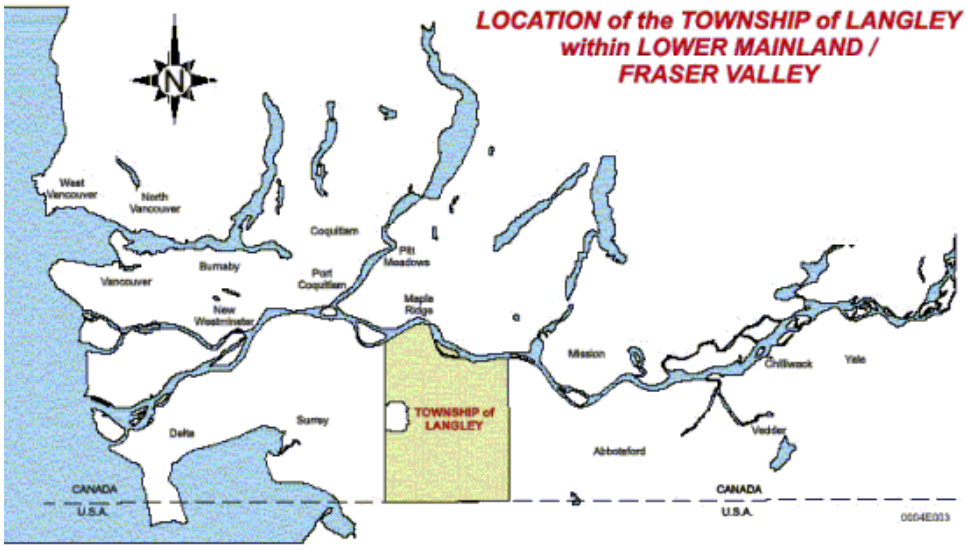

Figure 1: Location Map of the Township of Langley in the Lower Mainland

Table 1: Township of Langley Profile[7]

Descriptor	Magnitude
Community	
Total Township Area	316 square kilometers (122 square miles)
Area within the Agricultural Land Reserve (ALR)	238 square kilometers (92 square miles)
Population (2004 estimate)	94,775
Population within the defined communities (2004 estimate) [see Note a]	67,624 (71 % of total)
5-year Population Growth Rate, 1996 – 2001 [see Note a]	8.4 % over 5 years 1.6 % annually
5-year Population Growth Rate, 1991 – 1996 [see Note a]	22 % over 5 years 4.0 % annually
Township	
Township Staff 2003: Full time, part time, auxiliary	839
Equipment and Vehicle Fleet (number)	137

Notes: (a) The defined communities are Fort Langley, Walnut Grove, Willoughby, Murrayville, Brookswood/Fernridge, and Aldergrove.

(b) Five year periods shown are census intervals.

[7] Ref. http://www.bcstats.gov.bc.ca/data/pop/pop/mun/Mun9605a.asp

2.3 Population

The population in the Township is estimated at 94,775 (2004) and population growth has been substantial in the past two decades ranging from 4.0% annually in the early 1990s to about 1.6% annually from 1996 to 2001.

2.4 Service Growth

A result of the population growth is a requirement for expanded services - both utility services as well as recreational services. Recent and potential future facilities growth is shown in Table 2.

Table 2: Past and Potential Service Growth in the Township

	Proposed Items	Year
Buildings/Rec	Walnut Grove Expansion	1999
Buildings	Civic Facility (municipal hall will no longer be used)	2005
Buildings/Rec	W.C. Blair Expansion (gymnasium, multi-use facilities)	2007
Buildings	Museum Replacement	2007 or beyond
Buildings/Rec	Aldergrove Kinsmen Center (undefined scope)	2008 or beyond
Buildings/Rec	Willowbrook Rec Center (undefined scope)	2009 or beyond
Water	Three new booster pump stations	2006
Sewer	One New lift Station	2006
Parks	Five new sports field lighting systems	2007 - 2010
Vehicles	6 new vehicles in 2006.	2006

Notes:

(1) Listed facilities are either completed or have been identified in the 10-year capital plans. Future facilities have not been confirmed or approved.
(2) This list is a sampling and may not be complete.

2.5 Implications for Program Development

Major issues and their implications for designing a corporate GHG plan are:

- The Township is a growing community with increasing service demands into the future.
- The population is spread over a large service area. About 71% live in the defined communities and the remainder, are spread throughout the Township.
- A large area of the Township is contained within the Agricultural Land Reserve and this will limit developmental sprawl. The expansion of utility services will be in regions that are already serviced. Thus it is expected that the growth of sewer, water, and lighting system energy demands will be below the expected growth rate of the population.

3 GHG Emissions Profile and Forecasts

This section reviews the Township of Langley's energy consumption, and identifies the different energy uses and their corresponding GHG emissions. Primary energy sources are electricity, natural gas, and vehicle fuels (gasoline and diesel). The end uses that generate the majority of the GHGs are building operations (notably the aquatic centers) and vehicle fleet operations.

An emissions profile (i.e. a snap-shot of all emissions at one point in time) has been developed for the years 2000 and 2004, building on the Milestone 1 profiles generated for 1995, 1999, and 2003.

The profile was then used to develop two forecasts of future GHG emissions - a "Business as Usual" forecast - based on year 2000 operating conditions and an Emission Reduction Plan (ERP) forecast. The Emission Reduction Plan forecast was used to estimate potential reductions in GHG emissions and a proposed reduction target.

3.1 Township Energy Supply and Use

3.1.1 Township Energy Consumption Profile

An energy profile is shown in Table 3 for the year 2004, generated from data extracted from BC Hydro and Terasen Gas databases, and estimates from the Milestone 1 baseline. The total electricity consumption was 21,835,500 kWh, valued at more than $1.3 million. Natural gas consumption was about 52,000 GJ, valued at over $386,000, and vehicle fuel consumption was about 600,000 L, with a value of over $500,000. These expenditures are within a total municipal operating budget of $68 million[8]. As such, direct energy costs represent about 3% of the total operating budget for the Township.

Table 3: ToL Corporate Energy Consumption Profile 2004

Segment	Electricity (kWh)	Natural Gas (GJ)	Vehicle Fuels [(b)] (Liters)
Buildings (not incl. Rec. centers)	5,854,500	20,865	-
Major Recreation Centers [(a)]	5,005,000	29,862	-
Street and Traffic Lighting	4,360,000	-	-
Outdoor Parks Lighting	635,000	-	-
Water/Sewage	6,000,000	1306	-
Vehicle Fleet	-	-	600,000 (b)
Total	**21, 835, 457**	**52, 033**	**600,000**

Notes: (a) Major Recreation Centers are the WC Blair and Walnut Grove Facilities.
(b) Vehicle fuels are combined diesel and gasoline, estimated from 2003 consumption.

[8] ToL 2004 Annual Report

3.1.2 Energy Supply and Associated GHG emissions

A breakdown of energy consumption by fuel, expressed in common units of GJ of energy, is shown in Figure 2a. Figure 2b shows the GHG emissions that result from the consumption of this energy[9].

Apparent in Figure 2 is that while over 50% of the energy supplied is in the form of electricity, only about 15% of the GHG emissions result from electricity consumption. This is because the electricity supply in BC is primarily from hydro-electric sources, and has lower associated GHG emissions than coal or gas-turbine electricity[10]. Consequently, the majority of the corporate emissions are derived from natural gas and vehicle fuel combustion.

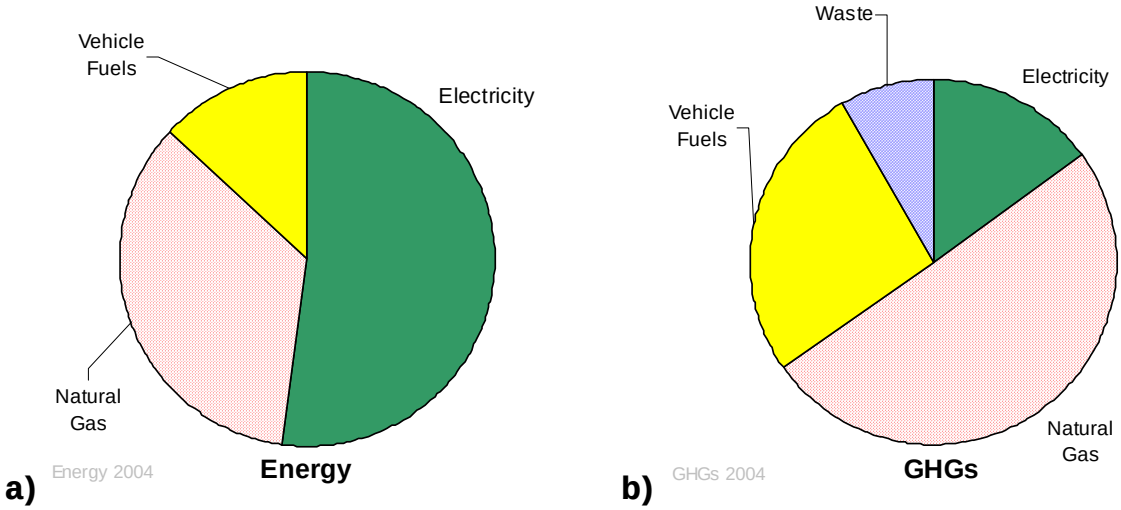

Figure 2: Breakdown of ToL (a) Energy Supply and (b) Corresponding GHG Emissions (2004)

3.1.3 Energy End Use and Associated GHG Emissions

The energy use can be viewed from the perspective of its end use rather than the energy source. A breakdown of the different end uses of energy (all forms combined) is shown for each type of use in Figure 3. Figure 3a shows the energy consumption and Figure 3b shows the associated GHG emissions.

Apparent from Figure 3 is that buildings and vehicles consume the greatest portion of the Township's energy, and result in the vast majority of the GHG emissions.

[9] Also included are the GHG emissions from solid waste generated, which is not a primary energy source but does form part of the GHG emissions inventory.

[10] This is not the case for all areas of Canada. For example, in Alberta, where most of the electricity derives from coal powered thermal generation, the GHG emissions for each unit of electricity are more than30 time greater than in BC.

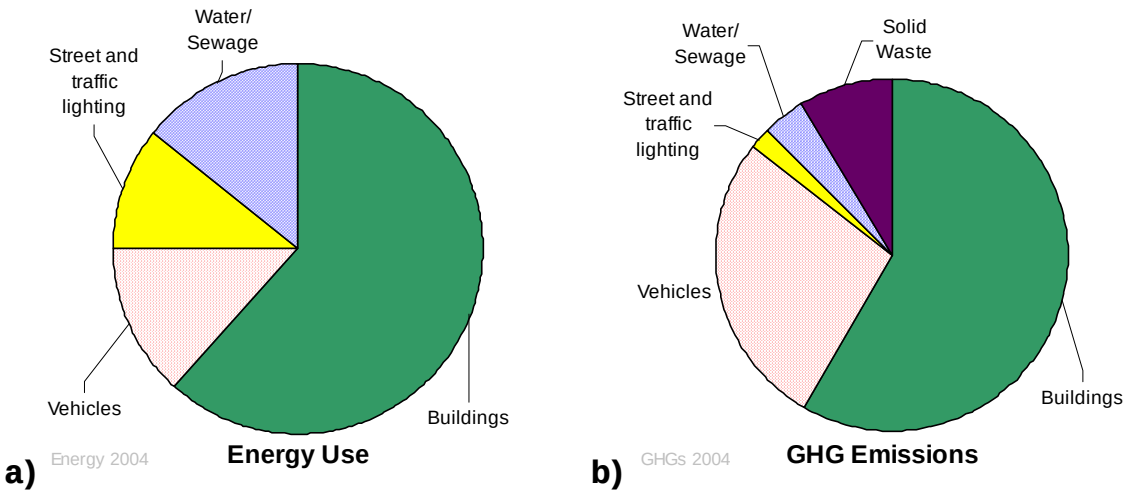

Figure 3: Breakdown of ToL (a) Energy End-Use and (b) Resulting GHG Emissions, (2004)

The consumption of natural gas provides further insight into the nature of the Township facilities energy consumption and GHG emissions. Table 4 highlights the greatest consumers of natural gas operated by the Township. The two aquatic centers consume almost 60% of the total consumed gas, and combined with the next five largest users, consume 84% of the natural gas used by the Township. This means that reduction efforts targeted at these facilities can have the greatest potential for reducing energy and GHG emissions.

It should be noted that two of the facilities - the Langley Civic Center and the Aldergrove Community Arena are owned by the Township but operated by third parties.

Table 4: Top Natural Gas Consumers within the Township (2004)

Building	2004 Consumption (GJ)	Share of ToL Total Consumption (% of total)
Walnut GroveRec Center	21,743	42
WC Blair Rec Center	8,119	16
Langley Civic Center	3,585	7
RCMP Building	3,283	6
Operations Center	3,133	6
Aldergrove Comm Arena	2,464	5
Water Treatment Plant	1,306	3
Other Accounts (number=34)	8,400	16
Total	**52,033**	**100**

3.2 GHG Profile

To generate a GHG profile based on energy use, the consumption of each type of energy is converted into an associated emission of GHGs. Emissions factors used to convert energy consumption are shown in Table 5.

Table 5: GHG Emission Factors

Energy Source	Emission Factor	Units of emission factors
Electricity	35	t CO2e / GWh
Natural Gas	0.049	t CO2e / GJ
Diesel	2.730	t CO2e / 1000 L
Gasoline	2.360	t CO2e / 1000 L
Propane	1.530	t CO2e / 1000 L

Notes:

(a) t CO2e = tonnes of CO_2 equivalent emissions
(b) The GHG intensity factor for electricity is assumed to be 35 t / GWh for all years. In practice, it varies from year to year. For the period from 1989 to 2003 there is no trend, and so the average value (35) is used for all GHG calculations.

GHG emission profiles are calculated by multiplying energy consumption by the associated emission factor. The Township's GHG emissions in 2000 and 2004 are summarized in Table 6. For most service areas, the GHG emissions have increased from 2000 to 2004.

The buildings emissions are shown to have declined by 60 tonnes per year. A slight portion of this decrease (3 tonnes) is due to decreased electricity use and the remainder (57 tonnes) is due to decreased natural gas consumption. This difference is likely due to weather differences between years (colder years require more fuel) and is likely not indicative of changes in the building stock. Vehicle fleet emissions are shown to have declined by 200 tonnes per year from 2000 to 2004.

Table 6: Township Corporate GHG Emissions, 2000 and 2004

Segment	2000 (t CO2 e)	2004 (t CO2 e)	2004 (% of total)
Buildings (not incl Rec centers)	1282	1222	24
Major Recreation Centers [(a)]	1547	1633	32
Street and Traffic Lighting	143	153	3
Outdoor Parks Lighting	12	22	0.4
Water/Sewage	247	273	6
Vehicle Fleet	1541	1341	26
Solid Waste Generated	390	423	8
Total	**5161**	**5067**	**100**

Notes: (a) Major Recreation Centres are the WC Blair and Walnut Grove Facilities

3.3 Baseline Year

The PCP program suggests using 1995 as a baseline year for developing action plans and reduction targets, though it is at the discretion of each community to define its own baseline and target. The Milestone 1 baseline created emissions profiles for 1995, 1999 and 2003. This work has updated those profiles for the years 2000 and 2004.

Based on a review of the profiles it is recommended that the year 2000 be used as a baseline year. Reasons for this include:

- The year 2000 more closely reflects the current operating situation at the Township than 1995. For example, the Walnut Grove Recreation center – a major energy consumer – was expanded to include a swimming pool in 1999.
- The Northwest Langley waste water treatment plant was transferred to the GVRD in 1996. As a result, this consumption is included in the 1995 year profile, but not in later profiles.
- The year 2000 more closely aligns to the date that the ToL committed to the PCP program (Council resolution in January 2001).
- The year 2000 precedes the implementation of the lighting retrofits at the operations center and RCMP buildings, and the construction of the new civic facility which incorporates many energy efficiency and resource conservation features. Selecting a baseline prior to these efforts allows those reductions to be included in the forecasting - in essence provided acknowledgement to these activities within the plan.

3.4 Business-as-usual (BAU_{2000}) Forecast

A business-as-usual (BAU) forecast was developed starting with the baseline year (2000). In this forecast, energy consumption and GHG emissions are forecast to 2010 using the profiles established for 2000 known and possible growth conditions.

Assumptions included in this forecast are that:

- energy consumption remains at the current level for existing buildings.
- the former municipal hall is removed at the end of 2005. A new facility of the same size as the new Civic facility is built and consumes energy at a similar intensity (energy per square foot) as the former municipal hall.
- electricity consumption for street and traffic lights and water, drainage, and sewage pumping grows at a fixed annual rate, assumed to be 1%. (NB This is less than the population growth rate and assumes that some of the new population does not require new facilities).
- outdoor sportsfield lighting remains constant at existing facilities, and five new facilities are installed, each having 36- or 72- 1000 W lighting arrays.
- vehicle fuel use increases at a fixed annual rate - here assumed to be 3%, which is the expected rate of population growth.

- solid waste generation at municipal facilities increases at a fixed annual rate, assumed to be 3 %, comparable to population growth rates.
- new future facilities built between 2005 and 2010 are estimated (albeit simplistically) by approximations to existing facilities. This includes a new museum (e.g. new museum is estimated to double in size and so current museum energy consumption is doubled), a gym expansion at WC Blair (10% more electricity), and aquatic centers at Aldergrove and Willoughby (each using half the energy consumption of the current WC Blair)[11].

Under this forecast - named the **BAU_{2000} forecast**, corporate emissions are expected to reach 6150 t CO2e in 2010, an increase of 19.2% above the year 2000 baseline emissions.

3.5 Emission Reduction Plan Forecast

A scenario planning forecast was derived from the emission profiles. For each category of energy consumption, an energy consumption reduction (% of 2000 consumption) was considered and the total emissions were recalculated to 2010. The reductions chosen are discussed in Section 4. Assumptions for this forecast included:

- the new Township Civic Facility natural gas consumption is estimated to be 40% of the BAU_{2000} scenario (a 60% reduction has been estimated by the LEED certification team), and electricity consumption is estimated as 75% of the BAU scenario[12].
- the same new building facilities are included as the BAU_{2000} forecast, however their energy consumption is reduced by the amount input as a reduction target.
- all other consumption is reduced by the reduction target selected for that segment from a year 2000 level.

