

Climate Action Revenue Incentive Program (CARIP) Public Report

Climate Action Revenue Incentive (CARIP) Public Report for YEAR 2016

City of Richmond

Metro Vancouver



Report Submitted by

Levi Higgs
Energy Manager
lhiggs@richmond.ca
604-244-1239

The City of Richmond has completed the 2016 Climate Action Revenue Incentive Program (CARIP) Public Report as required by the Province of BC. The CARIP report summarizes actions taken in 2016 and proposed for 2017 to reduce corporate and community-wide energy consumption and greenhouse gas emissions (GHG), as well as general sustainability related initiatives.

April 19, 2017

General Information

Name of Local Government	City of Richmond
Member of Regional District (RD)	Metro Vancouver
Regional Growth Strategy (RGS) in region	Yes
Population	218,000

Table of Contents

1. GENERAL REPORT INFORMATION	3
2. BROAD PLANNING	3
2.1. Community Actions	4
2.2. Corporate Actions	5
3. BUILDINGS AND LIGHTING	5
3.1. Community Actions	6
3.2. Corporate Actions	7
4. ENERGY GENERATION	7
4.1. Community Actions	8
4.2. Corporate Actions	9
5. GREENSPACE/NATURAL RESOURCE PROTECTION	9
5.1. Community Actions	9
5.2. Corporate Actions	10
6. SOLID WASTE	11
6.1. Community Actions	11
6.2. Corporate Actions	12
7. TRANSPORTATION	13
7.1. Community Actions	14
7.2. Corporate Actions	15
8. WATER AND WASTEWATER	16
8.1. Community Actions	16
8.2. Corporate Actions	17
9. CLIMATE ADAPTION	17
9.1. Community Actions	18
10. INNOVATION	18
11. PROGRAMS, PARTNERSHIPS AND FUNDING OPPORTUNITIES	19
12. CONCLUSION	19

1. GENERAL REPORT INFORMATION

This 2016 Climate Action Revenue Incentive Program (CARIP) Public Report documents the actions that the City of Richmond has taken corporately and in the community to support the reduction of greenhouse gas (GHG) emissions and energy use, as well as other sustainability related initiatives. The actions are separated into seven main categories; Broad Planning, Buildings and Lighting, Energy Generation, Greenspace/Natural Resource Protection, Solid Waste, Transportation, Water and Wastewater, and Climate Adaptation. There are also is an Innovation category, which the City has inputted action items. The categories are further divided into corporate and community related actions, with general climate action questions at the beginning of each category.

This report encompasses a majority of the action items that the City is involved in to support GHG and energy reduction, but does not cover all sustainability related initiatives that the City conducts or supports. The report represents a “snapshot” of City activities over the past year, and proposed actions for 2017.

2. BROAD PLANNING

Broad planning refers to high level planning that sets the stage for GHG emissions reductions, including plans such as Official Community Plans, Integrated Community Sustainability Plans, Climate Action Plans or Community Energy Emissions Plans. Land use planning that focuses on Smart Growth principles (compact, complete, connected, and centred). Broad Planning plays an especially important role in energy and GHG reduction. Summarized below are the City of Richmond’s responses to the Provincial inquiries regarding broad planning issues, and summary of initiatives conducted in 2016 and planned in 2017.

General Climate Action Questions	
What is (are) your current GHG reduction target(s)?	GHG reduction targets of 33% by 2020, and 80% by 2050, below 2007 levels. Reduce energy use by 10%.
Has your local government used the Community Energy and Emissions Inventory (CEEI) to measure progress?	Yes
Which of the following does your local government use to guide climate action implementation? <ul style="list-style-type: none"> • Community Energy and Emissions Plan • Integrated Community Sustainability Plan • Community-Wide Action Plan 	Yes Yes Yes
Does your local government have a corporate GHG reduction plan?	Yes
Does your local government have a climate reserve fund or something similar?	Yes

