

NO: R233

COUNCIL DATE: **November 25, 2013**

REGULAR COUNCIL

TO: **Mayor & Council** DATE: **November 18, 2013**

FROM: **General Manager, Engineering
General Manager, Planning and Development
General Manager, Parks, Recreation and Culture
General Manager, Finance and Technology
Manager, Sustainability** FILE: **0512-02**

SUBJECT: **City of Surrey Community Climate Action Strategy**

RECOMMENDATION

The Engineering Department, the Planning and Development Department, the Parks, Recreation and Culture Department, the Finance and Technology Department, and the City Manager's Office recommend that Council approve the *Community Climate Action Strategy*, comprised of a *Community Energy and Emissions Plan* and a *Climate Adaptation Strategy*, which is attached to this report as Appendix "A".

INTENT

This report presents the final *Community Climate Action Strategy* (the "Strategy") for approval.

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.

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 October 7, 2013 Council considered Corporate Report No. R193;2013, titled “City of Surrey Community Climate Action Strategy”, and authorized staff to proceed with the final consultation process for the draft *Community Climate Action Strategy*.

DISCUSSION

Strategic action on climate change will strengthen the resilience of our community in the face of what appears to be inevitable change. The City of Surrey has developed two complementary climate action plans that make up the Strategy: the *Community Energy and Emissions Plan* (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 global climate is changing rapidly, and the need for local governments and other orders of government to respond has never been greater. Leading scientists have pronounced the warming of the world’s climate as “unequivocal” and point to mounting evidence, including rising average air and ocean temperatures, sea level rise, changing precipitation patterns, and extensive melting of icecaps and glaciers worldwide. Post-industrial human activities and the release of GHG emissions into the atmosphere are viewed as the primary drivers of these changes. Human-caused GHG emissions increased by an unprecedented 70% between 1970 and 2004 and are likely to continue their upward trend over the coming decades.

While specific events such as storms and flooding cannot be directly linked to climate change, it is clear that the likelihood and severity of these events are increasing:

Indeed, while much research is being conducted into whether it is possible to attribute individual extreme events to climate change rather than natural variability, scientists increasingly conclude that the likelihood of events are probably substantially increased by rising global temperatures. It is therefore important to develop this research to strengthen climate science and to use it to improve climate services to help society adapt to climate change (World Meteorological Organization, The Global Climate 2000-2010, WMO-No. 1103, 2013).

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. Mitigation is an insurance policy, while adaptation is a disaster prevention plan.

Local governments have a unique interest and opportunity in planning for a changing climate. Communities are vulnerable to climate change due to an 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. As rising energy costs act against local government efforts to maintain affordability in their communities, reducing energy use will become an increasing priority.

While local governments may have a unique interest or be better prepared to plan for a changing climate as compared to other orders of government, other orders of government will benefit from local governments who plan for a changing climate, as without this planning, industries and infrastructure of regional, provincial and national significance such as railways, highways and ports may be negatively impacted.

Community Energy and Emissions Plan (CEEP)

Surrey businesses and residents spend over \$1 billion dollars annually, or \$2,300 per capita on energy. Given rising fuel prices, spending is projected to double to over \$2 billion dollars by 2030. The vast majority of this spending leaves the community. With rising electricity and oil costs, these expenditures – along with the economic vulnerability of many people – will dramatically increase. The conservation, efficiency and renewable energy strategies proposed in the CEEP aim to keep a larger portion of these expenditures in the community, stimulating the local economy.

The CEEP is a 25-year planning framework that establishes energy and emissions priorities for Surrey. Based on rigorous energy modeling of alternate policy pathways, the CEEP includes policy tools that support desired energy outcomes, including a viable rapid transit network, building retrofit opportunities, and district energy. GHG reduction strategies are proposed in the areas of land use, buildings, transportation, district energy and solid waste.

Following the CEEP launch in July 2011, a Community Energy and Emission Profile was completed to provide greater insight into the City's historic and current energy use and associated emissions. The analysis, based on data developed by the Province, shows community emissions in 2007 of carbon dioxide equivalent, or CO₂e, in Surrey at 2.15 million tonnes or 4.9 tonnes per capita, with 59% of these emissions from transportation, 37% from buildings, and 4% from waste. Population and employment growth in Surrey was also analysed up to 2040. In line with regional population projections; population growth was projected at 65%, with employment growth at 102% by 2040.

With the baseline established, an analysis was undertaken regarding the extent to which existing policies would fulfill the OCP GHG reduction target of 33% per capita by 2020. This analysis looked at a "business as usual" approach that would rely on GHG reductions from actions already committed to by other orders of government, such as improvements to the provincial Building Code or federal tailpipe emissions standards, and assuming no City action. Public and stakeholder events held in 2011 included an Ideas Workshop with stakeholders, a targeted workshop with BC Hydro, and a Youth Forum. An EnergySHIFT panel and public forum were held in February 2012 to update participants on the CEEP development process and better understand public priorities and sensitivities in relation to reducing GHG emissions.

Two alternative energy futures were then developed based on different land use, transportation, energy supply, building, and waste policies. The impact of these future energy scenarios were evaluated based on their greenhouse gas impact, as well as community priorities such as energy savings, economic development, transit supportiveness, and community walkability. With input from a variety of sources on the preferred path with respect to these scenarios, the consulting team then developed draft GHG reduction strategies that were shared with stakeholders at a workshop in October 2012, and then in revised form at sectoral Round Tables hosted in January 2013. A public EnergySHIFT Cafe was also held in December 2012 to update the public on the CEEP process and seek broad input on the various topics like land use and transportation. Throughout the Plan development process, a Community EnergySHIFT website and Facebook page were maintained to update the public, share stories, and seek community input.

