

NO: R116

COUNCIL DATE: **May 29, 2017**

REGULAR COUNCIL

TO: **Mayor & Council** DATE: **May 25, 2017**

FROM: **General Manager, Planning & Development
Manager, Sustainability** FILE: **0512-02**

SUBJECT: **Climate Action Revenue Incentive Program 2016 Reporting Requirements and
2016 Corporate Greenhouse Gas Emissions Inventory**

RECOMMENDATION

The Planning & Development Department recommends that Council receive this report as information.

INTENT

The purpose of this report is to:

- Fulfil the annual Climate Action Revenue Incentive Program grant requirement to report publicly on the City's plan and progress toward the City's climate action goals; and
- Provide information on the City's 2016 corporate greenhouse gas ("GHG") emissions inventory.

BACKGROUND

At the 2008 UBCM Convention, Premier Gordon Campbell announced the Climate Action Revenue Incentive Program ("CARIP") that would offset the carbon tax paid by local governments committed to the goal of becoming carbon neutral in their corporate operations under the BC Climate Action Charter. To be eligible for the CARIP conditional grant, local governments are required to:

- Sign on to the BC Climate Action Charter and by doing so to commit to the goal of becoming carbon neutral in corporate operations; and
- Report publicly on their plan and progress toward meeting their climate action goals using a set template.

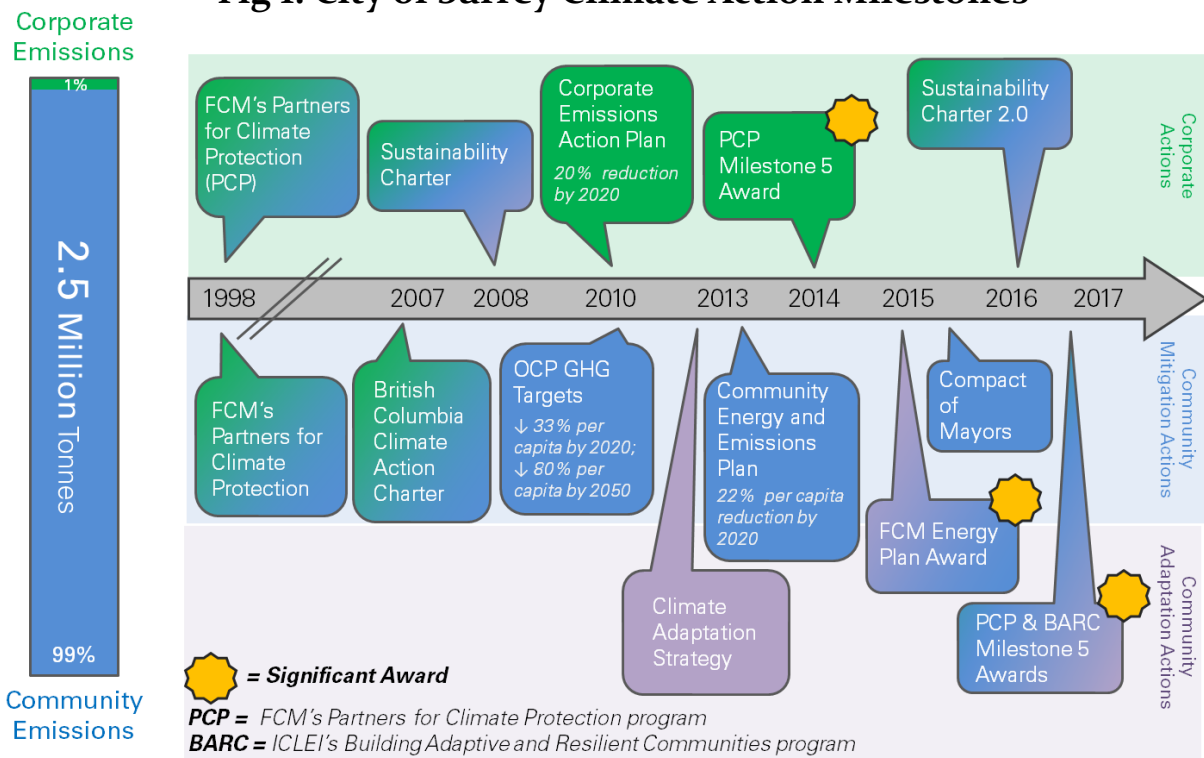
The Carbon Neutral Local Government framework developed by the provincial government establishes a common approach for local governments to become carbon neutral in four steps: measure emissions, reduce emissions, offset or balance those emissions through investments in

local GHG reduction projects, and report to the public on actions taken. The requirement for carbon neutrality in corporate operations – originally required by 2012 - was subsequently modified by the Province to allow for a “making progress” designation whereby local governments can work towards carbon neutrality but are not required to achieve a zero carbon balance.

At its Regular meeting on October 14, 2010 Council considered Corporate Report No. R214; 2010 titled “City of Surrey Corporate GHG Emissions Action Plan,” and approved the City’s *Corporate Emissions Action Plan* (“CEAP”). The CEAP includes a target to reduce corporate GHG emissions by 20% by 2020 and 13 actions to reduce emissions in the areas of buildings, fleet and infrastructure, and with respect to leadership and public engagement. It was recognized that this target would be challenging in view of the City’s rapid growth in population and the opening of new City facilities. Since 2010, the City has taken significant steps toward monitoring and reducing corporate emissions. To support the emissions reduction work, the City completes an annual inventory of corporate fuel use and emissions related to fleet and building operations.

