# SUSTAINABLE CITY ADVISORY COMMITTEE

*NOTICE OF OPEN MEETING*

**DATE:** **WEDNESDAY, 2018 NOVEMBER 14**

**TIME:** **6:00 PM**

**PLACE:** **Council Chamber, Burnaby City Hall**

## ***A G E N D A***

| | | | |
|---|---|---|---|
| **1.** | **CALL TO ORDER** | | **PAGE** |
| **2.** | **MINUTES** | | |
| | a) | Minutes of the Sustainable City Advisory Committee Open meeting held on 2018 September 05 | 1 |
| **3.** | **CORRESPONDENCE** | | |
| | a) | Correspondence from Metro Vancouver<br>Re: Caring for the Air, Metro Vancouver's 2018 Report on Air Quality and Climate Change<br>*(Attachment provided under separate cover)* | 7 |
| | b) | Memorandum from the Director Parks, Recreation and Cultural Services<br>Re: Burnaby Fraser Foreshore Park - Fraser River Dyke Upgrade Project Environmental Compensation Site for Reach 8 Works | 8 |
| **4.** | **REPORTS** | | |
| | a) | Report from the Director Human Resources and Director Finance<br>Re: Employee Transit Incentive Program | 14 |
| | b) | Report from the Director Engineering<br>Re: Human-Wildlife Interaction in Burnaby | 17 |
| | c) | Report from the Director Planning and Building and Director Engineering<br>Re: City Public Electric Vehicle Charging Pilot Project | 22 |

d) Report from the Director Planning and Building 34
Re: Response to a Delegation - Discovery Castle Child Care

e) Report from the Director Planning and Building 37
Re: Green Building Requirements for New Part 3 Buildings

**5. NEW BUSINESS**

**6. INQUIRIES**

**7. ADJOURNMENT**

# SUSTAINABLE CITY ADVISORY COMMITTEE

## MINUTES

An Open meeting of the Sustainable City Advisory Committee was held in the Council Chamber, City Hall, 4949 Canada Way, Burnaby, B.C. on Wednesday, 2018 September 05 at 6:00 p.m.

## 1. CALL TO ORDER

PRESENT: Councillor Sav Dhaliwal, Chair
Councillor Pietro Calendino, Member
Councillor James Wang, Member
Trustee Baljinder Narang, Burnaby School Board
Ms. Tessa Vanderkop, Burnaby Board of Trade
Mr. Bill Brassington Jr., Citizen Representative
Mr. Peter Cech, Citizen Representative
Mr. Frank Huang, Citizen Representative
Ms. Mary Lumby, Citizen Representative

ABSENT: Councillor Nick Volkow, Member *(due to illness)*

STAFF: Mr. Dipak Dattani, Director Corporate Services
Ms. Lee-Ann Garnett, Assistant Director Long Range Planning
Ms. Simone Rousseau, Environmental Engineer
Ms. Heather Edwards, Manager – Parks, Planning, Design and Development
Ms. Margaret Manifold, Senior Social Planner
Ms. Kathryn Matts, Administrative Officer

The Chair called the meeting to order at 6:04 p.m.

## 2. MINUTES

**a) Minutes of the Open meeting of the Sustainable City Advisory Committee held on 2018 June 12**

MOVED BY MR. BRASSINGTON JR.
SECONDED BY MR. CECH

THAT the minutes of the Sustainable City Advisory Committee Open meeting held on 2018 June 12 be adopted.

CARRIED UNANIMOUSLY

## 3. DELEGATION

MOVED BY TRUSTEE NARANG
SECONDED BY MR. HUANG

THAT the delegation be heard.

CARRIED UNANIMOUSLY

**a) Discovery Castle Childcare**
**Re: Proposal to Create a Sustainable Full Time Childcare Facility**
**Speakers: Jack Tsai and Lida Madarshahian, Executive Director**

**Mr. Jack Tsai** and **Ms. Lisa Madarshahian** appeared before the Committee with a proposal for a new childcare centre in Burnaby. The proposal involved the City's land located by the Edmonds Community Centre.

The speakers provided background on their education and daycare involvement to date as well as information on the two child care centres the company is currently operating. Discovery Castle Childcare offers an infant & toddler program and a pre-school program.

Recently they undertook major renovations of their 340 East 23rd location, adding brand new indoor and outdoor spaces and fulfilling North Vancouver city's parking requirements.

Mr. Tsai advised that the location they are enquiring about is located at Rosewood Street and Humphries Avenue, in close proximity to Edmonds Community Centre. The speaker believes that this location, in the growing area of Edmonds, would be an excellent location for a child care centre, and that the child care would complement the services already provided by the Edmonds Community Centre. If the location is available to them they would submit a formal business proposal. If this location is not available they would like to receive feedback from the City for other locations.

Arising from discussion, the following motion was introduced:

MOVED BY TRUSTEE NARANG
SECONDED BY MS. VANDERKOP

THAT the delegations proposal be **REFERRED** to staff for review and a report.

CARRIED UNANIMOUSLY

## 4. CORRESPONDENCE

MOVED BY MR. CECH
SECONDED BY COUNCILLOR WANG

THAT the correspondence be received.

CARRIED UNANIMOUSLY

**a) Correspondence from Ministry of Children and Family Development**
**Re: Childcare BC New Spaces Fund Announcement**

Correspondence was received from Mr. Jonathan Barry, Executive Director - Child Care Capital, Community and ECE Registry Services with the Ministry of Children and Family Development, regarding the Childcare BC New Spaces fund announcement. The Childcare BC New Spaces Fund replaces the Child Care Major Capital Funding program. The new program will continue to fund the building of new child care facilities, along with renovations that add new child care spaces to existing facilities.

Highlights of the new program include a year-round funding application process, higher maximum funding amounts, requirement to deliver affordable child care and priority on applications creating infant, toddler and 3-5 year old spaces in vulnerable communities.

**b) Correspondence from Kevin Shore**
**Re: Rainbow Crosswalk**

Correspondence was received from Mr. Kevin Shore requesting a permanent Rainbow Pride crosswalk or crosswalks at various locations in Burnaby.

Arising from discussion, the following motion was introduced:

MOVED BY MR. CECH.
SECONDED BY MR. BRASSINGTON JR.

THAT the correspondence be **REFERRED** to staff for review and a report.

CARRIED UNANIMOUSLY

**c) Correspondence from William Tsai**
**Re: Resignation from Sustainable City Advisory Committee**

Correspondence was received from Mr. William C. Tsai advising of his resignation from the Sustainable City Advisory Committee.

Arising from discussion the following motion was introduced.

MOVED BY COUNCILLOR CALENDINO
SECONDED BY MR. CECH

THAT the Committee send a thank you letter to Mr. William Tsai.

CARRIED UNANIMOUSLY

**d) Correspondence from Green Communities Committee**
**Re: Level 2 Recognition for GHG Emissions**

Correspondence was received from the Green Communities Committee, a joint Provincial - Union of British Columbia Municipalities initiative, extending their congratulations for the City of Burnaby's successful efforts to measure and reduce corporate greenhouse gas emissions for the 2017 reporting year. The City of Burnaby has been awarded Level 2 recognition - "Measuring GHG Emissions".

**e) Memorandum from Administrative Officer**
**Re: Zoning Bylaw Amendment - Expanding Opportunities for Child Care Facilities in Commercial Areas**

A memorandum was received from the Administrative Officer advising that Council, at the Open Council meeting held on 2018 July 09, received and adopted the above noted report requesting authorization for preparation of a bylaw amending the Burnaby Zoning Bylaw, regarding child care facilities as a permitted use in select Commercial Districts and aligning child care parking requirements with Commercial parking requirements.

Staff provided a presentation on the changes entitled “Expanding Opportunities for Child Care Facilities in Commercial Areas”. The slideshow provided information on the amendments, the regulatory framework and the current zoning requirements. The approved amendments will simplify approval process for operators and expand the range of potential child care facility sites close to transit, employment and higher density residential areas in support of the City’s sustainability goals.

## 5. REPORTS

MOVED BY MS. LUMBY
SECONDED BY COUNCILLOR WANG

THAT the reports be received.

CARRIED UNANIMOUSLY

**a) Report from the Director Engineering**
**Re: Correspondence from the Association for the Protection of Fur-Bearing Animals**

The Director Engineering submitted a report on the correspondence from the Association for Protection of Fur Bearing Animals.

The Director Engineering recommended:

1. THAT the Committee receive this report for information.

MOVED BY COUNCILLOR WANG
SECONDED BY TRUSTEE NARANG

THAT the recommendation of the Director Engineering be adopted.

CARRIED UNANIMOUSLY

**b) Report from the Director Planning and Building**
**Re: Update on the Burnaby Healthier Community Partnership for 2017-18**

The Director Planning and Building submitted a report providing an update on the initiatives of the Burnaby Healthier Community Partnership for 2017-2018.

The Director Planning and Building recommended:

1. THAT this report be received for the information of the Committee and Council.

2. THAT a copy of this report be forwarded to Dr. Aamir Bharmal, Medical Health Officer for Burnaby, Ms. Sheila Finamore, Executive Director, Burnaby Health Services, Ms. Baljinder Narang, Vice-Chair, Burnaby Board of Education , and Ms. Georgia Bekiou, Executive Director, Burnaby Division of Family Practice.

MOVED BY MR. CECH
SECONDED BY MR. HUANG

THAT the recommendations of the Director Planning and Building be adopted.

CARRIED UNANIMOUSLY

## 6. NEW BUSINESS

### Chair Dhaliwal – World Rivers Day

Chair Dhaliwal reminded the members of the World Rivers Day event on Sunday, September 23 at Burnaby Village Museum from 11 am - 4:30 pm.