The strategies proposed in the CEEP align fully with the revisions contained within the new OCP that is nearing completion as well as the City's rapid transit agenda and district energy expansion goals. 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.

Significant per capita and community-wide energy and emission reductions are most achievable in metropolitan core areas; however, municipalities beyond the urban core are the most important communities for action as these are the areas experiencing rapid rates of growth. 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. These findings and the targets proposed in the CEEP are based on a thorough analysis and modelling process. 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.

Priority action opportunities identified in the *Community Energy and Emissions Plan* include the following:

- Focused Growth;
- Complete, Compact, Connected Corridors;
- Rapid Transit Developments;
- Bus Service Improvements;
- Low Emission Vehicle Infrastructure Advancement;
- Third Party Building Retrofit Program Integration; and
- City Centre District Energy Extension.

For those action opportunities within the City's direct control or jurisdiction, Appendix B highlights the departmental actions in each of the plans and identifies a lead City Department and supporting Departments for implementation of each action.

Climate Adaptation Strategy

Ensuring Surrey is resilient in the face of climate change impacts is critical to ensuring long-term community well-being, environmental health and a continued vibrant local economy. Identifying possible risks and minimizing vulnerabilities and future costs to the City are also financially prudent and supportive of the Sustainability Charter's economic pillar.

In joining the ICLEI-Canada planning process to develop a climate adaptation strategy, the City has worked in peer groups with facilitation, support, and direction from ICLEI Canada staff. Locally, Surrey along with Vancouver, Delta, the City of North Vancouver and Metro Vancouver are participating in the initiative. Each municipality is working to complete the five milestones with their respective staff teams and are working collaboratively where there are issues of regional significance and where sharing insights and approaches benefits all participants. The planning process has followed ICLEI-Canada's five milestone program.

Key goals identified for Surrey's *Climate Adaptation Strategy* include:

- Minimizing risks and vulnerabilities from climate change impacts;
- Maximizing adaptation co-benefits to achieve multiple sustainability goals;
- Building on existing City initiatives to make best use of resources;
- Partnering with key stakeholders to take coordinated and prioritized action;
- Building adaptive capacity to respond effectively to climate change impacts over time;
- Increasing awareness among the public and City staff to build understanding and capacity related to adaptation; and
- Pursuing continual learning to ensure actions remain relevant and based on best practices.

Using the ICLEI framework, staff assessed projected climate impacts in terms of risk. Through this risk assessment process no ‘catastrophic’ or ‘very high’ risk areas were identified for the City. Thus overall and with proactive action on an as-needed basis and in advance of expected impacts, Surrey is in a strong position to prepare and adapt for impacts across all sectors.

Goals and action opportunities have been developed for each of the following sectors:

- Infrastructure;
- Flood Management and Drainage;
- Ecosystems;
- Urban Trees;
- Human Health and Safety; and
- Agriculture and Food Security.

Priority action opportunities 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.

For those action opportunities within the City’s direct control or jurisdiction, Appendix B highlights the Departmental action opportunities and identifies a lead City Department and supporting Departments for implementation of each action.

As with the CEEP, the *Climate Adaptation Strategy* has been developed in consultation with the community, including one-on-one interviews with key stakeholders and targeted workshops held in February 2013 on ecosystems and human health.

Final Public Consultation

The final consultation process for the *Community Climate Action Strategy* included:

- Forwarding the draft Strategy to all stakeholders who were involved in development of the two component plans and to members of relevant City Advisory Committees;
- Posting the draft plans on the City’s sustainability website;
- Using social media and the EnergySHIFT Facebook page to promote review by the community;
- Forwarding review timelines and appropriate web links through the sustainability quarterly e-newsletter; and
- A youth workshop including members from the Surrey Schools “Ideas 36” leadership team and the Surrey Youth Sustainability Network.

Comments were received during this review period, which are reflected in the final Strategy. In particular, comments were received from UDI, Translink, SFU Adaptation to Climate Change Team, Canadian Home Builders Association, BC Hydro, Advisory Committee members, and local businesses and community members.

Implementation

While municipalities may bear the greatest and most immediate impacts of a changing climate, it is critical that local governments not be forced to bear the administrative and financial burden resulting from these changes.

There are many areas in which local governments have limited administrative jurisdiction. For example, other orders of government have sole regulatory authority over building codes and automobile efficiency standards, and can influence from a financial perspective directions in sectors such as public transit and community energy supply development. On adaptation, the provincial government is responsible for administering legislation, standards and guidelines for flood and coastal management and will need to play a leadership role in managing sea level rise and increased flood risk. Clearly, collaboration between Surrey, neighbouring municipalities, utilities, and other orders of government will be critical to making a difference on climate change.

A changing climate will have impacts on industries and infrastructure of regional, provincial and national significance such as railways, highways and ports. Other orders of government have the responsibility to ensure that they plan and fund the planning and construction of infrastructure improvements necessary to protect these investments.

