



To: General Purpose Committee
From: Cathryn Volkering Carlile, General Manager- Community Services

Date: June 1, 2010
File: 01-0370-01/2009-Vol01

Re: Corporate Sustainability Framework – Climate Change Strategic Program

Staff Recommendation

- 1. That the Corporate Climate Change Strategic Program, as presented in Attachment 1 of the report dated June 1, 2010 entitled "Corporate Sustainability Framework – Climate Change Strategic Program" be endorsed.
2. That funds from the Climate Action Revenue Incentive Program be placed in a Carbon Neutral Provisional Fund and used to support greater corporate greenhouse gas (GHG) reduction actions.
3. That the Mayor send a letter to the Premier of BC with copies to the Minister of Environment and the Minister of State for Climate Action and local MLAs requesting that the Province reinstate funding for the Climate Change Showdown initiative.
4. That a copy of this report be forwarded to the Richmond Board of Trustees.

Handwritten signature of Cathryn Volkering Carlile

Cathryn Volkering Carlile
General Manager - Community Services
(4068)

Atts: 7

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ROUTED TO: CONCURRENTLY CONCURRENTLY OF GENERAL MANAGER
Engineering... Y [X] N []
Public Works... Y [X] N []
Policy Planning... Y [X] N []
Transportation... Y [X] N []
Project Development... Y [X] N []
Finance... Y [X] N []
HR... Y [X] N []
REVIEWED BY TAG YES [X] NO []
REVIEWED BY CAO DEPUTY YES [X] NO []

Staff Report

Origin

The City of Richmond is developing a Corporate Sustainability Framework in support the following Council Term Goal:

Council Term Goal #7: “ Sustainability and the Environment – Demonstrate leadership in and significant advancement of the City’s agenda for sustainability through the development and implementation of a comprehensive strategy that among other objectives includes incorporating sustainability into our City policies and bylaws”.

This report presents the City’s Climate Change Strategic Action Program component of the Sustainability Framework (Attachment 1).

The Climate Change Strategic Action Program establishes a strategic pathway to meet Council adopted targets of reducing community greenhouse gas (GHG) emissions by 33% by 2020 and by 80% by 2050 below 2007 levels, and achieving carbon neutrality in civic operations by 2012.

Background

About the City’s Sustainability Framework

The City of Richmond has advanced a wide range of various action initiatives to help the Corporation and community make changes to be more sustainable by developing a Corporate Sustainability Framework to assist the City in transitioning from a collection of action initiatives to a strategic, well-managed service area.

The Sustainability Framework will establish priorities for City action and set clear metrics for measuring results and reporting progress and establish a complete program-based approach which incorporates all core phases of management (i.e., plan, do, monitor & report, and innovate & improve) and embeds the practice of continual improvement.

The Sustainability Framework is being developed in phases and is developed by an interdepartmental team of staff. The main components of the Framework include:

1. Commitment and Vision
2. Strategic Action Programs for each Sustainability Strategic Focus Area. The Strategic Action Programs are guided by the Sustainability Policy and serve to:
 - Inventory and bring together the wide range of city actions pertaining to a specified focus area;
 - Review progress to-date, explore best practices and assess needs and opportunities (e.g., identify and address any key gaps, identify and pursue synergistic initiatives that benefit multiple goal areas, etc.);
 - Establish priorities and develop performance targets and reporting processes; and,
 - Develop a 5-year strategic action plan, which builds on strengths, addresses core gaps and establishes a means for benchmarking progress.

What is our Progress To-Date?

Council has adopted the conceptual structure of the Framework and the City’s Corporate Sustainability Policy, which establishes the Commitment and Vision. The Climate Change Strategic Program is being presented in this report is the first Strategic Program of the Sustainability Framework to be proposed. An overview of the Framework, inclusive of the proposed Climate Change Strategic Program is provided in Attachment 2. A timeline of Sustainability Framework development is provided in Attachment 3.

Analysis

Why Climate Change Was Identified as a Sustainability Priority Focus Area?

The City's Sustainability Framework the Framework seeks to identify and focus on those specific areas that pose the largest risk and/or opportunity for the City to advance sustainability in the corporation and Richmond community while not duplicating existing City initiatives or address the full suite of community interests.

Climate change was identified as a priority area of focus for the City's Sustainability Framework based on the following criteria:

Sustainability Basis

Climate change impacts will largely be borne by communities not responsible for causing the issue.

A core tenet of sustainability is to ensure that activities today do not erode the well being of communities in the future. It is now known that human-induced climate change poses significant risks to communities in the future (both short and long-term) and that this risk is a result from historical and current human activities (largely via use of fossil fuels, waste generation and deforestation activities). The inequity of other communities inheriting consequences of previous activity demarcates climate change as an important sustainability issue.

Significant Impacts for the City and Corporation

Climate change impacts are projected to be significant at both the corporate and broader Richmond community level and pressures to better address climate change risks are expected to increase over time.

Research on the science of climate change is developing rapidly and consistently points to potentially serious consequences for communities if insufficient action to mitigate and adapt to change is not taken. Local governments in BC are also facing increasing requirements to address climate change as a result of changes to provincial legislation and funding programs. While climate change poses a significant challenge, it also presents opportunities for advancing a wide range of initiatives in support of healthy communities. This is because many specific action initiatives which reduce impacts of climate change inherently support the emergence of greater sustainable living¹. Further details about climate change, including a glossary of terms is provided in Attachment 4.

