

Climate Action Revenue Incentive Program (CARIP) Public Report for 2017



Local Government:
District of North Vancouver

Report Submitted by:

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Date:	May 31, 2018		

The District of North Vancouver has completed the 2017 Climate Action Revenue Incentive Program (CARIP) Public Report as required by the Province of BC. The CARIP report summarizes actions taken in 2017 and proposed for 2018 to reduce corporate and community-wide energy consumption and greenhouse gas emissions (GHG) and reports on progress towards achieving carbon neutrality.

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 2017	
	Council received the Progress Towards 2030: OCP Implementation Review Report on April 18, 2017, which outlines 2011-2016 progress towards implementing OCP targets including GHG reductions.
	Maplewood Village Centre and Innovation District Implementation Plan & Design Guidelines was approved by Council on November 6, 2017. The design concept plan for Maplewood illustrates a compact, complete, connected and energy-efficient community. The plan aims to capture approximately 4,500 net new jobs and over a million sq. ft. of employment floor area in the District by 2030. Growth anticipated in this area supports the potential to extend the Frequent Transit Network to Maplewood and the plan includes flood protection works to increase climate change resiliency.
	The Integrated Stormwater Management Plan (ISMP) Framework and Objectives was approved by Council on July 10, 2017. The primary goal of the ISMP is to improve watershed health to benefit broad public interest in a balanced way. The ISMP framework is based on structured decision making to enable the evaluation and implementation of improved watershed health in all areas of business including capital planning, development and maintenance. To achieve improved watershed health, the District is committed to mitigate the impacts of stormwater runoff resulting from changes to land use and connect the natural and built environments to protect and enhance social, economic and environmental values of our community.
	The Climate Change Adaptation Strategy: Acting Now for a Resilient Future was adopted by Council on July 24, 2017. The purpose of the strategy is to coordinate and integrate District initiatives that support climate change adaptation and to incorporate adaptation considerations and longer-term thinking throughout all District activities. The strategy will provide an opportunity to not only enhance the District's adaptive capacity and resiliency, but also reduce the long-term costs and impacts associated with climate change.
	Council adopted the "Keeping of Domestic Hens Bylaw 8211, 2016" on September 11, 2017 to further promote environmentally sustainable living practices and local food production to help reduce GHG emissions, following endorsement of the 2016 Regional Food System Action Plan.
	In 2017, the District funded BC Sustainable Energy Association's Cool It! Climate Leadership Training program for 274 students in the District through 10 workshops in 5 elementary schools (formerly the Climate Change Showdown program). During the program challenge, students committed to several energy saving actions over a 4-week period. Students' energy conserving and emissions saving actions at home resulted in the projected savings of a total of 215.5 tonnes of carbon dioxide (CO ₂ e), if they continue their actions for one year.
	Planning for the future use of the Delbrook site (former location of the old Delbrook Community Centre) continued in 2017. On January 17, 2017, Council directed staff to develop a concept plan

	that incorporates neighbourhood parkland, non-market housing, and community services. On July 24, 2017 Council directed staff to partner with Catalyst Community Developments Society (a non-profit society) and Care BC (a non-profit seniors care society) to deliver the non-market housing components. These uses will replace the existing inefficient buildings which are at the end of their economic life on the site.
Community-Wide Actions Proposed for 2018	
	The process to develop a Community Energy and Emissions Plan (CEEP) commenced in 2017 with completion anticipated in early 2019. The CEEP will provide community-wide GHG emissions and an energy use profile for the District, a refined set of targets for community-wide GHG and energy reduction, and a locally developed framework of priority actions for implementing and monitoring progress towards identified community GHG and energy targets.
	The District, in partnership with the City of North Vancouver, District of West Vancouver, and the Vancouver Fraser Port Authority (VFPA), and collaboration with First Nations is overseeing a coordinated risk assessment process to determine potential North Shore-wide vulnerabilities to sea level rise and catalogue a range of possible scenarios to manage these potential risks. The outcome of these analyses is to develop a North Shore Sea Level Rise Risk Management and Adaptive Management Strategy.
	Continue to fund Cool It! Climate Leadership Training program to enable more students to participate in leading opportunities to reduce GHG emissions and to conserve energy use at home.

Corporate Actions Taken in 2017	
	On-going analysis of the District's corporate energy consuming assets and updating of Strategic Energy Management Plan (SEMP).
Corporate Actions Proposed for 2018	
	Initiate an energy study in the District's largest Utilities facilities (pumping stations) including opportunities to reduce energy through optimizing pumps, motors, piping and control strategies. Findings will be applied to Utilities asset management planning. The pumping stations' HVAC and lighting systems will also be reviewed during the study for energy saving opportunities.
	Participate in the regional Electric Vehicle Peer Network, a new network for local governments commencing in 2018. It is a spin-off of Metro Vancouver's Regional Engineers Advisory Committee (REAC) Climate Protection Sub-committee.
	Develop an internal working group to integrate electric vehicle charging infrastructure planning for corporate charging infrastructure and community integration.