The *Community Climate Action Strategy* includes very high level cost estimates for many strategies and action opportunities. Some actions will require new funding and others will be completed with existing resources; some actions will require partnerships with academic institutions or non-profit organizations; and many will require funding from other orders of government.

As both Plans move to the implementation stage, staff will develop a detailed business case and project work plan for each specific action and undertake further public consultation prior to proceeding with such actions. Council will be kept apprised of progress. Some of the action opportunities and related costs will be further refined including, for example, in City work plans such as future editions of the Engineering Department's 10-year Servicing Plan.

Monitoring is also an important component of the Strategy and will be undertaken using indicators drawn from the City's Sustainability Dashboard.

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:

- 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

A *Community Climate Action Strategy* has been developed that is fully aligned with other City programs, bylaws and plans, particularly the draft revised Official Community Plan, the forthcoming Biodiversity Conservation Strategy, and the City's transportation plans and rapid transit agenda.

The *Community Climate Action Strategy* outlines how the City can move towards the GHG reduction targets outlined in the OCP. The *Community Energy and Emissions Plan*, which is an element of the Strategy, includes a focus on energy costs and emission reduction co-benefits, and the *Climate Adaptation Strategy* positions the City to effectively manage risk and increase its 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.

Based on the above discussion, it is recommended that Council approve the *Community Climate Action Strategy* as generally described in this report and that is attached as Appendix A to this report.

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Attachments:

Appendix A:

- Community Climate Action Strategy - Overview document
- Community Energy and Emissions Plan (CEEP)
- Climate Adaptation Strategy (CAS)

Appendix B: A list of Actions in each of the CEEP and the CAS, identifying the lead City Department and supporting Departments

COPY OF APPENDIX A

Appendix A:

- **Community Climate Action Strategy – Overview document**
- **Community Energy and Emissions Plan (CEEP)**
- **Climate Adaptation Strategy (CAS)**

**IS AVAILABLE
AT THE CITY CLERK'S OFFICE OR
ONLINE @ <http://www.surrey.ca/energyshift/70.aspx>.**

Appendix B: Community Climate Action Strategy

Actions within Municipal Jurisdiction and Corporate Operations

CMO: City Manager's Office

Eng: Engineering

P&D: Planning and Development

PRC: Parks, Recreation and Culture

F&T: Finance and Technology

Fire: Surrey Fire Service

Libraries: Surrey Libraries

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

CLIMATE ADAPTATION STRATEGY (CAS) ACTIONS:

CAS #	Climate Adaptation Strategy Action	City Lead	Supporting Departments
CC-1.1	Review City policies and by-laws to identify those practices that support resilience, and reinforce their implementation and enforcement	CMO	All
CC-1.2	Integrate climate change education and awareness into existing programs and communications, and support the development of new education initiatives where gaps exist for Surrey residents and City Staff	CMO	All
CC-1.3	Engage citizens on ways they can adapt their households or otherwise prepare for climate change impacts (e.g. promote sustainable drainage techniques, plant appropriate tree species, emergency preparedness)	CMO	All
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
FL-1.2	Participate in a detailed cost-benefit analysis to assess alternative options for accommodating sea level rise and coastal climate change impacts	Eng	CMO; P&D
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

CAS #	Climate Adaptation Strategy Action	City Lead	Supporting Departments
FL-2.2	Develop drainage and flood control strategies based on cost-benefit analyses and site-specific needs	Eng	P&D; CMO
FL-2.3	Incorporate climate change into the City's Integrated Stormwater Management Plans (ISMPs) and other efforts to integrate land use planning and stormwater management	Eng	P&D; CMO
FL-2.4	Review and revise regulatory by-laws and design standards to account for and minimize the impacts of climate change	P&D	Eng; CMO
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
IN-1.2	Regularly review design requirements to ensure that they adequately account for expected weather conditions due to climate change	Eng	PRC
IN-1.3	Assess existing City infrastructure and utilities for vulnerability to climate change	Eng	
IN-1.4	Integrate climate change into the 10 year capital and servicing plans of relevant departments	Eng; PRC	CMO
IN-1.5	Continue to minimize the inflow and infiltration of stormwater into the sanitary sewer system in an effort to reduce the risk of sanitary sewer overflows	Eng	P&D
IN-1.6	Monitor and manage species composition and selection to enhance resilience of Surrey's Green Infrastructure Network	PRC	Eng
IN-2.1	Advance energy efficiency in new construction and building retrofits	P&D	CMO; Eng
IN-2.2	Increase education and awareness on energy efficiency opportunities among City staff and developers	P&D	CMO; Eng
IN-2.4	Ensure incorporation of guidelines for water conservation in new and re-development	P&D	Eng
IN-3.1	Continue to expand on district energy systems in City Centre and support the development of district energy outside the current service areas	Eng	P&D
IN-3.2	Establish a requirement for development over a certain size to complete an energy study that identifies energy efficiency and generation opportunities	P&D	Eng
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
EC-1.2	Strategically acquire a diverse representation of ecosystem types as part of Surrey's parks and natural areas	PRC	P&D; Eng
EC-1.3	Reduce habitat fragmentation by using and protecting a comprehensive network of corridors and larger natural areas (hubs and sites)	PRC	P&D; Eng

