



# Climate Action Revenue Incentive (CARIP) Public Report 2016



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The City of Nanaimo 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.

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## 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.

#### Corporate Actions Taken in 2016

**Zoning Bylaw Review** – Our zoning bylaw was reviewed to promote sustainable building practices by rewarding developers who meet or exceed the City's sustainable amenity criteria with respect to additional density.

#### Corporate Actions Proposed for 2017

**Zoning Bylaw Review** - Changes to Zoning Bylaw 4500 Schedule D are scheduled to proceed to Council for adoption in 2017.

#### Broad Planning

What is (are) your current GHG reduction target(s)?	The City of Nanaimo's GHG reduction target as stated in the OCP and Community Sustainability Action Plan is to reduce 2007 emissions by 3% by 2020, and by 39% by 2050. The City had previously adopted Provincial guidelines until we could prepare our own CEEI. This was prepared by Stantec in 2011, and it was recommended we lower the Provincial targets so they are more attainable.	
Has your local government used the Community Energy and Emissions Inventory (CEEI) to measure progress?		<b>Yes</b>
What plans, policies or guidelines govern the implementation of climate mitigation in your community?	<ul style="list-style-type: none"> <li>• Community Energy and Emissions (CEE) Plan</li> <li>• Climate Action Plan</li> <li>• Integrated Community Sustainability Plan</li> <li>• Official Community Plan (OCP)</li> <li>• Regional Growth Strategy (RGS)</li> <li>• Do not have a plan</li> <li>• Other:</li> </ul>	<b>Yes</b> <b>Yes</b> <b>Yes</b> <b>Yes</b> <b>Yes</b>
Does your local government have a corporate GHG reduction plan?		<b>Yes</b>
Does your local government have a climate reserve fund or something similar?		<b>Yes</b>

## 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

**Woodstove Change Out Program** - Rebates offered for the purchase of high efficiency woodstoves that replace woodstoves that do not meet CSA B415.1 standard.

**Realtor Energy Efficiency Program** - The City partnered with the Regional District of Nanaimo and the Vancouver Island Real Estate Board to develop a Realtor Training Program on energy efficiency. The program was designed as a stepping stone to create a formal training program to be adopted by the British Columbia Real Estate Board to improve awareness and knowledge of home energy efficiency opportunities.

**Street Lighting Conversion** – City of Nanaimo LED street lighting conversion business case completed.

#### Community-Wide Actions Proposed for 2017

**Step Code Education and Engagement** - The City is partnering with the Regional District of Nanaimo, BC Hydro and other island municipalities to develop a Step Code Engagement and Education program. The goal is to support the implementation of a Step Code within City bylaws and policy. The focus of 2017 will be on education and consultation with implementation expected to begin in 2019.

#### Corporate Actions Taken in 2016

**Street Light Conversion** – Phase 1 of converting street lights from high pressure sodium to LED was completed. Consultants have recommended a program for full conversion over several years. A consultation process just wrapped up and staff is preparing recommendations to Council.

**Boiler Plant Review and Thermal Energy Study** - Completed review which identified 3,083 GJ/yr in savings from proposed upgrades.

#### Corporate Actions Proposed for 2017

**Street Light Conversion** – Present conversion program to Council for approval and begin implementation.

**Beban Park Recreation Centre Upgrades** – New condensing boilers, piping upgrades, new control system, and installation of air-to-air heat recovery coils as recommended by the study completed in 2016.

**Implement Continuous Optimization Program** - As recommended by ECM at Nanaimo Aquatic Centre, Nanaimo Ice Centre, and Beban Park Recreation Centre

**Various Building Lighting and Mechanical Upgrades** – As renewal of existing lighting and mechanical are required, more efficient upgrades are being incorporated.

## 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.

#### Corporate Actions Taken in 2016

**Reservoir No 1 Energy Recovery Facility** - Produced a total of 856,000 kWh of energy offsetting 40% of the water supply systems energy consumption.

**Photovoltaic Systems Study** – Feasibility study and preliminary study of photovoltaic system (PV system) completed for both Nanaimo Aquatic Centre and Nanaimo Ice Centre.

#### Corporate Actions Proposed for 2017

**Reservoir No 1 Energy Recovery Facility** - continue to generate power at a target of 0.9 GWh.

**Grant Funding for PV System** - Seek project funding for a 50kW or 100 kW solar PV system for Nanaimo Ice Centre or Nanaimo Aquatic Centre.

