



To: Planning Committee **Date:** March 26, 2010
From: Cathryn Volkering Carlile **File:** 01-0370-01/2009-Vol01
General Manager - Community Services

Re: **City Climate Change Program – Proposed Community Greenhouse Gas Emission Reduction Target**

Staff Recommendations

1. That Richmond Official Community Plan Bylaw 7100, Amendment Bylaw No. 8599, which establishes a Greenhouse Gas (GHG) Reduction Target, be introduced and given first reading.
2. That Bylaw No. 8599 having been considered in conjunction with:
 - a. the City's Financial Plan and Capital Program; and
 - b. the Greater Vancouver Regional District (GVRD) Solid Waste and Liquid Waste Management Plans;be hereby deemed to be consistent with said program and plans, in accordance with Section 882(3) (a) of the Local Government Act.
3. That Bylaw No. 8599 having been considered in conjunction with section 882(3)(c) of the Local Government Act be referred to the Agricultural Land Commission for comment and response before May 17, 2010, the Public Hearing.
4. That Bylaw No. 8599, having been considered in accordance with OCP Bylaw Preparation Consultation Policy 5043, is hereby deemed not to require any further consultation.
5. That the City request the Province to:
 - Substantially increase its policy and funding support for transportation improvements in Richmond, including extending the Canada Line, improving bus service, and improving cycling infrastructure;
 - Establish a grant, rebate and/or low interest loan program to assist property owners to retrofit their buildings to reduce GHG emissions;
 - Establish a grant, rebate and/or low interest loan program to help with the initial extra owner capital cost incurred to reduce GHG emissions in their new buildings;
 - Evaluate, after May 31, 2010, all BC municipally approved, and any not approved, OCP GHG targets, policies and actions, to identify areas for additional Provincial programming and funding.

Cathryn Volkering Carlile
 General Manager - Community Services (4608)
 Att: 3

FOR ORIGINATING DEPARTMENT USE ONLY					
ROUTED TO:	CONCURRENCE		CONCURRENCE OF GENERAL MANAGER		
Development Applications.....	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	
Engineering & Public Works.....	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	
Law & Community Safety.....	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	
Project Development and Facilities.....	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	
Transportation	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	
Finance	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	
REVIEWED BY TAG	YES		NO		
	<input type="checkbox"/>		<input type="checkbox"/>		
				REVIEWED BY CAO	
				YES	
				<input type="checkbox"/>	
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Origin

The *Local Government (Green Communities) Statutes Amendment Act* (commonly referred to as Bill 27) requires that Official Community Plans (OCP) include targets for the reduction of greenhouse gas¹ (GHG) emissions, together with supporting policies and actions to achieve those targets, by May 31, 2010.

The adoption of GHG emission reduction targets meets these legislative requirements and supports 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 incorporation of sustainability into our city policies and bylaws*”.

The purpose of this report is to recommend that Council endorse a community GHG emission reduction target of 20 percent below 2007 levels by 2020, and adopt OCP Bylaw 7100, Amendment Bylaw No. 8599 to include this target and supporting policies and actions in the City’s OCP.

Background

The following section provides background information on:

- climate change
- sources of greenhouse gas emissions (provincial and local)
- climate change response action by the City of Richmond, including the City’s approach for responding to Bill 27 and establishing GHG reduction targets
- other municipal responses to Bill 27.

About Climate Change

Climate change is a term used to describe the impacts of a rise in average global surface temperature resulting from increased concentrations of greenhouse gases in the Earth’s atmosphere. Increases in the Earth’s surface temperature can cause many impacts including sea level rise, increased storm events, drought and heat waves, decreases in agricultural viability, energy and natural resource loss, community health impacts and other socio-economic effects. At the most recent United Nations climate change conference held in Copenhagen in December 2009, it was agreed unanimously by member states that “climate change is one of the greatest challenges of our time.”

Sources of Greenhouse Gas Emissions

In BC, about 64 million tonnes of GHG are emitted annually. This translates into a per capita carbon footprint of 15 tonnes. The main source of GHG emissions is the combustion of fossil fuels in motor vehicles and by other forms of transportation (36%). Additional emissions result

¹ A greenhouse gas is defined as “any atmospheric gas that contributes to the ‘greenhouse effect’ (i.e. the warming of the Earth’s atmosphere by reflecting radiation from the Earth’s surface, and includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (NO₂) and water vapour.”

from the production of energy (21%) and the use of energy in homes and businesses (12%). Remaining emissions originate from industry, agriculture, deforestation and waste.

