2.0 Climate Change Response

2.0 Climate Change Response

Strategic Directions

Empower: Build Capacity
Reduce: Reduce Greenhouse Gas Emissions
Improve: Increase Carbon Sequestering
Prepare: Prepare for Climate Change

OVERVIEW:

The earth's climate is changing, and according to the United Nations, "climate change is one of the greatest challenges of our time"[1]. In particular, "dealing with climate change is an economic necessity to avoid serious disruption to global and national economic and social activity".

The scientific understanding of climate change is developing rapidly and scientists say that, although some of the changes in our climate are due to natural variations that have been taking place for millions of years, greenhouse gases being released into the atmosphere from human activities are inducing potentially dangerous levels of climate change[2].

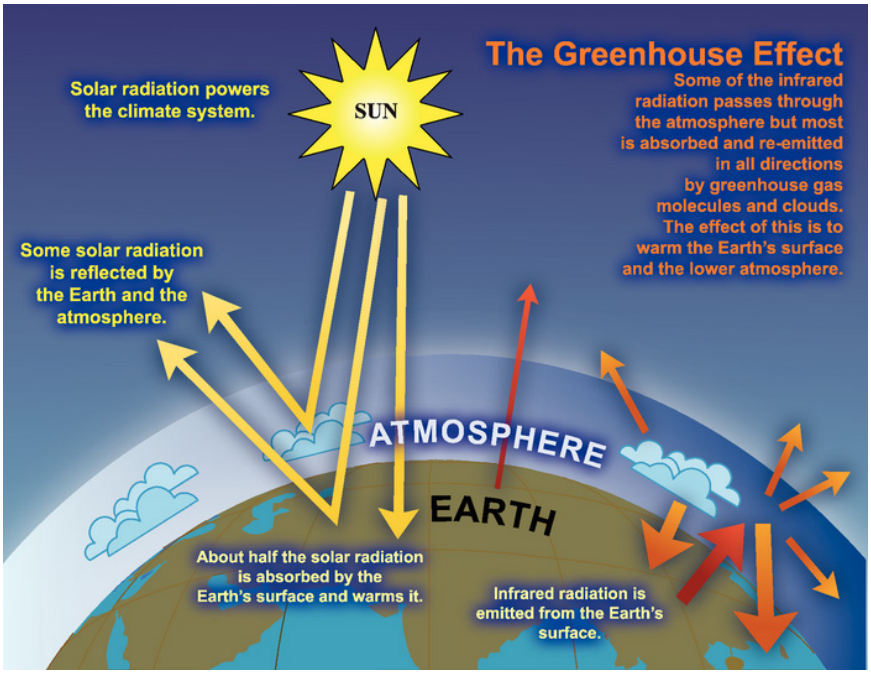
Greenhouse gases (GHGs) capture the solar radiation being reflected back from the earth's surface, contributing to the "greenhouse effect". Many GHGs are naturally occurring and are important for moderating temperatures to a level suitable for human living. However, human activities are significantly increasing the concentration of GHGs in the atmosphere, trapping more energy and causing a rise in global temperatures. It doesn't take a major change in temperature to create significantly different climatic conditions—5°C is the difference between the present average global temperature and an ice age[3].

---

1 Copenhagen Accord, 2009: http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf Rio+20 United Nations Conference on Sustainable Development, 2012: http://www.uncsd2012.org/rio20/content/documents/compilationdocument/PoliticalGroups.pdf

2 IPCC Fourth Assessment Report, 2007. *2.4 Attribution of climate change:* http://ipcc.ch/publications_and_data/ar4/syr/en/mains2-4.html

3 UN "Climate Change as a Global Challenge", 2007: http://www.un.org/ga/president/61/follow-up/climatechange/ClimateChangeBackgroundPaper.pdf



The greenhouse effect (IPCC, 2007)

Primary human activities emitting greenhouse gases are those that involve the combustion of fossil fuels (e.g., heating our homes, driving our vehicles), those that generate waste and those that cause deforestation[4]. Scientists conclude that there will be serious consequences globally, regionally and at a local level if insufficient action is taken to reduce GHG emissions and adapt to unavoidable changing conditions[5]. Impacts may include diminishment in global food production, sea level rise, increased frequency and intensity of extreme weather events (e.g., storms, droughts, heat waves, natural disasters), energy servicing disruptions, infrastructure failures, species extinction and increased rates of disease[6].