Development of the Climate Change Strategic Program

An interdepartmental staff team has worked on a climate change services review and developed the Climate Change strategic action program. The team was supported by external climate change expertise from Environment Canada. The team reviewed the science, best practices, current city action and provincial policy implications and found the following:

The Science

- Greenhouse gas emissions (GHGs) are increasing globally at an average rate of 1.5 ppm (parts per million) per year. This means that if this rate continues, significantly dangerous levels of climate change are projected to occur within 40 years.
- Greater action is needed by all sectors of society to adequately respond to the climate change challenge. In particular, greater action is needed in the short-term to avoid unacceptable impacts and costs.
- Climate change response strategies need to both reduce GHG emissions and incorporate measures to enable communities to adapt to projected unavoidable changes to the climate.

¹ Example synergies include development of live-work-play communities, renewable-energy based communities, locally resilient economies, ecological reducing reliance on the automobile, high performance buildings, ecological productive green space, strengthened local food security, locally resilient economies, community safety, etc.).

Best Practice Review

- There is a wide gap between the problem and solutions (e.g., information is available on what the problem is at the global level but limited information and resources are available to support local action).
- Climate change has been discussed at the international level since the 1970s. Whereas there has not been substantial progress made at federal and international policy levels, cities have the opportunity to make meaningful contributions towards minimizing impacts and adapting to change at the local level.
- Cities making the most advancements in climate change have internal expertise and dedicated resources.

City of Richmond Action To-Date

- The City of Richmond has undertaken a wide range of action towards addressing climate change, including international policy advocacy, GHG emission reduction, sustainable community development, early adaptation planning and community outreach. Substantial progress has been made, including the City being recognized as a climate change leader for its early work in climate change adaptation and being designated as the first PowerSmart municipality in BC.
- Best practices are evolving quickly and the City has opportunities to update its policies and practices to incorporate leading-edge standards and benchmarks.
- Within the City, climate change issues are being addressed in an ad-hoc manner with the support of part-time and temporary resources. Current resources are insufficient for addressing the breadth and depth of the climate change response agenda. Expertise is required with respect to leadership, advisory and technical functions. A formal program is needed – one that denotes clear responsibilities, is supported with adequate resources and incorporates processes for measuring and reporting progress.

Provincial Policy Implications for City of Richmond

- The Province of BC has adopted a Climate Action plan focused on GHG reduction. The Province is currently developing a plan for adaptation.
- The Province has adopted province-wide GHG reduction target of 33% below 2007 levels by 2020 and 80% below 2007 levels by 2050. To reach this target, the Province has and plans to take action that will affect the consumer, business and government.
- Increasing responsibilities are being placed on local governments to address climate change by the Province without provision of resources, including but not limited to expertise. Through Bill 27, the Province has legislated that municipalities adopt community GHG reduction targets, policies and actions into their Official Community Plans. The Province has also encouraged municipalities to sign the Climate Action Charter that commits local governments to be carbon neutral. While voluntary, commitment to the Charter means that municipalities are positioned more strongly to secure Provincial funding for range of programs and initiatives. Local governments who sign the Charter are also eligible for a carbon tax rebate. It is anticipated that the trend of increasing local government responsibilities without provision of appropriate resources will continue.

The Proposed Climate Change Strategic Program

The proposed Climate Change Strategic Program is provided in Table 1. The main purpose of the Program is to assist the City in taking a proactive and strategic response to climate change, including but not limited to working to address resource issues being faced by local government. The Program serves to bring together the city's needs, policies and actions pertaining to Climate Change into a complete action-based program. All existing critical pieces of information, including overarching policy such as the Council adopted Climate Change Response Agenda, Climate Action Charter, baseline condition data such as greenhouse gas inventory data and legislative requirements (Bill 27) have been assimilated under one umbrella for comprehensive management.

Table 1: Recommended City of Richmond Climate Change Strategic Program

<p>The Strategic Program consists of:</p> <p>Goal: A Climate Prepared City 2020 - <i>Climate change and its impacts are minimized and resiliency created to protect the environment, economy and community well-being.</i></p> <p>Strategies*:</p> <ul style="list-style-type: none"> • Empower (build capacity) • Prevent (reduce GHG emissions) • Prepare (adapt to unavoidable change) <p>Action Programs:</p> <ul style="list-style-type: none"> • Climate Change Knowledge Program • Corporate Energy and GHG Reduction Program • Community Energy and GHG Reduction Program • Climate Change Resiliency Program <p>Targets:</p> <ul style="list-style-type: none"> • To have all City Managers undertake Climate Change awareness education by 2012. • To have 100% of elementary students in Grade 5 engaged in Climate Change Showdown by 2013. • To be carbon neutral in City operations by 2012*. • To reduce GHG emissions by 33% from 2007 levels by 2020 and by 80% by 2050*. • To prepare a Strategic Adaptation Plan by 2013. <p>Current Baseline:</p> <ul style="list-style-type: none"> • Student engagement: @ 60% of students engaged • Corporate GHG emissions: @ 11,000 tonnes (2007) • Community GHG emissions: @ 1.1 million tonnes (2007)
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Key features of the Program include:

- The incorporation of targets at both the corporate and community level
- The incorporation of targets across the three critical areas of climate change response. The Program embeds the Corporate and community greenhouse gas management targets previously adopted by Council (to be carbon neutral in City operations by 2012 and to achieve 33% reduction in community GHG emissions by 2020 and 80% reduction by 2050) and proposes 3 new targets to address capacity-building and adaptation.
- The integration of the City's energy and emissions activities. This will enable the City to better address trade-offs between these two objectives, gain greater results through coordinated action initiatives aimed at meeting both objectives and reduce costs through administrative efficiencies.

- The empowerment focus also keeps on local government advocacy to address strategic issues such as identifying clear responsibilities across levels of government and ensuring allocation of adequate resources.

Further details on the overall program are provided in Attachment 1. A graphical depiction of how the Climate Change Strategic Program fits into the broader Sustainability Framework is provided in Attachment 2. Current levels of performance are provided in Attachment 5. Details on the proposed action programs, including rationale for each program and respective financial implications, are provided in Attachment 6.

