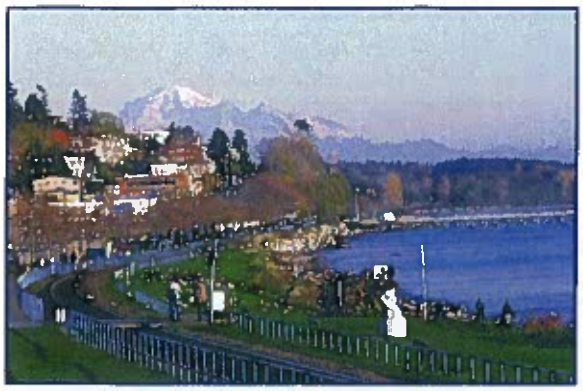
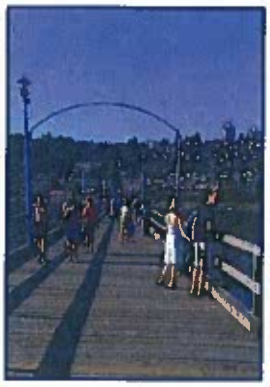





CITY OF WHITE ROCK

COMMUNITY CLIMATE ACTION PLAN

Adopted May 3, 2010

The Sheltair Group
now Stantec

Stantec

Plan Summary

The City of White Rock has developed a Community Climate Action Plan (CCAP) to reduce energy consumption and greenhouse gas (GHG) emissions throughout the community. This plan helps the City to address provincial legislative requirements, and supports their voluntary commitment to the BC Climate Action Charter and the Federation of Canadian Municipalities Partners for Climate Protection (PCP) program. Further, it addresses Objective #9 in the City of White Rock's Environmental Strategic Plan *(promote energy efficiency and GHG reduction in the community)*, and is consistent with the vision and goals of the City of White Rock Official Community Plan (OCP).

The CCAP includes the following (proposed) community-wide GHG emissions reduction targets:

- 10 % below 2007 levels by 2020
- 50 % below 2007 levels by 2050

The CCAP is structured around five theme areas that have the greatest impact on energy consumption and GHG emissions within the community, including:

- Land Use,
- Buildings,
- Transportation,
- Alternative Energy Supply, and
- Bridging Climate Change and Sustainability.

It then goes on to articulate specific objectives, targets, indicators and actions in each of the theme areas. Actions consider a range of levers – such as outreach and awareness; incentives and pricing, and; policy and regulation – in an effort to ensure broad participation from the community and ultimately, real reductions in energy consumption and GHG emissions. Actions outlined in the CCAP will serve as a starting point for climate action within the community. Actions will undoubtedly change over time to address community priorities and to seize opportunities as they arise. A section on implementation deals with monitoring and reporting cycles to ensure the CCAP stays relevant and continues to address climate action priorities. This section also outlines roles and responsibilities, timelines, resource requirements, and opportunities to secure financing and assistance.

Summary of Themes and Actions

Land use

Action-1: Develop Sustainable Design Guidelines to encourage energy efficiency in development and re-zoning applications

Buildings

Action-2: Develop a revitalization financial incentive to encourage energy efficient buildings

Action-3: Promote existing energy efficiency programs and incentives to residents, businesses and organizations

Transportation

Action-4: Work with TransLink to improve and expand public transit amenities and services

Action-5: Increase opportunities for residents to use alternatives modes of transportation

Action-6: Deliver outreach to encourage idling reduction

Alternative Energy Supply

Action-7: Conduct a pre-feasibility study of alternative energy opportunities in the community

Action-8: Promote installation of solar hot water systems

Action-9: Ensure that City building inspectors are trained and equipped to respond to alternative energy technologies

Bridging Climate Change and Sustainability

Action-10: Promote activities to divert waste from landfills

Action-11: Provide space for community gardens to increase opportunities for local food supply

Action-12: Work with Epcor to encourage water use efficiency

Action-13: Develop an education and outreach strategy around the Community Climate Action Plan to build awareness and support for ongoing plan implementation

Action-14: Demonstrate leadership in climate action by developing and implementing a corporate climate action plan

Table of Contents

1.0 Introduction

1.1 GLOBAL CLIMATE CHANGE, LOCAL ACTION

It is now widely accepted that human use of energy is resulting in greenhouse gas (GHG) emissions that are having a significant impact on our climate. The 2007 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report on the climate change trends observed to-date stated that the human caused contribution to climate change is "more likely than not" and the expectation is that the human caused impact in the future is "virtually certain."

Recent polls suggest that global climate change is now seen as a critical issue for Canada and that citizens are looking to their governments for aggressive action. A December 2008 poll found that:

- 83% of Canadians surveyed agreed with the statement that "Canada should commit to strong action on global warming without waiting for other countries."
- 78% of Canadians surveyed agreed that "Canada's global warming targets should be based on what leading scientists say is needed to avoid serious harm to people and the environment, even if meeting these targets entails some cost to the economy."[1]

Climate change is a global issue caused by the cumulative effects of billions of humans consuming energy from fossil fuels. As such, the reduction of GHG emissions will require the efforts of billions of humans taking individual action to conserve and reduce their energy consumption. What this means is that, as individuals, we must collectively develop strategies and implement actions to conserve energy and transition to more sustainable energy sources in order to reduce our GHG emissions footprint and address this phenomenon.

1.2 OBJECTIVES OF THE COMMUNITY CLIMATE ACTION PLAN

The CCAP will fulfill the City of White Rock's objectives to:

- Set GHG reduction targets and develop measures that can be incorporated into its Official Community Plan (OCP) in order to meet the requirements of Bill 27 – 2008, The Local Government (Green Communities) Statutes Amendment Act;
- Address Objective #9 of the City's Environmental Strategic Plan to, *"Promote Energy Efficiency and GHG Reduction in the Community";*

[1] McAllister Opinion Research Poll on Canadians' Opinions on Global Warming, December 2008

- Raise public awareness and foster collaboration between the City, stakeholders and the public in order to advance plan implementation, and;
- Inform the City's voluntary commitment to the BC Climate Action Charter which calls for "carbon neutral" local government operations by 2012.

In order to address these objectives, the CCAP:

- Articulates the challenges and opportunities for reducing energy and emissions that are unique to White Rock;
- Establishes a baseline energy and emissions inventory;
- Forecasts emissions to 2030 under a business-as-usual scenario;
- Outlines the major areas for action (themes), the objectives, and the specific actions to reduce GHG emissions;
- Sets GHG emissions reduction targets for short and long-term;
- Recommends performance metrics for monitoring progress toward the plan, and;
- Outlines resource requirements, funding and other opportunities that will advance plan implementation.

The City of White Rock will lead the CCAP; however, it is important to note that this is a plan for the community. Ideas and input from residents helped to develop the plan and the success of the plan as it evolves over time depends to a large extent on the activities and involvement of residents.

1.3 PROVINCIAL ACTION

Local Government (Green Communities) Statutes Amendment Act (Bill 27-2008)

The Province of BC enacted The Local Government (Green Communities) Statutes Amendment Act (Bill 27, 2008), which requires local governments to include GHG emissions reduction targets, policies, and actions in their Official Community Plan (OCP). The legislation provides a range of new powers, which are available to local governments to use as tools to assist in reducing energy and emissions in the community, including:

- Establishing objectives to promote energy conservation, water conservation, and reduce greenhouse gases through OCP Development Permit Area guidelines;
- Allowing development parking funds to be used for alternative transportation infrastructure.
- Allowing the waiving Development Cost Charges to encourage the building of denser, more sustainable and affordable developments; and
- Waiving Development Cost Charges on units smaller than 29 square metres (small lot development requires less GHGs to build and maintain than large lots).

BC Climate Action Charter

This is a provincial initiative introduced in September 2007 to encourage local governments to significantly cut GHG emissions. Participating local governments have committed to becoming carbon neutral in their municipal operations by 2012. The City of White Rock has signed the charter and plans to develop a corporate emissions inventory and strategy to reduce emissions from its operations. Achieving carbon neutrality will involve reducing greenhouse gas emissions, and because it is currently not possible to operate without emissions, the City will also need to purchase carbon offsets to reach this goal.

Greenhouse Gas Reductions Targets Act (Bill 44-2008)

The Province of BC has set the following province-wide GHG reduction targets:

- 33% below 2007 levels by 2020, and;
- 80% below 2007 levels by 2050.

Bill 44 further requires public sector organizations (this does not include local governments) to be carbon neutral in their operations by 2010.

BC Climate Action Plan

After setting province-wide GHG emissions reduction targets (Bill 44), the province created a Climate Action Plan outlining strategies and initiatives that will take the province 73% of the way to reaching its targets. Specific commitments to support the development of green communities include:

- A new Green Building Code with some of the highest energy efficiency standards in Canada;
- A $14-billion Provincial Transit Plan to build infrastructure and double ridership across B.C. by 2020, and;
- Support for all communities to have anti-idling policies in place by 2012 to reduce GHG emissions and local air pollution.

2.0 Community Profile

White Rock is located in the southwest corner of British Columbia's Lower Mainland, just 45 kilometres from Vancouver and about 5 minutes from the United States border. The City of White Rock is one of 22 Metro Vancouver member municipalities, bordered by the City of Surrey and situated on Semiahmoo Bay (on the Strait of Georgia).

2.1 CLIMATE

The climate in White Rock is moderate, with average daily temperatures of 4.1 degrees Celsius in January and 17.1 degrees Celsius in July. This coastal climate has moderate heating requirements through nearly two-thirds of the year, and some cooling requirements in the summer. A comparison of the heating and cooling requirements (expressed as degree days) in various Canadian cities is shown in Table 1. The space conditioning is primarily heating demand and not air conditioning. The heating degree days provide an indication of the amount of space heating energy required[2]. Other energy consumption, such as water heating and electricity, are driven by many factors unrelated to the climate.

Table 1: Heating and Cooling Degree Days[3]

Location	Heating Degree Days (Annual)	Cooling Degree Days (Annual)
White Rock, BC	**2,782**	**33**
Vancouver, BC	2,926	44
Victoria, BC	3,041	24
Hamilton, ON	4,012	250
Halifax, NS	4,367	104

[2] A heating degree day is the number of days that the temperature is below 18°C, multiplied by the temperature below 18. For example 5 days at 12°C is 5*(18-12) = 30 degree days. The use of 18°C as the defining temperature for heating degree days is a common benchmark in heating and air conditioning analysis.
[3] Environment Canada National Climate Data and Information Archive, Canadian Climate Normals 1971 – 2000. http://www.climate.weatheroffice.ec.gc.ca/climate_normals/index_e.html

2.2 POPULATION AND DWELLINGS

The City of White Rock's OCP (updated in 2008) includes a population forecast to 2031 (see Figure 1). This was calculated on the basis that, on average, 100 residential units are built in White Rock per year. Assuming 1.9 persons per private household, 190 residents are added to the population on an annual basis. Based on current trends, White Rock's 2031 population could be as high as 23,505.

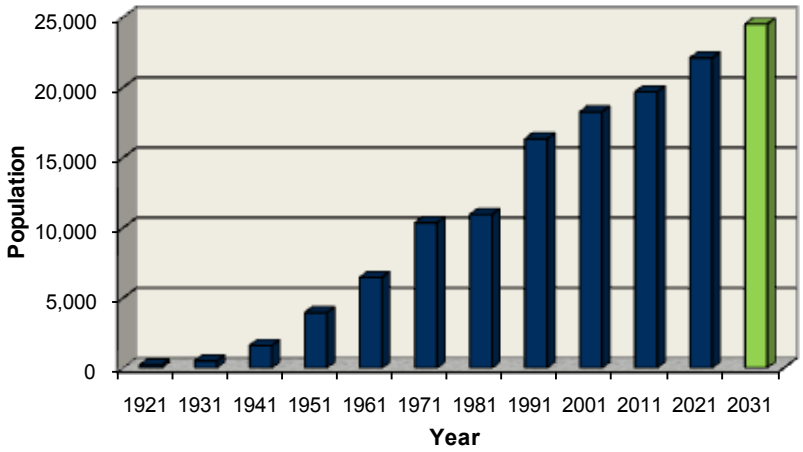


Figure 1: Projected Population to 2031

This projected growth represents a 25% increase over the 2006 population. Given that White Rock has next to no undeveloped land, most new development will be accommodated in the Town Centre and in the North Bluff Areas through redevelopment, and to a lesser extent, through infill in established residential communities.

White Rock provides a diversity of dwelling types for its residents. In 2006, 45% of dwellings were apartments with fewer than five stories, while 29% were single-detached homes. Duplex apartments made up 15% of dwellings, apartments with five or more stories comprised 8%, while semi-detached homes and row houses made up about 1.5% each. A community survey conducted in conjunction with the 2008 OCP update found that a majority of residents:

- Support having a mix of different housing types within an area (52%)
- Would prefer to be able to walk to commercial and retail areas (59%)

While residents seem generally supportive of mixed-use development and having amenities within easy walking distance (i.e. measures that support energy efficiency), there are concerns about high density development, in particular high-rise condos. The City has the challenging task of balancing regional growth pressures, which will require subdividing and densification, with issues of concern to residents, such as maintaining property values, ocean views, relatively low density and affordability.

As shown in Table 2, the majority (78%) of White Rock's employed labour force drive their vehicles to work. This is followed by public transit (8%), walking or cycling (7%), carpooling (5%) and other modes (2%).

Table 2: Commuter Mode Share in White Rock[4]

Total employed labour force (# of people)	8,060	100%
Car, truck, van (as driver)	**6,315**	**78%**
Car, truck, van (as passenger)	380	5%
Public transit	670	8%
Walk or bicycle	560	7%
Other modes	130	2%

In White Rock, the prevalence of single occupancy vehicle (SOV) commuters may be attributed to the fact that most of the labour force (61%) is employed outside the City of White Rock – commuting to other municipalities within Metro Vancouver for work[5]. Carpooling and public transit are alternatives for SOV commuters, though improvements to transit service to-and-from White Rock will be required in order to make this a viable and attractive option.