It is also known that, given already existing levels of greenhouse gas emissions, climate change is unavoidable and as such, some level of change will occur. Reducing further emissions is critical for reducing the amount of change that will occur and reducing the magnitude and extent of impacts. However, because not all levels of climate change can be averted, it is also important for communities to prepare for unavoidable change.

While climate change poses a significant challenge, responding to it presents opportunities for advancing overall sustainability. This is because many of the specific action initiatives that reduce impacts of climate change also simultaneously contribute to other sustainability objectives (e.g., community safety, resilient economies, strengthened local food security, live-work-play communities, reduced reliance on the automobile, higher performing buildings, and healthier natural environments).

---

4 IPCC Fourth Assessment Report, 2007. *The Physical Science Basis: Executive Summary:* http://ipcc.ch/publications_and_data/ar4/wg1/en/ch7s7-es.html

5 IPCC Fourth Assessment Report, 2007. 5 *The long-term perspective:* http://ipcc.ch/publications_and_data/ar4/syr/en/spms5.html

6 IPCC Fourth Assessment Report, 2007. *3.3.1 Impacts on systems and sectors:* http://ipcc.ch/publications_and_data/ar4/syr/en/mains3-3-1.html

In the coming years, one of the most pressing challenges in securing a sustainable future will be to significantly reduce greenhouse gas emissions, and find ways to adapt to the unavoidable effects of climate change.

2.1 Managing Climate Change Response

OVERVIEW:

Effectively responding to climate change is a challenging endeavour, requiring a strategic approach and sustained effort. The City of Richmond has advanced a wide range of action initiatives to both reduce GHG emissions and prepare for change. A key challenge for the City of Richmond will be to integrate new ideas and emerging best practices in a manner which is cost-effective and results in meaningful benefits for the local community. Effective response, however, will depend upon sufficient action being taken by all sectors of society, including senior governments, businesses and the general public.

OBJECTIVE 1: A WELL-MANAGED PROGRAM

Advance a Climate Change Program that addresses climate change response priorities in a manner that supports the multiple needs of a sustainable community.

POLICIES:

a) advocate that senior governments advance necessary climate change services and that local governments are resourced appropriately for taking meaningful action;

b) as part of the City's Sustainability Framework, implement and regularly update the City's Climate Change Strategic Program to establish and address climate change response priorities, including capacity building, emission reduction, carbon sequestration and adaptation;

c) develop and evolve targets for climate change response as part of the City's Climate Change Strategic Program;

d) integrate climate change considerations for achieving a low-carbon and a climate-prepared City into key policies, plans, programs and services, including the City's land-use and development policies, Transportation Plan, Infrastructure Plan, Parks and Open Space Strategy, Flood Management Strategy, Dike Master Plan, Social Development Strategy, Environmentally Sensitive Areas Management Strategy, Emergency Plan and Economic Development Strategy;

e) regularly measure and report progress towards meeting established targets;

f) review and update policies in a timely manner to integrate evolving climate change knowledge and best practices.

OBJECTIVE 2: BUILD CAPACITY

Build community and City capacity to reduce the magnitude of climate change and effectively respond to unavoidable effects.

