



Local Action Plan

For Addressing Energy Management & Greenhouse Gas Emissions

Final

As adopted by Banff Town Council on 22 September 2003. Implementation of specific initiatives subject to appropriate funding mechanisms acceptable by Council.

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Acknowledgements

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Acronyms & Definitions

CEP	Community Energy Plan
CES	Community Energy Systems
CO ₂	carbon dioxide
DSM	Demand-Side Management
EMS	Environmental Management System
FCM	Federation of Canadian Municipalities
GHG	Greenhouse gas
GJ	Gigajoules
IRP	Integrated Resource Planning
LAP	Local Action Plan
PCP	Partners for Climate Protection Program
tCO ₂ e	tonnes carbon dioxide equivalent

Community Energy Systems	These are district systems where heat and sometimes electricity are generated at a central source for distribution underground via insulated pipes to a series of buildings.
Tonnes carbon dioxide equivalent	This is a metric measure of GHG emissions, including carbon dioxide, methane and nitrous oxide (the principal GHG emissions). It is calculated by considering that the global warming potential of methane is twenty one times greater than that of carbon dioxide, and nitrous oxide is 310 times more effective.
Town of Banff	Refers to the municipality and its activities.
town of Banff	Refers to the entire community of Banff - its residents, businesses, visitors and local government collectively.

1 Introduction

The Town of Banff is committed to sustainable community planning, and to becoming a leader in environmental stewardship. Through sustainable community planning, Banff can identify strategies that take full advantage of opportunities for enhancing economic health, heritage, diversity of lifestyles, social equity and ecosystem integrity.

Energy planning can help the town move towards its sustainability goals. It can result in economic, social and environmental benefits, including:

- Reduced lifecycle costs for buildings and infrastructure; increasing profitability of business activities, and reducing costs to homeowners.
- Improved air quality and reduced greenhouse gas emissions.
- Less traffic congestion and better mobility.
- Reduced energy costs, with local reinvestment of savings help to protect existing jobs and create new jobs.

Recognizing these potential benefits, the Town of Banff formalized their commitment to improved energy management by joining the Federation of Canadian Municipalities' Partners for Climate Protection (PCP) Program in 1999. Through the PCP, more than 100 communities across Canada are working together to reduce greenhouse gas emissions produced locally. As a member of this national program, the Town has committed to reduce greenhouse gas (GHG) emissions resulting from their operations and from the community as a whole. The PCP recommends a commitment of 20 per cent reduction in GHG emissions from municipal operations from 1990 levels, and a minimum six per cent reduction for the entire community from 1990 levels, within 10 years of joining PCP.

To act on this commitment the Town has developed this Local Action Plan (LAP) for reducing GHG emissions. There were four stages involved in this process:

1. An energy and GHG emissions analysis (the Community Energy Plan);
2. Identification of opportunities to improve energy efficiency and reduce GHG emissions;
3. Consultation with the community to identify appropriate initiatives for Banff's LAP; and finally,
4. Implementation of the LAP.

This report represents the culmination of the first three steps of this process. It summarises the results of the Community Energy Plan (CEP), the consultation process that was undertaken to develop the LAP, and outlines a detailed implementation plan for achieving GHG emission reduction targets.

The CEP was prepared in 2001-2002, and contains an energy and GHG emissions analysis and forecast, and identifies potential emission reduction opportunities.

A communications strategy was developed for the LAP, a cornerstone of which was the community consultation process. The communications strategy is included in Appendix 4. The community consultation process consisted of the delivery of five workshops in November 2002.

The purpose of the workshops was to engage residents, local businesses and Town of Banff staff in the development of the LAP. Through this process Banff's LAP will become a "made-in-Banff" solution for energy management.

2 Energy & GHG Analysis

Detailed information on energy modelling for the Town of Banff is included in a separate document entitled *Taking Stock: An Update of the Town of Banff's Community Energy Plan*. This section provides an overview of the results of that analysis.

The majority of the town's greenhouse gas emissions are directly attributable to consumption of fossil fuel. The remainder occurs from landfilling of solid waste. To prepare Banff's GHG inventory, energy consumption data was collected from utilities and fuel stations, and energy demand was evaluated through an analysis of building stock and infrastructure. Energy modelling was used to forecast energy consumption and GHG emissions over the next twenty years in a *Business As Usual (BAU) Scenario*.

The *BAU Scenario* describes the most probable energy consumption pattern and resulting impacts in the absence of any major new initiatives. It assumes two conditions:

- an extrapolation of past trends, wherever reasonable, and
- the introduction of new policies, regulations, and market reforms where these are planned and probable.

GHG emission reduction targets have been established for municipal operations and for the entire community based on the PCP recommendation of 20% for municipal operations and 6% community wide reductions. Therefore the analysis of energy consumption and GHG emissions is separated into these two categories.

Energy Used by Municipal Operations

In the course of providing municipal services to citizens and visitors, the Town of Banff consumes energy through their management of the town and through the provision of local services. As a consequence, the Town of Banff has direct control over how municipal facilities are operated and local services are delivered. Decisions of a policy, planning and budgetary nature to reduce energy use are among the powers of municipal councils and staff. For example, the Town own and operate facilities such as Town Hall, recreation facilities, housing, operations buildings and a fleet of vehicles.

Energy Used Throughout the Community

The consumption of energy in the town is shaped by land use practices, transportation systems, the energy efficiency of building stock, and the source of energy (i.e. the systems and fuel used to generate electricity and power). In these areas, the Town of Banff has indirect control and influence over how energy is consumed. Through bylaws, energy use standards in building codes, development charges, zoning requirements, relationships with local utilities and communication with local businesses and residents, the Town can influence how energy is consumed.

Population

Population estimates for 1998 are shown in Figure 1. As can be seen, the population is comprised of residents, day visitors and overnight visitors. Banff's energy consumption and GHG emissions are projected to increase dramatically over the next twenty years. This growth will be driven primarily by expected increases in visitors, and in particular by their chosen methods of transportation.

The day-to-day population in Banff is largely influenced by visitors, and as a result, population estimates are adjusted to account for day and overnight visitors. For example, the population estimate for 1998 was 27,300, and 31% of this total were day visitors (8,500 people), 40% were overnight visitors (10,840 people), while only 29% were residents (8,000 people). Banff's combined resident and visitor population is projected to increase to 45,100 by 2020, at which time day visitors will represent 56% of the total population (25,500 people); 25% will be overnight visitors (11,270 people); and 19% will be residents (8,500 people).

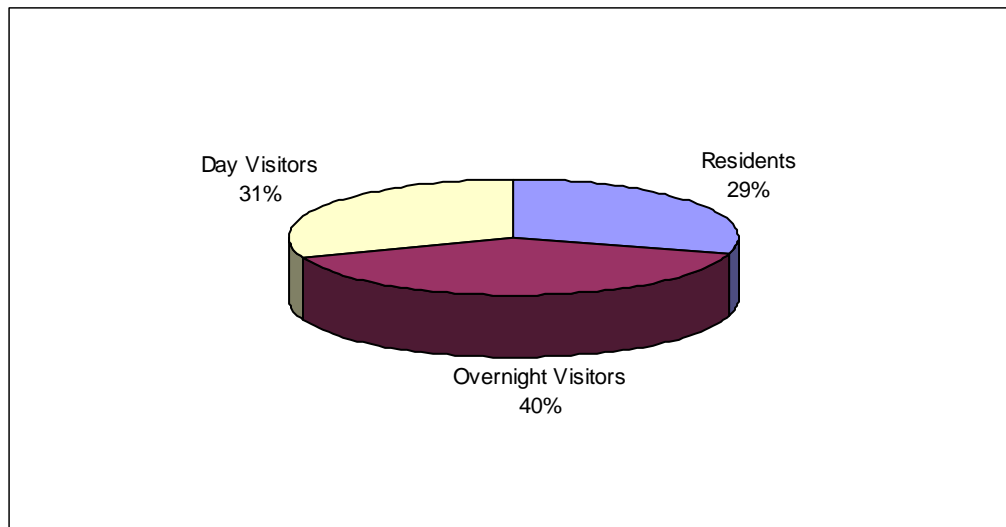


Figure 1: Composition of Banff's Population (1998 data)

2.1 Backcasting to 1990

The Partner's for Climate Protection (PCP) Program, which Banff joined in 1999, recommends that municipalities commit to a 20 per cent reduction in GHG emissions from municipal operations, and a minimum of six per cent reduction for the entire community, from 1990 levels within 10 years of joining PCP.

Data for the CEP was originally collected for the year 1998. Therefore, data was backcasted to 1990 to determine Banff's PCP target.

Energy consumption estimates for 1990 were compiled by:

- Obtaining natural gas consumption data from ATCO Gas.
- Backcasting from electricity consumption data for 1994 – 1998.

- Using estimates of residential population from Alberta statistics and visitor population estimates from the East Park Gate counts and bed unit estimates.
- Backcasting transportation estimates for 1990 assuming that per capita fuel consumption followed a consistent rate of growth between 1990 and 1998 (a 1.5% increase in activity rate each year¹).

2.2 Energy Used Throughout the Community

Total energy consumption in 1998 was 3.3 million GJ, or in expenditure terms - \$35 million. As shown in Figure 2, commercial buildings and visitor transportation consumed 38% and 31% of the total energy in Banff, respectively.

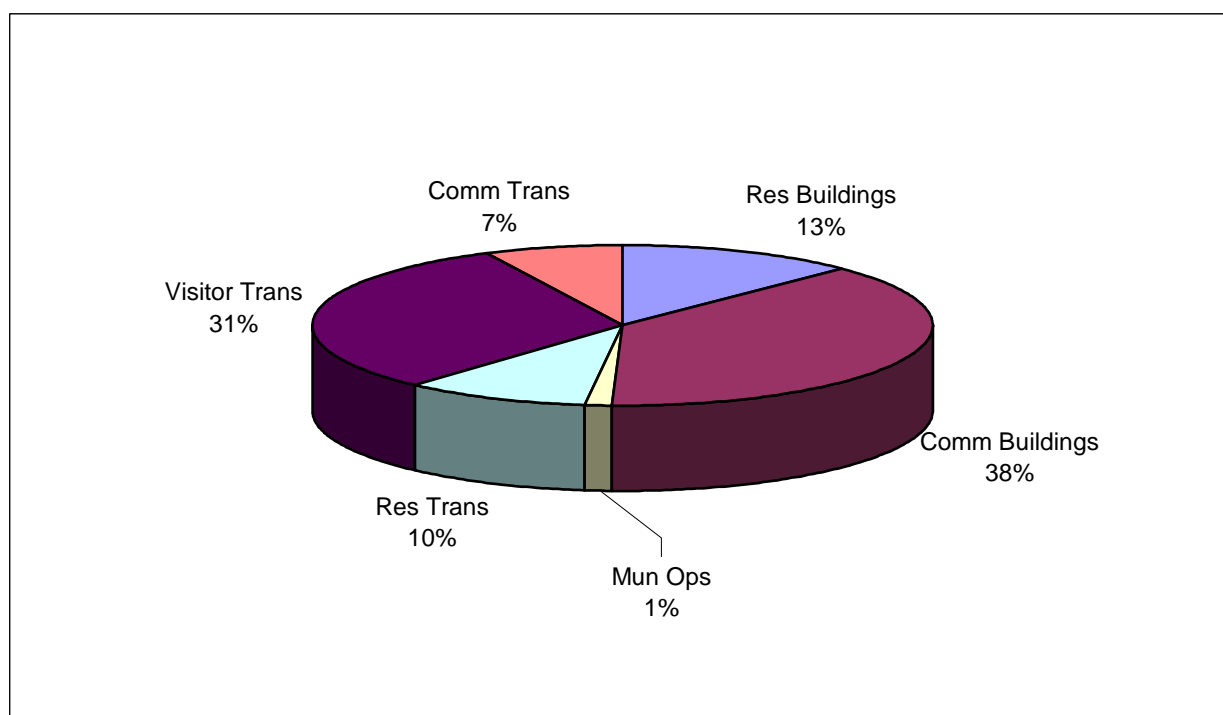


Figure 2: Energy Consumption by End-Use in Banff (1998 data)

2.2.1 Energy Consumption Backcast to 1990 for the Community

As shown in Table 1, energy consumption was estimated to be 2.7 million GJ in 1990, increasing to 3.5 million GJ in 2000. Per capita consumption increased from 109 GJ/person in 1990 to 121 GJ/person in 2000. In terms of expenditures, approximately \$51 million was spent on energy by residents, businesses, and visitors in 2000².

¹ This is a projection from *End-Use Energy Handbook 1990 to 2000*, NRCan, June 2002.

² The increase in expenditures is due to the increase in the price of gasoline and natural gas between 1998 and 2000.

Table 1: Energy Consumption for Banff, 1990-2000

Year	Electricity (1000 GJ)	Natural Gas (1000 GJ)	Visitor Trans- portation (1000 GJ)	Resident Trans- portation (1000 GJ)	Transit (Diesel) (1000 GJ)	Municipal Operations (1000 GJ)	Commer- cial Trans- portation (1000 GJ)	TOTAL	Per Capita (GJ)
1990	375	977	787	304	0	5	215	2,658	109
1991	399	1,022	774	308	0	5	212	2,721	113
1992	405	1,075	870	313	0	5	227	2,894	113
1993	410	1,107	941	317	0	5	237	3,016	113
1994	394	1,122	961	322	0	5	240	3,039	113
1995	400	1,157	982	322	0	5	241	3,102	114
1996	411	1,193	1,003	322	0	5	243	3,171	116
1997	418	1,225	1,024	322	1	5	244	3,232	118
1998	427	1,255	1,032	326	1	5	243	3,283	120
1999	444	1,289	1,142	327	1	5	258	3,460	120
2000	454	1,319	1,142	327	1	5	258	3,501	121

2.3 Energy Used by Municipal Operations

In 1998, about \$530,000 was spent on energy for municipal operations. This is about 1% of the total energy used in the community. Municipal energy consumption by end use for 1998 is listed in Table 2.

Table 2: Energy Consumption for Municipal Operations by End-Use, 1998

End-Use	Energy (GJ)
Buildings - Electricity	3,000
Water & wastewater- Electricity	16,000
Streetlighting - Electricity	2,000
Buildings – Natural Gas	8,000
Water & wastewater - Natural Gas	7,000
Gasoline	5,000
Transit - Diesel	1,000
Solid Waste Disposal	n/a
<i>Total</i>	<i>42,000</i>

2.3.1 Energy Consumption Backcast to 1990 for Municipal Operations

As shown in Table 3, energy used by municipal operations increased by 16% between 1990 and 2000. Energy consumption is increasing at a faster rate than GHG emissions because most of the growth in energy demand is a result of transportation, and the emission intensity of electricity is 25% greater than that of gasoline.

Table 3: Energy Consumption for Municipal Operations, 1990-2000

Year	Energy Consumption (GJ)	% Increase from 1990
1990	38,000	
1994	40,000	5%
1998	42,000	11%
2000	44,000	16%

2.4 Community-wide GHG Emissions

GHG emissions from fuel use was calculated using Environment Canada's emission factors for the various fuel types used in Banff. Emissions resulting from solid waste disposal were also included in the inventory. These emissions were calculated using the emission factor presented in the Partners for Climate Protection software. This emission factor includes all GHG emissions that will result from the waste disposed, throughout its decomposition, not just in the year that the waste is disposed in landfill. Total emissions from solid waste disposal were nearly 2,900 tonnes of carbon dioxide equivalent in 1998, representing less than 1% of Banff's total GHG emissions.

In 1998, total emissions were about 297 kilo-tonnes carbon dioxide equivalent (tCO₂e), or 10.6 tonnes CO₂e per capita. This information is presented in Table 4. As can be seen, commercial buildings and visitor transportation are the major contributors to Banff's total GHG emissions.

Table 4: Banff Greenhouse Gas Emissions by Sector, 1998

Sector	Emissions (1000 tonnes CO ₂)	%
Residential Buildings	34	11%
Commercial Buildings	145	49%
Municipal Operations	10	3%
Residential Transportation	23	8%
Visitor Transportation	66	22%
Commercial Transportation	19	6%
Total	297	100%

2.4.1 GHG Emissions Backcast to 1990 for the Community

As shown in Table 5, GHG emissions were estimated to be about 248 kilo-tonnes tonnes in 1990. By 2000, emissions had increased by 28%, to about 318,000 tonnes.

Table 5: GHG Emissions for Banff (Kilo tonnes CO₂e), 1990-2000

Year	Elec. [Kilo- tonnes]	Nat. Gas [Kilo- tonnes]	Visitor Trans [Kilo- tonnes]	Res. Trans [Kilo- tonnes]	Transit (Diesel) [Kilo- tonnes]	Mun. Ops [Kilo- tonnes]	Comm. Trans [Kilo- tonnes]	Land-fill Gas [Kilo- tonnes]	TOTAL [Kilo- tonnes]	% Change	Per Capita [Tonnes]
1990	108	49	50	21	0.0	0.3	17	2	248		10.0
1991	109	51	49	21	0.0	0.3	16	3	250	0.8%	10.2
1992	111	54	56	21	0.0	0.3	18	3	262	5.6%	10.0
1993	112	55	60	22	0.0	0.3	19	3	271	9.1%	9.9
1994	114	57	61	22	0.0	0.3	19	3	275	11.0%	10.0
1995	115	58	63	22	0.0	0.3	19	3	281	13.1%	10.1
1996	118	60	64	22	0.0	0.3	19	3	287	15.9%	10.3
1997	120	62	65	23	0.0	0.3	19	3	293	18.1%	10.4
1998	121	63	66	23	0.0	0.3	19	3	297	19.6%	10.6
1999	126	65	73	24	0.1	0.4	21	3	313	26.2%	10.5
2000	129	67	73	25	0.1	0.3	21	3	318	28.2%	10.7

2.5 GHG Emissions from Municipal Operations

Table 6 provides a breakdown of emissions by source for municipal operations. As can be seen, total emissions from municipal operations were 6,960 tonnes CO₂e in 1998.

Table 6: GHG Emissions for Municipal Operations by End-Use, 1998

End-Use	GHG Emissions (tonnes CO ₂ e)
Buildings - Electricity	855
Water & wastewater- Electricity	4,349
Streetlighting - Electricity	629
Buildings – Natural Gas	384
Water & wastewater - Natural Gas	364
Gasoline	328
Transit - Diesel	49
<i>Total</i>	<i>6,960</i>

2.5.1 Greenhouse Gas Emissions Backcast to 1990 for Municipal Operations

As shown in Table 7, GHG emissions from municipal operations (excluding landfill gas which is included in the community emissions profile) increased by 9% between 1990 and 2000.

Table 7: GHG Emissions for Municipal Operations, 1990-2000

Year	GHG Emissions (tonnes CO₂e)	% Increase from 1990
1990	6,660	
1994	6,990	5%
1998	6,960	5%
2000	7,260	9%

3 Forecasting to 2020

3.1 Methodology

Energy modelling was used to forecast energy consumption and GHG emissions over the next twenty years. Modelling incorporated information on:

- Population,
- Building stock,
- Transportation patterns, and
- Infrastructure.

A *Business As Usual (BAU) Scenario* describes the most probable energy consumption pattern and resulting impacts in the absence of any major new initiatives. It assumes two conditions:

- an extrapolation of past trends, wherever reasonable, and
- the introduction of new policies, regulations, and market reforms where these are planned and probable.

The *BAU Scenario* is based on the following assumptions:

- A permanent residential population cap of 10,000.
- The number of visitors per day will increase by 3% per year.³
- The number of bed units will increase at a rate of 1% per year until the bed unit cap is reached.⁴
- The cap on commercial bed units will be reached in 2006⁵.
- Commercial bed-unit occupancy rates remain consistent.
- The turnover in the building stock as it becomes redeveloped is estimated at 3% per year.
- A 1.5% annual growth in energy demands by municipal buildings and the waste water treatment plant.
- Electricity and natural gas rates in 2001 are used for forecasts.⁶ (This is a conservative approach, recognizing that it is very difficult to project energy prices over a twenty-year period.)
- Energy efficiency of buildings will improve at a rate consistent with past 20-year trends. (Approximately a 10% improvement over old building stock.)
- Vehicle activity rate increases by 1.5%⁷ per year and fleet efficiency improves by 1.3% per year⁸.
- Energy used for commercial transportation remains constant over time.
- Energy used for infrastructure operation and maintenance remains constant over time.
- For the purposes of this analysis it was assumed that solid waste diversion would improve at a rate of 10% per year, such that the diversion rate would be 30% by 2010, and 44% by 2020. Since that time, a draft Solid Waste Management Plan has been developed for the

³ Working Paper #1, Town of Banff Wastewater Treatment Plant Upgrade, Development of Wastewater Flow Design Parameters, April 2001.

⁴ Ibid.

⁵ Ibid.