In 2006, the City developed a Strategic Transportation Plan with long-term goals to increase local transit service options, as well as to work with the regional transit authority to increase transit service to-and-from White Rock to encourage transit ridership. The City also developed a city-wide Traffic Calming Policy (TCP) initiative in tandem with the strategic plan. It has the following two goals:

- To enhance safety by reducing the potential for conflicts between road users, and;
- To preserve neighbourhood livability by reducing impacts of short-cutting or speeding traffic.

[4] 2006 Census of Canada
[5] 2006 Census of Canada

2.3 CHALLENGES AND OPPORTUNITIES FOR CLIMATE ACTION

There are several challenges and opportunities on the path to a low carbon, sustainable energy future. Some of these are common across North America (e.g., relatively low energy prices pose a challenge to encouraging energy conservative behaviour, opportunities to increase public awareness around the impacts of fossil energy use to climate change), while others are unique to White Rock. Several of these challenges and opportunities have been alluded to in the Community Profile on the preceding pages. In some instances, what at first may be identified as a challenge can be flipped around to be presented as an opportunity (as shown in Table 3).

Table 3: Challenges and Opportunities for Climate Action in White Rock

Challenges	Opportunities
Limited developable land means limited opportunity for large new developments that can showcase energy efficiency and district energy on a neighbourhood scale.	Development will be focused on densification and redevelopment of existing areas. Opportunity to focus on building-scale rather than neighbourhood scale activities and to promote existing programs and incentives to support energy audits and retrofits.
Moderate coastal climate means that space heating and cooling requirements are much less than in other jurisdictions. Public may perceive that a transition to renewable energy is less important given limited space conditioning requirements.	Solar thermal, passive design, and solar electricity may be viable options for buildings
Most of the employed labour force commutes to work in single occupancy vehicles (SOV)	Opportunities to work on SOV alternatives for commuters.
Lifestyle choices do not support energy efficiency (e.g., single family homes and opposition to high density development present challenges for transitioning to more efficient land use patterns and buildings)	Outreach and education to increase awareness around impact of lifestyle choices on energy and GHG emissions. Opportunities to increase density, but at a scale that is appropriate to White Rock.

3.0 Energy and Emissions Inventory and Forecast

3.1 COMMUNITY ENERGY AND EMISSIONS INVENTORY

The Province of BC has developed high level, estimated inventories of community energy consumption and GHG emissions from on-road transportation, buildings, and solid waste for every local government in the province. This initiative is the first of its kind in North America and greatly assists local governments in addressing requirements under Bill 27 and the Climate Action Charter.

The data that follows presents energy use and GHG emissions for 2007, deriving from:

Buildings – the energy used to heat and cool residential, commercial and industrial buildings, as well as the activities that occur within these buildings. This data is obtained from utility records and includes electricity and natural gas consumption. Other fuel sources, such as wood, fuel oil, or propane are not accounted for in this inventory[6].

Transportation – vehicle fuel consumption and emissions are based on a count of the vehicles registered in the community, fuel efficiency data, and an estimate of annual driving distances.

Waste – Waste does not directly consume energy, but when deposited into landfills the decomposition of organic matter releases methane gas (CH_4), a greenhouse gas with a global warming potential approximately 21 times greater than carbon dioxide (CO_2).

Energy consumption and GHG emissions for the City of White Rock are shown in Table 4. In 2007, White Rock's total emissions were 99,215 tonnes CO_2e or 4.9 tonnes CO_2e per capita[7].

[6] Industrial energy consumption is available only for electricity as confidentiality concerns prevent the release of natural gas data. Industrial consumption data is generally one of the least accessible data sets for local governments to obtain.
[7] The per capita value (4.9 tonnes $C0_2e$) includes emissions from residential and commercial buildings, transportation, and solid waste, but does not include industrial emissions.

Table 4: Community Energy and GHG Emissions, 2007

Component	Energy (GJ)	GHG Emissions (tonnes of CO_2e)
Residential Buildings	664,194	21,631
Commercial Buildings	454,210	16,711
Industrial Buildings	119,963	5,537
Transportation	722,462	52,032
Solid Waste	--	3,304
Total	**1,960,818**	**99,215**
Total (per capita)	**98.2**	**4.9**

As shown in Figure 2, the majority of emissions are attributable to transportation (53%), followed by buildings (44%) and solid waste (3%).

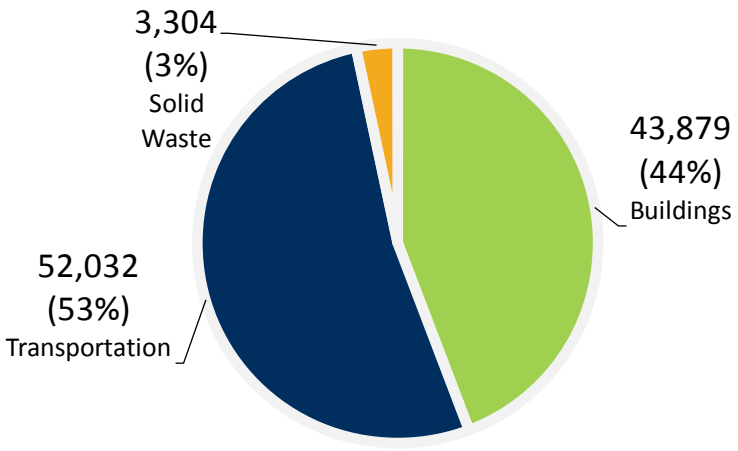


Figure 2: GHG Emissions (tonnes CO_2e) by sector

A CEEI validation exercise was conducted to test the validity of the CEEI figures for target-setting and GHG management planning within the City of White Rock. Residential sector GHG emissions from the CEEI were compared with estimates using Statistics Canada 2006 Census of Canada data and energy use intensities from BC Hydro 2007 Conservation Potential Review studies. The residential consumption values correlated with the estimates calculated and as such, it was concluded that the CEEI provides a sufficiently accurate baseline to support target-setting and GHG management planning in the City of White Rock. For more detail on the CEEI validation exercise, please see Appendix A.

3.2 FORECAST

Per Section 2.2, the City of White Rock has projected population growth through the year 2031. Assuming energy consumption and GHG emissions correlate directly to the population of a community, the City of White Rock is estimated to consume 108,030 tonnes of CO_2e by 2031. This forecast assumes that the projected population growth will be accommodated through continued development in current patterns, with residential building energy demand decreasing by 20%, commercial building energy demand decreasing by 9% per square metre, and vehicle fuel efficiency increasing by 15% over the period from 2007 to 2031.

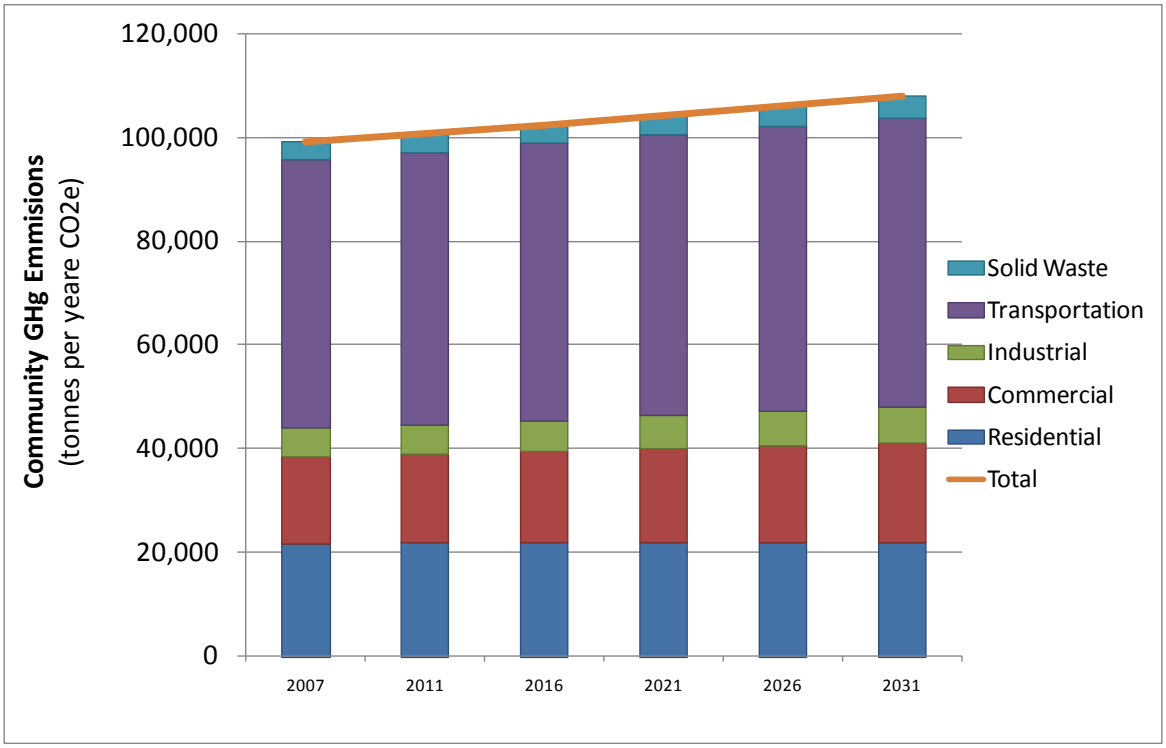


Figure 3: GHG Emissions Forecast to 2031 (tonnes CO_2e)

Table 5: Forecasted Emissions under a Business-as-Usual Scenario

Year	2007	2011	2021	2031
BAU Forecast (tonnes CO_2e)	99,215	100,684	104,357	108,030

4.0 Plan Framework

4.1 STRUCTURE

The pyramid diagram, presented in Figure 4, is useful for structuring the CCAP. It provides alignment of the vision, themes, objectives, indicators and actions ensuring that each level of the plan is informed by the preceding level. At the top of the pyramid, the vision provides inspiration for the plan, and should endure over the long-term. At the bottom of the pyramid, line item actions are short-to-medium term measures that require monitoring and revisiting over time to ensure progress is made toward the higher level vision and plan objectives.

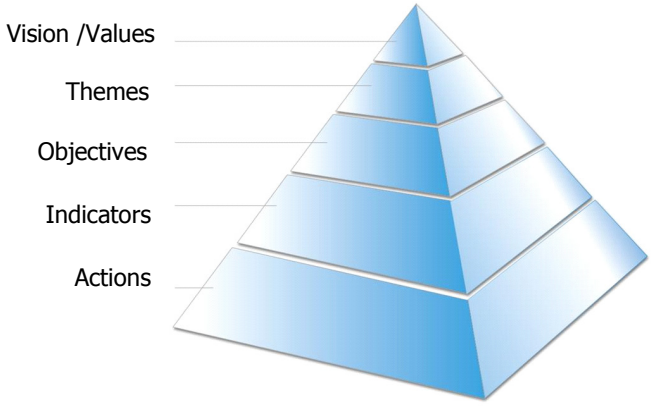


Figure 4: Framework for Climate Action Planning

The plan components are outlined below and described in the sections that follow.

Vision/Values	The vision describes how the community sees itself in the future. Values describe what should be preserved and enhanced in the community on the path to the vision. These were developed from input received through a community survey.
Themes	The topic areas for the plan. These are the areas that most impact energy consumption and GHG emissions.
Objectives	Statements that describe what the community would like to achieve in each of the theme areas. These are derived from input collected via a community survey and through discussions with City staff.
Indicators	Indicators help to track progress towards the objectives. These are based on research done by the Province of BC for the Community Energy and Emissions Inventory initiative.
Actions	Specific activities that help the community to make progress towards their objectives. These include a mix of outreach/education; incentives and pricing, and; policy and regulation.

4.2 VISION AND VALUES

A community survey on 'values and priorities' was conducted as part of the outreach and awareness-raising efforts around the CCAP. The survey gathered input from residents on the values to be preserved and priorities to be addressed in White Rock's transition to a low carbon future. The survey was available online and distributed in hard copy at community events and at City Hall and the Operations Centre during the month of September 2009.

The results of the survey reified the community vision (shown below) and informed the development of objectives and actions for the CCAP. Detailed survey results are provided in Appendix B.

White Rock's Official Community Plan provides an overarching, long-term vision for the community. Many elements of this vision are relevant for the CCAP. That is, they speak to land use patterns, development, infrastructure and services that support energy efficiency and GHG emissions reduction. These elements are underlined below.

White Rock Community Vision (from OCP, June 2008, underlining emphasis added)
By enhancing its exceptional setting with careful planning, White Rock is a unique and livable beachfront community that has become a leader in balancing its environmental, economic, social and cultural values for a healthy, livable future. Residents have been very involved in ensuring that the city retains its heritage and character as it becomes a more complex community of complementary areas. While the vibrant waterfront with its mixed uses remains White Rock's soul, the thriving town centre that borders Surrey is its heart, appreciated by residents and visitors for its range of shops, services and great public spaces. Residential neighbourhoods, some of which continue to redevelop, are safe and walkable. They contain a diversity of housing suitable for people of all ages, lifestyles and incomes; quiet, local roads; accessible parks and green spaces as well as a well-connected bike and pedestrian network. White Rock proves that exceptional natural and cultural resources can be successfully combined to provide the kind of recreational and tourism opportunities that contribute to a high quality of life anyone may enjoy.