2.1. Community Actions

Community-Wide Actions Taken in 2016	
	The City's OCP was amended to incorporate the Arterial Road Land Use Policy, which identifies areas along the City's Arterial Roads that are appropriate for more energy efficient housing types such as duplex, triplex and row house development.
	Continued to implement the OCP and City Centre Area Plan (CCAP) directives as new development applications are processed. The plans direct the majority of Richmond's urban growth to the City Centre and near major transit stations.
	Continued to ensure new developments within the City Centre Area were "District Energy Utility (DEU) Ready" for future connection to a district energy system, as per the City by-law.
	Worked with Translink in developing the Southwest Area Transport Plan to define Richmond's long-term transportation network and priorities, which also encompasses, South Delta and Tsawwassen First Nation.
	Met regularly with Richmond's Small Home Builders and Urban Development Institute when preparing new community building related sustainability initiatives

Community-Wide Actions Proposed for 2017	
	Revise zoning regulations on the size of homes on agricultural land to ensure farmland is protected.
	Continue to implement OCP and CCAP policies as new development applications are processed.
	Continue to meet with Richmond's Small Home Builders and Urban Development Institute when preparing new community building related sustainability initiatives.
	Revise the Steveston Area Plan and include measures that promote a more compact, sustainable, energy efficient, and pedestrian friendly built environment
	Continue development of the Southwest Area Transport Plan.
	Implement and support the installation electric vehicle charging infrastructure in select new private developments.
	Continue to follow City by-law requirements and implement "DEU" ready development in the City Centre and West Cambie neighborhood areas

2.2. Corporate Actions

Corporate Wide Actions Taken in 2016	
	Continued to implement the corporate High Performance Building Sustainability Policy. This policy sets targets for the construction of energy efficient new corporate buildings and sets in place processes to ensure that energy and resources are used efficiently in existing buildings.
	Continued to implement action items from the City's Green Fleet Action Plan, to reduce GHG emissions associated with the City's vehicle and equipment use.
	Continued to adhere to the Corporate Building, Equipment, Monitoring, and Integration Requirements, which sets out guidelines for equipment energy efficiency, energy and GHG emissions monitoring requirements, and the integration of buildings and equipment into the City's network.

Corporate Wide Actions Proposed for 2017	
	Review the incorporation of a step code for new corporate buildings, with the goal of effectively improving building energy and sustainability performance
	Continue to implement the corporate High Performance Building Sustainability Policy.
	Continue to implement action items from the City's Green Fleet Action Plan
	Continue to implement Corporate Building, Equipment, Monitoring, and Integration Requirements

3. BUILDINGS AND LIGHTING

Low-carbon buildings use the minimum amount of energy needed to provide comfort and safety for their inhabitants and tap into renewable energy sources for heating, cooling and power. These buildings can save money, especially when calculated over the long term. This category also includes reductions realized from energy efficient street lights and lights in parks or other public spaces. Below are the City of Richmond's responses to the Provincial inquiries regarding building and lighting initiatives conducted in 2016 and planned for 2017.

General Climate Action Questions	
Does your local government have green building/construction policies, plans or programs?	Yes

3.1. Community Actions

Community-Wide Actions Taken in 2016	
	Continued to implement building and district energy policies. Secured commitments from new development in the City Centre to achieve LEED Silver, and townhome developments city-wide to build to EnerGuide 82 standard.
	Established a “Solar Friendly Richmond Framework”, outlining actions to better enable solar energy system implementation in Richmond.
	Continued with the following EnergySave Richmond suite of programs. <ul style="list-style-type: none"> • Building Energy Challenge, a friendly competition to save energy use over the course of the year, 2016 was the second year of the program that now has over 95 buildings involved and over 7.0 million square feet of property. • Richmond Carbon Marketplace pilot program, which supports community based GHG emissions reduction projects through facilitation and funding • Smart Thermostat Pilot Program involved 150 participants, providing a \$125 rebate on a smart thermostat. • Climate Smart program that provides coaching to Richmond-based businesses on cost-effective opportunities to reduce GHG emissions, energy use, and waste generation
	Through a water and energy save program, installed efficient spray-valves and water fixture aerators, and conducted energy and water savings assessments at 99 food service facilities. The program is projected to save 73 million litres of water and over 500 tonnes CO ₂ e annually.
	Supported implementation of the Climate Change Showdown in 20 Richmond Grades 4-7 classrooms.