To generate a forecast, a range of values were input to the forecast model. These were selected as being technically and economically reasonable, though admittedly challenging, and will require effort and resources. The results of this estimation are called the **Emission Reduction Plan forecast**.

Using estimated reduction factors, the forecasted emissions in year 2010 are expected to be 4555 t CO2e per year, a decrease of 11.7% from the year 2000 emissions.

11 These estimates are approximate and are intended to highlight the increasing energy consumption and GHG emissions resulting from growth in the community. While these items are identified as possible projects in the 10-year capital plan, none of them have yet been evaluated for need, scoped, designed, or approved. Any, all, or none of these may eventually be built.

12 These reductions are on a 'per square foot' basis. Given that the new ToL's occupied space in the new facility is 3.8 times larger than the former municipal hall, the move to the new facility and removal of the municipal hall will result in an increase of total energy consumption even though this is a more energy efficient facility.

3.6 Forecast Summary

Under the BAU_{2000} forecast corporate emissions are forecast to exceed the year 2000 level by 19% in 2010. Under the proposed Emission Reduction Plan forecast the emissions will be 11.7% below year 2000 level in 2010.

A summary comparison of the two forecasts is shown in Table 7. It shows that by 2010, the Emission Reduction Plan scenario is a 26% reduction from the BAU_{2000} scenario.

Table 7: GHG Forecast Summary

Scenario and Year	Emissions (t CO2e)	Change from 2000 (t CO2 e)	Change from 2000 (%)
2000 Baseline	5160	--	--
2010 BAU_{2000}	6150	990	+ 19.2
2010 Reduction Plan	4555	- 605	- 11.7

Note: "t CO2e" = tonnes of CO2 equivalent emissions

A summary of the historical, business as usual, and reduction plan forecasted GHG emissions are shown in Figure 4.

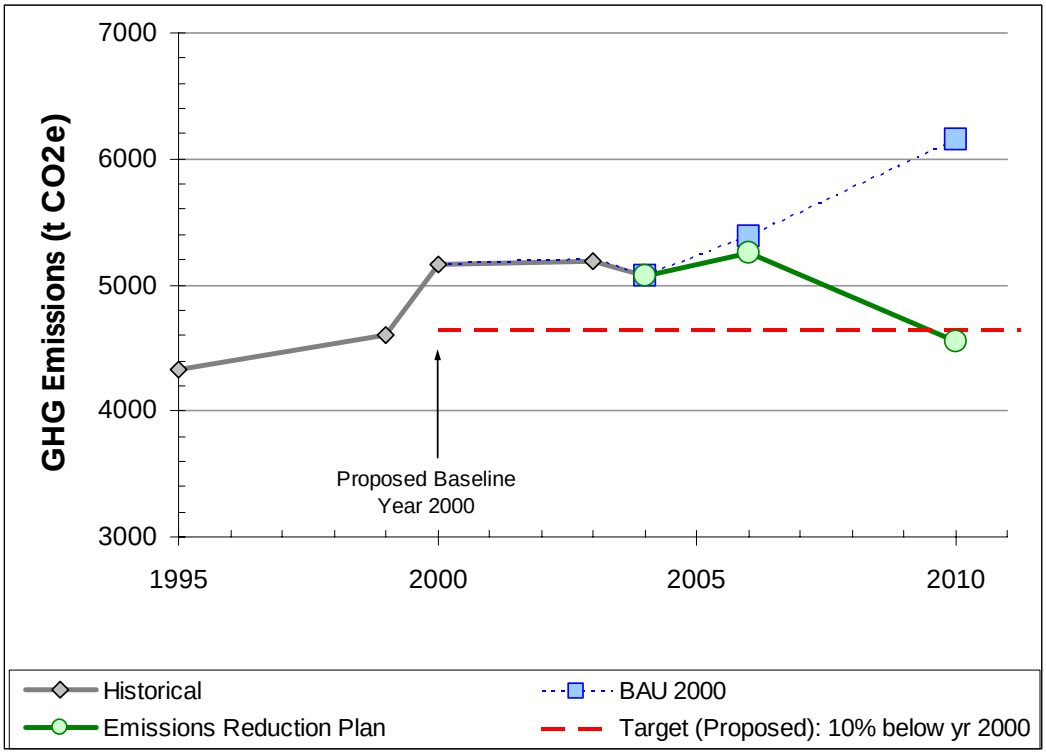

Figure 4: Historical and Scenario Forecasted GHG Emissions

3.7 GHG Emissions Reduction Target

3.7.1 Target Setting

The establishment of a target is a powerful tool for planning purposes[13]. Specifically it can:

- communicate the objective to a range of audiences;
- maintain focus on the objective to be achieved;
- be used to develop and get approval for action plans and program activities;
- provide a base for measuring and reporting; and
- encourage accountability of departments through a system of review and reporting.

Establishing a target that is not achievable does not benefit the program, nor does it provide incentive for staff to find energy reduction measures.

Through experimentation with the forecasting tool, it became apparent that almost no reasonable scenarios would achieve a reduction to levels near the suggested PCP target (which is 20% below 1995 levels).

A new reduction target is proposed. Based on the estimation of the previous section, an emission reduction target of a **10% reduction below year 2000 levels is proposed.**

3.7.2 Reductions by End Use

A summary of the energy use reductions that were assumed to generate the scenario forecast is shown in Table 8 and the associated GHG reductions estimated are shown in Table 9. For multi energy facilities, this scenario assumes similar reductions in both electrical and fossil fuel energy. The reductions described are an overall end use average and it is recognized that there will not be complete implementation of reduction activities at all facilities.

This represents a challenging target - particularly to those areas experiencing rapid growth. However, as described in the next section, the actions required to achieve this target are technically valid, have been implemented in other jurisdictions, and have reasonable economic paybacks.

[13] In the context of GHG management a target should be viewed as a positive, encouraging, motivating, and accountable goal, for which a challenging and bold (yet achievable) value should be set. Establishing a target also implies that the organization will provide the support and commitment to achieve the target.

Table 8: Hypothetical Emission Reductions Used to Generate the "Emission Reduction Plan" Forecast

Segment	Reduction from 2000 Level by 2010 (%)
Existing Buildings	25%
Rec Centers	25%
New Buildings *	50%
Vehicle Fuel Consumption	10%
Steet, Signal and Sports field Lighting	10%
Water / Sewage	5%
Waste Reduction	40%

* Note: For new buildings, "Reduction from 2000 Level" means reduction compared to a comparably sized BAU facility.

The reductions shown in Table 8, are intended as an indication of the magnitude of reduction required to meet the target, and are not necessarily recommended as specific departmental sub-targets.

Table 8 highlights the range of reductions required to meet the target. The final mix of reductions achieved from each subject area will evolve through the development of business cases for each area.

Comments about the reduction amounts shown in Table 8 include:

- Existing and new buildings have the greatest potential to reduce energy through retrofits and energy efficient design.
- The recreation centers, which generate the greatest GHG emissions (about 32% of the total - see Table 6) present a unique opportunity for GHG reductions[14]. In particular, the proposed expansion/renovation of the W.C. Blair facility presents an opportunity to review the water heating systems for the pool (regardless of whether the pool is part of the retrofit itself).
- The vehicle fleet is an area where efforts to reduce fuel use will reduce emissions.
- Different levels of GHG emissions reduction are possible in each service area. Some areas, such as water or sewage are limited in their ability to reduce emissions since these are set by the amount of water consumption or wastewater generated.

Some of these end-use reductions may appear challenging but many examples of significant emission reductions exist. For example:

- Construction of new civic buildings in accordance with LEED Silver typically reduces energy consumption by 30%. The new civic facility with a ground source heat pump space heating system is estimated to use 60% less natural gas than a conventional building of its size.

[14] Note that this is not unique to the Township of Langley. In the City of North Vancouver Corporate GHG Baseline (1995) emissions inventory, the Lonsdale Recreation Center contributes 1/3 of the city's total emissions.

- Energy retrofits of existing buildings can achieve significant savings. For example, School District 44 in North Vancouver recently completed energy retrofits in its facilities with energy savings of 35%.
- The Hyde Creek Recreation Center in Port Coquitlam was retrofitted with solar water heaters in 2004 and has reduced natural gas consumption by 44% and total energy consumption by 30%.
- Use of bio-diesel is currently being piloted in several municipalities including the Township and can reduce emissions from diesel vehicles by 10% to 15% (using a biodiesel 20% mixture).
- Fleet management, driver awareness, right-sizing and anti-idling activities, can reduce fleet vehicle fuel consumption by about 10% without any significant costs. The City of Richmond estimates that it has decreased fuel consumption by up to 10% through such measures in two years. Technology changes (like smaller vehicles) will result in even greater emission reductions.

Table 9: Summary of Forecasted GHG Reductions by Activity Category

Scenario and Year	Emission Reduction (t CO2e / yr)	Resulting Emissions (t CO2e / yr)
Baseline		
2000 Baseline Emissions		5160
BAU_{2000} Scenario		
BAU_{2000} Scenario: Emissions in 2010		6150
Reductions from BAU_{2000} scenario based on activities performed to-date (2000 - 2005)	289	
2010 Emissions based on actions performed to-date with no further initiatives		5861
Emission Reduction Plan Scenario		
Buildings	292	
Recreation Centers	408	
New Buildings	259	
Vehicle Fleet	159	
Lighting	19	
Water, Drainage, Sewage	14	
Waste	156	
Emissions Reduction Plan Scenario: Emissions in 2010		4554

Note: "t CO2e" = tones of CO_2 equivalent emissions

3.8 Implications for Program Design

Based on this analysis, the primary sources of GHG emissions in the Township are vehicles and buildings, with the two major aquatic centers accounting for a substantial portion (over 30%) of the total emissions. Thus, a substantial GHG emissions reduction opportunity exists by focusing efforts on these large energy consumers.

However, reductions in other areas should not be neglected. Fossil fuel reduction (for the purpose of reducing GHG emissions) without acknowledging potential increases in electricity consumption would be counter-productive and is not recommended. Ideally, an energy management strategy and GHG emissions reduction plan should acknowledge that all energy resources are valuable, and efforts should be made to conserve each one. Trade-offs may occur (e.g. increased electricity consumption and reduced natural gas consumption from a building retrofit), and these can be evaluated as part of an overall energy management strategy.

The benefits of maintaining a focus on all areas of energy reduction include:

- better opportunities to retrofit buildings as entire systems and not by individual components;
- opportunities to take advantage of third party funding (PowerSmart, Green Funds) through initiatives that include electricity conservation;
- maintaining an incentive for all departments to be involved with energy reduction and conservation; and
- maintaining a consistent message to staff that all energy conservation is important.

The following section describes action plan activities that can be implemented to make progress towards the target.

4 GHG Reduction Opportunities

This section presents a summary of identified GHG reduction opportunities. These have been defined through discussions with the ToL staff, review of the energy consumption and emissions profiles, and review of relevant literature.

These opportunities and the reductions that can be achieved are used to estimate an action plan scenario. As such, they describe potential reductions achievable but do not provide complete business cases for each action. Actions are identified in each of the following areas:

- Existing Buildings
- New Buildings
- Recreation Centers
- Vehicles
- Utility Services (Water, Sewage &Drainage)
- Parks
- Procurements and Purchasing, and
- Corporate Leadership

4.1 Existing Buildings

Overview and Current Actions

This category includes the existing building stock - primarily the civic facility, the operations center, and the RCMP detachment along with fire halls, libraries, museums, etc.

Lighting retrofits were implemented as part of BC Hydro PowerSmart incentive programs at the RCMP detachment, the Operations Center and the former Municipal Hall with savings of several hundred thousand kWh per year of electricity annually. No retrofits have been implemented to address space heating or domestic hot water heating.

Proposed Actions

	Action:	Description	Departmental Responsibility
1	Review directly managed buildings for retrofit opportunities Consideration should be given to retrofitting to a standard such as LEED™ for existing buildings (LEED EB).	This initiative includes energy efficiency retrofits of existing corporate owned and managed facilities in the Township. Opportunities may exist at the RCMP detachment and operations center. Not withstanding the lighting retrofits already completed, additional opportunities may include: • Building automation systems to integrate and control the major mechanical and electrical systems, • Building envelope retrofits, including glazing, insulation and air tightness, • Heating ventilation and air conditioning equipment upgrades, and • Domestic hot water systems. **Costs:** • Audits range from zero-cost walk through reviews to several thousand dollars for an engineering audit. Typical costs are in the range of $0.10 to $0.20 per square foot. • Mechanical and electrical system retrofits range from $3 - $5 per square foot. • Building Envelope retrofits cot in the range of $30 to $50 per square foot of wall space. • Payback periods for typical commercial or office building retrofits are in the range of 5 to 8 years. • Staff time will be required to conduct or contract the audits, evaluate the results, and prepare a budget item and business case for actions and then manage the retrofit. **Potential Reductions:** Building retrofits are capable of achieving operating savings of 25% to 35% (total energy) with payback periods of 5 to 8 years.	Facilities

	Action:	Description	Departmental Responsibility
		Key Challenges: Many of the buildings are small - libraries, fire halls, etc. - and resulting payback times may be longer than for the large facilities.	
2	Review non-operated buildings for conservation opportunities	Two ice arenas are owned by the Township but are operated under contract. The operator pays the electricity costs. Reduction activities could include installing a low emissivity ("low e") ceiling, lighting controls, new efficient pump motors, and low flow showerheads in change rooms. **Costs:** Audits range from zero-cost walk through reviews to several thousand dollars for an engineering audit. Implementation of any identified actions is unknown. **Potential Reductions:** Smaller savings (potentially 10%) are assumed for non-operated buildings. **Key Challenges:** The owner -contractor relationship should be examined to align the savings incentive with the investment (e.g. capital projects vs. operational/house-keeping activities).	Facilities

4.2 New Buildings

Overview and Current Actions

The long term capital plan has identified several new facilities that may be built in the coming years (see Table 2), including a new museum, an expansion to the W.C. Blair facility, and possible new fitness centers in Aldergrove or Willoughby. New facilities represent the major source of new emissions identified in the BAU_{2000} scenario. Building new facilities to energy efficient standards will reduce the growth of emissions.

The new Civic Facility is expected to meet LEED status.

Proposed Actions

	Action:	Description	Departmental Responsibility
3	Build all new buildings to a high energy efficient standard, with a focus on reducing fossil fuel use. Buildings greater than 5000 sq ft be constructed to LEED standards (recommended silver as target).	All new facilities (over a threshold size, and likely only those that are habited) built to a high level of energy efficiency, with a focus on reducing fossil fuel use. Energy efficiency alone may be pursued in building design and often such efforts are encompassed in a broader 'Green Building' criteria - which also meets a range of other sustainability criteria. **Potential Reductions:** LEED Silver (or Gold) rated buildings can achieve energy savings of 30% to 40% compared to traditional design. Efforts such as ground source heat pumps for space heating can reduce natural gas consumption even more dramatically (e.g. new Civic facility is expected to use 60% less energy for space heating than a traditional design). **Costs:** Capital cost premium for LEED buildings has been estimated at 1% to 3% of the total cost. This premium is typically paid back in 3 to 7 years through energy savings. **Key Challenges:** May require extra project management time by ToL for the process of LEED certification.	Facilities

	Action:	Description	Departmental Responsibility
4	Build all new aquatic facilities using alternative heating systems (i.e. non fossil fuel, solar, heat pumps).	All new or upgraded aquatic facilities will be built using alternative energy sources for pool water heating (i.e. non fossil fuel) such as solar or ground source heat pumps. **Costs:** Consideration early in the design stage should minimize any incremental capital cost to a few percent. **Potential Reductions:** Savings can range up to 30 % or total energy and 44% of natural gas. **Key Challenges:** • Incremental capital costs, • Solar regime is not always consistent with the energy demand profile.	Facilities

4.3 Recreation Centers

Overview and Current Actions

The Walnut Grove recreation center and the W.C. Blair pool consume almost 60% of the natural gas used by the Township. Natural gas costs have risen five-fold since the mid-1990s and a limited North American supply means that current prices are not expected to decline.

The W.C Blair pool has reduced it gas consumption by about 20% between 1998 and 2004[15]. The Walnut Grove facility has increased gas consumption by about 20% since 2000.

Proposed Actions

	Action:	Description	Departmental Responsibility
5	Recreation Center Energy Audit.	Conduct an audit of these facilities to identify energy reduction possibilities. The focus should be on reducing natural gas consumption - used for pool, hot water, and space heating. (NB Past walk through audits may have been performed.) **Costs:** Audit costs range from zero (walk through) to a few thousand dollars for an engineering review. Implementation costs could be any where from $10,000 to $500,000 depending on actions identified. Payback periods are expected to be in the 5 - 8 year range though grant funding or increasing utility prices would alter that. **Potential Reductions:** Unknown **Key Challenges:** • Walnut Grove: Existing technology is relatively recent (late 1990s) and there will be limited economics for pursuing a higher efficiency boiler. • WC Blair: No change to be enacted until a decision is made regarding the possible expansion or renovation of the pool. • Retro-fitting the existing facilities may have layout constraints.	Facilities Parks and Recreation

[15] The reason for this reduction is currently not known.

4.4 Vehicles

Overview and Current Actions

The Township maintains a fleet of about 150 pieces of equipment, including heavy equipment (dump trucks, flat deck trucks, graders, loaders, and back hoes), as well as a fleet of cars, vans, and pick-up trucks[16]. Vehicle fleet operations resulted in about one quarter of the Township's GHG emissions in 2004. Past or current actions have included:

- Vehicle purchases to include consideration of 'right-sizing' which has resulted in management staff using compact pick-up trucks.
- Providing pooled vehicles for office staff. Currently a fleet of 6 older model cars and vans is used by office staff for travel to and from work sites.
- Purchasing fuel efficient vehicles. The Township has purchased a "Smart Car" to be used by the by-law enforcement department, which frequently needs to send only one person to a site.
- Implementing propane fueled vehicles. The Township had used propane for fuel on a number of its vehicles (as well as the RCMP vehicles) but this has been phased out for operational reasons.
- Implementing a biodiesel program. The Township initiated the use of a 5% biodiesel blend in the fall of 2005, and moved to a 10% mixture in the Spring of 2006. It is evaluating the performance and intends to further increase the bio-diesel concentration level in stages. If no issues are identified, the intention is to go to a 20 % mixture. Bio-diesel is estimated to cost a 3 cent per liter premium (with costs in late 2005 in the $1.00 per liter range).
- Developing an anti-idling policy to reduce unnecessary vehicle operation. To date, this policy has included minimal staff engagement and education to promote the policy.