⁶ \$0.065/kWh for electricity and for natural gas about \$7 per GJ for the commercial sector and \$8/GJ for the residential sector.

⁷ Forecast presented in: End-Use Energy Handbook 1990 to 2000, NRCan, June 2002.

⁸ U.S. Depart of Energy forecast.

Town. When the energy and GHG emissions analysis is next updated, revised waste diversion targets from the adopted Solid Waste Management Plan should be used.

3.2 Population Projections to 2020

As can be seen in Figure 3, combined resident and visitor population is projected to increase from 27,300 in 1998 to 36,000 in 2010 and 45,000 by 2020. This corresponds to an 65% increase in total population between 1998 and 2020, or a 3% growth each year. As can be seen from Figure 3, overnight population is expected to grow until 2006. Day visitor population is projected to grow over the entire study period. The permanent residential population is expected to grow only slightly, but remain at 8,500.

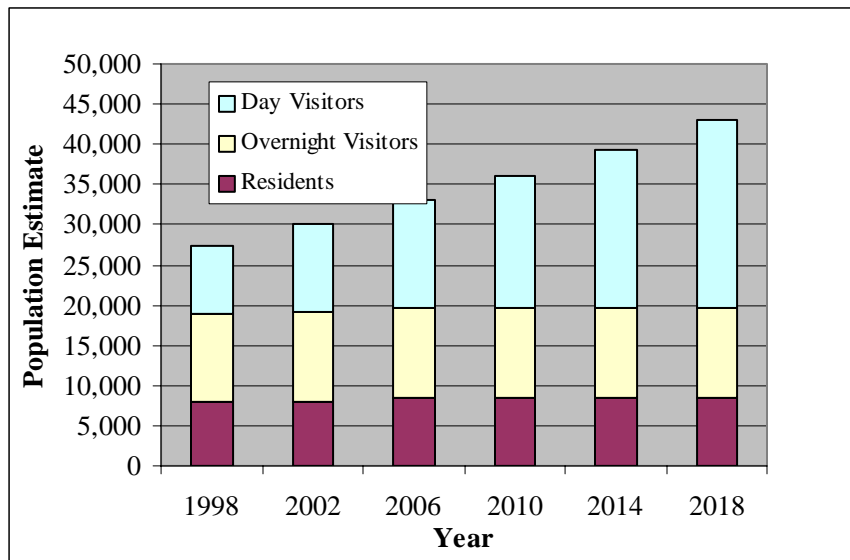


Figure 3: Population Projection, 1990 - 2020

3.3 Energy & GHG Forecast for the Community

Energy & GHG forecast results are summarised in Table 8. On a per capita basis, annual energy use is expected to decrease from 122 GJ/person in 2000, to 108 GJ/person in 2020. This decrease is attributable to improvements in the energy efficiency of vehicles and buildings over the forecast period. However, even though per capita energy consumption is decreasing, the number of visitors to Banff is projected to grow significantly and therefore, absolute energy consumption will still increase from 3.6 million GJ in 1990 to 4.9 million GJ in 2020⁹. GHG emissions are expected to increase from 1990 levels by 48% in 2010 and by 64% in 2020 under a *BAU Scenario*.

Table 8: Business as Usual Energy and GHG Forecasts, 1990 – 2020

Year	Energy Consumption [million GJ]	Per Capita Energy [GJ/person]	GHG Emissions [KT]	GHG emissions [T/person]
2000	3.57	122	318	10.7
2004	3.89	121	341	10.4
2008	4.15	119	360	10.1
2012	4.39	115	375	9.7
2016	4.64	112	391	9.2
2020	4.91	108	409	9.1

3.4 Energy & GHG Emissions Forecast for Municipal Operations

Forecasts of municipal energy and GHG emissions are summarised in Table 9. Under a *BAU Scenario* emissions from municipal operations are predicted to increase 8% above 1990 levels by 2010 and 17% by 2020.

Table 9: Municipal Energy and GHG forecast

Year	Energy Consumption [GJ]	GHG Emissions [Tonnes]
2000	43,900	7,260
2004	44,000	6,880
2008	45,000	7,100
2012	46,000	7,300
2016	47,000	7,500
2020	49,000	7,800

⁹ These estimates include Municipal Operations.

3.5 Banff's GHG Emission Reduction Targets

Banff's recommended PCP target is to reduce GHG emissions from municipal operations by 20% of 1990 levels and by 6% of 1990 levels for the entire community. The PCP further recommends that these targets be met within 10 years of joining the program, which would be 2009 for Banff.

An estimate of Banff's total emissions in 1990 were backcast to determine targets for the community and municipal operations. As shown in Table 10, the target for municipal operations is 5,330 tonnes CO₂e, and 227,000 tonnes CO₂e for the entire community.

Table 10 also identifies the forecasted emissions for the year 2009, and as shown, the emissions reduction target would not be met in any of them.

Table 10: Banff's Emission for 1990 (baseline year), the PCP Target and in the BAU Scenario (tonnes CO₂e)

	Greenhouse Gas Emissions 1990 [Tonnes]	PCP Target (2009) [Tonnes]	BAU in 2009 [Tonnes]	Distance from Target [Tonnes]
Municipal Operations	6,700	5,300	7,200	1,800
Community ¹⁰	241,000	227,000	357,000	130,000
Total	248,000	232,000	364,000	132,000

As demonstrated in this report, significant growth in visitor population will result in continued growth in energy consumption and GHG emissions, making it challenging for Banff to achieve absolute reductions in GHG emissions.

¹⁰ Includes landfill gas but excludes Municipal Operations.

4 Existing & Proposed Measures

A number of initiatives to reduce energy demand and GHG emissions have already been implemented in the town. This section profiles these actions. Section 5 then presents LAP program areas for the Town of Banff's Local Action Plan (LAP). It should be noted that the implementation of these programs is subject to resource allocation by Town Council.

4.1 Existing Community-Wide Initiatives

4.1.1 Integrated Transportation Plan

The Integrated Transportation Plan identifies priority areas for improving transportation in the town. Initiatives highlighted for implementation in the short-term include: improvement of bus shelters, parking signage, traffic signalling, shuttle bus operations, pathways, concept design for a new parkade, the Regional Transportation Study, traffic calming strategies, park-and-ride facilities, a communications plan, Car Pool, and Go for Green programs. Already this plan has resulted in improved tour bus parking, a year-round transit program and initial implementation of a carpool program. While the Integrated Transportation Plan is an important step, further analysis is recommended to develop targets for reduced congestion, reduced emissions of common air contaminants, and reductions in GHG emissions

4.1.2 Regional Transportation Study

The Town of Banff is currently participating with other groups in the Bow River area in a Regional Transportation Study. The goal of this study is to develop *a sustainable transportation strategy that encourages the efficient and effective movement of people and goods to and through the region, recognizing as paramount the need to ensure protection of the ecological integrity of the region while maintaining attractive visitor experiences*¹¹.

This study will include an inventory of the existing transportation network, a literature review, forecasting, alternatives analyses, a proposed consultation process, and a Regional Transportation Strategy. This strategy will *outline steps that should be taken in the short to medium term and to propose a long-term strategy (i.e., year 2015) for traffic demand management and traffic systems management, including recommendations for coordinated long-term infrastructure*¹².

¹¹ Draft Terms of Reference Regional Transportation Study, Revised February 2001.

¹² *ibid*

4.1.3 Green Building & Site Design Guidelines

The Town is working towards improving the energy performance of buildings in the community through the development of Green Site and Building Design Guidelines¹³. These guidelines are a means of setting minimum levels of performance for new buildings resource consumption and overall building sustainability. Based on similar work in other communities, implementing a comprehensive set of green site and building design guidelines for energy use in buildings can reduce consumption by 25% to 40%.

4.1.4 Solid Waste 3 Rs Program

Banff's recycling program began in 1994. In the first year of the program, a recycling rate of 6% was achieved, increasing to 12% in 2000.

4.1.5 Street Lighting Master Plan

The Town of Banff Street Lighting Master Plan's primary objectives are to provide a consistent level of lighting on public roads while minimizing light trespass and increasing energy efficiency. The plan will result in a 25% increase in lighting fixtures and a 26% reduction in energy consumption. Since 1997 the Town has already changed approximately 60 lights to more efficient bulbs.

4.2 Existing Municipal Operation Initiatives

4.2.1 Environmental Management System (EMS)

A comprehensive EMS has been under development since the winter of 2001/2. It is being developed using the ISO14001 model. The aim is to ensure continuous improvement in environmental performance by systematically tracking the management of significant environmental aspects and the performance of individual initiatives to meet specific targets.

The EMS will address all significant environmental aspects (in municipal operations) over which it has direct control, as well as those community-wide environmental aspects that the Town has some significant degree of influence to change. Many of these environmental aspects will have some connection to energy savings. The corporate roll-out of the EMS will be complete by the end of 2003.

4.2.2 Wastewater Treatment Plant (WWTP) Upgrade

Prism Engineering conducted an audit of the WWTP in February 2001, and the town of Banff is undertaking all of the retrofits recommended in that study. Retrofits began in July 2001, and as of November 2002, natural gas consumption had already decreased by 50% and electricity had decreased in the range of 7-17%.

4.2.3 Fleet conversion to Natural Gas

The Town partnered in the establishment of a public natural gas vehicle refuelling station in the Industrial Compound which opened in November 2001. The Town has investigated which fleet vehicles can economically be converted to natural gas and has purchased one natural gas fuelled

¹³ See for example the building design guidelines developed for the City of Santa Monica. These guidelines may be found at <http://greenbuildings.santa-monica.org/Main.htm>

vehicle. The ATCO Gas vehicle audit identified five vehicles that make economic sense to convert. These conversions will take place as funds become available.

4.2.4 Municipal Building Retrofit Program (MBRP)

The Town of Banff is participating in the Federation of Canadian Municipalities' Municipal Building Retrofit Program. The program assists municipal governments in developing comprehensive retrofit programs for their buildings and supports municipal staff by providing customized tools and services throughout the design and implementation process. Through an energy audit that was conducted for the Town of Banff by Prism in June 2001, the Town has discovered that by completing over \$400,000 in building energy retrofits it will save approximately \$70,000 annually. The Town should utilise it's own revolving fund to realise these savings.

4.2.5 Green power purchases

Two percent of the Town of Banff's electricity purchases is green power. The Town is purchasing its power through an aggregated contract with AUMA. The Town should promote a greater percentage of green power.

4.2.6 Solar Panel Project

The Banff Sustainable Energy Group (BSEG) is a joint venture between the Town of Banff, Soltek Solar Energy Sustainable Energy Technologies (Calgary), ATS/Photowatt (Mississauga), and East Penn/ Power Battery Sales (Scarborough). The BSEG has been active since mid 1999. The group announced its creation June 20th, 2000 on completion of the signing of formal "Memorandum of Understanding"

BSEG's first project involved the installation of a photovoltaic system at the Operations Compound in 2000. The system consists of ten - 95 kW Photowatt Solar modules, a beta version of Sustainable Energy Technologies' Sustainable Energy Management System (SEMS), and a 48 volt - 48KW Gel Cell battery bank.

There are plans to expand this project in the future. Phase 2 would involve additional solar module capability and an enhanced SEMS unit to allow both a grid-tie connection and net - metering. Phase 3 would involve the addition of a Fuel Cell to the system.

Following success of these three phases, BSEG would undertake a Distributed Energy System Pilot Project with the Operations Centre and approximately 400 residences and businesses within the Town of Banff. The completion of each phase is subject to the continued commitment of all project partners.

4.2.7 Personnel Policies

The Town of Banff enables employees to change their scheduled hours of work (to facilitate a compressed work week which will reduce the number of commuting trips).

4.2.8 Other

A number of other initiatives have been undertaken by the Town, including:

- Consideration of a black solar-wall is to be undertaken at the new Waste Transfer Station/Recycling Depot.
- The Recreation Grounds Washroom meets Commercial Building Incentive Program (CBIP) guidelines
- Banff Housing Corporation has developed Canada's largest R2000 residential housing project in the Middle Springs development (23 homes).
- Community Services has a staff bicycle for use in attending local meetings

4.3 Existing Initiatives by Banff Businesses

Banff businesses have already realized the benefits of energy efficiency projects. A few examples include:

- Banff Park Lodge may be the first hotel to receive Eco Logo certification.
- The Hotel/Motel Association wants all of their members to be rated as three leaf or better in the Green Leaf™ Eco-Rating Program (www.terrachoice.ca/hotelwebsite/indexcanada.htm).
- Banff Airporter Inc saved between 35 – 45% in fuel costs by switching to natural gas from gasoline. By using a cleaner burning fuel, oil changes are less frequent, reducing consumption, and there is less pollution being released into the environment.
- A number of retail spaces have switched from halogen lighting to fluorescent tubes, including Totem & Thunderbird stores, Mountain Legends, and the Best Western Outfitters.
- The Banff Centre will meet their sustainability goals through the implementation of an Environmental Management System (EMS), including energy retrofits.
- Parks Canada conducted an EMS and participated in the Federal House In Order initiative and the Federal Building Initiative.
- Arctos & Bird are using green site & building design guidelines at their Bear St and Cave Avenue projects.
- There are energy efficiency service providers in the Bow Valley such as “ReLumin” who specialize in efficient lighting solutions.
- The Banff Gondola has undertaken significant energy management initiatives already, such as:
 - Implementation of an EMS
 - Installation of a processor that uses staged heating to keep peak demand down when the gondola is drawing a lot of power (this cost \$15,000 and was paid for in savings within three months)
 - Programmable thermostats
 - High efficiency lights
 - Offices not being used are not heated
 - Window replacements

4.4 Proposed Measures

On November 7 and 8, 2002, the Town of Banff held consultation workshops with residents, local businesses and Town of Banff staff to identify potential measures to include in Banff's Local Action Plan. This section presents a priority list of initiatives that were identified during these sessions. A few additional items have been included as they represent important low-hanging fruit and/or strategic opportunities. A complete summary of the feedback received at these workshops is included in Appendix 5.

The proposed initiatives include are summarised below.

Municipal Operations Initiatives

1. Purchasing Green Energy for Municipal Operations
2. Initiating an Alternative Fuels & Vehicles Program
3. Establishing a Van pool Program for Town Staff
4. Providing Bicycles for Town Staff for Business Use
5. Increasing the Uptake of Compressed Work Weeks
6. Promoting Carpooling to Town Staff and other Employers

Community-Wide Initiatives

1. Promoting Distributed Energy Opportunities
2. Facilitating Bulk Purchase of Green Energy by the Community
3. Delivering a Residential Building Retrofit Program
4. Delivering a Commercial Building Retrofit Program
5. Developing & Promoting Park & Ride Facilities
6. Providing Energy Efficiency Products for the Community
7. Launching an Anti-idling Campaign in Banff
8. Developing a *Towards a Sustainable Banff* Web Portal
9. Creating a Revolving Fund for Community-wide Energy Efficiency Initiatives
10. Making the Community More Bike and Pedestrian Friendly
11. Implementing Community Transportation Initiatives (e.g. a Walk & Bike to School Program)

A detailed overview of each of these initiatives is provided in Appendix 1. The detailed profiles include information on:

- A brief description, overview and timeline
- Responsibility (e.g., Town Operations staff)
- Ease of implementation
- Resource Requirements (staffing)
- Capital Investments
- Pay-back
- GHG emission reduction potential
- Funding Opportunities
- Further information/ case studies

The figure on the following page outlines the proposed LAP initiatives, grouped by program area.

Implementation Initiatives

Programs

Municipal Operations

Community-wide (Residential, Commercial & Institutional)

Go for Green Program

- Establishing a Van Pool Program for Town Staff
- Providing Bicycles for Town Staff
- Increasing the Uptake of Compressed Work Weeks
- Promoting Carpooling



Vanpool



Carpool

- Developing Park & Ride Facilities
- Implementing Community Transportation Initiatives (e.g. Walk to School)
- Making the Community More Bike & Pedestrian Friendly
- Promoting Carpooling



Park & Ride



Carpool

Alternative Fuels & Renewable Energy

- Purchasing Green Energy for Municipal Operations
- Initiating an Alternative Fuels & Vehicles Program



- Facilitating Bulk Purchase of Green Energy by the Community
- Promoting Distributed Energy Opportunities



Energy Saver Buildings

- Ongoing Building Retrofits
- Developing Green Site & Building Design Guidelines



- Delivering a Residential Building Retrofit Program
- Delivering a Commercial Building Retrofit Program
- Developing Green Site & Building Design Guidelines



Energy Efficiency Education & Services

- Continue Municipal Building Revolving Fund for Energy Efficiency Initiatives



\$

- Providing Energy Efficiency Products for the Community
- Launching an Anti-idling Campaign in Banff
- Developing a Towards a Sustainable Banff Web Portal
- Creating a Revolving Fund for Energy Efficiency Initiatives



\$

4.5 Emission Reduction Potential of Existing and Proposed Measures

The package of existing and proposed measures included in the LAP would reduce GHG emissions by a total of nearly 80,000 tonnes by 2009 compared to the *BAU Scenario*. As shown in Table 11, the LAP will enable Banff to achieve the PCP target for municipal operations, but further effort will be required to achieve the community-wide target. This is largely due to the significant challenge associated with addressing visitor transportation energy consumption.

Table 11: GHG Emissions in 1990 (the baseline year), and for the PCP target, the *BAU Scenario* and the LAP Scenario for 2009

	Greenhouse Gas Emissions 1990 [Tonnes]	PCP Target (2009) [Tonnes]	BAU in 2009 [Tonnes]	Distance from Target [Tonnes]	LAP Scenario in 2009 [Tonnes]	Distance from Target [Tonnes]
Municipal Operations	6,660	5,330	7,160	1,830	4,600	0
Community	241,000	227,000	357,000	130,000	280,000	53,000
Total	248,000	232,000	364,000	132,000	285,000	53,000

Estimated GHG reduction potential for each of the LAP initiatives are summarized in Table 12.

Table 12: Emission Reduction Potential of Existing and Proposed LAP Initiatives

Existing Municipal Operations Initiatives	GHG Target Reductions (tonnes/ year by 2009)
Fleet conversion to Natural Gas	Subject to fleet replacement program.
Municipal Building Retrofit Program (MBRP)	700
Green power purchases	400
Environmental Management System (EMS)	supporting
Wastewater Treatment Plant (WWTP) Upgrade	700
Solar Panel Project (BSEG)	Monitoring is ongoing
TOTAL	1800 +
Existing Community-Wide Initiatives	
Integrated Transportation Plan & Regional Transportation Study	40,000
Green Building & Site Design Guidelines	17,000
Solid Waste 3 Rs Program	400
Street Light Master Plan	150
TOTAL	57,550
Proposed Municipal Operations Initiatives	
Purchasing Green Energy for Municipal Operations	600
Initiating an Alternative Fuels & Vehicles Program	30
Establishing a Vanpool Program for Town Staff	60
Providing Bicycles for Town Staff for Business Use	10
Increasing the Uptake of Compressed Work Weeks	10
Promoting Carpooling to Town Staff and other Employers	30
TOTAL	740
Proposed Community-Wide Initiatives	
Promoting Distributed Energy Opportunities	30
Facilitating Bulk Purchase of Green Energy by the Community	1,000-5,000
Delivering a Residential Building Retrofit Program	400
Delivering a Commercial Building Retrofit Program	1,000
Developing & Promoting Park & Ride Facilities	3,000
Providing Energy Efficiency Products for the Community	20
Launching an Anti-Idling Campaign in Banff	10
Developing a <i>Towards a Sustainable Banff</i> Web Portal	supporting
Creating a Revolving Fund for Energy Efficiency Initiatives	10,000
Making the Community More Bike and Pedestrian Friendly	1,000
Implementing Community Transportation Initiatives (e.g. a Walk & Bike to School Program)	100
TOTAL	16,560 –20,560

5 Program Implementation Strategy

5.1 Introduction

This section provides a recommended strategy for the Town to implement the LAP. Information is provided on:

- Program delivery and resource requirements;
- Implementation risk management;
- A performance measurement framework;
- Reporting; and
- On-going stakeholder engagement.

5.2 Program Delivery

As mentioned in the previous section, the various initiatives in the LAP will be delivered in four key program areas:

- Go for Green
- Alternative Fuels and Green Energy
- Energy Saver Buildings
- Energy Efficiency Education and Services

Delivery details for each of these programs are outlined in the following pages. Specifically, the following information is provided for each program area:

- A brief description
- A summary of program objectives
- A list of program components (more detail on each of the components is provided in Appendix 1).
- A proposed timeline, and
Capital costs & resource requirements (cost estimates for resource requirements are also estimated¹⁴).

¹⁴ Resourcing costs are estimated by assuming that program staff involved in carrying out these tasks will either be coordinators or managers, with average annual salaries of \$35,000 and \$50,000 respectively).