## 7. INQUIRIES

### Mary Lumby – Asbestos Abatement

**Ms. Lumby** inquired, after the recent asbestos dumping that occurred in Burnaby, if a company is certified for asbestos abatement, why does it not have accountability to complete the dumping process.

Staff advised that Worksafe BC made regulation changes and implemented stricter standards for asbestos removal. There are currently a limited number of companies that accept the waste materials making it more difficult to dispose of the asbestos as required.

The Province is working with Worksafe BC to come up with a strategic plan. A report should be coming forward soon from the Ministry that starts shaping the changes that need to happen in the industry to ensure there are better checks and balances in place.

## 8. ADJOURNMENT

MOVED BY TRUSTEE NARANG
SECONDED BY MR. HUANG

THAT the Open meeting do now adjourn.

CARRIED UNANIMOUSLY

The Committee meeting adjourned at 7:13 pm.

| | |
|---|---|
| _____ | _____ |
| Kathryn Matts | Councillor Sav Dhaliwal |
| ADMINISTRATIVE OFFICER | CHAIR |

metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

*Parks, Planning and Environment Department*
*Tel. 604 432 6350 Fax 604 453 0338*

File: AQ-AQ-07-00

October 5, 2018

City Clerk
City of Burnaby
4949 Canada Way
Burnaby, BC V5G 1M2

Dear Sir/Madam:

**Re: Caring for the Air, Metro Vancouver's 2018 Report on Air Quality and Climate Change**

In support of the goals of Metro Vancouver's Integrated Air Quality and Greenhouse Gas Management Plan, "to protect public health and the environment, improve visual air quality and minimize the region's contribution to climate change", Metro Vancouver publishes an annual report, *Caring for the Air*. The report provides information about the actions and initiatives being carried out by Metro Vancouver and our partners to improve air quality and mitigate the impacts of climate change.

*Caring for the Air* is a plain-language report intended to increase public engagement in and understanding of air quality and climate change issues. The report also contains indicators on progress towards air quality goals, which helps to identify where new actions are needed. A printed copy of the 2018 edition of *Caring for the Air*, which we hope people in your community will find interesting, is included in this package. *Caring for the Air* can also be accessed electronically on the Metro Vancouver website at http://www.metrovancouver.org/services/air-quality/information-public/caring-for-the-air/Pages/default.aspx.

If you would like additional copies to make available for interested members of the public, we would be pleased to provide them. For additional copies of the report, and comments about the report or questions about air quality or climate change, please do not hesitate to contact us through AQInfo@metrovancouver.org

Sincerely,

Roger G. Quan, P.Eng.
Director, Air Quality and Climate Change

RQ/jes

Attachment: Caring for the Air Report, 2018

Referred to:
Sustainable City Advisory Committee (2018.11.14)
Copied to:
City Manager
Dir. Corporate Services
Dir. Engineering

City of Burnaby

Parks, Recreation & Cultural Services
Administration Office

# INTER-OFFICE MEMORANDUM

TO: CHAIR AND MEMBERS
SUSTAINABLE CITY ADVISORY
COMMITTEE

DATE: 2018 OCTOBER 26

FROM: DIRECTOR PARKS, RECREATION AND
CULTURAL SERVICES

FILE: 61100-20
*Reference: Burnaby Fraser Foreshore Park*

**SUBJECT: BURNABY FRASER FORESHORE PARK – FRASER RIVER DYKE UPGRADE PROJECT ENVIRONMENTAL COMPENSATION SITE FOR REACH 8 WORKS**

At its 'Open' meeting of 2018 October 24, the Parks, Recreation and Culture Commission received the attached staff report regarding the above subject and adopted the recommendations contained therein.

Dave Ellenwood
Director Parks, Recreation and Cultural Services

tc
Attachment
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City of Burnaby

| | |
|---|---|
| Item | 5 |
| Director's Report No. | 9 |
| Meeting | 2018 Oct 24 |

COMMISSION REPORT

**TO:** CHAIR AND MEMBERS
PARKS, RECREATION AND CULTURE
COMMISSION

**FROM:** DIRECTOR PARKS, RECREATION AND CULTURAL SERVICES

**FILE:** 61100-20
*Reference:* *Burnaby Fraser Foreshore Park*

**SUBJECT:** **BURNABY FRASER FORESHORE PARK - FRASER RIVER DYKE UPGRADE PROJECT ENVIRONMENTAL COMPENSATION SITE FOR REACH 8 WORKS**

**PURPOSE:** To obtain approval for use of a site within Burnaby Fraser Foreshore Park for the proposed environmental compensation works related to the implementation of the Fraser River Dyke Upgrade Project Reach 8 works.

## RECOMMENDATIONS:

1. **THAT** approval be given for use of a site within Burnaby Fraser Foreshore Park for aquatic and riparian habitat compensation works required for the City's Fraser River North Arm Dyke rehabilitation and upgrade project works being undertaken in Reach 8 of the Fraser River North Arm dyke as outlined in this report.

2. **THAT** a copy of this report be sent to the Sustainable City Advisory Committee for information.

## REPORT

### INTRODUCTION

The City is undertaking an ongoing program to upgrade flood protection works along nine reaches of the foreshore of the Fraser River North Arm in Burnaby. Reaches 5-9 are primarily located within Burnaby Fraser Foreshore Park. At its meeting of 2016 July 20, Commission approved an alignment for the dyke upgrade works in Reach 8, including a new retained section of dyke which will connect the foreshore dyke works at Glenlyon Creek to the inland dyke works alongside Glenlyon Parkway. The location and alignment of the Reach 8 dyke works is illustrated in the attached sketch plan (Attachment #1).

The detailed design for the Reach 8 upgrade works is completed. However, before construction preloading for the new section of dyke can commence, Department of Fisheries and Oceans (DFO) approval for the dyke work is required, and is contingent on provision of an approved site and concept for the DFO implementation of the associated aquatic, riparian and terrestrial habitat compensation works for the project. Therefore, the Director Engineering is now requesting approval for the use of a small area within the Burnaby Fraser Foreshore Park for the installation of aquatic, riparian and terrestrial habitat compensation works for the Reach 8 dyke upgrade project works.

The City's Burnaby Fraser Foreshore Park, a narrow linear band of river foreshore with three inland fingers, extends over half of Burnaby's Fraser River foreshore. The compensation site is proposed to be located on the river foreshore within Reach 8, between Glenlyon and Sussex Creeks, as illustrated in the attached park map. This area of the park is located on the river side of the dyke and is intended to function as part of the flood plain. The proposed compensation works involve installation of a tidal channel and fish habitat area with enhanced riparian planting, and installation of a foot bridge to maintain connectivity on the popular foreshore trail.

Engineering Department staff have discussed the conceptual plan for the proposed aquatic and riparian habitat compensation works with DFO, and upon approval to use the requested site, will prepare a detailed plan for the compensation works which meets the DFO's requirements and is acceptable to Parks staff. Preservation of trees will be considered in the alignment and design for the tidal channel, but selected removal of some trees may be required. Habitat complexing and riparian area planting will enhance the habitat value of this conservation zone within the park, to support aquatic and terrestrial wildlife species, including the Stickleback and Chinook salmon found along this reach of the Fraser River North Arm and nearby creeks.

The construction contract will include a five-year monitoring and maintenance period for the compensatory works.

Signs will be posted in the park notifying the public of any temporary disruptions and trail detours during construction of the compensatory works.

**POLICY SECTION**

**Goal**

- A Safe Community
  - Emergency preparedness –
    Enhance plans, procedures and services so that we are better prepared to respond to emergencies and are able to maintain City services
  - Emergency services –
    Provide responsive emergency services

- A Connected Community
  - Partnership –
    Work collaboratively with businesses, educational institutions, associations, other communities and governments
  - Geographic connection –
    Ensure that people can move easily through all areas of Burnaby, using any form of transportation

- An Inclusive Community
  - Serve a diverse community –
    Ensure City services fully meet the needs of our dynamic community

- A Healthy Community
  - Healthy life –
    Encourages opportunities for healthy living and well-being
  - Healthy environment –
    Enhance our environmental health, resilience and sustainability

- A Dynamic Community
  - Economic opportunity –
    Foster an environment that attracts new and supports existing jobs, businesses and industries
  - Community development –
    Manage change by balancing economic development with environmental protection and maintaining a sense of belonging
  - City facilities and infrastructure –
    Build and maintain infrastructure that meets the needs of our growing community

- A Thriving Organization
  - Organizational culture –
    Ensure that our core values are reflected in our policies, programs and service delivery
  - Financial viability –
    Maintain a financially sustainable City for the provision, renewal and enhancement of City services, facilities and assets
  - Communication –
    Practice open and transparent communication among staff, Council and the community
  - Reliable services, technology and information –
    Protect the integrity and security of City information, services and assets

**RECOMMENDATION**

In order to meet the construction timeline for the Fraser River North Arm Dyke Upgrade Project Reach 8 works, a number of approvals are required in sequence commencing with Commission approval for use of the proposed compensation site within Burnaby Fraser Foreshore Park. The concept for the proposed compensation works and the compensation site location within the park are in-line with environmental enhancement goals for this area of Burnaby Fraser Foreshore Park and complement similar off-channel tidal habitat works installed further east in the park. It is therefore recommended that Commission approve use of this site within Burnaby Fraser Foreshore Park for the proposed Reach 8 dyke upgrade compensation works.

