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CORPORATE REPORT

NO: R042 COUNCIL DATE: February 22, 2016

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**February 22, 2016**
FROM:	**General Manager, Planning & Development** **Sustainability Manager**	FILE:	**0512-02**
SUBJECT:	**Update on Implementation of Community Climate Action Strategy**		

RECOMMENDATION

The Planning and Development Department recommends that:

1. Council receive this report for information; and

2. Request that the Mayor forward a letter and a copy of this report and the related Council resolution to the Ministry of Environment, outlining the City's input to the current Climate Leadership Plan consultations.

INTENT

This report presents an update on the implementation of the Community Climate Action Strategy (the "Strategy").

BACKGROUND

In 1998, the City of Surrey became a member of the Partners for Climate Protection Program (PCP) of the Federation of Canadian Municipalities (FCM), a national program that brings Canadian municipal governments together to act on climate change and reduce the local production of greenhouse gas (GHG) emissions.

In May 2010, to meet the provincial requirements of Bill 27, the *Local Government (Green Communities) Statutes Amendment Act,* the City included the following GHG reduction targets in the Official Community Plan (OCP):

- 33% per capita GHG reduction by 2020, excluding agriculture and industry; and
- 80% per capita GHG reduction by 2050, excluding agriculture and industry.

On November 25, 2013, Council considered Corporate Report No. R233;2013 titled "Community Climate Action Strategy" and approved the final Strategy. Subsequently, the City received Milestones 3 (Community Plan) and 4 (Implementation) of the PCP Program, and Milestone 4 (Implementation) of the Building Adaptive and Resilient Communities (BARC) program under ICLEI-Canada. An update on the Climate Strategy implementation was last provided to Council in February 2015 in Corporate Report No. R008;2015.

The BC government is revising the Climate Leadership Plan (CLP) and, in January 2016, launched a new round of public consultations on the content of the CLP. As part of these consultations, the Ministry of Environment is seeking advice and input from local governments related to climate activities, progress and future plans.

DISCUSSION

The release of GHG emissions and the resulting impacts on the climate have far-reaching consequences for our economies, ecosystems, and social well-being. Mitigation, or efforts to reduce GHG emissions, is important to limit the extent of climate change that will need to be addressed in the years to come; however, the persistence of GHGs in the atmosphere means we will experience and must adapt, or prepare for, some climate change impacts regardless of global efforts to reduce GHG emissions over the coming decades.

Local governments have a unique interest and opportunity in planning for a changing climate. Communities are vulnerable to climate change due to extensive infrastructure supporting high concentrations of people and economic activity. As the level of government closest to community-scale circumstances, municipalities are well-placed to proactively plan for and respond to affected services. Municipalities also have the ability to influence and lead GHG reductions through land use planning (e.g., densification along major transit corridors), energy supply such as local district energy solutions, and buildings through new construction and retrofits of existing buildings. In the long term, as rising energy costs act against local government efforts to maintain affordability in their communities, reducing energy use will become an increasing priority.

The City developed two complementary climate action plans that make up the Community Climate Action Strategy, as follows:

- the *Community Energy and Emissions Plan* (or CEEP) provides a guide to reduce community energy spending and greenhouse gas emissions; and

- the *Climate Adaption Strategy* (CAS) identifies how the City may be vulnerable to climate change impacts and proposes actions to mitigate risk and cost.

Together, these two plans reinforce the City's broader efforts toward establishing Surrey as a prosperous and resilient 21st Century urban centre. **The City won a FCM 2015 Sustainable Communities Award in the Energy category, for the Community Climate Action Strategy.**

Community Energy and Emissions Plan (Mitigation)

The CEEP includes policy tools that support desired energy outcomes, including a viable rapid transit network, building retrofit opportunities, and district energy. Strategic directions in the CEEP include the following:

- Complete, compact, connected corridors supporting a high quality rapid transit network and low carbon district energy systems;

- A framework to meet steadily rising building energy standards through capacity building efforts, the exploration of local incentives, and connecting the development community with existing incentives available for energy efficiency;

- Rapid transit development, improved bus service, and walking and bike infrastructure around and between Town Centres and the City Centre;

- A suite of green car strategies; and

- Initiatives that build on the City's Rethink Waste program, including the development of an organic waste biofuel facility.