Program Name: Go for Green Programs

Description: The Town decreases single occupant vehicle (SOV) travel by Town staff and all community members by providing the necessary information and tools to facilitate this shift.

Objectives:

- Reduce GHG emissions
- Improve local air quality
- Enhanced quality of life through physical fitness and reduced stress

Program Components:

Municipal Operations

- Establishing a Van pool Program for Town Staff
- Increasing the Uptake of Compressed Work Weeks
- Promoting Carpooling
- Providing Bicycles for Town Staff

Community-wide

- Developing Park & Ride Facilities
- Making the Community More Bike and Pedestrian Friendly
- Promoting Carpooling
- Implementing Community Transportation Initiatives (e.g. Walk to School)

Timeline:

2003-2004

Municipal Operations

- Seek interested vanpool participants
- Purchase low emission van for municipal staff vanpool
- Obtain additional bicycles for use by municipal staff

Community-Wide

- Encourage more large employers to use carpooling
- Promote park & ride for visitors concept to large employers
- Seek partners to participate in the development of a bike network and multi-use pathways

2005

Municipal Operations

- Promote use of Town Staff bicycles for business use
- Promote use of compressed work weeks
- Promote use of carpool
- Promote use of park & ride lot

Community-Wide

- Construct first park & ride lot
- Promote use of park & ride lot
- Monitor use of park & ride lot
- Undertake consultation to identify bike network and multi-use pathways

2006 and beyond

Municipal Operations

- Continue promotion efforts

Community-Wide

- Create bike and walk commuting trails
- Prepare and distribute trail maps
- Set up trail maps on kiosks

Capital/Development Costs:¹⁵

Establishing a Vanpool for Town Staff

- If the Town used an existing vehicle or arranged to lease a van, the investments would be low, but if the Town elects to purchase a new van the investment would be high.
- Establishing the vanpool would likely require allocation of 10% of a full-time coordinator position for one month, (at an approximate cost of \$360 for start-up).

Developing & Promoting Park & Ride Facilities

- Promotion costs should be shared among partnering agencies and incorporated into existing budgets. Parking lot and signage costs would be included in the construction of two Park and Ride facilities at a total cost of around \$400,000.
- 30% of a full-time manager position would be required for a six month period (at an approximate cost of \$11,000).

Making the Community More Bike and Pedestrian Friendly

- The total cost of completing a cycling network will depend on the number of kilometres and types of facilities that are included. Costs for the signage could be around \$4,000 to \$6,000 per kilometre. Costs for developing a multi-user trail or pathway, excluding land costs, would be in the range of \$300,000 to \$850,000 per kilometre depending on width, surfacing, and topography considerations.
- Ancillary costs for bike racks, preparing and producing maps, and information for kiosks would be medium to low.
- The bike and walk trail system would require the dedication of about 30% of a full-time manager position for a one-to-two-year period (at an approximate cost of \$18,000 - \$36,000).

Ongoing/Operational Costs:

Establishing a Vanpool for Town Staff

- There would be no ongoing operational expenses associated with establishing the vanpool program, and ongoing human resourcing costs would also be negligible.

Developing & Promoting Park & Ride Facilities

- There would be ongoing operational costs associated with maintaining the lots of around \$10,000 pa.
- On-going resourcing requirements would be minimal and could be incorporated into existing responsibilities.

Making the Community More Bike and Pedestrian Friendly

- On-going maintenance costs would be medium, and on-going staffing costs would be minimal.

¹⁵ Resourcing costs (staffing requirements) are estimated by assuming that program staff involved in carrying out these tasks will either be coordinators or managers, with average annual salaries of \$43,000 and \$60,000 respectively.

Program Name: Alternative Fuels and Green Energy

Description: Progressively reduce Banff's dependence on fossil fuels through fuel switching.

Objectives:

- Reduce GHG emissions
- Improve local air quality
- Contribute to the development of renewable energy and alternative fuel industries

Program Components:

- | Municipal Operations | Community-wide |
|--|--|
| <ul style="list-style-type: none">• Purchasing additional Green Energy for Municipal Operations• Initiating an Alternative Fuels & Vehicles Program | <ul style="list-style-type: none">• Facilitating Bulk Purchase of Green Energy by the Community• Promoting Distributed Energy Opportunities |

Timeline:

- | <u>2003-2004</u> | |
|---|--|
| Municipal Operations | Community-Wide |
| <ul style="list-style-type: none">• Encourage Parks Canada to purchase ethanol-blended gasoline and biodiesel | <ul style="list-style-type: none">• Promote green power purchases• Identify preferred method for facilitating green power purchases (e.g. setting up a power buying cooperative or municipal utility) |

- | <u>2005</u> | |
|--|--|
| Municipal Operations | Community-Wide |
| <ul style="list-style-type: none">• Increase green power purchases to 5%• Conduct staff surveys to evaluate potential for using smaller vehicles• Evaluate potential for additional district energy pilots | <ul style="list-style-type: none">• Provide information on distributed energy pilots |

- | <u>2006 and beyond</u> | |
|---|-----------------------|
| Municipal Operations | Community-Wide |
| <ul style="list-style-type: none">• Increase green power purchases by 2.5% per year• Encourage Parks Canada to purchase alternative fuels as they become available• Purchase hybrid vehicles for municipal staff use for business | |

Capital/Development Costs:¹⁶

Purchasing Green Energy for Municipal Operations

- There would be no capital investment required.
- Tasks would likely require allocation of 20% of a full-time manager position for two month period (at an approximate cost of \$2000).

Initiating an Alternative Fuels & Vehicles Program

- Capital costs would only be incurred if a hybrid vehicle was purchased.
- Tasks associated with purchasing ethanol blended fuel and biodiesel could be incorporated into existing responsibilities; tasks associated with conducting the trip survey would likely require allocation of 35% of a full-time coordinator position for two month period; tasks associated with purchasing hybrid vehicles would require allocation of less than one week of a manager position's time (at an approximate cost of \$1200).

Promoting Distributed Energy Opportunities

- The cost for initiating additional distributed energy systems would be greater than \$25,000, however, a detailed benefit-cost analysis would be required before pursuing any option.
- Human resourcing costs for start-up of an additional distributed energy project would need to be evaluated when a technology is identified.

Facilitating bulk purchase of green energy by the community

- There would be no capital investment required.
- The green power pool initiative would likely require allocation of 20% of a full-time manager position for a six month period (at an approximate cost of \$6000).

Ongoing/Operational Costs:

Purchasing Green Energy for Municipal Operations

- In the short term, any purchases of green power would be approximately twice the price of non-green power. The price premium will decrease as the demand and production of green power increases.
- A negligible investment of staff time would be required for ongoing reporting of costs and benefits.

Initiating an Alternative Fuels & Vehicles Program

- There would be no additional operating costs: Ethanol blended gasoline costs are equivalent to standard gasoline. In fact purchase of hybrid vehicles would significantly reduce operating costs - and compact low emission diesel vehicles cost one-quarter of the amount of large trucks to operate. (The honda insight uses 3.9 L of gasoline/100 km during city driving while a dodge van uses 18 L/100km).
- Tasks associated with the trip survey would require an ongoing investment of <5% of a full-time coordinator position following start-up (\$2,000 per year).

Promoting Distributed Energy Opportunities

- Changes to on-going operational costs would have to be evaluated when a distributed energy technology is identified.

Facilitating bulk purchase of green energy by the community

- There would be no ongoing operational expenses other than human resourcing costs.
- Ongoing resourcing requirements would be minimal and could be incorporated into existing responsibilities.

¹⁶ Resourcing costs (staffing requirements) are estimated by assuming that program staff involved in carrying out these tasks will either be coordinators or managers, with average annual salaries of \$43,000 and \$60,000 respectively.

Program Name: Energy Saver Buildings

Description: Reduce energy demand in Banff by improving the energy efficiency of the building stock.

Objectives:

- Reduce GHG emissions
- Reduce energy expenditures for all sectors
- Improve comfort of buildings

Program Components:

Municipal Operations

- Ongoing building energy retrofits
- Green Site & Building Design Guidelines

Community-wide

- Delivering a Residential Building Retrofit Program
- Delivering a Commercial Building Retrofit Program
- Green Site & Building Design Guidelines

Timeline:

2003-2004

Municipal Operations

- Utilise the Town's revolving fund to invest in municipal energy upgrades

Community-Wide

- Develop a marketing strategy for the EnerGuide program
- Survey businesses to evaluate their interest in receiving an energy audit
- Work with ATCO Gas and/or Epcor to secure a reduced rate for energy audits for Banff businesses

2005

Municipal Operations

- Utilise the Town's revolving fund to invest in municipal energy upgrades

Community-Wide

- Subsidize EnerGuide visits to 300 households
- Assist in developing a Green Community Association

2006 and beyond

Municipal Operations

- Continue to identify retrofit opportunities to keep pace with latest technologies

Community-Wide

- Encourage EnerGuide participants to undertake identified retrofits

Capital/Development Costs¹⁷:

Delivering a Residential Building Retrofit Program and a Commercial Building Retrofit Program

- The federal government already subsidizes the \$300 retrofits by \$150. Due to the low uptake of the program to-date it is recommended that the Town subsidize the remaining \$150 for 100 homes (at a total cost of \$15,000.)
- There would be no capital investment for the Commercial Building Retrofit Program. (Note: Fees for commercial participants would be at least \$3,500¹⁸)
- The EnerGuide for Homes and the commercial building audit initiatives would likely require allocation of 30% of a full-time manager position for a four month period (at an approximate cost of \$6000).

Ongoing/Operational Costs:

Delivering a Residential Building Retrofit Program and a Commercial Building Retrofit Program

- Promotional efforts could be covered under the Web Portal budget.
- This project would require the ongoing dedication of 5% of a coordinator's time (at an approximate annual cost of \$2200).

¹⁷ Resourcing costs (staffing requirements) are estimated by assuming that program staff involved in carrying out these tasks will either be coordinators or managers, with average annual salaries of \$43,000 and \$60,000 respectively.

¹⁸ Personal communication with Max Campbell, EPCOR, April 7, 2003.

Program Name: Energy Efficiency Education and Services

Description: Enable all community members to be actively involved in achieving Banff's energy efficiency objectives by empowering residents, businesses and visitors with the information that they need to make meaningful contributions.

Objectives:

- Increase community awareness about energy management issues
- Reduce GHG emissions
- Reduce energy expenditures for all sectors
- Improve local air quality

Program Components:

- Providing Energy Efficiency Products for the Community (either by setting up an Energy Office/Store, an on-line shop on the TSB Web Portal, or by encouraging local hardware stores to stock these items).
- Launching an Anti-idling Campaign in Banff
- Developing a *Towards a Sustainable Banff* Web Portal
- Creating a Revolving Fund for Energy Efficiency Initiatives

Timeline:

2003

- Seek budget approval for a Towards a Sustainable Banff (TSB) Web Portal, or a TSB Office (with store front)
- If web portal option is pursued develop draft content & seek support from local businesses (in exchange for promotion on the web portal)
- Encourage local shops to stock energy efficient products
- Develop and launch anti-idling program
- Identify a capital base for the Banff Energy Efficiency Revolving Fund
- Define criteria for Revolving Fund qualified projects

2004

- Launch web portal
- Provide first round of funding through the Revolving Fund

2005

- On-going maintenance of web portal
- Revolving Fund continues to support energy efficiency projects

Capital/Development Costs¹⁹:

Providing Energy Efficiency Products for the Community

- There would be high capital costs associated with setting up the office if this option is pursued, if the on-line shop is pursued costs would be medium, and there would be no capital costs associated with encouraging local hardware stores to stock these items.

Launching an Anti-idling Campaign in Banff

- There would be no capital costs associated with the initiative.
- The initiative would likely require the allocation of 25% of a full-time coordinator position for a three month period (at an approximate cost of \$2700).

Developing a Towards a Sustainable Banff Web Portal

- This initiative would likely cost between \$10,000 to 25,000 for a contracted web designer to create.
- Development of the Web Portal would likely require the allocation of 30% of a full-time coordinator position for a four month period (at an approximate cost of \$4300).

Creating a Revolving Fund for Energy Efficiency Initiatives

- Capital costs would depend on the size of the fund.
- The Revolving Fund initiative would require the allocation of at least 30% of a full-time manager's time for the first year (at an approximate cost of \$18,000).

Ongoing/Operational Costs:

Providing Energy Efficiency Products for the Community

- The Energy Office/Store would require ongoing staffing to manage the office and to handle store front sales, thus costs would be at least \$60,000 per year. Resourcing costs associated with an on-line shop could be incorporated into the TSB web portal initiative costs, but additional staff time would be required to distribute items sold, which could represent a cost of anywhere from \$5,000-\$10,000 per year, depending on total sales. Tasks associated with encouraging hardware stores to stock items could be incorporated into existing responsibilities.

Launching an Anti-idling Campaign in Banff

- Promotional costs (pamphlets etc.) could range from \$5,000 to \$10,000.
- On-going resourcing requirements would be minimal and could be incorporated into existing responsibilities.

Developing a Towards a Sustainable Banff Web Portal

- On-going operational costs for maintaining the site would be low.
- On-going maintenance would likely require less than 5% of a full-time coordinator's time (for an on-going annual cost of \$2200).

Creating a Revolving Fund for Energy Efficiency Initiatives

- The initiative would likely require 10% of a full-time manager's time to administer each year following start-up (for an on-going annual cost of \$6000).

¹⁹ Resourcing costs (staffing requirements) are estimated by assuming that program staff involved in carrying out these tasks will either be coordinators or managers, with average annual salaries of \$43,000 and \$60,000 respectively.

The following table summarizes the capital/ development and ongoing/operational costs of each of the initiatives, as well as cumulative costs for all initiatives combined. If all initiatives were implemented, total capital and development costs would range from \$800,000 to \$1.5 million. However, \$700,000 to \$1.3 million of this total would be for the Park & Ride and Making the Community More Bike and Pedestrian Friendly initiatives, and funding for both of these projects has already been committed through the Integrated Transportation Planning process. Therefore the proposed LAP initiatives represent an additional cost of only \$100,000 to \$200,000.

Table 13: Summary of Benefits and Costs of LAP Initiatives

Initiative	Capital/ Development Costs ²⁰	Ongoing/ Operational Costs
GO FOR GREEN PROGRAM		
Establishing a Vanpool Program for Town Staff	Capital: \$0 - \$30,000 (depending on if a van is purchased) Staffing: \$360	Operational: None Staffing: negligible
Developing & Promoting Park & Ride Facilities	Capital: \$400,000 Staffing: \$11,000	Operational: \$10,000/ year Staffing: negligible
Making the Community More Bike and Pedestrian Friendly	Capital: \$300,000-\$850,000 Staffing: \$18,000 per year for one-to-two years	Operational: Depends on size and type of system Staffing: negligible
ALTERNATIVE FUELS & RENEWABLE ENERGY		
Purchasing Green Energy for Municipal Operations	Capital: None Staffing: \$2000	Operational: \$30,000-\$40,000 per year until premiums drop Staffing: negligible
Initiating an Alternative Fuels & Vehicles Program (Part 1/ purchase ethanol blended fuel and biodiesel; Part 2/ conduct trip survey; Part 3/ purchase hybrid vehicles)	Capital: None , unless a hybrid vehicle is purchased Staffing: Part 1: negligible ; Part 2: \$2500 ; Part 3: \$1200	Operational: Reduced through fuel savings. Staffing: Part 1: negligible ; Part 2: \$2000/year ; Part 3: negligible
Promoting Distributed Energy Opportunities	Capital: \$0 if simply promotion; >\$25,000 if new technology piloted Staffing: None	Operational: Would depend on technology chosen Staffing: \$3000 per year
Facilitating Bulk Purchase of Green Energy by the Community	Capital: None Staffing: \$6000	Operational: None Staffing: negligible
ENERGY SAVER BUILDINGS		
Delivering a Residential Building Retrofit Program	Capital: \$15,000 Staffing: \$6000	Operational: None Staffing: \$2200 /year
Delivering a Commercial Building Retrofit Program		
ENERGY EFFICIENCY & EDUCATION SERVICES		
Providing Energy Efficiency Products for the Community (options: 1/ Energy Office/Store, 2/ on-line shop on TSB Web Portal, or 3/ encouraging hardware stores to stock items)	Capital: \$0-\$60,000 depending on option chosen Staffing: None	Operational: None Staffing: Option 1: \$60,000 per year Option 2: \$4,000-\$10,000 per year Option 3: negligible

²⁰ Resourcing costs (staffing requirements) are estimated by assuming that program staff involved in carrying out these tasks will either be coordinators or managers, with average annual salaries of \$43,000 and \$60,000 respectively.

Launching an Anti-idling Campaign in Banff	Capital: None Staffing: \$2700	Operational: \$5,000 to \$10,000 Staffing: negligible
Developing a Towards a Sustainable Banff Web Portal	Capital: \$10,000-\$15,000 Staffing: \$4300	Operational: <\$5,000 Staffing: \$2200 per year
Creating a Revolving Fund for Energy Efficiency Initiatives	Capital: Depends on size of fund Staffing: \$18,000	Operational: None Staffing: \$6000 per year
TOTALS:	\$800,000 to \$1.5 million	\$63,000 to \$140,000 (but would be reduced through fuel savings and emission reduction credits)

5.3 Implementation Risk Management

The approach to risk management is to focus on “no regrets” measures that provide significant environmental, economic, and social benefits. Criteria for evaluating the specific risks associated with each program include the following considerations:

- Is the Town capable of securing the resources needed to develop and operate such a program?
- Is the design of the program sufficiently advanced to the stage where there is a high degree of certainty with respect to impacts, costs and ability to obtain necessary approvals?
- Can a credible projected operating budget be presented? This will vary for each program, and may include for example, a cost benefit analysis.
- Can the significant socio-economic benefits for the community from each program be identified?
- Have the potential environmental and regulatory concerns been identified? Have they been either assessed as low, or is there an acceptable mitigation strategy in place?
- Is there a commercial arrangement that provides a purchase cost that is economically attractive to the municipality giving consideration to anticipated market prices and other benefits?

5.4 A Performance Measurement Framework

The performance measurement framework is designed to evaluate progress towards the community's energy efficiency and energy management goals. A range of recommended indicators are presented in Table 14. To date, the only targets that have been set are for GHG emissions. It will be necessary to review these indicators as the program gains implementation experience, and it will be important to establish targets for key indicators.

Table 14: Performance of CEP Indicators for 1990, 1998, and 2009

CEP Indicators	Baseline Year (1990)	1998	BAU (2009)	Target (2009)
Per capita greenhouse gas emissions from residents and visitors [Tonnes]	10.2	10.9	10.2	6.6
Total greenhouse gas emissions from community [Tonnes]	248,000	296,000	363,000	227,000
Per capita energy consumed per year by community [GJ/person]	109	120	117	98
Total expenditures on energy by community [2001 dollars]	\$26 million	\$35 million	\$64 million	TBD
Total annual vehicle kilometres travelled by residents [million km]	Not available	380	TBD	TBD
Percentage visitors travelling by mode of transportation				TBD
SOV	Not available	81%	81%	TBD
Bus	Not available	17%	17%	TBD
Other	Not available	2%	2%	TBD
Average annual energy requirements for new single family dwellings [GJ/Sq m]	1.34	1.18	1.18	TBD
Percentage of electricity generated in Banff	0%	0%	0%	TBD
Percentage of energy from low impact renewable energy sources used in municipal operations	0%	0%	2%	TBD
Percentage of energy from low impact renewable energy sources used throughout community	0%	0%	0%	TBD
Number of people involved in delivering energy efficiency programs	Not applicable	Not applicable	0	TBD
Total area occupied by parking facilities [Ha]	Not available	14.7	18.2	TBD

5.5 Reporting

It will be important to share progress on LAP initiatives with a range of stakeholders, including Banff residents, businesses and other organizations, as well as with partners outside of the community. The Town has already begun the process of reporting on the LAP through this document and through the State of the Environment Report which was first published in 2002, and will continue to publish progress reports through the Voluntary Challenge & Registry website (www.vcr-mvr.ca).

Detailed progress reports would only be necessary every two to four years, while updates can be made available to key audiences on a more regular basis. Recommended reporting for each audience type include:

Town Staff

- Departmental reports

Banff Residents and Businesses

- Regular updates on the TSB Web Portal or Town of Banff Web Site
- State of the Environment Report
- Pamphlets or newsletters

External Partners

- LAP updates (every three to five years)
State of the Environment Report

As a starting point efforts should be made to select a few key indicators (a number of recommended indicators have been presented in Table 14) for inclusion in reports. Selected indicators should effectively communicate progress on the CEP to the community.