Recommended Implementation Plan for the Proposed Climate Change Strategic Program

A proposed 5-year action plan is provided in Attachment 7 and outlines the key steps that the City will need to undertake to meet the proposed targets. Short-term deliverables are also provided.

An interdepartmental Climate Change and Energy Management team coordinated by the City's Sustainability Services consisting of staff from across the organization will oversee the Program implementation.

The corporate capacity target can be accommodated within existing resources. It is also anticipated that the target pertaining to community capacity-building can be accommodated within existing resources through increased partnerships. The community target is to engage 100% of students in a given grade in an interactive workshop on climate change entitled "Climate Change Showdown". Staff will continue to work in partnership with the Richmond School Board to deliver this initiative. Staff also recommend that Council advocate to the Province for reinstatement of its funding for the Climate Change Showdown initiative.

Targets pertaining to GHG reduction and adaptation are anticipated to require additional expertise and dedicated resources. Staff are examining resource options and will provide recommendations later this year. Currently, a one-time additional level request has been submitted to enable the City to meet its carbon neutral commitment.

To support the implementation of the Program, staff recommend that the following immediate actions be undertaken:

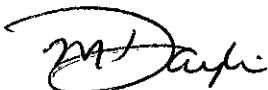
1. The Climate Change Strategic Program plan be endorsed;
2. Carbon tax reimbursements funds be used to support greater GHG reduction action and that the funds received be placed in Carbon Neutral Provisional Fund².
3. A letter be sent to the Province conveying the success of the Climate Change Showdown initiative in Richmond and requesting that a level of provincial funding support be reinstated.

Financial Impact

Staff are reviewing Program resource options. Costs associated with any additional climate change action which extend beyond current resources will be considered in future annual budget processes.

Conclusion

This report recommends that Council adopt the proposed Climate Change Strategic Program. The Program establishes a systematic management program, inclusive of a strategic pathway for meeting Council's adopted GHG reduction targets (Prevent) as well as 3 newly proposed targets which address equally important climate change response strategies in the areas of capacity-building (Empower) and adaptation (Prepare).



Margot Daykin, M.R.M.
Sustainability Manager
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² The City is eligible for the return of its carbon tax dollars because it has signed the Climate Action Charter. To remain eligible, the City must report its Corporate GHG emissions annually. The City receives approximately \$100,000.00 per year.

City of Richmond's Corporate Sustainability Framework

– Climate Change Strategic Program (Overview) –

Goal: A Climate Prepared City 2020

“Climate change and its impacts are minimized and resiliency created to protect the environment, economy and community well-being”.

Core Strategies:

- **Empower** - increase Corporate and community capacity for addressing climate change;
- **Prevent** - reduce greenhouse gas (GHG) emission (Corporately and in the community);
- **Prepare** - implement strategies for adapting to unavoidable changes.



Action Programs and Performance Targets:

Empower

1. Climate Change Knowledge Program

- To have all City Managers undertake Climate Change awareness education by 2012.
- To have 100% of elementary students engaged in a select grade in Climate Change Showdown by 2013.

Prevent

2. Corporate Energy and GHG Emissions Reduction Program

- To be carbon neutral in City operations by 2012*♦.

3. Community Energy and GHG Emissions Reduction Program

- To reduce Richmond Community GHG emissions by 33% from 2007 levels by 2020 and by 80% by 2050*♦.