4.3 THEMES AND OBJECTIVES

CCAP themes derive from the main areas that contribute to energy consumption and GHG emissions in the community. They are further informed by areas in which residents want to see action. Objectives are informed by the results of the community survey and conversations with City staff. Both are presented in Table 6 and are further elaborated in Section 5 of the Plan.

Table 6: CCAP Themes and Objectives

Themes	Objectives
Land Use	• Maintain the unique character of White Rock through appropriate, energy efficient planning and design.
Buildings	• Maximize energy efficiency in new and existing buildings.
Transportation	• Improve opportunities for alternative transportation and mobility. • Reduce emissions associated with vehicle traffic in White Rock.
Alternative Energy Supply	• Evaluate and encourage implementation of alternative energy technologies.
Bridge Climate Change and Sustainability	• Pursue broader sustainability objectives within the context of climate action.

4.4 INDICATORS AND ACTIONS

A suite of secondary indicators (indicators that indirectly influence GHG emissions) has been proposed to assist White Rock in monitoring the effectiveness of the proposed actions in meeting the CCAP objectives. These indicators have largely been drawn from a BC Ministry of Environment report entitled, *Community Energy and Emissions Inventory (CEEI) – Secondary Indicators for Community Inventory Interpretation*[8].

Specific actions have been identified to start White Rock down the path of energy and emissions reductions. These actions are to be undertaken in the short-to-medium term and should be reassessed at regular intervals to ensure their relevance to the community's ongoing efforts to address energy and climate change.

[8] Report written by The Sheltair Group (now Stantec) for the Ministry of Environment.

5.0 CCAP Themes, Objectives and Actions

LAND USE

In recent community surveys in White Rock, residents identified a number of things that they value about their community, including its natural beauty, walkable access to amenities in the town centre, and small, seaside town character. All of these unique assets are a function of land use and are preserved and enhanced through smart planning and urban design. The preservation of natural areas and the development of a vibrant, mixed use urban centre are achieved through zoning designations. Distinct land uses work to minimize sprawl by concentrating development in specific zones. Land use planning is one of the most powerful tools that a local government has to help reduce energy use and GHG emissions in the community.

Potential Indicators:

- Diversity of housing types
- Residential density
- Proximity to amenities

The City of White Rock is nearing build out, which means there is little developable land left within the City boundary. This could be seen as an advantage for reducing energy and emissions in the community as it means that new construction will largely be focused on redevelopment and infill development; approaches which present opportunities for more compact, live-work, transit-friendly neighbourhoods. However, higher density development is a concern to many White Rock residents, who (as stated above) value the small, seaside town character of their community and would like to see it preserved and enhanced for future generations. Moving forward, higher density, mixed-use, energy efficient development should be pursued in consultation with White Rock residents and at a scale that is appropriate for the community.

Objective: Encourage energy efficient planning and design.

Action-1: Develop Sustainable Design Guidelines to encourage energy efficiency in development and re-zoning applications

Rezoning applications provide the City with the opportunity to work directly with a landowner to encourage energy efficient planning and design. The City cannot require energy efficiency in exchange for rezoning, but it may define guidelines to help achieve its goal of reducing energy and emissions through smart planning and design.

To advance this action, the City will develop 'Sustainable Design Guidelines' that can accompany rezoning applications, development permit area guidelines, and building permits. The guidelines will serve as an outreach and education piece to communicate – to landowners, builders and developers – actions that can be taken to reduce energy and emissions through planning, design and construction.

The Sustainable Design Guidelines could specify objectives around:

- Sustainable sites, including building orientation to maximize passive solar opportunities, tree shading requirements, building footprints, natural landscaping or xeriscaping, site permeability, site-scale renewable energy, water and wastewater systems, etc;
- Energy efficient standards for buildings, including EnerGuide, Built Green and R-2000 for single family dwellings, and ASHRAE 90.1 or LEED® for multi-family and commercial buildings;
- Water conservation requirements and targets;
- Alternative transportation amenities (e.g., bike storage, showers, public transit amenities, car share parking, plug-in spaces for hybrids, linkages to existing trail networks, etc)

BUILDINGS

Buildings account for approximately 44% of greenhouse gas emissions in White Rock. Major opportunities to reduce energy and emissions from the buildings sector focus on increasing energy efficiency in new construction and retrofitting existing buildings to reduce energy demand.

With a limited amount of developable land left in the City of White Rock, energy efficient new building construction will need to focus on the redevelopment of existing residential neighbourhoods and where appropriate, infill development. Additionally, opportunities exist to improve the energy efficiency of existing buildings, as the majority of single detached homes (66%) were constructed pre-1976.

In September 2008, updates to the BC Building code came into force with the intent to improve the energy efficiency of detached (e.g. single family) and multi-units buildings.[9] Future development will be focused on multi-family and mixed use buildings. For these, the City of White Rock can encourage (though not require) higher energy efficiency standards or the Leadership in Energy and Environmental Design, LEED ® rating system.

Potential Indicators:

- Residential energy use per capita
- GHG emissions from buildings (residential, commercial) total and per capita
- Number of buildings or floor space that have achieved energy efficiency or green building standards

For existing buildings, there are several programs and incentives available through the Provincial and Federal governments, and other entities (e.g., BC Hydro) to support residential and commercial energy audits and retrofits. Other initiatives such as education and pilot testing of energy labeling are working to raise the awareness of energy efficiency with home buyers.

Objective: Maximize energy efficiency in new and existing buildings.

Action-2: Develop a revitalization financial incentive to encourage energy efficient buildings

The Community Charter states that a revitalization tax exemption may be offered for purposes of energy and water conservation. In order to do so, local governments must clearly define the revitalization program in a bylaw. The steps involved in doing this are:

1. Local government to define the tax exemption program, and the conditions under which it applies through a bylaw;
2. Owner to apply for revitalization tax exemption prior to construction;

[9] Prior to the recent building code updates (effective September 2008), a "built to code" detached dwelling home would have achieved an EnerGuide for Houses (EGH) rating of between 68 and 72. Under the new code, detached dwellings are targeted to achieve EGH 77.

3. Once the program conditions are met, the local government and owner enter into an agreement for the tax exemption period, and;
4. Once conditions of the bylaw and the agreement have been met, a certificate is issued for the tax exemption.

This action creates financial value for energy efficient buildings that stays with the property, rather than with the builder, thereby helping the builder to justify the upfront incremental costs to construct more energy efficient buildings and ensuring that those costs are not transferred to the buyer. Further, buyers receive the long-term benefit of lower operational costs due to the decreased energy demand of the building.

Action-3: Promote existing energy efficiency programs and incentives to residents, businesses and organizations

There are numerous incentive programs available to BC residents, including programs from the federal government, BC Hydro and Terasen Gas. The City will compile and make available information pertaining to existing programs and incentives to support building energy efficiency.

Promotion of these programs could be accomplished through brochures and posters at gathering places in the community (City Hall, leisure centres, grocery stores, etc) and through special events or demonstrations (e.g., in partnership with local tradespeople, through talks at building supply stores, at community events).

This type of outreach is best done in partnership with a local environmental non-profit or volunteer association. The City should look to play a facilitation role in these events – providing the information and connecting presenters to possible venues – and rely on partner organizations to coordinate and ensure attendance, and to deliver information or presentations.

Examples of existing energy efficiency resources to promote to White Rock residents include, but are not limited to:

- Energy Star ® heating system upgrades (Terasen Gas)
- Boiler replacement programs for commercial buildings (Terasen Gas)
- Free energy audits for qualifying businesses (Terasen Gas)
- Energy management workshops for local businesses (BC Hydro and Terasen Gas)
- Rebates and incentives for energy efficient appliances and electronics (BC Hydro)
- Support for energy studies, energy managers, and new construction (BC Hydro)
- Workplace conservation awareness programs and workshops (BC Hydro)
- Grants to support energy retrofits of homes, commercial and institutional buildings (Natural Resources Canada)

TRANSPORTATION

Transportation accounts for 53% of the community's emissions. Reducing emissions from transportation will involve several factors, including: fuel prices, vehicle fuel efficiency standards, technology developments, financial support for public transit, etc.

Potential Indicators:

- GHG emissions from transportation (total and per capita)
- Per capita transit ridership
- Usage surveys of bicycle and pedestrian pathways/networks
- Mode share
- Vehicle ownership

As the majority of White Rock's employed labour force commutes outside of the City for work, opportunities exist to provide more live-work opportunities in White Rock (see Land Use theme) and to promote alternative forms of transportation over single occupancy vehicle (SOV) use (for residents that must commute to work). Encouraging a reduction in SOV commutes requires not only outreach and education, but also recognition that transit services and alternative transportation amenities must be enhanced and supported in an effort to demonstrate to SOV commuters that better options do exist. This is a challenge, as increased public transit service generally requires a certain size market and higher densities to be viable.

In and around White Rock, reducing emissions from transportation means that residents must be able to access amenities and services without having to use their cars. Improving pedestrian and bicycle networks, providing smaller buses (e.g., community shuttles) to help residents get around town and offering parking incentives for low emissions vehicles are just some of the ways to go about this.

Objective: Improve opportunities for alternative transportation (and mobility)

Action-4: Work with TransLink to improve and expand public transit amenities and services

The City will continue to work in partnership in order to improve and expand transit amenities and services for its residents. Ongoing work with private contractors will focus on improved amenities, such as bus shelters, benches, lighting, sidewalks, secured bike and vehicle parking, etc. These amenities improve a transit users overall experience by making public transit more accessible and convenient, and by increasing perceived levels of safety.

In addition to improving transit amenities, the City will continue to work with TransLink to improve transportation to-and-from White Rock (for residents commuting to neighbouring municipalities for work, school, etc) and within White Rock (for residents and visitors wanting access between residential neighbourhoods, the waterfront and downtown). In the latter case, the City will focus on transit services that are appropriate to White Rock, such as community shuttles or a local trolley service that transport fewer numbers of people at more frequent intervals.

Action-5: Increase opportunities for residents to use alternatives modes of transportation

Public transit will never be able to accommodate everyone's needs and as such, the City should increasingly look to provide residents with opportunities for alternative transportation (e.g., walking, cycling, skateboarding, scooters, low speed electric vehicles, hybrids, car and van-pooling, car sharing, etc). In this way, alternatives to the personal vehicle become more accessible and convenient. The City will consider the following activities in its approach to alternative transportation:

- Continue to build on the success of the Green Zone by improving and expanding recreational trails, eventually creating more linkages so that trails can be used not only for recreational purposes, but also for getting from point A to point B.
- Install signage to identify the alternative transportation network and promote alternative options more extensively to residents and visitors. Consider developing an 'alternative transportation map' to further promote this initiative (and help users to avoid the steep hills throughout the City!)
- Promote the inclusion of alternative transportation infrastructure in all new developments. This can be done through the Sustainability Checklist (see Action – 1), and by including more specific and stronger wording in Development Permit Area guidelines, which to some extent already address the need for this type of infrastructure.
- Explore opportunities to promote other forms of alternative transportation including:
    - Allowing low speed electric vehicles on City streets;
    - Supporting car-pooling and van-pooling opportunities for residents through a ride share website or similar online forum, and;
    - Establishing car co-op spaces or outlets within the City.

Many of these activities are already considered priorities for White Rock City Council and as such, may have been allocated funding in the annual budget. As the City progresses through these activities it may find that additional funding is required to support alternative transportation. In this case, the City may wish to explore new powers created through Bill 27 that allow local governments to create an alternative transportation fund through parking exemptions.

Objective: Reduce emissions associated with vehicle traffic in White Rock.

Action-6: Deliver outreach to encourage idling reduction

Vehicle idling not only increases GHG emissions, but also contributes fine particulate matter to the atmosphere. The latter affects ground level ozone (a contributor to smog), impacting local air quality and public health[10].

A recent study of Canadian driving habits and behaviours[11] identified a number of common misconceptions about idling, some of which include:

- Idling is good for your vehicle because it warms up the engine and keeps it warm;
- With the advanced emissions technology used in today's vehicles, carbon dioxide (CO_2) emissions from an idling vehicle are greatly reduced;
- Restarting my car many times, rather than letting it idle, is hard on the starter and other parts;
- I should turn my vehicle off when I'm caught in stop-and-go traffic or at a long stoplight.

As evidenced by these common misconceptions, a logical starting point to address the idling issue is to increase public awareness through education and outreach.

The City of White Rock will develop and install idling reduction signage at all municipal facilities and properties. The City may also wish to consider partnerships to further promote idling reduction. The local health authority and school district would be logical partners, as would local businesses, including drive through restaurants.

The federal government provides information resources to support communities in idling reduction initiatives, including articles, brochures, checklists and even a guide book to help communities create effective no-idling campaigns[12].

[10] According to the Asthma Society of Canada, approximately 3 million Canadians currently suffer from asthma and urbanization appears to be correlated with an increase in asthma cases over time (Asthma Facts and Statistics, April 2005).
[11] Natural Resources Canada: http://oee.nrcan.gc.ca/communities-government/transportation/municipal-communities/articles/idling-quiz.cfm?attr=28
[12] Anti-idling information resources at http://oee.nrcan.gc.ca/communities-government/transportation.cfm?attr=28

ALTERNATIVE ENERGY SUPPLY

Alternative technologies exist for providing electricity, space and water heating requirements to buildings. Examples include: solar photovoltaic (PV) panels, ground source heat pumps, district energy systems, and Integrated Resource Recovery (an approach that seeks to capture energy from waste streams). Many of these technologies are not yet widely deployed (though many are fully commercialized). The major barrier is that there exists a real or perceived financial cost associated with incorporating these technologies which may not be recovered by the developer in the sale of the units. Many of the detached dwelling redevelopments are by owners, and so these 'developers' – being the future homeowners are a defined group to target with energy conservation initiatives.