For the 2016 reporting year, the Province requires that the **2016 CARIP Climate Action/Carbon Neutral Progress Survey** be completed by June 1, 2017. This Survey, which includes corporate and community-level climate actions, has been completed and is attached as Appendix “I.” Figure 1 illustrates Surrey’s significant commitments and achievements related to corporate and community climate action over the past decade.

Fig 1: City of Surrey Climate Action Milestones



DISCUSSION

Corporate Greenhouse Gas Emissions Inventory 2016

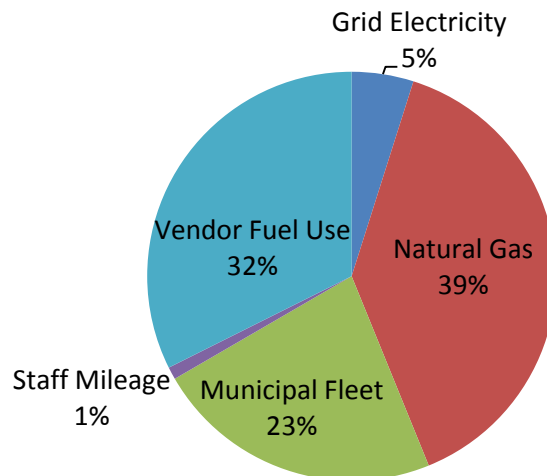
The City produces an annual inventory of corporate fuel usage and resulting GHG emissions. Following provincial guidelines, fuel use is divided into six Service Areas:

- Fire Protection;
- Solid Waste Collection, Transportation and Diversion;
- Arts, Recreation, Parks and Cultural Services;
- Road and Traffic Operations;
- Drinking, Storm and Waste Water; and
- Administration and Governance.

The City's emissions inventory includes fuel usage and resulting GHG emissions from vendors who are contracted to provide traditional services to the City, such as waste collection and streetlight maintenance. Over the past several years, efforts have been made to improve the reporting rate from these "in-scope" vendors, including adding a new functionality to the City's financial management system in 2016 to flag vendors that are required to report. As a result of these improvements, 2016 saw a 93% reporting rate by contract value, as compared to 66% in 2015. It is important to note that 21 of these vendors held contracts with the City in previous years, but had not reported fuel use. In order to accurately reflect historic GHG emissions, the fuel use from these 21 vendors was backcast into prior year inventories, benchmarked to the annual percentage increase in total City expenditures related to vendor contracts to account for growth in services. The baseline GHG emissions (2005-2009 average) from vendor fuel use was amended from 4,483 tonnes CO_{2e} to 5,088 tonnes CO_{2e}, **increasing the total corporate GHG emissions baseline amount by 4%, to 16,954 tonnes CO_{2e}.**

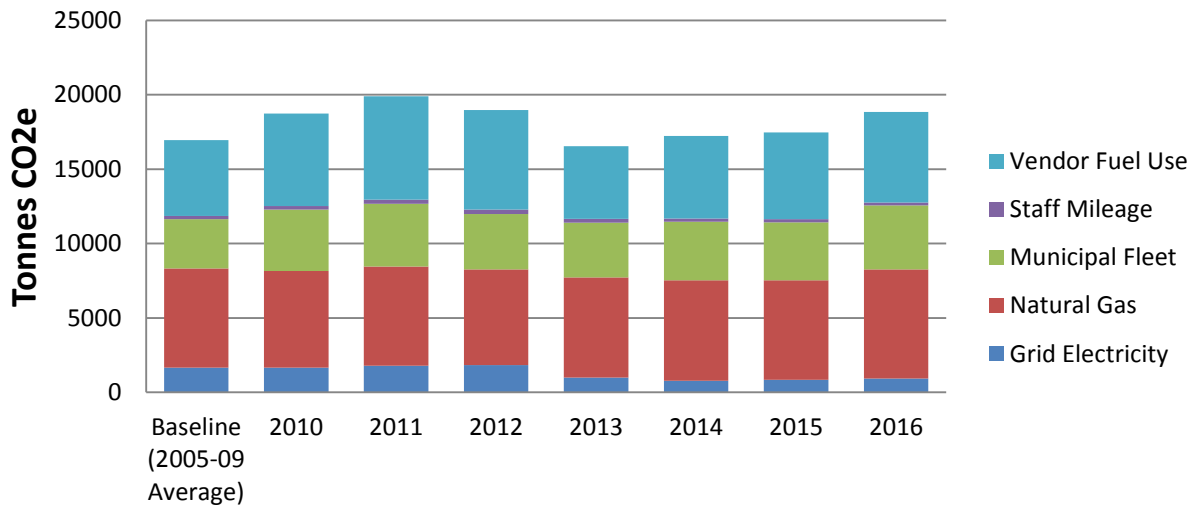
Figure 2 below shows a breakdown of 2016 GHG emissions by source, with 39% of City emissions coming from natural gas used to heat City buildings (particularly pools), 5% from electricity, 23% from fuels for municipal fleet, 32% from the fuels used by the City's in-scope vendors, and 1% from mileage claimed for staff travel.