The Township has purchased this fuel efficient "Smart Car".

[16] The Township maintains the RCMP vehicle fleet under a contracting arrangement with the RCMP services manager.

Proposed Actions

	Action:	Description	Departmental Responsibility
6	Aggressive right-sizing	Establish a more aggressive program of 'right-sizing' vehicles. This would require all new vehicles to be of the most fuel-efficient nature for the defined staff / task. **Costs:** • Some purchases will result in some cost savings (e.g. buying a Toyota Echo rather than a pick-up truck). • Some vehicles may carry a premium. (NB This initiative does not recommend buying hybrid, natural gas, or propane vehicles, which may carry a cost premium). **Potential Reductions:** To be determined. **Key Challenges:** • Slow turnover into the vehicle stock - a complete changeover of vehicles will take many years. • Staff acceptance. • Operational considerations may prevent some reductions. • Will not affect off-road or the heavy duty fleet (e.g. dump trucks, street sweepers, etc.)	Equipment / Fleet Management
7	"Fleet Smart" or "Green Fleet" style staff engagement programs.	Implement "Fleet Smart" or "Green Fleet" activities. Fleet Smart is a program developed by Natural Resources Canada and includes educational, operational, and maintenance guidance to reduce energy consumption. Green Fleet is a fleet accreditation system being piloted by Fleet Challenge BC and the Province of BC. **Costs:** Some disbursements for posters, and promotional materials. Staff time required for planning and defining activities, and maintaining the program. Staff time for attendance and activities. **Potential Reductions:** Reductions of 10 % on fuel costs are possible. **Key Challenges:** Staff engagement must be carefully targeted to be successful.	Equipment / Fleet Management
8	Continue step-wise increase in biodiesel blend.	Continue the biodiesel initiative as conditions permit. **Costs:** Current bio-diesel carries a cost premium of about three cents per liter. **Potential Reductions:** Full implementation of B20 (20% biodiesel) can reduce GHG emissions by 10% to 15% for the same fuel consumption.	Equipment / Fleet Management

	Action:	Description	Departmental Responsibility
		Key Challenges: Older vehicles may not be able to use higher blends.	
9	Alternative fuel evaluation	Evaluate alternative fuel potential in time for the next fuel purchase contract. Ethanol fuels may have the potential to result in reduced GHG emissions (for the same fuel consumption) because some of the fuel is derived from biological sources. This measure commits the Township to consider an ethanol fuel blend at the next fuel contract purchase renewal. **Costs:** Current commercial ethanol blends (10%) carry no cost premium. Higher ethanol content blends may cost a slight premium. **Potential Reductions:** To be determined. **Key Challenges:** Current fuel service contract remains in place for several more years.	Equipment / Fleet Management

4.5 Utility Services

4.5.1 Street and Traffic Lighting

Overview and Current Actions

All signal lights have been replaced with energy efficient

The Township owns and maintains over 5500 ornamental lighting fixtures and the complete inventory of traffic signal lights within the community, while BC Hydro owns and maintains another 1700 street lights. The Township pays the power for the accounts it owns and a flat rate charge for the BC Hydro-owned lights.

The Township participated in BC Hydro's LED traffic light change out program and since 1999 has replaced green and red incandescent traffic signal bulbs with high efficiency LED lights. For this program the Township and BC Hydro shared the capital cost. The Township's contribution was paid through the energy savings directly to BC Hydro (i.e. no capital dollar outlay was required). As the existing orange lights burnout, they will be replaced with LEDs.

No changes to street lighting systems have been made[17].

Proposed Actions

	Action:	Description	Departmental Responsibility
10	Streetlight retrofits	Maintain awareness of emerging technologies for street lighting retrofits. BC Hydro may develop a program of incentives though no program currently exists and the Township should consider participation. The potential exists to execute a pilot or broader scale replacement project if grant or incentive funds can be located. The Township should compile the relevant information to support such a grant application[18]. **Costs:** Calgary's program cost about $200 per light for the fixture purchase and contract labor - this was a large program (over 40,000 bulbs) so Township costs might be higher. Would require portion of a ToL staff person. **Potential Reductions:** Uncertain. Depending on level of savings.	Operations

[17] Current street lights are typically 200 or 250 W high pressure sodium (HPS) bulbs. Street lighting changes include the change to a lower wattage bulb (and associated ballast) and a flat lens to allow an equivalent lighting with 100 or 150 Watt bulbs (City of Calgary pers communication). These typically require the change out of the entire fixture. Often grant money is required to make these changes feasible - for example, the City of Calgary's lighting change out program included just over 1/3 of the capital cost paid for by grants and the remaining from electricity savings resulting in about 5 year payback periods.

[18] For example, the Federation of Canadian Municipalities (FCM) administers Federal Green Municipal Enabling Funds and holds requests for funding for energy efficiency activities. These frequently require that the up front business case development has been completed as the programs fund implementation but not studies.

	Action:	Description	Departmental Responsibility
		Key Challenges: Current electricity prices and costs of the change out result in long payout periods. Grant money will likely be needed to make this cost effective.	

4.5.2 Water, Sewage, and Drainage

Overview and Current Actions

The Township's water and sewage systems consume electricity for pumping. The consumption by the facilities that are already in place is driven by the amount of fluid they pump and opportunities for reduction are limited. Recent new installations have used variable frequency drive systems which consume less energy.

Within this category, one quarter of the GHG emissions result from natural gas consumption to heat the Aldergrove water treatment plant. The building itself is an insulated metal construction building and heating is required to maintain the treatment system operations.

Proposed Actions

	Action:	Description	Departmental Responsibility
11	Energy efficient equipment and facilities.	Utilize energy efficient equipment for all utility services. This could include: energy efficient pumping equipment for new and upgraded facilities, energy efficiency measures in pump stations (lighting and heating) and potentially reviewing existing facilities for retrofit opportunities. **Costs:** Unknown, though expected to be minimal at the time of facility development. **Potential Reductions:** Unknown. **Key Challenges:** Any incremental cost may have a long payout.	Water
12	Encourage water conservation within the community	Conserving water reduces the amount of water that must be treated and pumped. **Costs:** Not known at this time. **Potential Reductions:** GHG reductions through water conservation are expected to be small. However, effective water conservation may have benefits in other areas such as reduced capital and operating expenses.	Water

4.5.3 Solid Waste (Township facilities)

Overview and Current Actions

Corporate waste generation was estimated at 878 tonnes for 2003 resulting in estimated GHG emissions of 423 tonnes of CO2 equivalent in 2004[19]. A Township specific waste breakdown is not available.

Paper recycling is provided at the operations center and the new civic facility. No other recycling programs (i.e. plastics, bottles, or metals) are available at Township facilities.

Proposed Actions

	Action:	Description	Departmental Responsibility
13	Enhance recycling and waste reduction opportunities.	This initiative would see expanded recycling programs at all municipal facilities. In particular, the pools, recreation centers, and fitness centers are prime locations for demonstrating leadership in the community by providing high profile recycling opportunities. The operations center waste stream should also be reviewed for potential opportunities. **Costs:** Program costs - unknown Evaluation of potential options could require a portion of a person's time for a few weeks. **Potential Reductions:** Unknown. **Key Challenges:** The relatively small amount of waste may prohibit the development of a cost effective program.	Operations

[19] ToL Milestone 1 Report. The amount of waste generated may be an over-estimate as it was based on dumpster pick-up schedules and assumes all dumpsters were full when emptied.

4.5.4 Parks

Overview and Current Actions

Parks energy consumption is primarily electricity used for sports field lighting, washroom and change room lighting and water heating. Timers have been established at the lit sports fields that require a button to be pushed in order for the lights to be activated. This prevents the lights from coming on when the fields are not in use (rainy evenings or nights with no scheduled events).

A computerized irrigation system was implemented in 2002/2003 at the McLeod Park sports field that uses soil moisture sensors and weather data to control the sprinkler system, watering only as needed. Water consumption was reduced by 6.8 million L (about 22%). It was expanded in 2004 to fields in Walnut Grove, Fort Langley Park, and Milner Park[20].

Proposed Actions

	Action:	Description	Departmental Responsibility
14	Pursue the most efficient lighting technologies.	Implement the most energy efficient lighting at the sports field facilities as appropriate. **Costs:** Minimal at the time of design and installation. Likely cost prohibitive to retrofit any existing facilities. **Potential Reductions:** Small but high profile link to other sustainability initiatives.	Parks

[20] ToL, 2004, Milestone 1 report

4.6 Purchasing

Overview and Current Actions

Procurement processes are a powerful tool for selecting and promoting energy reduction actions. During discussions, no opposition was raised to defining energy efficient conditions within purchasing tenders, provided that a competitive environment was maintained (i.e. specifications should not be defined to limit a purchase to a single supplier).

Proposed Actions

	Action:	Description	Departmental Responsibility
15	Energy efficient purchasing	Establish a purchasing policy to select only EnergyStar rated appliances and electronics, for products where this rating has been established. **Costs:** • Zero or very small cost implications expected for common items (e.g. computer monitors). • Some appliances (e.g. an energy efficient washing machine) may carry a cost premium. **Potential Reductions:** EnergyStar rated appliances use less energy than defined minimum performance specifications. **Key Challenges:** None identified. For many categories of appliances, there is no cost premium for an EnergyStar rated product.	Purchasing
16	Energy efficient contract specifications	Endeavor to include energy efficiency specifications in RFP and tendering documents where appropriate. This could include specification of minimum performance, or evaluation criteria related to energy efficiency. The desired result would be increased use of products and services that are energy efficient in the way that they are manufactured, used, and disposed of. Examples might be to include some evaluation points in a courier service RFP based on the proponents energy efficient fleet, or a specification for office supplies that includes recycled paper content. **Costs:** • No direct disbursements expected. • Possible incremental staff time required to craft contract specifications or evaluate proposals. **Potential Reductions:** Emissions (and reductions) of suppliers are not included in the Township's inventory. This activity is more for profile and promotion within the community. **Key Challenges:** • Challenging specifications for some products. • Marketplace unfamiliarity.	All departments with purchasing to administer.

4.7 Demonstrations of Leadership

Overview and Current Actions

While all GHG emission reduction activities undertaken are a demonstration of the Township's leadership towards sustainability, most are executed to meet a defined service requirement, in response to public demand, or based on a business case that defines an acceptable economic rate of return.

This section includes actions that could be undertaken to demonstrate a leadership position in energy and GHG management. These may not have an economic return, but may be desired to demonstrate to the community the Township's commitment to energy reduction and sustainability. They may also be useful to provide visible demonstration projects of actions and technologies that could be undertaken in the broader community. These actions may also include educational and awareness activities to promote energy reduction and GHG management.

Demonstrations of leadership will become more important in the future as the Township decides how to develop and implement a community wide program.

Proposed Actions

Possible Action:	Description	Departmental Responsibility
Car pooling	Provide incentives and facilitate staff car pooling.	Environment
Reduce vehicle trips between operations center and civic facility.	Encourage staff to reduce extra vehicle trips between the operations center and the new civic facility. Many possibilities exist - staff will be best qualified to identify these. Some examples might be: • scheduling meetings at the start of the work-day rather than mid-morning to prevent extra trips between locations. • providing 'hoteling' work stations at each site so that visiting staff can check email etc. and avoid trips back and forth. • staff car-pooling to meetings between the sites.	All
Solar water heating	Install a solar water heater at one of the sports fields change rooms, or the summer outdoor pool. The objective would be to showcase leadership.	Parks
Highlight the Civic Center facilities	Develop permanent signage around the staff and public areas of the new Civic facility to highlight the Green building features.	Facilities / Environment
Promotions	Include energy efficiency and GHG reduction activities in corporate activities. Examples might be: • The waste pick-up calendar • Earth Day or Clean Air day activities • School or community promotions	Environment

Possible Action:	Description	Departmental Responsibility
Staff Education and Awareness	Promote and encourage staff to be mindful of energy conservation activities through out their day-to-day job performance. Examples might be: • Vehicle conservations measures (already discussed). • Facility 'housekeeping" to keep garage doors closed, facility thermostats and air conditioning properly set, etc.	ALL

4.8 Implications for Program Implementation

The preceding review of actions provides the basis to pursue the reduction target identified. There are some important considerations for the further pursuit of existing measures and implementation of new measures including that:

- There are a number of ongoing initiatives already in place related to reducing corporate GHG emissions. Building upon existing measures is an obvious way to implement the plan efficiently.
- Many activities are executed independently by individual departments. By formalizing these into a GHG plan, then a broader range of activities can be highlighted.
- The GHG plan should be considered a living document and new ideas and activities should be implemented when they are discovered. Specifically, a process for staff identified issues to be considered and implemented should be developed.
- The existing Township processes (10 year plan, annual business plans) provide an excellent opportunity to define GHG reduction activities within the current management framework.
- Several of the GHG emission reduction activities will be driven by other needs (e.g. water conservation, sports field lighting, etc.). However, energy conservation and GHG management can be used to provide supporting rationale to a business case.

5 Program Implementation

This section provides an overview of the implementation activities for the plan, a summary of potential emissions reduction results, and a proposed monitoring and reporting process.

5.1 Description

Program Name: Township of Langley Corporate GHG Action Plan

Objective: The Township has established an objective for this program to reduce corporate greenhouse gas emissions by **10 %** by 2010 compared to a year **2000 baseline** level.

The corporate GHG management plan establishes means to reducing energy and greenhouse gas emissions from in-house activities, with a primary focus on buildings, recreation centers, and the vehicle and machinery fleet. The program will work to strengthen and expand existing and new activities at the Township.

5.2 Program Delivery

5.2.1 Program Champion

A program champion will need to be identified at the management level. This person will be responsible for activities defined under the plan. Responsibilities will include:

- Ensuring that individual supervisors and mangers are executing their respective activities.
- Including energy management activities in annual budgets and building business cases for implementation activities.
- Reporting to council annually or as required on the progress of the plan activities.

5.2.2 Program Coordinator

A person will be required to coordinate energy efficiency and GHG activities. This could be from within the Environment Department, or the Facilities and Operations department. Activities would include:

- Annual reporting by department leaders to the program champion - compilation of data etc.
- Facilitating awareness activities with staff - announcements and promotions

- Tracking and monitoring progress

The intention would be to ensure follow through with actions and identify opportunities to inter link energy reduction and GHG management with other activities. Staff resources might be in the range of two to four weeks of staff time per year (for the coordinator functions) depending on the level of activity.

5.2.3 Resource Requirements

Corporate emissions reductions will be achieved utilizing a combination of existing operating budgets and staffing and new funding. For example building energy audits can range from free "walk through" audits provided by utility companies to detailed engineering studies costing several thousand dollars.

Similarly a driver education campaign may require some money for posters, window stickers, etc. The GHG Program budget should include funds for these activities.

Staff time required to engage these activities should be recognized. Attempting to conduct these activities 'off the side of the desk' may not prove effective. Staff who do spend efforts on energy and GHG management need management support that this is an acceptable use of time. Acknowledgement can include inclusion in job descriptions or performance reviews.

Once a specific energy reduction activity is identified, the actions needed to implement will be developed into a business case for that respective department's budgeting.

5.2.4 Integration with other activities

An important consideration is to highlight the interconnected nature of many Township activities. Many activities are performed for a variety of reasons and will have only a small effect on GHG emissions, yet the energy reduction and GHG benefit can be highlighted. This maintains a consistent message to staff and may add sustainability-themed weight to a funding decision or business case. There will be countless examples but might include:

- A satellite works yard was mentioned because of the large driving distances within the community. Such a decision would be based on operational and budgetary considerations, but the energy savings through reduced driving should be highlighted.
- Water conservation activities will reduce water pumping and associated electricity savings.
- The "Arbour Ribbon" to enhance trees and greenery can include GHG benefits of carbon sequestration (these may not be large).
- The "Towards Sustainability" initiative carries many subject areas and themes. The energy and GHG issues can be highlighted in their appropriate location.

5.3 Reporting

5.3.1 Reporting Requirements

Measuring the success of the program will require reporting information of the emissions reductions achieved from individual activities and the total Township emissions.

At the program level this likely will consist of annual (or bi-annual) reports that describe energy consumption and GHG emissions, program activities and upcoming initiatives.

Minimum reporting requirements would include:

- Progress on the implementation of the different activities including a description of the current status, progress made, and changes or new understandings gained, an estimate of the time and resources spent on each item.
- Actual performance using collected utility, purchasing records for those actions that are directly measurable through quantified data.
- Total GHG emissions.

Additional reporting might include:

- Qualitative assessment of each project's visibility and potential for replication.
- Qualitative assessment of project secondary benefits (social and environmental impacts).
- Descriptive case studies to promote the plan.

5.3.2 Reporting Activities

A range of data collection is required to compile the information for the GHG reporting. This will use spreadsheet templates provided in Appendix A. The data required includes:

Natural Gas Consumption:

[Contact as of April 2006 is Hans Mertins, Analyst, (604) 592-7753].

The Township currently maintains 41 accounts with Terasen Gas and the data is available as far back as mid-2003. For the creation of the 2004 energy and emissions profiles, the data was obtained to December 2004 and is provided in Table A- 1 in Appendix A. For annual reporting, the latest data (complete calendar year of interest) should be obtained from Terasen and the table updated.

Electricity Consumption:

[Contact as of April 2006 is Dina Matterson, Key Account Manager, (604) 453-6225]

The Township maintains about 120 metered accounts with BC Hydro and another 110 streetlight accounts are billed on a fixed rate basis to the Township. The baseline report had obtained detailed consumption data for all these accounts. For the 2004 profiles, only the metered accounts were updated, and the other accounts were carried over from previous years (e.g. 1999 streetlight consumption assumed for 2002 and 2003 consumption for 2004).

For future reporting, current data should be obtained for the year of interest and compiled into the spreadsheet. Typically only the metered accounts need to be updated. It should be noted that some new accounts are expected each year.