CAS #	Climate Adaptation Strategy Action	City Lead	Supporting Departments
EC-2.1	Increase active management of City controlled natural areas (e.g. removal of invasive species)	PRC	P&D; Eng
EC-2.2	Implement evolving best practices for ecosystem management in a changing climate	PRC	Eng
EC-2.3	Consider assisted migration for species whose dispersion rate is unable to keep pace with climate change (e.g. planting tree species historically suited to more Southern climates)	PRC	P&D; Eng
EC-2.4	Increase tree risk management to minimize damage and liability from dead or dying trees	PRC	F&T; Eng
EC-2.6	Incorporate climate change messaging in environmental education efforts, and continue to engage the public in stewardship initiatives	PRC	Eng
EC-3.1	Apply Surrey standards for streamside setbacks to accommodate potential erosion and optimize ecological health	P&D	PRC; Eng
EC-3.2	Establish Development Permit Area Guidelines for sensitive ecosystems	P&D	PRC; Eng
EC-3.3	Implement strategies to maintain stream flow affected by changing temperature and precipitation patterns	Eng	PRC; P&D
EC-3.4	Promote the development of a regional cost/benefit analysis of sea level rise and flood management options that considers ecological values and protection of property and infrastructure	Eng	P&D
EC-3.5	Evaluate options for installing physical interventions to support ecosystems (e.g. construction of a breakwater)	Eng	P&D
EC-4.1	Incorporate climate change into the City's Integrated Stormwater Management Plans (ISMPs) and other efforts to integrate land use planning and stormwater management	Eng	P&D
EC-4.2	Provide direction to developers on suitable vegetative species and development features that enhance habitat values	P&D	Eng; PRC
EC-4.3	Host workshops for the City's staff, management and Council on 'green' development features and their effectiveness in protecting ecosystem services	P&D	CMO; Eng
EC-4.4	Review landscape design guidelines to ensure they support habitat values	P&D	PRC; Eng
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
TR-1.2	Utilize City by-laws, standards, and permitting processes to optimize soil conditions for shade trees on public and private property (e.g. soil quality, quantity and moisture content)	P&D	Eng; PRC
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 increases	PRC	Eng; P&D

CAS #	Climate Adaptation Strategy Action	City Lead	Supporting Departments
TR-2.2	Monitor survival rate of trees planted on public property to confirm species suitability over time	PRC	P&D; Eng
TR-2.3	Increase the species diversity of shade trees on public and private property	PRC	Eng; P&D
TR-2.4	Develop an educational resource that encourages residents to plant trees which enhance species diversity (e.g. an annual “feature tree” pamphlet)	P&D	PRC
TR-3.1	Increase tree replacement and maintenance activities (such as watering) to sustain trees, as necessary	PRC	P&D
TR-3.2	Anticipate a growing need for tree risk assessments and abatement due to tree decline and mortality	PRC	F&T; P&D
TR-3.3	Undertake a Pest Threat Assessment to better understand the risks to trees and ecosystems posed by changing disease vectors and invasive species	PRC	P&D
TR-3.4	Explore a requirement for local residents to water boulevard trees during summer months	PRC	P&D; CMO
AG-1.1	Continue to improve lowland drainage and flood management infrastructure in keeping with the Lowland Flood Control Strategic Plan	Eng	P&D
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 vulnerability	Eng	P&D
AG-1.3	Continue to enhance rainwater storage and stormwater management in all areas of Surrey, including agricultural areas	Eng	P&D
AG-2.1	Continue to work closely with the federal Department of Fisheries and Oceans to protect fish habitat within the City	Eng	PRC
AG-3.1	Continue to support residents’ direct access to local food through farm gate sales and partnerships with farmers’ markets	P&D	CMO
AG-3.2	Increase opportunities for citizens to produce their own food (e.g. support community gardens; review parcel size requirements for backyard chickens)	CMO	P&D; PRC
AG-3.3	Maximize the use of public and private urban landscape features, terraces, and rooftops for food production (e.g. edible landscaping guidelines for new strata developments)	P&D	PRC; Eng
AG-4.1	Review and update Surrey’s <i>Agricultural Plan</i> to account for climate change impacts	P&D	Eng
AG-4.2	Manage urban-rural interface relations as agricultural practices change and adapt	P&D	
AG-4.4	Consider an agriculture co-ordinator position to help build capacity for the development of agriculture and sustainable food systems within the City	P&D	
HS-1.1	Continue to collaborate with community organizations and service agencies to improve the socio-economic conditions and health outcomes of vulnerable populations	P&D	CMO; Eng; Libraries; PRC

CAS #	Climate Adaptation Strategy Action	City Lead	Supporting Departments
HS-2.1	Ensure sufficient space and adequate soil medium for shade trees in urban areas	P&D	PRC; Eng
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
HS-2.3	Utilize landscaping and site design to increase green space and strategically cool buildings and the urban environment	P&D	PRC
HS-2.4	Explore opportunities for green roofs and walls on institutional, commercial, industrial and large residential development	P&D	CMO; PRC; Eng
HS-2.5	Engage vulnerable neighbourhoods in programs that keep indoor and outdoor environments cool (e.g. energy retrofit programs, tree planting and water fountain installations)	CMO	PRC; P&D; Eng
HS-2.6	Reduce the impacts of surface parking lots by increasing canopy coverage and the use of alternative paving surfaces	P&D	Eng
HS-2.7	Increase the use of high albedo (i.e. light coloured, reflective) surfaces on buildings and pavings	P&D	PRC; Eng
HS-3.1	Implement the City of Surrey <i>Community Wildfire Protection Plan</i> , and monitor changes to fire risk over time as a result of climate change	PRC	P&D; Fire
HS-3.2	Enforce “Firesmart” guidelines for developments within 100m of moderate or high risk wildfires	PRC	P&D; Fire
HS-3.3	Provide “Firesmart” education to the Surrey public, targeting residents in close proximity to areas of high and moderate risk of wildfire	Fire	PRC
HS-4.1	Continue to build community capacity to respond effectively in an emergency (i.e. neighbours helping neighbours)	Fire	All
HS-4.2	Review and support implementation of the <i>Surrey-White Rock Extreme Heat Response Plan</i> in the case of heat advisories	Fire	F&T; P&D
HS-4.3	Look at gaps in emergency prevention and response, taking into account climate change impacts	Fire	F&T; All
HS-4.4	Ensure emergency response capacity keeps pace with the need for services, given increasing climate impacts	Fire	F&T; All