There are actions that local governments can take to encourage and support the development of alternative energy sources, such as conducting feasibility studies to assess the potential of various alternative energy systems to be implemented locally; developing economic development strategies to encourage alternative energy providers to offer services locally; ensuring that staff (e.g., building inspectors) receive training in order to increase local government capacity to address alternative energy issues when they do arise, and; researching and packaging information for residents, business owners, developers, etc, on programs and incentives that support implementation of site-scale alternative energy systems.

Potential Indicators:

- Number of dwellings on renewable heating supply
- Number of solar installations

Objective: Evaluate and encourage implementation of alternative energy technologies.

Action-7: Conduct a pre-feasibility study of alternative energy opportunities in the community

In order to encourage implementation of alternative energy technologies, the City needs to know what, if any, opportunities exist in White Rock. To determine this, a feasibility study or scoping level analysis should be completed to highlight the most viable alternative energy options (including district heating) to be pursued, first through detailed study and then implementation.

The City will secure funding to conduct a pre-feasibility study of district heating and alternative energy opportunities in White Rock. The City can look to a number of agencies to secure funding in the short term to support this initiative[13].

[13] The FCM Green Municipal Fund and BC Hydro both support local governments in completing energy studies. The Province of BC has supported this work in the past through the Community Action on Energy and Emissions (CAEE) program.

Action-8: Promote installation of solar hot water systems

SolarBC's goal is to encourage people to be less reliant on fossil fuels, and to tap into the free energy provided by the sun. The organization provides information and incentives to support the installation of solar hot water systems in homes, communities, government buildings, First Nations communities, social housing, and schools. Their goal is to get solar technology installed on 100,000 roofs across BC by 2020.

White Rock has an annual photovoltaic (PV) potential of 1055 kWh/kW[14] and gets approximately 2000 hours of sunshine annually[15]. This is more than enough to support solar energy systems, as the supply of solar energy comes from the light generated by the sun, rather than from direct sunlight. According to SolarBC, even cloudy days can provide enough energy for up to 60 percent of domestic hot water needs.

The City of White Rock will promote the installation of solar hot water systems through:

- The provision of pre-existing information (brochures, etc) from SolarBC;
- The Sustainability Checklist (see Action – 1);
- Evaluation of a solar roofs bylaw that would define permitted uses for solar energy systems[16], and;
- Investigating the possibility of participation in SolarBC's Solar Communities program[17].

Action-9: Ensure that City building inspectors are trained and equipped to respond to alternative energy technologies

Advancing new and alternative technologies is a challenge that requires a diversity of strategies and approaches to ensure success. Outreach and education will help to raise consumer awareness of the options and their benefits, but once consumers are ready to implement, they will be looking for expertise to better understand and navigate the complexities of implementation.

The City can assist in this by ensuring that building inspectors are trained in the implementation of alternative technologies. Inspectors should be able to guide residents through the set of codes and regulations that need to be followed in order to add an alternative energy system to their home or business. Inspectors should also be able to communicate inspection requirements to residents and provide guidance on the documentation required to access rebates from utilities, funding agencies, or warranty programs.

---

[14] This is an estimate of the electricity that can be generated (in kWh/kW) by grid-connected photovoltaic arrays without batteries. Natural Resources Canada, Photovoltaic Potential and Solar Resource Maps of Canada, 2009. https://glfc.cfsnet.nfis.org/mapserver/pv/index.php?lang=e

[15] Atlas of Canada Sunshine Maps, 2003. http://atlas.nrcan.gc.ca/site/english/maps/archives/3rdedition/environment/climate/020

[16] This could be modeled on the solar energy systems bylaw created by the Corporation of the City of Delta. (http://www.deltaviews.com/contentengine/launch.asp?ID=20300)

[17] SolarBC's Solar Communities Program provides local governments with up to $20,000, plus assistance for marketing, training and solar policy development.

BRIDGING CLIMATE CHANGE AND SUSTAINABILITY

There are a number of actions that we can take every day as individuals to reduce our consumption of energy. Some of these actions, if done collectively, will go a long way to reducing GHG emissions across the community. There are other actions that, while having less of an impact on energy and GHG reductions in the community, help to address local and global sustainability. These types of actions are beneficial for a number of reasons beyond just doing our part to address climate change. They contribute to broader objectives aimed at sustaining our natural environment, and social well-being, while supporting local economic development.

Solid waste disposal forms a small portion of GHG emissions within the City of White Rock; however our consumption patterns drive global supply chains that introduce more material into waste streams every year. Simple measures – such as being mindful of our purchasing habits, choosing to buy less and reuse products wherever possible, and recycling and composting what we can – contribute to community sustainability and have an impact on global energy consumption. Activities to conserve water resources, produce and distribute food more locally, and engage individuals in dialogue around community sustainability, will strengthen our community's ability to prosper well into the future. The CCAP provides the City of White Rock with a forum to pursue broader sustainability initiatives within the context of climate action.

Potential Indicators:

- GHG emissions from waste (total and per capita)
- Residential water consumption (total and per capita)
- Area (hectares) of public land in community gardens
- Number of residents engaged in CCAP outreach efforts

Objective: Pursue broader sustainability objectives within the context of climate action.

Action-10: Promote activities to divert waste from landfills

The highly successful public awareness campaigns around the implementation of blue box recycling programs made us all aware of the waste we produce every day. Many communities have now gone beyond blue box recycling programs to include black boxes (cardboard and paper wastes), green boxes (organic waste), and yard waste collection, as well as encouraging residents to take advantage of various household appliance and electronics take back programs. While these programs don't get at the root of the problem – which is a combination of our consumptive habits and planned obsolescence[18] – they do represent a positive step in the right direction and just as important, are within the local government's sphere of influence to affect.

[18] In 1954, industrial designer Brook Stevens coined the term "planned obsolescence" meaning, "to own something a little newer, a little better, and a little sooner than necessary." The concept today is somewhat less benign and is defined as "the process of a

Anticipating a need for increased diversion from landfills, the City of White Rock will look to expand opportunities for residential waste diversion through increased recycling and the introduction of a curbside organics collection program. These programs should be accompanied by educational information to encourage residents to:

- Follow the 3Rs in their assigned order – (1) reduce, (2) reuse, (3) recycle;
- Take advantage of opportunities to compost organics for use in their home gardens;
- Make use of product stewardship and take back programs available at local retail outlets.

As part of these waste diversion efforts, the City should look to examples from other local governments and consider implementing a "plastic bag ban" at local grocery and retail outlets.

Action-11: Provide space for community gardens to increase opportunities for local food supply

Most people are now aware of the fact that the typical North American meal travels 1500 kilometres from farm-to-plate and that the entire food system (production, processing, distribution, etc) consumes vast amounts of energy. Locally raised and produced food has been proposed as the better alternative and has even been called "the new organic" — better tasting, better for the environment, better for local economies, and better for your health[19]. So, while local food results in reduced energy consumption and GHG emissions, it also has social and economic benefits for local communities.

The City will encourage the production and consumption of local food by allocating public space for community gardens. Underutilized space such as road ends and hillsides provide a starting point for the City to test receptivity to community gardens.

Action-12: Work with Epcor to encourage water use efficiency

Our consumption of water impacts GHG emissions[20] as energy is consumed in the operation of our water systems (e.g., for pumping, treatment, distribution, etc). Unlike many other Metro Vancouver municipalities, White Rock's water is supplied from an aquifer and is treated and distributed locally by Epcor (formally White Rock Utilities Ltd.). This means that local efforts to conserve water have a direct impact on local energy use and GHG emissions.

---

product becoming obsolete and/or non-functional after a certain period or amount of use in a way that is planned or designed by the manufacturer."

[19] 100 Mile Diet website: http://100milediet.org/

[20] Canada ranks 28 among the 29 nations in terms of per capita water consumption. The average Canadian uses 1,600 cubic metres of water every year. This is more than twice as much as the average person from France, three times as much as the average German, almost four times as much as the average Swede and more than eight times as much as the average Dane. Our per capita water consumption is 65% above the OECD average. Source: Canada versus the OECD: An Environmental Comparison. 2001. http://www.environmentalindicators.com/htdocs/indicators/6wate.htm

There are a number of ways that residents can conserve water and use if more efficiently including, installing low flow fixtures, collecting rainwater for irrigation, landscaping with native plants, etc. The City can foster these desired behaviours by:

- Including specific wording in the Sustainability Checklist (see Action – 1) to encourage:
    - The installation of low flow fixtures and toilets in all retrofits, redevelopments and new construction;
    - Permeable surfaces that minimize surface water run-off, encourage natural water filtration and recharge groundwater supply.
    - Preserving and maintaining trees to minimize surface water run-off, encourage natural water filtration and recharge groundwater supply (among other benefits, including tree shading to minimize energy demand for space cooling).
- Revising Development Permit Area (DPA) guidelines to include stronger wording around the need for and benefit of landscaping with native plants.

The City is currently in the process of developing an Integrated Stormwater Management Plan (ISMP). Once complete, the ISMP may further inform the development of the Sustainability Checklist and revisions to the Development Permit Area guidelines.

Action-13: Develop an education and outreach strategy around the Community Climate Action Plan to build awareness and support for ongoing plan implementation

To realize tangible reductions in energy consumption and GHG emissions and sustain them over the long-term, the City must take a market transformation approach to community climate action. In the context of energy efficiency, market transformation is defined as:

"…the strategic process of intervening in a market to create lasting change in market behavior by removing identified barriers or exploiting opportunities to accelerate the adoption of all cost-effective energy efficiency as a matter of standard practice."[21]

Central to the concept of market transformation is behaviour change. In order to succeed, our individual decisions and actions, from both a supply and demand side, must change. The process of market transformation can be undertaken using a variety of voluntary and involuntary measures, but in the early stages of the process the focus is on helping individuals to overcome barriers. In many cases these barriers are knowledge-based and may be overcome through outreach and education efforts.

[21] Northwest Energy Efficiency Alliance, Definition of Market Transformation: www.nwalliance.org

The City will develop an education and outreach strategy to raise awareness around energy efficiency and climate change in order to support ongoing CCAP implementation. Key elements of the strategy include:

- Compilation and provision of existing information resources to residents (see Actions 3 and 6);
- Identification of local climate champions and opportunities for CCAP engagement;
- Development of elementary school curriculum.

To support efforts to disseminate information and increase public awareness, the City should identify a number of "climate champions" – individual (volunteers) that can deliver information and presentations in an engaging manner – in order to build enthusiasm and momentum for community climate action. These champions could be drawn from City Council, staff, non-profit and volunteer organizations, local businesses, health authorities, school districts, utilities, etc.

Finally, the City should work with the local school district to encourage the development of elementary school curriculum. Drawing on existing educational resources around sustainability and climate change, a short module could be developed to increase awareness of the CCAP. Resources that exists to support this activity include:

- *Walking the Talk* (www.walkingthetalk.bc.ca) – the *BC Working Group and Network on Sustainability Education*, which includes materials that have been posted by teachers, and;
- *Resources for Rethinking* (http://r4r.ca/en) – an initiative of *Learning for a Sustainable Future* that includes a searchable database of teaching resources that have been vetted through a peer review process.

Carbon Neutral

Becoming carbon neutral involves tracking and reporting GHG emissions (inventory); pursuing actions to reduce GHG emissions (plan), and; purchasing carbon offset credits to net remaining emissions to zero.

Action-14: Demonstrate leadership in climate action by developing and implementing a corporate climate action plan

The City is already working to address energy and GHG emissions in its own operations. An energy and emissions inventory for corporate (municipal) operations has been compiled to serve as a baseline. This represents the first step in the City's commitment to the BC Climate Action Charter. As a signatory to the Charter, the City has committed to:

- Being carbon neutral in respect of their operations by 2012,
- Measuring and reporting on their community's GHG emissions profile; and
- Creating complete, compact, more energy efficient rural and urban communities (e.g. foster a built environment that supports a reduction in car dependency and energy use, establish policies and processes that support fast tracking of green development projects, adopt zoning practices that encourage land use patterns that increase density and reduce sprawl).

With the compilation of a baseline inventory, the City has completed the first step on the path towards carbon neutrality. The next step will be to develop and implement a corporate action plan to reduce energy and emissions from City operations. Finally, the City will need to purchase offset credits in order to net its remaining emissions to zero. Over time, the proportion of emissions reduced through the implementation of reduction measures will go up, while the portion of emissions reduced through the purchase of offsets will go down.

Beyond the activities undertaken to reduce emissions from corporate operations, the City will lead the implementation of the CCAP and look for opportunities to:

- Demonstrate energy and emissions reductions through on-the-ground projects in the community;
- Engage residents in dialogue and action around energy and climate change
- Share lessons learned along the way to assist others in reducing energy and emissions.

6.0 Potential Reductions and Targets

Communities are required to set GHG emissions reduction targets for their Official Community Plan (OCP) documents. This section presents a scoping level analysis of the types of reduction that might be achieved through the implementation of this plan. The purpose is to highlight a reasonable GHG emissions reduction target for White Rock.

Many of the actions described in the plan can be pursued with different levels of intensity. For example, building highly energy efficient buildings (i.e. beyond building code requirements) could be encouraged through outreach and awareness activities; stronger measures would be non-financial incentives (e.g., 'fast-tracking' permit applications) and financial incentives (e.g., permit rebates). Finally, in some situations stronger measures such as regulatory tools (e.g. rezoning policies, or development permit area guidelines) might be suitable.[22]

At present virtually all communities in BC are in the initial stages of exploring which measures will be most effective to achieve GHG emissions reductions. Most are in the first year or two of defining their policy measures and programs and have not yet had enough time to determine the effectiveness of these policy measures.

