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Waste Diversion Working Group: Key Recommendations and Actions Report

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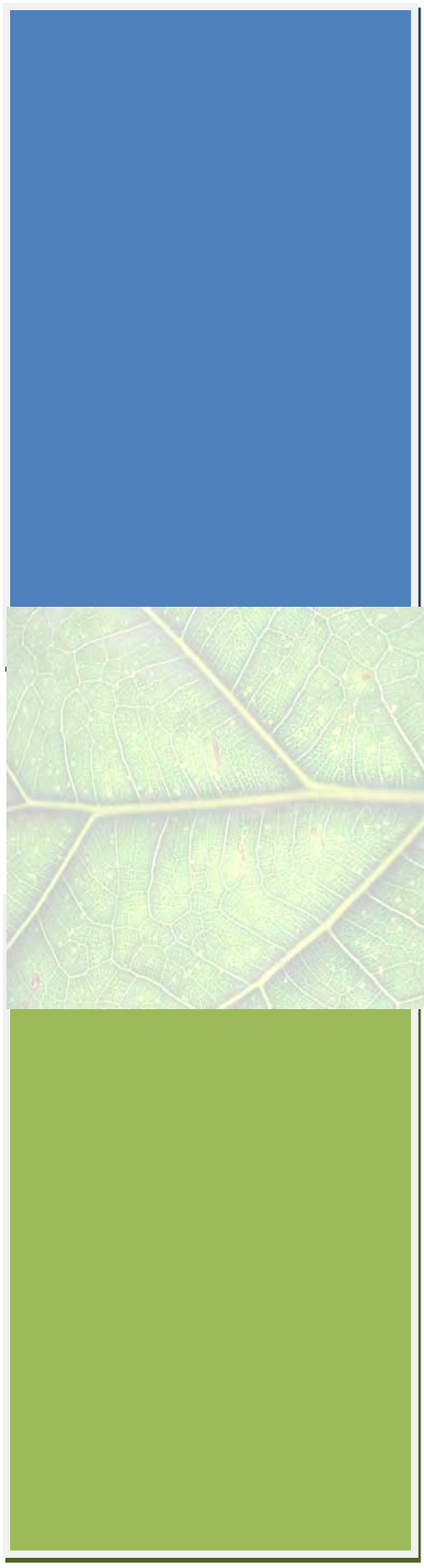
TERRACE 2050



PART I. INTRODUCTION

Purpose

The purpose of this report is to recommend short term actions and continue to set the framework for strategic direction for the City of Terrace's waste diversion efforts[1], one that will benefit residents in both an environmentally sound and fiscally responsible manner.

The Waste Diversion Working Group developed the following recommendations considering the various contexts:

Global, Federal and Provincial Context

Globally, waste management and diversion can be looked at through overall planet impact and total greenhouse gas (GHG) emissions that result from the goods and materials we produce, use and eventually dispose of. Efficient use, re-use and diversion of materials all helps to decrease the overall impact and energy used in the extraction, manufacturing, transportation and disposal of goods.

Federally the waste we produce is a significant contributor to our overall emissions in Canada[2]. Because of the global warming potential (GWP) of methane (the main gas in landfills), diverting waste can have a significant impact on minimizing the production of GHG emissions contributing to climate change (Environment Canada).

[1] This Report is an extension of the Terrace 2050 Sustainability Strategy
[2] Emission reductions as a result of waste diversion are not directly accounted for in Canada's GHG inventory, thus they do not contribute to meeting Kyoto commitments.

Provincially the BC government has set a target of reducing GHG emissions 33 per cent below 2007 levels by 2020, and at least 80 per cent below 2007 levels by 2050. To help achieve this goal the province has produced community GHG inventories for all local governments as a tool to help plan for community emission reductions including reducing GHG emissions from landfills (See Appendix 1: Terrace community GHG inventory).

The provincial government is also responsible for the development and marketing of Extended Producer Responsibility (EPR) programs. BC currently has the most developed EPR program in Canada which is managed through the Product Stewardship Program Regulations.