Broad Planning		
What is (are) your current GHG reduction target(s)?	<p>OCP Target: A 33% reduction in community GHG emissions by 2030 (from 2007 levels).</p> <p>Corporate Targets: 33% reduction in energy use and GHG emissions in DNV facilities by 2020 (from 2011 baseline).</p>	
Are you familiar with your community's community energy and emissions inventory (e.g. CEEI or another inventory)?		Yes

What plans, policies or guidelines govern the implementation of climate mitigation in your community?	<ul style="list-style-type: none"> • Community Energy and Emissions (CEE) Plan • Climate Change Adaptation Strategy • Integrated Community Sustainability Plan • Official Community Plan (OCP) • Regional Growth Strategy (RGS) • Do not have a plan • Other: Strategic Energy Management Plan, “Energy, Water conservation & Greenhouse Gas Reduction Development Permit Area”, Natural Step Framework, Integrated Stormwater Management Plan, Natural Hazards Management Program, Corporate Plan 	Pending Yes Yes (OCP) Yes Guide N/A Yes
Does your local government have a corporate GHG reduction plan?		Yes

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 2017	
	<p>Council adopted a new “Construction Bylaw, 8271, 2017” on December 11, 2017. The new construction bylaw also adopts the BC Energy Step Code. The District has adopted the Energy Step Code in the following manner, effective July 1, 2018.</p> <ul style="list-style-type: none"> • All Part 3 Commercial Buildings are required to meet Step 1 • All Part 3 Residential Buildings are required to meet Step 2 (Part 3 Residential projects that require rezoning will be required to meet Step 3) • All Part 9 Residential Buildings are required to meet Step 3
	<p>LED street lighting replacement (part of DNV’s Strategic Energy Management Plan) is reducing electricity consumption and operating costs for the District. One-third (950 units) of the District’s cobrahead street light fixtures were replaced with LEDs on streets classified as Arterial (Major and Minor) and Collector, including sections of Marine Drive, Capilano Road, Deep Cove Road and Montroyal Boulevard in 2017.</p>
	<p>Lynn Valley Road bike lanes project completed, which added bike lanes along Lynn Valley Road and upgraded the street lighting to LED.</p>
Community-Wide Actions Proposed for 2018	
	<p>Conversion of 1,000 street lights from HPS to LED technology to reduce energy consumption will continue on Local residential streets.</p>
	<p>Pilot non-cobrahead (ornamental) fixture retrofits or upgrades.</p>
	<p>Lynn Valley Road/Highway 1 Underpass Project is a joint District, Ministry of Transportation and Infrastructure, and City of North Vancouver project that will add a new southbound cycling connection and multi-use path, new LED street lights in the southbound direction, and a new southbound travel lane.</p>

Corporate Actions Taken in 2017	
	The new Delbrook Community Recreation Centre opened in June 2017. The innovative design of this community facility includes natural day lighting, energy efficient lighting, a heat recovery heat pump system, air-to-water heat pump heating system, high performance building envelope, natural landscaping, water conservation fixtures and more. The building design is targeted to meet LEED gold performance equivalency.
	Continued an energy retrofit of the Karen Magnussen Community Recreation Centre, to optimise savings opportunities and further reduce GHG emissions. Phase 2 measures include upgrades to domestic hot water and expansion of heat recovery loop.
	Started design and planning of a multi-phase energy retrofits in the DNV's larger buildings including the District Hall, Operations Centre, and Ron Andrews Community Recreation Centre. Extensive retrofits to be completed over the next few years and are critical to meet energy and GHG reduction targets.
	District Public Libraries: Develop energy-saving initiatives, replace energy inefficient equipment e.g. old computers and multifunction devices, with equipment that is more energy efficient.
	The new Delbrook Community Recreation Centre is successfully using a heat recovery chiller (heat pump) for facility heating and cooling.
	Implemented new data-capture software tools at Karen Magnussen Community Recreation Centre, resulting in increased energy savings through careful tuning of building automation programming.
	Lighting and heating system upgrades in an older community facility acquired by the District, resulting in energy savings and improved comfort for the young occupants.
	Libraries: Recommissioned controls in main branch (Lynn Valley) to improve comfort and also reduced energy consumption dramatically. Air curtains were installed to help retain the heat in the building making it more efficient running the in-building air & resulting in less reliance on space heaters and saving energy. Lighting upgrades included use of LEDs and timer switches.
Corporate Actions Proposed for 2018	
	Significant HVAC, domestic hot water, and building automation system upgrades at Ron Andrews and Lynn Valley Community Recreation Centres
	Installation of LED lighting in Ron Andrews Community Recreation Centre pool chamber to replace low-efficiency High Pressure Sodium fixtures, and improve lighting quality
	Building Automation Upgrades at all the District's largest facilities to create energy savings and provide data to enable further energy use reductions.
	LED lighting now standard in renovations of District spaces. District Hall now uses a variety of LED fixtures in work and meeting spaces.
	Continue to implement LED lighting retrofits of multiple District facilities including interior, exterior, parking lot fixtures.
	Complete building energy studies (including recommissioning measures) at several medium-sized District facilities (libraries and community centres) to develop and align retrofit opportunities with future facility asset management plans.
	HVAC system will be rebalanced/reconfigured making it more LEED compliant at Lynn Valley library.