Predicting which measures will achieve the greatest result in 10 years is difficult – forecasting 40 years into the future is near impossible. Many factors will come into play which cannot be predicted – energy costs, lifestyles, population pressures, and so on. It is impossible to predict which particular municipal activity (an outreach campaign, an incentive program, etc.) will achieve the desired reductions. However, we can create a scenario to evaluate the impact of a set of changes that we want these activities to achieve (e.g. more energy efficient homes, reduced emissions from transportation, etc), and quantify the impacts of that scenario.

[22] It is acknowledged that some measures might not be within the municipality's direct authority, and so some of the stronger tools may not be applicable.

6.1 REDUCTION SCENARIO

A hypothetical scenario is developed based on some assumptions about the results that could be achieved. The assumed outcomes of taking action are described in Table 7. These are not intended as a definitive measure of the results that the plan will achieve, but do highlight the 'realm of the reasonable' – particularly over the long term. These reasonable outcomes could be achieved in the time periods from 2011 to 2020, 2030, and 2050.

Some important considerations include:

- A reduction in emissions does not imply a reduction in quality of life, or of opportunities, or a curtailment of economic development. Rather, it usually means a more efficient use of energy resources. Initiating action to develop more energy efficient communities will result in long-term economic benefits to the community.

- The potential reductions would not be achieved solely by the municipality, but would be facilitated by the municipality – in partnership with many others in the community.

- The actions include a consideration that there will be new activities and technologies required after 2020 in order to continue making reductions.

- The scenario is built to highlight that each action will be achieved incrementally between the start and end times defined. No instantaneous change is predicted. Changes will occur slowly and gradually.

- Outreach and education will be key activities throughout the transition to a low carbon future, but especially in the early stages of the process. These types of activities are often considered the starting point of a market transformation strategy. As individuals become more aware and receptive to taking action on climate change, stronger policy tools will need to be implemented to further encourage behavioural change to reduce energy consumption and GHG emissions.

- The cost of achieving these outcomes is not currently quantifiable. All communities are grappling with defining the level of effort and types of policies that are required to make these behavior changes occur. A number of other factors will play a role, including the cost of energy, the contribution of partners, etc. In the early years of implementation, the primary cost will be staff time to develop outreach and education materials and to work towards developing policy measures, and bylaws. Direct costs (e.g. $ for incentives) usually follow in later years as programs are developed.

Table 7: Scenario Assumptions

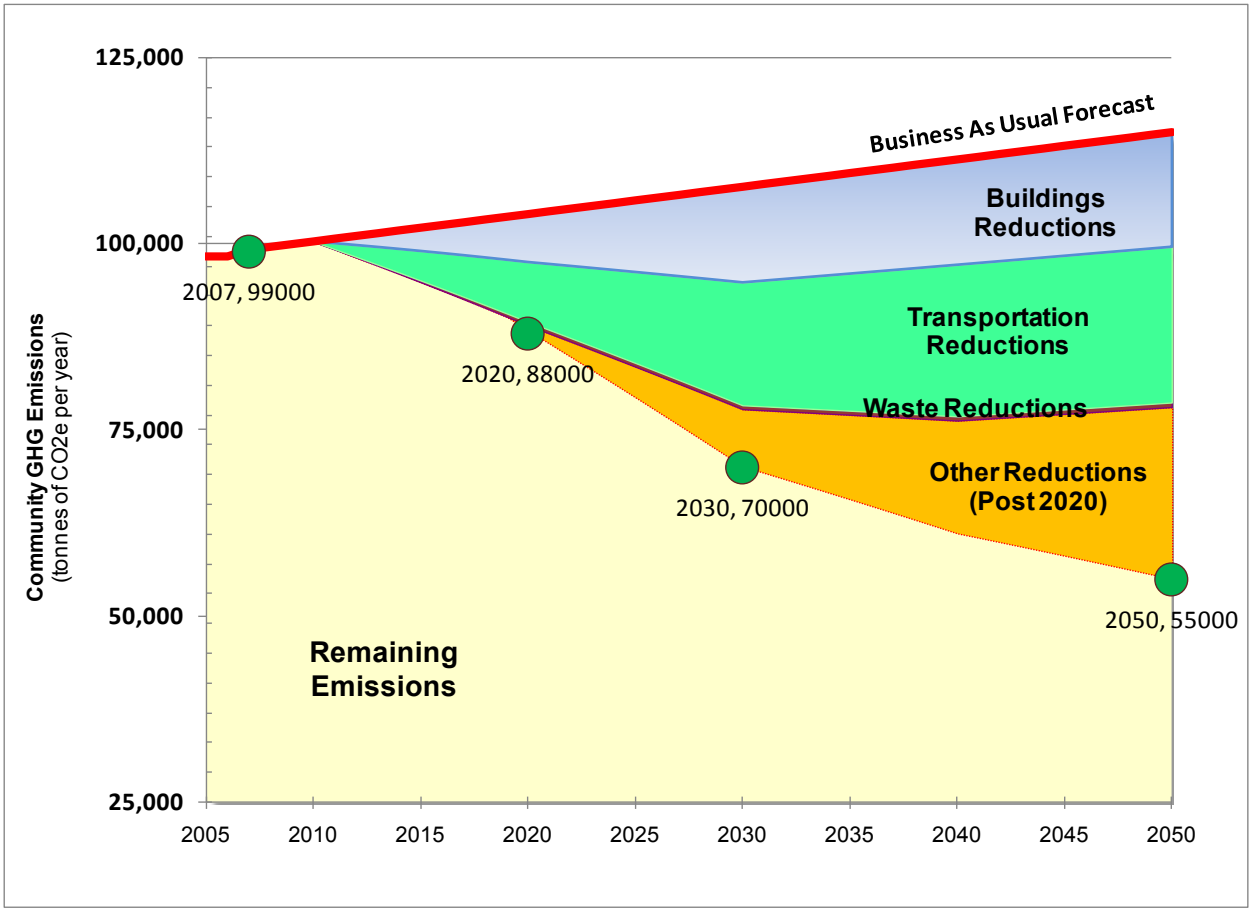
Themes	Assumed Impacts for the Scenarios
Land Use	• Green development occurs (e.g., Smart Planning, mixed use and compact form, etc.). This activity saves 20% of overall emissions for new development. About 10% of the new development achieves these features between 2011 and 2050.
Existing Buildings	• Between 2011 and 2050, 80% of the existing homes will be retrofitted to improve energy efficiency (about 2% per year over 40 years). The average retrofit will reduce emissions (primarily from heating) by 30% per home. • Between 2011 and 2030, 75% of the existing commercial buildings will be retrofitted to improve energy efficiency. The average retrofit will reduce emissions (primarily from heating) by 40%.
New Residential Buildings	• By the year 2020, 25% of all homes built will meet or exceed an EnerGuide rating of 85. Each of these will save 35% compared to homes built today.
New Commercial Buildings	• By the year 2020, 50% of all commercial buildings (including multi-family residential) will meet the energy standard of a LEED® Gold building – each creating 40% less emissions than a building constructed today.
District Heating Node	• By the year 2020, a district heating node is established. About 1% of the buildings in the community are connected, and each one creates 60% less emissions.
Transportation	• Between 2011 and 2030, programs to reduce transportation demand result in a 20% reduction of emissions from passenger vehicles. • Between 2011 and 2040, provision of transportation alternatives reduce passenger vehicle emissions a further 20%.
Waste	• Between 2011 and 2030, the diversion of organic material from the waste stream reduces landfill gas emissions. About half the residents participate in this program.
Other	• Future actions – as yet undefined are implemented between 2020 and 2050 resulting in a 20% reduction of remaining emissions by 2050.

The impact of these combined measures is shown in Figure 5. Without any action, emissions are expected to continue to increase (the business-as-usual forecast)[23].

With these measures, emissions would decrease from the 2007 level of 99,000 tonnes to about 88,000 tonnes per year by 2020 (a 13% reduction) and to 55,000 tonnes per year by 2050 (a 45% reduction.

[23] Note that this business-as-usual scenario already includes some of the expected provincial actions on building energy efficiency.

Figure 5: Emissions Reduction Scenario



6.2 TARGET RECOMMENDATIONS

Generally, most communities start out on a 'soft sell' path of education and outreach. In the future, there will need to be more programs, incentives, and actions to make further reductions. As such the plan implementation will be a continually evolving process. The scenarios

To reflect this approach to climate action, the following community-wide GHG reduction targets are proposed for the CCAP:

- **10 % below 2007 levels by 2020**
- **50 % below 2007 levels by 2050**

6.3 COMPARING TARGETS ACROSS COMMUNITIES

To put these targets into context, it may be helpful to review community-wide targets in other jurisdictions (Table 9). Generally speaking, targets vary widely by jurisdiction; however, most targets are relatively enthusiastic or ambitious.

Important points to note when comparing targets across jurisdictions include:

- While some targets are more aggressive than others, they do not necessarily speak to what is realistically achievable within the jurisdiction of municipal governments. In some cases, these targets may incorporate assumptions as to what other levels of government may do to address climate change.
- Some jurisdictions lack plans, policies and actions to explain how the targets will be met.
- The policy and legislative context varies by jurisdiction. For example:
    - In BC, the provincial government set province-wide targets that some local governments have chosen to adopt.
    - In North America, many local governments belong to the Partners for Climate Protection or Cities for Climate Protection program, which recommends a target of 6% below 1990 by 2012 (in line with the Kyoto Protocol) that many program members have adopted.
    - In Sweden, the national government declared that the country would be fossil fuel free by 2050 and some local governments have adopted this target.
- Every community is unique. Geography, climate, land use patterns, local economy, infrastructure, housing types, household income – among many other factors – impact a community's energy consumption and GHG emissions, as well as its ability to reduce them.

Table 8: Community Targets in other Jurisdictions

Jurisdiction	Community GHG Reduction Target
BRITISH COLUMBIA	
Central Saanich	33% below 2007 by 2020 (endorsing provincial target)
Dawson Creek	14% by 2012; 33% by 2020; 85% by 2050 (below 2006 baseline)
Delta	33% below 2007 by 2020 (endorsing provincial target)
East Kootenay (RD)	17% below 2007 by 2020 (endorsed by Regional Board)
Elkford	3 % below 2007 levels by 2020 (draft OCP text – not approved)
Metro Vancouver	33% below 2007 by 2020 (endorsing provincial target)
North Vancouver	In development (initially adopted target of 6% below 1990 by 2012)
Prince George	2% below 2002 by 2012 (to be updated with Integrated Community Sustainability Plan)
Vancouver	33% below 2007 by 2020 (endorsing provincial target)
CANADA (outside of BC)	
Fredericton, NB	6% below 2000 by 2010
Halifax, NS	20% below 2002 by 2012
Laval, QC	6% below 1990 by 2015
Spruce Grove, AB	6% below 1990 by 2012
Thunder Bay, ON	10% below 2005 by 2017
Toronto, ON	80% below 1990 by 2050
Yellowknife, NWT	6% below 2004 by 2014
THE WORLD	
Adelaide, Australia	10% below 1994 by 2010
Amsterdam, Netherlands	40% below 1990 by 2025
Beijing, China	4% of total energy consumption from renewable sources by 2010
Bellingham, WA (USA)	70% below 1990 by 2020
Berlin, Germany	40% below 1990 by 2020
Boston, MA (USA)	7% below 1990 by 2012
Copenhagen, Denmark	20% below 2005 by 2015
Dallas, TX (USA)	30% below 2005 by 2020
Helsinki, Finland	20% below 1990 by 2020
London, United Kingdom	60% below 1990 by 2025
Malmo, Sweden	25% below 1990 by 2012
Mexico City, Mexico	12% below 2008 by 2012
Milan, Italy	20% below 2005 by 2020
Paris, France	30% below 2004 by 2020
Portland, OR (USA)	80% below 1990 by 2050
Stockholm, Sweden	100% by 2050 (Fossil fuel free by 2050)
Sydney, Australia	70% below 1990 by 2050
Tokyo, Japan	10% below 1990 by 2012
Vaxjo, Sweden	100% by 2050 (Fossil fuel free by 2050)

7.0 Implementation

The City of White Rock has developed a plan to reduce energy and GHG emissions throughout the community. The Community Climate Action Plan (CCAP) contains 5 theme areas and 19 actions to help White Rock get started on its path toward a sustainable, low carbon future. To succeed in this, it is recommended that climate change be developed as a program area for the City, with a management sponsor and appropriate resources. A program model template is provided below.

7.1 PROGRAM DESCRIPTION

Name

City of White Rock Community Climate Action Plan

Objectives

- To set GHG reduction targets and to develop measures that can be incorporated into its Official Community Plan (OCP) in order to meet the requirements of Bill 27 – 2008.
- To address Objective #9 of the City's Environmental Strategic Plan to, *"Promote Energy Efficiency and GHG Reduction in the Community";*
- To raise public awareness and foster collaboration between the City, stakeholders and the public in order to advance plan implementation, and;
- To inform the City's voluntary commitment to the BC Climate Action Charter, which calls for "carbon neutral" local government operations by 2012.

Targets

Proposed community-wide GHG Reduction Targets:

- 10 % below 2007 levels by 2020
- 50 % below 2007 levels by 2050

Program Overview

The plan's major features include:

- A baseline energy and emissions inventory for the community;
- A business-as-usual forecast of emissions to 2030;
- Five major areas for action (themes), with specific objectives and actions in each;
- GHG emissions reduction targets;
- Performance metrics for monitoring progress toward the plan objectives, and;
- Requirements for implementation

Program planning and execution will be coordinated by the City. Partnerships will be established with other levels of government, as well as utilities and private sector sponsors. Components of the plan will be executed by a range of departments, led by City Operations.