Community-Wide Actions Proposed for 2017	
	Implement electric vehicle direct current fast charging stations in the City, to further encourage the use and development of electrical vehicles.
	Implement new BC Energy Step Code requirements for new developments through bylaw requirements and policies applied at rezoning.
	Implement a benchmarking, reporting and disclosure bylaw for buildings.
	Continue to implement EnergySave Richmond suite of programs. <ul style="list-style-type: none"> • Host Year 3 of Building Energy Challenge. • Continue to provide the Smart Thermostat Program. • Continue to host Climate Smart program for businesses. • Continue to implement water and energy saving programs. • Continue to offer the Richmond Carbon Marketplace pilot program to Richmond businesses.
	Continue to support climate change education in up to 20 Richmond classrooms.

3.2. Corporate Actions

Corporate Wide Actions Taken in 2016	
	Completed energy efficiency upgrades at City Hall, Steveston Community Centre, Fire Halls, and other corporate facilities that will reduce energy use by approximately 1.3 GWh, or equal to annual energy use of 30 single family homes in Richmond
	Completed Phase 1 of the City of Richmond street lighting conversion project, with the replacement of approximately 1,050 less energy efficient street light fixtures with new more efficient LED technology, for an estimated energy savings of over 240,000 kWh annually
	Initiated the internal Energy Statement reporting functionality to further engage City staff in corporate energy reduction initiatives.
	Initiated the upgrade of the mechanical building automation system at the Library Cultural Centre to help improve overall occupant comfort and equipment scheduling and monitoring

Corporate Wide Actions Proposed for 2017	
	Complete mechanical upgrades at Watermania, Richmond Ice Centre, and at Library Cultural Centre
	Complete the upgrade of the building automation systems at Fire Hall No.4 and No.5, and at the Community Safety Building to improve overall occupant comfort and equipment scheduling and monitoring
	Complete Phase 2 of the City of Richmond street lighting conversion project, with the replacement of approximately 1,000 less energy efficient street light fixtures with new more efficient LED technology
	Continue to work towards achieving key targets in the City's High Performance Building Policy for new and existing facilities, with focus on energy efficiency, reduced resource use, and environmental sustainability.

4. ENERGY GENERATION

A transition to renewable or low-emission energy sources for heating, cooling and power supports large, long-term GHG emissions reductions. Renewable energy including waste heat recovery, geo-exchange, micro hydroelectric, solar thermal and solar photovoltaic, heat pumps, tidal, wave, and wind energy can be implemented at different scales, e.g. in individual homes, or integrated across neighbourhoods through district energy or co-generation systems. Below are the City of Richmond's responses to the Provincial inquiries regarding energy generation, and summary of initiatives conducted in 2016 and planned in 2017.

General Climate Action Questions	
Is your local government currently developing or constructing new district energy projects?	Yes
Is your local government currently developing or constructing a new renewable energy system?	Yes
Is your local government operating a district energy centre?	Yes
Is your local government operating a renewable energy system?	Yes
Is your local government connected to a district energy system that is operated by another energy provider?	No
Are you aware of the integrated resource recovery (IRR) guidance page on the BC Climate Action Toolkit?	Yes

4.1. Community Actions

Community-Wide Actions Taken in 2016	
	Completed Phase 4 of the Alexandra District Energy Utility (ADEU), which included the construction of a new energy centre to service the ADEU's first commercial customers, new residential customers, and a connection to the new Fire Hall No.3. The expansion increased ADEU's service totals to 1,200,000 ft ² of residential space and 335,000 ft ² non-residential space.
	Increased the floor space serviced by the Oval Village District Energy Utility (OVDEU), in partnership with a private utility, to 1,413,000 ft ² (a total of 1,343 units).
	Issued a request for proposals to find a partner to design, finance, build and operate City Centre North District Energy Utility (CCNDEU).

Community-Wide Actions Proposed for 2017	
	Continue to connect buildings and expand the ADEU distribution system as development requires. Currently, one new residential building (115,000 ft ²) is scheduled for connection.
	Continue OVDEU construction in partnership with private utility partner. Install additional distribution piping and connect two new developments with a total of 480,000 ft ² of building gross floor area.
	Negotiate a partnership agreement to design, finance, build and operate CCNDEU with a private utility partner.
	Complete a feasibility study on the potential of micro sewer heat recovery infrastructure to be included as part of new multi-family and commercial development.