Under EPR, the producers of products and packaging bear the responsibility for the full life-cycle of their products - this includes the collection and recycling of materials. Once products have been added to an EPR program, local government and the taxpayers are no longer financially responsible for managing these materials.

Eventually the cost of waste management and recycling will be greatly diminished as more and more products are added to the BC EPR program (See Appendix 2: Expansion of the current EPR program).

In BC, the Recycling Council of British Columbia (RCBC) promotes the principles of zero waste and encourages local government and regional districts to make zero waste their overarching goal. Zero waste is an approach to management of materials and waste that focuses first on reducing the use of materials and energy in product design, second on increasing reuse and repair and extending the lifespan of materials, thirdly to recycling

Typical landfill gas content is 40-60% Methane . Methane has 21 times the global warming potential (GWP) as carbon dioxide.

In 1970, BC became the first jurisdiction in North America to establish a mandatory deposit-refund system for soft drink and beer containers

materials and eventually disposing of any residual. This is illustrated in the diagram below:

Figure 1: The Zero Waste Hierarchy

Regional Context

Regional Districts across BC are mandated to produce and implement Solid Waste Management Plans. They are the guiding documents through which Regional Districts can meet waste diversion targets. The Regional District of Kitimat-Stikine is actively pursuing an agenda of zero waste planning and education, and has one part time staff member dedicated to these efforts within the region.

Major changes impacting all member municipalities and districts are on the horizon, as the Regional District prepares to move to one regional landfill, Forceman Ridge, located 35km outside of Terrace. Leading up to this move, RDK-S priorities include a focus on organics diversion and promoting and further developing their Landfill Diversion Credit Program. A recently completed landfill composition study managed by the RDK-S will provide data on what exactly is being discarded in the

regional landfills and help to further focus efforts on diversion.

Municipal Context

A key barrier when considering recycling options locally is distance to markets. Most recycling materials are traded on the commodities market and are routed through Vancouver on trucks[3]. This trucking involved means the costs – both from a fuel and GHG emissions perspective are significant.

The City of Terrace has made commitments to reduce GHG emissions, and thus waste diversion at the municipal level must be considered in coordination with broader emissions management and sustainability initiatives. While recycling is a recognized community priority, efficient resource management means evaluating the net environmental impacts of any waste diversion decision.

Community Input

Businesses and individuals within the City of Terrace have found creative ways to manage and divert waste. A private curbside and drop-off recycling company was launched in June 2006 and is a popular service used by many Terrace and area businesses and residents.

Residents of Terrace continue to express a strong desire for expanded options for diverting waste from the landfill, and recognize if used properly waste can be a resource. There is strong support for developing local markets and options for reusing and recycling of materials. The community also points to a need for longer term planning and solutions. During the Terrace

EPR is based on the principle that suppliers, manufacturers, and consumers share the responsibility to minimize environmental impact in a system that manages the cradle-to-cradle life cycle of the products they make, sell and use

- RCBC

Over 50% of Regional Districts in BC, including the RDK-S have adopted Zero Waste mandates

[3] Generally backhauls are used.

2050 visioning sessions participants set the ambitious goal of "Zero waste in 20 years".

Part II. Key Recommendations

Each recommendation below is divided into Actions, Timeline and relevant Background Information. Given the changes in waste management which will occur once the City of Terrace joins Forceman Ridge Regional Landfill Site, most of these actions focus on the 1-5 year interim period and increasing the effectiveness of ongoing actions or programs. Longer term actions are indicated. Timelines are included following each action.

Recommendation 1: Lead by Example

City to act as zero waste leader

Background

British Columbians in general have great opportunity for waste diversion and reduction and we have a ways to go before we reach zero waste! In 2002 we each produced 653 kg of land filled waste and by 2004, this figure had increased to 676 kg (Source: Statistics Canada). Currently there is no system in place for measuring the amount of waste that is sent to landfill in Terrace; as such accurately evaluating progress on diversion will be limited until infrastructure is updated.

RCBC states "Zero waste will be achieved in B.C. when full EPR and organics composting programs are implemented". Until that time, the policies, programs and supports put in place by the City of Terrace can help our community move towards this goal.