Appendix B: Community Climate Action Strategy (Cont'd)

Actions within Municipal Jurisdiction - Draft Community Energy and Emissions Plan

CMO: City Manager's Office includes Sustainability Office, Bylaws and Licensing, Economic Development, Legal Services

Eng: Engineering includes Utilities, Transportation, Operations

P&D: Planning and Development includes Community Planning, Area Planning, Buildings

PRC: Parks, Recreation and Culture including Parks Planning

F&T: Finance and Technology

Fire: Surrey Fire Service

Libraries: Surrey Libraries

CEEP #	Community Energy and Emissions Plan Draft Strategy	Lead Dept	Supporting Depts
1-A.1	Build on existing policies and plans to support City Centre as the region's second metropolitan core	P&D	All
1-A.2	Build on existing policies and plans to focus residential and commercial growth in Town Centres, reinforcing the success of rapid transit infrastructure investment	P&D	Eng
1-A.3	Focus growth in interconnected nodes and along transit corridors	P&D	Eng
1-A.4	Encourage gentle intensification of mature neighbourhoods	P&D	Eng
1-A.5	Build out Neighbourhood Concept Plans (NCPs) with leading best practices	P&D	Eng
1-A.6	Support commercial and industrial growth in areas that encourage transportation efficiency and rapid transit success	P&D	Eng; CMO
1-B.1	Clearly define transit corridors for intensification using the OCP and its breadth of policy	Eng	P&D

CEEP #	Community Energy and Emissions Plan Draft Strategy	Lead Dept	Supporting Depts
	tools to supportive effective design and development		
1-B.2	Encourage a variety of housing types to attract diverse households within transit corridors	P&D	Eng
1-B.3	Encourage major employers to locate in nodes and then corridors	CMO	P&D
1-B.4	Ensure high quality urban design along rapid transit corridors to encourage walking, cycling, and access to transit	P&D	Eng
1-C.1	Review City policy to increase opportunities for gentle intensification of mature neighbourhoods in frequent and secondary transit corridors with townhouses and ground-oriented multiplexes, and small lot micro-houses	P&D	Eng
1-C.2	Evaluate opportunities for micro-suites and lock-off suites	P&D	Eng
1-C.3	Encourage live/work use appropriately across the community focusing on frequent and secondary transit corridors	P&D	Eng
1-D.1	Create Low Carbon Development Permit Area Guidelines	P&D	CMO
1-D.2	Amend the Terms of Reference for the City's Advisory Design Panel to ensure at least one member has expertise in applying the Low Carbon DPA Guidelines	P&D	CMO
1-D.3	Integrate Low Carbon DPA Guidelines into the Sustainable Development Checklist update	P&D	CMO
1-E.1	Select, develop, and roll our key pilot strategies in an appropriate neighbourhood; evaluate progress, strengthen strategies, and potentially apply them more broadly.	P&D	Eng; CMO
1-F.1	Consult with staff, developers, builders, Council and other key stakeholders in updating the Sustainable Checklist content and process.	P&D	CMO

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1-F.2	Consider phasing in a third Occupancy Permit Stage to confirm performance objectives and cover the full life-cycle of the construction process.	P&D	CMO
1-F.3	Update the Sustainable Development Checklist (SDC) to include key performance benchmarks, guidance on suggested targets, references to appropriate certification programs, and information on incentives (e.g. BC Hydro PowerSmart for New Homes incentive and the <i>Green Loan Local Incentive Program</i>) that will help builders and developers meet these targets.	P&D	CMO
1-F.4	Evaluate the opportunity for developing Stage 2 (Building Permit Application) and Stage 3 (Occupancy Permit) of the SDC to provide guidance over the entire development process.	P&D	CMO
1-F.5	Train key City staff on emerging green building practices and targets and how they are integrated into the SDC.	P&D	CMO
1-F.6	Communicate the updated SDC through existing outreach channels like developer and builder associations.	P&D	CMO
1-F.7	Identify and integrate key resources such as training, information, and third party incentives. Establish a “living” list of resources including current capacity building and financing opportunities. Update these resources at least once per year.	CMO	P&D
1-F.8	Include a line item in the SDC for submitting new developments to the City Awards program for Clean Energy Leadership.	P&D	CMO
1-G.1	Liaise with energy utility companies on major land use decisions, real estate developments, and municipal infrastructure projects to support effective long- and short-term planning and coordination.	P&D	Eng