4.2. Corporate Actions

Corporate Wide Actions Taken in 2016	
	Completed a feasibility study on the installation of solar photovoltaic array at the new Minoru Complex and Fire Hall No.1
	Completed the connection of the new Fire Hall No.3 to the corporate Alexandra District Energy Utility Centre, which provides heating and cooling through a renewable geoexchange system.

Corporate Wide Actions Proposed for 2017	
	Continue to target renewable energy integration, a key component of the City's High Performance Building Policy, during design development of new corporate facilities.
	Install solar photovoltaic array at Fire Hall No.1 to offset electrical demand.

5. GREENSPACE/NATURAL RESOURCE PROTECTION

Greenspace/Natural Resource Protection refers to the creation of parks and greenways, boulevards, community forests, urban agriculture, riparian areas, gardens, recreation/school sites, and other green spaces, such as remediated brownfield/contaminated sites as well as the protection of wetlands, waterways and other naturally occurring features. Greenspaces support climate change mitigation (reducing emissions by absorbing and sequestering GHG) and adaptation (providing shade, cooling, deflecting strong wind, and improving air quality). Below are the City of Richmond responses to the Provincial inquiry regarding "greenspace" management in the City, and summary of community initiatives conducted in 2016 and planned in 2017.

General Climate Action Questions	
Does your local government have urban forest policies, plans or programs?	Yes

5.1. Community Actions

Community-Wide Actions Taken in 2016	
	Adopted an Invasive Species Action Plan (ISAP), which is a strategic, risk based approach to guide and prioritized invasive species management in Richmond.
	Integrated the Ecological Network Management Strategy (ENMS) directives in over 15 projects, increasing native planting, connecting areas, and protecting sensitive habitat in the City.
	Planted 590 trees on City streets and parks, as per the City's Tree Management Plan
	In partnership with the David Suzuki Foundation and the Richmond School District, the City mentored the Richmond's Green Ambassadors who developed and delivered the 5 th annual ReaDY Summit – a youth led conference promoting environmental awareness and action. The theme for the 2016 summit was "Change Happens Now: The World is Rooted in our Backyard"
	Began development of the 136 acre Garden City Lands Conservation Area and Farm site that is within the ALR and is a remnant of the former Greater Lulu Island Bog.

Community-Wide Actions Proposed for 2017	
	Complete the Urban Forest Management Strategy and begin implementation of the Strategy's recommendations.
	Continue to advance the actions and initiatives identified in the City's ENMS to protect, restore and connect the City's Ecological Network in the following focus areas: <ul style="list-style-type: none"> - Green infrastructure and development; - Vegetation, habitat and wildlife; - Parks and public spaces; and stewardship and collaboration.
	At the Garden City Lands Conservation Area and Farm, complete the construction of the 900m seepage barrier to protect the bog, complete tree and shrub planting around the perimeter of the site including 935 trees and 55,224 shrubs, grasses, perennials, etc., and prepare a 5 acre farm area to facilitate Kwantlen Polytechnic University's Sustainable Agriculture degree program
	Continue to work in partnership with the David Suzuki Foundation and Richmond School District to mentor Richmond's Green Ambassadors to develop and deliver the 6 th annual Ready Summit –where the 2017 theme is “Going toward another 150.”
	Host 29 free community workshops under the Enhanced Pesticide Management Program to reduce pesticide use and create a more sustainable community.

5.2. Corporate Actions

Corporate-Wide Actions Taken in 2016	
	Initiated a carbon assessment of the Northeast Bog Conservation Area, to model the carbon storage implications of the land as compared to agricultural development.
	Undertook a riparian compliance review to inform regulatory changes to protect and enhance the riparian area in accordance with the Riparian Area Regulation.
	Undertook a multi-year program to manage Japanese Knotweed infestations in and around City infrastructure and sensitive habitat.
	Developed a planting plan and completed site preparation for native species and shrubs planting along the City's new 5 km Railway corridor greenway, which is intended to function as an ecological corridor.
	At the City owned Terra Nova Rural Park Pollinator Pasture, planted 60 trees and 160 shrubs and forbes to enhance pollinator habitat and assist the agricultural production of the Sharing Farm's farming programs in the park.
	Established two demonstration lawns, one at City Hall, the other at Garden City to showcase alternative ground covers that utilize pollinator attracting/native grass species to mitigate infestations of European Chaffer Beetles.