POLICIES:

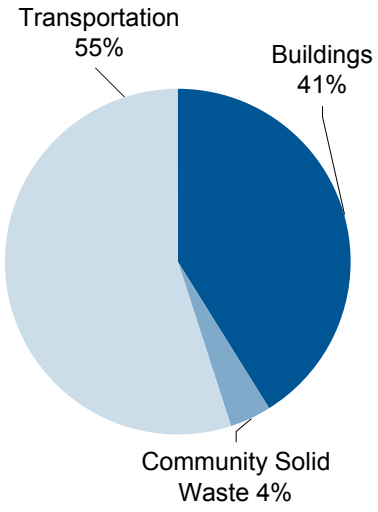
a) deliver local programs and initiatives to increase awareness and empower the community and the City to take action to reduce and prepare for climate change impacts;

b) advocate that senior governments and other organizations continue and expand programs which assist the community and City to take climate action (e.g., grants, incentives);

c) advance partnership initiatives among the research community and practitioners to develop and implement climate change best practices that are cost-effective and provide meaningful benefit.

Building climate change awareness with young students through the Climate Change Showdown program

Richmond Community GHG Emissions by Sector (2010)



2.2 Climate Change Mitigation

Bylaw 10328
2022/03/21

OVERVIEW:

In 2007, emissions of greenhouse gases (GHGs) generated by the Richmond community were approximately 1,100,000 tonnes of CO2 equivalent (according to data available in 2020). Approximately 58% of the community's greenhouse gas emissions were transportation-related and about 38% were generated from energy use in buildings. Waste contributed about 4% of emissions.

On May 17, 2010, Council adopted greenhouse gas reduction targets of 33% below 2007 levels by 2020 and 80% by 2050, and on January 27, 2014, Council approved Richmond's first Community Energy and Emissions Plan (CEEP). Thanks to actions taken by Richmond, and at the provincial and federal level, data available in 2020 indicates that total community GHG emissions decreased 7% below 2007 levels by 2017, even with a growing population and a larger local economy.

In March 2019, Richmond Council directed staff to revise the City's existing Community Energy and Emissions Plan (CEEP 2014) with additional measures to achieve community-wide GHG emission reductions consistent with the global targets recommended by the Intergovernmental Panel on Climate Change (IPCC) to limit global warming to 1.5°C above pre-industrial levels. In March 2022, Council adopted the updated Community Energy and Emissions Plan 2050, and the community-wide GHG emission reduction targets noted in Objective 1 below.

The City of Richmond has already established itself as a leader in implementing important climate action initiatives. However, concerted effort by all parties will be needed to achieve the GHG reductions needed to limit climate change to levels that will avoid unmanageable impacts and costs. The Federal and Provincial governments have extensive jurisdiction over the two major sectors responsible for the majority of Richmond's community GHG emissions—transportation and building infrastructure—so action by senior levels of government is critical. Equally important will be changes implemented by Richmond residents and businesses to reduce GHG emissions from transportation and buildings, both by reducing total energy demand, and by shifting away from the use of fossil fuels.

OBJECTIVE 1: REDUCE GHG EMISSIONS

Reduce community-wide GHG emissions 50% below 2007 levels by 2030, and achieve net zero GHG emissions by 2050. Continue to reduce direct GHG emissions from City operations and services, and maintain the City's standard of net zero GHG emissions.

POLICIES:

The City shall:

a) advance GHG emission reduction planning and actions consistent with the City's Sustainability Framework;

b) advocate that senior governments take a leadership role in reducing GHG emissions (e.g., legislation, programs, education, capital investments);

c) request that senior governments provide funding and incentives to municipalities and other parties to reduce GHG emissions (e.g., existing building retrofits, new building improvements, transit, ride sharing, electrical vehicle plug-ins, recycling);

d) Maintain and update Richmond's Community Energy and Emissions Plan (CEEP) that identifies and advances strategic actions to achieve community-wide GHG emission reduction targets. The CEEP should include strategies and actions that:

   i) reduce GHGs from existing buildings through energy retrofits;

   ii) reduce GHGs from transportation by encouraging a shift to electric vehicles;

   iii) reduce greenhouse gas emissions from new developments through high performance building design standards;

   iv) strengthen land use and development policies that support compact and complete communities, sustainable transportation and sustainable resource use, including energy, water and materials;

v) reduce automobile reliance through compact land use, transit-oriented development practices and strengthened investments in alternative modes of transportation;

vi) reduce net GHG emissions through capture and secure storage of GHGs from the atmosphere;