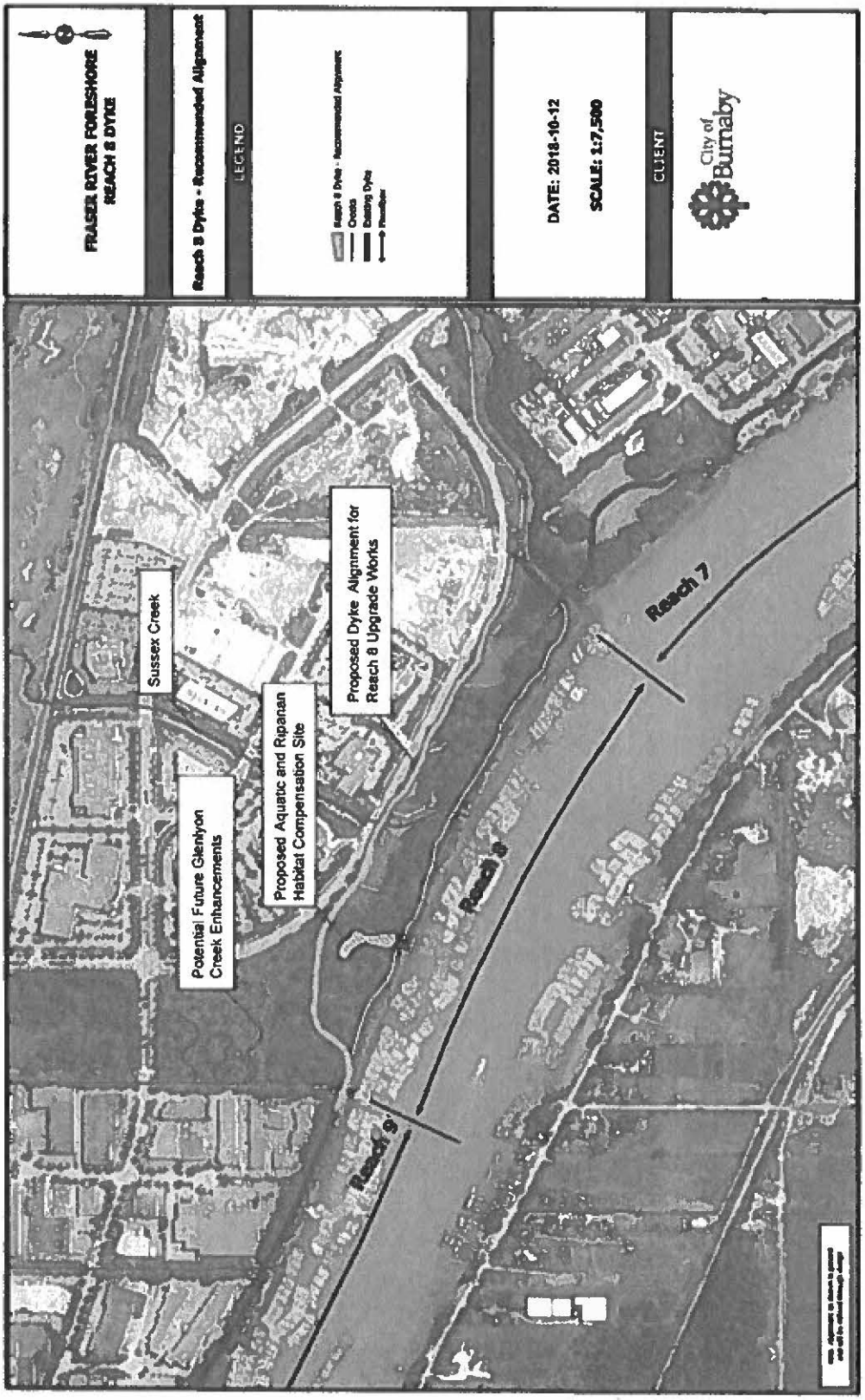
D. Ellenwood

Dave Ellenwood
DIRECTOR PARKS, RECREATION & CULTURAL SERVICES

ATS:ats:tc
Attachment
P:\admin\shared\AS\Report\to be formatted\Commission Report_BFF Park Reach 8 Compensation Site

Copied to: Director Engineering
Director Planning and Building

**Attachment #1**



City of Burnaby

Meeting 2018 Nov 14

COMMITTEE REPORT

| | | | |
|---|---|---|---|
| **TO:** | CHAIR AND MEMBERS<br>SUSTAINABLE CITY ADVISORY COMMITTEE | **DATE:** | 2018 November 06 |
| **FROM:** | DIRECTOR HUMAN RESOURCES<br>DIRECTOR FINANCE | **FILE:** | 7700-20 |

**SUBJECT: EMPLOYEE TRANSIT INCENTIVE PROGRAM**

**PURPOSE:** To propose revisions to the Employee Transit Incentive Program.

**RECOMMENDATION:**

1. **THAT** the Sustainable City Advisory Committee recommend Council authorize staff to revise the Employee Transit Incentive Program effective 2019 January 01 as outlined in this report.

## REPORT

### 1.0 BACKGROUND

In 2016 January 01, the City introduced an Employee Transit Incentive Program to encourage employees to use public transit to reduce the impact on the environment from vehicle emissions in support of the Environmental Sustainability Strategy and to free up needed parking spaces at City Hall.

The Employee Transit Incentive Program is based on the following guidelines:

- Full-time and part-time employees who work an average of 24 hours per week over the last month prior to the purchase of the monthly pass.
- A 25% incentive is applicable to the purchase of a Monthly TransLink Pass.
- Employees agree not to transfer the Monthly TransLink Pass to a third party for use.
- Proof of purchase of a Monthly TransLink Pass is provided to Payroll by employee; only one pass per employee is discounted each month.
- Payroll adds the 25% incentive amount to the employee's bi-weekly payroll cheque as reimbursement as this is a taxable benefit to the employee.

The City Manager's Office has a budget provision of $38,000 for the Employee Transit Incentive Program. The following reflects the costs related to the program over the past 2 years.

| Year | Cost |
|---|---|
| 2016 | $13,579 |
| 2017 | $15,077 |

Employee Enrollment by status is as follows:

| Status | 2016 | 2017 |
|---|---|---|
| Regular Full Time | 47 | 59 |
| Regular Part Time | 7 | 5 |
| Temporary Full Time | 21 | 18 |
| Auxiliary | 16 | 15 |
| **Total** | **91** | **97** |

On average approximately 50% of enrolled employees submit reimbursements each month.

## 2.0 POLICY SECTION

**Goal**

- A Healthy Community
  - Healthy life –
    Encourage opportunities for healthy living and well-being
  - Healthy environment –
    Enhance our environmental health, resilience and sustainability

- A Thriving Organization
  - Organizational culture –
    Ensure that our core values are reflected in our policies, programs and service delivery
  - Human resources –
    Foster an environment for teamwork, efficiency and excellence to deliver customer service in alignment with our core values

## 3.0 PROPOSED PROGRAM REVISIONS

The percentage of Auxiliary and Regular Part-Time employees participating in the program has been declining. In order to encourage the usage of the program, it is recommended that the qualifying hours be relaxed from 24 hours to 20 hours. This change will broaden opportunities for employees to participate in the program and responds to feedback from staff about the program. Cost increases to the City are minimal and can be accommodated within the existing budget.

As well, it is recommended that reimbursement be based on current month activity versus prior month activity. Payroll is able to assess eligibility and process timely payments.

The Human Resource Department along with the Green Team which represents all departments will continue to increase awareness of the program through City-wide e-mails, employee orientation programs and initiatives such as the annual Commuter Challenge. Based on current program awareness initiatives, the total number of reimbursements has increased by 10% in 2017 and by another 14% in 2018, if year-to-date 2018 reimbursements continue consistently to the end of the year. The intention of increasing program awareness is to encourage the use of public transit and increase participation in the program by up to 20% annually, within the budget allocation.

Program reviews will be conducted annually to continually assess the success of the program.

## 4.0 RECOMMENDATION

It is requested that the Sustainable City Advisory Committee recommend Council authorize staff to revise the Employee Transit Incentive Program effective 2019 January 01 as outlined in this report.

Pat Tennant, CPHR
DIRECTOR HUMAN RESOURCES

Noreen Kassam, CPA, CGA
DIRECTOR FINANCE

NK:PT /ml

Copied to: City Manager

City of Burnaby

Meeting 2018 Nov 14

COMMITTEE REPORT

| | | | |
|---|---|---|---|
| **TO:** | CHAIR AND MEMBERS<br>SUSTAINABLE CITY ADVISORY<br>COMMITTEE | **DATE:** | 2018 November 07 |
| **FROM:** | DIRECTOR ENGINEERING | **FILE:** | 33000-01 |

**SUBJECT:** **REVIEW OF HUMAN-WILDLIFE INTERACTION IN BURNABY**

**PURPOSE:** To respond to Council's request for a report on the recommendations from the presentation on Wildlife Encounters by the Burnaby Wildlife Awareness Association.

**RECOMMENDATION:**

1. **THAT** the Committee recommend to Council to receive this report for information purposes.

## REPORT

### 1.0 INTRODUCTION

On 2018 October 01, Council received a delegation from the Burnaby Wildlife Awareness Association who provided a presentation on Wildlife Encounters. The Association requested that consideration be given to developing enforceable bylaws which would require residents to responsibly manage wildlife attractants as well as public education.

Following the presentation, Council adopted a motion that the presentation be referred to staff to review and prepare a report on the recommendations. This report responds to that request and provides an overview of the current status of human-wildlife interactions, most commonly human-bear interactions, within certain areas of Burnaby, and outlines actions being undertaken to reduce human-wildlife interactions.

### 2.0 POLICY SECTION

The response to the Burnaby Wildlife Awareness Association is aligned with the City of Burnaby Corporate Strategic Plan supporting the following goal and sub-goals of the plan:

- A Healthy Community
  - Healthy environment –
    Enhance our environmental health, resilience and sustainability
  - Lifelong learning –
    Improve upon and develop programs and services that enable ongoing learning

## 3.0 BACKGROUND

Bear and other wildlife (e.g. coyotes) interactions have previously been reported by residents and media in some areas of Burnaby. Reports of bear and wildlife sightings have been received by Burnaby Engineering and Parks Department; however, staff direct residents to contact the Provincial Conservation Office reporting line, as the province maintains a centralized reporting system, and have a mandate to respond to various human-wildlife interactions.

