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CORPORATE REPORT

NO: **R008** COUNCIL DATE: **February 2, 2015**

REGULAR COUNCIL

TO: **Mayor & Council** DATE: **January 29, 2015**

FROM: **Manager, Sustainability** FILE: **0512-02**

SUBJECT: **Update on Implementation of Community Climate Action Strategy**

RECOMMENDATION

The City Manager's Office recommends that Council receive this report for information.

INTENT

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

BACKGROUND

Recently, the City was awarded a 2015 FCM Sustainable Communities Award for the Community Climate Action Strategy in the Energy category. The City has taken critical steps towards this achievement, which are outlined below.

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.

On September 29, 2008, Council approved the recommendations of Corporate Report No. R175;2008, titled "Surrey Sustainability Charter", thereby approving the Surrey Sustainability Charter as the guiding policy document for the City. The Charter includes a commitment to developing a climate change action plan as follows:

1. Develop strategies and take action to achieve the goals of the BC Climate Action Charter;
2. Expedite the completion of the five milestones in the FCM Partners for Climate Protection process, including the development of a local action plan that minimizes GHG emissions (Milestone 3); and
3. Create an adaptation strategy to deal with the unavoidable impacts of climate change.

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 City of Surrey 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 December 7, 2010 Council considered Corporate Report No. R251;2010, titled "Application for Funding from the FCM Green Municipal Fund for the Development of a Community Energy and Emissions Plan" and approved the funding application and the development of a Community Energy and Emissions Plan (CEEP). Subsequently, the City was successful in securing $225,000 from the Federation of Canadian Municipalities (FCM) and BC Hydro for the development of the CEEP and related work on climate change adaptation.

In 2011, the International Council for Local Environmental Initiatives (ICLEI-Canada – Local Governments for Sustainability) launched a new Climate Adaptation Planning Initiative which offered participating cities the opportunity to plan for anticipated impacts related to local and regional climate change. Participating cities would work in peer groups with facilitation, support, and direction from ICLEI-Canada staff. To join the initiative, ICLEI-Canada required a resolution from interested local governments. During its Regular Council meeting of February 28, 2011, Council considered Corporate Report No. R028;2011 and subsequently approved the City's participation in the ICLEI-Canada Climate Adaptation Initiative.

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.

DISCUSSION

The release of GHG emissions and the resulting impacts on the climate have far-reaching consequences for our economies, our ecosystems, and our 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:

1. the *Community Energy and Emissions Plan* (or CEEP) provides a guide to reduce community energy spending and greenhouse gas emissions, and
2. 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.

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 Official Community Plan. Technological advances will accelerate further progress towards these targets.

Appendix A highlights the status of priority actions identified in the CEEP. Of particular note are the following initiatives:

- Further work by the Engineering Department to advance the City's plan for Light Rail Transit (LRT) along three main corridors in Surrey;
- Further work by the Engineering Department to advance District Energy in the City Centre including expansion in to the King George node;
- Hiring of a Community Energy Planner in the Sustainability Office to lead the building energy initiatives;
- Roll-out of "Project Green Suites", a sustainability outreach pilot program for waste diversion and water and energy conservation in multi-family buildings using an ambassador approach;

- Support for business energy advising outreach through Metro Vancouver and other organizations;
- Participation in a BC Hydro-led energy efficiency program for multi-family rental buildings, with 12 buildings targeted for participation in Surrey; and
- Finalizing the energy efficiency density bonusing policy for the West Clayton NCP area.

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

- Adoption of the Biodiversity Conservation Strategy;
- Partnership research with UBC on using LiDAR data to locate trees and evaluate site health, and on invasive species;
- Further work by the Engineering Department on rainfall trending, possible climate change scenarios and impacts on rainfall which will lead to revised design standards;
- Additional sea level rise studies by the Engineering Department identifying decadal vulnerabilities and potential impacts of dyke and sea dam breaches in an effort to identify future floodplain areas and to opportunities to minimize any increases to floodplain areas;
- Ongoing participation and leadership by the Engineering Department in regional flood management initiatives identifying regional flood vulnerabilities and infrastructure deficiencies;
- Development of a Riparian Area By-law by the Engineering Department, Planning and Development Department and the Parks, Recreation and Culture Department;
- Completion of the tree canopy study;
- Further work on the City's Enterprise Risk Management System, which will also integrate climate adaptation risks;
- Participant in the Agriculture and Economic vulnerabilities to climate change related flooding in the Fraser delta area study; and
- Further work to finalize indicators to monitor climate adaptation efforts.

Staff also continue to monitor progress 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 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. The City recently won a FCM 2015 Sustainable Communities Award in the Energy category, for the Community Climate Action Strategy.