5.6 A Stakeholder Engagement Process

The Town of Banff has already paved the way for a successful stakeholder engagement process. A communications strategy was developed at the onset of the LAP process. This communications strategy is included in Appendix 4. It is essential to ensure that all stakeholders continue to be effectively engaged in the LAP as it is implemented. This will ensure that the LAP continues to address stakeholder needs, and further reinforces the need for shared responsibility to achieve the mutually beneficial results.

6 Appendix 1: LAP Communications Strategy

Introduction

On December 11 2000 Council received the Banff *Community Energy Plan* for information. This plan was essentially a study to establish the baseline energy consumption for the community and the potential for becoming more efficient – reducing energy costs for businesses and residents and caring for the environment. It was the first step towards the Town satisfying its commitment under the FCM Partners for Climate Protection Program.

As a member of this Program, the Town committed to reducing greenhouse gas emissions from Town operations by 20% and by the community as a whole by 6% within 10 years of joining the Program. Since these emissions come mainly from energy consumption, improvements in energy management are needed to reduce emissions.

We are now seeking to engage businesses and residents to develop a *Local Action Plan* for community energy management. The aim of the process is to identify actions that can be taken by the community to improve energy management and develop a plan for facilitating their implementation. This approach is essential to the success of a Local Action Plan. It involves the community deciding for themselves what kinds of actions they can take to achieve the benefits of cost savings, emissions reductions and environmental stewardship.

The objectives of this process are to:

- Help educate businesses and residents as to the cost savings that could be achieved from good energy management
- Ask them how they might become more efficient in their energy use in their business or home to generate these cost savings
- Ask them how the Town can facilitate them achieving these energy savings and associated emissions reductions

These objectives are consistent with the Banff Community Plan, the Town's Environmental Stewardship Policy and our overall aim of moving *Towards a Sustainable Banff*. The completion of a Local Action Plan will also qualify the Town for the 'Milestone 3' Award under the FCM Partners for Climate Protection Program.

The remainder of this document identifies the goals, objectives and key tasks associated with informing and engaging the various stakeholders in becoming better energy managers.

Aim and Objectives

Aim

For Town of Banff staff, local businesses and residents to inform the development of a Local Action Plan by recognizing the economic, environmental and social value of improved energy management, identifying ways they can achieve these benefits, and how the Town can facilitate their implementation.

Objectives:

- For Town staff, local businesses, and residents to begin to think about the cost savings they could gain from better energy management in their business or home
- To tap into the expertise of local businesses and residents to inform us about how they might become more energy efficient (after all, hoteliers know more about running hotels than anyone else)
- To encourage participants to act on some of these ideas
- To determine how the Town of Banff can best provide ongoing support to local businesses and residents in becoming more energy efficient

Approaches & Tools

- Town staff meetings, Business Association meetings and community meetings will be used to invite people to participate in the workshops (e.g., Condominium Residents Association)
- Champions/early adopter from each sector will be identified to help promote the workshops in advance (e.g., BPL, Banff Centre)
- Information about workshops and invitations to participate may also be distributed as mail-drops, with utility bills, through the media, via e-mail lists and the Town website
- Community Workshops will be held for participants to learn more, become involved and inform the discussion on energy management. The workshops will be a two-way communication that shares knowledge and explores opportunities, needs and resources. The workshop for Town staff will be held first to 'pilot' the approach.
- Workshops for businesses, hoteliers, building managers, and developers will be held to seek their participation in the LAP, and to provide them with information on energy efficiency opportunities and benefits.
- Feedback on the process will be gained through workshop evaluation forms and follow-up calls with participants
- A draft Local Action Plan will be prepared for presentation to Council following the workshops.

- Expectations of the process will be made clear to all participants to ensure everyone has a common understanding of what the process intends to achieve
- No commitment will be made as to the future role of the Town in facilitating improved energy management in the community until Council has received the results of the consultation workshops & draft Local Action Plan

Audiences

The program is targeted to both internal and external audiences.

Internal Audiences

- Mayor and Councilors
- All Town of Banff staff

External Audiences

Primary	Secondary
<ul style="list-style-type: none"> • Business community • Local residents • Environmental groups • Educational community • Parks Canada • Local media 	<ul style="list-style-type: none"> • Non-government organizations • Park visitors • Municipal organizations • Provincial and federal government • Elected officials

Messages

There are two key areas for messaging to the audiences:

- Engaging Town of Banff staff, local businesses and residents in recognizing the value of good energy management and identify ways they can achieve these benefits
- Evaluating participation in workshops and design an on-going monitoring process

Messages for Internal Audiences (for delivery only to internal audiences)

If we want the community to adopt environmentally responsible practices, we must model these practices in all our Town operations.

The PCP program will improve the sustainability (economic, environmental and social) of the way we consume energy.

Good energy management is key to moving *Towards a Sustainable Banff*.

Messages for Internal and External Audiences (for delivery to both audience categories)

- As a Partner for Climate Protection Banff is one of many Canadian municipal governments that are taking actions to reduce greenhouse gas emissions.
- Energy planning is an important part of moving *Towards a Sustainable Banff*.
- Greenhouse gases such as carbon dioxide, methane, nitrous oxide and water vapor, along with clouds, create a warming blanket around the earth.

- Up to half of Canada's greenhouse gas emissions are under the direct or indirect influence of municipal governments.
- Fuel used for transportation is the greatest source of a community's energy consumption and greenhouse gas emissions.
- The types of energy we use and the way we use energy directly impacts Banff's sustainability.
 - The consumption of energy represents a significant day-to-day expenditure (specific examples will be provided).
 - Burning fossil fuels results in air pollution and health impacts.
 - A community is constrained by the ability to obtain sustainable supplies of energy.
 - Local generation of renewable energy presents opportunities for local business developments and self-sufficiency.
- Implementing renewable energy technologies contributes to Banff becoming a model of environmentally responsible practices.

Individual actions to reduce energy consumption help: working together we will make a difference.

All communications will be integrated with the deliverables of the Towards a Sustainable Banff communications strategy and be delivered with the consistent Towards a Sustainable Banff branding and logo.

Summary of Supporting Communications to Promote the Local Action Plan Workshops.				
Task	Messages	Audience	Timing	Responsibility
<p>Communication with stakeholders about the workshops may include:</p> <ul style="list-style-type: none"> • Delivery of leaflets via mailbox drops or with utility bills • Press releases and media coverage • E-mail messages via address lists held by business associations etc. • Updates via Town of Banff intranet and internet website • Town staff news items 	<ul style="list-style-type: none"> • Energy management is important for moving <i>Towards a Sustainable Banff</i>. It creates economic, social and environmental benefits. • Everyone can take action to benefit from energy management in their homes, at work and in their everyday lives. • The Town of Banff would like to help you achieve these benefits through the Partners for Climate Protection Program. • Your actions will make a difference. • We will be holding workshops in the summer and fall of 2002. We hope you will attend. 	<ul style="list-style-type: none"> • Local businesses residents and visitors 	<p>June and ongoing</p>	<p>Praxis, CH & JP</p>

Timeline

Once Council consensus is reached on this process, invitations will be made over the summer, with workshops being held in the fall.

Evaluation of the workshops will take place in late fall. A draft Local Action Plan will be developed based on the workshops for Council towards the end of the year.

A more detailed task-timeline is described below

.

Aim: Engage Town of Banff staff, local businesses and residents in recognizing the value of good energy management and identify ways they can achieve these benefits.				
Task	Messages	Audience	Timing	Responsibility
Council Presentation <ul style="list-style-type: none"> Present the plans for community workshops for Town staff, businesses and residents on the Local Action Plan. Amend as necessary to reach consensus on how to move forward. 	<ul style="list-style-type: none"> Energy management is important component of moving <i>Towards a Sustainable Banff</i>. It addresses economic, environmental and social issues. If we want the community to adopt environmentally responsible practices, we must model these practices in all Town operations. 	<ul style="list-style-type: none"> Council 	<ul style="list-style-type: none"> June 10 2002 	JP (present to council) JP, RR, CH, IH, SL (document preparation)
Invite Town Staff to participate in the community workshop process <ul style="list-style-type: none"> Make presentations at existing staff meetings to introduce the concept. Send e-mail bulleting to those who have e-mail. 	<ul style="list-style-type: none"> Energy management is important for moving <i>Towards a Sustainable Banff</i>. It addresses economic, environmental and social issues. Everyone can take action to benefit from energy management in their homes, at work and in their everyday lives. The Town of Banff would like to help you achieve these benefits through the Partners for Climate Protection Program. We will be holding workshops in summer 2002. We hope you will attend. 	<ul style="list-style-type: none"> All Town staff 	<ul style="list-style-type: none"> July -Aug2002 	SG, CH, RR??
Workshop for Town Staff on the Local Action Plan <ul style="list-style-type: none"> Three 2 hour lunch-time workshops to explain the PCP program, how it can benefit the Town and discuss and select options to reduce emissions. There will be one workshop for each of the following audiences: <ul style="list-style-type: none"> “inside” workers “outside” workers managers/supervisors 	<ul style="list-style-type: none"> Energy management can save money in your homes and at work and is key to good environmental stewardship. Your actions will make a difference. Tell us what energy management options you might take in your home or like to see at work How do you think the Town could best support the community to achieve the benefits of good energy management? Managers/supervisors: How do you think we can best engage the business community? 	<ul style="list-style-type: none"> Inside workers Outside workers Managers/supervisors 	<ul style="list-style-type: none"> August 2002 	RR, CH, IH, JP
Invite Businesses to participate in the workshop process through invitations to Business Associations and key business leaders	<ul style="list-style-type: none"> Energy management is important for moving <i>Towards a Sustainable Banff</i>. It creates economic, social and environmental benefits. Energy management can save your business 	<ul style="list-style-type: none"> Business associations and business leaders 	<ul style="list-style-type: none"> Summer 2002 	SG (to initiate), CH, JP, IH, RR

Aim: Engage Town of Banff staff, local businesses and residents in recognizing the value of good energy management and identify ways they can achieve these benefits.				
Task	Messages	Audience	Timing	Responsibility
<ul style="list-style-type: none"> Identify key business associations and groups and attend their meetings to promote opportunities to be involved in community workshops on the Local Action Plan. 	<ul style="list-style-type: none"> money and generate positive corporate image. The Town of Banff would like to help you achieve these savings through the Partners for Climate Protection Program. We will be holding workshops in the fall of 2002. We hope you will attend. 			
Invite other key stakeholders to participate in the workshop process <ul style="list-style-type: none"> Identify key stakeholder groups and attend their meetings to promote opportunities to be involved in the community workshops on the Local Action Plan. 	<ul style="list-style-type: none"> Energy management is important for moving <i>Towards a Sustainable Banff</i>. It creates economic, social and environmental benefits. Everyone can take action to benefit from energy management in their homes, at work and in their everyday lives. The Town of Banff would like to help you achieve these benefits through the Partners for Climate Protection Program. We will be holding workshops in the fall of 2002. We hope you will attend. 	<ul style="list-style-type: none"> Key stakeholder groups, e.g. hoteliers, building managers, residents, educators, etc 	<ul style="list-style-type: none"> Summer and early fall 2002 	SG, CH, JP, IH, RR
Local Action Plan workshops for participant groups <ul style="list-style-type: none"> Introduce the benefits of energy management and the PCP Program Discuss with stakeholders how they feel they can participate, and benefit Outline energy management tools, resources, funding sources, etc. Encourage participants to act on their ideas Discuss how the Town can best support the ongoing implementation of energy management in the community 	<ul style="list-style-type: none"> Energy management can save you money in your business and home and is key to good environmental stewardship. Your actions will make a difference. Tell us what energy management options you might take in your business, home, workplace, or organization. The Town would like to help you achieve these benefits. How can we best do that? 	<ul style="list-style-type: none"> Participant groups, e.g. businesses, hoteliers, building managers, developers, residents, educators. etc 	Oct/ Nov 2002	Sheltair (with input from Praxis)
Council Presentation #2 <ul style="list-style-type: none"> Present the results of the community workshops. Obtain council approval for the future role of the Town in supporting businesses and residents to become more energy efficient. 	<ul style="list-style-type: none"> Results of community workshops. 	<ul style="list-style-type: none"> Council 	Nov 2002	Sheltair (with input from Praxis)

Aim: Engage Town of Banff staff, local businesses and residents in recognizing the value of good energy management and identify ways they can achieve these benefits.				
Task	Messages	Audience	Timing	Responsibility
Public Announcement <ul style="list-style-type: none"> Advise the public of the Local Action Plan through use of website, newspaper ads, park radio, letters to key stakeholders/groups (e.g. business associations, businesses, residents, environmental groups, educators) 	<ul style="list-style-type: none"> Council supports the LAP. 	<ul style="list-style-type: none"> All local audiences 	Nov 2002	Sheltair (with input from Praxis)

Expected Outcomes

Participants (businesses and local residents) can expect to:	<ul style="list-style-type: none">• Receive information on how good energy management can result in cost savings and good environmental stewardship (and improved corporate image for businesses)• Benefit from the opportunity to share expertise in energy management with other participants during the consultation process• Begin identifying ways to further improve their energy management, and the steps needed to get them there• Have the opportunity to discuss how the Town can support them in taking these steps towards better energy management
The Town can expect to:	<ul style="list-style-type: none">• Have built significant understanding and buy-in from the community for improving energy management• Understand what is needed for participants to achieve improved energy efficiency• Have built relationships with key partners to achieve the aims of the Partners for Climate Protection Program commitment
Council can expect to:	<p>Receive a draft Local Action Plan upon completion of the community workshop process which details:</p> <ul style="list-style-type: none">• A range of options and activities to achieve improved energy management in the community• The role the Town may take in facilitating improved energy efficiency in the community• the resource implications of these options, and• a recommendation on the options the Town should pursue.

7 Appendix 2: Summary of Workshop Feedback

This Appendix presents the results of the five community consultation workshops that were held in November 2002. The Five workshops included:

1. Town of Banff 'Outside' Workers
2. Town of Banff 'Inside' Workers
3. Town of Banff Management Staff
4. Community Residents
5. Banff Businesses

Information on energy use and expenditures, and associated greenhouse gas (GHG) emissions were presented to each of the above mentioned groups. Participants were then asked what types of energy management opportunities they thought would work in Banff. There was a slightly different focus during break-out discussions in each of the sessions.

Town of Banff 'Inside' and 'Outside' Workers were asked:

1. What energy management options do you think would be effective in Town operations?
2. What kind of actions could you take in your personal lives?

Town of Banff Management Staff were asked:

1. What energy management options do you think would be effective in Town operations?
2. How can the Town of Banff support residents and businesses in energy management?

Community Residents were asked:

1. How do you think you can become more energy efficient in your home/ everyday life?
2. What kind of assistance do you need to achieve these energy management and cost savings goals?

Banff Businesses were asked:

1. What energy management options do you think would be effective in your business?
2. What business opportunities do you see to tap into the \$35m a year that is being spent on transportation and is leaving the community?
3. What support do you need to implement these actions?

Each group discussed the questions presented and generated a list of potential actions. Participants then selected their top three actions according to various factors, such as: energy/cost reduction potential, co-benefits (such as livability and health), and 'do-ability'. The results from this process are presented in tabular form in this document.

The numbers in the columns represent the number of individuals that ranked the particular item in their top three.

Workshop #1: Town of Banff ‘Outside’ Staff

Potential Actions for Town Operations

Group 1 (Utilities. Facilitator: Innes Hood)

INITIATIVE	PRIORITY RANKING		
	ENERGY REDUCING POTENTIAL	COST REDUCING POTENTIAL	TOTAL
Building retrofit of 9 buildings *	3		3
Capacitors	2	1	3
Address in-fill seepage of storm water at lift stations	1	1	2
DDC motors at the booster station		1	1
Lighting			
Booster station			
Lighting at the STP			

Other notes:

- Everyone knows that energy management makes sense
- Fire safety issues need to be considered during implementation
- STP receives most of the attention
- Operations are already achieving reductions/savings through an ESCO with Earthtec (actions implemented include compressor intercooler waste heat utilization)
- * Building retrofits have been on the capital budget for the past eight years; action should be taken

Group 2 (Buildings. Facilitator: Cora Hallsworth)

INITIATIVE	PRIORITY RANKING		
	ENERGY REDUCING POTENTIAL	COST REDUCING POTENTIAL	TOTAL
Wind turbines in yard	5	4	9
Install motion detectors for lights (especially at the Rec Centre) and LED lights	2	5	7
Use grey water where possible	1	5	6
Prioritize energy efficiency in building design over other elements of planning and design	3	3	6
Decrease vehicles in the fleet and make sure size is appropriate to task (e.g., one tonne truck being used by street light maintenance staff)	1	2	3
All vehicles natural gas	1	1	2
Follow-up on R-2000 buildings to make sure that they continue to meet the standards	2		2
Manage temperatures better (some areas are overheated, people should dress for the temperature)	1	1	2
VFD for large pump motors	1		1
Increase accuracy of meter readings made by gas companies (hand-powered meters)		1	1
Re-bate program for high-efficiency furnaces (for the community)		1	1
Hybrid vehicles	1		1
Town sponsored transportation (for commuters)	1		1
On-site water treatment at each facility			
Re-circ systems			
Increase R-value throughout all facilities (too much glass in design throughout community)			
Better housing to decrease the need to commute			
Improved HVAC			
Decrease spending on consulting and spend more on actions			
Replace 2-cycle motors with 4-cycle motors			
Sensors on all plumbing and low flush toilets			
Increase user fees at public/recreation facilities (will decrease demand and offset costs)			
Improve the public transportation system and provide benefits to people that stay out of cars			
Town purchase a gas station which provides high ethanol fuel			
Slab heating systems (hot water)			
More natural lighting in construction			
Timers on hot water tanks			
Efficient coffee machines – e.g., carafes			

Group 3 (Public Works. Facilitator: Jake Pryor)

INITIATIVE	PRIORITY RANKING		
	ENERGY REDUCING POTENTIAL	COST REDUCING POTENTIAL	TOTAL
Increase water rates/restructure to encourage less consumption	7	5	12
Enforce use of low-flow water appliances in hotels/residences	5	4	9
Park vehicles in heated garage instead of using plug-ins	3	4	7
Train more staff to drive different vehicles	5	1	6
Sensor flows on urinals	4	1	5
Timers on selected streetlights to reduce lighting in middle of night	3	1	4
No idling vehicles	2	2	4
Bylaws to enforce recycling/waste	2	1	3
Timers and programmable thermostats at WWTP and other heating plants	1	2	3
Lights off in buildings/motion sensors	2	1	3
Energy efficient streetlights/lightbulbs	1	1	2
Turn heat down/off in garage overnight		2	2
Buy smaller/more efficient trucks	2		2
Carpooling	1	1	2
Water saving devices (flushing, power washers being used for personal vehicles)	2		2
Timers on car plug-ins		1	1
Motion sensors on HVAC	1		1
Decalsify water lines/toilets to increase flow			
Public training on separating recycling (especially cardboard)			
Keep water used by fire department out of sanitary sewer			
Fuel switch fleet			

Other notes:

- Operations has three or four compressors on current natural gas fueling station, which fills tanks up rapidly and there have been no problems with freezing.

Group 4 (Support Services. Facilitator: Richard Roberts)

	PRIORITY RANKING		
INITIATIVE	ENERGY REDUCING POTENTIAL	COST REDUCING POTENTIAL	TOTAL
Town sponsored commuting vehicle	4	5	9
Commuter vehicle in town (loop for pickup/dropoff)	2	2	4
Cash incentives for reducing consumption	2	2	4
Minimize bay door opening	2	2	4
Fleet vehicles conversion to alternative fuels	2	1	3
Increase use of natural light	2	1	3
Develop, implement and adhere to green purchasing standards town-wide	1	1	2
Plastic curtain walls on shops to keep heat in	1	1	2
Increase use of recycled products in fleet ops (recycled oil, solvents, etc.)		1	1
Energy efficient fixtures (lighting, toilets, showerheads)		1	1
Limit vehicle idling		1	1
Walk within compound rather than drive		1	1
Carpooling from Canmore			
Lighting motion sensors/timers			
Energy consumption feedback monitoring (see how we are doing)			
Alternative energy uses in facilities (e.g., wind, solar)			

Workshop #2: Town of Banff ‘Inside’ Staff

Potential Actions for Town Operations

INITIATIVE	PRIORITY RANKING		
	ENERGY REDUCTION POTENTIAL	POTENTIAL FOR CO- BENEFITS	TOTAL
Smaller more fuel efficient vehicles/ match vehicles to task	4	4	8
Fix heating in town hall (eliminate need for portable electric heaters)	3	4	7
Town operations bike program	3	3	6
Review transit scheduling and make it more efficient	2	1	3
Digital file management system to reduce paper use	2	1	3
Vanpool for Canmore residents		3	3
Lights and thermostats on timers and reset with daylight savings	2		2
Education about turning out lights		1	1
Fans in council chamber to redirect hot air down into living space	1		1
Incentives for reducing heat use in staff housing (21 units)	1		1
More carpooling (incentives and strategies)		1	1
Open/close windows appropriately			
Dial-a-bus service			
Centralized purchasing with green emphasis			

Notes:

- Existing carpool program has a website and a sign-up sheet, but results are not measurable.
- The town has a telework policy – i.e., staff must provide their own hardware and software
- Need someone to take the lead on centralized purchasing
- Examples of co-benefits identified were: vanpooling improves safety; heating improvements increase comfort/productivity; biking improves health; and smaller vehicles will mean that roads last longer.