Fig 2: 2016 GHG Emissions by Source



In 2016, corporate GHG emissions were 18,856 tonnes CO₂e, or tonnes of carbon dioxide equivalent. As shown in Figure 3 below, this represents increases of approximately 8% from 2015 and 11% from the baseline (a 2005-2009 average). The primary reasons for this large increase include the addition of new civic facilities and increasing fuel use as reported by City vendors. Further analysis is provided in the sections below.

Fig 3: Corporate GHG Emissions



Emissions from City facilities (natural gas and electricity usage) in 2016 were 8,276 tonnes CO₂e, which is a small decrease from the baseline, but represents a 10% increase from 2015. The rise in GHG emissions is attributed to the opening of Grandview Heights Aquatic Centre, which added 760 tonnes to the corporate inventory. As well, 2016 represented the first full year of operations for Guildford Aquatic Centre and the new Operations Centre, which combined added over 250 tonnes CO₂e in 2016. Excluding the emissions from these three facilities, the trend towards lowered emissions from civic facilities would have continued, with an estimated 4% reduction in emissions as compared to 2015. And importantly, analysis of facility GHG emissions per square foot has shown a 29% reduction from the baseline, demonstrating the significant improvements in building performance over time.

Emissions from the City fleet in 2016 were 4,302 tonnes CO₂e, a 10% increase from 2015 and 30% over the baseline, reflecting the growth of the fleet. While absolute emissions are increasing due to growth, efforts to improve efficiencies through the adoption of electric and compressed natural gas (CNG) vehicles have shown a 15% reduction in tonnes CO₂e/KM since 2013, illustrating the increased energy performance of the City’s fleet vehicles overall. Emissions from staff mileage claims are only 186 tonnes, but nevertheless have declined by 20% from the baseline due to the expanding and more convenient system of fleet vehicles available, as well as improvements to operational practices that have reduced travel distances for staff.

Total emissions from City contracted services in 2016 were 6,092 tonnes, representing 32% of the City’s carbon footprint and a 5% increase from 2015. The main source of these vendor emissions is the waste management contract which generated 3,908 tonnes CO₂e or 64% of all vendor emissions. As discussed above, the reporting rate for ‘in-scope’ vendors significantly increased in 2016, and fuel use was backcast for newly reporting vendors accordingly. The increase in vendor

emissions over time is a result of increased vendor services as well as higher reporting rates and improved data quality.

The opening of the new biofuel facility in 2017 and integration of renewable natural gas into the City's contracted waste collection and City fleet vehicles is expected to *significantly* reduce the City's carbon footprint and help meet the Corporate Emissions Action Plan emissions reduction goal of 20% by 2020.

Carbon Neutral Status 2016

The Survey attached in Appendix "I" outlines the 2016 corporate emissions total, and identifies projects that have provided allowable GHG reductions against the corporate footprint. In this case, the City is receiving 1,380 tonnes of allowable GHG reductions from the City's organics diversion in 2016 (yard waste only), as well as 11,053 tonnes from the protection of forest carbon through park creation for the years 2007 through 2016. Both sets of credits are calculated using available provincial protocols. Carry forward credits from 2015 total 444 tonnes, along with additional carry forward credits from organics diversion of 228 tonnes, for a total carry-forward of 672 tonnes.

These calculations indicate that the City's 2016 footprint of 18,856 tonnes CO_{2e} is reduced by 13,105 tonnes CO_{2e}, leaving an emissions balance of 5,751 tonnes for the 2016 reporting year. Thus in 2016, the City will not achieve carbon neutral status. There are no financial implications to this status, as the City is not required to be carbon neutral by purchasing offsets, and will claim the available designation of "making progress towards carbon neutrality." Additionally, the City in meeting all the Climate Action Charter requirements continues to receive the CARIP grant. The City's biofuel facility project includes provision to use a portion of the approved carbon credits towards corporate carbon neutrality each year, with the remainder of the credits being sold. Thus, the expectation is that for the 2017 reporting year and thereafter, the City will be able to claim carbon neutrality.

By completing the Survey and making it public through this Corporate Report, the City is fulfilling the annual CARIP grant requirement to report publicly on the City's progress toward the City's climate action goals. The Survey is to be made public on or before June 1, 2017.

SUSTAINABILITY CONSIDERATIONS

Completing the annual corporate emissions inventory and the required provincial reporting supports the following Desired Outcomes of the Sustainability Charter 2.0:

Built Environment & Neighbourhoods

- DO 9: All aspects of planning, design and construction include climate change impacts, GHG mitigation, adaptation, and resiliency strategies.

Infrastructure

- DO 7: Per capita emissions are low and align with global, national and provincial GHG reduction targets.

- SD 5: Work collaboratively with diverse stakeholders to lower GHGs and improve air quality.

Finally, the following corporate sustainability objective is addressed:

- # 12: Continue to implement the Corporate Emissions Action Plan.

CONCLUSION

The City continues to implement the Corporate Emissions Action Plan to meet the ambitious corporate GHG reduction target of 20% by the year 2020. The City's 2016 corporate carbon footprint of 18,856 tonnes CO_{2e}, less allowable GHG emissions calculations under the Carbon Neutral Local Government framework, leads to a carbon balance for 2016 of 5,751 tonnes CO_{2e}. Providing this public report on the City's climate action progress supports the CARIP grant application and related commitments under the Carbon Neutral Framework.