In Richmond, about 1.1 million tonnes of GHGs are emitted annually, translating into a per capita carbon footprint of approximately 6 tonnes. At the Richmond community scale, most emissions originate from the transportation sector (48%) and from the heating and operating of buildings (48%). The remaining 4 percent of GHG emissions come from the breakdown of organic waste in landfills. About 0.1 % of the Richmond community emissions originate from the City of Richmond's corporate activities.

Climate Change Response Action by the City of Richmond

Overview

In 2007, Richmond Council adopted a comprehensive Climate Change Response Agenda that established three priority areas of focus:

1. Empower – *help the corporation and community understand and respond to climate change and work to ensure that other levels of government and sectors of society are taking adequate action*
2. Prevent – *reduce risk by contributing less to climate change*
3. Prepare – *strengthen corporate and community capacity to adapt to unavoidable impacts.*

The development of a community-wide GHG emission reduction target and action program is one key initiative under the City's Prevent pillar. Additional actions being undertaken by the City in the three pillar areas of climate change response is provided in **Attachment 1**.

Approach to Setting Targets

To establish targets which are both meaningful and achievable, the City of Richmond has taken a strategic approach to establishing reduction targets. Specifically, GHG targets are being evaluated as part of an overarching Community Energy and Emissions Plan (CEEP).

The goal of the CEEP is to develop a cost-effective pathway for guiding Richmond's transition to an energy-wise and low-carbon future. Specific objectives are to:

- increase energy security, including reducing community's reliance on fossil fuels
- reduce overall energy consumption and improve energy efficiency
- reduce energy and carbon costs for the corporation and community
- reduce GHG emissions
- establish energy use and GHG reduction targets.

The CEEP is being developed in collaboration with BC Hydro, the latter of which is providing partnership funding. The CEEP is being completed in three phases:

- Phase I: Establishing Vision and Targets (Where Should We Go?)
- Phase II: Developing Action Plan (How do We Get There?)
- Phase III: Developing Implementation Plan (Achieving Results)

The first phase of the CEEP has been undertaken and includes an evaluation of two alternative GHG reduction targets. Public consultation is being undertaken throughout the CEEP development process. Activities to date have included a survey conducted during the OCP

Update open houses as well as a series of presentations to City advisory committees, UDI and community association boards. The CEEP is being developed as part of the City's OCP update.

Other Municipal Responses to Bill 27

Municipal responses to Bill 27 vary across BC. Introduced in 2008, Bill 27 added subsection (3) to section 877 of the *Local Government Act*. Subsection 877(3) reads as follows:

“877 (3) An official community plan must include targets for the reduction of greenhouse gas emissions in the area covered by the plan, and policies and actions of the local government proposed with respect to achieving those targets.”

While some municipalities, like Richmond, are intending to meet the May 2010 deadline, other municipalities do not expect to establish targets by the deadline. Various other BC municipalities have already established targets, some of which reflect the Provincial reduction targets of 33 percent below 2007 levels by 2020, and 80 percent below 2007 levels by 2050 (the 2007 levels were measured by the Province). The level of assessment conducted for establishing the targets varies widely, with some jurisdictions conducting detailed evaluations and others adopting targets with virtually no feasibility assessment. A list of targets adopted by various municipalities as well as those set by other levels of government is provided in **Attachment 2**.

Analysis

CEEP Results To Date (Phase I)

Input from Public Consultation

Three key themes characterize public input received to date. First, the community wishes Richmond to assume a leadership role in addressing climate change. Second, GHG reduction targets adopted by the City should be achievable and be fiscally responsible. And third, GHG reduction targets should reflect best available knowledge and scientific analysis. Further details on consultation results are provided in **Attachment 3**.

Priority Areas for Action

Analysis to-date has revealed that there are three overarching strategies for transitioning towards a more sustainable energy and low carbon future with lower GHG related emissions:

- **Energy conservation** - reduce the overall demand for an energy service (e.g., insulating buildings).
- **Energy efficiency** - reduce the energy required to provide an equivalent energy service (e.g., take rapid transit to work instead of driving a car).
- **Renewable and Clean energy** – increase the use of renewable energy sources and reduce the carbon intensity of emissions resulting from an energy service (e.g., fuelling the same vehicle with gasoline that includes 5% renewable content).