Program Coordinator

A staff member will be designated as the "Program Coordinator" for climate action. This person is responsible for working with staff from each department to initiate activities and ensure that the annual work plan is progressing. A sample breakdown of responsibilities for the Program Coordinator and other staff are listed in Table 10.

Table 9: Examples of Typical Program Coordinator and Staff Responsibilities in Plan Implementation

Typical Responsibilities of Program Coordinator	Typical Responsibilities of City Staff
• Establish annual work plan (in consultation with City staff) • Develop internal awareness programs • Publicize activities to staff through internal communications • Define data collection requirements and frequency; collect, store and report on data • Make contact with other partners to promote the plan and find areas for municipal involvement • Apply for funding through various provincial and federal programs to meet the plan objectives • Promote energy efficiency and climate action in the community	• Budget for and implement identified actions • Monitor and report on activities • Develop transportation, waste management, water conservation and other consistent plans

Management Sponsor

One staff member should be designated as the 'Management Sponsor' and it is proposed to be the City's Director of Municipal Operations. It is this individual's responsibility to ensure that the CCAP is represented at the management and Council levels.

7.2 MONITORING AND REPORTING

A monitoring program will enable the City to assess progress towards the defined targets. Indicators help to determine if implemented actions are having the desired effect or whether changes are needed to ensure continued progress towards the objectives.

Indicators have been recommended for each of the theme areas of the CCAP. These indicators will help to measure progress towards the objectives outlined in each theme area. Beyond this, the City should track and report on the following indicators, intended to assess performance against the overall desired outcome, which is reduced energy consumption and GHG emissions:

- Total corporate energy consumption (GJ/year)
- Total corporate GHG emissions (tonnes CO_2e/year)
- Total community energy consumption (GJ/year)
- Total community GHG emissions (tonnes CO_2e/year)

Annual Reporting

It is proposed that brief annual progress reports be prepared by the Program Coordinator to monitor progress on implementation. The annual report will describe activities implemented in the previous year and identify areas of change, providing an opportunity to update the CCAP by adding new actions or modifying existing actions.

Five Year Reporting

It is proposed that the CCAP be updated at least every three to five years in order to ensure the relevancy of actions in meeting CCAP objectives. This five-year update will involve:

- A detailed review of the actions and their success;
- An updated energy and GHG emissions inventory;
- Recommendation for plan improvements, and;
- Communications around CCAP progress with stakeholders and the general public.

7.3 TIMELINE

The timeline in Table 11 outlines a proposed schedule for implementation. The Program Coordinator is responsible for the reporting and data compilation for the plan; however, the plan itself has responsibilities across other departments. The long-term, strategic intent of the plan is to increase energy efficiency and decrease GHG emissions in all community activities. To this end, all City departments and management would be expected to commit to including energy efficiency considerations in their daily activities.

Table 10: CCAP Implementation Timeline and Responsibilities

Quarter	Major Activities	Tasks & Responsibility		
		Program Coordinator	Staff	Management / Council
2009	• Finalize and approve plan	-----	• Review and provide feedback on CCAP	• Approve and endorse CCAP
2010	• Define Program Coordinator and Management Sponsor roles • Develop an outreach strategy • Launch CCAP • Define and begin implementing initial actions	• Seek funding opportunities and partners for initiatives • Develop 2010 CCAP work plan in consultation with staff • Implement actions • Establish monitoring system	• Work with Program Coordinator to evaluate actions for 2009 • Develop 2009 work plan • Implement actions	• Budget review and approval for annual work plan
2011 and onwards	• Annual CCAP activities • Report to Council, stakeholders and public	• Compile monitoring data • Compose annual report • Annual activities	• Work with Program Coordinator to evaluate actions and develop annual work plans • Implement actions	• Receive annual progress reports • Budget review and approval for annual work plan

7.4 RESOURCE REQUIREMENTS

Personnel

Municipal staff time will be required to implement and administer the CCAP. This includes:

- The Program Coordinator role – expected to be a half Person Year (existing staff position) for the first year, but should be re-evaluated as implementation progresses.
- Other staff time (e.g. Management, Operations, Development Services, etc) will need to be accommodated within existing work plans. This may be equivalent to a quarter of a Person Year for each of the City's departments.

Program Disbursements

Disbursement costs will be required to implement some components of the CCAP. Currently, this includes costs for:

- Developing outreach and education materials (webpage, brochures, etc.)
- Incremental costs for executing action items within existing systems

As the CCAP evolves, disbursement costs may also need to account for:

- Incentives programs (direct funding to recipient or for purchase and distribution)
- Foregone revenue for charge reduction based incentives

7.5 FINANCING AND ASSISTANCE

External funding will greatly assist in maintaining momentum for CCAP implementation. Table 12 provides a selection of funding opportunities currently available that may be used for implementing climate change and energy-related actions.

Table 11: Selected Funding Opportunities for CCAP Implementation

Program	Key Features
Local*Motion*	Cost-sharing (50/50) between provincial government and local governments for capital projects that make communities greener, healthier and more active and accessible places in which to live.
LiveSmart BC	Rebates and incentives to help British Columbians reduce their carbon footprint at home, on the road, and at work.
BC Hydro: Energy Manager Funding	BC Hydro has provided partial funding to some municipalities for an energy Manager position. Note: this funding applies more to the City's initiative to reduce emissions from corporate operations. In some cases, municipalities may partner with School Districts or Health Authorities to share a BC Hydro sponsored Energy Manager.
BC Hydro Power Smart	Rebates and incentives to encourage energy efficiency in new construction and the installation of energy efficient products and appliances in existing facilities.
BC Housing – Housing Endowment Fund	$10 million annually to support housing initiatives that are consistent with the provincial housing strategy and address the needs of households with low to moderate incomes. Projects must have strong partnership contributions from local government, community organizations, private and non-profit sectors, and other government agencies.
FCM Green Municipal Fund	Grants available to support sustainability and climate action planning efforts. Low-interest loans available to support capital projects that reduce energy and GHG emissions. Competitive process with RFPs launched annually to fund projects related to brownfield redevelopment, energy, planning, transportation, waste and water.
Climate Action Revenue Incentive Program (CARIP) grant	The City may elect to use its annual CARIP grant to support both community and corporate (operational) climate action initiatives.

APPENDIX A

Appendix A

Validation of the 2007 Community Energy and Emissions Inventory and Forecast Methodology and Assumptions

Residential

Residential sector GHG emissions from the CEEI were compared with estimates using Statistics Canada 2006 Census of Canada data and energy use intensities from BC Hydro 2007 Conservation Potential Review (CPR) studies.

The total number of dwellings in the City of White Rock were obtained from the 2006 Census of Canada and compared to the number of utility connections in the CEEI report. The most direct correlation can be made between the Census dwelling counts and the number of electricity connections as most housing units are individually metered. The discrepancy where there are more electricity connections reported by the CEEI than the number of dwelling units may be attributed to instances where individual households have more than one electricity connection. The number of natural gas connections reported by the CEEI is lower than the Census dwelling counts, possibly reflecting the fact that Terasen classifies multi-unit housing as commercial connections and a limited amount of housing in the City of White Rock may be heated with alternative fuel sources such as electricity, heating oil, wood or propane.

Data Source	Number of Units
Statistics Canada 2006 Census Dwellings Counts	9,515
CEEI Electricity Connections	9,447
CEEI Natural Gas Connections	4,127

Residential energy consumption was estimated based on Census dwelling counts broken out by structural type and corresponding average energy use intensities for those structural types in the Lower Mainland from the BC Hydro CPR.

	kWh/unit/yr	# Units
Total		9,515
Single-family/Duplex Dwelling, Pre 1976	11,410	2,415
Single-family/Duplex Dwelling, Post 1976	11,556	1,765
Row, Pre 1976	9,739	30
Row, Post 1976	10,232	85
Low-rise Apartment Units	4,603	4,445
High-rise Apartment Units	4,424	755
Mobile	11,518	10

The estimates of electricity consumption were within 10% of the CEEI values; 69,098,930 kWh/year as compared to 76,121,433 kWh/year.

	kWh/yr	CO_2e/yr
CEEI Electricity Consumption	**76,121,433**	**1,675**
Total	**69,098,930**	**1,441**
Single-family/Duplex Dwelling, Pre 1976	25,296,898	511
Single-family/Duplex Dwelling, Post 1976	18,724,448	378
Row, Pre 1976	292,173	6
Row, Post 1976	869,707	19
Low-rise Apartment Units	20,460,049	450
High-rise Apartment Units	3,340,480	73
Mobile	115,176	3

Commercial

Commercial sector energy and emissions reported in the CEEI could not be verified as there was insufficient data with which to develop a methodology to estimate natural gas consumption in the commercial sector.

Industrial

The energy consumptions and GHG emissions reported by the CEEI could not be verified as there was insufficient data with which to develop a methodology to estimate natural gas consumption in the industrial sector.

Summary

The CEEI provides a reasonably accurate reporting of a community's energy use and emissions as the residential consumption values correlate with the estimates calculated. As the CEEI reports are based on actual metered data from the utility providers, they are most likely more accurate than the estimates used to evaluate them.

Forecast

A business-as-usual (BAU) forecast was developed based on the CEEI inventory, as well as population forecasts developed by the planning department (to 2021) and as estimated in the Official Community Plan (to 2031). These forecasts are shown below in Table A-1.

Table A-1: Population Forecasts Used as Input

Year	Population
2007	18,620
2021	21,225
2031	23,505

Predicting future energy use and emissions is done based primarily on the expected population growth with some corrections to account for expected changes in energy efficiency (of buildings and vehicles). Obviously these predictions are estimates but do scope the magnitude of the expected increases. A summary of assumptions used to generate the BAU forecast is shown in Table A-2. Note that the BAU forecast assumes no distinct intervention by the City, but that other activities (e.g., updates to energy efficiency standards in the provincial building code, etc) will continue.

Table A-2: Forecasting Business as Usual Assumptions

Component	Methodology for Estimating GHG Emissions
Residential Emissions	• Scaled proportionately with population growth • Scaled consumption is reduced by 20% (all buildings) to (account for the objective in the BC Climate Action Plan)
Commercial Emissions (including multi-family residential)	• Scaled proportionately with population growth • Scaled consumption is reduced by 9 % to (accounts for the objective in the BC Climate Action Plan)
Industrial Emissions	• Scaled with population
Transportation	• Scaled with population • Scaled values are reduced by 15% to account for improved fuel efficiency.
Waste	• Emissions scaled with population growth

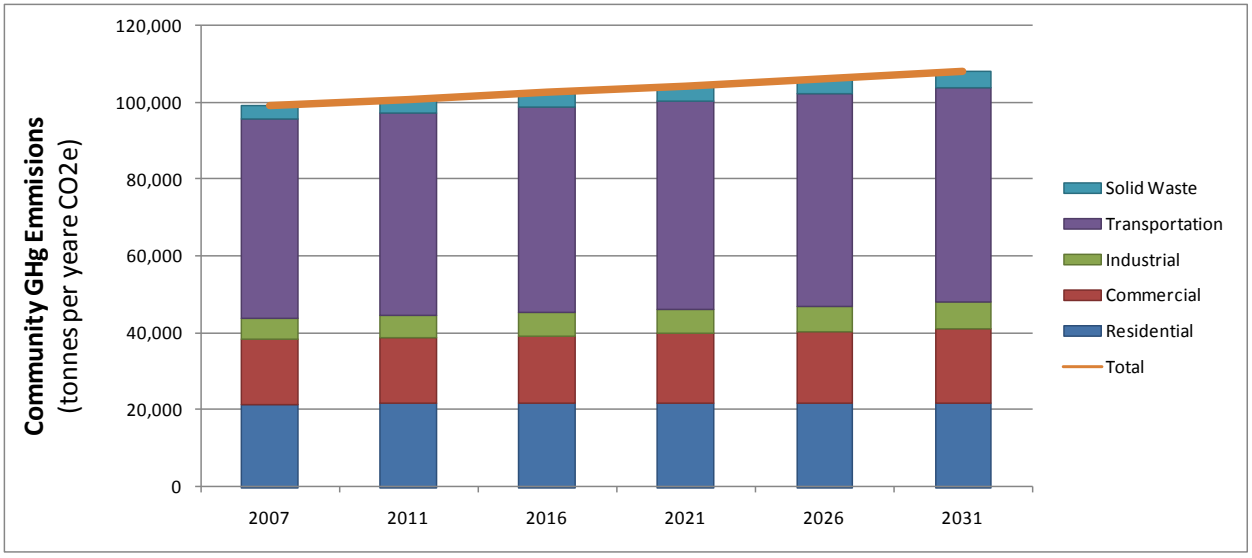


Figure A-1: Business-as-Usual Forecast of GHG Emissions

Tools for implementing the measures

A broad suite of measures could be devised and implemented. Typically, these measures fall into one of four categories: (i) information; (ii) non financial incentives; (iii) financial incentives, and; (iv) regulation. Measures, associated actions and their potential to achieve GHG reductions are outlined in Table A-3.

Table A-3: Effectiveness of Measures in Achieving GHG Reductions

Measures	Examples of Action	Policy Effectiveness (% potential that measures will achieve reductions)
Information	• Education / seminars / workshops • Voluntary checklists • Newsletters / brochures	5%
Non-financial Incentives	• fast tracking applications • density bonusing • Rideshare programs, guaranteed ride home for transportation activities • Parking variances	20%
Financial Incentive	• Incentive $ for retrofits or audits • Building permit fee discounts or rebates • Revitalization tax exemptions	50%
Regulation	• Bylaws (e.g. organics diversion, or district energy requirement such as Lonsdale) • Development permit are guidelines	90%

APPENDIX B

Community Climate Action Plan Survey

The City of White Rock is committed to addressing climate change by reducing energy and greenhouse gas emissions in the community. Confronting this challenge will require all of us to act and make changes in our daily lives. Before we begin this process, we would like to know what you value most about our community that you would like to see preserved?