Strategies have been developed in the CEEP to redirect Surrey's energy and emission trajectory: by 2020, achieving a 22% per capita GHG reduction, increasing to a 47% per capita reduction by 2040 with the largest reductions being made within the transportation sector. Annual community-wide energy savings are projected at $832 million by 2040. The targets reflect the City's efforts to define an assertive and pragmatic low-carbon path that will slow emissions growth; they also move the City towards the aspirational GHG reduction targets in the OCP. Technological advances will accelerate further progress towards these targets.

Appendix "I" highlights the status of priority actions identified in the CEEP over the course of 2015. Of particular note are the following initiatives:

- Advanced the City's plan for Light Rail Transit (LRT) along three main corridors in Surrey;

- Designed and built new District Energy infrastructure to serve new development in the Surrey Central, King George and Gateway areas;

- Commenced operation of the City's district energy utility, anticipated to result in a reduction of 15,000 T CO_2/year by 2030;

- In addition to the Community Energy Planner work plan that is ongoing, secured funding for a new Building Energy Specialist position to work within the Buildings Division;

- In partnership with BC Hydro and Fortis BC, completed energy efficiency retrofits in several multi-family residential rental buildings throughout Surrey that reduced energy costs for both tenants and landlords;

- Completed the "Project Green Suites" program, which focused on waste diversion and water and energy conservation behaviour change in 15 strata multi-family buildings across Surrey;

- Completed the "Project Green Suites" program focused on awareness and behaviour change in 15 Strata buildings across Surrey;

- Delivered the "Empower Me" program to 80 households, targeting behaviour change and energy retrofits for newcomers living in single family homes (combined with water conservation and fire safety education);

- Initiated "EcoNewton" which focuses on industrial energy and emissions reductions; and

- Completed the West Clayton plan that includes a density bonus provision for energy efficient buildings, anticipated to result in a reduction 2,300 T CO2/year.

Data on community-wide GHG emissions comes from the provincial Community Energy and Emissions Inventory (CEEI). This data is currently being updated by provincial staff, with 2012 CEEI data for Surrey expected by the spring and 2014 data by the fall. With this in hand, City staff will be able to evaluate progress in reducing emissions against the CEEP targets. In 2016 the City will also pursue Milestone 5 of the PCP process.

Climate Adaptation Strategy (Adaptation)

Using ICLEI-Canada's five-milestone climate adaptation framework, staff assessed projected climate impacts to Surrey in terms of risk and then developed goals and actions for six sectors: Infrastructure; Flood Management and Drainage; Ecosystems; Urban Trees; Human Health and Safety; and Agriculture and Food Security. Priority actions identified in the *Climate Adaptation Strategy* include the following:

- Supporting the development of a Regional Flood Management Strategy;
- Enhancing data collection and monitoring specific to Surrey;
- Continuing to improve and protect the quality and quantity of habitat;
- Planting tree species for conditions of a future climate;
- Ensuring adequate tree canopy and root space;
- Encouraging passive building design features; and
- Continuing to build community capacity to reduce vulnerability and increase resilience.

Appendix "II" highlights the status of priority actions identified in the Climate Adaptation Strategy. Of particular note are the following initiatives:

- Phase 2 report was completed with Surrey-specific climate impacts, which outlines critical infrastructure vulnerabilities through key decades to 2100, looks at potential impacts from 2200 sea level rise scenarios, examines the sensitivities of the lowlands to potential precipitation changes, and better refines floodplain extents under dyke and dam breach scenarios;

- Preliminary designs were completed for new Nicomekl and Serpentine sea dam replacement;

- 6,500+ caliper-size shade trees were planted on streets and in parks;

- Three regional projects are underway examining risk, vulnerabilities and the current state of flood protection assets and policies in the region;

- BCS Green Infrastructure Network (GIN) acquisition is underway through land development applications (conveyance) and NCP implementation;

- Draft Riparian setbacks are under development through a combination of General Provisions of the Zoning Bylaw and draft Sensitive Ecosystem Development Permit Area Guidelines; and

- Building Division arborists are saving 26% of all trees proposed for removal, with over 7,000 replacement trees proposed.