Additional community-wide initiatives recommended:

- Community bike program
- Staff housing should have utilities separated from rent
- Run EnerGuide in staff units (21)
- Provide incentives for people to turn down heat

Workshop #3: Town of Banff Management Staff

Potential Actions for Town Operations

INITIATIVE	PRIORITY RANKING		
	ENERGY REDUCTION POTENTIAL	POTENTIAL FOR CO- BENEFITS	TOTAL
Provide town bikes and trailers	7	7	14
Compressed work week	5	4	9
Replacement of vehicles with more efficient vehicles	3	2	5
Buy green energy	1	4	5
Promote carpooling opportunities/incentives		4	4
Lighting timers/controls	4		4
Promote tele-commuting	2	1	3
Solar panels on municipal buildings	3		3
LED holiday lights	1	1	2
Evaluate service levels	1		1
Bar staff driving and parking in the parkade (for locals)			
1% annual raises for people that bike/walk to work			
Barring parkade to locals			
Eliminate car allowances			

Examples of co-benefits identified were: active living, improved quality of life through decreased driving; improved productivity, health and well-being of employees.

Town Support Initiatives

INITIATIVE	PRIORITY RANKING		
	ENERGY REDUCING POTENTIAL	DO- ABILITY	TOTAL
Town co-broker bulk purchase of green energy	11	5	16
Bulk purchase of programmable thermostats for distribution at reduced rates	5	5	10
Education regarding the benefits of energy reduction and illustrating necessity	1	4	5
Provide incentives for companies and individuals to reduce energy use (e.g., contests, where the prizes are things that promote active living)	2	3	5
Obtain sponsorship from companies for alternative fuel cars, green power, etc.	2	3	5
Encourage grocery stores to provide rental trailers		2	2
Car-free downtown	1		1
Promote home delivery provided by Kellers and encourage other retailers to do the same		1	1

Workshop #4: Community Residents

Potential Community-wide Actions

Residents Group 1 (Facilitator: Cora Hallsworth)

INITIATIVE	RANKING
Anti-idling bylaw throughout town	4
Continuous education and provide tools for leaders and groups (e.g. for resources for condo boards to use)	3
Provide anti-idling notices for residents to provide to neighbours/visitors	2
Communicate options and opportunities (e.g., a web site that provides detailed information on energy efficiency options, how to implement them and where to buy them)	2
Continuous pedestrian pathways/ illuminated walkways	1
Enforce anti-idling bylaw (especially for tour buses)	1
Ski buses (look into sponsorship opportunities, e.g., Edmonton Ski bus is sponsored by a radio station)	1
Ski train from Calgary	1
Revise building codes to facilitate these initiatives (e.g., PV, wind turbines, geothermal, etc)	1
Windmill demos (2)	1
The town should keep track of incentive programs available and promote them to residents and businesses	1
Walking school bus	
Profile champions – residents and businesses (e.g. stickers in store windows)	
Figure out how we change attitudes to get out of the car	
Rail track crossing between Whiskey Creek and Ops Compound – overpass for pedestrians	
Affordable car rentals in Banff	

Notes:

- Residents must see others (business and town operations) taking action or they will feel that their actions are irrelevant (e.g., due to the magnitude of visitor transportation)

Potential Community-wide Actions

Residents Group 2 (Facilitator: Jake Pryor)

INITIATIVE	RANKING
Ensure that energy efficient products are available in Banff	5
Wholesale availability of products (e.g., rainbarrels)	4
Educate renters and landlords re: utility bills	4
Promote timers on block heaters (sell like rainbarrels)	3
Education on how to use current appliances more efficiently	2
Enforce anti-idling bylaw	2
Hands-on workshops with product suppliers (on caulking etc.) in home	1
Subsidize cost of EnerGuide	1
Product coupons	1
Provide use of drying racks (via landlord)	1
Training on how to do a home energy audit (in home)	
Publicize availability of EnerGuide for Homes	
Idling monitors/alarms on Town/other vehicles	
Encourage a gas station to provide ethanol/alternative fuel (e.g., offer to run tour vehicles on it to secure sales)	

Workshop #5: Banff Businesses

Potential Actions for Businesses

Group 1 (Facilitator: Steven Gasser)

INITIATIVE	RANKING
Ground water chilling/heat pumps	4
Upgrades to all systems	2
Access to good solid information for energy efficiency	2
Information provided to visitors on alternative transportation options	1
Increasing awareness for visitors – ‘green community’	1
Lighting upgrades	
Incentives for recycling (pay as you throw)	
Commercial card lock in Banff	
More convenient recycling locations	
Carpooling	
Public transit	
Incentives for businesses to make energy investments	

Other notes:

- Reward the results you want
- What gets measured gets done
- Competitive disadvantage with Calgary

Group 2 (Facilitator: Colin Funk)

INITIATIVE	RANKING
Lighting	5
Explore geothermal options	5
HVAC upgrades	3
Upgrade hot water tanks	2
Incentives for implementing EMS	2
Solar energy	
Water conservation refrigeration	
Water treatment improvements (soften water to avoid acid treatment)	
Better monitoring of EMS/BMS systems	
Continue to improve recycling systems	
Be cautious with performance contracting	

Group 3 (Facilitator: Jake Pryor)

INITIATIVE	RANKING
Infra-red scan of building to identify leaks (BPL \$2500) -Followup with caulking and insulation -Same on electrical panels and motors	7
Market hotel based on energy performance	3
Revolving funds within an organization	2
Replace aging windows	2
Encourage businesses that deliver to Banff to consider fleet management and alternative fuels	2
Bicycles for guests	1
Put pay-backs from energy efficiency savings into marketing	

Group 4 (Facilitator: Innes Hood)

INITIATIVES	RANKING
Baseline	3
Incentive for eco-efficiency	3
Building commissioning	2
Building retrofit	1
Low-flow fixtures	

Notes:

- Fairmont's approach to undertaking conservation initiatives has been effective. It evolved in a series of stages – beginning with 3R programs (which were recognized as opportunity for saving money), leading to water conservation and then to energy efficiency programs.

Group 5 (Facilitator: Richard Roberts)

INITIATIVES	RANKING
Preventative maintenance of existing facilities and equipment	5
Get best energy procurement system (lock in energy prices)	3
Sharing best practices in maintenance/ops/local (e.g., monthly meetings)	3
List of organizations/governments that can provide resources, assistance and training	1
Closing retail doors on Banff Ave.	1
Use alternative sources of energy (e.g., geothermal being used in Canmore Hospital)	1
Means to measure energy use/consumption (e.g., sub-metering all facilities)	
Purchase more efficient equipment when replacing existing	
Insulation improvements	
Need for good automation and control systems	
Educate staff to keep cooler doors closed	
Timers on controls	
Variable speed drives	
Occupancy sensors (washrooms/exhaust fans)	
LED exit lights	
Insulation of equipment (hot/cold)	
Energy audit service (e.g., ATCO)	

Group 6 (Facilitator: Cora Hallsworth)

INITIATIVE	RANKING
Alternatives to closing retail doors – because it is known by retailers that closing doors reduces business (e.g., using non-heated entry or automatic doors)	5
Lower voltage lighting systems and exploring new efficient lighting technologies (e.g., CFLs aren't always the solution – they don't show jewelry well)	5
Turn off the lights!	5
Programmable thermostats	3
Increase R-Value of building envelop	2
Change to high efficiency equipment	2
Geothermal opportunities	2
NG vehicles (using federal incentives)	1
Businesses promote public transit	1
Solar systems (e.g., in hotel pools)	
Occupancy sensors for lighting	
Wind turbines	

Notes:

The Banff Gondola has undertaken significant energy management initiatives already, such as:

- Implementation of an EMS
- Installation of a processor that uses staged heating to keep peak demand down when the gondola is drawing a lot of power (this cost \$15,000 and was paid for in savings within three months)
- Programmable thermostats
- High efficiency lights
- Offices not being used are not heated
- Window replacements
- Even with expansion (Panorama lounge now seats 200, up from 80) consumption is down by 10%

Visitor Transportation Business Opportunities

Group 1 (Facilitator: Steven Gasser)

INITIATIVE	RANKING
Encourage a municipal sponsored/owned or operated card lock business	6
Partner with oil companies to share profits, and use to fund new initiatives	5
Advertise alternatives in hotel rooms (e.g., printing companies, partnerships)	2 for each example
Encourage a level playing field in fuel businesses	2
Encourage higher grade fuels in Bow Valley	
Municipality take over gas businesses	

Group 2 (Facilitator: Colin Funk)

INITIATIVE	RANKING
Making the town more bike friendly (e.g., allowing bikes on the bus)	8
Monorail – Gondola from large parking facility outside of town	1
Coming into the park via train	
Developing our own cogeneration plant	

Group 3 (Facilitator: Jake Pryor)

INITIATIVE	RANKING
Sample itineraries on Tourism website that shows how to explore without a car	5
Encourage guests to use shuttles provided by operators (e.g., leisure activities- rafting, etc.)	4
Pay-backs to hotels for encouraging bus tours (fuel credits)	3
Protect flexibility for guests (e.g., still need car rentals)	1
Fly-drive is popular. Maybe take a look at the kinds of vehicles available to rent	1
Provide bicycles for staff to get around town	1
Encourage/remind staff to walk to meetings	

Group 4 (Facilitator: Innes Hood)

INITIATIVE	RANKING
East-West corridor Intercept - park and ride with private sector involvement: <ul style="list-style-type: none"> ▪ Service station ▪ Tourist information ▪ Public transit ▪ Private sector shuttle service 	5
Freight management – goods movement	3
Increase frequency of bus service	2
Campground shuttle	1
Car-free tour packages	
Motor home TDM	

Group 5 (Facilitator: Richard Roberts)

INITIATIVES	RANKING
Heritage train (Alberta Railway company/Stettler /Royal Hudson	6
Day passes for transit system	5
Canmore to Banff service	4
Municipal co-generation plant	2
Get rail companies online – train service	1
Carpark outlying with commuter into town (may need security)	
Municipal central plant	
Central heating plant for housing (30-40 units)	
Dual-fuel system (redundancy where can't go down/emergency ops)	

Group 6 (Facilitator: Cora Hallsworth) – no ranking

Train line from Calgary airport
Competitive car rental rates available in Banff
Promote airport service
Banff becomes a transportation hub
A study/survey to figure out where visitors are coming from to develop an appropriate strategy (e.g., North Americans are more likely to drive, while European/Asian are more likely to take tour buses)
Sell fuel in Banff (making sure it is ethanol blended)

Support Needed by Business

Group 1 (Facilitator: Steven Gasser)

INITIATIVE	RANKING
Incentives to use public transit (convenient and plentiful locations, frequent, low cost, bonus coupons, business sponsors)	4
Revolving fund for businesses	3
Higher grade fuel	
Talk to lending institutions	
Retrofit municipality	
Meters on individual buildings and apartments	

Group 2 (Facilitator: Colin Funk)

INITIATIVE	RANKING
Education on energy savings/standards and methods of implementation	Ranked #1
Incentives from federal and provincial governments without an increase in taxes	
Incentives to companies that will lower costs of energy efficient products (allowing companies to have more resources for R&D)	

8 Appendix 3: Detailed Overview of Proposed LAP Initiatives

This Appendix presents the LAP programs prioritized for the Town of Banff. These initiatives were the most popular suggestions from the LAP public consultation workshops, as well as a few additional items recommended by the consultant. These additional items have been included since they represent important low-hanging fruit and/or strategic opportunities. It should be noted that the implementation of these programs is subject to resource allocation by Town Council.

A profile is presented for each initiative including the following details:

- A brief description
- Implementation overview and timeline
- Responsibility (e.g. municipal operations staff)
- Ease of implementation*
- Capital / Development Costs & On-going/ Operational Costs*
- Pay-back*
- GHG emission reduction potential*
- Funding Opportunities
- Further information/ case studies

* These items are described below.

Ease of Implementation

A ranking system has been used to evaluate the ease of implementation for each initiative. There are a few factors that determine the level of effort required to implement an initiative, including:

- The number of staff and departments that must be involved. The amount of coordination required increases as more individuals and departments are involved, and an even greater level of effort is required when multiple organizations are involved in the project.
- If there is a need to develop formal agreements with outside parties and/or to develop supporting by-laws.

Easy	can be implemented in a short time period, with only one or two individuals required to deliver it /carry it out
Moderate	requires coordination amongst departments and/or individuals and at least a few months of planning
Difficult	represents a significant investment of time and requires coordination of numerous departments and/or outside organizations

Capital / Development Costs & On-going/ Operational Costs

A ranking system has been used to evaluate the level of investment required for each initiative. This includes capital/development costs and on-going/operational costs associated with the initiative (in 2003 dollars). Human resourcing costs are included using the assumption that program staff involved in carrying out these tasks will either be coordinators or managers, with average annual salaries of \$43,000 and \$60,000 respectively.

High	> \$25,000
Medium	> \$5,000 ≤ \$25,000
Low	≤ \$5,000

Pay-back Period (for Initial Investment)

This is the length of time required to pay-back the original investment. Financial savings beyond pay-back period are also noted. Typically, FCM encourages municipalities to pursue projects with paybacks of up to 12 years. Banff may wish to pursue opportunities with longer pay-back periods since these are the initiatives that often present the greatest potential reductions in GHG emissions over the long-term.

Typically, businesses will only undertake projects that have a three to five year payback period. In the residential sector, initiatives are not likely to be implemented if the pay-back is greater than one year.

GHG Emission Reduction Potential

A ranking system has been used to evaluate the GHG emission reduction potential of each initiative. The total community-wide reduction target is much greater than that for Municipal Operations, therefore ranking scales have been outlined for each.

High	> 100 tonnes for municipal operations, > 10,000 tonnes for community-wide programs
Medium	> 10 ≤ 100 tonnes for municipal operations > 100 ≤ 10,000 tonnes for community-wide programs
Low	≤ 10 tonnes for municipal operations ≤ 100 tonnes for community-wide programs

Proposed LAP Initiatives:

Municipal Operations Initiatives

7. Purchasing Green Energy for Municipal Operations
8. Initiating an Alternative Fuels & Vehicles Program
9. Establishing a Vanpool Program for Town Staff
10. Providing Bicycles for Town Staff for Business Use *
11. Increasing the Uptake of Compressed Work Weeks *
12. Promoting Carpooling to Town Staff and other Employers *

Community-Wide Initiatives

12. Promoting Distributed Energy Opportunities
13. Facilitating Bulk Purchase of Green Energy by the Community
14. Delivering a Residential Building Retrofit Program
15. Delivering a Commercial Building Retrofit Program
16. Developing & Promoting Park & Ride Facilities
17. Providing Energy Efficiency Products for the Community
18. Launching an Anti-Idling Campaign in Banff
19. Developing a *Towards a Sustainable Banff* Web Portal
20. Creating a Revolving Fund for Energy Efficiency Initiatives
21. Making the Community More Bike and Pedestrian Friendly
22. Implementing Community Transportation Initiatives (e.g. a Walk & Bike to School Program) *

* These initiatives have already been partially implemented, thus profiles for these actions are less detailed.

Municipal Operation Initiatives

Initiative 1:	PURCHASING GREEN ENERGY FOR MUNICIPAL OPERATIONS
Description:	The town currently purchases power through an aggregated agreement with the Alberta Urban Municipalities Association (AUMA). The existing contract is due to expire on December 31, 2003. The unit cost of electricity in that contract is 8.828c/kWh, and includes two percent green power. These purchases could be significantly increased. Additional green power purchases would need to be EcoLogo™ certified through Environment Canada's Environmental Choice Program.
Overview & timeline:	<p>It is proposed that the purchase of green power be phased in over a number of years. In 2004, it is proposed the Town of Banff increase its share of green power electricity to 5%, which is similar to the Town of Vail, Colorado. In 2005 and 2006, the share of green power electricity that is purchased by the Town of Banff is proposed to be increased by 2.5% each year, reaching 10% by 2006. If the expansion of the green energy purchase by the same increments is continued to 2010, then 20% of the Town's electricity would be from green power by that year.</p> <p>The Town has two options for purchasing more green energy. It could either broker a larger portion of green energy from a renewed aggregated contract through the AUMA, or pursue a separate individual contract if the AUMA contract does not provide for increased purchase of green energy.</p> <p>The Town has already been in discussions with the existing contract provider, and there may be opportunity to purchase more green power when the contract is renewed. However, this was not confirmed at the time of writing.</p> <p>Alternatives to a renewed AUMA contract would include the following utilities providing premium EcoLogo™ certified green power:</p> <ul style="list-style-type: none"> • EPCOR (launched its green power program in 1999 - it offers Green Power ECO-PACKS which are blocks of energy generated from low impact/renewable sources, such as small hydro, wind, biomass and solar. When a customer purchases an ECO-PACK, EPCOR commits to purchasing EcoLogo certified energy that is added to the provincial power grid) • ENMAX (launched its <i>greenmax</i> program in 1998 - its green energy currently comes from VisionQuest Electric's (a TransAlta subsidiary) wind farms near Pincher Creek, Alberta, and additional capacity will soon come from a wind farm at McBride Lake near Fort Macleod. This wind energy is purchased and supplied to the Alberta Power Pool. • Canadian Hydro (has 62 MW of renewable wind and hydro capacity in Alberta) • Other renewable energy providers in Alberta currently include: Alberta Pacific Forestry, ATCO Power, IRRICAN, Algonquin Fund, and Clean Power Fund <p>The Town of Banff can also arrange to purchase power directly from any green power supplier.</p>
Responsibility:	Director of Corporate Services and Environmental Manager
Ease of Implementation:	<p>Moderate to Difficult: In order to implement this initiative the Town would first have to seek the commitment of the AUMA. It would also require a staff report to council for budget and an operating budget allocation starting in 2004.</p> <p>Implementation of this initiative would also become easier as the trend towards eco-tourism grows and visitors and green power purchases can be used as a marketing tool.</p>
Capital /	There would be no capital investment required.