Vehicle Fuel Consumption:

[Contact is John McQueen, ToL Vehicle Operations]

The Township Vehicle Fleet operations group maintains records on fuel consumption for all the Township vehicles.

For future reporting the total fuel consumption of each fuel type should be obtained from the vehicles group (at a minimum). If possible, an individual vehicle consumption breakdown would be useful to identify the largest users and possible target reduction activities.

Some confounding factors were identified in the baseline report and include that:

- Some users (e.g. fire department vehicles) commonly fill up at retail fuel stations and bill the amount to accounts, though there is not a consistent method of accounts and it can be difficult to extract these charges. As well, these charges represent dollars only, and an estimate will have to be made of the liters of fuel consumed.
- Some staff use personal vehicles for work activities and charge back to operating or capital accounts on a mileage basis. This was small in the baseline review, but may increase as a result of the new Civic Facility moving some staff further from the operations center.

Corporate Solid Waste Generation:

[Contact is Harb Chohan, ToL Solid Waste Operations]

Corporate solid waste is estimated on the basis of the number of dumpsters, the frequency of emptying, and an estimate of the typical level of filling. This method can be continued, however a review of the number of dumpsters emptied should be obtained.

5.4 Potential Funding Partners

Many programs exist to manage GHG emissions and provide assistance in energy conservation and GHG reduction activities. These range from technical support and auditing services to seed funding to offset the costs of energy evaluations to direct financial contributions to implement programs. An overview of some available programs is highlighted in Table 10. Detailed descriptions of each of these are provided in Appendix B.

Table 10: Programs Available to Manage Corporate Emissions

Level of Government	Funding Agency	Program Name
Federal	FCM	Green Municipal Fund: Feasibility Studies
	FCM	Green Municipal Fund: Grants and Loans for Energy Efficiency
	FCM & CMHC	Affordability and Choice Today (ACT)
	NRCan	Energy Retrofit Assistance for Planning Activities(ERA-P)
	NRCan	Energy Retrofit Assistance for Implementation Projects (ERA-3)
	NRCan	Commercial Building Incentive Program for New Buildings
	NRCan	Renewable Energy Deployment Initiative (REDI) Incentive
	NRCan	Commercial Transportation Energy Efficiency Rebate
	NRCan	Smart Driver for Transit and Municipalities
Provincial	Ministry of Community Services	Local Government/Infrastructure Planning Grant Program
	Ministry of Transportation	Cycling Infrastructure Partnership Program (CIPP)
	M of Education	Seismic Mitigation Program
Regional	GVRD	Sustainable Enterprise Fund (GVRD)
Utility	Terasen	High Efficiency Boilers Program
	BC Hydro	Power Smart Employee Energy Awareness Program
	BC Hydro	Power Smart High Performance Building Program
	BC Hydro	Power Smart Design Assistance Program
	BC Hydro	Power Smart e.Points
	BC Hydro	Power Smart Fixed Incentive Rate Pilot
	BC Hydro	Power Smart Energy-Saving Identification Funding
Foundations	Tree Canada Foundation	Green Streets Canada

Notes: Funding amounts and deadline details are described in Appendix B.

Abbreviations:
FCM = Federation of Canadian Municipalities
NRCan = Natural Resources Canada
CMHC = Canada Mortgage and Housing Corporation

6 Next Steps

A sequence of activities is required to move from planning to action. This includes:

- Council endorsement and formal approval of the plan.
- Internal launch of the plan to notify staff that corporate emission reductions activities have commenced
- Initiating plan defined actions. Two areas to start would include initiating a vehicle consumption reduction program and evaluating some of the building stock for retrofit opportunities. At a minimum, funds for conducting thorough energy audits of the most promising building opportunities should be sought as soon as possible.
- Seeking partnership funding. Funding applications for assistance to implement specific projects should be sought as soon as the project is identified. Many of these programs (e.g. Federal Green Funds) have time lags of several months for funding approval.

7 Appendices

Appendix A: Energy and GHG Profiles for the Township of Langley

Appendix B: Compendium of Identified Potential Funding Sources

Appendix A:
Energy and GHG Profiles for the Township of Langley

Table A-1: Township Natural Gas Consumption

Table A-2: Township Electricity Consumption

Table A-1: Township Natural Gas Consumption (2000, 2003 and 2004)

TOWNSHIP OF LANGLEY FACILIITES NATURAL GAS CONSUMPTION (GJs)

Source: Terasen, Energy CIS

Account Data							Actual Metered Consumption 2002						
DebtorNu	PremNum	Surname	FirstNames	UnitNo	HouseNo	StreetName	Jul	Aug	Sep	Oct	Nov	Dec	2002 Total
909385	708344	TOWNSHIP OF LANGLEY			20353	32ND AVENUE	5.8	4.3	23.6	29.4	64.8	76.3	204
909385	711638	TOWNSHIP OF LANGLEY			20244	36TH AVENUE	0.9	1.1	1.1	3.3	3.8	5.4	16
909385	712156	TOWNSHIP OF LANGLEY			4393	208TH STREET	2.3	2.2	4.8	5.7	10.9	12.6	38
909385	713422	TOWNSHIP OF LANGLEY		109	4061	200TH STREET	0.0	0.0	0.7	0.9	2.6	5.4	10
909385	714973	TOWNSHIP OF LANGLEY			20045	40TH AVENUE	0.0	0.0	0.0	14.0	15.5	27.9	57
1141427	715723	CANADIAN RECREATION EXCELL	Langley Civi		20699	42ND AVENUE	66.4	227.9	309.6	459.7	470.0	469.7	2,003
909385	716326	TOWNSHIP OF LANGLEY			21405	44TH AVENUE	2.2	1.8	3.1	8.0	8.6	11.4	35
909385	716785	TOWNSHIP OF LANGLEY		A	21860	OLD YALE ROAD	0.3	0.5	1.5	4.9	7.7	8.3	23
909385	716974	TOWNSHIP OF LANGLEY		100	22071	48TH AVENUE	2.7	2.7	2.6	2.7	7.2	18.5	36
1300786	717291	TOWNSHIP OF LANGLEY-OPS C	Ops Center		4700	224TH STREET	22.9	27.0	68.5	224.3	411.0	580.7	1,334
909385	717295	TOWNSHIP OF LANGLEY		TRNG	4700	224TH STREET	18.9	4.3	10.7	40.7	38.9	37.2	151
909385	720886	TOWNSHIP OF LANGLEY			21594	48TH AVENUE	0.0	0.0	0.0	0.0	0.0	0.0	0
909385	721239	TOWNSHIP OF LANGLEY			22170	50TH AVENUE	6.2	4.7	6.7	34.2	63.9	114.2	230
909385	721274	TOWNSHIP OF LANGLEY			4914	221ST STREET	22.8	12.1	36.7	77.6	101.4	133.5	384
1300786	721346	TOWNSHIP OF LANGLEY-RCMP			22180	48A AVENUE	76.9	89.5	168.4	278.3	330.0	417.0	1,360
909385	723962	TOWNSHIP OF LANGLEY			5730	214A STREET	5.0	2.8	11.5	22.4	44.5	69.5	156
909385	725800	TOWNSHIP OF LANGLEY			6595	238TH STREET	5.5	5.2	8.4	11.1	12.0	13.4	56
909385	726466	TOWNSHIP OF LANGLEY			20542	84TH AVENUE	2.9	2.8	2.7	2.9	2.9	3.3	18
909385	726467	LANGLEY	TOWNSHIP		20542	84TH AVENUE	1.0	1.0	1.3	3.6	4.2	6.2	17
909385	729989	WEST LANGLEY	TOWNSHIP		9400	208TH STREET	3.9	3.4	5.3	13.8	15.7	28.0	70
909385	730033	TOWNSHIP OF LANGLEY			9580	208TH STREET	1.7	2.2	3.4	8.6	13.0	37.5	66
909385	731665	TOWNSHIP OF LANGLEY			8937	WALNUT GROVE DRIVE	3.2	3.6	5.6	6.1	7.1	8.1	34
909385	733099	TOWNSHIP OF LANGLEY		108	8850	WALNUT GROVE DRIVE	0.0	0.1	0.5	1.0	5.6	5.9	13
909385	733498	TOWNSHIP OF LANGLEY			23398	MAVIS AVENUE	6.3	9.6	12.8	25.4	38.9	45.5	138
909385	733592	TOWNSHIP OF LANGLEY			23191	96TH AVENUE	2.6	2.9	3.2	12.0	27.7	42.1	91
909385	733839	TOWNSHIP OF LANGLEY			23055	ST ANDREWS AVENUE	101.1	70.1	28.8	0.3	0.0	6.5	207
909385	733841	TOWNSHIP OF LANGLEY			23105	ST ANDREWS AVENUE	0.8	1.0	1.1	4.0	7.4	9.2	24
909385	733921	TOWNSHIP OF LANGLEY			9112	KING STREET	0.0	0.0	0.0	0.0	0.0	0.0	-
1141431	763276	CANADIAN RECREATION EXCELL	AlderGrove		2882	272ND STREET	179.3	179.3	173.5	179.3	173.5	179.3	1,064
909385	763401	TOWNSHIP OF LANGLEY			26978	FRASER HIGHWAY	0.3	0.3	0.3	4.0	4.0	9.8	19
909385	765198	TOWNSHIP OF LANGLEY			3876	248TH STREET	5.6	3.4	23.9	33.8	61.7	72.9	201
909385	768681	TOWNSHIP OF LANGLEY			26770	29TH AVENUE	16.8	24.6	32.1	44.7	60.0	64.7	243
909385	768828	TOWNSHIP OF LANGLEY			27155	32ND AVENUE	140.4	153.6	28.4	9.3	22.4	47.3	401
909385	778192	WATER TREATMENT PLANT	TOWNSHIP		27580	28TH AVENUE	62.0	62.0	64.8	67.5	148.9	169.7	575
909385	779219	TOWNSHIP OF LANGLEY			22323	48TH AVENUE	2.4	1.7	3.4	9.6	12.7	21.1	51
909385	781559	TOWNSHIP OF LANGLEY		TLR	4700	224TH STREET	0.8	1.0	0.9	4.0	4.4	7.5	19
1180051	783148	LANGLEY TOWNSHIP	(Walnut Gro		8889	WALNUT GROVE DRIVE	1102.2	1135.4	1354.3	1851.8	1890.4	2135.0	9,469
909385	784488	FIRE HALL NO 3	TOWNSHIP		26316	30A AVENUE	0.0	0.0	16.0	24.7	44.4	53.5	139
909385	791027	TOWNSHIP OF LANGLEY			20253	72ND AVENUE	4.7	2.4	0.0	0.0	84.2	216.6	308
909385	828711	TOWNSHIP OF LANGLEY			2707	268TH STREET	0.0	0.0	0.0	0.0	0.0	0.0	-
1179997	721331	LANGLEY MUNICIPALITY	(WC Blair)		22200	FRASER HIGHWAY	552.7	455.2	336.3	766.5	806.3	1,020.20	3,937

Notes:

1) PremNum 828711 was not on the list provided, but started December 2, 2004 - address is 2707 268th Street, under "Township of Langley"

2) PremNum 733921 was not on the list provided, but started November 24, 2004 - address is 9112 King Street, under "Township of Langley"

Table A-1: Township Natural Gas Consumption (2000, 2003 and 2004)

TOWNSHIP OF LANGLEY FACILIITES NATURAL GAS CONSUMPTION (GJs)

Source: Terasen, Energy CIS

Account Data							Actual Metered Consumption 2003												
DebtorNu	PremNum	Surname	FirstNames	UnitNo	HouseNo	StreetName	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2003 Total
909385	708344	TOWNSHIP OF LANGLEY			20353	32ND AVENUE	82.7	76.7	60.6	51.7	17.8	7.2	3.7	2.3	21.7	29.8	81.1	100.2	535
909385	711638	TOWNSHIP OF LANGLEY			20244	36TH AVENUE	5.2	4.3	3.6	2.1	1.1	0.9	0.9	1.0	0.9	4.1	4.8	6.6	36
909385	712156	TOWNSHIP OF LANGLEY			4393	208TH STREET	13.4	12.1	9.9	8.6	3.6	2.0	1.5	1.3	4.4	5.9	10.9	14.0	88
909385	713422	TOWNSHIP OF LANGLEY		109	4061	200TH STREET	5.4	5.5	3.5	1.2	0.2	0.1	0.0	0.0	0.8	1.0	6.2	7.5	31
909385	714973	TOWNSHIP OF LANGLEY			20045	40TH AVENUE	30.2	24.5	12.2	1.4	0.1	0.0	0.0	0.0	0.4	9.7	20.7	31.3	131
1141427	715723	CANADIAN RECREATION EXCELL	Langley Civi		20699	42ND AVENUE	488.3	487.8	422.0	216.8	102.9	58.0	76.9	200.2	253.1	378.9	489.9	535.2	3,710
909385	716326	TOWNSHIP OF LANGLEY			21405	44TH AVENUE	11.1	8.4	8.7	5.4	3.7	1.1	1.0	0.9	2.6	6.0	6.4	10.7	66
909385	716785	TOWNSHIP OF LANGLEY		A	21860	OLD YALE ROAD	8.9	6.9	7.1	6.1	2.4	1.9	1.1	3.5	3.4	3.5	3.9	8.1	57
909385	716974	TOWNSHIP OF LANGLEY		100	22071	48TH AVENUE	18.7	15.3	10.0	8.7	1.9	0.1	0.0	0.0	3.0	13.4	15.3	28.5	115
1300786	717291	TOWNSHIP OF LANGLEY-OPS C	Ops Center		4700	224TH STREET	627.3	503.0	498.1	315.3	183.1	58.5	20.7	8.3	79.0	339.9	358.4	532.9	3,525
909385	717295	TOWNSHIP OF LANGLEY		TRNG	4700	224TH STREET	38.8	39.2	43.4	37.3	19.0	11.3	7.9	10.5	24.2	37.3	36.1	37.3	342
909385	720886	TOWNSHIP OF LANGLEY			21594	48TH AVENUE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
909385	721239	TOWNSHIP OF LANGLEY			22170	50TH AVENUE	124.5	108.2	114.3	70.3	25.9	8.1	3.3	8.9	21.5	56.3	105.5	147.9	795
909385	721274	TOWNSHIP OF LANGLEY			4914	221ST STREET	140.9	124.1	116.6	83.3	60.7	22.2	4.4	4.8	15.5	91.1	161.2	195.9	1,021
1300786	721346	TOWNSHIP OF LANGLEY-RCMP			22180	48A AVENUE	458.3	442.9	446.4	388.1	292.7	98.1	25.8	25.8	96.0	294.9	419.0	510.7	3,499
909385	723962	TOWNSHIP OF LANGLEY			5730	214A STREET	64.9	54.3	55.8	37.8	18.9	7.5	2.9	1.6	1.4	34.6	67.8	76.6	424
909385	725800	TOWNSHIP OF LANGLEY			6595	238TH STREET	14.6	14.0	12.3	9.7	7.0	4.6	4.3	3.8	7.5	10.3	11.7	13.5	113
909385	726466	TOWNSHIP OF LANGLEY			20542	84TH AVENUE	3.2	2.8	3.1	2.9	2.7	2.3	2.3	2.1	2.4	3.0	3.0	3.6	33
909385	726467	LANGLEY	TOWNSHIP		20542	84TH AVENUE	6.7	5.4	5.2	3.3	2.1	0.6	0.3	0.4	1.4	3.8	6.7	7.8	44
909385	729989	WEST LANGLEY	TOWNSHIP		9400	208TH STREET	27.1	21.8	22.3	12.2	11.1	3.1	3.1	2.6	6.0	20.6	20.3	24.9	175
909385	730033	TOWNSHIP OF LANGLEY			9580	208TH STREET	35.1	24.6	26.7	22.4	10.3	1.4	1.4	1.3	2.3	10.2	34.8	47.8	218
909385	731665	TOWNSHIP OF LANGLEY			8937	WALNUT GROVE DRIVE	15.3	24.6	28.6	36.7	31.7	12.8	8.6	5.3	5.8	16.6	44.9	60.5	291
909385	733099	TOWNSHIP OF LANGLEY		108	8850	WALNUT GROVE DRIVE	10.6	9.9	13.7	7.4	0.9	0.0	0.0	0.0	0.0	2.9	21.9	24.7	92
909385	733498	TOWNSHIP OF LANGLEY			23398	MAVIS AVENUE	52.1	47.9	40.0	19.2	15.8	7.7	7.1	7.4	12.5	18.5	50.3	60.6	339
909385	733592	TOWNSHIP OF LANGLEY			23191	96TH AVENUE	46.6	39.6	35.4	21.0	10.7	3.9	2.8	2.8	2.7	18.8	37.0	41.2	263
909385	733839	TOWNSHIP OF LANGLEY			23055	ST ANDREWS AVENUE	17.3	18.1	17.8	14.4	28.5	64.1	59.7	88.5	21.5	14.4	21.4	26.3	392
909385	733841	TOWNSHIP OF LANGLEY			23105	ST ANDREWS AVENUE	9.4	6.2	5.1	3.1	0.9	0.8	0.8	0.8	1.1	3.7	7.1	9.2	48
909385	733921	TOWNSHIP OF LANGLEY			9112	KING STREET	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1141431	763276	CANADIAN RECREATION EXCELL	AlderGrove		2882	272ND STREET	179.3	162.0	179.3	173.5	179.3	173.5	179.3	162.8	238.1	293.7	322.4	253.5	2,497
909385	763401	TOWNSHIP OF LANGLEY			26978	FRASER HIGHWAY	8.3	9.9	8.5	5.9	2.4	0.4	0.1	0.2	0.7	3.7	13.6	15.5	69
909385	765198	TOWNSHIP OF LANGLEY			3876	248TH STREET	79.0	73.6	63.4	53.0	21.9	10.2	3.9	1.2	20.9	30.3	66.8	88.4	513
909385	768681	TOWNSHIP OF LANGLEY			26770	29TH AVENUE	82.9	74.7	76.0	56.2	36.5	32.2	11.2	9.3	19.3	29.4	90.4	95.5	614
909385	768828	TOWNSHIP OF LANGLEY			27155	32ND AVENUE	16.7	65.1	29.3	15.5	18.1	106.4	126.1	122.7	21.5	11.0	33.6	24.0	590
909385	778192	WATER TREATMENT PLANT	TOWNSHIP		27580	28TH AVENUE	167.8	111.9	116.7	75.1	74.8	72.4	42.5	38.6	71.6	77.9	121.1	130.3	1,101
909385	779219	TOWNSHIP OF LANGLEY			22323	48TH AVENUE	16.6	16.4	18.0	15.1	6.6	2.0	1.8	1.3	2.6	7.4	8.0	13.2	109
909385	781559	TOWNSHIP OF LANGLEY		TLR	4700	224TH STREET	7.8	6.2	6.0	2.7	1.5	0.6	0.6	0.6	0.9	2.1	2.8	6.5	38
1180051	783148	LANGLEY TOWNSHIP	(Walnut Gro		8889	WALNUT GROVE DRIVE	2065.0	1995.8	2056.4	1813.9	1600.1	1483.1	1385.2	1351.1	1295.3	2005.7	2726.0	2769.9	22,548
909385	784488	FIRE HALL NO 3	TOWNSHIP		26316	30A AVENUE	70.2	74.4	50.0	29.7	13.9	5.4	3.8	3.0	5.6	38.7	61.0	87.4	443
909385	791027	TOWNSHIP OF LANGLEY			20253	72ND AVENUE	123.5	105.9	113.7	69.8	30.0	8.5	2.1	2.6	10.8	43.8	89.1	130.3	730
909385	828711	TOWNSHIP OF LANGLEY			2707	268TH STREET	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
1179997	721331	LANGLEY MUNICIPALITY	(WC Blair)		22200	FRASER HIGHWAY	933.1	947.8	1,022.30	904.7	828.4	667.1	573.6	599.2	629.9	767.4	958	961.4	9,793