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1-G.2	Focus growth around lands serviced by existing power and natural gas distribution networks to maximize infrastructure utilization and help manage service delivery costs.	P&D	Eng
2-A.1	<p>To maximize ridership, focus complete and compact development along designated rapid transit corridors. Use the Frequent Transit Development Area (FTDA) designation and the complementary <i>Complete, Compact, and Connected Corridors</i> strategy (in the <i>Land Use</i> section, above) to facilitate growth in these corridors and in Town Centres, specifically on:</p> <ul style="list-style-type: none"> • King George Boulevard from City Centre to South Newton and extending to Highway 10; • 104 Avenue from City Centre connecting to Guildford Town Centre to 156 Street; and <p>Fraser Highway from City Centre through Fleetwood Town Centre to Langley City.</p>	Eng	P&D
2-1A.2	<ul style="list-style-type: none"> • To maximize potential for shaping growth and attracting ridership, work with TransLink, Metro Vancouver local governments, and senior governments to establish an LRT-oriented rapid transit network, specifically LRT from City Centre to three town centres: Guildford, Langley City and Newton; and Bus Rapid Transit from Newton to White Rock City Centre. 	Eng	CMO; P&D
2-A.3	<p>Work with TransLink, Metro Vancouver local governments, senior governments, and major employers and investors to support rapid transit south of the Fraser through a combination of innovative local and senior government financial tools which could include one or more of the following options:</p> <ul style="list-style-type: none"> • An equitable, regional road pricing regime; • An updated provincial carbon tax that would recycle revenue towards low carbon 	CMO	All

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	<p>priorities, specifically public transit in Greater Vancouver;</p> <ul style="list-style-type: none"> • Special transportation sales tax; • Vehicle registration surcharge; • Expanded regional parking tax to include parking spaces; • Balanced provincial/regional spending on public transit and active transportation relative to road, bridge and tunnel spending; and <p>“Prosperity” Fund for Low Carbon Community Development, establishing an envelope from Liquefied Natural Gas Royalties to invest in low carbon community projects.</p>		
2-B.1	<ul style="list-style-type: none"> • Work with TransLink to increase bus service outside rapid transit corridors and enhance connectivity to rapid transit stations. 	Eng	P&D
2-B.2	Continue to expand multi-modal linkages for transit such as Park-and-Ride and Bike-and-Ride.	Eng	P&D
2-B.3	Use the designation of Frequent Transit Development Areas (FTDA) and Frequent Transit Network corridors to support increased transit mode share.	Eng	P&D
2-C.1	Build on existing Walking and Cycling Plans’ strategies for education and outreach to promote interest in and awareness of pedestrian and cycling networks, health and consumer benefits, and City cost savings from reduced traffic congestion.	Eng	P&D; PRC
2-C.2	Build on existing Walking and Cycling Plans’ strategies for enhancing pedestrian and bicycle connectivity through existing suburban streets and cul-de-sacs.	Eng	P&D; PRC
2-C.3	Increase active transportation connectivity in new greenfield developments through the use of grid pattern street networks and connections through large individual developments.	Eng	P&D

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2-C.4	Building on the City’s Walking and Cycling Plan, ensure new neighbourhoods establish cycling and pedestrian plans that include strong connectivity; an appropriate variety of route types such as neighbourhood routes, greenways where appropriate, and separated bike paths); and end-of-trip facilities for key commercial, institutional, and transit destinations.	Eng	P&D; PRC
2-C.5	Update the Sustainable Development Checklist to encourage pedestrian and bike routes and infrastructure in the private realm and connectivity to the public realm.	P&D	Eng; CMO
2-C.6	Evaluate potential to invest in active transportation infrastructure through “cash-in-lieu” from developers in exchange for reduced parking.	Eng	P&D
2-D.1	Strengthen diversity, density, and quality of the bicycle network, including a system and design to support All Ages and Abilities (Triple A) routes.	Eng	P&D; PRC
2-D.2	Work with partners to improve quality and distribution of end-of-trip bike facilities (i.e. secure, weather-protected bike parking at origins and destinations as well as shower and change room facilities for employees in commercial buildings), and some access to basic 110 volt electrical outlets for electric bicycle charging.	Eng	P&D
2-D.3	Working with the School District, improve safe access to schools and end-of-trip facilities for students and staff.	Eng	P&D
2-D.4	Establish a consistent and clear bicycle way finding system that is integrated with the public transit system and supported by digital tools and physical maps.	Eng	P&D
2-E.1	Focus walking infrastructure improvements in higher density mixed use areas, especially in areas adjacent to the Frequent Transit Network.	Eng	P&D
2-E.2	Update the Sustainable Development Checklist and use Development Permit Areas to promote active transportation and pedestrian infrastructure and network design in the	P&D	Eng; CMO

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	private realm.		
2-E.3	Ensure new Area Plans effectively integrate pedestrian plans into their development.	P&D	Eng
2-E.4	Incrementally and opportunistically enhance pedestrian connectivity through suburban loops and cul-de-sacs.	Eng	P&D
2-F.1	Work with TransLink and the City's active transportation initiatives (walking and cycling) to strengthen education and outreach.	Eng	P&D; CMO
2-F.2	Examine parking supply and price adjustments. Price signals and supply should be sensitive to cost-effective, safe, convenient options.	Eng	P&D
2-G.1	Convene FleetSmart driver training and Fuel Management 101 workshops in Surrey for commercial and institutional fleets. The City may play a role in workshop promotion, hosting, and even customization.	CMO	Eng
2-G.2	Consider requirements and incentives through business licensing.	CMO	All
2-G.3	Work with the BC Trucking Association, Metro Vancouver, and the Port Authority to explore opportunities for a Surrey-based green loan and incentive program tailored for small trucking businesses. The program would focus on overcoming knowledge and capital barriers, and could be organized as a self-sustaining loan in partnership with a financial institution.	CMO	All
2-G.4	Explore through Metro Vancouver local governments the idea of integrated inter-municipal passenger vehicle licensing to improve driving optimization. This would allow taxis to return to their places of origin with passengers.	CMO	Eng