Development Costs:	Tasks would likely require allocation of 20% of a full-time manager position for two month period (at an approximate cost of \$2000) (Low).
On-going/ Operational Costs:	In the short term, any purchases of green power would be approximately twice the price of non-green power. The price premium will decrease as the demand and production of green power increases. (High) A negligible investment of staff time would be required for ongoing reporting of costs and benefits. (Low)
Pay-back:	The Town would be eligible for GHG emission reduction credits (ERCs) as a result of this initiative. The details of emissions trading systems are currently being defined, however an ERC is currently valued at about \$10 per tonne of GHG. Thus by 2006, the Town would be eligible for nearly \$6000 in credits by converting 10% of its electricity purchases to green power. If green power premiums are still at current levels by 2006, the additional costs of purchasing this green power would be about \$18,000.
GHG emission reduction potential:	High: By 2006, green power purchases would result in an annual reduction of nearly 570 tonnes of GHG emissions from municipal operations and by 640 tonnes in 2010.
Other Benefits:	<ul style="list-style-type: none"> The Town's contribution to air quality concerns relating to fossil fuel based electricity will be reduced. The Town will support development of renewable power business in Alberta.
Funding Opportunities:	<p>There are no direct funding opportunities. Indirectly, though, the energy service provider can obtain funding from various government programs in the development of green power sources, which would then be reflected in lower green power premiums.</p> <p>In addition, energy retrofits and energy savings conducted in municipal operations should offset increased electricity costs from purchasing the green power. Therefore the total municipal energy bills for electricity should not be significantly higher than they are now.</p>
Further Information/ Case Studies:	<ul style="list-style-type: none"> A detailed list of renewable power projects in Alberta is available at: www.climatechangecentral.com/alternative_energy/alt_alberta_actions.html The Alberta offices of Environment Canada and Natural Resources Canada became the first institutional purchasers of 100% green electricity in Canada in 1997. (see: www.foecanada.org/greenenergy/ge_buyersguide_chap2.htm) In 2001 the City of Calgary launched Ride the Wind! And Calgary's C-Train became the first wind-powered public transit system in North America. (see: www.calgarytransit.com/environment/environment.html) In 2002, Fairmont Chateau Lake Louise began to purchase enough EcoLogo certified green power to supply 40% of the hotel's power requirements. (see: www.ewire-news.com/index.cfm?temp=archivedetail&D=0502 (May 2, 2002)) The City of Aspen, Town of Vail, and Snowmass Village in Colorado all purchase a portion of their electricity from green energy. For example, 5% the Town of Vail's energy purchases are wind power. (see: web.vail.net/peep/news.cfm?id=18#article) For further information, see the Friends of the Environment (Canada) website, which includes a Green Electricity Buyer's Guide at www.foecanada.org/greenenergy/ge_buyersguide_home.htm

Initiative 2:	INITIATING AN ALTERNATIVE FUELS & VEHICLES PROGRAM
Description:	<p>The Alternative Fuels & Vehicles Program would consist of a three-tiered program:</p> <ol style="list-style-type: none"> 1. Working with Parks Canada to stock ethanol blended gasoline²¹ in the near term and in the long-term other alternative fuels such as E85 and biodiesel.²² 2. Conducting trip surveys to evaluate vehicle-switching opportunities. 3. Hybrid vehicle purchases. <p>There is already a natural gas vehicle in the municipal fleet. This initiative would be a component of the Alternative Fuels & Vehicles Program.</p>
Overview & timeline:	<p>Part 1. The Town currently purchases fuel for their fleet through Parks Canada's Public Works division. The fuel currently has no ethanol content and the current contract does not expire until 2004. The Town is currently in negotiations to get a supply of 10% ethanol blend for the renewed contract. Given the federal governments House in Order Program, this is not expected to be difficult.</p> <p>In the long-term the Town could encourage Parks Canada to consider biodiesel and higher ethanol content blends as soon as these fuels become commercially available.</p> <p>Part 2. In late 2004, the Town could undertake a survey to evaluate trip types made by the vehicle fleet. The survey would ascertain how many trips require cargo transport and four-wheel drive. Through this survey it would be possible to identify what percentage of current trips using large vehicles could be switched to smaller vehicles.</p> <p>Part 3. Based on the findings of the survey, the Town would purchase hybrid vehicles for use by those trips that do not require large or four-wheel drive vehicles. The cost of the hybrid vehicles could be paid for through the fuel savings of using a hybrid vehicle instead of a larger vehicle.</p>
Responsibility:	Operations Manager
Ease of Implementation:	Easy: Part 1 simply requires coordination with Parks Canada, and sourcing alternative fuels. Part 2 would require time commitment over a short period of time and would be fairly simple to coordinate; Part 3 would add no additional time to current workloads.
Capital / Development Costs:	<p>Capital costs would only be inferred if a hybrid vehicle was purchased, i.e., if part 3 of the activity is pursued. (High)</p> <p>Tasks associated with Part 1 could be incorporated into existing responsibilities (Low), while Part 2 would likely require allocation of 35% of a full-time coordinator position for two month period (at an approximate cost of \$2500 for start-up) (Low). Part 3 would require allocation of less than one week of a manager position's time (at an approximate cost of \$1200) (Low).</p>

²¹ Gasoline blended with 5-10% ethanol is now widely available (can be purchased at numerous locations in Calgary)

²² Use of E85 would require engine modifications and ethanol blends greater than 5-10% are not yet commercially available in Canada. (www.ethanol-crfa.ca/industry.htm). The only Ethanol (E85) refuelling facility in Canada is at the NRCan headquarters in Ottawa. Mohawk is experimenting with E85 in a 1996 Ford Taurus, and a research project supported by Mohawk, AirCare and Natural Resources Canada has been established. A large potential for E85 under current economic conditions is unlikely. However E35 (35% ethanol, 65% gasoline) could be marketed at the same energy-equivalent price as regular gasoline, if provincial tax exemptions for E85 were extended to these lower-level blends. (www.gov.bc.ca/air/vehicle/ctv1998.html) Biodiesel is a renewable diesel fuel derived from agricultural waste such as vegetable oils or animal fats (soybeans are the most common feedstock). Biodiesel blends operate in diesel engines, in light and heavy-duty vehicles, just like petroleum diesel. No engine modifications are required. This fuel is not yet commercially available in the Banff area.

On-going/ Operational Costs:	<p>There would be no additional operating costs: Ethanol blended gasoline costs are equivalent to standard gasoline. In fact, purchase of hybrid vehicles would significantly reduce operating costs - and compact low emission diesel vehicles cost one-quarter of the amount of large trucks to operate. (The honda insight uses 3.9 L of gasoline/100 km during city driving while a dodge van uses 18 L/100km).</p> <p>Tasks associated with the trip survey (part 2) would require an ongoing investment of <5% of a full-time coordinator position following start-up (\$2,000 per year).</p>
Pay-back:	The Town would begin to achieve financial savings when trips are shifted to the hybrid vehicles. Total savings could be projected using the trip surveys.
GHG emission reduction potential:	The impact of the hybrid vehicle use would likely be Low (about 10 tonnes), but an estimate could be calculated using trip survey results, considering that a hybrid car can consume only one-fifth of the gasoline consumed by a full size van, for example. The conversion to 15% ethanol blend could reduce GHG emissions by up to 20 tonnes (Medium).
Other benefits:	<ul style="list-style-type: none"> • Improved air quality through reduced particulate emissions. • Improved image for the Town as an environmentally progressive community.
Further information/ case studies:	<ul style="list-style-type: none"> • A case study of City of Ottawa's alternative fuels program can be viewed at: oee.nrcan.gc.ca/fleetsmart/successStories/stories_municipal_ottawa.cfm • NRCan has a software that compares alternative fuel vehicles (including natural gas, propane, M85 and E85) in terms of capital cost and payback period, available at: oee.nrcan.gc.ca/qtools/english/ • A database of technical papers on alternative transporation fuels is available on the BC Research Inc. web site: catf.bcresearch.com/catf/catf.nsf • Yellowstone National Park uses ethanol and biodiesel for fleet and is testing it in snowmobiles (see: www.ofee.gov/ctc/ctcfal01.pdf) • Case studies from U.S. national parks can be viewed at: www.eere.energy.gov/femp/techassist/green_casestudies.html

Initiative 3:	ESTABLISHING A VANPOOL PROGRAM FOR TOWN STAFF
Description:	The Town initiates and coordinates a van for staff to vanpool from Canmore.
Overview & timeline:	<p>The establishment of a vanpool would require:</p> <ul style="list-style-type: none"> • A staff person to be assigned to manage the vanpool. This person would be responsible for signing up participants, and finding replacements when necessary. • Identification of six to eight participants. (Participants would pay a set amount each month, covering gas, insurance, and other operating and maintenance costs.) • Responsibility for caring for the van would have to be assigned (to one or more individuals). • Evaluate three potential options for providing a van: (1) Assign a van from existing fleet; (2) Lease a low emission van; or (3) Purchase a low emission van. • Additional vans would be purchased in future years if demand is high.
Responsibility:	Engineering Assistant
Ease of Implementation:	Moderate: requires dedicated staff person to manage and coordinate the program .
Capital / Development Costs:	<p>If the Town used an existing vehicle or arranged to lease a van, the investments would be Low, but if the Town elects to purchase a new van the investment would be High.</p> <p>Establishing the vanpool would likely require allocation of 10% of a full-time coordinator position for one month, (at an approximate cost of \$360 for start-up).</p>
On-going/ Operational Costs:	There would be no ongoing operational expenses and ongoing human resourcing costs would also be negligible.
Pay-back:	The Town would be eligible for GHG emission reduction credits (ERCs) as a result of this initiative. The details of emissions trading systems are currently being defined, however an ERC is currently valued at about \$10 per tonne of GHG. Thus the Town would be eligible for about \$600 in credits per year.
GHG emission reduction potential:	Medium ²³ : The vanpool would avoid approximately 60 tonnes of GHG emissions per year.
Other benefits:	<ul style="list-style-type: none"> • Demonstrates corporate leadership. • Reduced air quality and GHG emissions. • Lower commute costs for participants. • Reduced stress from commuting. • May reduce the need for some families to run a second vehicle.
Funding Opportunities:	Transport Canada's Moving on Sustainable Transportation Program: www.tc.gc.ca/programs/environment/most/menu.htm (detail provided in Appendix A)
Further information/ case studies:	<ul style="list-style-type: none"> • Go Green Choices operates in the Vancouver region to help reduce vehicle trips to workplaces (see: www.gogreen.com/INDEX.html) • The Jack Bell Foundation vanpool, carpool, rideshare program started in 1992. It operates in Vancouver and provides a useful example for other programs to learn from. (see: www.ride-share.com/vanpool.html)

²³ Distance 50km round-trip, highway driving, assume 8 person carpool, average efficiency of cars is 0.10L/km, and of van is 0.14L/km, assume travel 48 weeks per year, 5 times/week, 0.03466 GJ/L; 0.068 tCO₂/GJ.

Initiative 4:	PROVIDING BICYCLES FOR TOWN STAFF FOR BUSINESS USE
Description:	<p>Many local trips during work hours at the Town of Banff do not require employees to use a municipal vehicle. As an alternative, some trips could be made by bicycle.</p> <p>The Community Services Department currently has one bicycle available for use by employees; additional bicycles could be purchased from the 'lost and found' auction in 2003 and 2004.</p> <p>There should be at least two to three bikes available at Town Hall and one to two bikes available at the Operations Compound²⁴. Additional bikes would be purchased as needed in the future.</p> <p>Promotion and incentives would be critical to ensure the use of the bicycles. It will also be important to provide secure bike racks in a convenient location, preferably indoors. In addition, helmets of various sizes need to be provided or users should be reminded to bring their own helmets.</p>
Benefits:	<ul style="list-style-type: none"> • Lower gasoline and vehicle maintenance expenditures for fleet vehicles. • Increased health of employees who use bikes. • Demonstrates corporate leadership. • Improved air quality and reduced GHG emissions.
Further information/ case studies:	<ul style="list-style-type: none"> • The UBC Bike Hub operates as a co-op with more than 200 bicycles available for members. (see: www.ams.ubc.ca/clubs/bikecoop/p&y.htm) • The Free Wheel Blue Bike Society began in Victoria in 1995 and now has a fleet of 230 bicycles available to anyone needing them (250-381-2583) • The City of Aspen offers its employees various transportation incentives, including free bus passes, emergency transportation, and a financial reward for employees who give up their drive to work alone. The city encourages walking and biking by providing lockers, showers, and a city bike fleet, and provides a car-sharing program for employees and residents. (see: www.commuterchoice.gov/campaign/denemp.htm)

²⁴ The Town employs up to 120 staff in a variety of locations. Town Hall, which is located downtown, has the highest concentration of employees. There are also a large number of employees at the Operations Compound.

Initiative 5:	INCREASING THE UPTAKE OF COMPRESSED WORK WEEKS
Description:	<p>A compressed work week is an arrangement whereby employees work longer shifts in exchange for a reduction in the number of working days in their work cycle (i.e. on a weekly or biweekly basis). The compressed work week reduces the number of commuting trips for employees.</p> <p>The Town currently allows staff to work a compressed week. However, only a few staff are taking advantage of the opportunity. Therefore this program may need to be advertised and modified to better meet the needs of the employer and employees. A promotion effort should be initiated that targets likely users.</p> <p>The Town of Banff is a very active community and its workforce would likely find compressed work week attractive.</p> <p><i>In Alberta, approximately 3% of the province's labour force works a compressed work week - the second highest of any province in Canada. The frequency of compressed work weeks tends to be higher among larger employers. For employers with 100 to 500 employees, approximately 4% of the workers have a compressed work week. This trend may be due to the fact that larger workplaces may have the staffing flexibility needed to accommodate workers who prefer such a schedule. As of 1998, approximately 20% of major collective agreements in Canada had provisions for compressed work weeks. (source: HRDC Canada, labour.hrdc-drhc.gc.ca/doc/wlb-ctp/CP_Rochon/toc-en.html)</i></p>
Benefits:	<p>Benefits of a reduced work week include:</p> <ul style="list-style-type: none"> • Assisting in recruiting and retaining staff • Reducing the number of commuting trips and total commuting times • Provides flexibility to employees with family and other commitments, such as reducing childcare expenses • Can increase morale and reduce absenteeism • Employers can expand their hours of operation without needing to provide overtime pay and the Town Hall could be open to the public for longer hours • Provides longer blocks of time during the day to better focus on projects. <p>Some of the criticisms of a compressed work week need to be acknowledged and addressed for a program to be successful. These issues include:</p> <ul style="list-style-type: none"> • Maintaining appropriate levels of service to the public and response times • Employees with dependents may find that child care minding is more difficult since care may be needed for a 10 or 12 hour day • Some employees may find that working longer hours can impact their family and personal activities in the evening • Longer hours may be physically and mentally draining • Compressed work weeks may not be well suited to stressful or monotonous jobs.
Critical considerations:	<p>While promoting this program it is critical to recognize that many work units at the Town are small in size, and many departments must provide services around the clock. Thus, it will be particularly important to ensure that a compressed work week program does not compromise service delivery or availability of staff to the public.</p>

Initiative 6:	PROMOTING CARPOOLING TO TOWN STAFF AND OTHER EMPLOYERS
Description:	<p>Carpooling is an easy and effective way to reduce the number of single-occupant vehicle commuting trips. There are several types of carpooling, ranging from designated driver carpools using a private vehicle, alternating driver carpools using a number of private vehicles, employer carpools using a company vehicle, and vanpools. This initiative would focus on the first two types of carpooling.</p> <p>Carpooling programs typically consist of a ride-matching program. Interested individuals access a database organized by origin and destination of other riders and a program provides potential matches that can be pursued. The Town began promoting carpool.ca, in June 2002 after Council approved \$17,000 funding for marketing, signage and service subscription. Carpool.ca is an on-line ride-matching service provided by Commuter Connections, a Victoria, BC, based non-profit society which began to actively promote the development of rideshare programs in 1992. Over 4,000 Canadians from nine provinces have used www.carpool.ca to form carpools and over 120 employers and post-secondary institutions rely on Commuter Connections to manage their rideshare programs. As of May 2003, Banff had 3 large employers registering 47 participants, with 9 registered car pools in use.</p> <p>The Town could work to expand the uptake of carpooling by Town staff and throughout the community. This initiative would consist of two phases:</p> <p>Phase 1 would involve expansion of the Town of Banff's existing corporate carpooling program. This would involve periodic marketing campaigns at key times, such as September, when people are setting into a routine schedule. In addition, information on the carpooling program should be given out to all new Town employees as part of their orientation package. The program would also expand to promote incentives such as the 15 'reserved –for-carpoolers' preferential parking stalls on Town owned lots and guaranteed ride home programs.</p> <p>Phase 2 of the program would consist of the Town working with more large employers in Banff to encourage carpooling, and buy-in to providing their own incentives like the preferential on-site parking policies mentioned above. Presentations, or 'travel-fairs' at the place of employment could be held to educate employees about the opportunities. Expanding the carpooling program to the community level will broaden the "pool" of potential rideshare matches, increasing the probability of a match and the convenience of carpooling for commuters.</p>
Benefits:	<p>Carpooling is not suitable for everyone, particularly for those with irregular schedules. However, carpooling is an attractive option for many commuters. For the commuter, it offers flexibility and saves on commuting costs and sometimes can reduce the number of vehicles a household has to own and maintain. In addition, commuters arrive at work with much less stress than when commuting on their own.</p> <p>Other benefits include reducing energy consumption, traffic congestion, air pollution and greenhouse gas emissions.</p>

Community-Wide Initiatives

Initiative 1:	PROMOTING DISTRIBUTED ENERGY OPPORTUNITIES
Description:	<p>The Town should promote distributed energy options²⁵ by providing information about the successful photo voltaic (PV) installation in the Operations Compound, and about future distributed energy plans.</p> <p>During completion of the CEP, a preliminary assessment of the feasibility of a district energy system, wind turbines and large scale geothermal heating technologies was conducted. The assessment found that there is currently no excess heat load capacity available for initiating a district energy system; the visual impact of wind turbines may make it difficult to obtain adequate support for wind turbines in the park; and there is already a significant draw down on ground heat due to hot springs developments.</p> <p>PV systems are currently the only technology that has been considered in Banff at this time. However, these technologies are still cost prohibitive, with long pay-back periods. This is not expected to change for another five years. Until this time, additional distributed energy generation pilots will be identified and carried out by the Town to gain experience in emerging distributed energy technologies, and to begin the process of sharing information with the community. Other technologies that are cost competitive, proven technologies include solar hot water and geothermal heat pump systems. In particular, the Earth Energy Utility was recently formed to provide financing and operations assistance for geothermal heat pump systems.</p>
Overview & timeline:	<p>The Town of Banff has already installed a PV system at the Operations Compound, with plans to install a hydrogen fuel cell in the future.</p> <p>In 2004, the Town would evaluate additional distributed energy pilot projects (such as small geothermal heat pumps) and develop communication material to promote the Town's existing and planned actions, and to outline opportunities available to residents. This would include providing extensive information on the <i>Towards a Sustainable Banff</i> (TSB) Web Portal (see separate profile).</p> <p>In five to ten years time, in anticipation of PV and solar domestic water heating technologies becoming more economically viable, the Town could initiate the evaluation installation of net metering opportunities throughout the community.</p>
Responsibility:	Operations Manager
Ease of Implementation:	Moderate
Capital / Development Costs:	<p>The cost for initiating additional distributed energy systems would be high (>\$25,000). A detailed benefit-cost analysis would be required before pursuing any option.</p> <p>Human resourcing costs for start-up of an additional distributed energy project would need to be evaluated when a technology is identified.</p>

²⁵ Distributed Energy Systems are small-scale power generation technologies (typically 3 to 10,000 kW) located close to existing electricity infrastructure that provides an alternative or additional supply to that traditional electric power systems. They can include such things as microturbines, photovoltaic systems, ground source heat pumps and biomass boilers. Hydrogen fuel cells and rechargeable batteries can be used with these systems to increase their functionality.

On-going/ Operational Costs:	<p>Changes to on-going operational costs would have to be evaluated when a distributed energy technology is identified.</p> <p>This initiative would likely require allocation of 5% of a full-time manger position over the program's duration (at an approximate cost of \$3000 per year). (Low) However, costing would have to be evaluated if an additional pilot is pursued.</p>
Pay-back:	<p>The operating costs for geothermal heat pumps and solar panels can be less than that of the price of electricity purchases that they displace. For example, ground source heat pumps use 25-50% less electricity than conventional heating or cooling systems. Furthermore, the Town would be eligible for GHG emission reduction credits (ERCs) as a result of this initiative. The details of emissions trading systems are currently being defined, however an ERC is currently valued at about \$10 per tonne of GHG.</p>
GHG emission reduction potential:	<p>Low, until larger projects are implemented beyond the pilot phase.</p>
Other benefits:	<ul style="list-style-type: none"> • Education of the community about the benefits of distributed energy systems. • Security of energy supply. • The Town's contribution to air quality concerns relating to fossil fuel based electricity will be reduced. • The Town will support development of renewable power business in Alberta.
Funding Opportunities:	<ul style="list-style-type: none"> • Natural Resources Canada Renewable Energy Deployment Initiative (REDI)
Further information/ case studies:	<ul style="list-style-type: none"> • A series of distributed energy case study profiles are available on Natural Resources Canada web site (see: www.retscreen.net/ang/12.php#chapter2) • The US Department of Energy has an Office focused on Distributed Energy Resources (DER) (see: www.eere.energy.gov/der/) • For information on Earth Energy Utility, see: www.eeutility.com

Initiative 2:	FACILITATING BULK PURCHASE OF GREEN ENERGY BY THE COMMUNITY
Description:	<p>This initiative involves businesses, large institutional energy users, and interested homeowners seeking out suppliers of green power to develop a pooled purchasing agreement.</p> <p>Under this initiative, the Town could play the role of facilitator within the existing utility context or it can play a much larger role by establishing its own energy utility. By establishing its own energy utility, the Town of Banff could be much more pro-active in decisions about the town's energy supply and could establish its own community energy policy for energy supply and distribution. Otherwise, the municipality will be restricted in the actions that they can take to increase the use of low impact renewables.</p> <p>Typically municipally owned utilities are established as a means of guaranteeing affordable and reliable electricity to their residents. A publicly owned utility also enables the community to take control of energy sourcing and it also provides an added incentive to implement effective demand side management. If Banff pursues this option it will need to undertake a thorough analysis of low impact renewable energy sources that are available to the municipality. This would likely include a blend of geothermal, solar, wind, biomass, low-impact hydro, micro turbine, fuel cell, and other appropriate technologies.</p>
Overview & timeline:	<p>Option 1) Green Power Purchase Pool</p> <p>The first step in developing a green power purchase pool would be to identify potential green power purchasers and renewable energy providers, and evaluate current supply potential and future opportunities. Initially, the Town may wish to discuss this initiative with some large or high-profile electricity users within the community and adjacent areas, such as:</p> <ul style="list-style-type: none"> • Parks Canada (including Banff Park Museum) • Banff Park Lodge • Fairmont Banff Springs Hotel • Other Major Hotels and Motels in the Town • Banff Housing Corporation • The Banff Centre • Hospital • RCMP • Banff Downtown Businesses • Banff Community High School and Elementary School • Sunshine Ski Area (although located outside of Banff) • Mount Norquay • Lake Louise Ski Resort • Fairmont Chateau Lake Louise (already purchasing green energy) <p>The Town would then need to negotiate a pooled rate, and survey potential power pool members from within the town. The energy power pool could then be formed to purchase green power on behalf of its members. A potential green power supplier could then be sought and an agreement worked out. After the initial agreement is initiated, the municipality should offer this bulk rate to all residents and other smaller energy users in the community.</p> <p>Option 2) Municipal Energy Utility</p>