#### Energy Generation

Is your local government developing, or constructing:	
• A district energy system	No
• A renewable energy system	No
Is your local government operating:	
• A district energy system	No
• A renewable energy system	No
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 <a href="#">BC Climate Action Toolkit</a> ?	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

**Vancouver Island Beggartick Restoration** - The City hired Saanich Native Plants to reintroduce this plant to the Jingle Pot Marsh. This location was identified as a location where the Beggartick was destroyed.

**Invasive Plant Management Program** - This is an annual program which includes public education and invasive plant removal of invasive plant species by City staff, volunteers and consultants. Invasive plant control improves the resiliency of our local natural ecosystem.

**Snuynemuxw First Nation (SFN) Stream Restoration Project** - The City has partnered with the SFN to improve fish habitat on three separate watercourses in South Nanaimo. A report of proposed work was completed in 2016 and restoration work has commenced.

**Old City Street Tree Planting** - Street trees were planted on three street in the Old City with cooperation of the Nanaimo Old City Association.

#### Community-Wide Actions Proposed for 2017

**Earth Day Tree Voucher Program** - Nanaimo residents will be given the opportunity to purchase subsidized vouchers for large fruit or coniferous trees to be picked up from a local nursery. The subsidy is funded from tree removal applications and fines.

**Departure Creek Realignment and Restoration** - Lower Departure Creek is to be realigned to improve riparian and salmon habitat and restoration work is to be completed on the upper portion of the creek. This work is being complete in conjunction with the SFN, the Departure Bay Neighbourhood Association, and the Department of Fisheries and Ocean.

**SFN Stream Restoration Project** – Continued restoration work with the SFN as identified in 2016 report.

**Tree Planting** - The City has applied for funding from BC Hydro to plant fruit and nut trees within Beaufort Park. Thus far in 2017 the City has planted boulevard and street trees on Princess Street and Westwood Road.

**Invasive Plant Management Program** - These efforts will continue in 2017.

#### Corporate Actions Taken in 2016

**Tree Management and Protection Bylaw** - Staff commenced review of this bylaw.

#### Corporate Actions Proposed for 2017

**Tree Management and Protection Bylaw** - Proposed amendments to the Tree Management and Protection Bylaw are expected to proceed to Council in 2017 for adoption.

#### 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

**Reuse Rendezvous** - This is a City-wide curbside swapmeet where residents are encouraged to put out items that may be useful to others.

**Partners in a Cleaner Community** - A community wide litter cleaning project done bi-annually where non-profits and volunteers set out to clean up neighbourhood streets, park areas, and boulevards.

**Educational Publications** - Publications include a bi-annual recycling newsletter called "Trash Talks" and our Annual Collections Calendars. These include a variety of topics relating to waste misdirected to the landfill and how it can be recycling or composted.

**Promotion efforts** - "Ask us Anything" stalls and other promotion efforts at City events such as the Bathtub Days and the Vancouver Island Exhibition.

**Curbside collection** – Curbside collection of organics and recycling.

#### Community-Wide Actions Proposed for 2017

**Automated Solid Waste Collection** - 1/3 of the City will receive automated solid waste collection in 2017. This pilot will utilize compressed natural gas trucks and wheeled carts for garbage, organic, and recycling collection. This implementation will include extensive communication with the public on waste sorting and cart usage.

**Collection of Yard Waste** - Organics picked up curbside on automated routes will now include yard waste.

**Recycling App** - The City has developed an app in conjunction with "Recollect". This app has a solid waste collection reminder and a "waste wizard" which allows you to search the appropriate disposal from a library of items. This app also lets you report an issue with your collection.

**Car Trunk Sale** - This is a new reuse event where reusable items will be for sale in car trunks which is scheduled for August 2017.

**Continued Annual Initiatives** - The 2016 initiatives mentioned above will continue in 2017.

#### Corporate Actions Taken in 2016

**Green Group** - The group consists of volunteers from all areas of the organization. The mandate is to improve the environmental sustainability of the organization. Efforts are primarily focused towards increasing the knowledge of City staff towards recycling and composting facilities available to them and improving these services.

**Recycling and Compost Improvement** - A variety of recycling and compost facilities in parks, City facilities and fire stations were improved during the year.

**Departure Bay Beach Clean-up** - The City partnered with Island Liquor and Departure Bay School to clean up cigarette butts. This will include butt bins which will be purchased by Island Liquor and serviced by the City. Departure Bay School will perform regular beach cleanings.

**Zero Waste Events** - Christmas Luncheons and Children's Christmas Party was promoted as Zero Waste Events and divert around 98% of waste.