Notes:

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Source: Terasen, Energy CIS

Account Data							Actual Metered Consumption 2004												
DebtorNu	PremNum	Surname	FirstNames	UnitNo	HouseNo	StreetName	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2004 Total
909385	708344	TOWNSHIP OF LANGLEY			20353	32ND AVENUE	90.1	78.4	48.2	32.5	15.1	4.8	4.3	4.0	20.2	28.1	75.4	99.3	500
909385	711638	TOWNSHIP OF LANGLEY			20244	36TH AVENUE	7.2	4.7	4.0	1.8	1.2	1.0	0.9	0.9	0.9	3.7	4.5	6.2	37
909385	712156	TOWNSHIP OF LANGLEY			4393	208TH STREET	11.8	9.7	8.7	4.3	2.3	1.7	1.4	1.3	4.2	5.6	10.2	12.9	74
909385	713422	TOWNSHIP OF LANGLEY		109	4061	200TH STREET	5.5	4.4	1.9	0.9	0.3	0.0	0.0	0.0	0.6	0.9	3.3	4.4	22
909385	714973	TOWNSHIP OF LANGLEY			20045	40TH AVENUE	26.1	15.3	14.5	2.9	0.0	0.0	0.0	0.0	1.4	7.2	19.8	29.7	117
1141427	715723	CANADIAN RECREATION EXCELL	Langley Civi		20699	42ND AVENUE	561.5	448.8	455.7	148.4	46.4	29.6	24.4	54.3	258.5	452.0	514.3	591.3	3,585
909385	716326	TOWNSHIP OF LANGLEY			21405	44TH AVENUE	9.5	10.3	10.0	5.9	2.7	2.6	2.7	2.4	2.9	8.2	9.6	13.1	80
909385	716785	TOWNSHIP OF LANGLEY		A	21860	OLD YALE ROAD	11.7	10.2	6.6	5.8	1.8	1.7	1.7	1.7	1.6	2.8	8.4	10.4	64
909385	716974	TOWNSHIP OF LANGLEY		100	22071	48TH AVENUE	34.8	22.0	20.6	10.0	8.4	3.8	0.1	0.0	0.0	4.2	25.9	32.8	163
1300786	717291	TOWNSHIP OF LANGLEY-OPS C	Ops Center		4700	224TH STREET	658.5	452.4	337.7	204.4	95.9	77.0	14.1	18.7	62.3	194.1	372.9	645.2	3,133
909385	717295	TOWNSHIP OF LANGLEY		TRNG	4700	224TH STREET	37.3	36.6	41.0	39.1	24.4	21.5	11.8	2.4	4.3	25.1	37.1	48.6	329
909385	720886	TOWNSHIP OF LANGLEY			21594	48TH AVENUE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
909385	721239	TOWNSHIP OF LANGLEY			22170	50TH AVENUE	139.9	109.8	74.9	34.0	13.1	2.4	2.2	2.2	17.3	60.2	104.9	141.3	702
909385	721274	TOWNSHIP OF LANGLEY			4914	221ST STREET	184.9	136.3	103.2	54.6	23.9	7.0	3.1	4.3	10.7	50.9	104.8	173.2	857
1300786	721346	TOWNSHIP OF LANGLEY-RCMP			22180	48A AVENUE	495.6	387.8	341.3	261.9	221.5	134.7	56.1	69.2	144.3	277.3	387.9	505.4	3,283
909385	723962	TOWNSHIP OF LANGLEY			5730	214A STREET	83.7	73.1	65.4	44.9	28.2	14.8	2.8	7.5	24.6	50.5	68.7	64.3	529
909385	725800	TOWNSHIP OF LANGLEY			6595	238TH STREET	6.7	9.4	21.4	9.8	7.6	5.0	3.6	3.6	6.4	11.7	13.7	14.8	114
909385	726466	TOWNSHIP OF LANGLEY			20542	84TH AVENUE	3.2	2.1	1.8	0.6	0.8	1.2	1.1	1.1	1.5	1.6	1.7	1.8	18
909385	726467	LANGLEY	TOWNSHIP		20542	84TH AVENUE	8.5	7.0	5.1	2.7	2.3	1.1	1.0	0.5	0.0	0.0	0.0	0.0	28
909385	729989	WEST LANGLEY	TOWNSHIP		9400	208TH STREET	35.9	22.6	21.3	8.8	5.1	4.4	3.6	3.5	4.7	13.0	20.5	21.4	165
909385	730033	TOWNSHIP OF LANGLEY			9580	208TH STREET	46.2	32.7	12.7	2.0	1.9	1.8	1.5	1.1	0.5	8.0	30.0	33.0	171
909385	731665	TOWNSHIP OF LANGLEY			8937	WALNUT GROVE DRIVE	66.5	50.8	39.2	24.0	8.7	6.0	6.1	5.6	6.4	9.5	15.4	20.0	258
909385	733099	TOWNSHIP OF LANGLEY		108	8850	WALNUT GROVE DRIVE	25.5	16.4	14.2	4.4	1.0	0.0	0.3	0.1	1.7	6.6	17.3	26.4	114
909385	733498	TOWNSHIP OF LANGLEY			23398	MAVIS AVENUE	66.4	55.2	39.7	26.1	14.0	10.2	5.4	9.4	16.3	27.3	44.9	57.6	373
909385	733592	TOWNSHIP OF LANGLEY			23191	96TH AVENUE	45.3	35.9	26.9	19.8	7.4	5.3	2.5	2.8	3.0	13.2	35.4	44.1	242
909385	733839	TOWNSHIP OF LANGLEY			23055	ST ANDREWS AVENUE	23.6	18.9	16.0	14.6	24.5	50.0	91.2	72.5	44.9	13.6	19.9	26.3	416
909385	733841	TOWNSHIP OF LANGLEY			23105	ST ANDREWS AVENUE	9.7	7.1	4.4	3.2	1.1	1.0	0.9	1.2	1.6	3.4	6.8	8.0	49
909385	733921	TOWNSHIP OF LANGLEY			9112	KING STREET	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	7.7	17
1141431	763276	CANADIAN RECREATION EXCELL	AlderGrove		2882	272ND STREET	395.3	366.5	337.5	61.4	28.4	24.7	18.7	97.3	216.3	256.4	316.0	345.1	2,464
909385	763401	TOWNSHIP OF LANGLEY			26978	FRASER HIGHWAY	16.3	11.8	9.5	3.9	4.0	0.8	0.6	1.7	1.7	11.8	11.7	18.8	93
909385	765198	TOWNSHIP OF LANGLEY			3876	248TH STREET	82.3	73.3	44.6	27.6	11.4	1.9	1.7	1.6	24.1	36.6	70.0	90.1	465
909385	768681	TOWNSHIP OF LANGLEY			26770	29TH AVENUE	111.0	73.9	54.5	33.3	21.2	19.6	7.5	10.8	31.8	36.0	63.0	65.1	528
909385	768828	TOWNSHIP OF LANGLEY			27155	32ND AVENUE	59.6	52.9	28.5	7.7	3.1	118.7	120.3	129.7	24.3	8.4	24.9	43.5	622
909385	778192	WATER TREATMENT PLANT	TOWNSHIP		27580	28TH AVENUE	129.7	106.7	18.4	141.6	99.4	82.2	68.7	64.8	92.8	137.4	169.6	194.2	1,306
909385	779219	TOWNSHIP OF LANGLEY			22323	48TH AVENUE	21.7	22.9	7.7	1.1	0.2	0.2	0.2	2.2	6.8	7.1	15.2	23.5	109
909385	781559	TOWNSHIP OF LANGLEY		TLR	4700	224TH STREET	6.7	4.6	4.3	2.0	0.7	0.7	0.7	0.7	1.0	3.6	3.3	6.2	35
1180051	783148	LANGLEY TOWNSHIP	(Walnut Gro		8889	WALNUT GROVE DRIVE	2859.4	2522.6	2093.2	1575.1	1722.3	1154.7	877.4	911.8	683.9	2270.9	2446.2	2625.5	21,743
909385	784488	FIRE HALL NO 3	TOWNSHIP		26316	30A AVENUE	82.8	66.9	42.6	25.9	14.8	7.1	5.5	4.2	17.7	29.1	55.3	85.2	437
909385	791027	TOWNSHIP OF LANGLEY			20253	72ND AVENUE	120.9	80.6	57.4	32.2	12.2	5.8	3.0	4.0	9.2	52.4	124.1	151.4	653
909385	828711	TOWNSHIP OF LANGLEY			2707	268TH STREET	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8	19
1179997	721331	LANGLEY MUNICIPALITY	(WC Blair)		22200	FRASER HIGHWAY	942.1	684.6	747.2	709.1	746.2	528.0	524.5	532.2	583.8	641.3	655.2	825.3	8,119

Notes:

1) PremNum 828711 was not on the list provided, but started December 2, 2004 - address is 2707 268th Street,

2) PremNum 733921 was not on the list provided, but started November 24, 2004 - address is 9112 King Street,

Table A-2: Township Electricity Consumption (1995, 1999, 2000, 2003 and 2004)

Account Number	Acct Closed Date	Category	Sub-Category	Account Description	Rate Code	Service Address	1995	1999	2000	2003	2004
							(kwh)	(kwh)	(kwh)	(kwh)	(kwh)
00003089164		Buildings	Fire	Fire Hall No.4	1200	20253 72 Avenue				104,280	82260
22319460101		Buildings		Aldergrove Kinsemen (	1200	26770 29 Avenue	159,840	160,080	183360	199120	185600
21382299191		Buildings	Parks	Walnut Grove Park (W	1200	8937 Walnut Grove Drive	25,500	37,860	46080	50940	45960
22303409201		Buildings	Parks	Aldergrove South Park	1200	W OF 27A Avenue 269 Street	16,400	33,040	32960	36000	29680
21333500091		Buildings	Operations	Operations Centre	1200	4700 224 Street	417,614	779,040	843120	861120	788400
21343200181		Buildings	Fire	Fire Hall No.6	1200	22170 50 Avenue		368,520	346080	417000	422520
21343249001		Buildings	Ops	Municipal Hall	1200	4914 221 Street	501,200	295,200	350000	357400	350000
21343200821	14-Jun-99	Buildings	Operations	Municipal Hall		4914 221 Street (RR)	2,609	1,028			
	15-Feb-95	Buildings	Operations	Municipal Hall		4914 221 Street	11,242				
	12-Feb-99	Buildings	Operations	Municipal Hall		4914 221 Street	21,551	4,113			
	15-Mar-95	Buildings	Operations	Municipal Hall		4914 221 Street	65,040				
21343297003		Buildings	Rec Center	WC Blair Recreation	1200	22200 Fraser Highway	1,688,400	1,386,960	1361040	1,470,480	1588320
21343299491		Buildings	RCMP	RCMP	1200	22180 48A Avenue	1,059,840	979,920	1028520	875,160	882720
22301331201		Buildings		Aldergrove Arena	1201	2882 272 Street	1,044,300	1,007,700	1,007,700	625,800	625,800
21382200061		Buildings	Rec Center	Walnut Grove Recreati	1210	8889 Walnut Grove Drive	598,080	1,286,880	3629280	3199680	3417120
00000278394		Buildings	RCMP	RCMP Green HQ	1220	22323 48 Avenue		43,628	55888	75180	22968
1045384		Buildings		LEPS Trailer	1220	4700 224 Street Trailer			4339	7869	8044
00001695144		Buildings	Fire	Fire Hall No.3	1220	26316 30A Avenue			32640	91680	96480
00001715684		Buildings	RCMP	Aldergrove (Communit	1220	26978 Fraser Highway			4384	63503	56475
00002590894		Buildings	Operations	Brookswood Library	1220	20049 40 Avenue				4093	4373
00002756004		Buildings	Parks	Williams Park (Shelter)	1220	6595 238 Street Park				218	205
00002840464		Buildings	Parks	Park Washrooms (Den	1220	21900 Old Yale Road				20182	8069
00003200674		Buildings	RCMP	RCMP Sub Office	1220	4061 200 Street (109)				20557	22694
00003501164		Buildings	Operations	Murrayville Library	1220	22071 48 Avenue (100)				121560	105720
21311300421		Buildings	Fire	Fire Hall No.5	1220	20355 32 Avenue	75,441	54,043	51566	45184	44174
21322171981		Buildings	Parks	Cemetery (Building)	1220	4393 208 Street	8,248	14,998	15051	11741	11668
21330300081		Buildings	Parks	Old Fire Hall Now Park	1220	4035 200 Street	12,027	33,835	24085	28602	33447
00003453204		Buildings	Parks	South Aldergrove Park	1220	26817 27 Avenue				2546	9913
21350701171		Buildings	Parks	Langley Meadows Park	1220	19907 64 Avenue	0	0	0	27	27
21352100172		Buildings	Parks	McCleod Athletic Park	1220	5745 216 Street	7,983	18,127	16480	19,679	21518
21381700651		Buildings	Parks	McClughan Park	1220	9035 206 Street		1,645	1376	0	308
22304443401		Buildings		Methane Burner	1220	1099 272 Street	10,160	5,691	3910	3,850	3710
22320330011		Buildings	Parks	Ball Park	1220	27155 32 Avenue	4,403	8,210	7428	9,492	7939
22320330611		Buildings	Parks	Ball Park	1220	27155 32 Avenue	7,560	7,200	10140	11,160	9480
21343400111		Buildings		Airport	1220	5333 216TH Street (Pole)	4,587	24,515	24701	26,723	28313
21343400281		Buildings		Airport	1220	5385 216 Street	1,078	20,273	18474	21,969	19942
21343400381		Buildings		Airport	1220	5385 216 Street	1,258	4,849	3812	3,885	3391
21343400451		Buildings		Airport	1220	5225 216 Street (HELI.)	250	742	548	970	936
22307350501		Buildings	Fire	Fire Hall No.7	1220	3876 248 Street	19,558	25,721	25492	21,693	22991
21331480031		Buildings	Operations	Brookswood Library	1220	20045 40 Avenue	28,110	22,756	29042	25,270	36008
21332304051		Buildings	Parks	Murrayville Cemetery (	1220	21405 44 Avenue	2,257	4,115	5029	5,459	6227
21343400041		Buildings		Airport	1220	5385 216 Street	1,080	30,360	28920	30,720	31440
21365135961		Buildings	Parks	Williams Park (Washro	1220	6595 238 Street (Rest)	58,636	32,656	30678	21,107	18900
21372150201		Buildings	Parks	Willoughby Park (Wash	1220	20542 84 Avenue	42,600	33,900	47820	21,720	30660
21373100281	21-May-03	Buildings	Fire	Fire Hall No.4 (no long	1220	20409 80 Avenue	27,589	28,293	28,293	13,699	
21381507031		Buildings		West Langley Hall	1220	9400 208 Street		26,018	25729	25746	25124
21381507531		Buildings	Fire	Fire Hall No.8	1220	9580 208 Street		54,834	57330	61381	65179
21383203191		Buildings	RCMP	RCMP Sub Office	1220	8850 Walnut Grove Drive (108)	10,933	19,298	20752	19980	37175
21384445091		Buildings	Operations	Museum	1220	23398 Mavis Avenue	37,021	33,701	34525	37451	38444
21384445231		Buildings	Operations	Museum	1220	23398 Mavis Avenue	51,067	58,606	59383	51913	51923
21384451231		Buildings	Fire	Fire Hall No.2	1220	23191 96 Avenue	27,380	27,870	26641	24674	28071

Table A-2: Township Electricity Consumption (1995, 1999, 2000, 2003 and 2004)