Building and Lighting

The Province has committed to taking incremental steps to increase energy-efficiency requirements in the BC Building Code to make buildings net-zero energy ready by 2032. The BC Energy Step Code--a part of the BC Building Code--supports that effort

Is your local government aware of the BC Energy Step Code?	Yes
Is your local government implementing the BC Energy Step Code?	Yes

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 2017

North Shore Waste Water Treatment Plant (NSWTP): the District of North Vancouver is participating in Metro Vancouver's NSWTP project, which is being built in the District, by providing access for energy transmission from the new NSWTP effluent heat recovery system to Lonsdale Energy Corp (LEC), a district energy facility for supplying hydronic energy for LEC. Once operational, the NSWTP project is expected to provide GHG credits of 7,200 tonnes annually. The District is expected to receive GHG credits of 300 tonnes annually. Estimated completion is December 2020.
Northlands Golf Course: Entire powered cart fleet is all electric (68 carts) since 1998. All gas power equipment is maintained above industry standards by our in-house mechanic and vehicles are turned over as part of our Asset Management Plan with new, more energy efficient vehicles. Continue to use solar panels (installed in 2010) for heating the water to the Clubhouse.

Community-Wide Actions Proposed for 2018

Corporate Actions Taken in 2017

Corporate Actions Proposed for 2018

Energy Generation	
Is your local government developing, or constructing:	No No
<ul style="list-style-type: none"> • A district energy system • A renewable energy system 	
Is your local government operating:	No No
<ul style="list-style-type: none"> • A district energy system • A renewable energy system 	
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
Are you familiar with the 2017 “ List of Funding Opportunities for Clean Energy Projects Led by First Nations and Local Governments ?”	No

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 2017	
	Completion of the 20.5 Hectares (Ha) fuel management treatments to protect green spaces and reduce the wildfire risk in the urban interface areas of Braemar Park & St. Mary's and Mountain Highway & Hoskins Park.
	Piloted dog waste program in south Inter-river/Lynn Canyon parks with separate red bins for dog waste.
	Fromme Mountain Environmental Assessment - constructed new bridges in Fromme and Seymour forested areas in accordance with Streamside Guidelines to protect fish-bearing creeks and riparian zones. Constructed new boardwalks in Lynn Canyon Park to protect wetlands in accordance with environmental recommendations.
	Carried out multiple invasive plant removals in approximately 25-30 park and open space sites in accordance with the DNV Invasive Vegetation Management Strategies to manage Japanese knotweed, ivy, holly, blackberry, lamium and other invasives with restoration planting. Combination of contractor and volunteer involvement.
	Completed restoration planting projects at Harbourview park to improve the estuary, at Inter River Park, and other greenbelt sites.
	Continued fuel reduction of park sites as part of the Community Wildfire Program in Deep Cove and Braemar areas.
	Undertook street tree planting projects as part of Development Permit projects.
	On-going inter-jurisdictional park and trail planning with Metro Vancouver, BC Parks, and CMHC.

	Seasonal Alpine Trail Crew to restore upgrade and decommission trails, improve drainage and tree replanting.
	Through the Development Permit Area process, required restoration planting plans for both the Streamside and Protection of the Natural Environment Development Permit Areas are implemented on private property. These restoration projects restore ecological function on private lands.
	DNV Capital Works projects undertaken near watercourses involve restoration planting works designed to restore ecological function in conjunction with infrastructure upgrades or flood mitigation works.
Community-Wide Actions Proposed for 2018	
	Continuing the Volunteer Program to support invasive species removal, restoration planting, riparian fencing to protect creeks.
	Alpine Trail Crew continues to improve drainage, trail surfacing, and restoration planting May – Oct.
	Expand dog waste program to high volume dog trails, subject to funding.
	Phase two of Lynn Valley Loop Trail continues with signage and kiosks to outline ecological and historical importance of community – working with the Lynn Valley Community Association.
	Seymour Trails – prepare condition assessment and master plan to manage trails. Fromme Mountain – ongoing upgrades and maintenance of trails with resurfacing and planting and forest management.
	Hastings Creek – undergo trail improvements outside of riparian zones and replant.
	Update the District's 2007 Community Wildfire Protection Plan to the current 2017/18 Strategic Wildfire Prevention Initiative Standards CWPP template and Threat Assessment Guides & Worksheets. As part of the CWPP update an additional Forest Resilience and Post-fire Rehabilitation Plan will also be undertaken.
	An application to treat the last remaining 15.4 Ha of higher risk wildland interface areas of Carmaria Crt. and Braemar/Dempsey will be submitted to the UBCM in summer of 2018 for a scheduled completion date in 2018/19 subject to successful grant funding.
	Operational fuel management project to treat 11 Ha. of high risk fuel type in the Mt. Fromme and Kirkstone Park areas. Climate change models predict warmer, drier and longer summers which will increase the risk of forest fire.