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Appendix A: Implementation Status of Priority Actions in Community Energy & Emissions Plan
Appendix B: Implementation Status of Priority Actions in the Climate Adaptation Strategy

The Community Energy and Emissions Plan (CEEP) contains 29 actions to reduce community energy use and emissions and 100 recommendations to implement those actions. The following table provides an update on the implementation status of priority actions identified in the CEEP:

Priority Actions	Year-end Update 2014
Focused Growth and **Complete, Compact, Connected Corridors**	• Approval of the new Official Community Plan that aligns with the Regional Growth Strategy and incorporates a vision to be a more complete, more compact and connected community. • Ongoing work to finalize the energy efficiency density bonusing policy for the West Clayton NCP area as part of the Stage 2 NCP process. • Announcement of Kwantlen Polytechnic University new Surrey campus in City Centre. • Added 14,000 sq ft of "innovation space" as part of the Innovation Boulevard strategy that aims to attract major institutions and businesses to Surrey City Centre.
Low Carbon Development Permit Areas	• Approval of the "Form and Character" Development Permit Area that addresses site design energy efficiency for landscaping and lighting, and the consideration of building form that includes alternative energy supplies.
Rapid Transit	• Light Rapid Transit project received screened-in status for federal funding from the P3 Canada fund.
Bus Service Improvements	• Construction of new bus stops and shelters for #555 express bus. • Completion of bus queue jumpers at two new locations. • Installed 40 new accessible bus stops.
Low Emission Vehicle Infrastructure	• Partnered in Province-wide "Emotive" campaign to raise general awareness of electric vehicles. • Four public Level 2 electric vehicle charging stations were installed and launched with the opening of New City Hall.

Community Energy and Emissions Plan (CEEP) Priority Actions – 2014 Year-End Update

Third Party Building Retrofit	• "Project Green Suites" pilot launched, targeting suite and common-area energy efficiency upgrades and behaviour change in 15 multi-family apartment buildings (as well as water conservation and waste diversion components). • Established partnership with BC Hydro and Fortis for "MURB Retrofit Pilot", targeting suite and common-area energy efficiency upgrades for market rental apartments. • Supported the "Business Energy Advisor" program in partnership with LiveSmartBC advisors that provided free walk-through energy assessments for 27 businesses in Surrey. • Updated third-party building retrofit information on the City of Surrey website.
Basic Building Standards	• Participated in Regional and Provincial working groups focused on 1) compliance with energy provisions in the BC building code and 2) a "reach" building code to addresses improved energy performance with the added objective of providing the development community with a regionally harmonized long-term plan for regulation. • Proposed updates to the Stage 1 Sustainable Development Checklist that address improved building energy performance.
City Centre District Energy Extension	• Commissioned the first temporary natural gas plant to service new developments in City Centre. • Staff began developing plans for phasing fuels from renewable natural gas and biomass into the district energy system.

Climate Adaptation Strategy - Immediate Priority Actions – 2014 Year End Update **Appendix B**

Of the 91 actions developed for the Climate Adaptation Strategy (CAS), 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 2014 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 2014
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	* SFU graduate policy class reviewing community garden-related policies - results January 2015 * Exploring Parks bylaw exemption for market stands
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	* Review of education efforts in other municipalities and jurisdictions initiated summer 2014 *Ongoing engagement with Crescent Beach residents on floodplain building/redevelopment awareness
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

Climate Adaptation Strategy - Immediate Priority Actions – 2014 Year End Update

CAS #	Climate Adaptation Strategy Action	City Lead	Supporting Departments	Status	Year-end Update 2014
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 Yet to be initiated	* Phase 2 report draft expected before end of year. 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. * Development of a specific emergency response plan for the Boundary Bay area working with Eng. Ops, fire and drainage planning
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 Ongoing Ongoing Yet to be initiated	* New sea dam replacement and Nico Wynd dyke upgrade taking sea level rise into consideration through design process * 2 rainfall studies completed examining trending and IDF curves * Rainfall study underway looking at downscaling climate models to see potential precipitation changes. This is being compared with IDF work done out of Western University. * New surge monitoring in Boundary Bay * Design new pump station for Colebrook taking SLR into consideration
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., Natural Areas, SNAP, etc)

Climate Adaptation Strategy - Immediate Priority Actions – 2014 Year End Update

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	* Tree Canopy Study completed * Urban Forestry arborists continue to informally encourage residents to remove pavement in close proximity to trees on the City boulevard
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	* UBC research project ongoing. Utilizes Lidar data to provide information on comparative site growing conditions * Staff attended inaugural Climate Change and Urban Forestry Workshop for Pacific Northwest region. * Investigating a partnership with the BCLNA on a 'Trees for the Future' forum with a focus on adapting to the changing climate *Drought tolerant tree species trial planting planned for spring 2015. *Pistachio chinensis* (Chinese Pistachio) can reportedly tolerate harsh environmental conditions.
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	* Participated in the workshop presenting the economic report involving City staff and members of AFSAC.
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	* OCP adopted October 2014. Climate change, passive design and energy considerations accounted for in document. * Preparation of the "Form and Character" Development Permit Areas addressing site design that reduces the heat island effect (e.g. increase landscaped areas and decrease impervious paved surfaces onsite)

Climate Adaptation Strategy - Immediate Priority Actions – 2014 Year End Update

HS-4.1	Continue to build community capacity to respond effectively in an emergency (i.e. neighbours helping neighbours)	Fire	All	Ongoing	* 45 Neighbourhood Emergency Preparedness programs delivered to 971 residents, and 12 events attended engaging over 8000 members of the public * Climate Adaptation and Neighbourhood Preparedness public workshop co-delivered with Evergreen