Account Number	Acct Closed Date	Category	Sub-Category	Account Description	Rate Code	Service Address	1995	1999	2000	2003	2004
							(kwh)	(kwh)	(kwh)	(kwh)	(kwh)
21385235591		Buildings		Fort Langley Communi	1220	23055 St. Andrews Avenue	18,781	15,903	17756	19241	29020
21385235601		Buildings		Cemetery (Building)	1220	23105 St. Andrews Avenue	3,961	5,321	5724	4,463	5646
22301417903	31-Mar-03	Buildings	RCMP	Aldergrove RCMP Sub	1220	3085 271 Street	13,843	19,038	19,038	3	
33142104201		Buildings	Parks	Brown Park (Irrigation)	1401	5022 240 Street	5,126	1,574	1,574	4,558	4,558
21331855741		Buildings		Civic Centre	1755	20699 42 Avenue	1,803,000	1,304,400	1,304,400	1,490,400	1,490,400
21330300063	5-May-02	Buildings	RCMP	Brookswood RCMP Sub Office		4061 200 Street (112)		24,866	24,866		
21373100271	19-Jul-02	Buildings	Fire	Fire Hall No.4 (no longer there)		20409 80 Avenue	20	16	16		
22301418003	31-Mar-03	Buildings	RCMP	Aldergrove RCMP Sub Office		3087 271 Street	12,135	5,162	5,162		
00000756624	30-Sep-01	Buildings		LEPS Trailer		4700 224 Street Trailer		88	88		
00001103404	7-Jan-00	Buildings				7017 202B Street		14,671			
21343253141	15-May-99	Buildings				4914 222 Street		9,600			
22320455301	3-Jul-02	Buildings				2900 272 Street	26,958	28,669	28,669		
	24-Jul-95	Buildings				4061 200T Street (102)	5,149				
	22-Apr-97	Buildings		Heritage House		21860 Old Yale Road (B)	1,906				
	25-Sep-98	Buildings				22313 48 Avenue	32,992				
	5-Dec-95	Buildings				21447 51B Avenue	4,633				
	25-Feb-98	Buildings				9580 208 Street	73,469				
80635		Buildings				4061 200 Street	29,730	103918			
	27-Nov-95	Buildings				22259 48 Avenue	26,955				
21343400091	31-Dec-00	Buildings		Airport (Account was closed)		5385 216 Street (U/S)	10,968	15,179			
00001832124		Streetlights	Parks	MAP Grandstand (Soft	1200	21485 58 Avenue				75,120	105,840
00003491874		Streetlights	Parks	Mcleoad Athletic Park (	1200	21400 58 Avenue				53,460	67,320
21321283431		Streetlights	Parks	Noel Booth Park (Wash	1200	20244 36 Avenue	76,800	111,120	107,760	95,280	93,000
21345235231		Streetlights	Parks	Brown Park (Washroor	1200	5022 240 Street	42,400	82,880	91,040	94,480	101,840
21352100351		Streetlights	Parks	McCleod Athletic Park	1220	21541 57A Avenue		17,040	19,200	21,360	140,640
21321100191		Streetlights	Parks	Bell Park (Security Ligh	1220	3800 205A Street	2,784	2,156	2,971	2,788	3,717
21361310412		Streetlights	Parks	Milner Rugby Lights	1220	6860 Glover Road		20,941	23,368	12,974	12,544
21372150221		Streetlights	Parks	Willoughby Park (Secu	1220	20542 84 Avenue (A)	2,443	431	431	1,651	1,651
21382200441		Streetlights	Parks	Walnut Grove Park (Sc	1220	8937 Walnut Grove Drive	45,660	48,660	49,200	42,660	55,440
21382601121		Streetlights	Parks	James Kennedy Park (	1220	8995 213 Street		13,448	6,775	15,571	9,223
22320330111		Streetlights	Parks	Aldergrove Park Lights	1220	27155 32 Avenue	23,374	38,057	27,987	26,387	34,238
00000329514		Streetlights	Traffic	Traffic Signals	1220	20002 88 Avenue		12,949	18,000	18,199	18,000
00000439754		Streetlights	Traffic	Traffic Signals	1220	8645 Glover Road		96	1,503	1,710	2,076
00000496464		Streetlights	Traffic	270 Street Kiosk	1220	Route 1A E/O 270 Street				5,928	5,003
00000496494		Streetlights	Traffic	273 Street Kiosk	1220	Route 1A at 273 Street				5,392	4,179
00000675624		Streetlights	Traffic	Willoughby PRV Kiosk	1220	20415 82 Avenue		85	744	509	454
00001575024		Streetlights	Traffic	Traffic Signals	1220	20302 64 Avenue				10,728	10,728
00003671654		Streetlights	Traffic	Christmas Lighting	1220	6595 238 Street Kiosk				741	1156
00003844894		Streetlights	Traffic	Traffic Signals	1220	1939 264 Street				1,102	1620
21332101891		Streetlights	Traffic	Traffic Signals	1220	4400 208 Street		8,760	8,760	8,760	8,760
21343250101		Streetlights	Traffic	2 Lights	1220	4915 221 Street	2,810	2,179	1,859	1,954	1,472
21383200441		Streetlights	Traffic	Park & Ride	1220	20300 88 Avenue	35,639	28,319	25,690	22,842	18,773
21384295911		Streetlights	Traffic	Wilson Townline Road	1220	23191 96 Avenue	200	480	480	480	485
33170021061		Streetlights	Overhead	Overhead Street Lighti	1701	Overhead Street Lighting	611,207	607,090	601,256	537,287	488,923
33170022081		Streetlights	Overhead	Overhead Street Lighti	1701	Overhead Street Lighting	204,589	209,405	205,698	203,800	204,310
33170021051		Streetlights	Ornamental	Ornamental Street Ligh	1702	Ornamental Street Lighting	1,465,196	1,947,293	2,044,954	1,929,695	2,255,989
33170022071		Streetlights	Ornamental	Ornamental Street Ligh	1702	Ornamental Street Lighting	401,232	549,816	587,902	544,192	656,724
00000211684		Streetlights	Traffic	Traffic Signals	1704	19865 96 Avenue		9,848	9,848	10,417	10,417
00000266624		Streetlights	Traffic	Traffic Signals	1704	9150 200 Street		9,570	9,570	11,484	11,484
00000315294		Streetlights	Traffic	Traffic Signals	1704	20402 96 Avenue		14,103	14,103	4,509	4,509
00000329254		Streetlights	Traffic	Traffic Signals	1704	24000 Fraser Highway		10,739	10,739	11,244	11,244

Account Number	Acct Closed Date	Category	Sub-Category	Account Description	Rate Code	Service Address	1995	1999	2000	2003	2004
							(kwh)	(kwh)	(kwh)	(kwh)	(kwh)
00000329304		Streetlights	Traffic	Traffic Signals	1704	23200 Fraser Highway		10,660	10,660	11,244	11,244
00000329364		Streetlights	Traffic	Traffic Signals	1704	22200 Fraser Highway		13,859	13,859	15,348	15,348
00000329374		Streetlights	Traffic	Traffic Signals	1704	21600 Fraser Highway		18,187	18,187	15,253	15,253
00000329384		Streetlights	Traffic	Traffic Signals	1704	66 Avenue 200 Street		13,327	13,327	14,424	14,424
00000329394		Streetlights	Traffic	Traffic Signals	1704	200 Street Willowbrook		19,917	19,917	15,768	15,768
00000329454	1-Apr-99	Streetlights	Traffic	Traffic Signals	1704	Route 10 Langley Bypass		2,227			
00000329474		Streetlights	Traffic	Traffic Signals	1704	200 Street 64 Avenue		13,386	13,386	17,784	17,784
00000329484		Streetlights	Traffic	Traffic Signals	1704	Glover Road and Jardine Road		383	383	516	516
00000329494		Streetlights	Traffic	Traffic Signals	1704	80 Avenue and 200 Street		14,827	14,827	20,214	20,214
00000329504		Streetlights	Traffic	Traffic Signals	1704	83 Avenue and 200 Street		2,305	2,305	3,142	3,142
00000329524		Streetlights	Traffic	Traffic Signals	1704	68 Avenue and 200 Street		683	683	814	814
00000329534		Streetlights	Traffic	Traffic Signals	1704	70 Avenue and 200 Street		1,366	1,366	1,628	1,628
00000329544		Streetlights	Traffic	Traffic Signals	1704	200 Street and 72 Avenue		13,332	13,332	15,884	15,884
00000329574		Streetlights	Traffic	Traffic Signals	1704	7730 Glover Road		187	187	252	252
00000329624		Streetlights	Traffic	Traffic Signals	1704	Glover Road/88 Avenue		11,453	11,453	12,660	12,660
00000330384		Streetlights	Traffic	Traffic Signals	1704	Route 1A at 276 Street		11,434	11,434	15,360	15,360
00000330854		Streetlights	Traffic	Traffic Signals	1704	Route 1A at 273A Street		5,439	5,439	5,712	5,712
00000330894		Streetlights	Traffic	Traffic Signals	1704	Route 1A at 268 Street		10,413	10,413	6,852	6,852
00000330914		Streetlights	Traffic	Traffic Signals	1704	Route 1A and 248 Street		11,943	11,943	11,244	11,244
00000330924		Streetlights	Traffic	Traffic Signals	1704	24400 Fraser Highway		5,404	5,404	11,952	11,952
00000331004		Streetlights	Traffic	Traffic Signals	1704	Route 1A AT 272 Street		12,393	12,393	15,888	15,888
00000333214		Streetlights	Traffic	Traffic Signals	1704	19600 Fraser Highway		16,025	16,025	21,288	21,288
00000412244		Streetlights	Traffic	Traffic Signals	1704	7202 208 Street		7,592	7,592	12,480	12,480
00000429704		Streetlights	Traffic	Traffic Signals	1704	8002 208 Street		7,626	7,626	12,791	12,791
00000589644		Streetlights	Traffic	Traffic Signals	1704	8999 208 Street		2,387	2,387	4,235	4,235
00000666154		Streetlights	Traffic	Traffic Signals	1704	9155 202 Street		886	886	2,167	2,167
00001551514		Streetlights	Traffic	Traffic Signals	1704	200 Street and 44 Avenue				17,700	17,700
00001632684		Streetlights	Traffic	Traffic Signals	1704	5600 216 Street				19,032	19,032
00001940394		Streetlights	Traffic	Traffic Signals	1704	Fraser Highway E/O 270 Street				4,378	4,378
00002007574		Streetlights	Traffic	Traffic Signals	1704	21099 72 Avenue				600	600
00002538424		Streetlights	Traffic	Traffic Signals	1704	9400 210 Street				3,850	3,850
00002818834		Streetlights	Traffic	Traffic Signals	1704	1600 200 Street				2,319	2,319
00002818874		Streetlights	Traffic	Traffic Signals	1704	1600 208 Street				1,919	1,919
00002818894		Streetlights	Traffic	Traffic Signals	1704	1600 216 Street				1,833	1,833
00002818904		Streetlights	Traffic	Traffic Signals	1704	1600 224 Street				1,833	1,833
00002818914		Streetlights	Traffic	Traffic Signals	1704	1600 232 Street				1,833	1,833
00002818924		Streetlights	Traffic	Traffic Signals	1704	1600 240 Street				1,833	1,833
00002840854		Streetlights	Traffic	Traffic Signals	1704	1600 272 Street				2,364	2,364
00002840864		Streetlights	Traffic	Traffic Signals	1704	1600 256 Street				2,364	2,364
00002840874		Streetlights	Traffic	Traffic Signals	1704	1600 248 Street				2,364	2,364
00003051714		Streetlights	Traffic	Traffic Signals	1704	9475 201 Street				11,308	11,308
00003076894		Streetlights	Traffic	Traffic Signals	1704	20220 64 Avenue				7,260	7,260
00003105474		Streetlights	Traffic	Traffic Signals	1704	27515 Fraser Highway				13,944	13,944
00003389814		Streetlights	Traffic	Pedestrian Signs	1704	3500 200 Street				3,276	3,276
00003389834		Streetlights	Traffic	Pedestrian Signs	1704	20250 36 Avenue				3,276	3,276
00003422514		Streetlights	Traffic	Pedestrian Signal	1704	9010 Glover Road				648	648
00003719644		Streetlights	Traffic	Traffic Signals	1704	88 Avenue / 210 Street				15,183	15,183
00003778474		Streetlights	Traffic	Traffic Signals	1704	6201 204 Street				1,862	1,862
00004073984		Streetlights	Traffic	Traffic Signals	1704	3200 200 Street				604	604
00004385464		Streetlights	Traffic	Traffic Signals	1704	270 Street 32 Avenue				1,788	1,788
00004393574		Streetlights	Traffic	Traffic Signals	1704	19798 Willowbrook Drive				517	517

Table A-2: Township Electricity Consumption (1995, 1999, 2000, 2003 and 2004)

Account Number	Acct Closed Date	Category	Sub-Category	Account Description	Rate Code	Service Address	1995	1999	2000	2003	2004
							(kwh)	(kwh)	(kwh)	(kwh)	(kwh)
00004404664		Streetlights	Traffic	Traffic Signals	1704	56 Avenue at 248 Street				28	28
21311100081		Streetlights	Traffic	4 Way Intersection	1704	2400 200 Street		2,364	2,364	2,364	2,364
21312100291		Streetlights	Traffic	Traffic Signals	1704	3750 208 Street	3,605	8,652	8,652	2,842	2,842
21320271121		Streetlights	Traffic	Traffic Signals	1704	3850 200 Street	3,680	8,832	8,832	10,248	10,248
21320401351		Streetlights	Traffic	Traffic Signals	1704	3600 200 Street	9,305	22,332	22,332	12,348	12,348
21322101451		Streetlights	Traffic	Traffic Signals	1704	4000 208 Street		15,768	15,768	4,418	4,418
21330370101		Streetlights	Traffic	Traffic Signals	1704	4100 200 Street	4,295	10,308	10,308	11,616	11,616
21330370611		Streetlights	Traffic	Traffic Signals	1704	4200 200 Street	4,635	11,124	11,124	11,616	11,616
21330371071		Streetlights	Traffic	Traffic Signals	1704	4000 200 Street	5,015	12,036	12,036	10,920	10,920
21350501511		Streetlights	Traffic	Traffic Signals	1704	19702 64 Avenue	3,130	7,512	7,512	14,136	14,136
21350501551		Streetlights	Traffic	Traffic Signals	1704	19701 Willowbrook Drive	5,596	12,672	12,672	4,112	4,112
21361100201		Streetlights	Traffic	Traffic Signals	1704	20498 64 Avenue		10,512	10,512	10,512	10,512
21361100341		Streetlights	Traffic	Traffic Signals	1704	64 Avenue 200 Street	365	876	876	18,972	18,972
21380000381		Streetlights	Traffic	Traffic Signals	1704	92A Avenue 200 Street	7,090	17,016	17,016	14,424	14,424
21380001091		Streetlights	Traffic	Traffic Signals	1704	9300 Block 200 Street		24,360	24,360	17,364	17,364
21380089451		Streetlights	Traffic	Traffic Signals	1704	96 Avenue 200 Street	5,840	14,016	14,016	10,200	10,200
21381100051		Streetlights	Traffic	Traffic Signals	1704	88 Avenue 204 Street	4,368	13,104	13,104	13,371	13,371
21381500061		Streetlights	Traffic	Traffic Signals	1704	88 Avenue 208 Street	505	1,212	1,212	14,204	14,204
21382200021		Streetlights	Traffic	Traffic Signals	1704	88 Avenue Walnut Grove Drive	6,375	15,300	15,300	12,705	12,705
21382200211		Streetlights	Traffic	Traffic Signals	1704	88 Avenue Walnut Grove Drive	264	528	528	484	484
21382200551		Streetlights	Traffic	Traffic Signals	1704	9055 212 Street		12,264	12,264	3,412	3,412
21382600881		Streetlights	Traffic	Traffic Signals	1704	21479 88 Avenue	438	915	915	915	915
21382699131		Streetlights	Traffic	Traffic Signals	1704	88 Avenue 212 Street	6,515	16,372	16,372	14,803	14,803
21382800481		Streetlights	Traffic	Traffic Signals	1704	8801 216 Street	5,692	17265	17,265	15,653	15,653
21391201151		Streetlights	Traffic	Traffic Signals	1704	20802 96 Avenue	665	15,768	15,768	4,239	4,239
21391202441		Streetlights	Traffic	Traffic Signals	1704	20168 96 Avenue		18,576	18,576	4,905	4,905
22314370212		Streetlights	Traffic	Traffic Signals	1704	Route 1 AT Route 13		10,224	10,224	10,224	10,224
22320300021		Streetlights	Traffic	Traffic Signals	1704	32 Avenue 272 Street	6,288	18,864	18,864	4,755	4,755
21372105091		Streetlights	Traffic	Fire Hall No.4 Outside	1755	20409 80 Avenue	0	0	0	0	702
163404		Water/Sewage	Water	Aldergrove Water Trea	1200	27540 28 Avenue		338,160	453,840	527,280	643,680
00001171074		Water/Sewage		?	1200	5676 272 Street PMP2			25,920	89,640	94,680
21311315501		Water/Sewage	Water	Brookswood Well No.7	1200	20650 32 Avenue	18,560	66,240	132,960	215,200	205,980
21312102731		Water/Sewage	Water	Brookswood Well No.9	1200	20701 32 Avenue	64,200	84,000	169,560	316,680	275,400
21320201251		Water/Sewage	Water	Brookswood Water PR	1200	19620 36 Avenue	48,600	43,080	37,800	54,360	35,640
21320203201		Water/Sewage	Water	Brookswood Water No	1200	19820 36 Avenue	207,040	237,120	236,320	212,800	169,120
21320400511		Water/Sewage	Water	Brookswood Water We	1200	3482 197 Street	87,660	49,902	63,840	5,444	15,580
21323280021		Water/Sewage	Water	Murrayville Well No.1	1200	4451 224 Street	153,985	126,960	214,320	196,560	225,600
21335150251		Water/Sewage	Water	Murrayville Well No.2	1200	22566 Old Yale Road	101,520	144,900	145,620	164,160	203,220
21361299011		Water/Sewage	Water	Water Pump	1200	6795 206 Street	145,620	53,280	3,060	110,520	70,020
21371200311		Water/Sewage	Water	Willoughby Booster Sta	1200	20400 73A Avenue	86,040	72,900	55,620	77,580	68,220
21373215001		Water/Sewage	Water	NWL Well	1200	22709 88 Avenue	797,040	885,600	1,285,920	1,229,400	1,530,000
21373400241		Water/Sewage	Water	NWL Reservoir Station	1200	21212 85 Avenue	336,960	269,760	299,040	313,920	122,640
21384451511		Water/Sewage	Water	Salmon River Pump St	1200	Salmon River West Langley	68,040	256,800	262,560	125,040	141,360
21391250181		Water/Sewage	Sewage	WG Sewer Lift Station	1200	21210 96 Avenue	150,720	233,400	213,360	228,960	277,560
21392147611		Water/Sewage	Water	West Langley Dyke Pu	1200	20461 102B Avenue	61,520	61,200	82,560	62,880	29,280
22303303411		Water/Sewage	Sewage	Aldergrove Sewage Tre	1200	27540 28 Avenue	80,827	257,220	272,700	314,640	333,540
22303487652		Water/Sewage	Water	Aldergrove Water Well	1200	2623 272 Street	293,160	147,360	173,760	221,760	271,920
22308353701		Water/Sewage	Water	Aldergrove Water Rese	1200	3170 262B Street	62,720	51,840	48,000	55,760	48,560
22310469502		Water/Sewage	Water	Water Pump SRU No.1	1200	5800 245A Street	427,320	316,080	59,220	91,260	152,280
22315309632		Water/Sewage	Water	Aldergrove Pump No.7	1200	2520 272 Street	75,840	211,080	154,680	208,560	223,080
22315320201		Water/Sewage	Water	Aldergrove Water Well	1200	27190 25 Avenue	199,980	241,200	174,600	191,520	218,160