Zero Waste Defined:

-Zero Waste is both a philosophy and a goal

-Zero waste is based on reducing consumption as much as possible by using design-for-environment in all products and packaging

Zero Waste means:

- Linking communities, businesses and industries so that one's waste becomes another's feedstock

- Preventing pollution at its source

-New local jobs in communities

Source: Definition of Zero Waste (Zero Waste International Alliance)

Actions

1. City of Terrace to Adopt 'Towards Zero Waste' as guiding strategy and endpoint goal. Waste diversion and management decisions should reflect this strategy (1 year).
2. City of Terrace to develop and adhere to green purchasing and usage policies that reduce and divert waste sent to landfill (1 year) and support local businesses and organizations to do the same (1 year).
3. City to work with RDK-S to enhance EPR programming and increase the awareness of EPR programs that exist locally (1 year).
4. City to ensure all public spaces are equipped with dual stream waste receptacles to support the separation of products that are currently covered under EPR (2 years).

Long Term Goal

Reach community set target of 'Zero waste in 20 years'.

Recommendation 2: Organics First!

Focus on residential and commercial composting and removing organics from the landfill

Background

BC does not currently have a provincial strategy for managing compostable organics[4]; thus policies for managing these materials need to be set at the municipal or regional district level (RCBC).

[4] Nova Scotia has had provincial legislation banning organics from landfills since 1998.

It is estimated that up to 40% of all waste in our regional landfills is organic material[5]. On-site composting of food and yard waste is associated with a smaller environmental footprint than curbside collection systems. However, not everyone is willing or able to compost at home, especially those living in apartments or multi-family units.

Currently the City of Terrace encourages backyard composting and runs a seasonal grass and yard greens pick up for residential garbage service customers and composts this material at the Public Works Yard. Public input indicates strong support for continuing the City yard waste composting program, and many residents have expressed an interest in expanded composting pickup which could include kitchen scraps.

800 thousand tones of organics are sent to BC landfills during an average year

- RCBC

Organics in the landfill causes the creation of leachates, which can threaten ground and surface water quality

- RCBC

Actions

1. City to Partner with RDK-S and other potential partners (NWCC, BC Winter Games) on larger scale compost pilot project.
2. City to research, identify partners and develop commercial composting pilot project (2 years) *Once in place provide technical support for expanded commercial composting (and if available processing at central facilities).*
3. Expand backyard organics programming, incentives and education (1 year).

- Hold or support 'build your own composter workshops' (6 months - Spring 2010).
- Offer incentives to residents who wish to purchase backyard composters (6 months - Spring 2010).

[5] The RDK-S estimates organics make up at least 40 percent of solid waste in their landfills. These numbers are likely similar to the City of Terrace Landfill.

4. Actively pursue partnerships for organics diversion education and promotion with community groups such as community gardens and schools (1 year).

Long Term Goal

50% diversion rate of organics from City of Terrace residents to landfill by 2015[6].

Recommendation 3: Make recycling accessible for all City of Terrace residents

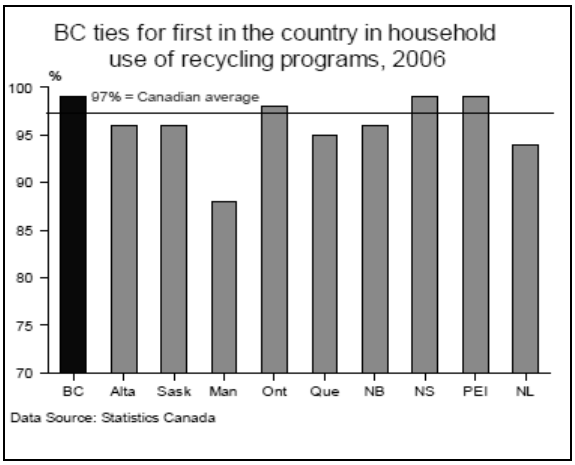
Develop a public-private partnership to establish an interim recycling depot option

Background

Terrace residents have asked for expanded recycling services for many years. This desire was clearly expressed again throughout the consultation and input phases of the Terrace 2050 Sustainability Strategy.