It is recommended that Council receive this report as information.

Original signed by
Jean Lamontagne
General Manager, Planning & Development

Original signed by
Anna Mathewson, MCIP RPP
Sustainability Manager

MB/ss

Appendix "I" - 2016 CARIP Climate Action/Carbon Neutral Progress Survey

Survey Template

For the *2016 CARIP Climate Action/Carbon Neutral Progress Survey*

The 2016 CARIP Climate Action/Carbon Neutral Survey uses SurveyMonkey® software. SurveyMonkey® acquired FluidSurveys™, which is the software that was used for CARIP reporting for the past 2 years.

Local governments are required to submit the *2016 CARIP Climate Action/Carbon Neutral Progress Survey* on or before June 1, 2017.

Local governments are also required to publicly report the information submitted in the *2016 CARIP Climate Action/Carbon Neutral Progress Survey*. Local governments can generate a report by:

- creating a report based on the populated Survey Template; or,
- creating a report in another format that contains the information submitted in the 2016 CARIP Climate Action/Carbon Neutral Progress Survey.

In response to local government input, the Survey Template has been created to assist with collecting information for the *2016 CARIP Climate Action/Carbon Neutral Progress Survey*, and follows the same structure as the survey.

Responses entered into the Survey Template can be cut and pasted into the online survey. The survey asks for up to five actions in each category, and there is a place in the survey to report additional actions if desired. In the Survey Template, simply add more lines to the tables to report more than five actions.

Use of the Survey Template is recommended. Local governments are encouraged to edit the populated Survey Template and use it for their public report, **as the SurveyMonkey® survey will not enable survey respondents to generate a report of their responses.**

Further information on CARIP can be found on the [Ministry of Community Sport and Cultural Development’s website](#).

The Government of BC will not collect, use, or disclose personal information using SurveyMonkey®. Please be aware however that IP addresses are collected by SurveyMonkey® itself, and these IP addresses and other information collected will be stored on SurveyMonkey®’s servers located outside of Canada. Please do not provide any third-party information (i.e. talk about others) in your responses to the survey.

Climate Action Revenue Incentive (CARIP) Public Report for 2016

Local Government: City of Surrey

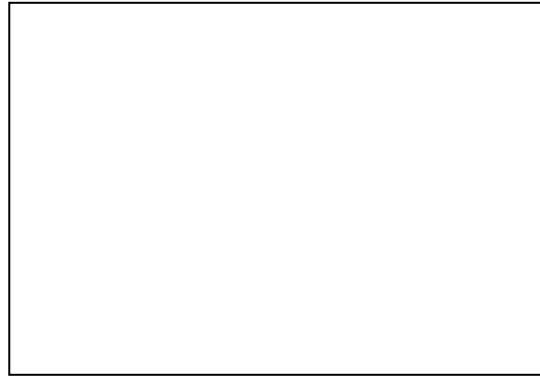
Report Submitted by:

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Date: May 29, 2017

The City of Surrey 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) and reports on progress towards achieving carbon neutrality.

2016 BROAD PLANNING ACTIONS

Broad Planning Actions

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, centred) plays an especially important role in energy and GHG reduction.

Community-Wide Actions Taken in 2016	
	Surrey Sustainability Charter 2.0 approved by Council as the City of Surrey’s overarching policy document.
	Continued implementation of the Community Climate Action Strategy, which includes actions from both the Climate Adaptation Strategy and the Community Energy and Emissions Plan.
	Surrey awarded Platinum Certification by the World Council on City Data for ISO 37120, Sustainable Development of Communities.
	2016 Council approved amendments to the land use and transportation concept and place making strategies for the Fleetwood Town Centre Plan (TCP).
	Council authorized City staff to begin the process of preparing a Stage 1 Neighbourhood Concept Plan (NCP) for Grandview Heights Neighbourhood Area #3.
Community-Wide Actions Proposed for 2017	
	Implement Sustainability module into City Essentials Training for all staff.
	Develop Sustainability Implementation Fund to support community ownership and action on the Charter.
	Approval of Surrey City Centre Plan
	Approval of Abbey Ridge Local Area Plan

Corporate Actions Taken in 2016	
	Continued implementation of Corporate Sustainability Objectives as defined by Surrey Sustainability Charter 2.0.
	Continued implementation of the Corporate Emissions Action Plan, working toward achievement of 20% GHG reduction goals by 2020.
Corporate Actions Proposed for 2017	
	Hire Corporate Energy Specialist to assist City in further reducing energy use and GHG emissions from corporate operations.

Broad Planning	
What is (are) your current GHG reduction target(s)?	<p>Community wide: 33% per capita reduction from 2007 levels by 2020 80% per capita reduction from 2007 levels by 2050</p> <p>Corporate: 20% below baseline (2005-09 average) by 2020</p>
Has your local government used the Community Energy and Emissions Inventory (CEEI) to measure progress?	Yes
<p>What plans, policies or guidelines govern the implementation of climate mitigation in your community?</p> <ul style="list-style-type: none"> • Community Energy and Emissions (CEE) Plan • Climate Action Plan • Integrated Community Sustainability Plan • Official Community Plan (OCP) • Regional Growth Strategy (RGS) • Do not have a plan • Other: 	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
Does your local government have a corporate GHG reduction plan?	Yes
Does your local government have a climate reserve fund or something similar?	Yes

2016 BUILDINGS AND LIGHTING ACTIONS

Building and Lighting Actions

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.