### 3.1 Wildlife Reports

The Provincial Conservation Office receives a wide variety of wildlife calls. In 2017, the Provincial Conservation Office received 825 wildlife reports; 86% of the reports were for bears, 6.3% for coyotes, 3% for bobcats and 2.3% for cougars. In 2018 (January 01 to October 19), they have received 458 reports of wildlife sightings; 71% of the reports for bears, 13% for coyotes, 5% for cougars and 1.3% for bobcats.

The majority of the wildlife reports received by the Provincial Conservation Office and the City are related to bears and coyotes in residential neighbourhoods and parks. Table 1 outlines the number and type of bear reports received, and Table 2 outlines the number and type of coyotes reports received for the years 2017 and 2018.

Table 1 – Generated calls to Provincial Conservation Office, Burnaby Engineering and Parks regarding **bear** activity within Burnaby for the years 2017 and 2018.

| **Call Generation Type** | **2017** | **2018 (to Oct 19)** |
|---|---|---|
| Bear Sightings | 405 | 185 |
| Residential & Parks Garbage Receptacle | 208 | 85 |
| Residential Green Bin (Food Scraps) | 39 | 16 |
| Residential Fruit Trees/Berries/Vegetable Gardens | 15 | 15 |
| Other (i.e. barbeques, bird feeders, pets & pet food, backyard composter etc.) | 37 | 31 |
| **Total Call Generation** | **715** | **332** |

The breakdown of call generation type shows that general sightings were the most common reason for bear reports, followed by reports of bears accessing residential and parks garbage and residential green bin receptacles. Although sightings of bears prompted the highest number of reports, some of these reports are multiple calls reporting the same bear. The reduction in reports in 2018 can be attributed to public outreach and education on management of attractants, and to the installation of bear-resistant receptacles within multi-family complexes and municipal parks.

Table 2 - the number and type of **coyote** reports received by the Provincial Conservation Office and Burnaby Parks for the years 2017 and 2018.

| Call Generation Type | 2017 | 2018 |
|---|---|---|
| Coyote Sightings | 162 | 95 |
| Pets/Livestock (chased/stalked/killed) | 9 | 10 |
| Aggressive behaviour | 4 | 19 |
| Injured/Sick | 17 | 10 |
| Other (orphan, roadkill, feeding, pups/den) | 18 | 7 |
| **Total Call Generation** | **210** | **141** |

### 3.2 Public Outreach and Education

In response to reports of human-wildlife interactions, staff work closely with the Provincial Conservation Office to provide timely education and outreach related materials to residents when sightings occur within residential neighbourhoods, and to install notification signage within parks when required.

For reports on bears within residential areas, staff distribute information letters and brochures within reporting areas to notify of a bear in the area and actions residents can undertake to reduce human-bear interaction. In 2018, the City issued 2,196 letters and informational brochures on bear management. If bears are sighted within residential neighbourhoods abutting parks, the Burnaby Parks staff install notification signage at park entrances indicating a bear in area.

For all coyote calls in Burnaby, residents are advised to report sightings to the Co-Existing with Coyotes program, a contracted service by the Stanley Park Ecology Society, SPES. The Society provides a dedicated information line which includes online web reporting and a hotline number that responds to all calls with personalized response for each case. All reports receive personal emails or phone calls to provide education and assistance for each unique situation; this may include site-visits, and liaising with the Provincial Conservation Office as required. Each encounter is mapped with a brief sighting summary, and available for viewing online. SPES also provides education and outreach such as information brochures, available at all City kiosks, signage is installed in Burnaby parks with coyote activity, attending community events, and providing training and workshops for staff and the public, including schools. In 2018, the Stanley Park Ecology Society provided 5 staff training sessions, 2 nature walks, and attended one community event.

Information on attractant management, wildlife and personal safety within parks and trails, and how to report human-wildlife interactions, is made available on the City's website, and is disseminated to the public through social media, civic facilities and at community events.

The Conservation Officer Service and the British Columbia Conservation Foundation have developed a public educational program called WildSafeBC. This program provides online resources as well as downloadable brochures on co-existing with wildlife. A link to wildsafebc.com is available on the City of Burnaby website.

In addition to direct distribution of notification and educational materials, City staff are engaged regionally as members of the North-East Sector Bear Committee. Staff engage with neighbouring municipalities, conservation officers, and public safety representatives through this network to exchange information, community approaches and actions related to human-bear interactions.

### 3.3 Bear Resistant Receptacles

#### 3.3.1 Green Bin Receptacle Pilot Project

In 2016, the City undertook a Green Bin Receptacle Pilot Project for multi-family complexes within known bear areas of Burnaby. The year-long pilot project aimed to assist the City in identifying: effectiveness, ease of use and durability of bear resistant receptacles; challenges in servicing the containers; any administrative and bylaw amendments; and required scope and scale of education/outreach program.

The year-long multi-family bear resistant green bin receptacle pilot project was well received by the participating residents and was a noted step forward in addressing human-bear interactions within the City. In 2018, based on the positive feedback from surveys to the public and City staff, Council approved an expansion of the pilot project to implement bear resistant green bin receptacles to multi-family complexes that are serviced by the City within bear areas.

#### 3.3.2 Parks Bear Receptacles

Over the years, Parks has progressively added bear-resistant waste receptacles to parks where staff noted bear activity or the public reported bear sightings. Currently, there are two styles of receptacles employed - a square top loading model, mounted in-ground, and a round-barrel model where the lid is secured on the container. Both receptacle styles have been successful at containing trash in bear areas. Currently, the bear-resistant waste receptacles are found in priority parks throughout the year, with additional containers installed from May to October. Bear-resistant waste receptacles continue to be added to priority parks with new containers in 2018, and more planned for 2019.

### 3.3.3 Bylaw Review

Pursuant to the successful outcome of the of the multi-family green bin receptacle pilot project, staff are reviewing the City's Solid Waste and Recycling Bylaw and preparing a report to Council to consider proposed amendments that reflect matters of storage and management of waste receptacles.

## 4.0 CONCLUSION

The presentation from the Burnaby Wildlife Awareness Association requested that consideration be given to developing enforceable bylaws which would require residents to responsibly manage wildlife attractants as well as public education. As outlined in Section 3.0, staff work closely with the Provincial Conservation Office to provide timely education and outreach related materials to residents directly, through Park signage, on the City's website and through social media and at civic facilities and community events.

Following a successful pilot project, Council approved an expansion of the implementation of bear resistant green bin receptacles to multi-family complexes that are serviced by the City within bear areas. Staff are also reviewing the City's Solid Waste and Recycling Bylaw and preparing a report to Council to consider proposed amendments that reflect matters of storage and management of waste receptacles.

It is recommended that staff continue to implement current programs such as public outreach and education, implementation of bear-resistant green bins for multi-family complexes serviced by the City, installation of bear-resistant waste receptacles within municipal parks, and complete a review of the Solid Waste and Recycling Bylaw. Staff will also continue to monitor wildlife reports through the Provincial Conservation Office and the Stanley Park Ecology Society, and engage in public notification as required.

Leon A. Gous, P.Eng., MBA
DIRECTOR ENGINEERING

SR/TT/MY:ac

Copied to: City Manager
Director Parks, Recreation and Cultural Services
City Clerk

City of Burnaby

Meeting 2018 Nov 14

COMMITTEE REPORT

| | | | |
|---|---|---|---|
| **TO:** | CHAIR AND MEMBERS<br>SUSTAINABLE CITY ADVISORY<br>COMMITTEE | **DATE:** | 2018 November 7 |
| **FROM:** | DIRECTOR PLANNING AND BUILDING<br>DIRECTOR ENGINEERING | **FILE:**<br>*Reference:* | 76500 20<br>*EV Policy* |

**SUBJECT: CITY PUBLIC ELECTRIC VEHICLE CHARGING PILOT PROJECT**

**PURPOSE:** To seek Council's approval for a City public EV charging pilot project.

**RECOMMENDATION:**

1. **THAT** Council approve the proposed pilot project for City public EV charging, as outlined in Section 3 of this report.

## REPORT

### 1.0 INTRODUCTION

On 2018 May 7, Council received a report recommending amendments to the Zoning Bylaw to require parking spaces in new residential development to have outlets for electric vehicle (EV) charging. Council approved the report, and the subsequent Zoning Bylaw changes, which took effect on 2018 September 1. The report also advised of three additional policy areas under development: public EV charging; EV charging in new commercial/office/institutional development; and EVs in City fleets. This report advances recommendations for the next policy area, public EV charging.

### 1.1 Policy Framework

Policy supporting the uptake and use of electric vehicles is aligned with the City's three sustainability plans (environmental, social and economic):

- The **Environmental Sustainability Strategy** (ESS) and **Community Energy and Emissions Plan** (CEEP) support EVs in the *Move* section, including with specific strategies and actions to encourage the uptake of EVs. The CEEP also includes adopted targets for reducing community greenhouse gas (GHG) emissions, of which transportation accounts for 50%. The ESS and CEEP *Manage* goal also supports the City demonstrating leadership in reducing GHGs in management of its operations and facilities. A report to Council, dated 2017 August 9, advanced an implementation framework for these plans, which included EV Policy as a Phase 1 initiative.

- The **Social Sustainability Strategy** supports EVs due to opportunities to improve affordability with reduced vehicle operation and maintenance costs, and to improve health through reduced air pollution.

- The **Economic Development Strategy** supports EVs due to opportunities to support Burnaby's green economy and the sustainability of businesses in Burnaby.