Because they are responsible for the most emissions, priority areas of focus for GHG reduction are the transportation sector (light trucks, vans, SUVs and small passenger cars) and the building sector (residential and commercial). An assessment of alternative GHG reduction tools found that the strategies which had the highest impact in reducing GHG in these sectors are:

- transportation modal shift
- vehicle fuel and emission standards
- building code changes for new and existing stock
- district energy supply for new buildings.

It is noted that the first three strategies are substantially within the jurisdiction of senior levels of government.

Proposed Target

Consideration was given to selecting a *credible* target, one which is both:

- meaningful (makes a reasonable difference in reducing climate change), and
- achievable (is technically feasible and fiscally responsible).

Focus was placed on making the most difference possible in the next 10 years. This is because studies to date indicate that climate change impacts have the best likelihood if substantive action is taken within the next decade. After this period, it is deemed highly unlikely that significant impacts can be avoided regardless of the amount of resources committed. Costs (both human and financial) from projected impacts are predicted to be substantial.

To assist the City in establishing a credible GHG reduction target, analysis was conducted to evaluate the feasibility in implementing necessary action to achieve alternative greenhouse gas targets:

- Reduction Target A - 20% reduction by 2020 (from 2007 levels)
- Reduction Target B - 27% reduction by 2020 (from 2007 levels).

A summary of results is provided in Table 1.

Staff recommend that Council adopt the target of 20 percent below 2007 levels by 2020 as it best meets the City's credibility criteria (being both meaningful and achievable). While the higher reduction 27% target is more meaningful (i.e., better addresses the reduction need), it is considered to have a much lower likelihood of being achieved given that it is highly reliant on significant progressive action being taken by external parties. It is noted that the 33% reduction target adopted by the Province is likely deemed difficult to achieve at the Richmond community scale.

Table 1: Evaluation of Alternative GHG Emission Reduction Target

Scenario	Description	Meaningful	Achievable
Reference Case (2020) (using only existing City policies) GHG emissions 14% lower than 2007 levels	Transportation (modal shift and standards) ◇ Present day transit, cycling and walking mode share (~19%) persists to 2041 ◇ Renewable and low carbon fuel, and tailpipe emission standards (according to Provincial policy) result in 33% drop in GHG emissions by 2021	+	+++
	Building Code Changes (according to Provincial policy schedule) ◇ EnerGuide 80 by 2015 ◇ EnerGuide 85 by 2025 ◇ ASHRAE 90.1-2007 by 2015; ASHRAE 90.1-2010 by 2025	+	+++
	District Energy ◇ District energy application rate from 0 to 50% new stock within City Centre	+	+++
Reduction Target A: "20-2020" GHG emissions 20% lower than 2007 levels RECOMMENDED STRATEGY	Transportation (modal shift and standards) ◇ Assumes 30% mode share of transit/walking/cycling by 2021 ◇ Renewable and low carbon fuel, and tailpipe emission standards (according to Provincial policy) result in 33% drop in GHG emissions by 2021	++	++
	Building Code Changes (according to accelerated implementation of Provincial policy) ◇ EnerGuide 80 by 2015 ◇ EnerGuide 85 by 2020 ◇ ASHRAE 90.1-2007 by 2012; ASHRAE 90.1-2010 by 2020	++	++
	District Energy ◇ Application from 0 to 75% new stock by 2020 in City Centre	++	+++
Reduction Target B: "27-2020" GHG emissions 27% lower than 2007 levels	Transportation (modal shift and standards) ◇ Assumes 35% mode share of transit/walking/cycling by 2021 ◇ Renewable and low carbon fuel, and tailpipe emission standards (according to Provincial policy) result in 33% drop in GHG emissions by 2021	+++	++
	Building Code Changes (according to accelerated implementation of Provincial policy) ◇ EnerGuide 80 by 2012 ◇ EnerGuide 85 by 2015 ◇ ASHRAE 90.1-2007 by 2012; ASHRAE 90.1-2010 by 2015	+++	+
	District Energy ◇ Application from 0 to 100% new stock by 2020 in City Centre	+++	++

Cost Implications

It is difficult to assess costs associated with GHG reduction targets. Complexity arises from the:

- uncertainty in future conditions, including extent to which external organizations and individuals will take action
- wide range of costs associated with different policies and actions
- difficulty in comparing costs of prevention with costs of responding to impacts if they are not averted
- difficulty in assessing opportunity costs (e.g., costs of not directing resource investments towards other sustainability needs, such as climate change adaptation and affordable housing).

In Sir Nicholas Stern's Report on the Economic Costs of Climate Change Abatement, the suggested range for the cost to prevent catastrophic climate change was determined to be between -2% and 5% of GDP.