In 2016, a Coastal Flood Protection Strategy will kick off and include consultation with neighbouring communities, agricultural and other stakeholders. Also in 2016, the City will pursue Milestone 5 of the BARC process.

Staff continues to monitor progress on both mitigation and adaptation using indicators from the City's Sustainability Dashboard. As specific projects are developed to advance this work, Council will be kept apprised of further progress.

SUSTAINABILITY CONSIDERATIONS

All City Departments continue to pursue sustainability initiatives that further the goals of the 2008 Surrey Sustainability Charter. The *Community Climate Action Strategy* addresses several of the Actions identified in the Sustainability Charter, as follows:

- SC 14: Support Food Security;
- EC 8: Energy Security;
- EC 16: Increased Transit and Transportation to Support a Sustainable Economy;
- EN 1: Energy Efficiency;
- EN 2: Waste Reduction;
- EN 9: Sustainable Land Use Planning and Development Practices;
- EN 10: Integrated Community Energy Master Plans; and
- EN11: Surrey's Commitment to the Climate Change Action Plan.

CONCLUSION

The *Community Climate Action Strategy* provides an integrated action plan to reduce community energy costs and GHG emissions, and effectively manage risk and increase the City's resilience to the effects of climate change. Surrey's innovative approach brings the two plans forward together and identifies the important cross-linkages between mitigation and adaptation actions. A number of key projects over the past year have advanced the Climate Strategy's goals and actions.

Based on the above discussion it is recommended that the Mayor forward a letter and a copy of this report and the related Council resolution to the Ministry of Environment, outlining the City's input to the current Climate Leadership Plan consultations

Original signed by
Jean Lamontagne
General Manager,
Planning and Development

Original signed by
Anna Mathewson, MCIP RPP
Sustainability Manager

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Attachments:
Appendix "I" Implementation Status of Priority Actions in Community Energy & Emissions Plan
Appendix "II" Implementation Status of Priority Actions in the Climate Adaptation Strategy

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Community Energy and Emissions Plan (CEEP)
2015 Priority Actions Update

The Community Energy and Emissions Plan (CEEP) contains 29 actions to reduce community energy use and emissions and 100 recommendations for implementing those actions. The following table highlights 10 priority areas that were identified as part of the CEEP process and updates as to their implementation status in 2015.

Priority Actions	**2015 Implementation Status**
Focused Growth and **Complete, Compact, Connected Corridors**	• Completion of the West Clayton plan that includes a density bonus provision for energy efficient buildings; anticipated to result in a reduction of 2,300 T CO_2/year. • Update to the Sustainability Checklist to better reflect green building standards and low carbon vehicle provisions in new developments. • Ongoing planning efforts focused on transit accessibility, encouraging mixed housing and high quality urban design.
Rapid Transit (LRT)	• Design work is well underway, in partnership with TransLink, the City of Langley and the Township of Langley. • When the 27 km LRT network is in service, it is anticipated to result in a reduction of 15,200 T CO_2/year.
Bus Service	• Completion of bus queue jumper lanes on King George Boulevard. • New transit only lanes at King George station. • Upgrades to 20 bus stop locations to improve accessibility and pedestrian connections. • 15 new transit shelters.
Active Transportation	• Cycling network increased by 27 km. • Constructed 30 km of sidewalks.
Capacity Building for Low Carbon Buildings	• Benchmarking of Corporate Facilities to demonstrate leadership and encourage similar initiatives from private commercial buildings.
Third Party Building Retrofit	• Completion of rental building retrofit program with utilities resulting in a reduction of 130T CO_2/year. • Completion of the "Project Green Suites" program, focused on awareness and behaviour change in 15 Strata buildings. • Delivery of the "Empower Me" program to 80 households, targeting behaviour change and energy retrofits for newcomers living in single family homes resulting in a reduction of 64T CO_2/year. • Initiation of "EcoNewton," focused on industrial energy and emissions reductions.