Corporate Actions Taken in 2017	
	Piloted LED pathway lighting to reduce light trespass into greenspaces to become dark skies compliant.
	Continued inter-jurisdictional park and trail planning with Metro Vancouver, BC Parks and CMHC, for a new Grouse Mountain Regional Park.
	Climate Change Program Initiatives – reviewing and implementing initiatives, e.g. trail upgrades, tree planting.
	Continue to work with Corporate Communications to provide public education to park visitors and users on park protection and park encroachment.
	Continue to work on park master plans (such as Seylynn and Lynn Creek area) to improve public access and safe use of trails.
	Continue to work on the parks, trails and open spaces defined by the OCP and key DNV Town and Village Centre Implementation Plans (Maplewood, Lynn Valley, Lynn Creek and Lions Gate).
	Implementation of drainage best management practices such as bioswales and raingardens in coordination with other capital projects to help restore the natural water balance.

Corporate Actions Proposed for 2018	
	Integrated Stormwater Management Program (ISMP) – implement rain gardens and storm water measures with park projects.
	Continue with Fuel Management Initiatives in interface areas between Alpine and residential areas.
	Climate Change Program Initiatives – review and implement park-related program.

Greenspace	
Does your local government have urban forest policies, plans or programs?	Yes
Does your local government have policies, plans or programs to support local food production?	Yes

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 2017	
	Supplied standardized carts for waste collection with animal resistant lids; 6% increase in green waste compared to before the new program. Incentives for waste reduction include reduced utility fees for those using smaller garbage containers.
Community-Wide Actions Proposed for 2018	
	Conducted pilot of solar powered waste containers that utilizes smart technology to increase waste collection efficiency.

Corporate Actions Taken in 2017	
	Zero Waste stations implemented in new Delbrook Community Recreation Centre with 4 sorting options: organics, container recycling, mixed paper recycling, and garbage.
Corporate Actions Proposed for 2018	
	Expand zero waste stations to all Community Recreation Centre facilities.
	Libraries: Consolidate ordering of cleaning supplies to order larger bulk sized which enables more refilling of smaller containers.
	Review truck routes for all waste collection zones to increase operational efficiency and reduce GHG emissions.

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

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 2017	
	The District, working with the District of West Vancouver, City of North Vancouver and TransLink, are planning for the Main-Marine – Dundarave to Phibbs Exchange B-Line service, anticipated to be going into service in late 2019 as part of Phase One of the Mayors' 10-Year Vision. Overall length: an additional 14 km of B-line bus service.
	Participation in Metro Vancouver-led funding application for two studies: to study regional DC Fast Charger charging infrastructure distribution; and, to assess the installation of public level 2 EV charging stations at multiple District facilities.
	The Lynn Headwaters parking and access study was started in 2017 in partnership with Metro Vancouver. A District-wide review of parking requirements including policy updates and pilot projects commenced in 2017 and will continue through 2018. Traffic Operations staff continue to find ways to address parking in and around Deep Cove, Lynn Canyon and Norgate. These parking studies are on-going.
	Work continues with TransLink and the Province on the Phibbs Exchange project on detailed design to support additional transit ridership. Estimated completion date is 2019.
	Work continues with TransLink and the Province on the design of Phase 2 of the Highway 1 interchange project, including support for additional transit ridership. Phases 2 and 4 are at 90% detail design. Phase 3 (Dollarton Interchange) is at preliminary design.
	Each year, the District implements transit infrastructure improvements in partnership with Coast Mountain Bus Company and Pattison Outdoor Advertising. Improvements to transit, ranging from pavement markings and accessibility pads to bus benches and shelters, aim to support additional transit ridership. Approximately 12 improvements were implemented in 2017.
	Improved signal coordination to reduce vehicle delay and GHGs across the District with attention to high volume arterial corridors.
	On-going work to design and implement the District's sections of the North Shore Spirit Trail. The Spirit Trail is envisioned as a 35-kilometre long, accessible, low-lying multiuse path linking Horseshoe Bay to Deep Cove. The District has been working with the City of North Vancouver, District of West Vancouver, and Squamish Nation to coordinate the planning and implementation. In 2017, alignment was confirmed through Maplewood with the Maplewood Village Centre