Prepare

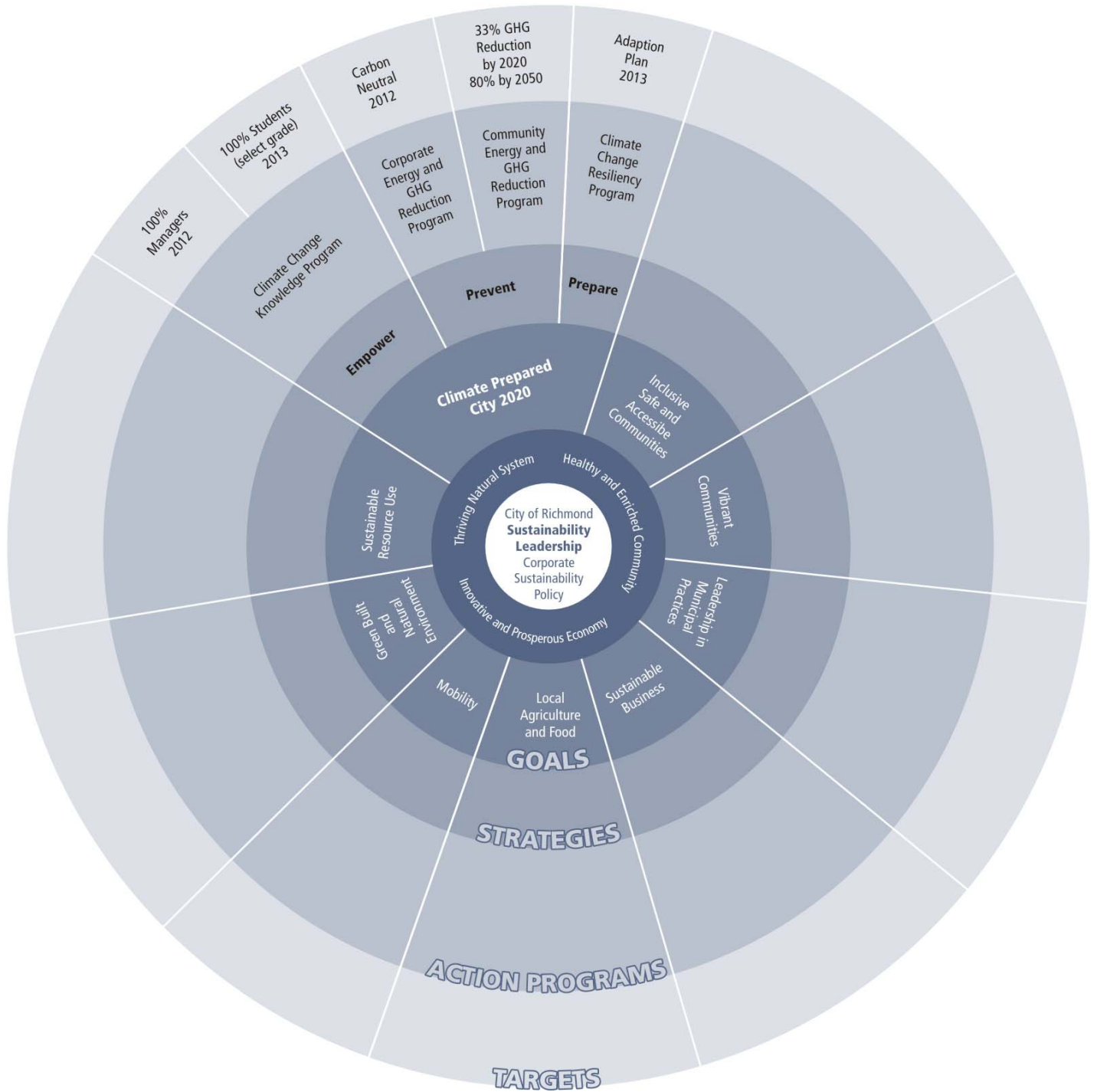
4. Climate Change Resiliency Program

- To prepare a Strategic Adaptation Plan by 2013♦.

* denotes targets that have been previously adopted by Council

♦ subject to resources

City of Richmond's Corporate Sustainability Framework – Climate Change Strategic Program–



City of Richmond’s Corporate Sustainability Framework - Development Timeline -

The City is currently developing an overarching Sustainability Framework to establish a comprehensive set of sustainability goals, action programs and targets for the City. The timeline for developing the Framework is provided in Table 1.

Table 1: Schedule for the Development of the City of Richmond’s Sustainability Framework

Development Phase	Schedule	Progress*
<i>Phase 1 :- Conceptual Framework (adopted Jan. 25, 2010)</i>	Jan 2010	✓
<i>Phase 2: Sustainability Foundations – Corporate Sustainability Policy</i>	April 2010	✓
<i>Phase 3: Climate Change Strategic Program</i>	June 2010	
<i>Phase 4: Sustainable Resource Use Strategic Program - Energy Strategic Program</i>	July 2010	
Framework Launch		
<i>Phase 5: Sustainable Resource Use Strategic Program - Other Resources</i>	Nov. 2010	
<i>Phase 6: Local Agriculture and Food Strategic Program</i>	Dec. 2010	
<i>Phase 7: Mobility Strategic Program</i>	Feb. 2011	
<i>Phase 8: Municipal Leadership Governance**</i>	May 2011	
<i>Phase 9: Green Built & Natural Environment Strategic Program</i>	June 2011	
<i>Phase 10: Social Inclusion, Safe Communities & Accessibility Strategic Program</i>	Oct 2011	
<i>Phase 11: Vibrant Communities Strategic Program</i>	Nov. 2011	
<i>Phase 12: Sustainable Business Strategic Program</i>	Dec. 2011	

*: ✓ denotes complete; shading denotes current phase

** : this strategic program area will focus on reviewing city decision-making process and practices, and developing further tools for assisting the corporation in conducting triple bottom line decision-making.

City's Sustainability Framework – Climate Change Strategic Program - Climate Change Background-

What is Climate Change?

Human-induced climate change is a term used to describe the climatic consequences of increasing atmospheric greenhouse gases arising from human activity, namely the use of fossil fuels and deforestation. Atmospheric greenhouse gases capture the solar radiation being reflected back from the earth's surface. Many greenhouse gases (GHGs) are naturally occurring and are important for moderating temperatures to a level suitable for human living. However, human activities are increasing the concentration of GHGs in the atmosphere, resulting in the trapping of additional energy within the atmosphere. This "enhanced greenhouse effect" can have serious impacts on the Earth's physical, chemical and biological processes, significantly impacting human communities. According to economist Sir Nicolas Stern, "ignoring climate change could result in risk of major disruption to economic and social activity... on a scale similar to those associated with the great wars and the economic depression"³

Potential Impacts for Richmond

The City of Richmond encompasses many climate-sensitive human and natural systems. Areas of sensitivity include human health and safety, agricultural viability, water resources, energy servicing, infrastructure management, emergency planning, and natural ecosystems. Community conditions, such as Richmond's coastal location, large agricultural base and growing urban centre, increase Richmond's vulnerability to climate change impacts.

Responding to Climate Change

It is now understood that climate change can no longer be entirely avoided and that some degree of climate change will occur regardless of levels of future greenhouse gas emissions. As such, effectively responding to climate change involves reducing greenhouse gases which are responsible for contributing to climatic change and incorporating measures to be prepared for unavoidable changes.

³ Stern, Nicholas. 2006. *The Economics of Climate Change, The Stern Review*. Cabinet Office – HM Treasury/Cambridge University Press, UK. 2918570

Glossary

The Science

Carbon

Carbon (C) is the building block of life. It is the basic element in all living things, including 50% of the dry weight in the human body. In the form of carbon dioxide, carbon is a powerful greenhouse gas. However, the term "carbon" used in discussing climate change does not just refer to carbon dioxide. It includes the other powerful greenhouse gases, such as methane and nitrous oxide.