District Energy	• Designed and built new District Energy infrastructure to serve new development in the Surrey Central, King George and Gateway areas, including distribution piping, energy centre and energy transfer stations within the buildings. • Commenced operation of the City's district energy utility; anticipated to result in a reduction of 15,000 T CO_2/year by 2030. • Developed strategy to purchase renewable natural gas from the Biofuels Processing Facility to offset the use of conventional natural gas in the District Energy system. • Worked to ensure that new above ground projects have an architectural element that adds to the beauty of the City. This includes a public art component which will be incorporated in to the design of the West Village District Energy plant.
Energy Recovery from Waste	• Commenced construction of the Biofuel Facility; anticipated to result in a reduction of 30,000 T CO_2/year.
Working with Senior Government	• Council and staff contributions to Provincial initiatives including participation in the Climate Leadership Team and the Energy Efficiency Working Group.

Of the 91 actions developed for the Climate Adaptation Strategy, 11 actions were distinguished as immediate priorities for the City to pursue. These actions were chosen by the staff Advisory Team following the prioritization process and were considered based on urgency, ease of implementation, and representation across a spectrum of issues. The adaptation actions for immediate implementation and their status at the end of 2015 are detailed below.

Legend
CMO: City Manager's Office
Eng: Engineering
P&D: Planning and Development
PRC: Parks, Recreation and Culture
Fire: Surrey Fire Service

NOTE: One or numerous divisions may be involved in implementing actions for each department identified below.

CAS #	Climate Adaptation Strategy Action	City Lead	Supporting Departments	Status	Year-end Update 2015
CC-1.1	Review City policies and by-laws to identify those practices that support resilience, and reinforce their implementation and enforcement	CMO	All	Initiated	• Progress toward a new Sustainability Charter that weaves adaptation and resilience throughout eight themes to guide City policy and decisions over the coming decades • Climate-related risks, adaptation actions and indicators integrated into the Enterprise Risk Management platform under development. To be launched spring 2016 • Participation in the Metro Vancouver Regional Food Action Plan Task Force, including a report detailing how municipalities are contributing to a resilient regional food system. Explores how capacity may be increased to accommodate the growing need and demand for local, healthy food • Adjusted Farm Protection Development Permit guidelines to enable greater protection of ag land while increasing densities in adjacent urban areas; require greater protection of ag buffer areas through the use of procedure bylaws
CC-1.2	Integrate climate change education and awareness into existing programs and communications, and develop new education initiatives where gaps exist for Surrey residents and City Staff	CMO	All	In Progress	• Ongoing engagement with Crescent Beach residents on floodplain building/redevelopment awareness • Surrey Youth Stewardship Squad (SYSS) incorporated messaging into World Ozone Day event activities and urban greening project to talk about how vegetation cools cities and reduces the urban heat island effect