	implementation planning work, and work will continue to design and implement the Trail. Work continues to plan for the section from the City of North Vancouver border and through Lynn Creek Town Centre.
	Pedestrian/sidewalk projects: A new special crosswalk was constructed across Mountain Highway at 15 th Street in 2017. Designs were completed for new sidewalks for Ross Road (between Allan Rd. and Hoskins Rd.) and for E. 16 th Street (between CNV border and Mountain Highway).
	Cycling infrastructure projects in 2017 include: a) Barrow Street improvements to connect the bike lanes on Main Street to the Ironworkers Memorial Bridge on-ramp and Phibbs Exchange (partnership with TransLink and the Province) was completed; b) Capilano Road added painted bike lanes from Edgemont Boulevard to Prospect Avenue as part of the Capilano Water Main Project was completed; c) Lynn Valley underpass project is underway to add another southbound vehicle lane and multi-use pathway and sidewalk section under the Highway 1 bridge. Project to include new bike lanes, transit stops, and marked crosswalks with construction expected to be completed in summer 2018. d) Bike lanes on Highland Boulevard and W. Queens Road were piloted in 2017. The Highland Boulevard bike lane test included a painted buffer and was limited to northbound only, between Belmont Avenue and Wavertree Road. The W. Queens Road was a painted bike lane for the eastbound direction only, linking Edgemont Village with the new Delbrook Community Recreation Centre.
	North Shore Incident Response Working Group. A working group has been formed between North Shore municipalities and emergency services (as well as City of Vancouver emergency services and RCMP) to explore opportunities to reduce incident clearing times in/around the Iron Workers Memorial Bridge and Lions Gate Bridge. Solutions are expected to reduce traffic congestion and heavy backups resulting from stalls and minor incidents. Implementation in 2017 included signage installation, Operational Guidelines for Fire Rescue Response to streamline District and City of Vancouver crew response, submitted a UBCM resolution seeking changes to provincial legislation to remove disabled vehicles from provincial highways, and launched a new interoperable radio system to allow emergency services to communicate amongst each other during incidents.
	Continue to apply the “Implementation of Electric Vehicle Charging Infrastructure with Development” policy (approved in 2014).
Community-Wide Actions Proposed for 2018	
	School travel planning as part of a Transportation Demand Management pilot for one elementary school, exploring ways to encourage alternatives to driving.
	Work will continue on planning for the Main-Marine (Dundarave to Phibbs Exchange) B-Line service which is anticipated to be going into service in late 2019.
	Participation in the Integrated North Shore Transportation Planning Project (INSTPP) which aims to enable greater cross-jurisdictional collaboration to provide an integrated transportation approach for the North Shore. Work is underway to complete a comprehensive assessment of transportation needs of the North Shore, identify gaps, joint opportunities, and develop a collective long-term transportation framework for the North Shore for all modes of goods and people movement.
	Sign MOU with BC Hydro for the District host a DC Fast Charger (Level 3) electric vehicle fast charge station (subject to funding approval).
	Work continues with TransLink and the Province on the Phibbs Exchange transit exchange project on detailed design to support additional transit ridership. Estimated completion date is 2019/2020
	Dollarton Interchange redesign to reduce congestion and GHGs
	Design of Berkley Rd extension to reduce congestion and GHGs

	Implement buffered bike lanes on Highland Boulevard between Belmont Avenue and Wavertree Road in both directions.
	Construction of sidewalks and pedestrian crossing safety improvements to promote walking: Ross Rd sidewalk from Mountain to Hoskins, 16 th Ave sidewalk, and William Ave sidewalk (29 th Street to Lynn Valley Road), and install Rectangular Rapid Flashing Beacon (RRFBs) at 5 crossing locations.
	Continuing Spirit Trail design work for the section from the City of North Vancouver border at Lynn Creek, a new bridge at Hunter Street, and through Maplewood Village Centre.
	Continue North Shore Incident Response Working Group. A working group has been formed between North Shore municipalities and emergency services (as well as City of Vancouver emergency services and RCMP) to explore opportunities to reduce incident clearing times in/around the Iron Workers Memorial Bridge and Lions Gate Bridge. Solutions are expected to reduce traffic congestion and heavy backups resulting from stalls and minor incidents. Actions planned for 2018 include enhancing tow truck dedication between Cassiar and Lower Lynn to expediting accident clearing and reduce resultant congestion, developing operational guidelines to allow Fire crews to clear minor accidents without RCMP attendance, and developing a public outreach campaign to educate the public to clear vehicles lanes if involved in a minor accident with no injuries.
	Begin North Vancouver Bicycle Master Plan update, including consideration of All Ages and Abilities routes.

Corporate Actions Taken in 2017	
	Installed 4 EV charging stations in new Delbrook Community Recreation Centre.
	Promoted and encouraged participation in “Bike to Work Week” event.
	Ministry of Transportation and Infrastructure is constructing a pedestrian underpass under Mountain Highway with connecting pedestrian/cycling trails as part of their Mountain Hwy Interchange project. Construction started 2017 and is anticipated to be completed in late 2018. DNV is contributing approximately 25 percent of project costs.
	Staff from Development Engineering, Facilities Management & Development, Planning and Engineering have attended Peer Network-sponsored events on the municipal role in requiring and providing EV charging infrastructure.
	Planning underway for expanded bike storage, with charging for electric bicycles, and shower facilities for staff at District Hall.
	Continued to encourage and train staff to use electric bicycles that are available as fleet vehicles.

Corporate Actions Proposed for 2018	
	Continue to promote and encourage participation in “Bike to Work Week” event.
	District Fleet is acquiring 17 new electric vehicles (EVs) for asset replacement and fleet expansion.
	Install multiple electric vehicle charging stations with future capacity at three District Facilities to support the expansion of the District’s electric vehicle Fleet (subject to funding approval).
	An electric vehicle 101 information event for District Staff to introduce the vehicles and charging infrastructure.
	More in-depth electric vehicle strategy and electric vehicle policy sessions for development staff, inspectors, and planners are planned.
	Investigate and plan for replacement of current gasoline powered Fire Inspector vehicles with full battery electric vehicles, and for the corresponding electric vehicle charging stations at all Fire Stations for use of Fleet and staff electric vehicles.
	Complete site assessments of District facilities to study, plan, and budget for electrical upgrades in order to enable future installation of electric vehicle charging stations.
	Continue to encourage and train staff to use electric bicycles that are available as fleet vehicles.