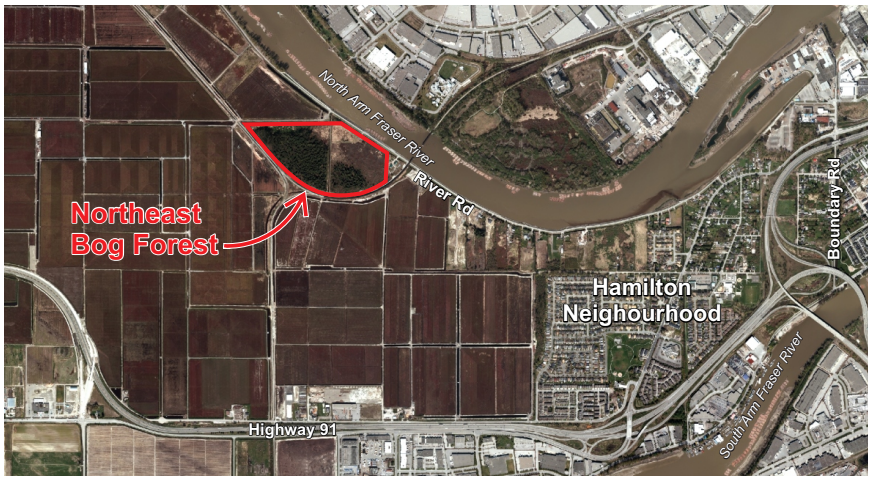
vii) minimize GHG emissions and maximize the value of resources within goods and services consumed by using Richmond's Circular Economy Vision and Principles;

viii) establish and regularly update sector-specific GHG reduction targets, including but not limited to building energy use, transportation and waste generation; and

ix) regularly report community-wide GHG emissions.

e) maintain corporate energy and emissions programs that identify and advance strategic actions to reduce GHG emissions from City services and operations;

f) regularly measure and report GHG emissions from City services and operations with evolving methodologies.



City acquisition of the last remaining portion of the Northeast Bog Forest

2.3 Carbon Sequestration

OVERVIEW:

It is no longer sufficient to "do less harm". To achieve a sustainable community, conditions must be reversed, shifting from a trend of deterioration to a state of health and strength. This means investing in supporting Earth's natural systems which are responsible for balancing greenhouse gas levels and stabilizing climatic conditions.

OBJECTIVE 1: IMPROVE CONDITIONS

Advance action beyond impact reduction and aim to improve conditions through action that sequesters carbon.

POLICIES:

a) protect and enhance Richmond's natural environments to support carbon retention as well as other important ecosystem service (e.g., pollution reduction, nutrient generation, habitat);

b) integrate carbon retention objectives into key policies, plans and programs, including but not limited to Parks and Open Space Strategy, Environmental Sensitive Areas Management Strategy and land use and development policies.

Before and after a dike improvement project which enhanced intertidal habitat and the City's flood protection defences

2.4 Climate Change Adaptation

OVERVIEW:

Climate change has the potential to significantly affect a wide range of community interests. Existing levels of GHG emissions in the atmosphere mean that some level of climate change is unavoidable. Accordingly, at the same time as establishing an effective means of limiting Richmond's contribution to climate change and improving natural processes for stabilizing the climate, it is also important to prepare for its various impacts with a range of adaptation measures. Successful adaptation does not mean that impacts will not occur, but it does mean that they will be less severe.

OBJECTIVE 1: PREPARE FOR CLIMATE CHANGE

Increase City and community resiliency to climate change impacts.

POLICIES:

a) Sustainability staff to lead the development and implementation of adaptation strategies to manage climate change risk and optimize investment;

b) Sustainability staff to lead the integration of climate change adaptation considerations into key policies, plans, programs and services, including land-use and development decision-making, city infrastructure design and management; floodplain management, emergency preparedness, natural ecosystem health, agricultural viability, social development planning and economic development;

c) strengthen community resilience to projected global changes by increasing local self reliance and resource security (e.g., food security, energy security, groundwater security, intertidal ecological security).