FL-1.1	Support the development of a Regional Flood Management Strategy in coordination with senior levels of government, other municipalities, and key stakeholders	Eng	CMO: P&D	In Progress	• 3 regional projects currently underway examining risk, vulnerabilities and the current state of flood protection assets and policies in the region
FL-2.1	Conduct detailed analysis on Surrey-specific climate impacts, including the timelines and extent of sea level rise and its related effects on flood construction levels and floodplain designations	Eng	P&D: CMO	In Progress	• Phase 2 report completed. Project outlines critical infrastructure vulnerabilities through key decades to 2100, looks at potential impacts from 2200 sea level rise scenarios, examines the sensitivities of the lowlands to potential precipitation changes and better refines floodplain extents under dyke and dam breach scenarios • Geotechnical study underway that looks at construction challenges in Boundary Bay in advance of a coastal flood strategy. Project examines how various potential protection works would need to be constructed and if they are feasible due to existing ground conditions • New Nicomekl & Serpentine sea dam replacement – preliminary designs complete • Nico Wynd dyke upgrade taking SLR into consideration through design process
IN-1.1	Enhance data collection and monitoring for climate impacts in Surrey (e.g. storm events, precipitation patterns, subsidence rates, changes in water quality, etc.)	Eng	P&D; PRC	Ongoing	• Rainfall study completed looking at downscaling climate models to see potential precipitation changes. This is being compared with IDF work done out of Western University • New rainfall study looking at impacts of precipitation changes on the upland areas of Surrey and how servicing standards may need to be revised
EC-1.1	Improve the quantity and quality of the City's habitat to enable species migration and resilience through the implementation of the Biodiversity Conservation Strategy	PRC	P&D; Eng	Initiated	• Ongoing through PRC and other initiatives (e.g., Urban Forestry Natural Areas Management, SNAP, SHaRP etc.) • BCS Green Infrastructure Network (GIN) acquisition through land development applications (conveyance) and NCP implementation o 42.5 acres (17.2 hectares) of parkland acquired/ dedicated that includes at least a portion of a BCS corridor or hub • 6,240 m^2 of parkland (mowed grass or degraded land) converted to natural areas • Development of draft Riparian Setbacks through a combination of General Provisions of the Zoning Bylaw and draft Sensitive Ecosystem Development Permit Area

					Guidelines • 80,000 m^2 of invasive plants removed from natural areas • 8,382 native shrubs and trees planted in natural areas
TR-1.1	Utilize City by-laws, standards, and permitting processes to ensure adequate canopy, root crown and root growth space is provided for trees to mature to optimal size on public and private property	P&D	Eng; PRC	Ongoing	• City (Parks and Building division) arborists continue to informally encourage residents to remove pavement in close proximity to trees on the City boulevard and private property • Tree voucher program continuing • Building Div. arborists are saving 26% of all trees proposed for removal from removal, with over 7000 replacement trees proposed • 6,500+ caliper-size shade trees planted on streets and in parks • Urban Shade Tree Management Plan under development, with focus on adaptation as a management principle
TR-2.1	Select tree species and planting stock from provenances that will be well adapted to Surrey's future climate projections, particularly with respect to temperature and drought conditions	PRC	Eng; P&D	In Progress	• Participation in Metro Vancouver's Urban Forest Adaptation Guidelines project that aims to develop an adaptation framework for managing urban trees and establish design guidelines at a regional level • UBC research project ongoing. Utilizes Lidar data to provide information on comparative site growing conditions • Drought tolerant tree species trial implemented in spring 2015. *Pistachio chinensis* (Chinese Pistachio) can reportedly tolerate harsh environmental conditions, and all nine specimens survived 1st year
AG-1.2	Work with all levels of government to evaluate long-term flood management options in response to sea level rise impacts with considerations for agricultural viability	Eng	P&D	Initiated	• Coastal Flood Protection Strategy to begin in 2016 which will include consultation with neighbouring communities, agricultural and other stakeholders
HS-2.2	Encourage development to incorporate passive building design features that keep buildings cool while reducing reliance on air conditioning	P&D	CMO; Eng	In Progress	• Implementation of the new "Form and Character" DPA, guiding site design to reduce the heat island effect and improve energy performance of buildings

HS-4.1	Continue to build community capacity to respond effectively in an emergency (i.e. neighbours helping neighbours)	Fire	All	Ongoing	• Neighbourhood Emergency Preparedness Program delivered workshops to Surrey residents, and engaged the public through participation at events • Interdepartmental Neighbourhood Team established to support resident-driven initiatives that build a sense of community and neighbourliness