	Under this option, the Town would set up its own energy utility. Large energy users such as those mentioned above would need to be consulted to gauge their interest in researching this potential initiative. There may also need to be a survey of the community or referendum (possibly during the next municipal election).
Responsibility	Operations Manager
Ease of Implementation:	<p>Option 1 would have a moderate to somewhat difficult level of implementation as it involves coordination with outside organizations, and a significant commitment of time.</p> <p>Option 2 would be fairly difficult to implement, as it requires coordination with outside organizations and setting up a municipal utility, which requires the establishment of a corporate organizational structure. However, the benefits and ability of the municipality to influence greenhouse gas emissions from electricity consumption would increase substantially.</p>
Capital / Development Costs:	<p>There would be no capital investment required.</p> <p>The green power pool initiative would likely require allocation of 20% of a full-time manager position for a six month period (at an approximate cost of \$6000).</p>
On-going/ Operational Costs:	<p>There would be no ongoing operational expenses other than human resourcing costs.</p> <p>Ongoing resourcing requirements would be minimal and could be incorporated into existing responsibilities.</p>
Pay-back:	Residents or the Town would be eligible for GHG emission reduction credits (ERCs) as a result of this initiative. The details of emissions trading systems are currently being defined, however an ERC is currently valued at about \$10 per tonne of GHG. Therefore the community members would be eligible for \$10,000 to \$50,000 of credits.
GHG emission reduction potential:	Medium: If the Town can successfully encourage the conversion of 1% to 5% of total electricity purchases to green power, this would result in the avoidance of more than 1000 to 5000 tonnes of GHGs.
Other Benefits:	<ul style="list-style-type: none"> • The community's contribution to air quality concerns relating to fossil fuel based electricity will be reduced. • The community would be supporting development of renewable power business in Alberta.
Further information/ case studies:	<ul style="list-style-type: none"> • A Green Electricity Buyer's Guide is available on the Friends of the Environment (Canada) website: www.foecanada.org/greenenergy/ge_buyersguide_home.htm • Toronto Hydro, which distributes 20% of Ontario's electricity provides a green power portfolio to their customers through Toronto Hydro Energy Services. (See: www.torontohydro.com/energyservices/index.cfm) • American Public Power Association (APPA) in the U.S, which is the service organization for more than 2,000 local publicly owned electric utilities. There are more than 250 publicly owned electric utilities across the United States, and nearly 50 state and federal power agencies. A list of these can be viewed at http://www.utilityconnection.com/ • The City of Aspen is offering wind energy to all its customers without a rate increase. Aspen's City Council has established a goal of obtaining 75% of the city's electric power needs from renewable energy over the next 10 years. Currently, 50% of the electricity consumed in Aspen comes from renewable resources. www.awea.org/wew/848-1.html <p>The City of Austin GreenChoice program gives consumers the option to buy electricity from new wind energy and landfill gas power plants, as well as from existing and new solar installations. Participants will pay a small premium for the service, averaging \$4 per month on their electric bills. www.austinenergy.com/greenchoice/</p>

Initiative 3:	DELIVERING A RESIDENTIAL BUILDING RETROFIT PROGRAM
Description:	<p>The Town promotes and offsets the costs of residential building retrofits, and facilitates procurement of retrofit services.</p> <p>This program could begin with the delivery of up to 300 EnerGuide Home visits. The EnerGuide visits would provide the opportunity to identify short and long-term energy savings opportunities for each household.</p>
Overview & timeline:	<p>This program could be delivered in a phased approach.</p> <p>In 2003, the Town would need to develop a targeted marketing strategy to ensure the uptake of the EnerGuide program. The Town would also have to allocate budget towards subsidizing the EnerGuides for residents.</p> <p>In 2004, the program would begin with the delivery of EnerGuide Home visits to a target of 300 homes per year. During the visits, low-cost actions such as insulating hot water heating tanks and air sealing could be carried out by the evaluator. EnerGuides are delivered to Alberta residents by ATCO Gas.</p> <p>The Town has attempted to promote EnerGuides in the past, however the uptake has been very low. An EnerGuide booth was set up at the Earth Day event in 2002 and there was significant interest from residents, however no EnerGuides were booked as a result. Therefore the Town could be more active in measures to promote the program. This could be done by further subsidizing the program, providing incentives to participate (e.g. a draw for free compact fluorescent lightbulbs, etc.), delivering a promotion that targets specific residents (e.g. those undertaking retrofits, additions, etc.), providing information on the TSB Web Portal and other educational opportunities. It is critical that education be a strong element of the overall program, as knowledge and understanding can be the most significant driver for these types of programs.</p> <p>In the second or third year of the program, the Town would encourage EnerGuide participants to undertake the retrofits that were identified by the evaluator. The Town would also provide information on available resources to off-set the costs of the retrofits (such as the proposed Town of Banff Revolving Fund).</p> <p>The Town could also consider assisting in establishing a Green Communities Association to provide an institutional structure for carrying out the home audits over the long-term. A successful model of such a program is the Green Communities Association in Ontario (see: www.gca.ca/)</p>
Responsibility:	Environmental Manager
Ease of Implementation:	Moderate: Requires communication/marketing strategy and partnership with outside entities.
Capital / Development Costs:	<p>Medium: \$15,000 / year – to help subsidize 100 audits. (The federal government already subsidizes the \$300 retrofits by \$150. Due to the low uptake of the program to-date it is recommended that the Town subsidize the remaining \$150 for 100 homes.)</p> <p>The EnerGuide for Homes and the commercial building audit (see initiative 4) initiatives would likely require allocation of 30% of a full-time manager position for a</p>

	four month period (at an approximate cost of \$6000).
On-going/ Operational Costs:	Promotional efforts could be covered under the Web Portal budget. This project would require the ongoing dedication of 5% of a coordinator's time (at an approximate annual cost of \$2200).
Pay-back:	Not applicable for the Town, but homeowners can achieve a three to five year payback for implementing recommended measures.
GHG emission reduction potential:	Medium: On average the retrofitted household would be 25% more efficient than the existing stock, but the uptake of the retrofits is only expected to be between 3% and 7% of the existing housing stock per year. The total reduction would be 400 tonnes of GHG emissions from 1990 levels by 2009 (5000 GJ) ²⁶ .
Other benefits:	<ul style="list-style-type: none"> Improved indoor air quality (reduced problems with mould and gas appliance venting), comfort, durability, and resale value, for homeowners.
Funding Opportunities:	<ul style="list-style-type: none"> Proposed Town of Banff Revolving Fund
Further information/ case studies:	<ul style="list-style-type: none"> Information on ATCO Gas' Energy Sense Program is available at: www.atcoenergysense.com Sustainable Peterborough provides services to improve the energy performance of residential, commercial, industrial and institutional buildings. (See: www.sustainableptbo.on.ca/s1/main/) Many members of the Green Communities Association provide residential retrofit programs in their communities. (See: www.gca.ca/GCAMembers.html) The Minneapolis Energy Office, now a non-profit called Centre for Energy and Environment, has delivered demand-side management projects like this for more than 15 years. A detailed case study of their multi-family retrofit project can be viewed at: solstice.crest.org/efficiency/irt/97.pdf, or see the CEE web page at: www.mncee.org/

²⁶ The savings in energy from a retrofit program are modest, with only a 1% reduction in energy from the BAU scenario. The limited success of the residential retrofit program is due in large part to the low level of participation these programs typically have. In addition, the turnover of the older building stock for redevelopment means that they have less of an impact on residential energy use over time.

Initiative 4:	DELIVERING A COMMERCIAL BUILDING RETROFIT PROGRAM
Description:	The Town would promote and facilitate commercial building retrofits.
Overview & timeline:	<p>This program could be delivered in a phased approach, as follows:</p> <ul style="list-style-type: none"> • Conduct a survey of business community representatives that attended the initial LAP workshop to determine who would be interested in receiving an energy audit (and at what cost). • Work with ATCO Gas' EnviroSense Program or Epcor's Envest program to secure a reduced rate for Banff businesses. • Develop a revolving fund for commercial building retrofits (see separate profile) • Promote the revolving fund, CBIP, REDI and other available support programs. Provide sufficient detail on the TSB web portal to ensure easy access to these programs.
Responsibility:	Environmental Manager and a coordinator
Ease of Implementation:	Difficult
Capital / Development Costs:	<p>There would be no capital investment for the municipality. (Note: Fees for commercial participants would be at least \$3,500²⁷)</p> <p>The commercial building audit and the EnerGuide for Homes (see initiative 3) initiatives would likely require allocation of 30% of a full-time manager position for a four month period (at an approximate cost of \$6000),</p>
On-going/ Operational Costs:	<p>There would be no on-going operational costs for the municipality.</p> <p>This project would require the ongoing dedication of 5% of a coordinator's time (at an approximate annual cost of \$2200).</p>
Pay-back:	Typically, commercial building retrofits have paybacks in the range of five to seven years, with reduction in energy costs of 20 to 25%. Businesses would also be eligible for emission reduction credits.
GHG emission reduction potential:	Medium, however the total benefit will depend on the level of interest of town businesses.
Other benefits:	<ul style="list-style-type: none"> • Reduced operating costs for Banff businesses • Improved indoor air quality and comfort for occupants. • Improved durability and resale value for building owners.
Funding Opportunities:	Energy Innovators Initiative, CBIP, REDI (See Appendix 2 for details)
Further information/ case studies:	<ul style="list-style-type: none"> • Information on ATCO Gas' EnerSense Commercial Energy Audit Program is available at: /www.atcoenergysense.com/at_business/business_energy_evaluations_0.asp • Information on EPCOR's Envest Program is available at: www.epcor.ca/Business/Commercial+Business/Products/EnVest+Energy+Efficiency+Program/default.htm • The Green Building BC web site contains useful for establishing a retrofit program, as well as a Retrofit How-to Guide (see www.greenbuildingsbc.com/retrofit/funding_opportunities.html)

²⁷ Personal communication with Max Campbell, EPCOR, April 7, 2003.

Initiative 5:	DEVELOPING & PROMOTING PARK & RIDE FACILITIES
Description:	The Town currently has a summer RV Park & Ride facility at each of the entrances to town, one beside the Canadian Pacific Railway (CPR) train station, the other close to the Industrial Compound. Only the latter location is currently served by transit. Parking is free, and where available a \$1 fare is charged for riding transit. This initiative would expand the Park and Ride concept to be available to visitors arriving in regular motor vehicles.
Overview & timeline:	<p>This program would require at least three years to implement.</p> <ul style="list-style-type: none"> • Since neither of the existing RV Park and Ride locations is considered permanent, an appropriate location/s will need to be established through the current Regional Transportation Study (due for completion Summer 2004). • Negotiation of land use may be required with Parks Canada or CPR if the most suitable location is found to be on their land. (It is understood that CPR are currently considering such a location as part of their Area Redevelopment Plan for the train station grounds). • In 2005, construction of the first park and ride facility would be completed, and appropriate signage would be installed. • Also in 2005, the park and ride program would be promoted to potential participants using the TSB web portal and other methods. • Through 2005-2006 the usage of the park and ride facility would be monitored.
Responsibility:	Engineering Assistant
Ease of Implementation:	Difficult: requires support of business and agency partners, and requires effective promotion and communication.
Capital / Development Costs:	<p>Development and construction costs for two Park and Ride facilities would be around \$400,000. This would include parking lot and signage, however promotion costs would be shared among partner agencies and incorporated into existing budgets.</p> <p>The park & ride initiative could require the dedication of 30% of a full-time manager position for a six month period (at an approximate cost of \$11,000). (Low)</p>
On-going/ Operational Costs:	<p>There would be ongoing operational costs associated with maintaining the lots of around \$10,000 pa. On-going resourcing requirements would be minimal and could be incorporated into existing responsibilities. (Low)</p> <p>Costs associated with delivering additional transit service would be minimal as it is expected that the service would be self-financing if packaged with the promotion of tourist attractions en-route.</p>
Pay-back:	The town would be eligible for GHG emission reduction credits (ERCs) as a result of this initiative. The details of emissions trading systems are currently being defined, however an ERC is currently valued at about \$10 per tonne of GHG. An effective park and ride system has the potential to result in significant generation of ERCs for the town.
GHG emission reduction potential:	Medium: Since transportation represents such a large portion of the total energy consumed in Banff, this initiative presents great potential for emission reductions. A reduction of 1% of energy used for passenger vehicle transportation would result in a 3000 tonne reduction of GHGs.
Other benefits:	<ul style="list-style-type: none"> • Improved access to tourist attractions in the downtown core. • Reduced stress from easy parking. • Demonstrates corporate leadership.

	<ul style="list-style-type: none">• Reduced GHG emissions.• Improved air quality.
Funding Opportunities:	Moving on Sustainable Transportation (MOST) (see Appendix 2 for details)
Further information/ case studies:	<ul style="list-style-type: none">• Further information on the benefits of park & ride programs is available at: www.vtpi.org/tdm/tdm27.htm• Calgary Transit provides free park and ride facilities throughout the city. (See: www.calgarytransit.com/right_block.html)• Information on City of Aspen's park and ride program is available at: www.aspenpitkin.com/depts/57/parkandride.cfm

Initiative 6:	PROVIDING ENERGY EFFICIENCY PRODUCTS FOR THE COMMUNITY
Description:	<p>There are three options in carrying out this initiative:</p> <ol style="list-style-type: none"> 1. Set up a Town of Banff Energy Office where residents can purchase these items (this option should be pursued if the Town sets up a revolving fund – see separate profile) 2. Set up a virtual shop on the TSB web portal, or 3. Work with local hardware stores such as Standish Home Hardware to stock these items
Overview & timeline:	<p>Before proceeding with this initiative, the Town will have to select a preferred approach. There are a number of case studies to review in deciding upon the right approach for Banff (see below).</p> <p>When a delivery method has been selected the Town should evaluate which products will most effectively contribute to the town's energy and broader sustainability goals. Recommended products include programmable thermostats, compact fluorescent lights and indoor water efficiency kits.</p> <p>The City of Calgary through its On-line program purchases these items for sale to residents. The Town should contact Calgary to source potential suppliers.</p>
Responsibility:	Environmental Manager
Ease of Implementation:	Options 1 and 2 would be fairly difficult to implement, while Option 3 would be easy.
Capital / Development Costs:	There would be capital costs associated with Option 1 to set up the office (Medium to High). Option 2 would require a capital investment to contract a web site designer to set up the on-line sales. (Medium). There would be no capital costs associated with Option 3.
On-going/ Operational Costs:	Option 1 would require ongoing staffing to manage the office and to handle store front sales, thus costs would be at least \$60,000 per year. (High) Resourcing costs associated with Option 2 could be incorporated into the TSB web portal initiative costs (see Initiative # 8), but additional staff time would be required to distribute items sold, which could represent a cost of anywhere from \$5,000-\$10,000 per year, depending on total sales. (Medium) Tasks associated with Option 3 could be incorporated into existing responsibilities.
Pay-back:	Each household could potentially save \$50 per year on energy bills through conversion of at least six incandescent bulbs to compact fluorescents (CFLs) and through use of a programmable thermostat. The total capital cost would be \$125 for the programmable thermostat (purchase and installation). The purchase price of a CFL is about \$10 more per bulb than an incandescents, however the incremental cost is negligible, considering that CFLs last 10 times longer. Thus payback would be achieved in less than three years.
GHG emission reduction potential	Low: If 1% of households (about 30 homes) were to replace 6 incandescents with CFLs and install a programmable thermostat, the total reduction in GHG would be about 20 tonnes per year.
Other benefits:	<ul style="list-style-type: none"> • Reduced energy consumption and expenditures for homeowners • Improved comfort of homes
Funding Opportunities:	None available

Further information/ case studies:	<ul style="list-style-type: none">• The Toronto Energy Efficiency Office has a mandate to develop and implement a comprehensive energy efficiency and conservation strategy for the city (see: www.toronto.ca/energy/office.htm)• The Centre for Energy and Environment, previously the Minneapolis Energy Office, is now an independent non-profit agency. It delivers a variety of services to utilities, private corporations, neighborhood organizations, municipalities and public agencies including financing, building audits, technical research, program design and delivery and evaluations (see: www.mncee.org/)• Using <i>City of Calgary On-line</i>, Calgarians can purchase a range of useful products without having to leave their homes. Items include city maps, parking permits, and featured water saving kits²⁸ (see: www.calgaryonlinestore.com)• The City of Toronto also has an indoor water efficiency kit (see: www.city.toronto.on.ca/watereff/kits.htm)• There are numerous suppliers of programmable thermostats, such as Honeywell
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²⁸ The indoor water saving kit (\$14), consists of : a Earth™ Massage Showerhead, a Kitchen Swivel Aerator, two bathroom aerators, two toilet tank Bags, a Package of Leak Detection tablets, a roll of Teflon Tape, and an information guide.

Initiative 7:	LAUNCHING AN ANTI-IDLING CAMPAIGN IN BANFF
Description:	There is already an anti-idling by-law in town, which applies to commercial vehicles within six blocks of the downtown core. The town could expand this initiative by undertaking a broader communications and education campaign.
Overview & timeline:	<p>A model developed by NRCan and carried out by pilot communities could be implemented in Banff:</p> <ol style="list-style-type: none"> 1. Establish a baseline through an opinion survey in target locations (e.g., schools). 2. Grow public awareness through newspaper ads, bus and shelter ads, posters, and information on the TSB web portal. This could also include a media event if funds are available. 3. A school campaign involving students handing out car decals and pamphlets. 4. An anti-idling info sheet on the TSB web portal that residents can print off and place on windshield of idling vehicles. 5. Designating no-idling zones (e.g. around schools) 6. Follow up attitudes survey.
Responsibility:	Engineering Assistant
Ease of Implementation:	Moderate to difficult: this program would require a significant investment of time.
Capital / Development Costs:	<p>There would be no capital costs associated with the initiative.</p> <p>The initiative would likely require the allocation of 25% of a full-time coordinator position for a three month period (at an approximate cost of \$2700). (Low)</p>
On-going/ Operational Costs:	<p>Promotional costs (pamphlets etc.) could range from \$5,000 to \$10,000. (Medium)</p> <p>On-going resourcing requirements would be minimal and could be incorporated into existing responsibilities. (Low)</p>
Pay-back:	There would be no direct financial pay-back associated with this activity, however improved local air quality would provide indirect pay-backs through avoidance of health problems associated with poor air quality.
GHG emission reduction potential:	Low: An estimate of emission reductions achieved through this action could be generated using results of the survey.
Other benefits:	<ul style="list-style-type: none"> • Reduces air pollution • Helps protect the health of the community • Saves vehicle users money
Funding Opportunities:	MOST (see Appendix 2 for details)
Further information/ case studies:	<ul style="list-style-type: none"> • NRCan's anti-idling web site is designed to help Canadians reduce vehicle idling in their communities. A free tool kit is available at: oee.nrcan.gc.ca/idling/home.cfm. Information on the City of Mississauga's anti-idling program (a pilot community for the tool kit) can be viewed at: www.city.mississauga.on.ca/idlefree/main.htm • The Pembina Institute also has an anti-idling tool kit available including ready-to-use graphics and images (see:

	/www.climatechangesolutions.com/english/municipal/tools/transport/idle.htm
Initiative 8:	DEVELOPING A TOWARDS A SUSTAINABLE BANFF WEB PORTAL
Description:	<p>The web portal would provide a 'one-stop' information and shopping service on environmental management issues for residents business and visitors.</p> <p>The content would focus on engaging community members and visitors in helping meet the Town's sustainability goals. It would do so by providing a rationale for moving towards sustainability and provide step by step information on how to take action.</p> <p>The idea of a portal is to direct users to relevant resources rather than to recreate existing materials, however it is likely that this initiative will require the Town to develop a range of materials.</p>
Overview & timeline:	<p>Steps:</p> <ul style="list-style-type: none"> • Develop a draft content, • Contract design and web developer professional, • Research available content, • Seek support from local businesses (in exchange for promotion on the web portal), • Monthly update of links and content. <p>The web portal would provide information and links to other web pages about:</p> <ul style="list-style-type: none"> • Home Energy Audits (links to ATCO EnerGuide program, etc.) • Energy Audits for Businesses (links to ATCO's EnerSense program and EPCOR's Envest Program, and other service providers) • Energy efficiency and renewable technology funding programs available to businesses (including tips and guidance on how to receive funding). • Special programs and events being offered by Town of Banff (e.g. anti-idling materials, the revolving fund) • Banff On-line energy efficiency products for sale (e.g., programmable thermostats, light bulbs, water efficiency kits), or information on where to buy these products and coupons from local merchants. • Energy management and retrofit tips • A sustainability tool-kit to promote opportunities and raise awareness among businesses and residents. These tool-kits could be based on the sustainability kits developed by Whistler • Carpooling information • Profile champions • Access to information on the Town's other environmental programs
Responsibility:	Environmental Manager
Ease of Implementation:	Moderate: This initiative would require a few months of research and planning.
Capital / Development Costs:	<p>This initiative would likely cost between \$10,000 to 25,000 for a contracted web designer to create. (Medium)</p> <p>Development of the Web Portal would likely require the allocation of 30% of a full-time coordinator position for a four month period (at an approximate cost of \$4300). (Low)</p>
On-going/ Operational Costs:	On-going operational costs for maintaining the site would be low.