Specifically as it relates to public EV charging, Burnaby's CEEP includes the following "Big Move" (priority) strategy, which is also shared with the ESS, and supporting actions:

C2.5 (NEW Big Move) - Transition to more efficient (including zero-emission) vehicles…

*a) Consider developing policy to strategically support deployment of EVs, including...(in)* ***publicly accessible areas*** *and consideration for* ***public fast-charge station(s)****.*

*b) Consider opportunities for demonstrating leadership and accelerating EV adoption by...* ***providing public charging in municipal buildings and parking lots****.*

The proposed pilot project also aligns with the following goals and sub-goals of the **Corporate Strategic Plan**:

- **A Connected Community**
  - Partnership – Work collaboratively with businesses, educational institutions, association, other communities and governments
  - Geographic connection – Ensure that people can move easily through all areas of Burnaby, using any form of transportation.

- **A Healthy Community**
  - Healthy Environment – enhance our environmental health, resilience and sustainability.

- **A Dynamic Community**
  - Economic Opportunity – Foster an environment that attracts new and supports existing jobs, businesses and industries

- **A Thriving Organization**
  - Financial viability – Maintain a financially sustainable City for the provision, renewal and enhancement of City services, facilities and assets

### 1.2 Market Context

The EV market in Canada continues to grow rapidly. Canada-wide, EV sales in the second quarter of 2018 grew by 214% (and by 202% in BC) compared to the same period in 2017. The national EV market share of all light duty vehicles over the past three months was 2.3%, compared to 0.7% at the same time last year. Some of the posited reasons for this pace of change include increased car buyer comfort (supported by improved charging access) and interest in the

technology; availability of more EV models that fit many market niches; and, the release of the Tesla Model 3 into the Canadian market[1].

The EV market is expected to continue to grow rapidly over the coming years, but the rate of uptake will still depend in large part on the availability of charging. Charging at home while vehicles are parked overnight is the most convenient option and for that reason the City's EV policy focused first on requiring infrastructure to support home charging in all new developments, now a Zoning Bylaw requirement. The challenge remains for residents of existing homes that were built prior to these new requirements. Residents without access to EV charging may need to rely on charging available at the workplace and/or in publicly accessible locations throughout the community. In the absence of such charging opportunities, purchasing an EV may not be a viable option for many citizens.

### 1.3 Overview of Charging Infrastructure and Levels

There are three components of EV charging:

- **The electrical infrastructure and outlet** that delivers and provides a means to connect to the electrical grid, either as alternating (AC) or direct (DC) current.

- **The EV Supply Equipment (EVSE)**, an apparatus that typically includes a cord to connect the vehicle to the electrical supply[2]. EVSE measures and controls the delivery of electricity, and may include a fee-collection function. EVSE may be portable (carried within the vehicle) or affixed next to a parking space.

- **The vehicle's built-in charging system** that accepts and converts the electricity supplied via the electrical infrastructure and EVSE into stored energy in the vehicle's battery.

The most common types, or "levels", of charging, as outlined in previous Council reports and summarized in ***Appendix A***, include:

- **Level 1 (AC)**, which takes the form of a 120V wall outlet. This level of charging is becoming less common since it takes a long time to charge, particularly as vehicle range and battery size are increasing.

- **Level 2 (AC)**, which takes the form of a 208V or 240V outlet, to which EVSE in a pedestal or wall-mounted unit may be attached. This is the most widely deployed type of EV charging today, and is suitable for home, workplace and public locations. It can deliver a useful charge in one to two hours, and can fully charge an empty battery in most EVs on the market in 6 hours. Level 2 charging can also form part of an *EV energy*

[1] Source of data reported in this paragraph: Fleetcarma Electric Vehicle Sales Update Q2 2018, Canada https://www.fleetcarma.com/electric-vehicles-sales-update-q2-2018-canada/

[2] Cordless ("induction") charging exists but has not yet been widely deployed in the marketplace.

*management system* (EVEMS) which can share a single electrical circuit with multiple EV outlets or other electrical devices. EVEMS is described in the report approved by Council on 2018 May 7.

- **DC Fast Charge (DCFC)**[3], which provides direct current at 50kW or 25kW, and usually takes the form of a larger pedestal with utility box supplied with connectors and cords. It can fully charge most vehicles on the market today in about 30 to 45 minutes, and a useful charge for top-up can be delivered in 15 minutes. Due to the large power draw this type of charging is more expensive to install and so not as common or widely deployed as Level 2 charging.

### 1.4 Fees for EV Charging

Best practices suggest that charging a fee for the service of EV charging is appropriate as it helps to ensure the parking space is not taken up by vehicles that are not utilizing the charging, whether internal combustion vehicles or EVs that are over-staying the space beyond the time required to charge. Fees also provide a source of revenue that can help to offset the operating and capital cost of the service, and support a user-pay model of service.

Under existing BC Utilities Commission (BCUC) rules, local governments and utilities can charge fees for EV charging, and landlords can charge fees to their tenants. However, private entities may not charge fees to their customers, as it is considered "re-selling electricity". This restriction is based on an energy system model (e.g. power plants) that did not contemplate the case of EV charging specifically, and it is currently being reviewed by BCUC[4]. A change in these rules to allow collecting fees by private entities could result in the installation of more charging by businesses on a voluntary basis, and provide a stronger basis for increased requirements for EV charging in new commercial and institutional developments.

## 2.0 PUBLIC EV CHARGING IN BURNABY

As mentioned above, publicly accessible EV charging can help to fill in the EV charging network, serving residents without access to home charging, and providing a top-up for drivers on-the-go. Public charging can also support businesses and economic activity, as EV drivers are more likely to shop or do other business in areas where they can also charge their vehicle[5]. Public EV charging may be provided by businesses, institutions, and the City specifically.

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[3] Tesla also makes a proprietary "super charger" which is a form of DCFC that delivers even faster charging but can only be used by Tesla vehicles (Tesla vehicles can, however, also use Level 2 and regular DCFC).

[4] The review was initiated in early 2018; the consultation period is now closed, and a decision is anticipated soon. More information is available at: https://www.bcuc.com/Documents/Proceedings/2018/DOC_50755_02-08-2018_BCUC-EV-Charging-FAQ.pdf

[5] For example, the Heights Merchants' Association presented a delegation to the 2018-02-06 Sustainable City Advisory Committee expressing an interest in policy and programs that would increase the provision of EV charging in this neighbourhood.

## 2.1 Existing Public EV Charging in Burnaby

Some businesses in Burnaby already provide EV charging for their customers. Due to the existing BCUC restriction noted above, this charging is provided to the public for free (although fees for parking may still apply, at rates consistent with adjacent non-EV spaces). Some examples include:

- Malls such as Brentwood (one Level 2 charge point[6]), Lougheed (three Level 2 charge points), and Metropolis (six Level 2 charge points);
- Lake City Centre (one Level 2 charge point);
- Cornerstone Building at SFU (four Level 1 and five Level 2 charge points);
- Tim Hortons on Kingsway (one Level 2 charge point);
- Canada Way Business Park (two Level 2 charge points).

Public institutions and not-for-profit organizations that provide EV charging in Burnaby include:

- BCIT (one Level 1, 12 Level 2, and two DCFC charge points);
- Burnaby Central Secondary School (two Level 2 charge points);
- Burnaby Association for Community Inclusion (two Level 2 charge points);
- Metro Vancouver, Metrotown headquarters (one DCFC charge points).

In addition, the City of Burnaby currently provides EV charging at the following locations (no fees for charging are currently applied):

- Deer Lake Centre[7] (four Level 2 charge points);
- Shadbolt Centre for the Arts (one Level 1 charge point);
- Edmonds Community Centre[8] (two Level 1 charge points).

The new South Burnaby Ice Arena is also being designed to include Level 2 charge points in six stalls, and 22 additional stalls pre-wired for future EVSE installation (20% of stalls in total). See ***Section 3.2.3*** explaining the relationship of this site to the proposed pilot project.

The locations and details for all currently available public EV charging sites across BC are available on www.plugshare.com; see also ***Appendix B***.

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[6] The term "charge point" means a connection point for a vehicle to receive a charge, and is used instead of "station" or EVSE here, since a single station/EVSE may supply multiple charge points.

[7] This site is available to the public, but is primarily used by tenants of the building. A report to the Environment Committee dated 2014-05-08 provides background about its installation.

[8] The Level 1 chargers at City facilities do not provide adequate charging for most users, and upgrading to Level 2 is being explored, including as a part of this pilot project.

### 2.2 Charging Levels (Level 2 vs. DCFC) in Public EV Charging

At present, Level 2 charging is the most commonly installed type of charging for locations that people visit for shopping, recreation and work. Level 2 charging can be supplied from a building's electrical supply, either as dedicated circuits or shared circuits using energy management systems, or directly from the public grid for curb-side charging. The cost of equipment and installation of a Level 2 EVSE (a single wall mounted or pedestal unit providing two charge-points) ranges from about $12,000 to $20,000. In the City of New Westminster, public Level 2 charging was also recently installed in streetlight standards that were previously converted to LED, utilizing spare electrical capacity. Level 2 charging is therefore a good choice for the bulk of the EV network at this time, as it is relatively cost effective, suitable for a wide range of locations, and appropriate for locations where typical parking durations are at least one hour.

DC Fast Charge (DCFC) delivers more charge in a short time, allowing for a higher turnover, and may be utilized by residents of the immediate neighbourhood, drivers passing by, and others who may seek it out. DCFC EVSE is usually connected directly to the electrical grid, or requires additional electrical supply provided to a building to support it. As previously noted, DCFC draws a much larger amount of power and installation cost is typically $50,000 to $100,000. It is usually deployed more strategically and can form key nodes in the public EV charging network. Many DCFC installations to date in BC have received funding from BC Hydro and Natural Resources Canada.

At this time Level 2 charging would likely form the majority of Burnaby's public charging network, while DCFC would also be considered for key locations as funding opportunities arise.