Carbon Dioxide (CO₂)

Carbon dioxide is a colourless, odourless gas formed during breathing, combustion, and decaying of organic materials (e.g., plants, animals). Carbon dioxide is a major greenhouse gas, mainly emitted by the combustion of fossil fuels.

Carbon Footprint

Carbon footprint refers to the total amount of greenhouse gases produced by human activities. This is usually expressed in equivalent tons of carbon dioxide (CO₂), which is the major greenhouse gas. For example, when we burn fossil fuels to run our vehicles or heat our homes, we are releasing carbon dioxide. Almost all our products (food, clothing, materials, etc.) are brought to us through transportation which emit CO₂. Our carbon footprint is the sum of the CO₂ emissions caused by our activities, usually calculated over a year.

Climate

The climate of an area is its local weather conditions — such as temperature, precipitation (rainfall, snow, etc.), humidity, sunshine, cloudiness, wind, and air pressure. It is the weather averaged over a long period of time.

Climate Change

Changes in the climate of the earth as a whole, caused by human activities that release greenhouse gases.

Fossil Fuels

Fossil fuels, also known as mineral fuels, are natural resources such as coal, oil and natural gas. They are called "fossil" fuels because they are formed from the remains of ancient plant and animal life.

Greenhouse Gases (GHGs)

Several important gases in the earth's atmosphere: carbon dioxide, methane, nitrous oxide, ozone, other trace gases and water vapour. Surrounding the earth like a giant greenhouse, they maintain the earth's climate. The six primary greenhouse gases are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Reservoir

A component of the climate system, other than the atmosphere, which has the capacity to store, accumulate, or release carbon or a greenhouse gas. "Oceans, soils, and forests are examples of reservoirs of carbon.

Management Terminology

Adaptation

Adaptation is the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploits beneficial opportunities. The definition recognizes that humans can adjust to past ("actual") climate change and its impacts, or prepare for projected future ("expected") climate change and its impacts. Adaptation can include changes in behaviour, technology, institutions, policies, infrastructure, financial mechanisms and other aspects of human systems.

Carbon Neutrality

Carbon neutrality is a commitment to reduce greenhouse gas emissions (GHG) as much as possible and then to “offset” remaining emissions through emission reduction credits. Credits can be earned through various activities, including projects which displace fossil fuels (e.g., installation of solar or geothermal based energy systems, capture emissions (e.g., GHG releases from landfills) and projects that absorb GHGs from the atmosphere carbon sequestration projects (through reforestation). An organization is carbon neutral if it has calculated its total emissions, taken measures to minimize those emissions, and used emissions offsets to net those emissions to zero.

Carbon Sequestration

The process of increasing the carbon stored in a reservoir other than the atmosphere, in order to reduce carbon dioxide emitted by human activities. Carbon dioxide can be removed from the atmosphere through such actions as planting forests (trees absorb CO₂). This removal is temporary, though, because CO₂ returns to the atmosphere when plants die or are burned.

GHG Emission Inventory

A database that lists, by source, the amount of greenhouse gases discharged into the atmosphere over a given time period, such as a year.

Offsets

Offsets are project-based emission reductions or removals that are used to meet voluntary or regulatory emission reduction obligations.

Targets

A target is a desired level of performance to be attained by a certain timeframe. Targets are a commitment to improvement.

Legislative and Policy Terminology**Carbon Tax**

A surcharge on the carbon content of oil, coal, and gas that discourages the use of fossil fuels and aims to reduce carbon dioxide emissions. B.C. has introduced a carbon tax that will be revenue neutral, meaning all revenue generated by the tax will be returned to individuals and businesses through reductions in other taxes.

Climate Action Charter

This Charter establishes a joint local-provincial commitment to climate change and greenhouse gas reduction. The Charter is voluntary and if signed, commits local governments to:

1. be carbon neutral in respect of operations by 20121,
2. measure and report on community's GHG emissions profile; and
3. create complete, compact, more energy efficient rural and urban communities.

Climate Action Revenue Incentive Program (CARIP)

Climate Action Revenue Incentive program is conditional grant that enables local governments to recoup 100% of their annual carbon tax expenditure. To be eligible, local governments must have signed the Climate Action Charter and commit to becoming carbon-neutral by 2012.

Greenhouse Gas Reduction Targets Act (GCRTA)

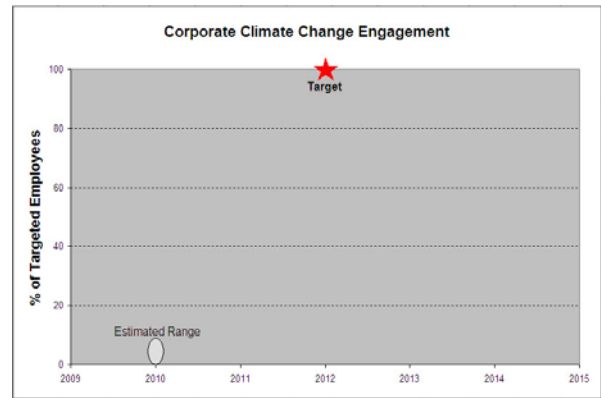
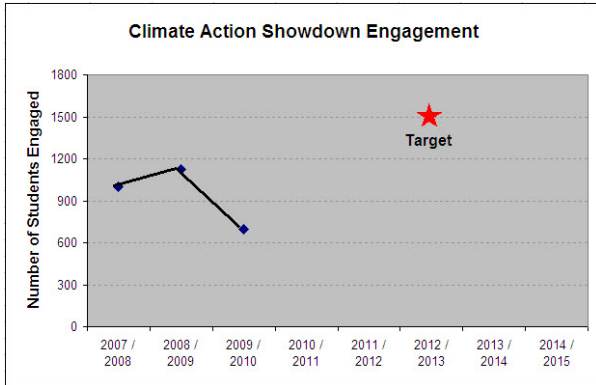
Brought into force on January 1, 2008, the Provincial GGRTA requires the public sector become carbon neutral by 2010 and to make a public report available annually that details action taken towards carbon neutrality. The provincial government (including individual ministries and agencies), schools, colleges, universities, health authorities and Crown corporations are all included in this commitment.