	On-going maintenance would likely require less than 5% of a full-time coordinator's time (for an on-going annual cost of \$2200). (Low)
Pay-back:	Although it is not possible to quantify the economic benefit of this activity, the use of the web to share information can be cost-effective as it reduces the requirement for print publication and distribution.
GHG emission reduction potential:	This is an education and outreach program, thus GHG emissions reductions can not be quantified.
Funding Opportunities:	Local businesses, federal, and provincial programs such as The EcoAction Community Funding Program (see Appendix 2 for more details)
Further information/ case studies:	<ul style="list-style-type: none">• City of Toronto has an environment portal at: www.city.toronto.on.ca/environment/• An excellent example of an issue based portal can be viewed at: www.ecoiq.com/onlineresources/index.html

Initiative 9:	CREATING A REVOLVING FUND FOR ENERGY EFFICIENCY INITIATIVES
Description:	<p>Set up a Revolving Fund to provide low-cost loans to energy efficiency projects in the community.</p> <p>A revolving fund is essentially a pool of money that is made available to a energy efficiency projects with repayments being made through energy savings achieved by the projects. They are more accessible than typical loans in that they are offered at an interest rate that is below the competitive market rate. Secondly, their required payback period is often extended beyond those of regular loans.</p>
Overview & Timeline:	<ol style="list-style-type: none"> 1. Establish a capital base for the fund, this could be: profits from the sale of municipal assets, one-time budget allocations, yearly budget allocations, government grants or loans, industry and utility grants, loans, surcharges or payments. 2. Assign responsibility for administering the fund – it would be ideal to establish a Banff Office of Energy Efficiency to administer the program (this office would also be responsible for other activities identified in the CEP, such as the TSB Portal, the sale of energy efficiency equipment, etc.) 3. Evaluate potential risks, such as: <ul style="list-style-type: none"> • Lower energy prices in the future - A decrease in price would reduce energy investment payback and threaten the fund's operating capital. • Poor project performance – Projects that do not achieve their outcomes for reasons beyond the control of the fund administration could lead to a negative fund reputation and decrease the fund's operating capital. 4. Define criteria for qualified projects (i.e. within town boundaries, expected pay-back period of the project, anticipated energy savings, etc.). 5. Outline repayment options. Some funds require repayment at an interest rate sufficient to maintain the capital, others require repayment only for a portion of the loaned capital. 6. Develop a monitoring and verification process to track the results of funded projects. (More intensive monitoring will be required for loans with repayment terms determined by energy savings than those with a pre-determined repayment schedule.)
Responsibility:	See above (or Director of Corporate Services)
Ease of Implementation:	Difficult
Capital / Development Costs:	<p>Capital costs would depends on the size of the fund.</p> <p>The Revolving Fund initiative would require the allocation of at least 30% of a full-time manager's time for the first year (at an approximate cost of \$18,000). (Medium)</p>
On-going/ Operational Costs:	The initiative would likely require 10% of a full-time manager's time to administer each year following start-up (for an on-going annual cost of \$6000). (Medium)
Pay-back:	This initiative could be designed to be cost-neutral.
GHG emission reduction potential:	High, but will depend on the size of the fund, which will influence the size and scope of projects that can be funded.
Other benefits	<ul style="list-style-type: none"> • The town's contribution to air quality concerns relating to fossil fuel based electricity will be reduced.

	<ul style="list-style-type: none">• The town will support development of renewable power business in Alberta.• The town will demonstrate leadership.
Funding Opportunities:	None available
Further information/ case studies:	<ul style="list-style-type: none">• Canadian organizations that currently have revolving funds to promote energy efficiency in buildings include: Federal government ; City of Toronto (Toronto Atmospheric Fund, Better Building Partnership - see: www.city.toronto.on.ca/taf/ and www.city.toronto.on.ca/wes/techservices/bbp/index.htm) ; and City of Edmonton (Edmonton Energy Efficiency Revolving Fund - see: www.gov.edmonton.ab.ca/am_pw/office_of_the_environment/fund.html).• The Centre for Energy and Environment in the City of Minneapolis has a set of innovative funding programs, including: interest write-downs, revolving loan pools, zero interest deferred loans and grants (see: www.mncee.org/frame_crr.htm).`

Initiative 10:	MAKING THE COMMUNITY MORE BIKE AND PEDESTRIAN FRIENDLY
Description:	<p>Through this initiative the Town would take steps to increase active modes of transportation in the community. There are two key audiences for increasing the share of cycling in Banff: commuter cycling and recreational cycling. As the population of Banff tends to be very active, increased cycling would be a good fit for the town.</p> <p>This initiative would build on the work of the Banff Trail and Open Space Study concept Plan and the Integrated Transportation Plan. It would include additional cycling infrastructure, such as designated bike routes, as well as ancillary cycling facilities to increase the convenience, comfort and safety of cycling in the town.</p>
Overview & timeline:	<p>This initiative involves several components:</p> <ol style="list-style-type: none"> 1) Seek potential partners from the business community to support the initiative. These partners could sponsor parts of the trails and signage, and fund the preparation of trail maps. 2) Identify a recommended continuous cycling route and trail network that increases the safety, comfort and convenience of cycling and that links major destinations (expanding the Banff Trail and Open Space Study). This would require public consultation (surveys or open houses/workshops) to identify ideal routes. 3) Develop the identified cycling route and trail network (particularly bike routes and multi-use trails). 4) Prepare and make available a map of designated cycling routes and trail/pathway networks in Banff (hard copy as well as an on-line version). The map information should also include information on cycling safety. 5) Increase the profile of cycling on the Town of Banff's web site and provide bicycling information on the TSB Web Portal (if developed). 6) Include cycling route maps on kiosks at entrance to community for out-of-town visitors. 7) Work with transportation providers to ensure that bicycles are allowed on vehicles such as transit buses. 8) Provide end-of-trip facilities, such as parking facilities for bicycles and shower and change facilities at major employers. <p>While outside the direct control of the Town of Banff, the 1992 Banff Downtown Enhancement Conceptual Plan by Transnova Consultants et al. recommended that regional bike trails be encouraged as a means of travel including a trail between Banff and Canmore that could service employees and visitors as a recreational experience. They identify that this could be accomplished using the path near the golf course.</p>
Responsibility:	Engineering Assistant & Community Services Department
Ease of Implementation:	Moderate (requires planning, costing, construction, and coordination)

Capital / Development Costs:	<p>High (but depends on selected method): The total cost of completing a cycling network will depend on the number of kilometres and types of facilities that are included. Costs for the signage could be around \$4,000 to \$6,000 per kilometre. Costs for developing a multi-user trail or pathway, excluding land costs, would be in the range of \$300,000 to \$850,000 per kilometre depending on width, surfacing, and topography considerations.</p> <p>Ancillary costs for bike racks, preparing and producing maps, and information for kiosks would be medium to low.</p> <p>The bike and walk trail system would require the dedication of about 30% of a full-time manager position for a one-to-two-year period (at an approximate cost of \$18,000-\$36,000).</p>
On-going/ Operational Costs:	On-going maintenance costs would be medium, and on-going staffing costs would be minimal.
Pay-back:	The town would be eligible for GHG emission reduction credits (ERCs) as a result of this initiative. The details of emissions trading systems are currently being defined, however an ERC is currently valued at about \$10 per tonne of GHG. A cycling route and trail network has the potential to result in significant generation of ERCs for the town.
GHG emission reduction potential:	Medium: Since transportation represents such a large portion of the total energy consumed in Banff, this initiative presents great potential for emission reductions.
Other benefits:	<ul style="list-style-type: none"> • Displacing automobile trips by cycling trips would reduce energy consumption and cut down on greenhouse gas emissions. • Cycling is a clean, quiet, and energy-efficient mode of transportation. It is also an excellent form of exercise. • Increases accessibility to downtown Banff. • Considerable savings may be realized by delaying or preventing the need for further infrastructure for vehicles (e.g. parking structures) as downtown Banff becomes more accessible by bicycle.
Funding Opportunities:	Sometimes provincial governments offer cost-sharing of the development of cycling infrastructure, as the BC provincial government did during the mid and late 1990s. Currently, there is no such program in Alberta - however the Town of Banff should keep itself abreast of any such opportunities in the future.
Further information/ case studies:	<ul style="list-style-type: none"> • By 1999, Whistler had 24 km of multi-use valley trails (see: www.whistler.com/activities/summer/biking/) • The 200 km "Le p'tit Train du Nord" in Mt. Tremblant, Quebec is a highly successful rails-to-trails project and one of the most popular tourist attractions in the Laurentians (see: www.mt-tremblant.com/homeanglais.html) • The City of Aspen has almost 100 km of multi-use trails that can be used for biking (see: www.aspenrecreation.com/index.cfm?fuseaction=standardpage&mainid=25&yId=2&zId=2) • The Town of Vail has 26 km of hiking and biking trails (see: ci.vail.co.us/)

Initiative 11:	IMPLEMENTING COMMUNITY TRANSPORTATION INITIATIVES (E.G. A WALK & BIKE TO SCHOOL PROGRAM)
	<p>A) Walk & Bike to School Program The Walk and Bike to School Program would achieve important benefits: improved health of children through physical exercise and reduced exposure to idling vehicles in school parking lots, and improved street safety due to increased pedestrian traffic and decreased automobile traffic.</p> <p><i>31% of Canadian children do not get the physical activity they need to develop cardiovascular fitness, muscle strength and flexibility and over 25% of Canadian children are considered overweight. According to a recent Environics survey 68% of Canadian children have a walk to school of 30 minutes or less, but only 36% walk as a rule. (Greenest City web site: www.greenestcity.org/indexasrts.html)</i></p> <p>Hundreds of schools throughout North America and Europe have initiated ‘Active & Safe Routes to Schools’ and Walking School Bus Programs.</p> <p>The Walk & Bike to School Program could be kicked off on the International Walk to School Day on October 8th 2003. Useful resources for promoting this event are available at: www.greenestcity.org/indexwsd.html. All schools registered for International Walk to School Day 2003 would be eligible to participate in a national challenge, with numerous awards. (More information and registration forms will be available at: www.goforgreen.ca/asrts/contest_e.html)</p> <p>There are two options to pursue in setting up the Walk & Bike to School Program:</p> <ol style="list-style-type: none"> 1. A more formalized Walking School Bus Program, where parent volunteers sign up to lead the walking bus (as a revolving responsibility), and routes are identified for the walking school bus so that all children able to participate can be collected. In this option, it would help if a town staff member took responsibility for supporting schools, and for finding champions in the community that could ensure the program’s continuity – a network of volunteers could be established (potential volunteers could be found at the PTA, church, etc). 2. Facilitating Walking & Biking to School, where parents and students are encouraged to walk their children along a designated walking route. The selected route would have designated street crossing areas and drivers along it would be notified by signs to be more cautious because they are on the designated walking route to a school. The safety of the route would also be increased due to higher pedestrian traffic. <p>It is assumed that this would be a seasonal program, running from September, October, and April to June.</p> <p>B) Home Grocery There are two options for reducing vehicle trips associated with grocery shopping that that could be considered in Banff.</p> <ol style="list-style-type: none"> 1. Encourage a local grocery store to establish an Internet based delivery service in order to replace single individual trips with a drop off route system. 2. Local grocery stores could provide rental trailers for customers. A local grocery store in Vancouver currently has two bike trailers available for customers use. They are provided as a free service, and users have three days to return them. Similarly, a local grocery store in Whistler provides a Free Loaner Cart and the Municipality and Parks Board of Whistler use the carts both for trail maintenance. Whistler obtained their bike carts from Bike CartAge, see: www.bikecartage.com/.

9 Appendix 4: Available Funding Programs

The Green Municipal Enabling Fund (GMEF)

Coordinated by the Federation of Canadian Municipalities (FCM), GMEF, is a \$50 million Fund that provides grants to support feasibility studies in municipalities. From 2000 to 2007, GMEF will support a large number technical, environmental and/or economic feasibility studies to assess innovative municipal projects. Grants cover up to 50 per cent of eligible costs to a maximum grant of \$100,000.

www.fcm.ca/scep/support/GMEF/gmef_index.htm

Green Municipal Investment Fund (GMIF)

Also coordinated by the FCM, the GMIF is a \$100 million permanent revolving fund for the implementation of innovative environmental projects in Canadian municipalities. A municipal government or its partner can borrow funds through the GMIF, with project payback periods ranging from four to ten years. GMIF plans to support 15 to 20 projects a year.

www.fcm.ca/scep/support/GMIF/gmif_index.htm

Municipal Building Retrofit Program (MBRP)

The MBRP is an FCM program that provides technical assistance to municipalities that are undertaking a retrofit program for municipal building stock.

www.fcm.ca/scep/support/building_retrofit/mbrrp_index.htm

Affordability and Choice Today (ACT)

Sponsored by Canada Mortgage and Housing Corporation and administered by the FCM, ACT is a national program designed to stimulate regulatory reform in Canadian municipalities, leading to greater affordability, choice and quality in housing. ACT provides funding to community teams made up of builders, developers, renovators, architects, planners, industry association staff, municipal staff, non-profit and consumer groups, and others. ACT can provide funding to your community team for three different kinds of regulatory reform projects.

- Demonstration Project grants of up to \$20,000 are available to help teams change regulations and carry out a building or renovation project – to show how new ideas in design, technology, planning or servicing can lower costs or meet special needs.
- Approval Process Project grants of up to \$10,000 are available to help your team change regulations and application procedures or administrative processes to improve housing affordability and choice.
- Promotion Project grants of up to \$5,000 are available to help you promote regulatory reform – to kick-start action in your community, to help promote a project on the go, or to share your experience with other communities.

www.actprogram.com/english/welcome.asp

Renewable Energy Deployment Initiative (REDI). Launched in 1996 by NRCan, REDI is a 6-year, \$24 million program that was developed to generate demand for renewable energy systems for space and water heating and cooling. REDI will pay for up to 25% of a municipality's purchase costs. Allowable projects include solar air heating, solar hot water systems, and *high efficiency/low emissions biomass combustion systems* of a total capacity of 75kW or more. To be eligible the system has to be commissioned between April 1, 1998 and March 31, 2006.

www2.nrcan.gc.ca/es/erb/english/View.asp?x=455

Commercial Building Incentive Program (CBIP)

CBIP is an NRCan program, running until March 31, 2004 that offers financial incentives for the incorporation of energy efficiency features in new commercial/institutional building designs. Incentives of up to \$60,000 are awarded to building owners whose designs meet CBIP requirements. To be eligible a building design must demonstrate a reduction in energy use by at least 25% when compared to the requirements of the MNECB.
oee.nrcan.gc.ca/newbuildings/cbip.cfm

Federal Government Tax Incentives

The federal government offers two tax incentives to promote adoption of energy efficiency measures and renewable energy. Specifically, certain renewable energy technologies are deductible as Canadian Renewable and Conservation Expenses (CRCE).
www.fin.gc.ca/news02/02-063e.html

TransAlta's Community Investment Program

TransAlta will consider funding requests from responsible not-for-profit or government authorized charitable organizations, and other community organizations whose programs and services meet one or more of the following criteria:

- fill a recognized need and benefit the community at large, or a wide segment of the population in the company's direct operating areas;
- increase goodwill and positive awareness of the company;
- complement the company's interests and values; and
- involve employees or retirees of the company as active volunteers.

www.transalta.com/

The Energy Innovators Initiative (EII)

The Energy Innovators Initiative (EII) encourages commercial businesses and public institutions to make investments in energy efficiency. Energy retrofits help reduce energy costs, improve competitiveness and reduce greenhouse gas emissions that contribute to climate change. As part of Natural Resources Canada's Office of Energy Efficiency, the EII offers members access to tools and financial incentives – delivered through an Energy Innovators Officer who will be assigned to work with you after you join. Municipal governments can access programs, grants and loans through the Federation of Canadian Municipalities. Currently, more than 700 organizations are members.
<http://oee.nrcan.gc.ca/eii/home.cfm>

Moving On Sustainable Transportation (MOST) Program

Transport Canada's MOST Program will provide funding to help support projects that will:

- provide Canadians with practical information and tools to better understand sustainable transportation issues;
- encourage the creation of innovative ways to promote sustainable transportation;
- and achieve quantifiable environmental and sustainable-development benefits.

www.tc.gc.ca/programs/environment/most/menu.htm

10 Appendix 5: Emission Factors and Assumptions Applied in this Study

Table 15: Emission Factors (tCO₂e/GJ)

Fuel	Factor	Source
Gasoline (tCO ₂ e/GJ)	0.068000*	Canada's Voluntary Challenge & Registry Registration Guide, 1999
Diesel (tCO ₂ e/GJ)	0.070500*	Canada's Voluntary Challenge & Registry Registration Guide, 1999
Natural Gas (tCO ₂ e/GJ)	0.04991	IPCC
Electricity (tCO ₂ e/GJ)	0.286 before 98, 0.271 from 98-02, 0.265 beyond 2003	90-98 based on Energy, Mines & Resources, 1990; 98-02 based on VCR Registration Guide, 1999, beyond an estimate
Solid waste disposed in landfills (tCO ₂ e/tonne solid waste)	0.38	Partners for Climate Protection (assuming no landfill gas capture)

Table 16: Summary of Unit Cost of Energy Sources in Banff (\$/GJ)

	Commercial			Residential		
	1990	1998	2001	1990	1998	2001
Natural Gas	2.35	3.95	7.20	3.49	4.28	8.26
Electricity	18.42	18.42	18.06	18.42	18.42	18.06
Gasoline	12.98	14.43	14.43	12.98	14.43	14.43
Green' Electricity	-	-	34.72	-	-	34.72
Diesel	9.0	11.6	11.6	9.0	11.6	11.6

Table 17: Energy Content of Fuels

Fuel	Energy Content (GJ/L)
Gas	0.03466 GJ/L
Diesel	0.03868 GJ/L
Natural Gas	0.00003723 GJ/L

Table 18: Visitors to Banff, 1998-2000²⁹

		Total Visitors through Park Gates			Total Visit Days to TOB (81% of total Visitors)		
	Commerical Bed Unit Occupancy rates (99 data)	1998	1999	2000	1998	1999	2000
Jan	0.699	239130	274,768	278,141	497,390	571,517	578,533
Feb	0.834	276843	300,661	298,551	575,833	625,375	620,986
Mar	0.903	217288	297,582	308,635	451,959	618,971	641,961
Apr	0.781	313818	342,218	348,758	652,741	711,813	725,417
May	0.799	358301	393,340	381,703	745,266	818,147	793,942
Jun	0.83	387799	456,160	462,202	806,622	948,813	961,380
Jul	0.937	656188	697,519	697,823	1,364,871	1,450,840	1,451,472
Aug	0.954	645410	679,625	716,413	1,342,453	1,413,620	1,490,139
Sep	0.846	453047	494,803	477,614	942,338	1,029,190	993,437
Oct	0.647	266334	273,264	274,495	553,975	568,389	570,950
Nov	0.42	190994	207,871	193,531	397,268	432,372	402,544
Dec	0.554	216428	247,339	221,994	450,170	514,465	461,748
TOTAL	0.77	4,221,580	4,665,150	4,659,860	8,780,886	9,703,512	9,692,509

²⁹ Sources: Visitor numbers from fax from Banff National Park, Parks Canada, Perry Cavanaugh, tel 403-678-2505, March 7, 2002); Hotel occupancy rates from Working Paper #1, Town of Banff Wastewater Treatment Plant Upgrade, Development of Wastewater Flow Design Parameters, April 2001, Table 2-4, p.2-7. (1999 data). Assumptions: 0.8 % of visitors to the park that stay in the town (Banff Community Profile, 2001); 2.6 average length of stay (Banff Community Profile, 2001, p. 20).