## 3.0 PROPOSED PILOT PROJECT FOR PUBLIC LEVEL 2 EV CHARGING

Many municipalities in BC provide EV charging to various extents. Surrey and Vancouver entered the field relatively early and today Surrey has around 40 sites providing public EV charging, while Vancouver has over 200. Other communities are still getting started and have only a small number of sites provided to date. Over the past ten years, the industry, technology and policies have matured, lessons learned have been shared between jurisdictions, and Burnaby Council has approved policy direction that includes support for public EV charging. Staff and Council members are also receiving a growing number of inquiries from residents and businesses requesting public EV charging. It is therefore proposed to respond to this demand for EV charging by installing EVSE at existing City owned facilities and parking areas, beginning with a pilot project as outlined below.

### 3.1 Considerations for Public EV Charging

In order to ensure that public resources are efficiently allocated, the proposed pilot project would allow Burnaby to explore a number of considerations associated with providing public EV charging, as a basis for a future program for this area of service.

Key considerations and findings that would arise from a pilot implementation include:

- **Public Benefits** – as noted above, greater uptake of EVs in Burnaby can play an important role in meeting the community GHG reduction targets as stated in the CEEP, and help to improve air quality. The specific GHG benefits can be quantified with usage data of installed public Level 2 EV charging. Users can also benefit from lower fuel and maintenance costs.

- **Costs and resources** – the cost of the EVSE itself is relatively predictable, however installation costs can vary widely depending on site specific variables. The staff resources required to manage public EV charging, together with the appropriate level of service that can be provided by vendors, also require closer examination. Deployment of EV charging at a modest number of sites initially, together with monitoring, would allow for better estimating these costs to the City.

- **Siting and locations** – although much can be learned from the experience of other municipalities in terms of factors and criteria to consider for siting of EV charging, a pilot project will allow Burnaby to gain further information and direct experience specific to the City.

- **Fees and revenue** – as noted above, it is recommended that a fee be applied for charging so that drivers pay for the service, to help ensure turnover and to recoup some costs. Evaluation and feedback on specific fee structures, and the revenue generated, would be part of the pilot project evaluation.

- **Public use and feedback** – monitoring the usage of the various sites, and comments and feedback from the public about the charging, would also be used to inform future installations and EV policy and programs.

- **Technology and vendor service** – the quality of equipment and services offered by vendors for maintenance would be evaluated as a part of procurement and monitoring, with the objective to minimize the burden on City staff resources in a cost-efficient manner.

## 3.2 Proposed Level 2 Pilot Project Components

### *3.2.1 Objective and Scope*

The proposed pilot project would have the objective of gaining experience with the provision of City-owned and operated Level 2 EV charging in a range of publicly accessible locations in Burnaby, in order to set future direction for a City program for this service area.

Two general types of installations of Level 2 charging are proposed:

1. Parking areas adjacent to existing City facilities, primarily (but not necessarily exclusively) intended to serve visitors to those facilities.
2. Street-side parking areas, either on City streets (curb-side) or in City owned surface parking lots, intended to serve visitors to nearby commercial/shopping areas and City amenities.

Geographically, the installations would be deployed on the basis of Burnaby's quadrants, to ensure EV charging is not overly concentrated in one area of the city, and to evaluate outcomes in a range of locations.

### *3.2.2 Phases and Timing*

The first phase of the project would target existing City facilities. The project would aim to select one or more sites in each of the quadrants of the city, and to install two to four Level 2 EV charge points at each location. Candidate sites would include community centres, recreation centres, libraries, and other facilities that have a high rate of public visitation. Charging infrastructure may be installed in surface parking or in underground parkades, depending on the site. Capital budget has been provided for this initial phase in the 2019 Provisional budget (Engineering Facilities), subject to Council's approval.

The second phase of the project would target street-side parking in commercial areas. Potential sites would likely be located within areas of high commercial activity and mixed-use, at curbside locations on streets that are not stripped of parking during rush hour, or in nearby surface lots. Locations may also be chosen to utilize street-light standards, with a similar approach as demonstrated in the City of New Westminster. The fact that Burnaby has retrofit most of the streetlights across the City with LED presents a possible opportunity to add another layer of sustainability to this initiative by utilizing spare electrical capacity for EV charging. The capital budget for this work would be determined and allocated at a later date.

The first phase is proposed to be undertaken in 2019, and the second phase in a subsequent year. In each case, the EV charging would be provided for a two-year "pilot" period, after which staff would report back to Council with outcomes and recommendations to continue or discontinue the program, and further specific recommendations for changes to or expansion of the program as appropriate.

### *3.2.3 Relationship of Pilot Project with EV Charging in New Capital Projects*

Installation costs of EV charging in new projects can be built into the budget and are typically lower than retrofitting. For this reason the proposed pilot project is focusing primarily on retrofitting EVSE in existing locations. Nevertheless, monitoring of EVSE installed in new capital projects, such as at the South Burnaby Ice Arena, will be included where possible in the data collected during the pilot project. Lessons learned from EVSE installed in both retrofit and new capital projects will inform the potential development of a broader City program for EV charging.

### *3.2.4 Budget and Resources*

Based on input from other municipalities, the cost of installing a dual-port Level 2 charging EVSE for facilities (i.e. two charge points) normally ranges from about $12,000 to $20,000, depending on site specific factors. On this basis, $140,000 has been allocated within the City's Provisional capital budget for 2019, in the Engineering (Facilities) Department, for Phase 1 of the pilot project, and pending further evaluation of potential sites these funds would be allocated based on cost-effectiveness as well as site location and usage factors. Fees collected would be used to help offset operating and capital costs.

For the second phase (street-side locations), budget would be allocated in a subsequent year's capital budget.

At this time it is anticipated that both phases of the pilot project can be undertaken with the City's existing staff resources. Based on the pilot project, recommendations for a broader program would be advanced in future.

### *3.2.5 Next Steps*

Pending Council's approval of this report and proposed capital budget allocation, the next steps would entail the following, beginning in early 2019, with the aim to have the systems in operation before the end of the year:

- Undertake more detailed scan of potential facilities sites to confirm feasibility and costs.
- Issue RFP for procurement of infrastructure and services.
- Install equipment and set up necessary accounts and contracts for monitoring and management of the systems.
- Operationalize public EV charging.
- Monitor usage and public feedback.
- Report back to Council after two years of operation.

Based on the findings of the pilot project, the proposed timing and details of the second phase of the pilot project (installation of Level 2 charging on or adjacent to streets in commercial areas) would be confirmed in a future report to Council, pending review of Phase 1 findings.

## 4.0 CONCLUSION

Public EV charging can play an important role in enabling the increased use of electric vehicles, with potential community benefits including reduced carbon emissions and air pollution, and is supported by the ESS and CEEP. Level 2 EV charging is the type most widely deployed in a wide range of public and private settings. In order to gain more experience about the benefits, costs and other considerations of providing public Level 2 charging, a pilot project is being proposed. The first phase, which would be initiated upon approval of this report, would involve installing Level 2 EV charging at a modest number of existing facilities in the City, and the

second (future) phase would involve installing Level 2 charging on or adjacent to streets in commercial areas. It is also proposed that opportunities for DC Fast Charging be identified and brought to Council's attention as third party funding opportunities arise. Therefore, it is recommended that Council approve the proposed pilot project, as outlined in Section 3 of this report.

Lou Pelletier, Director
PLANNING AND BUILDING

Leon Gous, Director
ENGINEERING

LT:sla
***Attachments***

cc: City Manager
Director Finance
Director Parks, Recreation and Cultural Services
Chief Building Inspector
Chief Librarian
City Clerk

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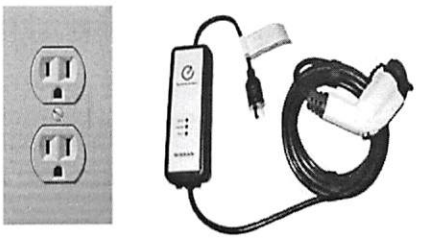
APPENDIX A

## Electric Vehicle Charging Types and Uses

### Level 1
(110 v)



Level 1 Charging:
- 3-8 km per h charge
- Useful charge in 8+ hours
- Still used in some home charging and workplace
- Not suitable for longer range vehicles due to long charge time

### Level 2
(208/240 v)

Level 2 Charging:
- 18-45km per h charge
- Useful charge in 2-6h
- Residential, workplace, retail and public charging (e.g. curbside)
- Amenable to load-sharing (energy management) systems

### DC Fast Charge
(500 VDC)

Direct Current (DC) Fast Charge:
- 90-150km per ½ h charge
- Useful charge in 15 min
- Highways, public charging "hubs" with fast turnover

**APPENDIX B**

**Map of Public EV Charging in Burnaby**
(from www.plugshare.com as of September 2018)

City of Burnaby

Meeting 2018 Nov 14

COMMITTEE REPORT

**TO:** CHAIR AND MEMBERS SUSTAINABLE CITY ADVISORY COMMITTEE

**DATE:** 2018 October 24

**FROM:** DIRECTOR PLANNING AND BUILDING

**FILE:** 13000 02
*Reference:* *Child Care*

**SUBJECT: RESPONSE TO A DELEGATION - DISCOVERY CASTLE CHILD CARE**

**PURPOSE:** To provide a response to the delegation's request to locate a child care centre in Edmonds Park.

**RECOMMENDATIONS:**

1. **THAT** staff be directed to inform the delegation that their proposal for a child care facility in Edmonds Park does not align with existing City policy and plans and to provide the delegation with zoning information to assist them in the search for a suitable location for their child care facility.

2. **THAT** a copy of this report be forwarded to Mr. Jack Tsai and Ms. Lida Madarshahian of Discovery Castle Child Care, 359 West 23 Street, North Vancouver, BC, V7M 2B6.