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) 	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 behaviour)?	Yes
Does your local government integrate its transportation and land use planning?	Yes

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 2017	
	The District hired two Water Conservation Officers focused on public education, communication and bylaw enforcement of water use between May and October 2017. Officers attended community events including Blueridge Days, Lynn Valley Days, and five other local events. \$100 fines may be issued for non-compliance with watering restriction schedules. Officers travelled frequently with an electric bicycle.
	The District contributes to BC Hydro's Appliance Rebate program providing \$50 per household for replacement of an old washing machine with a high energy efficiency one. The program started in 2015 and continued through 2017. BC Hydro administers the program. In 2017, 115 washing machines were replaced.
	The District supported the North Shore 12,000 Rain Gardens Project initiated by Cool North Shores and SFU.
	The District purchased a hand held water quality sonde to monitor water quality in local watercourses. The sonde is available for both staff and the public to take out and collect data.
Community-Wide Actions Proposed for 2018	
	Water Conservation Officers will continue to focus on public education, communication and bylaw enforcement of water use between May and October 2018. Officers will attend six to eight community events and will police and issue fines for water conservation infractions. Officers will be encouraged to complete as much of their travelling as possible with an electric bicycle.
	Coordinate and fund a biennial Water Conservation Play which will take place in 2018. Every elementary school in the District is encouraged to participate. Schools who chose to participate watch a play performed by a local theatre group.
	Continue to contribute to BC Hydro's Appliance Rebate program providing \$50 per household for replacement of an old washing machine with a high energy efficiency one. The program started in 2015 and continues through 2018. BC Hydro administers the program.

	A water service meter will be installed at a community garden at the request of a local group. This will be monitored by the District, as a pilot project, to determine the average water consumption of a community garden.
	Continue to support the North Shore 12,000 Rain Garden Project through design, construction and education and awareness of rain gardens.
	Develop an online platform to communicate watershed monitoring programs (water quality, creek flows and rainfall).

Corporate Actions Taken in 2017	
	The District received a one year, \$3.5 million, grant from the Canadian Water and Wastewater Fund to apply towards its Reduction of Inflow and Infiltration Program in the Lynn Valley sub catchment. The goal of the program is to reduce the amount of storm water entering the sanitary sewer system and reduce loading on sanitary sewage infrastructure. Approximately 50% of the work under the grant was completed in 2017.
	The District is committed to complete repairs to sanitary and storm infrastructure, where possible, using trenchless technologies. Trenchless construction methods used by the DNV in 2017 include pipe bursting, CIPP lining, and injection grouting. Trenchless or “no-dig” construction has a lower carbon footprint than traditional open-cut construction methods.
	Northlands Golf Course: Continues to submit detailed water usage plans with the District, saving water wherever we can (cost for water). Replace irrigation heads with more efficient ones with precise target capabilities.
Corporate Actions Proposed for 2018	
	The District created a Drinking Water Conservation Bylaw (Bylaw 8320). The bylaw puts in place a comprehensive Drinking Water Conservation Plan expanding on the water conservation regulations previously covered under the Waterworks Bylaw.
	The District will continue to focus on its Reduction of Inflow and Infiltration Program in the Lynn Valley sewer catchment and apply what we learned under the grant work to other areas of the District.
	The District plans to apply for funding from the Federation of Canadian Municipalities Green Municipal Fund to enhance our Reduction in Inflow and Infiltration Program.
	The District will continue its commitment to trenchless construction in 2018. Trenchless or “no-dig” construction has a lower carbon footprint than traditional open-cut construction methods. 80% of our sanitary sewer rehabilitation is trenchless. So far we have already completed or plan to complete CIPP lining and injection grouting of mains, laterals, and manholes. We also plan to do a pilot study for trenchless rehabilitation, CIPP lining, of water mains.
	The District plans to purchase a JetScan camera for our vactor truck to improve the efficiency of our flushing operations. This will reduce the run time of our vactor truck and reduce its emissions.
	The District plans to adopt new on-site drainage source control requirements in our Sewer Bylaw (Bylaw 6656) and Development Servicing Bylaw (Bylaw 8145) to meet the “Region-wide baseline for on-site Stormwater management” to improve watershed health.
	Complete installation of low-flow shower and faucet fixtures in District facilities.
	Install water metering in corporate facilities that are not currently metered.

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

This section of the CARIP survey is designed to collect information related to the types of climate impacts local governments are experiencing and how they are being addressed.