BC has one of the highest rates of access to recycling services in Canada and ties for first in residential use of recycling programs (Statistics Canada 2007). As individuals re-locate from other areas of the province, the demand for expanded recycling options will continue to increase.

[6] Baseline data to be derived from RDK-S landfill composition study and follow up studies to be conducted annually.



Shifts in waste diversion and management will occur once the City of Terrace is part of the Forceman Ridge Landfill, however this could take up to 5 years. In the interim, options that do not come at a high cost to the taxpayer should be pursued.

Currently there is a window of opportunity to maximize the development of diversion programs and incentives and increase residential diversion rates before the City joins the Regional District at Forceman Ridge Landfill and disposal costs are significantly higher than at the City of Terrace landfill.

It is important to note that recycling efforts across BC and the world continue to be impacted by a drastic drop in global commodity prices which happened in 2008. Any actions on recycling must be looked at as part of a more comprehensive approach to reducing and eliminating waste sent to landfill, given the instability of these markets.

Because of Terrace's remote location, any reduction in use of products and arrangement of local reuse networks will lessen its reliance on outside supplies and decrease the cost associated with shipping recyclables to distant processing centre
Source: Terrace Sustainability Strategy

More than 140 000 tonnes of computer equipment, phones, televisions, stereos, and small home appliances (e-waste) accumulate in Canadian landfills each year
- RCBC

Actions

1. Continue to conduct background research on requirements for an interim recycling depot[7] and issue an Expression of Interest (EOI) locally to take on this contract (6 months).
2. Continue to research recycling programs in similar sized communities to learn what is working in similar sized communities across BC (6 months).

Long Term Goal

Develop local markets for recycled products – and reach community set target of 'Zero waste in 20 years.

Recommendation 4: Enhance and promote education on zero waste, waste diversion and recycling

Background

In the past the City of Terrace has partnered with the RDK-S to produce a recycling and re-use directory.

Actions

1. Support the teaching of reduce, reuse, recycle (ex. compost, packaging, etc.) options in schools, potentially through partnering with the School Board's Green Task Force (1 year).

[7]Most likely a handling depot that would collect and send recyclables to a recycling processing facility for shipping, such as the Skeena-Queen Charlotte Regional Recycling Center

2. Develop a Zero waste public education and marketing campaign (1 year).

Recommendation 5: Work closely with Potential Partners on existing programs and projects

Seek opportunities for sharing resources and collaboration

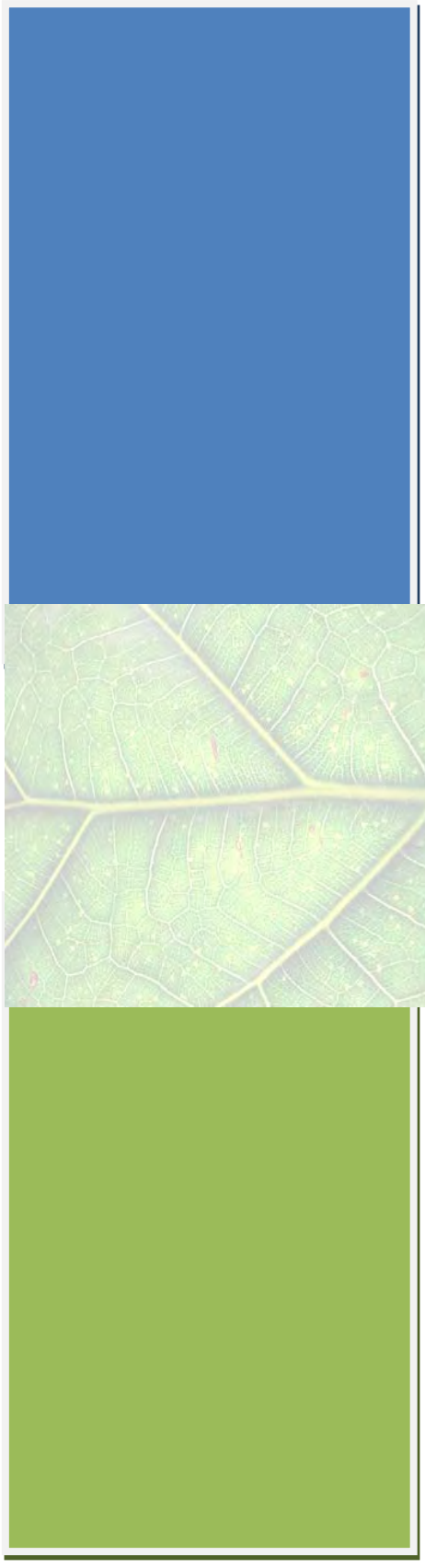
Background

Significant increases in waste diversion – and zero waste as an end goal - will require the collective effort of all residents, businesses, educational institutions and communities within our City and region.