Corporate Wide Actions Proposed for 2017	
	Complete a hydrological assessment of the City's Northeast Bog conservation area, to help finalize the City's carbon assessment.
	Complete the development of the Garden City Lands Water and Ecological Resource Management Strategy including recommendations for construction and management practices and long-term monitoring of the bog ecosystem.
	Complete the planned planting of native trees and shrubs along the Railway Greenway Corridor for Phase 2 of the project.
	Continue to detect and respond to invasive species encroachment on City property effectively

6. SOLID WASTE

Reducing, reusing, recycling, recovering and managing the disposal of solid waste minimizes environmental impacts and supports sustainable environmental management, greenhouse gas reductions, and improved air and water quality. Below are the City of Richmond responses to the Provincial inquiries regarding solid waste management in the City, and summary of initiatives conducted in 2016 and planned in 2017.

General Climate Action Questions	
Does your local government have construction and demolition waste reduction policies, plans or programs?	Yes
Does your local government have organics reduction/diversion policies, plans or programs?	Yes

6.1. Community Actions

Community-Wide Actions Taken in 2016	
	Introduced Bylaw 9516, which effective April 1, 2016, requires that 70% of waste from single-family home demolitions to be diverted from disposal – Contractors are assessed a \$2.00 per square foot refundable fee if they meet the 70% waste diversion requirement.
	Served approximately 145,000 customers at the Recycling Depot, using the facility to recycle material such as; large appliances, batteries, cell phones, and Styrofoam.

Community-Wide Actions Taken in 2016	
	<p>Conducted numerous community engagement and information on waste reduction, recycling and avoiding food wastage.</p> <ul style="list-style-type: none"> • Delivered 38 recycling and waste reduction workshops with approximately 860 attendees • Organized 10 DreamRider theatrical shows for Zero Heroes with more than 3,710 attendees • Provided five Recycling Depot tours for 105 students/teachers • Participated in in six community events to promote waste reduction and recycling initiatives.
	Green Ambassadors contributed 2,327 hours to promote waste diversion at special events and participated in community outreach and invasive plant removals.
	Introduced Donation Bin Regulation Bylaw No. 9502 that established approved locations for non-profit group to place bins for clothing or other household items throughout the community.
	Supported recycling and waste reduction at over 50 community events.

Community-Wide Actions Proposed for 2017	
	Review and report progress on Demolition and Recycling Material Bylaw.
	Update the Multi-Family and Commercial Guidelines to ensure multi-family and commercial developments are designed with accessible and adequate space for garbage and recycling services.
	Install in-ground containers in high traffic and/or remote public spaces to increase waste capacity concerns and reduce service frequency.
	Continue public engagement through workshops, depot tours, community displays, and theatrical shows.
	Continue to increase awareness of the expanded range of materials accepted in the Blue Box and Blue Cart recycling programs, including proper recycling practices under the MMBC partnership, to reduce contamination and increase recycling levels.

6.2. Corporate Actions

Corporate Wide Actions Taken in 2016	
	Continued to expand in-house recycling to more City facilities through the City's WeRecycle program, which includes organics collection and expanded the range of materials accepted for recycling.
	Supported Community Services department with their Annual Purge Event to properly recycle paper, large/small appliances, batteries, electronics and hazardous materials.
	Assisted with the implementation of the Sustainable Food Service Quick Guide to ensure all facilities are using sustainable dinnerware that can be recycled/composted through Richmond recycling programs.

Corporate Wide Actions Proposed for 2017	
	Conduct corporate site and visual audits of the garbage and recycling stations to ensure that staff are disposing of materials in the correct receptacles and develop a renewed communication plan based on its results.
	Conduct a waste reduction lunch and learn event for City staff to inform them of community and corporate opportunities to reduce waste
	Continue promoting the corporate WeRecycle program, to encourage staff to increase corporate waste diversion

7. TRANSPORTATION

Transportation actions that increase transportation system efficiency, emphasize the movement of people and goods, and give priority to more efficient modes, e.g. walking, cycling, ridesharing, and public transit, can contribute to reductions in greenhouse gas emissions and more livable communities. Below are the City of Richmond responses to the Provincial inquiries regarding transportation system management in the City, and summary of initiatives conducted in 2016 and planned in 2017.