Community-Wide Actions Taken in 2016	
	A new Building Energy Specialist position was created to help ensure compliance of energy sections of BC Building Code.
	The “Empower Me” program was delivered to 117 households, targeting behaviour change and energy retrofits for newcomers living in single family homes. Since the inception of the program in 2012 a total of 422 Surrey households have participated.
	The first applications were submitted under the West Clayton building energy efficiency density bonus policy.
	Training sessions were delivered to over 125 builders on construction techniques for energy efficient buildings.
	Building energy design guidelines were prepared to help inform design considerations to reduce building operational energy requirements.
	The Sustainability Development Checklist was updated to reflect changes to technologies, codes and standards.
	Staff contributed to the development of BC Energy Step Code, which grants new authority to local governments to include building energy efficiency performance requirements in bylaws.

Community-Wide Actions Proposed for 2017	
	Hire new Fortis BC-funded Energy Analyst staff position to explore opportunities to reduce emissions through ongoing energy conservation and management, renewable natural gas and vehicle fuel conversion.
	Develop strategy for BC Energy Step Code implementation
	Integrate energy efficient design guidelines into planning process

Corporate Actions Taken in 2016	
	Participated in second year of BC Hydro Demand Response Pilot project to minimize energy demand in City Hall at peak times of day.
	Participated in BC Hydro funded Energy Wise Network program to reduce energy consumption through staff behaviour.
	Council approved five year project to replace all 28,000 roadway lighting fixtures with LED technology
	Surrey City Hall recognized as high performance building through BC Hydro CNC Energy Conservation Program, and Surrey Operations Centre recognized as high performance building through BC Hydro EELD Energy Conservation Program.
	Design work commenced for Passive House community centre
Corporate Actions Proposed for 2017	
	Pursue funding and implementation of new Passive Design Clayton Community Hub
	Procurement and installation of first two phases of LED streetlight replacements

2016 ENERGY GENERATION ACTIONS

Energy Generation Actions

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 (e.g. from biogas and biomass), 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.

Community-Wide Actions Taken in 2016	
	The King George Node was established with the first 2 customer connections.
	The second customer was connected to Surrey Central Node.
	A carbon intensity target of 0.07 T CO ₂ e/MWh was established for the district energy system as part of the Sustainability Charter update.

Community-Wide Actions Proposed for 2017	
	Commence District Energy low-carbon generation feasibility study

Corporate Actions Taken in 2016	
	Continued construction of City Biofuel Processing Facility to transform organic waste into renewable natural gas.
Corporate Actions Proposed for 2017	
	Complete commissioning and begin operation of City Biofuel Processing Facility, anticipated to significantly reduce the City's corporate carbon footprint. The renewable natural gas will fuel the City's waste collection fleet and contribute to the district energy system in City Centre.

Energy Generation	
Is your local government developing, or constructing:	
<ul style="list-style-type: none"> • A district energy system • A renewable energy system 	<p>Yes</p> <p>Yes</p>
Is your local government operating:	
<ul style="list-style-type: none"> • A district energy system • A renewable energy system 	<p>Yes</p> <p>Yes</p>
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 guidance page on the BC Climate Action Toolkit ?	Yes

2016 GREENSPACE/ NATURAL RESOURCE PROTECTION ACTIONS

Greenspace Actions

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.

Community-Wide Actions Taken in 2016	
	High value habitats are better protected by the adoption of Riparian Setbacks through a combination of General Provisions of the Zoning Bylaw and new Sensitive Ecosystem Development Permit Area Guidelines.
	Amendments to the City's Tree Protection By-law and Soil Conservation and Protection By-law were made to reflect the Biodiversity Conservation Strategy definitions and maps, reference the Environmental and Hazard Land DPAs, and modify penalties to better protect high value habitats.
	29 acres of parkland were added to the Biodiversity Conservation Strategy's Green Infrastructure Network (GIN) through land development applications (conveyance) and NCP implementation. Total GIN protected as Parkland is now 5,036 acres.
	Surrey's urban forest and habitat was enhanced with the planting of over 4,500 new shade trees and the removal of invasive plants from 10.75 ha of park land and road allowance. In addition, over 10,500 m ² of passive or degraded park land was converted to natural area.
	The City-run Surrey Nature Centre continued to offer programs, events and day camps to increase appreciation and stewardship of the environment. The 19 th annual Environmental Extravaganza offered free environmental education programs across the City from Earth Day through World Ocean Day in partnership with community groups. Two ecosystem enhancement programs, Surrey's Natural Areas Partnership (SNAP) and the Salmon Habitat Restoration Program (SHaRP), employed post-secondary and high school students to address riparian and natural areas habitat restoration and education.
Community-Wide Actions Proposed for 2017	
	Continue implementation of the Biodiversity Conservation Strategy and environmental education activities.

Corporate Actions Taken in 2016	
	Shade Tree Management Plan approved by Council, which identifies climate adaptation and mitigation as key drivers of public property shade tree management practices.
	GIS layer being developed to inventory all newly planted trees on private property and aid in enforcement of Tree Protection Bylaw.

Corporate Actions Proposed for 2017	
	Continue efforts to improve effectiveness of City policies and practices to maximize tree and habitat protection.