The City will be conducting triple bottom line assessment (TBL) - social, environmental and economic benefits and costs - of alternative GHG actions to meet the Council adopted target. Proposed action strategies, along with TBL results, will be provided for Council consideration prior to any new action being implemented. If necessary, the target can be reviewed and amended at this time to ensure that it best meets Council's commitment to economic, social and environmental well-being.

Proposed Bylaw

Staff recommend Council adopt OCP Bylaw 7100, Amendment Bylaw No. 8599 to incorporate the recommended 20% GHG reduction target into the City's OCP as required by Provincial legislation (i.e., Bill 27). The proposed Bylaw also incorporates principles for guiding GHG reduction action, re-affirms commitment to continue to advance the City's current initiatives that support GHG reduction, and commits the City to establish new policy and actions based on triple bottom line assessments. Notably, the Bylaw also recognizes the necessary role of the Province and other levels of government in effectively reducing GHG emissions.

Recommended Provincial Action

As the Province plays a pivotal role in transportation and the Building Code, it is necessary that the City request the Province to significantly improve its support in these areas to reduce GHG emissions. Thus, staff recommend that Council write the Province regarding the following:

- To improve transportation-related GHG reductions, the City has already made significant progress as it has incorporated the Canada Line in to its planning, prepared a long-range City Centre Area Plan which emphasizes transit oriented development, densification and improved cycling infrastructure; however, more Provincial assistance is required. Specifically, staff recommend that the City request the Province to substantially increase its policy and funding support for transportation improvements in Richmond (e.g., extend the Canada Line, improve bus service),
- To assist with the retrofitting of existing buildings to reduce GHG emissions, staff recommend that the City request the Province to establish a grant, rebate and/or low interest loan program,

- To assist owners of new buildings to reduce GHG emissions, staff recommend that the City request the Province to establish a grant, rebate and/or low interest loan program, and
- To assist all to improve their ability to reduce GHG emissions, staff recommend that the City request the Province to evaluate, after May 31, 2010, all BC municipally approved (and any not approved) GHG targets, policies and actions, to identify areas for additional Provincial programming and funding.

Staff will also prepare a UBCM resolution for Council's consideration to advocate for province-wide municipal support to achieve the above requested Provincial GHG emission reduction programs and funding.

Next Steps

The second phase of the Community Energy and Emissions Plan will be developed through Fall 2010. This phase will evaluate alternate specific policies and actions in a comprehensive manner. A recommended action plan for meeting the adopted target will be provided for Council consideration.

Public consultation will continue throughout the second planning phase, with input sought on the social, economic and environmental impacts of potential policies and actions. This consultation process will be conducted with the assistance of consultants, and include an energy design charrette with community stakeholders, and working group sessions with advisory committees and community groups.

Financial Impact

None. The work to amend the OCP will be conducted within existing City budgets. As noted, costs associated with any additional GHG reduction action will be assessed during the next planning phase and will be reviewed and considered by Council prior to implementation.

Conclusion

Recently enacted provincial legislation requires that municipalities incorporate GHG reduction targets, policies and actions into their OCPs by May 31, 2010. This report recommends that Council adopt OCP Bylaw 7100, Amendment Bylaw No. 8599 to incorporate a target of a 20% reduction below 2007 GHG levels by 2020, and associated policies into the City's OCP.

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Climate Change Action Being Taken by the City of Richmond

In 2007, Richmond Council adopted a comprehensive Climate Change Response Agenda that established three priority areas of focus:

1. Empower – *help the corporation and community understand and respond to climate change and work to ensure that other levels of government and sectors of society are taking adequate action*
2. Prevent – *reduce risk by contributing less to climate change*
3. Prepare – *strengthen corporate and community capacity to adapt to unavoidable impacts.*

The City is currently developing a Community Energy and Emissions Reduction Plan (CEEP) to develop a cost-effective pathway for guiding Richmond's transition to an energy-wise and low-carbon future. Specific objectives are to:

- increase energy security, including reducing community's reliance on fossil fuels
- reduce overall energy consumption and improve energy efficiency
- reduce energy and carbon costs for the corporation and community
- reduce GHG emissions.

The CEEP will establish energy and GHG reduction targets and develop a strategic action plan for achieving these goals.