		Response Count
		16
	answered question	**16**
	skipped question	**0**

Response Text		
1	Compactness and acccessibility Beach and waterfront	Sep 12, 2009 10:53 PM

	Response Text	
2	Trees and vegetation We know that trees store carbon during the lifetime in contrast to humans who release it throughout their lifetime. When we remove trees we should calculate the release of that stored carbon so that their impact both while living and after removal are accounted for in any quantitative calculations. Transportation Encourage walking as a transportation alternative...this means providing for infrastructure that is supportive. Many of the streets west of the Town Centre lack adequate and pedestrian friendly infrastructure and pathways or walkways. Sidewalks contain signage poles, hydro, cable and telephone poles on their surfaces. We must find alternate ways to increase sidewalk widths to accommodate more pedestrians and to make walking more pleasant and inviting especially for seniors. Roads have been given designations by the City. However, primary collectors are now being used as arterial routes due to the fact that roadway surfaces are far wider than they need to be and sidewalks are too narrow for what they need to be. Street calming needs to be taken more seriously by the city and the city must take a more proactive approach. It has been years since the city conducted regular traffic counts on the city's main roadways. Some roadways already have traffic volumes that make them eligible for calming. However, street paving, roundabouts and other TDM measures have been placed in areas that have smaller volumes than other streets impacted by growing vehicle traffic. Unless we make separate elevated pathways for cycling, no suggestions so far make cycling safe enough for those living in White Rock to embrace this alternative to the car. We have little or no secure bike racks in our commercial retail areas. Why? The Semiahmoo Bay WE need to value this gift which makes White Rock what it is, without a clean and healthy beach White Rock would not draw the number of visitors that it does. Storm sewer drainage into the bay untreated is unacceptable and a hold-over of the 19th Century. WE are not paying the true costs for using the bay as our dilution solution. There should be no marina development in the Bay along White Rock shoreline. Parks We have chopped up our largest park, Centennial, to special interests. We have a private tennis club and curling rinks within the park and we are talking about expanding buildings into the park. I have found four trees adjacent to the tennis club that have been "ringed", chainsawed around their circumferences. Was this to bring more light into the tennis court. Unacceptable. Little maintenance is done in this park and it looks it. Trail systems have aged and have severely deteriorated. We need to restore and maintain this park as a natural park. During some sport games, parking is allowed on the green space despite empty parking stalls being available on the pavement. We need more park land. White Rock has the lowest per capita space for parks in the region. We need to make pocket parks throughout the city especially in the transition areas adjacent to the town centre. The Epcor land on Oxford and Everall should be preserved as park land. WE need more comprehensive recycling in white rock which includes more items. Continue to include apartments, condos and strata developments in green refuse programs. WE need to incorporate more green building requirements in our development bylaws. LED lighting should be the new standard for lighting in residential homes.	Sep 20, 2009 12:15 PM

	Response Text	
3	I value the natural beauty of White Rock and would like to see our trees preserved, clean ocean, pesticide free lawns and garden and minumum amount of garbage going to the dumps.	Sep 21, 2009 5:50 AM
4	I value our beautiful seaside and all the flora and fauna that live in, on or near it. I am also disappointed to be losing the small town feel for which I moved to White Rock, 31 years ago. I believe it is the reason most people have come here and yet, we are rapidly watching it disappear.	Sep 21, 2009 3:59 PM
5	Hard to say - densely located good restaurants, theatre, arts activies and offerings, access to farmers' markets and farm stands like Mary's,	Sep 21, 2009 7:25 PM
6	We value the small city ability to walk to the downtown core to access services, groceries, etc. and the boardwalk access to restaurants and other businesses.	Sep 21, 2009 11:00 PM
7	Trees and wildlife, busses and bike lanes to keep the cars off the roads.	Sep 24, 2009 9:03 PM
8	community spirit	Sep 26, 2009 6:35 AM
9	Small town atmosphere and city wide exposure to natural settings especially retention of existing plants and trees. It breaks my heart that the little cherry trees bordering the school were removed. I understand they were diseased but did they have to be removed. So many trees can persist for such a long time even though they are in poor health allowing enjoyment for years still to come. No highrises.	Sep 26, 2009 7:57 PM
10	I value the geographical setting - climate, proximity to the ocean, healthy beach environment, gardens, etc. - these are gifts to all of us, and where appropriate should be protected and enhanced. Clean air and water, a healthy environment are important for all of us. The gardens, both public and private, add a lot - the City crews do a great job on the hanging baskets and pocket gardens throughout the city. Accommodation for pedestrians, and outdoor activities for families and young people is part of our enjoyment of this natural advantage and promote active, healthy living. I value the sense of a safe and caring community as White Rock has moved from a village to a small city. It is a real strength, created by dedicated volunteers (eg. PAH) as well as our professionals (police, medical, etc.). Encouragement and recognition of participation would naturally be included in any community plan. And finally (because my computer is giving me grief!) I value the efforts to create a town centre at Hilltop: encouraging pedestrian traffic, park and benches, Farmers' Market, etc. Parking and traffic will continue to be challenges - how we deal with that along Marine and Johnston, especially, will be important to our success as we develope as a livable community.	Sep 27, 2009 5:57 PM
11	I think all communities should and can benefit from making changes to reduce energy and greenhouse gas emissions. I have lived in White Rock for approx. 16 years and I beleive one of the things I value is the "small community feeling" one receives. I would like to see this preserved. Is there a way to incent the community at large to participate in "green" initiatives apart from what the federal, provincial and private companies offer. Another thought, don't shut down the lights at the pier or along Johnston Street to save energy -- and I am sure the lights are efficient!	Sep 30, 2009 10:48 PM
12	Keep traffic down – it's already excessive on THIRFT west of 152nd. Therefore, we can't encourage too much more pop. Development (high rises). Must have good buses and shuttles, bike paths, including in coming beach goers' buses.	Nov 4, 2009 12:49 AM
13	• Green spaces, big and small • Human sized buildings, i.e. nothing higher than 6 stories = no canyons like Vancouver. • Easy walking to shops and services • Small community buses	Nov 4, 2009 12:57 AM

Response Text		
14	• The waterfront (keep clean) restored, New Ideas of Community and Staff to embrace change. • Pesticide Free by-law a wonderful step toward a healthy environment.	Nov 4, 2009 1:00 AM
15	• Parkland, trees, habitat for animals, bees, butterflys.	Nov 4, 2009 2:06 AM
16	• Air, soil and water quality, health of my children + future generations	Nov 4, 2009 2:07 AM

Community Climate Action Plan Survey

Imagine it is the year 2030 and White Rock is a vibrant and sustainable community, prospering in a low-carbon economy. What key steps did we take to get here?		
		Response Count
		16
	answered question	**16**
	skipped question	**0**

	Response Text	
1	Replace all city vehicles with electric low-emission vehicles Adjusted building codes to require Leed standards in a ALL new constructuion Facilitated energy-saving restoration or refit to existing buildings Re-scheduled and co-ordinated all municpal travelling to minimise travel and ensure co-ordination Encouraged white (=heat-reflecting) roofs	Sep 12, 2009 10:59 PM

	Response Text	
2	We are walking more to our destinations within the city. We are using small scale electric vehicles to transport people around the peninsula. Every major street and primary collector has a public transportation option with regular and frequent service. The system is using electric small scale vans. We have eliminated many grass yards within the city and planted more drought, disease resistant plants in their place. Some people have edible 'lawns' instead of ones they have to cut and water and fertilize and poison. We have taken significant steps in seeing that there are more jobs in the area for people to work at. These jobs are ones that sustain incomes adequate for living here in White Rock. We reduced the work week by one day which eliminated 20% of the commuter trips to other areas during the week. This alone reduce the need to build $40 billion of transportation infrastructure. WE instituted a system region wide called "Proximate Commuting" for those who still have to work in jobs not always available within walking distance of peoples homes. Proximate Commuting is a voluntary system where people with jobs of similar tasks and qualifications can transfer to work closer to their homes. Example: Health care workers and teachers who live in one community but have jobs in others. A teacher lives in Vancouver but teaches in Surrey while a teacher who lives in Surrey teaches in Vancouver. This alone reduced travel trips by 25% in the region without spending a dollar of taxpayers dollars. An increase of tree planting and gardens have led to a creation of a city wide carbon sink which offsets all of the public sector carbon output. Fifty percent of all lawns in White Rock have been transformed into mini forests, gardens and edible plants. The urban farm in White Rock feeds 40% of its population during the growing season. Every yard in White Rock has a food garden. Land adjacent to the City has been preserved and is being used extensively as farmland. These farms feed 80% of the population. Community Gardens replace underutilized tennis courts and other outdoor sporting fields which has lost favour with the vast majority of the population. Seventy-five percent of public parking in parks have been eliminated leaving more space for community vegetable gardens. So called passive recreation, walking running cycling have taken over as the 'sport' of choice with residents. The cost of operating underutilized facilities led to this conversion. More people are living more outdoors eliminating the need to heat and air condition homes to such an extent. Four lane roadways have been reduce to two as people are travelling less in single occupancy vehicles. The additional road space has been converted to separated bike lanes. Every aspect of public planning has incorporated its impact on the environment. Maximum Ecological impacts have been set for every aspect of public life. This came about out of necessity and not by choice. The public is well aware of every impact of public life and therefore there is no need to educate. One needs to qualify prosperity. Rampant consumption and greed led us to the brink. Residents understand the difference between need and want. We finally created the "passive leisure society" which meant more time for personal economy rather than global economy.	Sep 20, 2009 12:46 PM

	Response Text	
3	Sustainable community - use solar and wind power for heating and electricity - land for growing food - outlaw lawns, grow vegetables pesticide free - fruit trees in public parks - everyone required to compost vegetable scraps - city gives free small apartment size composter - water - catch rain water, recycle water, grey water for agriculture use - mandatory low flow toilets - electric cars only allowed in WR - drive thru's banned (restaurants and banks) - idling over 2 minutes outlawed - more bicycle friendly roads and paths - limit the size of single family dwelling	Sep 21, 2009 6:07 AM
4	We finally stopped the demolition of single family homes (which had resulted in more high rises and apartment buildings bringing more and more cars to this small peninsula).	Sep 21, 2009 4:09 PM
5	We spend less of our money on stuff that ultimately ends up in landfills. More of our money goes to public services and community enhancement. We travel with public transit more often and many of us have abandoned the automobile as a mode of transport and entertainment. Our houses are more modest and practical and they are energy neutral. Increased density in our town helps make #2 possible. We work less, earn less, spend less, waste less.	Sep 21, 2009 7:43 PM
6	1. Proactive changes to the city building codes that enable and encourage green building practices. This would include; a) Geothermal installations for entire neighborhoods / city. http://cleanenergy.gc.ca/tech_dict/index_e.asp?ac=96&ac_i=1 b) Enabling / requiring roof top Wind Generation / Solar on all new building permits to take advantage of the city's windy / sunny sea side location. c) Modify the Property Tax form to include qualifying green installations / upgrades for homeowners to achieve the Senior's Tax rate. 2. Create more sidewalks to encourage walking. ie. Pacific Ave / other east beach streets have no sidewalks so many parents drive their kids to schools such as Peace Arch and Earl Marriott. The city could require sidewalks to be built on new homes built on tear-down lots / or any building permit issued worth more than $XX for renovations. Eventually most of the city will have sidewalks. The City could have negotiated open tenders for companies providing sidewalk installations so homeowners could add at their own cost and do so at the City's bulk buying rate. 3. Widen (and possibly extend) the boardwalk to install a bike / pet lane. Currently the bylaw does not allow dogs or bikes which severely discourages volumes of people enjoying the boardwalk and driving less. The business on Marine Dr are struggling and debate over parking continues. Embrace the French or German culture of biking and walking. Since 68% of White Rock homes have dogs, many would walk to businesses on Marine if allowed. Currently only walking the road is allowed which includes the large hill discouraging anyone of age. To avoid tax increases individuals could sponsor a meter of boardwalk and or poop scoop bag dispensers. 4) Encourage current Wave / Tide electrical generation to be installed in White Rock bay. See http://www.greenenergybc.ca/wave.html Like the town in Portugal, White Rock could become self sufficient.	Sep 21, 2009 11:49 PM