## REPORT

### 1.0 BACKGROUND

At its meeting of 2018 September 5, the Sustainable City Advisory Committee received a delegation from Mr. Jack Tsai and Ms. Lida Madarshahian of Discovery Castle Child Care. Discovery Castle is a privately-run child care business with two child care centres in North Vancouver. The delegation presented a proposal for a child care centre that would involve re-purposing an outbuilding on the grounds of Edmonds Park. The delegation is requesting approval from the City to use the building to develop a child care centre for children aged five and under. This report responds to the delegation's request.

### 2.0 PROPOSED LOCATION

The delegation is interested in renovating or rebuilding on the site of an old washroom building at Edmonds Park. The building in question was built in 1960 to provide washrooms, an electrical control room for the wading pool, storage space and a concession stand in what was formerly known as Richmond Park. The building was assessed by Facilities Management and

due to its age and condition was closed in 2017. Replacement of the washroom building is scheduled for the last phase of the site redevelopment of Edmonds Park. The replacement plan will begin in 2019 with demolition of the building. The new washroom building is anticipated to be open by 2020 pending approvals by the Parks Commission and Council. As such, the building in question is not available for other uses. It is further noted that the Edmonds Park Master Plan does not include provision of child care facilities on the Park grounds.

## 3.0 CITY'S APPROACH TO CHILD CARE

The City has long supported the availability and choice of child care options through the creation of supportive policies and zoning. The City's commitment is demonstrated through its five purpose-built child care centres achieved through the development process. Each centre is operated on a non-profit basis to assist with the affordability of child care. Local non-profit operators of the centres were selected by the City through a Request for Proposals process.

Currently, the City is working in partnership with the Burnaby School District to implement its Memorandum of Agreement for Child Care Facilities. Under the Agreement, up to twelve child care centres will be developed on school sites throughout the city. The City will be responsible for the capital costs of developing the centres. The School District will provide land and select and oversee locally-based non-profit child care providers to operate the centres. Non-profit operators will be selected through a Request for Proposals process. The first two centres, Capitol Hill and Montecito, are currently under construction and design work is underway on a third centre on the site of Stride Avenue Community School.

The City has also implemented zoning changes to facilitate more options for the establishment of licensed child care facilities (privately-run or otherwise) throughout the city. In September 2018, Council approved amendments to the Zoning Bylaw to permit child care facilities as an outright use in select commercial districts. Facility-based child care is now a permitted use in the C1, C2, C3, C4, C8 and C9 Commercial Districts in addition to the P1, P5 and P11 Institutional Districts and the RM1, RM2, RM3/RM3s, RM4/RM4s and RM5/RM5s Multi-Family Residential Districts. The City has also produced step-by-step guides to assist operators through the development process and provided information on child care needs in the city.

Although the delegation indicated that they would be willing to consider operating on a non-profit basis in the City park, the delegation's proposal does not align with the City's established approach to the provision of child care services. This model is based on a non-profit partnership approach that includes the selection of operators for City-owned child care facilities through a Request for Proposals process.

While finding suitable sites for child care is challenging, recent Zoning Bylaw changes noted above will provide more options for operators like Discovery Castle.

## 4.0 RECOMMENDATIONS

It is recommended that staff be directed to inform the delegation that their proposal for a child care centre in Edmonds Park does not align with existing City policy and plans and to provide the delegation with zoning information to assist them in the search for a suitable location for their proposed child care facility.

It is recommended that a copy of this report be forwarded to Mr. Jack Tsai and Ms. Lida Madarshahian of Discovery Castle Child Care, 359 West 23 Street, North Vancouver, BC, V7M 2B6.

Lou Pelletier, Director
PLANNING AND BUILDING

MM:sla:sa

cc: City Manager
City Clerk

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City of Burnaby

**Meeting 2018 Nov 14**

COMMITTEE REPORT

| | | | |
|---|---|---|---|
| **TO:** | CHAIR AND MEMBERS<br>SUSTAINABLE CITY ADVISORY COMMITTEE | **DATE:** | 2018 November 7 |
| **FROM:** | DIRECTOR PLANNING AND BUILDING | **FILE:**<br>*Reference:* | 76500 20<br>*Green Building Policy* |

**SUBJECT: GREEN BUILDING REQUIREMENTS FOR NEW PART 3 BUILDINGS**

**PURPOSE:** To seek Council's approval for the proposed green building requirements for new Part 3 buildings and to update Council on the status of policy development for other building types.

**RECOMMENDATIONS:**

1. **THAT** Council approve the proposed green building requirements for new Part 3 buildings, and authorize the preparation of the necessary Bylaw amendments, as outlined in this report.

2. **THAT** Council receive the updates on the status of policy development in progress, and planned future policy development, for other types of buildings, as outlined in Section 5 of this report for information.

## REPORT

### 1.0 INTRODUCTION

The report to the Sustainable City Advisory Committee dated 2018 February 06, approved by Council on 2018 February 26, outlined the context and process for developing policy to improve the environmental performance of new buildings in Burnaby, in support of Burnaby's approved sustainability policies and greenhouse gas (GHG) reduction targets. The green building policy is to focus primarily on energy efficiency and reducing GHG emissions, and to consider secondary environmental objectives. The first phase of work is focusing on larger buildings, defined in the BC Building Code as Part 3 (with residential, business, personal services or mercantile occupancies). Smaller residential buildings, defined in the BC Building Code as Part 9, and City buildings, will be addressed in future work.

The purpose of this report is to advance a proposed policy framework, including requirements for new Part 3 buildings, for Council's consideration, and to report on the status of ongoing policy development for the other building types noted above.

## 2.0 POLICY FRAMEWORK

### 2.1 Burnaby Strategic Plans

As outlined in the previous SCAC report (dated 2018-02-06), green building policy is aligned with the City's three sustainability plans (environmental, social and economic):

- The 2016 **Environmental Sustainability Strategy** (ESS) and **Community Energy and Emissions Plan** (CEEP), including the *Breathe, Build* and *Manage* goals and specific strategies and actions to improve the environmental performance of buildings. The CEEP also includes adopted targets for reducing community greenhouse gas (GHG) emissions.

- The 2011 **Social Sustainability Strategy**, with opportunities to improve affordability with reduced energy costs, and improve occupant comfort and health through more efficient building design and heating, ventilation and air conditioning systems.

- The 2007 **Economic Development Strategy**, to support Burnaby's green economy and the sustainability of businesses in Burnaby.

The proposed green building policy also aligns with the following goals and sub-goals of the **Corporate Strategic Plan**:

- **A Healthy Community**
  - Healthy Life – encourage opportunities for healthy living and well-being.
  - Healthy Environment – enhance our environmental health, resilience and sustainability.

- **A Dynamic Community**
  - Economic Opportunity – Foster an environment that attracts new and supports existing jobs, businesses and industries.
  - Community Development – Manage change by balancing economic development with environmental protection and maintaining a sense of belonging.

### 2.2 Provincial Policy and Building Code

The provincial Climate Leadership Plan identifies a goal for all buildings to be Net Zero Energy Ready[1] by 2032, in order to conserve energy and reduce carbon emissions.

As outlined in the Council report dated 2017-01-23, Burnaby is a signatory to the provincial Climate Action Charter, which includes a commitment to reducing and measuring corporate and community GHG emissions.

[1] Net-zero energy ready means that energy use is reduced to the extent that all the building's energy needs could be supplied by on-site renewable energy (e.g. solar).

The BC Building Code (BCBC) has required energy efficiency since 2008. Current BCBC requirements are typically met by adhering to specific types/standards of insulation, wall assemblies and windows (a "prescriptive" approach), to achieve greater energy efficiency. In 2017, an option for compliance with a "performance path" was added to the BCBC, in the form of a framework (Energy Step Code, ESC) which local governments could adopt. The stated objectives of this framework are to improve consistency in green building requirements among local governments, to foreshadow future BCBC updates, and to work toward a goal of net-zero energy ready buildings by 2032. More details about the BCBC and development of the framework are provided in the previous SCAC report.

This new framework applies to two categories of buildings as defined in the BCBC, depicted below.

Part 9 residential buildings include single, two-family, attached and apartment buildings up to three storeys and 600 square metres in footprint or less.

Part 3 buildings - residential or *business and personal services or mercantile occupancy* ("commercial") buildings larger than three storeys or 600 square metres in footprint, and include apartments, offices, shopping centres, hotels, and some mixed-used buildings.

The policy recommendations focus only on Part 3 (multi-family) residential and business and personal services or mercantile occupancy buildings (called "commercial" in this report). The Province is in the process of developing standards for public sector buildings, including hospitals, schools, colleges, care facilities, libraries and recreation centres, which are expected to be released in 2019. Accordingly, recommendations for adopting requirements for these additional building types may be advanced for Council's consideration in future.

## 3.0 PROPOSED GREEN BUILDING POLICY FOR PART 3 BUILDINGS

The proposed policy approach, as outlined below, is also summarized graphically in ***Appendix A***, and additional technical details are provided in ***Appendix B***.

### 3.1 Why it Matters

Green building policy is important for a variety of reasons, including:

- Nearly half (45%) of the city's community GHG emissions come from heating and cooling buildings.
- Energy efficient buildings cost less to heat and cool and are more comfortable.
- Buildings that use less resources, renewable energy systems and sustainable materials support a healthy environment.

- Buildings can last for many decades, so good design at the outset can save a lot of cost in energy and avoid improvements over time.
- Making existing and new buildings more "green" helps to support the economy, creating jobs as well as markets for innovative technology and materials.
- Energy efficient homes support health and affordability, especially for low income households that spend a greater proportion of their income on energy.
- Efficient and low-carbon buildings help us take action on climate change and meet the carbon targets adopted in Burnaby's Community Energy and Emissions Plan.

### 3.2 Building on Burnaby's Success

Today, Burnaby has many examples of green neighbourhoods and green buildings, including:

- Burnaby's award-winning UniverCity, a sustainable community that's home to over 4,000 people, has had green building requirements since 2010. They include energy and water conservation, rainwater management, native plants, and connection to a district energy system that will be fueled by carbon-neutral waste wood.