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2-G.5	Work with other organizations and agencies to develop market-specific driver training and social marketing focusing on large sectors with high emissions and easier intervention like construction sites. Use leverage points such as site and project orientations to provide training and issuance of decals or tags that would allow entrance to sites.	CMO	All
2-G.6	Consider innovative opportunities for integrating freight into any road congestion charging or tolling system that would expedite regional freight traffic and contribute to public transit funding.	CMO	All
2-G.7	Consider further traffic signal synchronization alignment along major Surrey arteriees and extending permissible hours for truck loading, unloading, and operation in appropriate locations.	Eng	P&D
2-H.1	Continue to promote car-sharing to residents, businesses, developers, and public institutions, and to facilitate discussions around the uptake of car sharing within the City.	Eng	P&D; CMO
2-H.2	Encourage car sharing by including dedicated on street parking in key neighbourhoods across the City, and by protecting car share parking in residential areas.	Eng	P&D
2-H.3	Evaluate opportunities to expand car sharing in residential developments through the Sustainable Development Checklist and parking variances.	Eng	P&D, CMO
2-I.1	Expand opportunities for all low emission vehicles.	CMO	Eng
2-I.2	Expand opportunities for electric vehicle charging infrastructure.	CMO	Eng; P&D
3-A.1	Raise awareness and support training and institution building for energy efficiency in new and existing buildings.	CMO	P&D

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3-A.2	Sustainable Energy Leadership Recognition: Integrate sustainable energy leadership recognition into the existing City Awards program, including the Clean Energy Award. This recognition would acknowledge the small constituency of leading builders, developers, architects, engineers as well as business, home owners and the public sector. The exercise would be intended to normalize these best practices.	CMO	P&D; Eng
3-A.3	Explore opportunities for encouraging building owners and managers to benchmark the energy performance of their buildings. Benchmarking can help owners and managers understand building energy use, prioritize poorly performing buildings, and cut costs by making improvements.	CMO	P&D
3-B.1	Work through the Planning & Development Department to promote retrofits. Enable clerks and front-counter staff to connect applicants with appropriate energy efficiency retrofit information and programs, optimizing efforts based on knowledge of building type and use and planned renovations. Engage BC Hydro and FortisBC in training sessions. Integrate incentives into online and hard copy application processes.	CMO	P&D
3-B.2	Actively promote retrofits for local businesses. Work with business associations (e.g. BIA, Surrey Board of Trade, Chamber of Commerce and other key organizations) to develop workshops, lunch and learns, and “BIA Blitzes” with third-party organizations providing funding and training opportunities.	CMO	All
3-B.3	Consider using business licenses to target retrofit program promotion for more energy intensive sectors (e.g. grocery, small industry, food services). This data could be used to target marketing. It is also possible to consider revenue neutral shifts in business licensing to reward companies that improve energy efficiency.	CMO	All
3-B.4	Evaluate collaboration with the Condo Homeowner’s Association (CHOA), the Building Owners and Managers Association (BOMA), and various property management companies	CMO	P&D

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	to promote existing and emerging retrofit financing programs, including training for building managers.		
3-C.1	Develop a framework to support purpose-built rental housing retrofits.	CMO	P&D
3-C.2	Support outreach to non- profit housing to deepen retrofit rates.	CMO	P&D
3-D.1	Increase awareness of incentives by hosting workshops and info sessions in collaboration with energy utilities, building associations, LiveSmart BC, and other third-parties. The Sustainability Office and/or the Planning & Development Department can host workshops.	CMO	P&D
3-D.2	Integrate third party incentives into the permitting process and the Sustainable Development Checklist	P&D	CMO
3-D.3	Facilitate involvement in BC Hydro or FortisBC programs during rezoning, notably for large buildings.	P&D	CMO
3-E.1	Determine the applicability and design of an energy efficiency density bonusing policy for appropriate zones and building types across the City.	P&D	Eng; CMO
3-E.2	Evaluate the relative merits of a more broad-based financial instrument such as a community amenity contribution-financed Community Energy Fund or Green Loan.	CMO	P&D, Eng
3-E.2	Integrate financial instruments into the Sustainable Development Checklist and permitting process.	P&D	CMO
3-F.1	Offer capacity building opportunities on key practices for improving building energy performance that focus on low cost, high impact, and easily enforceable opportunities. Adjust training by audience, including staff, builders, registered professionals, developers, construction trades, and City staff. Use workshops, pamphlets, info sessions, site briefings,	CMO	P&D