**Corporate Actions Proposed for 2017**

**Zero-Waste Event Designation** - The City started off the year designating Hometown Hockey a Zero Waste event which was the first of many Zero Waste Events to come. This involved the availability of receptacles for all types of waste. The City plans to have Zero Waste Kits available for community members who would also like to turn their event green.

**Solid Waste Management Plan** - The City is playing an active role in the renewal of the Region's Solid Waste Management Plan. This plan is working towards ambitious diversion from the landfill as well as plans for more stringent source separation requirements in the multi-family and ICI sectors.

**Green Group Initiatives** - This group hosted a "Small Green Ideas" competition for City staff early in 2017 and plans to implement ideas on reducing waste and other eco tips.

**Automated Solid Waste Collection** - As mentioned previously, our new automated solid waste collection fleet will be powered by CNG therefore reducing our Corporate carbon footprint.

**Solid Waste**

Does your local government have construction and demolition waste reduction policies, plans or programs?

**No**

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

**Expanded Bike Network** – Added 3.5 kms of bike lanes, multiuse trail, shared lanes and neighbourhood bikeways. In addition, a permanent pedestrian/cycling count station was installed on the E&N Trail.

**Improved Accessibility** – Improved accessibility to five transit stops.

**Expanded Sidewalks/Improved Crosswalks** – Expanded sidewalks by 0.5 kms of sidewalks, added pedestrian warning flashers at 2 locations, and curb extensions at 2 locations.

**Car Share Support** – Continued support through access to City Streets and by integrating this program into new multi-level family developments.

**Bike to Work Week** – City of Nanaimo support for the event with staff support and promotion.

#### Community-Wide Actions Proposed for 2017

**Expanded Bike Network** – Plans to expand the bike network another 7.5 kms through bike lanes, shares lanes and neighbourhood bikeways.

**Improved Accessibility** – Installing new bus shelter to further promote alternative transportation.

**Car Share Support** – Continued support for this program.

**Bike to Work Week** – Continued support for the event with staff support and promotion.

#### Corporate Actions Taken in 2016

**Off Street Parking Bylaw** - A draft bylaw was created to replace the existing bylaw. The proposed bylaw will include bicycle parking requirements not within in the existing bylaw. Other features have also been included to decrease automobile dependency and parking lot construction.

#### Corporate Actions Proposed for 2017

**Off Street Parking Bylaw** - The proposed bylaw will go to Council for consideration of adoption in 2017.

#### Transportation

Does your local government have policies, plans or programs to support:

- Walking
- Cycling
- Transit Use
- Electric Vehicle Use

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

### 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

**Harmonized Watering Restrictions** - To reduce confusion to the public when communicating watering restriction, the City and surrounding regional municipalities harmonized water restrictions.

**Community Education** - Grade 4 and 5 students were education on the City's water supply and taken on field trips to our drinking watershed. The City also participates in regional water conservation initiatives.

**Public tours** - Tours were provided to public of the City's new Water Treatment Plant. Rebate Programs - Toilet rebates available when you replace an older toilet with a high efficiency toilet. Appliance rebates are available

**Commemorated Annual Events** - City of Nanaimo participated in the celebration of World Water Day and BC Drinking Water Week.

**Toilet Rebate Program** - Rebates offered for toilets using 13 litres of more replaced with CSA approved low-flow models.

#### Community-Wide Actions Proposed for 2017

**Harmonized Water Restriction changes** - We are implementing an earlier start date in 2017.

**Commemoration of Annual Water Events** - The City will actively participate in events such as World Water Day and BC Drinking Water Week and more.

**Rebate Programs** - Rebate programming will continue into 2017.

**Community Education and Public Tours** - Grade 4 and 5 students will continue to tour the watershed, and tours of the Water Treatment Plant will be available to public. The City will also continue to participate in regional water conservation initiatives.

#### Corporate Actions Taken in 2016

**Fully Commissioned Water Treatment Plant** - This included maximizing efficiency in various processes.

#### Corporate Actions Proposed for 2017

**Efficiency upgrades** - Improvements to pump station, water treatment plant etc. will be made to make water supply more efficient.

**I&I Reduction Strategy** – Consultant has been engaged to complete strategy. This will include the installation of one permanent sanitary sewer monitoring station per sewer catchment to determine the amount and type of I&I. It will also measure/document reductions achieved from reduction strategies.