Greenspace	
Does your local government have urban forest policies, plans or programs?	Yes

2016 SOLID WASTE ACTIONS

Solid Waste Actions

Reducing, reusing, recycling, recovering and managing the disposal of the residual solid waste minimizes environmental impacts and supports sustainable environmental management, greenhouse gas reductions, and improved air and water quality.

Community-Wide Actions Taken in 2016	
	Carried out 6 Pilot Pop Up Junk Events between July and October resulting in over 1,250 tonnes of waste collected with over 68% of this waste diverted from landfill and over 100 tonnes of reusable household items donated to non-profit organizations.
	Completed the first year of an Environmental Education Program in Surrey classrooms that focuses on waste, water and energy reductions. The Rethink Waste component of the program was targeted to grades 2, 5, 9 and Adult ESL students and delivered to over 285 classrooms throughout the 2015/16 school year.
	Continued work to establish a new Residential Drop Off (RDO) / Eco-centre: Worked with Realty on land purchase, finalized arrangement with Metro Vancouver and initiated development process.
	Doubled Large Item Pick Up participation rates from an average of 15%/year to 30%/year, through targeted outreach and direct contact with residents. Efforts included a pilot program for Large Item Pick Up Services at high rise apartment buildings.
	Streamlined our approach to carrying out illegal dumping clean-up, resulting in a savings of over \$400,000/year.
Community-Wide Actions Proposed for 2017	
	Continue delivery of the Environmental Education Program for the 2016/17 school year.
	Implement demolition waste and recyclables materials bylaw.
	Develop and implement a customer self-service portal (or app) for Enhanced Services (user pay). Start with piloting enhanced waste services.
	Rezone and start construction of the Surrey Residential Drop Off (RDO)/ Eco-centre facility.
	Expand the categories of waste items that we currently accept under the Large Item Pick Up program.

Corporate Actions Taken in 2016	
	Continued moving towards paperless systems such as streamlining approvals and other processes to reduce printing, and making documents available online instead of providing hard copy.
Corporate Actions Proposed for 2017	
	Conduct a pilot project using default “Follow Me” print settings to reduce paper usage, and consider City-wide implementation if successful

Solid Waste	
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

2016 TRANSPORTATION ACTIONS

Transportation Actions

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.

Community -Wide Actions Taken in 2016	
	Safe routes to school
	Reviewing parking requirements for multi-family buildings in City Centre
	Infrastructure investments – active transpo, transit improvements
	New dual connector DC FastCharger installed at Surrey Museum, and former Museum DC FastCharger transferred to and installed at City Hall.
	Initial funding for Phase 1 of Surrey LRT was secured, which advanced design closer to procurement readiness.
	Bike lanes were increased by 35 km.
	Greenways were increased by 26 km.
	Sidewalks were increased by 20 km.
	27 new accessible bus stops were established.
Community-Wide Actions Proposed for 2017	
	Pilot project for second Level 2 charger at Sports & Leisure centre, incorporating user fees.
	Initiate policy development re: EV charging strategy.

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Corporate Actions Taken in 2016	
	Four new light duty electric vehicles and 39 dual fuel (CNG/Gasoline) vehicles were added to the City's fleet.
	Continued planning work toward new CNG fuelling facility: RFP process is complete, with construction anticipated for mid-2017 and completion expected in 2018.
	Three Level 2 EV Charging stations installed at City Hall.
Corporate Actions Proposed for 2017	
	Waste collection fleet and City vehicles will switch to 'virtual' renewable natural gas from Surrey's Biofuel Processing Facility, which is anticipated to achieve the City's Corporate GHG reduction targets.
	Continue with replacing vehicles as appropriate with dual fuel vehicles (CNG/gasoline)
	Complete installation of blended fuel (diesel/CNG) technology on one pilot vehicle
	Replace non-networked 1st generation Level 2 chargers at City Hall with networked units with load balancing software.
	Add additional charging stations to City Hall and replace 1 gasoline vehicle with an EV.

Transportation	
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 (please specify): Safe Mobility Plan 	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

2016 WATER AND WASTEWATER ACTIONS

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.

Community-Wide Actions Taken in 2016	
	Completed the first year of an Environmental Education Program in Surrey classrooms that focuses

	on waste, water and energy reductions. The Water Wise component of the program was targeted to grade 4 and 10 students and delivered to 180 classrooms throughout the 2015/16 school year.
	Continue to offer the Voluntary Water Meter program, encouraging water conservation behaviour by having residents pay for the water they use.
Community-Wide Actions Proposed for 2017	
	Continue delivery of Environmental Education Program in Surrey classrooms.

Corporate Actions Taken in 2016	
	New facilities, such as Grandview Heights Aquatic Centre, incorporate water saving features such as no-touch automatic shut-off faucets and dedicated filtered water taps.
Corporate Actions Proposed for 2017	
	Continue to ensure that new City facilities incorporate water saving features.
Water Conservation	
Does your local government have water conservation policies, plans or programs?	Yes

2016 CLIMATE CHANGE ADAPTATION ACTIONS

Climate Change Adaptation Actions

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.