Working alongside the RDK-S as they continue to develop a comprehensive zero waste approach will serve to increase consistency across our region and support the benefits of sharing resources and collaboration. Looking outside of our region for best practices will also help support these recommendations.

Actions

1. City to actively participate in regional, provincial and national zero waste and waste diversion programs and encourage local businesses and organizations to do the same (Ongoing).
2. City to actively research the feasibility of partnering with the RDK-S to implement Curbside Recycling once Forceman Ridge Regional Landfill is operating (2-4 years estimated).



Part III. Conclusion

Monitoring

To ensure the recommendations are considered and in some cases pursued, the Waste Diversion Working Group suggests annual reporting out on progress made towards each of the listed recommendations and accompanying actions. Recognizing the changes that will occur as the City of Terrace moves to a new landfill site and the many factors influencing waste reduction and diversion efforts should be made to adapt and update this document accordingly.

The recommendations included in this report are the outcome of ideas and input from a wide range of stakeholders and a review of current local realities. They were informed by existing planning and programming at the City, direction both from the Terrace 2050 Sustainability Strategy process and from Regional programs and developments.

The Waste Diversion Working Group recognizes this report represents only a sample of the possible recommendations and actions for waste reduction, and expects that as these actions are monitored they will also continue to be developed.

Appendices

1. Terrace GHG Community Inventory
2. Expansion of the current EPR program

Terrace

Community Energy & Greenhouse Gas Emissions Inventory: 2007

This is your local government's draft 2007 Community Energy and Greenhouse Gas Emissions Inventory (CEEI). From March 10th to April 15th 2009, the Province and partners are asking for your review and feedback - http://www.toolkit.bc.ca/ceei - on the content, clarity and usefulness of your community's draft 2007 CEEI Report.

What is a CEEI Report?

CEEI Reports are a result of a multi-agency effort to provide a province-wide solution to assist local governments in BC to track and report annual community-wide energy consumption and greenhouse gas (GHG) emissions. For 2007, the CEEI Reports provide high-level energy and GHG emission estimates in three primary sectors – on-road transportation, buildings and solid waste. As additional information, estimates on land-use change emissions from deforestation are provided at the regional district level. CEEI Reports are one of the many resources available through the Climate Action Toolkit (http://www.toolkit.bc.ca), a web-based service provided through the ongoing collaboration between UBCM and the Province.

Why does my local government need a CEEI Report?

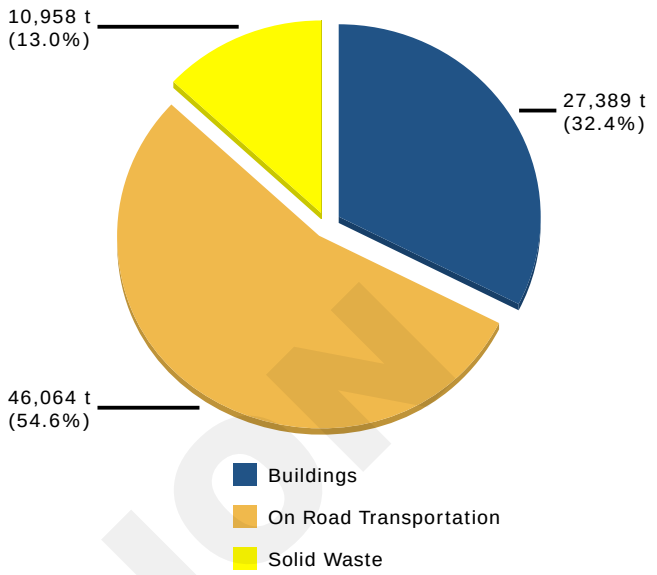
An energy and GHG emissions inventory can be a valuable tool that helps local governments plan and implement GHG and energy management strategies, while at the same time strengthening broader sustainability planning at the local level. CEEI reports have two primary purposes – to fulfill local governments' Climate Action Charter commitment to measure and report their community's GHG emissions profile, and to establish a base year inventory for local governments to consider as they develop targets, policies, and actions related to the Province's new Green Communities Legislation (Bill 27). As an additional benefit, CEEI Reports support BC local government members of the Federation of Canadian Municipalities' Partners for Climate Protection program to achieve Milestone One of the community stream – a community GHG emissions inventory.