	Response Text	
7	We created and stuck to by-laws that permitted new buildings to be built, only if they used the community geo-thermal heating system that has been in place since 2011 and if they used power from the community solar power grid established that year as well. Limited the square meters that a new dwelling can occupy on a city lot in order to maintain soil that could ensure the natural water cycle. Eliminated new pavement or concrete that would cover soil. Use solar water heaters on all new buildings. Get the commuters off the freeway by establishing an excellent bus service like the 351 which was recently butchered to accommodate political P-3 payola.	Sep 24, 2009 9:15 PM
8	banning cars on the waterfront	Sep 26, 2009 6:36 AM
9	Hybrid vehicles No pesticides Priority given to keeping the ocean clean. Solar power and other alternative energy used. Green buildings. Carbon offsets when needed.	Sep 26, 2009 8:00 PM
10	Well, we took a lot of time initially to develop a plan and get it right, with input and energy supplied by all sectors of the community, from school children to seniors, church and business/professional groups and artists to athletic and recreational organizations. And then, getting some input from the UBC and SFU city planning students really added some spark to the process - our own high school students really came up with some innovative ideas and got involved then, too! It was a genuinely collaborative process, with no special interests or individuals dominating the discussion. Spirited and messy at times, but that's demoncracy. The process was directed by a core committee of Super Community Leaders who led discussions and really understood the collaboration process. Mutual admiration rather than struggles for dominance prevailed, and the spirit of volunteerism and civic pride carried the day. Workshops, mini-courses on green living and environmental issues, lectures -- these all raised the bar on our understanding of what could be achieved. The sustainable, modern community created required some compromises. To keep the city solvent without crippling taxes, technology - based businesses were encouraged and accommodated, particularly in the land previously occupied by Semiahmoo Senior High School, where a mix of land use was attractively developed: some high tech business activities, residential, parks and recreation. A 'village' thrives at Hilltop, with pedestrian-only traffic on Johnston between Thrift and 18th avenues, working in collaboration with Surrey. Traffic problems were wrestled to the ground, eliminating the growing congestion (sorry, no magic solution here). Public transportaion has been enhanced and encouraged. The building height debate was resolved early, and set at a maximum of 12 floors in selected sites. Road allowances were developed as parks. with some allowances for small organic educational public gardens, where most produce was grown by volunteers for the local food bank and community kitchens for citizens in need. The city early adopted energy efficient and sustainable standards, such as the 'green' building code (see the new City Hall as an example of a gold medal LEED building). All new construction, private and public, in the last 15 years has been of a high green standard, and tax-incentives permitted renovations to improve previously built structures. This has been a source of considerable civic pride, seen as giving back to the environmental gem we were given. Lots of trees, gardens, more pocket parks and outlooks with benches where we can simply enjoy. Setting a series of goals along the way and celebrating successes with those who made it happen kept us on target and enjoying the process. Gosh, we are so lucky --- White Rock really is a seaside gem and the best place in the world to live! And now for the next set of goals	Sep 27, 2009 6:58 PM

	Response Text	
11	1. Promoting and influencing community initiatives. 2. Working with community interest groups, developers and Translink on sustainable livability. 3. Utilizing best practices for sustainability. 4. Communication with the tax payer and why these iniaitives are important and "what's in it for me" philosophy.	Sep 30, 2009 10:53 PM
12	• Any $ incentives for energy – efficient cars? • What about publicly owned cars within local area? Pick up/drop off alternate energy technology.	Nov 4, 2009 12:55 AM
13	• Plant trees • Electric vehicles for all municipal workers / buses. • Keep watersheds clean – fewer paved walkways.	Nov 4, 2009 12:57 AM
14	•Planned using “The Natural Step” Framework. •Water, food , fuel, environment is local, clean and used/ available to all members of the community. Clean up of the Boundary Bay •Restoration / Preservation of ocean, wetlands, eel grass, wildlife, salmon habitat. •Environmental Stewardship resulted in Economic growth of Green Business •All development has outstanding Green focus, all old building retrofitted to highest standards •Alternate green transportation throughout city.	Nov 4, 2009 1:01 AM
15	• Farmers market • Incentives for grocers to have organic and local produce + animal products • Envourage people to convert lawns to gardens with native species + bee + butterfly gardens • Public education • Highlight, offer incentives to “green business”(consignment stores, pesticide free garden services etc.) • More bike tacks around town (community bike events?) • Partnerships with schools in environmental education and conservation • Pesticide banning! • Community gardens • Compost program – worm + regular	Nov 4, 2009 2:06 AM
16	• Continue with education programs and advertising (public awareness). • Encoruaging people to reduce water, gas, and electricity consumption. Courses and programs.	Nov 4, 2009 2:07 AM

Community Climate Action Plan Survey

As individuals and organizations, there are many actions we can take to reduce energy consumption and GHG emissions. Please review the list of actions below and fill in the check boxes as appropriate.

	I'm already doing this!	I'm willing to do this on my own.	I'm willing to do this with support.	I'm not willing to do this.	Not applicable/possible.	Response Count
Make energy efficiency improvements to your home or office (e.g., improving insulation, replacing windows, caulking around vents and windows, etc)	**56.3% (9)**	12.5% (2)	25.0% (4)	0.0% (0)	6.3% (1)	16
Turn down the temperature in your home/office by 2 degrees Celsius in the winter (and up by 2 degrees Celsius in the summer)	**87.5% (14)**	6.3% (1)	0.0% (0)	6.3% (1)	0.0% (0)	16
Install a programmable thermostat at home or at work	**53.3% (8)**	26.7% (4)	6.7% (1)	6.7% (1)	6.7% (1)	15
Replace your furnace with a high efficiency model with a variable speed motor	26.7% (4)	13.3% (2)	26.7% (4)	0.0% (0)	**33.3% (5)**	15
Set your water heater to 49 degrees Celsius	**33.3% (5)**	**33.3% (5)**	26.7% (4)	0.0% (0)	6.7% (1)	15
Install a solar water heating system to heat your water	6.7% (1)	13.3% (2)	**66.7% (10)**	0.0% (0)	13.3% (2)	15
Wash your clothes in cold water and hang your laundry to dry	**68.8% (11)**	31.3% (5)	0.0% (0)	0.0% (0)	6.3% (1)	16
Install low flow fixtures and faucets in your home/office	**43.8% (7)**	31.3% (5)	18.8% (3)	0.0% (0)	6.3% (1)	16
Plant deciduous trees to the south of your home/office building	**37.5% (6)**	6.3% (1)	12.5% (2)	6.3% (1)	**37.5% (6)**	16
Walk, cycle or use active modes of transportation to get to work/school at least one day a week	**62.5% (10)**	0.0% (0)	6.3% (1)	6.3% (1)	25.0% (4)	16
Take transit to work/school at least one day a week	18.8% (3)	6.3% (1)	18.8% (3)	12.5% (2)	**43.8% (7)**	16

Carpool to work/school at least one day a week	12.5% (2)	18.8% (3)	6.3% (1)	0.0% (0)	**62.5% (10)**	16
Telecommute to work at least one day week	18.8% (3)	0.0% (0)	12.5% (2)	0.0% (0)	**68.8% (11)**	16
Buy an electric bicycle or scooter instead of owning a car	0.0% (0)	**31.3% (5)**	25.0% (4)	**31.3% (5)**	18.8% (3)	16
Join a car-sharing co-op instead of owning a car	0.0% (0)	26.7% (4)	**33.3% (5)**	20.0% (3)	20.0% (3)	15
Turn off your car instead of idling for periods longer than 10 seconds	**81.3% (13)**	12.5% (2)	0.0% (0)	0.0% (0)	6.3% (1)	16
Schedule or perform regular maintenance checks for your car	**87.5% (14)**	6.3% (1)	6.3% (1)	0.0% (0)	0.0% (0)	16
Compost organic wastes in your garden or with a worm composter in your apartment, school or office	**62.5% (10)**	12.5% (2)	6.3% (1)	6.3% (1)	12.5% (2)	16
Reuse products wherever possible instead of buying new ones	**93.8% (15)**	6.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	16
Buy good quality, long lasting products that you will not have to replace so soon	**93.3% (14)**	6.7% (1)	6.7% (1)	0.0% (0)	6.7% (1)	15
Buy products with minimal or recyclable packaging	**81.3% (13)**	12.5% (2)	6.3% (1)	0.0% (0)	0.0% (0)	16
Buy local, sustainable food whenever possible	**93.8% (15)**	6.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	16
Grow some of your own food in your home garden or community garden plot	**62.5% (10)**	6.3% (1)	18.8% (3)	6.3% (1)	6.3% (1)	16
					Comments	8
					answered question	**16**
					skipped question	**0**

Comments		
1	There should be a municipal composting facility where residents can drop off compostable wastes and purchase well-made compost for their gardens	Sep 12, 2009 11:02 PM
2	Living in a condo requires consensus (willing to do with support)	Sep 21, 2009 6:13 AM

Comments		
3	ALso installed a tanless gas water heater which heats only on demand.	Sep 21, 2009 11:52 PM
4	Does White Rock have a community garden where people can grow food close by?	Sep 24, 2009 9:19 PM
5	Scooters need to be regulated before they are encouraged any more. Licensing of both scooter and driver is necessary. Some education. Also clearer guidelines for where it is safe to drive or ride them, as with bicycle paths. This will involve some compromises on road use, rights of way, etc.	Sep 27, 2009 7:18 PM
6	Act on plan, don't file it under Blue Sky and forget about it.	Nov 4, 2009 1:00 AM
7	Awesome – do anything you can! Glad you hired a coordinator.	Nov 4, 2009 2:07 AM
8	Thanks for doing this survey. Keep up the good work!	Nov 4, 2009 2:11 AM

Community Climate Action Plan Survey

The Community Climate Action Plan will define a number of measures that the City of White Rock can implement, either on its own or in partnership with others, to reduce energy and greenhouse gas emissions. What types of activities do you think the City should focus on in order to reduce energy consumption and greenhouse gas emissions?

		Response Count
		16
	answered question	**16**
	skipped question	**0**

	Response Text	
1	Improve sidewalks to facilitate walking install bicycle lanes Raise parking fees and/or impose a congestion tax on the downtown core and on Marine Drive Council should set an example by minimising driving and walking or cycling to CityHall instead	Sep 12, 2009 11:06 PM
2	I think I have covered this in my other responses. I think it is good that you have taken a long range approach to this, we do however need to think critically and creatively to ensure we leave ourselves with more options rather than less. Preserve trees and other vegetation in the City, increase passive parkland, eliminate storm sewer runoff into the Bay, more wider and just more sidewalks...find ways to circumnavigate the poles embedded in sidewalks on major arteries. Please do not green wash this...ecological science should be leading our decisions into the future...simple solutions must be our goal and not advanced technology that maintains status quo.	Sep 20, 2009 12:53 PM
3	Public education and school education on how to personally reduce enerygy consumption abd ghg emissions. Set up solar and wind power for public buidings schools and encourage home owners to do the same pass by laws requirement for homes and condos to be evirnomentally friendly Increase public transportation	Sep 21, 2009 6:20 AM
4	Have gardening and composting workshops. Maybe provide some community gardening sites on city property that have not been previously considered for such projects (ie the greenspace in front of city hall). And, as I previously mentioned, stop demolishing single family homes to put up high rises and apartments, which bring in so many more vehicles.	Sep 21, 2009 4:27 PM

	Response Text	
5	We need community gardens so that apartment dwellers can grow their own vegetables. Provide deciduous trees for people to plant in their gardens. Cooperate with others to promote energy efficient housing, instead of the monstrosities the building industry provides. Consider smaller lots. Consider row housing as standard. Quit being ambivalent about the value of 6 or 7 story apartment buildings.	Sep 21, 2009 7:53 PM
6	See previous answers	Sep 21, 2009 11:52 PM
7	They should focus on getting an excellent bus system which will take people directly to the large centres where all the good cultural stuff happens, where people work, and where there is a metropolitan lifestyle. It gets all those smelly cars off the freeway.	Sep 24, 2009 9:22 PM
8	stop buyng so many vehicles and driing them around all the time	Sep 26, 2009 6:38 AM
9	See the answer I just wrote to the question of what I saw the city doing to be sustainable...	Sep 26, 2009 8:06 PM
10	Do we have an environmental engineer or professional equivalent directing the community transition to an energy efficient, environmentally sustainable community? (My ignorance here - sorry - I should know that). A committee of interested, informed, and dedicated (ego-free) volunteers could help the professional staff in facilitating community changes. Building code changes to green standards. Switching all city operations and structures to best practices, and encouraging home builders and renovators to do the same. Led-lights throughout. Public education on the issues: - A column in the local papers, in conjunction with Power Smart perhaps? a feature on the city's website? - on what citizens can do, on resources/public programs available, and celebrating what folks are actually doing to further good practises. This catching people doing something right can inspire a bit of competition as well as show what can be done in small ways to improve energy consumption and thus foster community leadership on this issue. A volunteer/civic group might be interested in making this a project. - FIne tune the recycling & commuting. How are we doing on those issues? What would our grade be? What can we do better? Publish feedback. - Form an active partnership with a comparable city (Sister City) also working on energy consumption and GHG emissions programs. Get people excited about it. - Get a research committee of interested citizens busy building a library of info on best practices for the city, businesses, private citizens, and get the facts out. - Work with PAH Foundation to feature cutting edge practices and technology in their Win Fall contest homes. Signature White Rock green homes would be good ticket promotion for them, too. And so on	Sep 27, 2009 8:05 PM
11	Advocacy, influencing change and communicating with the community. Incenting change.	Sep 30, 2009 10:56 PM
12	• Also, pernicious weeds vs. pesticide by-law. • Japanese knotweed on vacant lot on Foster / Russell should be eliminated – by more aggressive cutting program? It's spreading horribly • The blackberries at leaste are good to eat! IVY – TANGY also BAD and hurt our natural environment.	Nov 4, 2009 12:56 AM
13	• Restrict development, cap density • Work with Surrey to share police / fire services more than now. Replace gas gosling police cars now • Set up a recycle / reuse station where people can exchange for free, items no longer needed.	Nov 4, 2009 1:00 AM

Response Text		
14	• Municipal government leads the changes through staff, Resources, policies: see “the Natural Step” for template. • All development leads the way in Building materials, water, VOC 0%, green space for community gardens. Create a community not a development for someone to make money. See Green development in Victoria. • Education, policies, by-laws, community meetings for public.	Nov 4, 2009 1:21 AM
15	• Paper products – use less, both sides, source from recyclable materials • Vehicles – convert to electric and or bio-fuel and have supporting infrastructure • Less electricity – install solar panels • Rain water collection program and rain water gardens • Anti-idling by-law • Work with school board and community organizations	Nov 4, 2009 2:07 AM
16	• If you can work with other municipalities and the provincial government on these initiatives that would be great. • In 1993 in towns in Switzerland, they had a no idling by-law at certain lights. I think it woild be great to teach people to stop idling their cars in WR + other towns… educating the public.	Nov 4, 2009 2:11 AM