General Climate Action Questions	
Does your local government have policies, plans or programs to support: <ul style="list-style-type: none"> • Walking • Cycling • Transit Use • Electric Vehicle Use • Other: car-sharing, carpooling 	Yes Yes Yes Yes Yes
Does your local government have a transportation demand management (TDM) strategy (e.g. to reduce single-vehicle occupancy trips, increase travel options, provide incentives to encourage individuals to modify travel behavior)?	Yes
Does your local government have policies, plans or programs to support local food production (thus reducing transportation emissions)?	Yes

7.1. Community Actions

Community-Wide Actions Taken in 2016	
	<p>Completed multiple projects to improve transit, biking, and pedestrian accessibility including:</p> <ul style="list-style-type: none"> • Upgraded two special crosswalks on arterial roads (No. 2 Road and Gilbert Road) to pedestrian signals to support the implementation of the Crosstown local street bikeway • Completed the Parkside local street bikeway along Ash Street (Williams Road-Granville Ave) • Upgraded special crosswalk on arterial road (Westminster Hwy) as part of northern extension of the Railway Greenway multi-use pathway to the Middle Arm Dyke Trail • Upgraded 24 bus stops to improve accessibility, • Initiated construction of off-street multi-use pathway on Dyke Road • Rehabilitated off-street multi-use pathway on Shell Road • Constructed sidewalk and pathways on 7th Avenue and Bridgeport Rd to support walking and access to nearby transit services. • Upgraded 27 signalized intersections to include accessible pedestrian signal features
	Staged 16 th annual “Island City, by Bike” tour for the community to encourage cycling as a mode of transportation.
	Supported education and encouragement programs for cycling and walking (e.g., Bike to Work/School Week, cycling education courses for students and adults, Walk Richmond program, school travel planning partnership with TransLink)
	Continued partnership with TransLink to identify and encourage alternative travel modes to decrease single occupant vehicles trips to/from business parks and industrial areas in Richmond

Community-Wide Actions Proposed for 2017	
	<p>As part of the approved Transportation Capital Budget, the following improvements and enhancements are planned to be completed in 2017:</p> <ul style="list-style-type: none"> • Construct or enhance eight new sidewalks/pathways to encourage alternative modes of transportation • Install 2 special crosswalks and 3 new pedestrian signals including one to support access to new Minoru Complex, which includes aquatic centre and older adult’s centre • Complete the construction of road improvement projects on Lansdowne Road (Minoru Blvd-Alderbridge Way) and Westminster Hwy (Nelson Rd-McMillan Way), which will include off-street multi-use pathways. • Install new transit shelters
	Continue to support expansion of car-share services in Richmond
	Stage 17 th annual “Island City, by Bike” tour for the community to encourage cycling as a mode of transportation.
	Continue to support education and encouragement programs for cycling and walking.

7.2. Corporate Actions

Corporate Actions Taken in 2016	
	Continued the City's vehicle replacement program to replace older, less fuel-efficient vehicles with newer, more fuel-efficient vehicles and with best in class fuel efficiency, where possible. In 2016, 37 units were replaced and 12 more units were ordered for 2017.
	Implemented a GPS system Fleet vehicle tracking project in 60 select vehicles to help with route planning and weather response, to improve fuel efficiency and reduce emissions.
	Developed and delivered a unique "Auntie"-idling and driver awareness campaign for staff, along with newsletters, t-shirts, key chains, message boards and posters
	Continued other operational improvements as described in the Green Fleet Action Plan, including reducing growth and downsizing the Fleet, incorporation of more electric and hybrid vehicles where possible, and right sizing of existing and new assets. The Green Fleet Action Plan target is to reduce the City's overall Fleet emissions by 20% in 2020 from 2011 levels.
	Implemented a car sharing pilot program for City Hall and City Center Community staff
	Completed a Fleet usage audit by the Finance department that reviewed the usage of the Fleet to see where reductions in the fleet size could be accomplished.
	Continued existing initiatives that encourage the use of alternative modes of transportation for commuting to and from work and corporate travel such as sponsorship and promotion of Bike to Work week, use of corporate bike fleet, pilot use of pedal-electric bike, and promotion of transit fare passes for work travel