A first in North America!

CEEI is a first in North America, and a first step for BC communities. The 2007 CEEI Reports are based on best available province-wide data. The accuracy and detail of CEEI reports will continue to improve to meet increasing local and provincial government information needs. For example, the CEEI working group is presently pursuing ways to refine community boundary accuracy for a number of BC's smaller communities. Also, local governments may wish to provide additional information to the CEEI and/or enhance their CEEI report (in sectors and/or detail) where interest, capacity and local information sources permit (e.g., provide the CEEI with accurate community-specific solid waste data). For future reports, the CEEI working group will be considering the inclusion of additional components to GHG inventories as advised by emerging international protocols, the information needs of local governments, and the Province's forthcoming Green Communities Incentive Program.

Hyla Environmental Services Ltd. (HES) is providing 2007 CEEI Reports using its Energy and Emissions Monitoring and Reporting System™. HES is also developing a 2007 CEEI Technical Methods and Guidance document, presently scheduled to be available in late March 2009.

CO_2e (tonnes) by Sector *



* In some CEEI Reports, inaccuracy in solid waste data and/or where electricity and natural gas consumption data for buildings has been withheld for confidentiality purposes, the relative percentages of GHGs in each sector as illustrated above may appear disproportionate. For this reason, care should be taken in interpreting these reports, particularly where comparisons with other local government may be of interest.

Please refer to the CEEI User Guide for overviews of each sector (http://www.env.gov.bc.ca/epd/climate/ceei/pdf/ceei-user-guide.pdf). For answers to Frequently Asked Questions go to http://www.env.gov.bc.ca/epd/climate/ceei/pdf/ceei-faq.pdf. To explore 'taking action community wide', go to http://www.toolkit.bc.ca/taking-action/community-wide. For more information, please contact the Ministry of Environment at CEEIRPT@gov.bc.ca.

Notice to the Reader: This CEEI Report uses information from a variety of sources to estimate GHG emissions. While the methodologies, assumptions and data used are intended to provide reasonable estimates of greenhouse gas emissions, the information presented in this report may not be appropriate for all purposes. The Province of BC, data providers and HES Ltd. do not provide any warranty to the user or guarantee the accuracy or reliability of the data contained in this report. The user accepts responsibility for the ultimate use of such data.

DRAFT FOR DISCUSSION

Terrace
Community Energy & Greenhouse Gas Emissions Inventory: 2007

Buildings	Consumption By Type						Energy & Emissions Total	
	Type	Connections	Consumption	Energy/Connection	Energy (GJ)	CO_2e (t)	Energy (GJ)	CO_2e (t)
Residential Buildings	Electricity	4,496	51,843,088 kWh	11,531 kWh/C	186,635	1,141	**438,910**	**14,044**
	Natural Gas	3,363	252,275 GJ	75 GJ/C	252,275	12,904		
Commercial Buildings	Electricity	814	54,514,309 kWh	66,971 kWh/C	196,252	1,199	**432,028**	**13,259**
	Natural Gas	566	235,776 GJ	417 GJ/C	235,776	12,060		
Industrial Buildings	Electricity	80	3,898,165 kWh	48,727 kWh/C	14,033	86	**14,033**	**86**
	Natural Gas	3	—					
Subtotal	Electricity	5,390	110,255,562 kWh		396,920	2,426	**884,971**	**27,389**
	Natural Gas	3,932	488,051 GJ		488,051	24,964		