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	and collaborate with other interested parties (e.g. energy utilities and construction, developer, and builder industry associations) on program delivery.		
3-F.2	Identify and implement practical opportunities for enhancing Code compliance.	P&D	CMO
3-F.3	Evaluate opportunities for testing compliance with minimum energy performance ratings.	P&D	CMO
3-F.4	Integrate capacity building resources and amendments to the permitting and inspection process into the Sustainable Development Checklist.	P&D	CMO
4-A.1	Continue current plans for establishing and extending district energy nodes in City Centre, focusing on Surrey Central, King George, and Gateway.	Eng	P&D
4-A.2	Evaluate the opportunity to extend district energy from the three City Centre nodes into adjacent planning areas with high DE potential to establish a large, contiguous service area. Specifically consider 104 th Avenue Corridor and Guildford Town Centre.	Eng	P&D
4-B.1	Conduct planning area district energy opportunity assessments. Use screening analysis from this Plan and more detailed area-level plans to further screen potential. Confirm potential to further adjust policies and plans to strengthen the business case.	Eng	P&D
4-B.2	Evaluate governance/ownership options for the specific location. If there is high potential, make a decision about whether system ownership would be best developed and operated by the municipal utility, a private utility or a hybrid. This will influence whether a Request for Expressions of Interest is issued to utility providers or if the City secures financing to carry out detailed feasibility analysis. Consult key stakeholders to inform this decision.	Eng	P&D
4-B.3	Conduct detailed feasibility analysis. Determine the basic technical and financial viability of a project, including detailed heating and cooling load projections, supply options analysis, phasing, net present value calculation or other internal financial tests, carbon, power and	Eng	P&D

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	energy savings, and district energy plant siting and network mapping. Engage internal and external stakeholders. Execute technical Go/No Go.		
4-B.4	If it is <i>No Go</i> , consider other low carbon, sustainable energy solutions. If it is a <i>Go</i> , conduct detailed investment analysis and business and governance modeling. Build on the technical and financial feasibility, identify actions to support the business case including securing customers, adjusting land use plans, attracting anchor tenants, developing a phasing strategy, and determine the optimal business and governance model for the unique development and area, outlining specific financing, ownership elements, and operation details. Situations that may be more conducive to private or hybrid models include a large public or private owner/developer with a large site, small district energy service areas, or a large industrial heat generator.	Eng	P&D
4-B.5	Carry out detailed policy and planning. Building on the actions to support the business case outlined above, flesh out policies, plans, and promotional activities.	Eng	P&D
4-C.1	Integrate district energy and rapid transit agendas. Use both to help focus growth, and reinforce the success of each of these important initiatives.	Eng	P&D
4-C.2	Integrate district energy development into broader land use and infrastructure planning.	Eng	P&D
4-C.3	Establish a building retrofit policy and program framework to support district energy expansion.	Eng	P&D, CMO
4-C.4	Protect rights-of-way for district energy distribution networks.	Eng	P&D
4-C.5	Establish policies and plans to guide the City and private sector to transition out of natural gas and into renewables to reduce the carbon intensity of buildings on DE systems.	Eng	CMO; P&D

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5-A.1	Continue to extend outreach on organics pick-up in single detached homes.	Eng	P&D
5-A.2	Work with partners to develop targeted outreach for multi-family residential buildings for organics and recyclables.	Eng	CMO
5-A.3	Support Metro Vancouver's outreach with key business and institutional sub-sectors, such as restaurants, grocery stores, and food processors on organic diversion and offices for paper diversion.	Eng	CMO
5-A.4	Evaluate and address key barriers to increasing organics and recycling diversion in multi-unit residential buildings and beginning these services in large commercial and institutional buildings, with consideration to the unique opportunities in new and existing buildings.	Eng	CMO
5-A.5	Update bylaw to require organic and recycling separation and transportation to appropriate facilities (with exemptions for on-site management systems) using Metro Vancouver's sample bylaw as a basis.	Eng	CMO
5-B.1	Develop a construction and deconstruction policy framework to support resource recovery and zero waste.	Eng	P&D, CMO
5-C.1	Encourage senior governments to establish stronger policies on packaging and extended producer responsibility.	Eng	CMO
5-C.2	Support and engage with the national zero waste marketing council initiated by Metro Vancouver.	Eng	CMO
5-D.1	If Surrey becomes a favoured location for an energy recovery from waste plant, the City should advocate a solution that is district energy-based and maximizes energy and waste management sustainability, and minimizes GHGs and criteria air contaminants.	Eng	CMO

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5-D.2	The City should ensure that a clear set of planning and design principles for energy recovery from waste underpin a district energy system that would be located in its community.	Eng	CMO
6-A.1	Develop a decision making lens to support staff, Council, and potentially private, public and social sector players in the community in evaluating impact and providing guidance for managing energy, emissions, and, if desired, broader sustainability objectives. A straightforward, qualitative scoring tool could help optimize key decisions.	CMO	All
6-B.1	Create a dialogue with the Provincial Government to establish a <i>Clean Air and Healthy Communities Fund</i> to build a legacy of deep carbon reductions and community development projects financed through a constructively renewed provincial carbon tax and LNG-financed prosperity fund for low carbon community development.	CMO	All
6-B.2	Work through and/or with Metro Vancouver and other key stakeholder to advance these opportunities.	CMO	All
6-C.1	If BC's Carbon Neutral Agenda continues and the City aims to work toward carbon neutrality, the City should establish a Community Carbon Offset Framework to help meet a corporate carbon neutral commitment and support high value community emissions reduction projects that offset City or public sector organization carbon liability.	CMO	All