Corporate Actions Proposed for 2017	
	Continue replacing older less efficient City fleet vehicles with newer, more fuel- efficient vehicles, where possible.
	Evaluate the results of the Fleet's GPS tracking project involving 60 select vehicles to and institute routing efficiency initiatives to reduce Fleet vehicle trip times and fuel use
	Continue corporate subsidy of City Employee Carpool Program
	Continue with the Auntie Idling Campaign and newsletter and focusing on what staff have done to reduce emissions and highlighting why they care
	Continue to support use of alternative modes of transportation for work related travel, including cycling, providing transit passes for work trips, and carpooling.
	Continue to explore alternative fuelling options for Fleet vehicles that will reduce emissions and operational issues

8. WATER AND WASTEWATER

Managing and reducing water consumption and wastewater is an important aspect of developing a sustainable built environment that supports healthy communities, protects ecological integrity, and reduces greenhouse gas emissions. Below are the City of Richmond responses to the Provincial inquiry regarding water and wastewater management in the City, and summary of initiatives conducted in 2016 and planned in 2017.

General Climate Action Questions

Does your local government have water conservation policies, plans or programs?	Yes
---	-----

8.1. Community Actions

Community-Wide Actions Taken in 2016

	Installed 2,225 water meters at single-family residences (approximately 93% of single-family homes in the City of Richmond are now metered)
	Issued 748 toilet rebates to homeowners that replaced old toilets with a low-flush toilet to reduce residential water use. The total incentive paid to homeowners through this program in 2016 was \$74,800.
	Partnered with BC Hydro to provide a clothes washer rebate program to reduce home water and electricity use. In 2016, 294 rebates were issued to homeowners who replaced their less efficient (water and electricity) washer for a new efficient model at a total cost to the City of \$20,200. This program in 2016 is expected to result in an estimated annual savings in water and energy of 1,655,600 liters per year and 53,800 kilowatt hours per year, respectively.
	Installed meters for 141 existing multi-family residential complexes (comprising 8,585 dwelling units) through the volunteer water meter program. It is mandatory for new multi-family residences to have a water meter. A total of 40% of the multi-family units in Richmond now have a water meter.
	Provided 150 free water saving kits to Richmond households that included a low-flow showerhead, kitchen and bathroom tap aerators and a pop-flush device for toilets.

Community-Wide Actions Proposed for 2017

	Continue the single family and multi-family water meter installation programs
	Continue the toilet rebate program (\$100,000 in funding for 2017)
	Continue offering the water saving kits and free leak audits to homeowners with a newly installed water meter.
	Continue to participate in the clothes washer rebate joint program in May/June and October/November with BC Hydro in 2017.
	Continue the City's Rain Barrel Program and promote the use of rain water for gardening and irrigation purposes.

8.2. Corporate Actions

Corporate Actions Taken in 2016	
	Continued to participate in the Metro Vancouver Municipal Water Conservation Coordinator Committee. The meetings revolve around networking with other municipalities and discussing initiatives, progresses, updates in policies and results through group communication.
	The City of Richmond corporately supported Metro Vancouver's We Love Water campaign by utilizing their comprehensive assortment of Twitter and Facebook digital graphics, internally and in the community.
	Installed further recommended conservation measures at the ten previously water audited buildings

Corporate Actions Proposed for 2017	
	Continue to take part in the Metro Vancouver Municipal Water Conservation Coordinator Committee.
	Continue to follow the City's landscaping best practices, which emphasize planting grasses and plants at corporate facilities that require little or no irrigation water.
	Replace all domestic hot and water copper mains in the City Hall building with Aquatherm pipe to address pin hole leaks

9. CLIMATE ADAPTION

For local governments, adaptation to a changing climate can take the form of changes in policy, management, technology and behaviour that minimize negative impacts or exploit opportunities. It can involve both "hard" and "soft" solutions, including: changes in infrastructure engineering, planning, zoning, bylaws and public education. Below are the City of Richmond responses to the Provincial inquiries regarding climate change adaption, and summary of initiatives conducted in 2016 and planned in 2017.