Additional action that the City is undertaking to respond to Climate Change includes:

- embedding the City's climate change action initiatives into the City's Sustainability Framework and developing a coordinated interdepartmental strategic action plan to effectively address all three pillars (Empower, Prevent and Prepare)
- developing a carbon neutral plan for achieving Richmond Council's commitment to achieve carbon neutrality in its own operations by 2012
- delivering a climate change awareness program in Richmond schools through partnership with BC Sustainable Energy Association
- reducing the rate of growth in corporate GHG emissions by implementing the City's GreenFleet policy, High Performance Building policy and energy efficiency retrofit program
- reducing the rate of growth in community GHG emissions through the City's OCP land use and transportation policies, and solid waste management program. The City is planning to deliver a new residential organics collection program commencing in April 2010.
- exploring new opportunities in the areas of district energy systems and early climate change adaptation planning.

GHG Emissions Reduction Targets Established by Other Select Jurisdictions

Jurisdiction	Target
<i>Within BC</i>	
Province of B.C.	<ul style="list-style-type: none"> • 33% below 2007 levels by 2020 • 80% below 2007 levels by 2050
City of Vancouver	<ul style="list-style-type: none"> • 33% below 2007 by 2020
City of North Vancouver	<ul style="list-style-type: none"> • 6% below 2002 by 2012
Capital Regional District	<ul style="list-style-type: none"> • 33% by 2020, relative to 2007
City of Prince George	<ul style="list-style-type: none"> • 2% reduction below 2002 by 2012
City of Dawson Creek	<ul style="list-style-type: none"> • 14% below 2006 levels by 2012 • 33% below 2006 levels by 2020 • 85% below 2006 levels by 2050
Metro Vancouver Regional District	<ul style="list-style-type: none"> • 33% below 2007 levels by 2020 • 80% below 2007 levels by 2050
<i>City of Richmond</i>	<ul style="list-style-type: none"> • 20 % below 2007 levels by 2020 (proposed)
<i>Outside of BC</i>	
City of Calgary	<ul style="list-style-type: none"> • 6% below 1990 levels by 2012 (match Kyoto)
City of Seattle	<ul style="list-style-type: none"> • 7% below 1990 levels by 2012
City of Santa Monica	<ul style="list-style-type: none"> • 15% below 1990 levels by 2015
City of Berlin	<ul style="list-style-type: none"> • 22% below 1990 levels by 2005 • 25% below 1990 levels by 2010

Public Consultation Results

1. OCP Update Survey

Input on a preferred municipal approach for setting GHG reduction targets was solicited via the OCP Update Survey conducted in November 2009. The following question (No. 14) was included in the Survey:

"I believe that the City of Richmond should be a municipal leader when setting these targets"

Approximately 75% of respondents indicated "agreement" or "strong agreement" for setting "leadership" targets for the community (see Table 1).

Response	No of Respondents	%	
Strongly Agree	221	50%	75%
Agree	108	25%	
Neutral	57	13%	
Disagree	18	4%	
Strongly Disagree	16	4%	
Don't Know	18	4%	
Total respondents	438	100%	

2. Presentations:

Presentations were delivered to various community groups. Table 2 summarizes their comments.

Organization	Comments
Urban Development Institute (UDI)	<ul style="list-style-type: none"> Aware that the Province is scheduled to increase building standards Wants to be kept up to date on progress on building codes and other related policy 20% target is acceptable given that it is not targeted to only one group
Rmd Community Services Advisory Committee	<ul style="list-style-type: none"> Concerned reducing emissions from buildings might create housing equity issue It is important that it implements an 'anti-idling' program for City-owned fleet vehicles It is important that development proceed in a manner that allows people to leave their cars at home
Rmd Intercultural Advisory Committee	<ul style="list-style-type: none"> As Richmond's population is growing, intensity targets might be more appropriate Important to set near-term (5-10 yr) targets, rather than 40 year targets Important to focus on partnerships with senior levels of government
Rmd Cycling Committee	<ul style="list-style-type: none"> It is important that all sectors act to reduce GHGs, not just the City and residents
Rmd Seniors Advisory Committee	<ul style="list-style-type: none"> Additional resources are needed to enable residents of multi-unit residential buildings to upgrade the energy efficiency of their buildings
South Arm Community Association	<ul style="list-style-type: none"> Important that strong incentives are available to promote energy efficiency upgrades
Sea Island Community Association	<ul style="list-style-type: none"> 20 percent reduction target acceptable Need tools to make energy efficiency more cost attractive Government to take lead and establish enabling environment for energy efficiency
Rmd School Board No. 38 Liaison Committee	<ul style="list-style-type: none"> no comments received
Rmd Advisory Committee on the Environment	<ul style="list-style-type: none"> no comments received