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

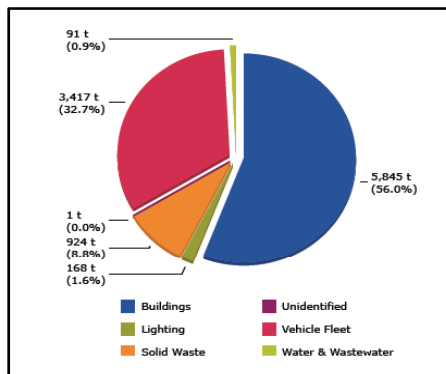
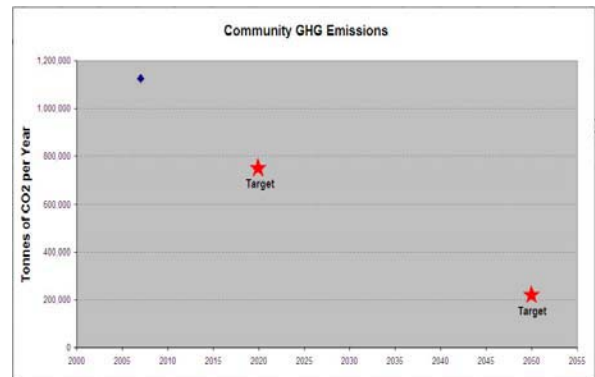
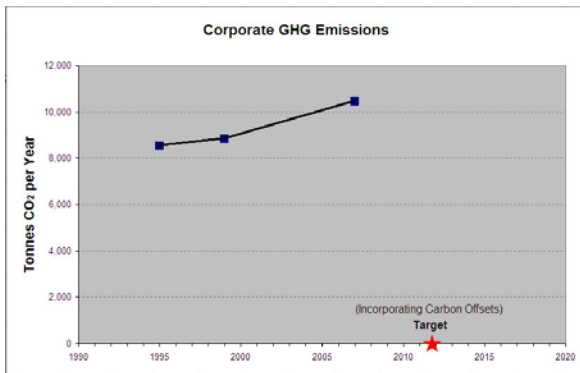
Introduced in April 2008, Bill 27 requires local governments to include greenhouse gas emission targets, policies and actions in their Official Community Plans and Regional Growth Strategies. The legislation also enables local governments to use development permits to promote energy and water conservation, reduce greenhouse gases and encourage alternative transportation options for off-street parking. Developers who are building small housing units (29 square metres or less) are exempted from paying Development Cost Charges (DCC). Local governments also have the ability to waive or reduce DCC charges for green development including small lot subdivisions and affordable rental housing.

Our Performance – Climate Change

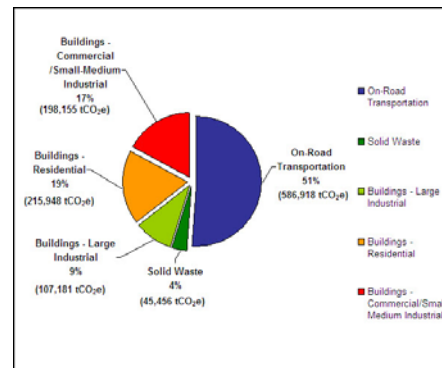
Empower (Capacity-Building)



Prevent (GHG Reduction)



Corporate GHG Emissions 2007



Community GHG Emissions 2007

Prepare (Adapting to Unavoidable Climate Change)

- performance metrics to be developed

City's Sustainability Framework – Climate Change Strategic Program - Program Details -

EMPOWER

Responding to climate change is challenging: long-term timeframes, uncertain future conditions, changing science, the range and extent of potential impacts, a lack of a cohesive set of best management practices and public willingness to address are all key difficulties. However, research has demonstrated that early action is essential if communities are going to avoid unmanageable social, environmental, fiscal and economic costs.

The City's Empower strategy aims to assist the City in understanding and managing climate change risk and opportunity. A key focus of the strategy is to support city departments in taking early action and integrate climate change considerations into key plans, projects and other initiatives. The City is also working to raise awareness of climate change in the community and build external partnerships and knowledge networks that bring together expertise, experience and perspectives from research institutes, governments, energy utilities and other organizations active in the area of climate change. It is anticipated that these partnerships will help accelerate the dissemination of new knowledge and advance the development of best practices in climate change response, and help develop a whole-systems approach to climate change where responsibilities among governments are clear and responsibilities equitably resourced.

1. Climate Change Knowledge Program

The Climate Change Knowledge Program is proposing two targets, one focused on raising awareness corporately and the other focused on supporting raising awareness in the community.

Target: To have all City Managers and other key personnel undertake climate change Awareness education by 2012.

Background: The City has undertaken various activities which have raised corporate awareness about the potential impacts of climate change. Example activities include bringing in speakers, establishing working teams and engaging climate change expertise. The proposed corporate capacity target of having all managers and key personnel undertake climate change awareness education seeks to establish a widespread knowledge and understanding of climate change and its potential impacts and thereby empower departments to take appropriate action as appropriate. Each department will be responsible for identifying key personnel and meeting the target. Departments can seek the type of awareness deemed best suited to their service areas. Sustainability services will provide support by hosting workshops aimed at increasing climate change awareness. Once the target is met, other options such as the development of an internal training module or collaboration with post-secondary education organizations will be reviewed and recommendation for next steps made.