Table A-2: Township Electricity Consumption (1995, 1999, 2000, 2003 and 2004)

Account Number	Acct Closed Date	Category	Sub-Category	Account Description	Rate Code	Service Address	1995	1999	2000	2003	2004
							(kwh)	(kwh)	(kwh)	(kwh)	(kwh)
21312102711		Water/Sewage	Water	Brookswood Water Re:	1220	20771 32 Avenue	13,540	16,576	14,467	15,912	16,401
21320400371		Water/Sewage	Water	Drainage Pump Statior	1220	19698 33A Avenue	1,973	12,848	10,290	75	0
21320449291		Water/Sewage	Water	Brookswood Water We	1220	3458 200 Street	2,884	3,286	4,595	4,455	6,557
21331800011		Water/Sewage	Sewage	Sewage Lift Station	1220	4353 200A Street	1,855	2,518	2,120	1,618	1,692
21335136501		Water/Sewage	Sewage	Sewage Pump Station	1220	23750 Fraser Highway	228	1,344	1,788	1,597	1,697
21342260131		Water/Sewage	Sewage	Sewer Pump Station	1220	21341 Old Yale Road	193	134	200	192	74
21345260401		Water/Sewage	Water	Acadia Water	1220	4745 242A Street	10,268	11,134	10,732	19,817	21,866
21345422452		Water/Sewage	Water	Tall Timbers Water	1220	23990 58A Avenue	63,140	69,331	29,796	71,535	68,657
21352175501		Water/Sewage	Sewage	West Langley Sewer L	1220	21200 56 Avenue	107,923	13,549	14,243	13,952	14,043
21361100281		Water/Sewage	Sewage	Sewage Lift Station	1220	20555 62 Avenue	2,467	5,905	3,767	1,249	1,323
21361104001		Water/Sewage	Sewage	Sewer Lift Station	1220	203 Street 62 Avenue	90,720	86,040	83,520	77,040	124,560
21361398151		Water/Sewage	Sewage	Lift Station	1220	6656 Glover Road (Pump)	16,210	19,733	22,989	21,544	20,769
21371212251		Water/Sewage	Water	Willoughby Reservoir V	1220	20450 73A Avenue	4,199	2,513	2,303	1,091	1,009
21373200311		Water/Sewage	Sewage	Lift Station	1220	8395 216 Street	5,704	7,755	7,525	8,477	7,770
21381314211		Water/Sewage	Sewage	Sewer Lift Station	1220	20513 95A Avenue	1,233	1,300	1,510	1,389	1,511
21382699231		Water/Sewage	Sewage	Lift Station	1220	9046 214B Street	6,561	10,071	6,343	13,524	11,328
21382800451		Water/Sewage	Sewage	Lift Station	1220	9001 216 Street	14,940	16,380	12,780	16,740	18,720
21384400351		Water/Sewage	Sewage	Lift Station	1220	23345 Mavis Avenue		29,880	27,480	30,840	29,700
21391000131		Water/Sewage	Water	Valve	1220	19603 96 Avenue	306	230	314	507	505
21391000551		Water/Sewage	Water	Pressure Reducing Val	1220	9620 201 Street	10,026	9,243	5,296	5,124	5,991
21392100011		Water/Sewage	Sewage	Lift Station	1220	9800 208 Street	3,470	2,314	3,945	2,922	2,936
21392121002		Water/Sewage	Sewage	Sewer Lift Station	1220	20452 98 Avenue	16,708	17,873	19,958	18,574	20,451
22301313701		Water/Sewage	Sewage	Sewer Lift Station	1220	27170 28B Avenue	4,811	4,101	6,187	4,893	5,175
22301331101		Water/Sewage	Water	Aldergrove Pump No.3	1220	2800 272 Street	105,704	54,669	110,359	79,662	87,019
22310300011		Water/Sewage	Water	Water Pump SRU No.3	1220	5945 252 Street	18,960	6,960	2,520	1,920	1,200
22313428301		Water/Sewage	Water	Aldergrove Reservoir	1220	Quinton Road W/O	6,946	8,991	8,991	7,384	7,384
22314387002		Water/Sewage	Sewage	Gloucester Sewage Tr	1220	5676 272 Street	291,240	413,880	458,640	14,760	15,000
22315309941		Water/Sewage	Sewage	Sewer Lift Station	1220	26827 24 Avenue	3,944	18,343	16,393	18,215	22,545
22315310101		Water/Sewage	Sewage	Sewer Lift Station	1220	2502 272 Street	2,816	4,106	4,082	4,853	6,191
22319454321		Water/Sewage	Sewage	Sewer Lift Station	1220	26600 28 Avenue	9,208	19,019	15,423	18,588	19,599
22320340001		Water/Sewage	Water	Aldergrove Well Pump	1220	3201 272 Street	20,248	6,915	32,931	87,177	91,285
	24-Nov-96	Water/Sewage	Sewage	North West Langley Sewage Treat		201 Street 102B Avenue NW	2,594,880				
	5-Dec-97	Water/Sewage	Sewage	Aldergrove Sewage Treatment Pla		27540 28 Avenue	868,800				
	22-Mar-95	Water/Sewage	Water	West Langley Pump Dyke Station		20461 102B Avenue	18,380				

Table A-2: Township Electricity Consumption (1995, 1999, 2000, 2003 and 2004)

Account Number	Acct Closed Date	Category	Sub-Category	Account Description	Rate Code	Service Address	1995	1999	2000	2003	2004
							(kwh)	(kwh)	(kwh)	(kwh)	(kwh)

Legend

	No data - account wasn't active
	Account data not found, previous year data used.
	Direct copy from previous year.

Summary

Consumption by:	1995 (kwh)	1999 (kwh)	2000 (kwh)	2003 (kwh)	2004 (kwh)
Total	18,906,305	17,841,531	20,850,660	20,663,960	21,835,457
Buildings	8,120,468	8,524,630	10,929,889	10,667,128	10,859,940
Street Lights	2,998,000	4,291,878	4,414,024	4,417,282	4,987,039
Water/Sewage	7,787,837	5,025,023	5,506,747	5,579,550	5,988,478

Appendix B:
Compendium of Identified Potential Funding Sources

List of Identified Funding Sources

Green Municipal Fund: Feasibility Studies

Grants for feasibility studies, field tests, and sustainable community plans: Federation of Canadian Municipalities (FCM)

Funding Agency

Federation of Canadian Municipalities

Description

The FCM will accept applications for grants for feasibility studies, field tests, and sustainable community plans in all GMF categories on a continuous basis. The three categories are listed in more detail below:

Feasibility Study – An assessment of the technical, environmental, and/or economic feasibility of a capital project. A feasibility study may include reviewing the current system or situation, identifying requirements for a proposed capital project, or studying the effects or financing options associated with implementing a capital project.

Field Test – A test of a potential capital project's performance under the conditions in which it will operate. For example, a field test may assess a small-scale installation of a new system or technology to determine the implications of installing the system or technology on a larger scale.

Sustainable Community Plan – An initiative that demonstrates an integrated, systems approach to addressing community-wide energy and environmental management objectives. Plans may include (but are not limited to) integrated planning (land-use, transportation, and energy), community and corporate greenhouse gas reduction plans, watershed management, brownfield redevelopment, and community-scale developments.

Funding will be divided into two streams:

- Stream A: Energy efficiency retrofits to municipal buildings, or the construction of new energy efficient municipal buildings
- Stream B: New renewable energy supply projects and energy distribution systems.

Amount of Funding Available

Up to $350 000. The funding option available to applicants for feasibility studies, field tests and sustainable community plans is a grant of up to 50% of the Total Eligible Costs to a maximum of $350,000.

Deadline for Application

FCM is accepting applications on a continuous basis.

Website

The Green Municipal Fund website is located at the following address:
<http://www.sustainablecommunities.ca/GMF/About/>

Contact Information (name, phone number, email address)

Simona Birea, Application Co-ordinator, Green Municipal Fund
Phone: (613) 241-5221, ext. 238; Fax: (613) 244-1515; email: energy.rfp@fcm.ca

Green Municipal Fund: Grants and Loans for Energy Efficiency

Federation of Canadian Municipalities (FCM)

Funding Agency

Federation of Canadian Municipalities (FCM)

Description

The FCM has implemented a long-term, sustainable source of low interest rate loans and grants for municipal governments and their partners to support environmental projects in the following six categories:

- Energy
- Waste
- Water
- Sustainable Transportation
- Brownfield Remediation, and
- Integrated Community Planning.

Annual funding caps have been established limiting the number of projects that will be supported each year. The eligibility criteria are available at:
http://kn.fcm.ca/ev.php?URL_ID=5817&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1142543179

Amount of Funding Available

The amount varies. Through the Energy RFP process, GMF will award funds totalling approximately $20 million in low interest rate loans and $2 million in grants for ready to implement projects.

Deadline for Application

The application deadline is different for each of the six categories. The following table outlines the 2006 deadlines and total FCM funds available:

RFP Sector	RFP Launch Date	Intent to Apply Closure Date	RFP Closure Date	Loan Funds Available	Grant Funds Available
Energy	8-Feb-06	1-Mar-06	12-Apr-06	$20 million	$2 million
Waste	5-Apr-06	26-Apr-06	7-Jun-06	$10 million	$2.5 million
Brownfields	10-May-06	31-May-06	12-Jul-06	$20 million	0
Water	30-Aug-06	20-Sep-06	1-Nov-06	$10 million	$3.5 million
Transportation	30-Aug-06	20-Sep-06	1-Nov-06	$10 million	$2 million
Totals				$70 million	$10 million

Website

http://www.sustainablecommunities.ca/GMF/GMF_Request_for_Proposals.asp

Contact Information (name, phone number, email address)

Simona Birea, Application Co-ordinator, Green Municipal Fund
Phone: (613) 241-5221, ext. 238; Fax: (613) 244-1515; E-mail: energy.rfp@fcm.ca

Energy Retrofit Assistance for Planning Activities (ERA-P)

EnerGuide for Existing Buildings – Natural Resources Canada

Funding Agency

Natural Resources Canada

Description

NRCan can help with Energy Retrofit Assistance funding for planning projects in commercial and institutional buildings, or ERA (P). Funding can be used to accomplish one or more of the following tasks:

- Energy audits that review your consumption and suggest possible savings
- Feasibility studies that thoroughly analyze potential savings from specific measures
- Energy management plans that set a long-term and measurable path for your entire organization
- Other project development and facilitation measures that can lead to energy savings
- Technologies and equipment that are innovative or that use renewable energy should be considered.

Amount of Funding Available

Maximum of $25,000. If considering an energy retrofit planning project, EEB members could receive up to 50 percent of eligible costs or up to $1 per gigajoule (1 GJ = 277.8 equivalent kilowatt hours) of annual energy consumption in the affected buildings – whichever amount is less – to a maximum of $25,000.

Deadline for Application

Funding is on a first come, first served basis.

Requirements and Additional Information

The municipality must become an EEB member and or an EII member to apply for funding. Projects with signed contracts or where work has already started are not eligible for funding. You will require an experienced energy professional for your project. The service provider you choose should be an accredited Certified Engineering Technologist or Professional Engineer (P.Eng.).

Website

http://oee.nrcan.gc.ca/publications/infosource/pub/ici/eii/pdf/m27-01-1726E.pdf

Contact Information (name, phone number, email address)

Buildings Division, Office of Energy Efficiency, Natural Resources Canada
Phone: 1 877 360-5500, Fax: (613) 947-4121, Email: info.services@nrcan.gc.ca

Energy Retrofit Assistance for Implementation Projects (ERA-3) EnerGuide for Existing Buildings – Natural Resources Canada
Funding Agency
Natural Resources Canada
Description
NRCan can help with your business, institution or other eligible organizations by providing Energy Retrofit Assistance, also known as ERA (3), funding for your project's development, management, materials, labour, monitoring and tracking, staff training, awareness and for other retrofit implementation projects in your existing buildings. Measures for efficient lighting, the building envelope, motors, controls, heating, ventilating, air conditioning and other energy-saving projects may be eligible.
Amount of Funding Available
Maximum of $250,000. If considering an energy retrofit project, EII members could receive up to $7.50 per gigajoule (1 GJ = 277.8 equivalent kilowatt hours) of annual energy savings or up to 25 percent of eligible costs – whichever amount is less – to a maximum of $250,000.
Requirements and Additional Information
The municipality must become an EEB member and or a EII member to apply for funding. Most industrial, federal government and new facilities are not eligible. Energy consultants, contractors and utilities cannot receive funding but can work with the EII as allies.
Deadline for Application
Accepting applications on a continuous basis.
Website
The Energuide for Existing Buildings website is located at the following address: http://oee.nrcan.gc.ca/publications/infosource/pub/ici/eii/pdf/m27-01-1725E.pdf
Contact Information (name, phone number, email address)
Buildings Division, Office of Energy Efficiency, Natural Resources Canada Phone: 1 877 360-5500, Fax: (613) 947-4121, Email: info.services@nrcan.gc.ca

Commercial Building Incentive Program for New Buildings Natural Resources Canada
Funding Agency
Natural Resources Canada
Description
Natural Resources Canada's Office of Energy Efficiency encourages the design and construction of new, energy-efficient commercial, institutional and multi-unit residential buildings and facilities. The Commercial Building Incentive Program (CBIP) provides design assistance and funding for eligible organizations based on building energy savings.
Amount of Funding Available
• $1000 – An expression of interest form is filled out and a letter with a project number is sent to the building owner and simulator. This project number entitles you to technical support valued at $1,000 • Up to $60 000 - CBIP helps offset the extra cost of designing energy-efficient buildings. The incentive for a building that meets CBIP criteria is calculated as a one-time financial incentive equal to twice the difference between the estimated annual energy costs if the building were constructed to the MNECB standard, to a maximum of $60,000 or the total design costs, whichever is less. • Up to $250 000 - The approved funding offers to building owners CBIP funding for up to six projects, or a maximum of $250,000 (whichever comes first). In cases where a single building design is replicated multiple times, the total amount of funding cannot exceed the total cost of the original design plus any modifications required to adjust the design to different sites.
Requirements and Additional Information
A database of CBIP funded projects are located at the following address: http://oee.nrcan.gc.ca/commercial/financial-assistance/new-buildings/recipients.cfm?attr=20 See the BC Hydro Power Smart Design Assistance Program section of this database for assistance on applying for CBIP funding.
Deadline for Application
Accepting applications on a continuous basis.
Website
The CBIP website is located at the following address: http://oee.nrcan.gc.ca/commercial/financial-assistance/new-buildings/how-cbip-works.cfm?attr=20
Contact Information (name, phone number, email address)
Buildings Division, Office of Energy Efficiency, Natural Resources Canada Phone: 1 877 360-5500, Fax: (613) 947-4121, Email: info.services@nrcan.gc.ca

Renewable Energy Deployment Initiative (REDI) Incentive Natural Resources Canada
Funding Agency
Natural Resources Canada
Description
Under REDI, NRCan encourages the private sector, federal departments and public institutions to gain experience with active solar and efficient biomass combustion systems. REDI is a 9-year, $51 million program designed to stimulate the demand for renewable energy systems for water heating, space heating and industrial process heating. These systems include: • active solar water heating systems; • active solar air heating systems; or • high efficiency/low emissions biomass combustion systems of between 75kW and 2MW capacity.
Amount of Funding Available
Maximums of $80,000 and $250,000. Corporations are eligible for a refund of 25 percent of the purchase, installation and certain other costs of a qualifying system, to a maximum refund of $80,000 per installation and a maximum of $250,000 per corporate entity. Some incentives are also provided on a pilot project basis.
Deadline for Application
Accepting applications on a continuous basis.
Requirements and Additional Information
REDI eligibility criteria are available at: http://www2.nrcan.gc.ca/es/erb/erb/english/View.asp?x=656
Website
The REDI website is located at the following address: http://www2.nrcan.gc.ca/es/erb/erb/english/View.asp?x=455
Contact Information (name, phone number, email address)
Maureen McCloskey, REDI Coordinator Electricity Resources Branch, Natural Resources Canada Tel: 1-877-722-6600, Fax: (613) 995-0087 Email: redi.penser@nrcan.gc.ca

Commercial Transportation Energy Efficiency Rebate Fleet Smart - Natural Resources Canada
Funding Agency
Fleet Smart - Natural Resources Canada
Description
Rebate for Fuel Efficient Devices. FleetSmart Program helps fleet owners and operators in all sectors to improve energy efficiency and reduce fuel costs. Funds have been allocated to pay a rebate for the installation of pre-qualified equipment that provides truck cab or bus-interior heating and/or cooling.
Amount of Funding Available
Not listed.
Requirements and Additional Information
To ensure that a reasonable amount of GHG emissions are eliminated for the expenditure of public money, the rebate is limited to eligible Class 6, 7 and 8 diesel-powered trucks and buses licensed for commercial on-road service in Canada.
Deadline for Application
Accepting applications on a continuous basis.
Website
http://oee.nrcan.gc.ca/transportation/pdf/efficiency-rebate.pdf
Contact Information (name, phone number, email address)
FleetSmart, Natural Resources Canada Madeleine Middleton Tel: (613) 947-8381, Email: **fleet.smart@nrcan.gc.ca**