Please identify the THREE climate impacts that are most relevant to your Local Government.	
• Warmer winter temperatures reducing snowpack	Yes
• Changes to temperature and precipitation causing seasonal drought	Yes
• Heatwaves impacting population health	Yes
• Increased temperatures increasing wildfire activity	Yes
• Increased temperatures affecting air quality	Yes
• Changing temperatures influencing species migration and ecosystem shifts	Yes
• Extreme weather events contributing to urban and overland flooding	Yes
• Sea level rise and storms causing coastal flooding and/or erosion	Yes
Other:	

In 2017 has your local government addressed the impacts of a changing climate using any of the following?	
Risk and Vulnerability Assessments	Yes
Risk Reduction Strategies	Yes
Emergency response planning	Yes
Asset management	Yes
Natural/Eco asset management strategies	Yes
Infrastructure upgrades (e.g. storm water system upgrades)	Yes
Beach Nourishment projects	No
Economic diversification initiatives	Yes
Strategic and financial planning	Yes
Cross-department working groups	Yes
OCP policy changes	No
Changes to zoning and other bylaws and regulations	Yes
Incentives for property owner (e.g. reducing storm water run-off)	No (planning to introduce)
Public education and awareness	No
Research	Yes
Mapping	Yes
Partnerships	Yes
Other:	

Climate Change Adaptation Actions Taken in 2017

Please elaborate on key actions and/or partnerships your local government has engaged in to prepare for, and adapt to a changing climate. Add links to key documents and information where appropriate.

	The District produced a Corporate Climate Change Adaptation Strategy which used the internationally recognized Building Adaptive and Resilient Communities (BARC) framework developed by ICLEI. http://www.iclecanada.org/programs/adaptation
	The District adopted Integrated Stormwater Management Plan Framework and Objectives which include the maximization of natural assets.
	Kilmer Creek Debris Basin work started in 2016 and completed in 2017: Installation of two debris basin structures to mitigate the risks of debris flooding that can negatively impact downstream infrastructure and property. Debris flood risks are increasing as the intensity, duration and frequency of major rainfall events increase with climate change.
	Thames Creek Debris Basin construction completed in 2017: Installation of a debris basin structure to mitigate the risks of debris flooding that can negatively impact downstream infrastructure and property.
	Continue to complete and implement Integrated Stormwater Management Plans (ISMPs) for District watersheds.

Climate Change Adaptation Actions Proposed for 2018

	The District will continue with implementing the actions arising from the Climate Change Adaptation Plan.
	The District plans to join the Climate and Asset Management Network (CAMN) as part of the Federation of Canadian Municipalities (FCM)
	Develop a North Shore Sea Level Rise Risk Management and Adaptive Management Strategy.
	Mackay Creek Flood Mitigation design work started in 2016-2017 and is to be constructed in 2018. Mackay Creek dike has been designed to protect adjacent properties from the year 2100 Q200 flood including sea level rise and increased forecasted rainfall due to climate change.
	Gallant Creek Debris Basin work started in 2016, and to be completed in 2018: Installation of a debris barriers design, channel works design. Debris basin structures are needed to mitigate the risks of high-flow debris flows that can negatively impact downstream infrastructure and property.
	Continue to complete and implement Integrated Stormwater Management Plans (ISMPs) for District watersheds.

The following are key resources that may be helpful to your local government in identifying climate impacts, as well as, strategies, actions and funding to deal with them. For those resources that you have used, please indicate whether they were useful in advancing your work in climate change adaptation?	
Indicators of Climate Change for British Columbia, 2016	Useful
Plan2Adapt	Useful
Climate Projections for Metro Vancouver	Useful
Climate Projections for the Capital Region	N/A
Climate Projections for the Cowichan Valley Regional District	N/A
Province of BC's BC Adapts Video Series	Useful
Preparing for Climate Change: An Implementation Guide for Local Governments	Useful
The Public Infrastructure and Engineering Vulnerability Committee's (PIEVC) protocol	Useful
Sea Level Rise Primer	Useful
BC Regional Adaptation Collaborative Webinars	Haven't Used
www.ReTooling.ca	Haven't Used
Water Balance Model	Useful
The Water Conservation Calculator	Haven't Used
Funding:	
National Disaster Mitigation Program (NDMP)	Useful
Community Emergency Preparedness Fund (CEPF)	Useful
Municipalities for Climate Innovation Program (MCIP)	Useful
Climate Adaptation Partner Grants (FCM)	Useful
Infrastructure Planning Grants (MAH)	Useful
Federal Gas Tax Fund	Haven't Used
Other:	

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 2017	
	Parks: parks and ecology education programs at schools, through the Ecology Centre, Community Associations, Stream Keepers, and through volunteer programs.
	Libraries: Launched Green Team Staff Picks; shelf talkers which promote books/DVDs/audiobooks on green topics.
Community-Wide Actions Proposed for 2018	
	Libraries: Theme for 2018 is “Reduce” and emphasis will be on reducing consumption especially of plastics and energy. Create booklists to promote green living and sustainability. Increase support of public programming from a green perspective.

Corporate Actions Taken in 2017	

Corporate Actions Proposed for 2018	
	Lunch and Learn sessions planned to help with the implementation of new design standards that consider a holistic approach (such as green technologies) and the importance of natural capital.