Climate Change Adaptation Actions Taken in 2016	
	The Coastal Flood Adaptation Strategy was launched to explore options and preferred strategies to adapt to climate impacts, including sea level rise, in Surrey’s coastal floodplain area. Technical sea level and flood risk studies previously conducted are being use to inform adaptation options. Phase 1 of the three-year process involves extensive engagement with residents and stakeholders.
	The City continued involvement in the Lower Mainland Flood Management Strategy (LMFMS),

	which completed Phase 1 on analysis of future flood scenarios, a regional assessment of flood vulnerabilities, and an assessment of flood infrastructure, policies and practices. Phase 2 of LMFMS was initiated, which will deliver an action agenda, regional mitigation priorities, and agreements among partner organizations.
	New and upgraded infrastructure is being designed to meet future climate conditions; in 2016, three pump stations were upgraded to better control flooding with changing water levels, and were designed so further modification can take place as conditions continue to change.
	A rainfall assessment is currently underway to better understand changes in precipitation patterns and inform future servicing requirements. ISMPs and NCPs continue to be used to enhance stormwater management practices.
	The City participated in the Advisory Panel for Metro Vancouver's <i>Urban Forest Climate Adaptation Framework</i> , and the supporting <i>Design Guidebook for Maximizing Climate Adaptation Benefits with Trees</i> . The publications support decision making around species suitability and site design to maximize adaptation benefits and increase the urban forest's resilience to climate change.
Climate Change Adaptation Actions Proposed for 2017	
	Continue developing Surrey's Coastal Flood Adaptation Strategy; complete Phase 1, focused on education, awareness building and understanding community values, and Phase 2, identifying adaptation options in Surrey's coastal floodplain.
	Continue participating in Phase 2 of the Lower Mainland Flood Management Strategy.
	Begin exploring servicing options to meet rainfall projections as identified in the rainfall assessment.
	Undertake heat mapping and identify opportunities to proactively manage rising urban temperatures through planning, policy and operational practices.

Resources you have used to support climate change adaptation (e.g. Plan2Adapt, Preparing for Climate Change: Implementation Guide)	
	Plan2Adapt
	ICLEI Canada's Building Adaptive and Resilient Communities Framework
	Preparing for Climate Change: Implementation Guide

In 2016 did you consider climate change impacts in any of the following areas? (check if yes)	
Risk reduction strategies	Yes
Risk and Vulnerability assessment	Yes
Asset management	Yes
Infrastructure upgrades (e.g. stormwater system upgrades)	Yes
Cross-department working groups	Yes
Emergency response planning	Yes
Land-use policy changes (eg. OCP, DPA)	Yes
Economic diversification initiatives	No
Ecosystem-based approaches (incl. shorelines)	Yes
Incentives (e.g. property owner reducing stormwater run-off)	No

Public education and awareness	Yes
Research (e.g.mapping, participation in studies)	Yes
Other (Please Identify):	

2016 OTHER CLIMATE ACTIONS

Other Climate Actions

This section provides local governments the opportunity to report other climate actions that are not captured in the categories above.

Community-Wide Actions Taken in 2016	
Community-Wide Actions Proposed for 2017	

Corporate Actions Taken in 2016	
Corporate Actions Proposed for 2017	

Other	
Are you familiar with the Community Lifecycle Infrastructure Costing Tool (CLIC)?	Yes
Have you used CLIC?	No

INNOVATION AND PEER-TO-PEER LEARNING

Innovation

This section provides the opportunity to showcase an innovative Corporate and/or Community-Wide GHG reduction or climate change adaptation activity that your local government has undertaken and that has had or has the potential to have a significant impact. Projects included here may be featured as success stories on the B.C. Climate Action Toolkit and/or shared with other local governments to inspire further climate action. Please add links to additional information where possible.

Community-Wide Innovative Action
To help prepare Surrey for a changing climate and help our coastal communities become more resilient, the City of Surrey is developing a Coastal Flood Adaptation Strategy (CFAS) for Surrey's coastal floodplain area. The three-year project builds on recent and ongoing work in the area, including modelling work to understand the timelines and extent of sea level rise and flood risk. The process is taking a participatory, community-driven planning approach and is directly engaging residents, stakeholders, and other partners, including First Nations, community and environmental organizations, business associations and groups, senior governments, farmers and agricultural community, and neighbouring jurisdictions. More info: www.surrey.ca/coastal
Corporate Innovative Action
This year, the City of Surrey will open its Organic Waste Biofuel Processing facility, and move toward the City's goal of creating a fully integrated model for organic waste management. Once established, the biofuel facility will process the City's organic waste into a 100% renewable natural gas (RNG). The RNG will then be used to fuel the City's natural gas powered waste collection vehicles, its growing fleet of natural gas powered operations service vehicles, and provide a renewable fuel source for the new District Energy System, which will heat and cool Surrey's City Centre. Taking this step will significantly reduce the City's corporate carbon footprint. More info: http://www.surrey.ca/city-services/13015.aspx

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
BC Hydro, Fortis BC, VanCity, Metro Vancouver, QUEST, Community Energy Association, Urban Sustainability Directors Network, Fraser Basin Council, Federation of Canadian Municipalities, ICLEI

2016 CARBON NEUTRAL REPORTING

Local governments are required to report on their progress in achieving their carbon neutral goal under the Climate Action Charter. Working with B.C. local governments, the joint Provincial-UBCM Green Communities Committee (GCC) has established a common approach to determining carbon neutrality for the purposes of the Climate Action Charter, including a Carbon Neutral Framework and supporting guidance for local governments on how to become carbon neutral.