Financial Considerations: The corporate climate change awareness target can be met within existing resources.

Target: To have 100% of elementary students engaged in a select grade in Climate Change Showdown by 2013.

Background: Since 2007, the City of Richmond has been working in partnership with the BC Sustainable Energy Association (BCSEA) and Richmond School District to deliver interactive Climate Change workshops in Richmond schools. Staff consider this program to be a strategic and cost-effective measure for raising community awareness on climate change given that the program:

- is a partnership initiative which is a partially funded by external parties
- is targeted towards children which provides an effective mechanism for engaging entire households and educating individuals who can compound action benefits over-time
- has been well-received by students and teachers

The City is seeking to work in partnership expand the program in order that all students will be provided the opportunity to participate. This will mean that an average of approximate 1500 students will be engaged per year.

Financial Considerations: Staff are working to meet the community climate change awareness target within existing resources through changes to workshop scheduling and re-allocating resources. Staff are also working to reduce City cost requirements through expanded partnerships. Of note is that the Province previously supported this initiative, providing funding that covered about 70% of the workshop cost. Unfortunately, this funding was withdrawn in 2008.

PREVENT

The City's Prevent strategy is aimed at preventing further climatic change by reducing GHG emissions of City operations and supporting the Richmond community in reducing its emissions. The City's GHG reduction objectives have been integrated with the City's energy objectives. Given that energy production and use are a main source of GHG emission, an integrated approach to climate and energy policy and action provides a means by which to pursue both objectives in a mutually supportive way.

The Prevent strategy incorporates two programs, one focused at the corporate level and one focussed at the community level, and both aimed at reducing energy consumption and GHG emissions, improving energy efficiency and cost-effectiveness, and increasing the use of renewable forms of energy.

2. Corporate Energy and Greenhouse Gas Emissions Reduction Program

Target: To be carbon neutral in City operations by 2012.

Background: In 2007, the City as a corporation emitted approximately 11,000 tonnes of GHG emissions (Attachment 5). This level of emissions is anticipated to be greater today and to increase over time as the City develops more facilities and expands its services. Corporate emissions are largely generated from two main sources - energy consumption in municipal facilities and the city's fleet. Other sources are from energy used for lighting and stormwater and effluent conveyance and from waste generated by the corporation.

The City has undertaken a wide range of initiatives to increase energy efficiency and reduce GHG emissions. Highlight action initiatives include the City's High Performance Building Policy, energy efficiency projects and smart car and hybrid fleet procurement. In 2008 Richmond Council signed the Climate Action Charter, committing the City to becoming carbon neutral in civic operations by 2012. To achieve neutrality, the City must:

1. Measure GHG emissions;
2. Reduce GHG emissions; and
3. Purchase offsets to "neutralize" residual emissions.

The Corporate Energy and GHG Emissions Program broadens the City's current Corporate Energy program to encompass both energy and carbon management. As such, while the program will continue to advance the City's leadership in reducing corporate energy consumption and realize operational cost savings, it will also undertake leadership action to scale up the City's efforts in reducing corporate GHG emissions and incorporate the new actions needed to meet the City's carbon neutral commitment. The expanded Corporate Energy and GHG Reduction program will also add increased focus on additional sustainable energy objectives such as increasing energy security and reducing corporate reliance on non-renewable energy sources.

Financial Implications: At current emission levels, the City is facing a potential operational impact of over \$300,000 per year to meet its carbon neutral commitment. Staff are exploring options for taking increased GHG reduction action and developing a local carbon offset program that would both reduce carbon offset expenditures and enable offset expenditures to be re-invested in the Richmond community. Staff are also exploring resource options for on-going management.

3. Community Energy and Greenhouse Gas Emissions Reduction Program

Target: To reduce Richmond Community GHG emissions by 33% from 2007 levels by 2020 and by 80% by 2050.

Background:

In 2007, the Richmond community generated approximately 1.1 million tonnes of GHG emissions, excluding major industry (Attachment 5). Community emissions measures in the inventory are generated from two primary sources: on-road transportation and energy use by buildings. About 4% of GHG emissions are generated from solid waste.

The City of Richmond has undertaken a wide range of action to reduce automobile reliance and increase use of alternative modes of transportation. Key strategies include reducing the need for travel by planning for complete communities, increasing efficiency by optimizing the effectiveness of the City's transportation system and encouraging public transit and alternative transportation. The City's City Centre Area plan establishes building performance standards for all rezonings in the City Centre. The City's recycling services, initiated in 1990, has and continues to significantly reduce levels of solid waste. Most recently, the City's services have been expanded to include the collection and composting of kitchen waste. The City is also exploring opportunities for district energy utility systems which have the potential to reduce fossil fuel use and improve efficiency by capturing and re-using existing sources of waste and renewable energy.

Richmond City Council recently adopted the target of achieving a 33% reduction in community GHG emissions by 2020 and 80% reduction by 2050 from 2007 levels. The adoption of a community emissions GHG reduction target was a requirement under relatively new provincial legislation (i.e., Bill 27). Early feasibility analysis has found that significant action will need to be taken to achieve these targets. The City is currently undertaking a Community Energy and Emissions Plan to identify the most strategic action that the City can take to contribute to the community achieving this target. The Community Energy and Emissions planning process will also develop energy targets pertaining to energy consumption and use of renewable energy sources in support of the City's sustainable energy and GHG reduction objectives.

Financial Implications:

The City's Energy and Emissions Plan is being developed in partnership with BC Hydro who has provided partial funding for a temporary Community Energy Manager position and funding to support plan development. The Plan is to be completed in early 2011. The City does not have dedicated resources at this time to support implementation of the Plan. Staff are reviewing options for financing plan implementation and on-going management of this agenda.