On Road Transportation	Consumption By Type						Energy & Emissions Total	
	Type	Units	Consumption	Litres/Unit	Energy (GJ)	CO_2e (t)	Energy (GJ)	CO_2e (t)
Small Passenger Cars	Gasoline	2,310	2,377,457 litres	1,029 L/U	82,403	5,937	**83,859**	**6,042**
	Diesel Fuel	50	37,649 litres	753 L/U	1,456	105		
Large Passenger Cars	Gasoline	1,231	1,868,868 litres	1,518 L/U	64,775	4,667	**64,775**	**4,667**
Light Trucks, Vans, And Suvs	Gasoline	3,837	8,099,359 litres	2,111 L/U	280,724	20,227	**284,052**	**20,459**
	Diesel Fuel	39	69,102 litres	1,772 L/U	2,673	192		
	Mobile Propane	20	25,906 litres	1,295 L/U	656	39		
Commercial Vehicles	Gasoline	1,038	1,938,324 litres	1,867 L/U	67,182	4,841	**164,652**	**11,836**
	Diesel Fuel	572	2,500,780 litres	4,372 L/U	96,730	6,951		
	Mobile Propane	22	29,227 litres	1,329 L/U	740	44		
Tractor Trailer Trucks	Diesel Fuel	38	510,745 litres	13,441 L/U	19,756	1,420	**19,756**	**1,420**

DRAFT FOR DISCUSSION

Terrace

Community Energy & Greenhouse Gas Emissions Inventory: 2007

On Road Transportation continued

Motorhomes	Gasoline	110	160,025 litres	1,455 L/U	5,546	400	**5,546**	**400**
Motorcycles And Mopeds	Gasoline	191	71,052 litres	372 L/U	2,463	177	**2,463**	**177**
Bus	Gasoline	27	225,720 litres	8,360 L/U	7,823	564	**14,786**	**1,064**
	Diesel Fuel	10	180,000 litres	18,000 L/U	6,962	500		
Subtotal	Gasoline	8,744	14,740,806 litres		510,916	36,813	**639,889**	**46,064**
	Diesel Fuel	709	3,298,276 litres		127,577	9,167		
	Mbl Propane	42	55,133 litres		1,395	84		

Solid Waste

	Direct Emissions				Emissions Total
	Type	Estimation Method	Mass (t)	CO_2e (t)	CO_2e (t)
Community Solid Waste	Solid Waste	Waste-in-Place	2,978	10,958	**10,958**
Subtotal			2,978	10,958	**10,958**

Grand Total

Activity	Consumption	Energy	CO_2e
Electricity	110,255,562 kWh	396,920 GJ	2,426 t
Natural Gas	488,051 GJ	488,051 GJ	24,964 t
Gasoline	14,740,806 litres	510,916 GJ	36,813 t
Diesel Fuel	3,298,276 litres	127,577 GJ	9,167 t
Mbl Propane	55,133 litres	1,395 GJ	84 t
Solid Waste			10,958 t

Energy & Emissions Total	
Energy (GJ)	CO_2e (t)
1,524,860	**84,412**

DRAFT FOR DISCUSSION

Appendix 1. Planned Expansion of the Current EPR Program

Source: http://www.env.gov.bc.ca/epd/recycling/resources/new_products/index.htm

	Phase 1	**Phase 2**	**Phase 3**
Products	• Televisions • Computers • Computer monitors, keyboards, mice and other peripherals • Printers	• IT and telecommunications equipment • Small appliances • Audio-visual and Consumer equipment • Lighting equipment (also captures all light bulbs including mercury-containing light bulbs) • Toys, leisure and sports equipment • Monitoring and control instruments (also captures mercury-containing thermostats) • Batteries used in Phase 2 products	• Large appliances • Electrical and electronic tools (except large-scale stationary industrial tools) • Medical devices (with the exception of all implanted and infected products) • Automatic dispensers • Batteries used in Phase 3 products
Stewardship Plan Submitted to Ministry	Completed 2007	January 1, 2010	January 1, 2012
Launch Province Wide Recycling Program	Completed 2007	July 1, 2010	July 1, 2012