Other	
Are you familiar with the Community Lifecycle Infrastructure Costing Tool (CLIC) ?	Yes
Have you used CLIC?	Yes, as part of 2014 pilot

Innovation

This section provides the opportunity to showcase an innovative Corporate and/or Community-Wide GHG reduction and/or climate change adaptation activity that your local government has undertaken and that has had, or has the potential to have, a significant impact. You are welcome to repeat an action that has already been listed.

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.

Communities that have conducted innovative initiatives may want to consider raising their profile through applications to [CEA's Climate and Energy Action Awards](#), [UBCM Climate and Energy Action Award](#), [FCM Sustainable Communities Awards](#) or through submissions to [FCM's National Measures Report](#).

Community-Wide Action
Mackay Creek Integrated Stormwater Management Plan (ISMP) Story Map uses ESRI software to visually communicate information rather than traditional report format. The Mackay ISMP Story Map will be completed in 2018. Other ISMPs to follow.
For more information contact: Angela Mawdsley, mawdsleya@dnv.org

Corporate Action

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.

Mitigation

Programs and Funding
Federal and Provincial government funding for the MoTI Hwy Interchange Project
TransLink MRNB Upgrade Program
MoTI BikeBC – Gateway Program – Cycling
ICBC Safety (Improve visibility and wayfinding)
Washing machine replacement program – BC Hydro
Climate Change Showdown (CCS) program – BC Sustainable Energy Association
North Shore Spirit Trail – City of North Vancouver, District of West Vancouver, Squamish Nation
Phibbs Exchange Redesign – TransLink (lead)
Main-Marine (Dundarave to Phibbs Exchange) B-Line service - Metro Vancouver, TransLink, City of North Vancouver, District of West Vancouver
BC Hydro and FortisBC – multiple energy conservation funding and incentive programs

Adaptation

Programs and Funding
Emergency Management BC – Flood Protection Program
FCM grant (Municipalities for Climate Innovation Program) for the North Shore Sea Level Rise Risk Assessment and Adaptive Management Strategy

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 portion of the survey, please ensure that you are familiar with guidance available on the B.C. Climate Action Toolkit website, especially the [Becoming Carbon Neutral: A Guide for Local Governments in British Columbia](#).

Please note: As a result of the BC Recycling Regulation, local governments are no longer required to account for greenhouse gas (GHG) emissions from vehicles, equipment and machinery required for the collection, transportation and diversion of packaging and printed paper, in their annual Climate Action Revenue Incentive Program (CARIP) reports.

Reporting Emissions

Did you measure your local government's corporate GHG emissions in 2017?	Yes/No
If your local government measured 2017 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:	4,225 tCO2e
If your local government measured 2017 corporate GHG emissions, please report the number of corporate GHG emissions (in tonnes of carbon dioxide equivalent) from <u>contracted</u> services:	557 tCO2e
TOTAL A: CORPORATE GHG EMISSIONS FOR 2017	4,782 tCO2e

Reporting Reductions and Offsets

To be carbon neutral, a local government must balance their TOTAL corporate GHG emissions generated in 2017 by one or a combination of the following actions:

- undertake GCC-supported Option 1 Project(s)
- undertake GCC-supported Option 2 Project(s)
- purchase carbon offsets from a credible offset provider

If applicable, please report the 2017 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	0
Solar Thermal	0
Household Organic Waste Composting	990
Low Emission Vehicles	0
Avoided Forest Conversion	0
TOTAL B: REDUCTIONS FROM OPTION 1 PROJECTS FOR 2017	990 tCO2e

If applicable, please report the names and 2017 GHG emissions reductions (in tonnes of carbon dioxide equivalent (tCO2e)) being claimed from Option 2 GHG Reduction Projects:

OPTION 2 PROJECT NAME	REDUCTIONS
	0
TOTAL C: REDUCTIONS FROM OPTION 2 PROJECTS FOR 2017	0 tCO2e

If applicable, please report the name of the offset provider, type of project and number of offsets purchased (in tonnes of carbon dioxide equivalent (tCO2e)) from an offset provider for the 2017 reporting year:

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

OFFSET PROVIDER NAME	OFFSETS
	0
TOTAL D: OFFSETS PURCHASED FOR 2017	0 tCO2e

TOTAL REDUCTIONS AND OFFSETS FOR 2017 (Total B+C+D) = 990 tCO2e

Corporate GHG Emissions Balance for 2017

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 2017 = (A – (B+C+D)) = 3,792 tCO2e

If applicable, please record any emissions reductions you will be carrying over for future years and the source of the emissions reductions, including the year they were earned (E.g., Organics diversion, 2016 100 tCO2e).

SOURCE OF CARRY OVER EMISSION REDUCTIONS (and year earned)	REDUCTIONS
BALANCE OF REDUCTIONS ELIGIBLE FOR CARRY OVER TO NEXT YEAR	0 tCO2e

Carbon Neutral Reporting	
Does your local government have a climate reserve fund or something similar?	No

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.

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 their community's energy and emissions inventory (i.e. 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 (i.e: 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:

Based on your local government's 2017 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	<input checked="" type="checkbox"/>
Level 4 - Achievement of Carbon Neutrality	
Not Sure	