**Water Supply Strategic Plan Update**

**Complete Water Audit**

#### 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

**Climate Adaptation Plan** - Early research towards efforts to create this plan was completed in 2016.

**Natural Capital Study Climate Change Considerations** - The consultant hired to complete the Natural Capital Study was instructed to include a climate change scenario in their study. This would allow us to determine how the marsh being studied would respond to large storm events associated with climate change.

#### Climate Change Adaptation Actions Proposed for 2017

**Climate Change Resiliency Strategy** - The City will begin implementation of a Climate Resiliency Strategy. The primary goal is to create a strategy that will prepare the City for the unavoidable effects of climate change. The strategy will recommend actions to avoid, protect, accommodate, and retreat from the effects of climate change.

**Water Supply Strategic Plan Update** – This update will review impacts of climate change and population growth on future planning for water supply augmentation timing.

#### Resources you have used to support climate change adaptation (e.g. [Plan2Adapt](#), [Preparing for Climate Change: Implementation Guide](#))

Plan2Adapt

Landscape Resilience Framework(San Francisco Estuary Institute, 2015)

Sea Level Rise Adaptation Primer- A Toolkit to Build Adaptive Capacity on Canada’s South Coasts (Arlington Group, 2013)

Changing Climate, Changing Communities: Guide and Workbook for Municipal Climate Adaptation (ICLEI Local Governments for Sustainability, 2011)

#### 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	Yes

Ecosystem-based approaches (incl. shorelines)	<b>Yes</b>
Incentives (e.g. property owner reducing stormwater run-off)	<b>Yes</b>
Public education and awareness	<b>Yes</b>
Research (e.g. mapping, participation in studies)	<b>Yes</b>

<b>Other</b>	
Are you familiar with the <a href="#">Community Lifecycle Infrastructure Costing Tool (CLIC)</a> ?	<b>Yes</b>
Have you used CLIC?	<b>Yes</b>

## 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.

#### Corporate Innovative Action

**Municipal Natural Capital Initiative** – In 2016, Council voted to endorse the participation of the City of Nanaimo in the Municipal Natural Capital Initiative (MNCI) pilot study. The intent of MNCI is to allow local governments to assess their natural capital assets in order to more clearly define their value in supplementing the City’s asset management and financial planning. The City of Nanaimo has been selected as one of five Canadian municipalities to participate in the program. The City of Nanaimo has selected Buttertubs Marsh Conservation Area, located at 1780 Jingle Pot Road and 175 Pryde Avenue, a 55ha reclaimed wetland/floodplain adjacent to the Millstone River as the subject of the natural capital study. A number of city storm water outflows currently discharge into the marsh. The City is interested in understanding, quantifying and maximizing the municipal services from the marsh. Prior to the study date, no costing estimates for the value of storm water management or other services have been conducted. Through the study, the City hopes to increase the storage capacity of the natural system, thus reducing downstream flooding, protect, restore and enhance the habitat value of the area. Data collection (conducted by Northwest Hydraulic Consultants) and modeling for the project has begun in early 2017.

### 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

**Municipal Natural Capital Project** - David Suzuki Foundation, Asset Management BC, the Town of Gibsons, Sustainable Prosperity, and Brooke and Associates.

**Vancouver Island Beggartick Restoration Project** - National Wetland Conservation Fund (Canadian Wildlife Service/Environment and Climate Change Canada).

**Burn it Smart** - B.C. Ministry of Environment provide funding to implement our Woodstove Exchange Program.

**Compressed Natural Gas Solid Waste Collection Trucks** - Fortis BC

**Various Energy Initiatives** - BC Hydro

## 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?	<b>Yes</b>
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:	4,360
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:	494
<b>TOTAL A: CORPORATE GHG EMISSIONS FOR 2016</b>	<b>4,854 tCO<sub>2</sub>e</b>

### 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 (tCO<sub>2</sub>e)) being claimed from Option 1 GHG Reduction Projects:**

OPTION 1 PROJECTS	REDUCTIONS
Energy Efficient Retrofits	
Solar Thermal	
Household Organic Waste Composting	1,831
Low Emission Vehicles	
Avoided Forest Conversion	
<b>TOTAL B: REDUCTIONS FROM OPTION 1 PROJECTS FOR 2016</b>	<b>1,831 tCO<sub>2</sub>e</b>

## 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 = 3,023 tCO<sub>2</sub>e**

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:

Level 1 – Demonstrating Progress on Charter Commitments	
Level 2 – Measuring GHG Emissions	
Level 3 – Accelerating Progress on Charter Commitments	✓
Level 4 - Achievement of Carbon Neutrality	
Not Sure	