Sustainable Enterprise Fund (GVRD)
Funding Agency
Greater Vancouver Regional District
Description
The Sustainable Enterprise fund offers GVRD member municipalities an opportunity to invest in sustainability projects that require additional incentive to overcome technical or financial risks. The intent of the fund is to complement municipal, provincial and federal funding sources for projects that utilize technology established elsewhere but is new to the region, or adapt best practices to conditions specific to the region. The focus is on improving sustainability in parks, housing, air quality and energy management, drinking water supply and treatment, wastewater conveyance and treatment, storm water management and solid waste management.
Amount of Funding Available
A maximum contribution guideline of $25,000 covers up to 1/3 of costs for projects that derive regional benefits, and 10% of costs for projects that focus on single municipal sustainability issues. The SEF provides $125,000 annually for innovative municipal projects and is limited to: · projects with regional benefits: up to 1/3 of the total eligible costs with a guideline maximum of $25,000, or · projects that advance sustainability within one municipality, and may not yield results that are applicable across the region: up to 10% of the total eligible costs with a guideline maximum of $10,000.
Requirements and Additional Information
Open to the public. Canada Post used a similar program that was very successful.
Website
http://www.ghgactionguide.ca/actions/resources.php?id=221 and go to: http://www.gvrd.bc.ca/board/archive/agendas/gvrd/mayregular/4.1.pdf for a list of 2005 funded projects.
Contact Information (name, phone number, email address)
Shelley Jackson Office Manager, Corporate Strategies, GVRD T: (604) 436-6856, E: shelley.Jackson@gvrd.bc.ca

Affordability and Choice Today (ACT) FCM and CMHC
Funding Agency
Federation of Canadian Municipalities (FCM) and the Canadian Mortgage and Housing Corporation
Description
Grants are available for regulatory reform projects of relatively short duration, for example from 6 to 12 months. Grants may be used to help initiate or promote regulatory reform in your community. Projects should entail a specific activity or product such as a workshop, forum, open house, survey, background report or promotional material. ACT may award less than the amount requested. ACT grant initiatives can generally be grouped into three categories: 1. Obtain input and direction on regulatory reform initiatives — This can include streamlining approvals. Involves consultations with stakeholders (may include the public), surveys, workshops or other methods, with the deliverable being a strategy document or other report. 2. Facilitate local implementation or uptake of regulatory changes already introduced through information sessions, marketing communication materials or some form of promotional effort. 3. Advance efforts to overcome specific regulatory barriers or NIMBY through workshops, surveys or other means of actively engaging stakeholders.
Amount of Funding Available
Up to $5,000.
Requirements and Additional Information
Deadline is April 21, 2006
Website
http://www.actprogram.com
Contact Information (name, phone number, email address)
Sharon Margison, Project Officer ACT, The Federation of Canadian Municipalities Telephone: (613) 241-5221 ext.242, Fax: (613) 244-1515 Email: smargison@fcm.ca

High Efficiency Boilers Program
Funding Agency
Terasen Gas
Description
The Power Smart Awareness Program has been designed to help create a successful energy awareness program for a company. Tools that are provided to facilitate the process include posters, tips and sample wording to sell the idea to senior management. A detailed step-by-step "Keys to Success" outline is available as a helpful guide.
Amount of Funding Available
For all participants, the purchase price incentive applies to the incremental purchase price of a natural gas near-condensing or condensing boiler over the purchase price of a standard-efficiency boiler. Purchase price incentives are based upon space-heating and ventilating load. They will be calculated as follows: near-condensing boilers - $4,000 per boiler plus $2 per MBH plant input condensing boilers - $4,000 per boiler plus $6 per MBH plant input The purchase price of a standard-efficiency boiler will be estimated using $7 per MBH of the input required to meet the space-heating load and ventilating load. ***In new construction***, we will contribute 50 per cent of the engineering fees to a maximum of $1,500 that pertain to estimating the annual gas usage for space heating using a standard-efficiency boiler system versus a higher-efficiency boiler system. Purchase price incentive payments are limited to a maximum of 75 per cent of the purchase price premium over a standard-efficiency boiler. ***In replacement projects***, we will pay your contractor up to a maximum of $400 for performing an estimate of the peak space-heating load. The program will pay 50 per cent of the cost of necessary venting modifications up to a maximum of $2,000. The program will also pay a monitoring incentive of $1,500 during the first year of operation plus $1 per gigajoule of total natural gas saved. Purchase price incentive payments are limited to a maximum of 50 per cent of the purchase price premium over a standard-efficiency boiler.
Requirements and Additional Information
See the following website for a more detailed list of terms and eligibility criteria: http://www.terasengas.com/NR/rdonlyres/esh54rwls2wjpu4ydqxpmwvdmraaoymeo3oqyfnrqfcsg3v75f574cvajlbkbelims3rdl4xdmea673yikpxevsav6g/ebp_TermsandConditions.pdf
Website
http://www.terasengas.com/Promotions/Current+Promotions/_EfficientBoilerProgram.htm
Contact Information (name, phone number, email address)
Gary Way or Greg Morandini (Technical) T: 1-888-477-0777 F: 1-604-576-7122, E: commercial.energy@terasengas.com Efficient Boiler Program, Commercial Energy Services

Power Smart Employee Energy Awareness Program
Funding Agency
BC Hydro
Description
The Power Smart Awareness Program has been designed to help create a successful energy awareness program for a company. Tools that are provided to facilitate the process include posters, tips and sample wording to sell the idea to senior management. A detailed step-by-step "Keys to Success" outline is available as a helpful guide.
Amount of Funding Available
None. Offers awareness and education
Requirements and Additional Information
Open to the public. Canada Post used a similar program that was very successful.
Website
http://www.bchydro.bc.ca/business/investigate/investigate882.html
Contact Information (name, phone number, email address)
Dina Matterson, Key Account Manager for the Township of Langley BC Hydro Power Smart, Business T: (604) 453-6225, E: Dina.Matterson@bchydro.com

Power Smart High Performance Building Program
Funding Agency
BC Hydro
Description
The High Performance Building Program provides financial incentives and tools to help qualified projects: Identify energy saving strategies early in the design process; Evaluate alternative design options and make a business case for the high-performance design; Offset the incremental costs, if any, of the energy-efficient measures in the high-performance design; and Market the project's high-performance design features and benefits.
Amount of Funding Available
Does not specify. BC Hydro assists through the two phases of the High Performance Building Program: BC Hydro will co-fund an energy study to develop a high-performance design that delivers energy savings compared with a conventional building design. If the energy efficiency measures in the high-performance design involve added costs, then BC Hydro may also provide incentives to help qualified projects implement the improved design, based on the amount of savings the building will achieve.
Requirements and Additional Information
The High Performance Building Program is for large new projects that are: At least 50,000 square feet; or Electricity-intense facilities such as arenas, refrigerated warehouses or grocery stores.
Website
http://www.bchydro.com/business/identify/identify24037.html
Contact Information (name, phone number, email address)
Dina Matterson, Key Account Manager for the Township of Langley BC Hydro Power Smart, Business T: (604) 453-6225, E: Dina.Matterson@bchydro.com

Power Smart e.Points
Funding Agency
BC Hydro
Description
Power Smart Partners have made a commitment to improving the electrical energy efficiency of their organization. Partners who improve their company-wide electrical efficiency by 5% or more can earn e.Points.
Amount of Funding Available
Every e.Point you earn has a value of one dollar, which can then be redeemed towards a BC Hydro approved electrical energy-saving capital project.
Requirements and Additional Information
e.Points are available to all Power Smart Partners and there are no fees or charges to enroll.
Website
http://www.bchydro.com/business/pspartner/pspartner1020.html
Contact Information (name, phone number, email address)
Dina Matterson, Key Account Manager for the Township of Langley BC Hydro Power Smart, Business T: (604) 453-6225, E: Dina.Matterson@bchydro.com

Power Smart Design Assistance Program
Funding Agency
BC Hydro
Description
BC Hydro's Design Assistance program helps you plan and design a cost effective and energy-efficient building that will result in lower operating and capital costs. We'll work with your design team to explore opportunities to optimize building systems at the very early stages of your building project. We'll also help in the development of higher energy efficiency standards, so you can take advantage of financial incentives, offered by Natural Resources Canada's Commercial Building Incentive Program (CBIP). Design Assistance brings the experience and expertise of our energy experts to work alongside your design team. We'll help your team evaluate your building's energy use and advise on the energy impact of design alternatives. Using our state-of-the-art Building Energy Simulation Tool (BEST), we'll provide instant feedback on the quantifiable benefits and costs of various design options, ensuring a more efficient, comfortable and marketable building. Energy Performance Workshop: First we prepare a base energy simulation model of your design. Then, in a workshop setting, your design team works with the model to determine how your design alternatives will affect: Building performance, Mechanical and electrical equipment sizing, Energy costs, Capital costs, Payback period, eligibility for the Commercial Building Incentive Program (CBIP) from Natural Resources Canada. We'll complete the CBIP application or prepare a summary report that compares the energy cost of the initial design with your design alternatives. *Commercial Building Incentive Program Facilitation:* If you think your building design is already energy efficient, BC Hydro can help the Township of Langley take advantage of the Commercial Building Incentive Program (CBIP) offered by Natural Resources Canada. CBIP offers a financial incentive to invest in energy-efficient building design and construction. To qualify, building owners and developers must use an energy model to show that they are at least 25% more energy efficient than the Model National Energy Code for Buildings.
Amount of Funding Available
No direct monetary funding. BC Hydro staff and BEST tool are provided.
Website
http://www.bchydro.com/business/facilities/facilities1005.html
Contact Information (name, phone number, email address)
Dina Matterson, Key Account Manager for the Township of Langley BC Hydro Power Smart, Business T: (604) 453-6225, E: Dina.Matterson@bchydro.com

Power Smart Fixed Incentive Rate Pilot
Funding Agency
BC Hydro
Description
Power Smart Partners have access to an Incentive Fund to help them implement energy efficiency projects. This fund can help reduce the pay-back period for energy efficiency projects, enabling Partners to implement energy-saving measures that previously would not have met internal funding requirements.
Amount of Funding Available
The project incentive awarded by BC Hydro will be based on an evaluation of the total amount of energy savings associated with the project, multiplied by the established fixed incentive rate of 1.7 cents/kWh.
Requirements and Additional Information
Currently there are no calls for more proposals. The Township of Langley's key account manager will be able to provide more information on when calls for proposals will be active again.
Website
http://www.bchydro.com/business/pspartner/pspartner1017.html
Contact Information (name, phone number, email address)
Dina Matterson, Key Account Manager for the Township of Langley BC Hydro Power Smart, Business T: (604) 453-6225, E: Dina.Matterson@bchydro.com

Power Smart Energy-Saving Identification Funding
Funding Agency
BC Hydro
Description
Power Smart Partners have access to matching funds to identify electrical energy-saving opportunities. Depending on the type of facility, funds may be used towards: - hiring an energy manager - conducting an electrical energy study - obtaining design assistance for new buildings - building recommissioning for existing buildings - securing an energy performance contract.
Amount of Funding Available
Unspecified. Depending on the type of facility, funds may be used towards: hiring an energy manager, conducting an electrical energy study, or securing an energy performance contract.
Requirements and Additional Information
Your organization can become a Power Smart Partner if you have spent at least $50,000 on electricity in the last year, and you are willing to: commit to improving your organization's overall electrical energy efficiency, provide funds that match those provided by BC Hydro to identify energy-saving opportunities (schools, universities, colleges and hospitals do not require matching funds) sign our Power Smart Partner Program agreement outlining your commitment, your targets and the personnel who will be responsible for carrying out the plan.
Website
http://www.bchydro.com/business/pspartner/pspartner1014.html
Contact Information (name, phone number, email address)
Dina Matterson, Key Account Manager for the Township of Langley BC Hydro Power Smart, Business T: (604) 453-6225, E: Dina.Matterson@bchydro.com

Green Streets Canada
Funding Agency
Tree Canada Foundation
Description
Green Streets Canada program encourages the adoption of innovative best management practices and policies for municipal forest management on as wide a regional basis as possible. It provides municipalities with the opportunity to expand and enhance tree-planting programs. In as much as this is a competition with limited funds, municipalities of proportionate size will be evaluated against each other within five major geographic regions. Municipalities are encouraged to submit creative and unique suggestions for tree planting activities/events, volunteer involvement and educational opportunities.
Amount of Funding Available
Up to $25 000, 50/50 funding split between the municipality and the foundation.
Deadline for Application
The deadline for 2007/08 is January 2007.
Requirements and Additional Information
Green Streets eligibility criteria include: • Municipal-TCF Cost sharing • Program Split between inventory, planting, maintenance and tree/forest education activities • Program increases municipality's capacity • Technical expertise available • Community participation • Right tree, right place - attention to indigenous species and seed zones • Installation of Green Streets Community signs • Media events and public awareness • Council resolution • Completion by February 15, 2007 • Environmental benefit • Creative Approach • Details of future activities
Website
The Green Streets website is located at the following address: http://www.treecanada.ca/programs/greenstreets/index.htm
Contact Information (name, phone number, email address)
Mike Rosen, Green Streets Coordinator Tree Canada Foundation Tel: (613) 567-5545, Fax: (613) 567-5270, Email: mrosen@treecanada.com

Local Government/Infrastructure Planning Grant Program:
Funding Agency
BC Ministry of Community Services
Description
The Program supports a range of initiatives related to improving water, sewer, drainage and other environmental infrastructure. Eligible projects are those that promote sustainable municipal infrastructure including, but not limited to: ***Plans:*** • Capital Asset Management Plans • Liquid Waste Management Plans • Integrated Stormwater Management Plans • Community Energy Plans • Water Conservation Plans • Water Master Plans • Watershed Management Plans • Community Groundwater Management Plans ***Studies :*** • Infrastructure assessments to determine system condition • Economic evaluations of universal metering and conservation rate structures • Water audits and development of water demand management strategies • Low impact development technologies and green building design evaluations • Engineering studies of onsite/decentralized wastewater treatment • Innovative pilot projects and capacity building programs • Wastewater reclamation and water reuse studies • Pre-design or feasibility studies to determine the most cost-effective or appropriate way of correcting a specific infrastructure problem
Amount of Funding Available
Up to $10,000.
Requirements and Additional Information
Website
http://www.mcaws.gov.bc.ca/LGD/pol_research/LGGP06_Guide.pdf
Contact Information (name, phone number, email address)
Chris Jensen Ministry of Community Services Tel: (250) 356-0700 Email: chris.jensen@gov.bc.ca

Smart Driver for Transit and Municipalities (SmartDriver by FleetSmart)
Funding Agency
Natural Resources Canada
Description
The FleetSmart Program from Natural Resources Canada's Office of Energy Efficiency has helped fleet operations and owner-operators reduce operating costs through increased energy efficiency. From our modest beginning, we have grown and now reach eight vehicle groups: • highway trucking • forestry trucking • motor coach • transit • school buses • municipalities and utilities • light duty fleets (i.e., passenger car, minivan, pickups, vans, SUVs) • urban trucking
Amount of Funding Available
Education and Outreach about emission reduction and efficient driving techniques.
Requirements and Additional Information
The Smart Driver program will be rolling out a municipal program within the year. The program will specifically target municipal fleet vehicles.
Website
http://oee.nrcan.gc.ca/transportation/fleetsmart.cfm
Contact Information (name, phone number, email address)
Richard Parfett (Municipal FleetSmart Rep) Office of Energy Efficiency, NRCan Tel: (613) 944-5126, Email: rparfett@nrcan.gc.ca or Darin Bagshaw (FleetSmart Program manager) FleetSmart, NRCan Tel: (613) 947-0236, Email: Darin.Bagshaw@nrcan-rncan.gc.ca

Cycling Infrastructure Partnership Program (CIPP)
Funding Agency
Ministry of Transportation, BC Government
Description
The CIPP is a cost-shared program where the Government of British Columbia will partner with local governments in the construction of new transportation cycling infrastructure. The goal of the program is to promote transportation cycling (cycling to work, school, or errands) as a means of reducing traffic congestion and green house gas (GHG) emissions. **A bicycle network plan is required** in which bicycle routes, pathways and other infrastructure are integrated with the municipal and regional roadway network, pathways, park systems and transit services. The bicycle network plan should include: On-street routes, which might include signed routes on local streets, wide curb lanes and bicycle lanes on collector roads and arterial roads and "enhanced" bikeways along local streets paralleling arterial roads; Off-street pathways and trails. Generally these would be multi-use pathways shared with pedestrians, runners, equestrians and in-line skaters; Other bicycle infrastructure, such as access ramps to bridges, underpasses and overpasses, bicycle-only traffic barriers, etc. and; A strategy to minimize conflict between cyclists and motorists, particularly on commuter routes that are heavily congested. The bicycle network plan should accommodate transportation cyclists, who travel by bicycle to work, school and errands. Additionally, the bicycle network plan may accommodate recreational cyclists. The bicycle network should provide direct access for cyclists to major destinations within a municipality or regional district as well as connections to regional and provincial bicycle routes. Examples of major destinations include schools, commercial and office centres, intermodal transportation centres and recreational areas.
Amount of Funding Available
All British Columbia municipalities and regional districts are eligible to apply for up to $250,000 in CIPP funding.
Deadline for Application
January 31, 2006. Funding is approved each year.
Website
http://oee.nrcan.gc.ca/transportation/fleetsmart.cfm
Contact Information (name, phone number, email address)
Richard Parfett (Municipal FleetSmart Rep) Tel: (613) 944-5126, Email: **rparfett@nrcan.gc.ca** OR Darin Bagshaw (FleetSmart Program manager) Tel: (613) 947-0236, Email: Darin.Bagshaw@nrcan-rncan.gc.ca

Seismic Mitigation Program
Funding Agency
Ministry of Education, BC Government
Description
The Seismic Mitigation Program is administered by the Ministry of Education. It provides incentive funding to promote both the structural and nonstructural seismic upgrade of schools, post-secondary facilities, hospitals and post-disaster facilities in the areas of the province most likely to experience a severe earthquake. Education and Health organizations are requested by the Ministry of Finance to implement seismic upgrades as part of any retrofit/renovation projects. For example, organizations considering a lighting retrofit to reduce energy consumption should consider incorporating into their retrofit project the seismic measure of tying back new or upgraded light fixtures. Langley is currently involved in this program.
Amount of Funding Available
Does not specify.
Deadline for Application
Does not specify.
Website
http://www.bced.gov.bc.ca/capitalplanning/seismic/welcome.htm
Contact Information (name, phone number, email address)
Email - educ.seismicmitigation@gov.bc.ca