General Climate Action Questions	
Are you familiar with the Plan2Adapt guidance located on the Climate Action Toolkit Website?	Yes
Are you familiar with "Preparing for Climate Change - An Implementation Guide for Local Governments in BC?"	Yes
Have you visited the climate change adaptation guidance page on the BC Climate Action Toolkit?	Yes

9.1. Community Actions

Community-Wide Actions Taken in 2016	
	Continued development of Dike Master Plan Phase 2, which is a blue print for dike improvements in advance of Climate Change Induced Sea Level Rise.
	Continued implementing the 2008-2031 Richmond Flood Protection Strategy
	Established the Integrated Rainwater Resource Management Strategy that aims to protect and enhance the City's stormwater conveyance infrastructure and ecological assets under more frequent rainfall events and considers rainwater as a resource to be utilized, by promoting its conservation and public re-use where possible.

Community-Wide Actions Proposed for 2017	
	Complete the design for Phase 3 of the Dike Master Plan, which includes raising the South Dike from Gilbert Rd to No.3 Rd to 4.7m geodetic
	Continue implementing the 2008-2031 Richmond Flood Protection Strategy
	Engage and communicate with locals about the tsunami risks in Richmond using the simulation model developed by DFO through the City's website and at public events.

10. INNOVATION

This section is intended to give the opportunity to describe any innovative Corporate and/or Community-Wide GHG reduction or climate change adaptation activity that have been undertaken over the past year(s) that your local government is particularly proud of and would like to share with other local governments. Below is summary of two of the innovated initiatives that the City implemented in 2016.

Community-Wide Innovative Action	
	Implemented and supported a free City workshop, entitled "An Introduction to Electric Vehicles", that was offered to residences to try to reduce any misconceptions about owning an electric car and to answer any questions residents might have. The course was delivered by a Richmond resident that owns an electric vehicle.

Corporate Innovative Action	
	Completed the Fraser Basin Councils Fleet certification program, called E3 Fleet, which awarded the City's Fleet Operations a Platinum rating, the highest rating that can be awarded. Through its efficient operation and detailed reporting the City has successfully implemented its Green Fleet Action Plan, to help reduce Fleet fuel use, improve driver training, down size and right size vehicles, and reduce idling.

11. PROGRAMS, PARTNERSHIPS AND FUNDING OPPORTUNITIES

Local governments often rely on programs, partnerships and funding opportunities to achieve their climate action goals. Please share the names of programs and organizations that have supported your local government’s climate actions by listing each entry in the box below.

Programs and Funding	
	Through BC Hydro’s Commercial and Community Energy Savings Programs, the City has partnered and received support from BC Hydro on numerous infrastructure and community engagement related projects, including, lighting upgrades, electrical vehicle infrastructure and engagement, and policy initiatives.
	In conjunction with Municipal programs and funding, TransLink provides funding to support a variety of alternative modes of transportation initiatives and community engagement activities towards cycling education and promotion initiatives including; <ul style="list-style-type: none">• Bike to Work/School Week• cycling education courses for elementary students and adults• construction of pedestrian and cycling-related infrastructure
	Additional support for transportation related infrastructure was received by the City from BikeBC (BC Ministry of Transportation & Infrastructure) and ICBC.
	In conjunction with BC Hydro’s clothes washer rebate program, the City further increased the rebates received by local residents and promoted this program through City mailouts.
	The City was successful in securing support funding from the Federation of Canadian Municipalities to complete feasibility studies researching the cost and opportunity to install solar PV systems at two new facilities, and the cost and opportunity to extract energy from community wastewater during re-development.

12. CONCLUSION

This report highlights a wide range of initiatives that the City is undertaking to continue to advance sustainability corporately and in the community, with focus on reducing greenhouse gas emissions, and energy and resource use. This report does not encompass all of the sustainability related initiatives and actions that the City is involved in, but simply provides a “snapshot” of some of the key areas and work that the City has completed and is planning on completing. These efforts help to position the City as a leader in our region and beyond. The City has set aggressive sustainability targets on a range of fronts, including for greenhouse gas emissions reduction and waste diversion. The City will continue to pursue best practices and innovation to achieve its sustainability related goals, which are recognized as critical to Richmond’s Vision of “being the most appealing, liveable and well-managed community in Canada”.