Prior to completing this survey, please ensure that you are familiar with guidance available on the B.C. Climate Action Toolkit website, especially *Becoming Carbon Neutral: A Guide for Local Governments in British Columbia*.

Reporting Emissions

Did you measure your local government's corporate GHG emissions in 2016?	Yes
If your local government measured 2016 corporate GHG emissions, please report the number of corporate GHG emissions (in tonnes of carbon dioxide equivalent) from services delivered <u>directly</u> by your local government:	12,764
If your local government measured 2016 corporate GHG emissions, please report the number of corporate GHG emissions (in tonnes of carbon dioxide equivalent) from <u>contracted</u> services:	6,092
TOTAL A: CORPORATE GHG EMISSIONS FOR 2016	18,856 tCO₂e

Reporting Reductions and Offsets

To be carbon neutral, a local government must balance their TOTAL corporate GHG emissions by one or a combination of the following actions:

- undertake GCC-supported Option 1 Projects
- undertake GCC-supported Option 2 Projects (community GHG emissions reduction projects that meet project eligibility requirements)
- purchase carbon offsets from a credible offset provider

If applicable, please report the 2016 GHG emissions reductions (in tonnes of carbon dioxide equivalent (tCO₂e)) being claimed from Option 1 GHG Reduction Projects:

OPTION 1 PROJECTS	REDUCTIONS
Energy Efficient Retrofits	
Solar Thermal	
Household Organic Waste Composting	1,380

Low Emission Vehicles	
Avoided Forest Conversion	11,053
TOTAL B: REDUCTIONS FROM OPTION 1 PROJECTS FOR 2016	12,433 tCO2e

If applicable, please report the names and 2016 GHG emissions reductions (in tonnes of carbon dioxide equivalent (tCO2e)) being claimed from Option 2 GHG Reduction Projects:

OPTION 2 PROJECT NAME	REDUCTIONS
TOTAL C: REDUCTIONS FROM OPTION 2 PROJECTS FOR 2016	tCO2e

If applicable, please report the number of offsets purchased (in tonnes of carbon dioxide equivalent (tCO2e)) from an offset provider for the 2016 reporting year:

(NOTE: DO NOT INCLUDE ANY FUNDS THAT MAY BE SET ASIDE IN A CLIMATE ACTION RESERVE FUND)

OFFSET PROVIDER NAME	OFFSETS
TOTAL D: OFFSETS PURCHASED FOR 2016	tCO2e

TOTAL REDUCTIONS AND OFFSETS FOR 2016 (Total B+C+D) = 12,433 tCO2e

Corporate GHG Emissions Balance for 2016

Your local government's Corporate GHG Emissions Balance is the difference between total corporate GHG emissions (direct + contracted emissions) and the GHG emissions reduced through GCC Option 1 and Option 2 projects and/or the purchase of offsets.

CORPORATE GHG EMISSIONS BALANCE FOR 2016 =

(18,856 – (12,433)-(672 carry forward from 2015)) = 5,751 tCO₂e

**If your Corporate GHG Emissions Balance is negative or zero,
your local government is carbon neutral.
CONGRATULATIONS!**

GCC CLIMATE ACTION RECOGNITION PROGRAM

Green Communities Committee (GCC) Climate Action Recognition Program

The joint Provincial-UBCM Green Communities Committee (GCC) is pleased to be continuing the Climate Action Recognition Program again this year. This multi-level program provides the GCC with an opportunity to review and publicly recognize the progress and achievements of each Climate Action Charter (Charter) signatory.

This year a new recognition level has been added – **Level 3: Accelerating Progress on Charter Commitments**–. Recognition is provided on an annual basis to local governments who demonstrate progress on their Charter commitments, according to the following:

Level 1 – Demonstrating Progress on Charter Commitments: for local governments who demonstrate progress on fulfilling one or more of their Charter commitments

Level 2 – Measuring GHG Emissions: for local governments that achieve level 1, and who have measured their Corporate GHG Emissions for the reporting year and demonstrate that they are familiar with the Community Energy and Emissions Inventory (CEEI)

Level 3 – Accelerating Progress on Charter Commitments: for those local governments who have achieved level 1 and 2 and have demonstrated undertaking significant action (corporately or community wide) to reduce GHG emissions in the reporting year (ie: through undertaking a GHG reduction project, purchasing offsets, establishing a reserve fund).

Level 4 - Achievement of Carbon Neutrality: for local governments who achieve carbon neutrality in the reporting year.

For purposes of Level 3 recognition, if applicable, please identify any new or ongoing corporate or community wide GHG reduction projects (other than an Option 1 or Option 2 project) undertaken by your local government that reflects a significant investment of time or financial resources and is intended to result in significant GHG reductions:

PROJECT NAME:
Surrey Biofuel Processing Facility

Based on your local government's 2016 CARIP Climate Action/Carbon Neutral Progress Survey, please check the GCC Climate Action Recognition Program level that best applies:

<input type="checkbox"/>	Level 1 – Demonstrating Progress on Charter Commitments	
<input type="checkbox"/>	Level 2 – Measuring GHG Emissions	
<input checked="" type="checkbox"/>	Level 3 – Accelerating Progress on Charter Commitments	X
<input type="checkbox"/>	Level 4 - Achievement of Carbon Neutrality	
<input type="checkbox"/>	Not Sure	