PREPARE

It is now understood that climate change can no longer be entirely avoided and that some degree of climate change will occur regardless of levels of future GHG emissions. Climate change is expected to affect many sectors with a variety of impacts that will vary from location to location. To avoid severe impacts and make the best use of resources, adaptation requires "planned" strategies that aim to reduce the adverse consequences of climate change or adjust to potential opportunities. The City's Prepare Strategy is aimed at enabling the City and Community to adapt to projected changes.

4. Climate Change Resiliency Program

Target: To prepare a Strategic Adaptation Plan by 2013.

Background: The Richmond community encompasses many climate-sensitive human and natural systems. Areas of sensitivity include human health and safety, agricultural viability, water resources, energy servicing, infrastructure management, emergency planning, and natural ecosystems. Community conditions, such as Richmond's coastal location, large agricultural base and growing urban centre, increase Richmond's vulnerability to climate change impacts.

The City of Richmond has undertaken some early action work in climate change adaptation which has resulted in the City being recognized as an early leader in this area of sustainability. Initiatives include working in partnership with UBC and Environment Canada to translate global projections to local impacts and explore potential vulnerabilities. The City's efforts in adaptation have:

- resulted in raised corporate awareness of climate change adaptation,
- supported the development of a best practices guide for local communities in adaptation,
- supported the integration of adaptation objectives into the City's City Centre Area Plan and
- resulted in action being taken on the ground to increase flood protection and realize other adaptation benefits (e.g., increase use of local energy sources).

While the City has taken some early action, limited progress has been made in recent years due to the increased focus placed on GHG reduction management. This is considered to be a significant gap given Richmond's context and the potential widespread impact. This Program recommends that a Strategic Adaptation Plan be developed in 2013, following the completion of the Community and the Corporate Energy and GHG Emissions Reduction Plans. The Adaptation Plan would identify projected impacts in Richmond, establish corporate and community resiliency targets and develop an action and implementation plan. In the interim, staff will continue to realize adaptation benefits as opportunities arise.

Financial Implications: The City's adaptation efforts to-date have been achieved through external funding and leveraging internal resources. No dedicated resources exist for advancing adaptation planning and action in a strategic and systematic manner. The development of a Strategic Adaptation Plan is estimated to be approximately \$100,000.00. Staff will seek external funding support and incorporate these costs as part of the additional level request for managing and implementing the overall Climate Change Strategic Program.

Table 1: 5-Year Implementation Plan

Action		2010	2011	2012	2013	2014	2015
Empower	Climate Change Knowledge Program						
	Corporate Capacity-Building -Managers to Undertake Climate Change Awareness			Review			
	Community Capacity-Building-Deliver Climate Change Showdown workshops				Review		
	Corporate Energy and Emissions Program						
	Management	Establish Carbon Neutral Staff Working Group to Develop Plan					
		Oversee Program through Climate Change & Energy Team					
	Inventory	Establish Corporate Inventory Reporting System					
		Manage Inventory System					
	Action Plan	Develop Carbon Neutrality Approach					
	Targets	Develop Corporate Energy & GHG Reduction Plan					
Prevent (GHG Reduction)	Reduction Action	Develop Corporate Energy & GHG Emission Reduction Targets					
		Implement Corporate Energy & GHG Reduction Actions (ad-hoc)					
		Implement Corporate Plan (strategic action)					
	Report, Innovate & Improve	Research and Explore Innovations/Best Practices					
		Annual Report – Corporate Energy Use & GHG Emissions					Review
	Community Energy and Emissions Program						
	Management	Establish CEEP Working Group to Develop Plan					
		Oversee Program through Climate Change & Energy Team					
	Inventory	Collaborate with Province on Community Inventory					
	Action Plan	Develop Community Energy and Emissions Plan (CEEP)					
Targets	Develop Community Energy and GHG Reduction Targets						
Reduction Action	Implement Corporate Energy & GHG Reduction Actions (ad-hoc)						
	Implement Community Plan						
Report, Innovate & Improve	Annual Report – Community Energy Use & GHG Emissions					Review	
Prepare	Building Resiliency Program						
	Management	Establish Adaptation Working Group to Develop Plan					
		Oversee Program through Climate Change & Energy Team					
	Action Plan	Develop Adaptation Strategic Plan					
	Targets	Develop Resiliency Targets					
	Adaptation Action	Implement Actions (ad-hoc)					
		Implement Adaptation Strategic Plan					

Table 2: Climate Change Strategic Program - Short-Term Deliverables (June 2010 – February 2011)

Deliverable	Action Program	Lead Department	Timeline
Carbon Neutral Provisional Account	Corporate Energy & Emissions Program	Sustainability Services/Finance	June 2010
Sustainability Framework – Strategic Energy Program	Community Energy & Emissions Program	Sustainability Services	July 2010 (RTC)
Corporate Energy Efficiency Projects Completion (including district energy utility at Steveston Community Centre)	Corporate Energy & Emissions Program	Sustainability Services – Corporate Energy Services	December 2010
Complete Community Energy and Emissions Plan (CEEP) (via OCP update)	Community Energy & Emissions Program	Sustainability Services – Community Energy Services	January 2011
Revised Corporate High Performance (Green) Building Policy	Corporate Energy & Emissions Program	Project Development & Sustainability Services	February 2011 (RTC)
Implementation of Continuous Optimization Program for 5 Major Facilities	Corporate Energy & Emissions Program	Sustainability Services – Corporate Energy Services	February 2011
Complete Transportation Forecasts for Alternative Land-Use Scenarios (inclusive of GHG emissions) (via OCP update)	Community Energy & Emissions Program	Transportation	February 2011