- A number of recent large developments, including Solo in Brentwood Town Centre, have low-carbon energy systems that use heat from the ground or the air to heat and cool the buildings, reducing carbon emissions by up to 80 percent compared to a standard development.

- City facilities including Edmonds Community Centre, Tommy Douglas Library, and the new South Burnaby Ice Arena (will) have many green features that save energy and water, and reduce operating costs.

### 3.3 Proposed Green Building Policy Components

Burnaby's ESS and CEEP include the long-term goal of "Buildings and infrastructure that have a positive impact on the environment", along with supporting strategies and actions that define achievable steps to make progress toward this goal. The proposed green building policy for Part 3 buildings consists of five key components that are supported by the applicable strategies and actions of the "Build" goal of the ESS and CEEP, as outlined below.

- ✓ **Energy modeling and air tightness testing** for all new buildings
- ✓ **Higher energy efficiency** requirements for buildings subject to rezoning
- ✓ **Flexibility** in energy efficiency performance requirements **to encourage low carbon energy** systems
- ✓ **Low carbon energy system policy** that supports a variety of efficient, cost-effective and properly maintained systems at the neighbourhood and building scale
- ✓ **Monitor and report energy use** over time (energy benchmarking) for all new Part 3 buildings

Each of these components is described below.

### *3.3.1 Energy Modeling and Air Tightness Testing*

Proposed green building policy component:

✓ **Energy modeling and air tightness testing** for all new buildings

Supported by the approved ESS & CEEP:

Build - Green Buildings and Energy

Burnaby Environmental Sustainability Strategy

Community Energy and Emissions Plan

*ESS 6.1, CEEP C3.1 – Big Move in Progress:* ***Meet updated energy performance building code requirements for new buildings***

ESS suggested action and associated Quick Start:

*b) Explore working with designers, builders, energy professionals, industry and the province to identify opportunities to optimize building code compliance.*

*Quick Start #14 – Review issues and possible opportunities to improve compliance, such as with requirements for review of development proposals by an energy professional.*

Energy modeling, which is becoming a common practice for larger buildings, involves using software to predict the energy used and (if required) GHG emitted annually, based on the design of the building's features and energy systems. Where specific energy efficiency performance targets are required, as proposed for Burnaby's green building policy, energy modeling is typically the method used to demonstrate compliance, along with air tightness testing.

Achieving higher levels of energy efficiency requires more air-tight buildings (while noting that fresh air is still delivered through efficient ventilation systems). Testing of air tightness can be done when construction is nearly complete and before occupancy, and helps to check some of the assumptions used in energy modeling[2]. The methodology for air tightness testing is well established, and some jurisdictions have had requirements for testing (and in some cases meeting specific targets) for many years.

Burnaby's proposed green building policy would require **energy modeling and air tightness testing for all new Part 3 buildings**. For rezoning, where specific energy or GHG performance standards would be required, as outlined in the sections below, the outcomes from the modeling and testing would be used to demonstrate compliance, through submission to the City of a report signed by an energy professional. See also ***Section 4.2.3.***

[2] Testing *after* occupancy is not ideal for compliance since occupant behavior can greatly affect the actual energy use.

### *3.3.2 Higher Energy Efficiency*

Proposed green building policy component:

✓ **Higher energy efficiency** requirements for buildings subject to rezoning

Supported by the approved ESS & CEEP:

Build - Green Buildings and Energy

Burnaby Environmental Sustainability Strategy

Community Energy and Emissions Plan

*ESS 6.2, CEEP C3.2 – New Big Move:* ***Improve building design and construction to meet higher levels of environmental performance***

CEEP suggested action and associated Quick Start:

*a) Consider policy approaches to encourage higher levels of energy efficiency than required in the BC Building Code, and reduced GHG emissions, in new larger (Part 3 BCBC) buildings, including: alignment with provincial Building Act and Step Code; integration with existing City development application policy; incentives such as grants for innovative projects.*

*Quick Start #15 – Develop policy recommendations for encouraging higher performing buildings through the City's development application process, based upon provincial Step Code or other appropriate performance-based criteria.*

Burnaby has used various approaches to seek higher standards of environmental performance through development review, including applying a standard equivalent to LEED Silver[3], UniverCity's green building requirements, and other standards for energy efficiency pursued by developers on their own initiative. Collectively, these approaches have demonstrated that higher standards of energy efficiency, using a variety of approaches, are both feasible and marketable.

Based on these prior experiences, new and up to date standards and approaches have been developed that reflect the more advanced state of practice of the green building industry today. Input regarding the proposed standards for energy efficiency has been garnered from energy professionals and development stakeholders, both regionally during development of the provincial framework, and in Burnaby specifically during consultation on Burnaby's approach to energy and green building design.

For Part 3 buildings subject to rezoning, Burnaby's proposed green building policy would require higher levels of energy efficiency, with the requirement of specific performance standards dependent on whether or not a low-carbon energy system was implemented, as discussed in the following section and as outlined in more technical detail in ***Appendix B***.

[3] The LEED™ standard, administered by the Canada Green Building Council, is based on points allocated for design features, and one of the drawbacks is that many developments can accrue points for factors such as proximity to transit, without necessarily addressing energy efficiency specifically.

### *3.3.3 Flexibility to Encourage Low Carbon Energy*

Proposed green building policy component:

✓ **Flexibility** in energy efficiency performance requirements **to encourage low carbon energy** systems

Supported by the approved ESS & CEEP:

**Build** - Green Buildings and Energy

Burnaby Environmental Sustainability Strategy

Community Energy and Emissions Plan

*ESS 6.6, CEEP C3.6: Encourage a shift to renewable energy for buildings where possible*

ESS suggested action:

*a) Encourage the use of renewable energy on large site developments as a component of a green energy opportunities review.*

Nearly half (45%) of the Burnaby's total community GHG emissions come from heating and cooling buildings, and reducing these emissions is critical for meeting Burnaby's community GHG targets. Therefore, it is important to increasingly shift toward the use of low-carbon, renewable energy, in addition to improving energy efficiency as outlined above. Fortunately, there are a variety of approaches and technologies available to support this shift.

While energy use and emissions can and should both be reduced in an integrated manner, allowing some flexibility in energy efficiency standards to encourage low carbon energy can reduce upfront costs of these advanced systems, make the choice of a low-carbon energy system more feasible, and create more options for designs that may be appropriate for different sites. For example, a particular site may be ideally suited to a geo-exchange system due to the geology. On another site, the designer may want to pursue an architectural design that lends itself more easily to a highly efficient building envelope. The proposed approach would allow for choices that support multiple objectives including creative urban design, energy efficiency, and reducing GHG emissions. This approach was vetted and well supported by the development industry and low carbon energy system providers consulted in development of the proposed policy.

For Part 3 buildings subject to rezoning, Burnaby's proposed green building policy would allow buildings that implement an approved low-carbon energy system to meet an energy efficiency level that, while still a significant improvement over current minimum standards, is slightly lower than would otherwise be required. The specific proposed energy performance requirements, GHG limits and low carbon energy system details are outlined in ***Appendix B***.

### *3.3.4 Low-carbon Energy System Policy*

Proposed green building policy component:

✓ **Low-carbon energy system policy** that supports a variety of efficient, cost-effective and properly maintained systems at the neighbourhood and building scale

Supported by the approved ESS & CEEP:

Build - Green Buildings and Energy

Burnaby Environmental Sustainability Strategy

Community Energy and Emissions Plan

*CEEP C3.5, ESS 6.5: Investigate district and energy sharing opportunities and encourage their development in appropriate locations*

CEEP suggested actions:

a) *Explore developing policies to encourage or require investigation and development, where appropriate, of District Energy systems in new developments.*
b) *Explore opportunities to use existing waste heat sources for District Energy systems.*

The proposed low-carbon energy system policy outlines criteria for approvable systems in support of the flexible option for energy efficiency performance as outlined in Section 3.3.3, and would include district and energy sharing systems, as referenced in the ESS and CEEP, as well as building-scale low carbon systems. For the purpose of Burnaby's proposed green building policy, a **low-carbon energy system** (LCES) is defined as *a professionally operated and maintained, highly efficient mechanical system that supplies a building's space heating, cooling and domestic hot water heating demand primarily from renewable energy sources, and meets defined GHG limits.*

LCES technologies include, but are not limited to, air and ground source heat pump systems, waste heat recovery systems, biomass and solar energy systems, all of which have previously been implemented in Burnaby and neighbouring municipalities. A LCES can be implemented at the scale of a single building, multiple buildings on a single site (such as the geothermal system at the Solo development in Brentwood Town Centre), or to service a neighbourhood (such as the Corix-owned neighbourhood energy utility at SFU). LCES can significantly reduce GHG emissions and be cost-effective for users. For example, the Corix neighbourhood energy utility at SFU is expected to reduce emissions from both the campus and residential development by 80%, and has been well supported by residents and buyers. More technical details about LCES are outlined in ***Appendix B***, and additional technical policy criteria are outlined in an LCES policy available in the Planning and Building Department that would be provided to applicants, to support the provisions outlined in Sections 3.3.2. and 3.3.3.

### *3.3.5 Monitor and Report Energy Use*

Proposed green building policy component:

✓ **Monitor and report energy use** over time (energy benchmarking) for all new Part 3 buildings.

Supported by the approved ESS & CEEP:

Build - Green Buildings and Energy

Burnaby Environmental Sustainability Strategy

Community Energy and Emissions Plan

*CEEP C3.3: Develop policies and programs to measure and communicate how much energy a building uses, for example using energy audits and EnerGuide labels and/or energy benchmarking*

CEEP suggested action:

*c) Consider developing policy to encourage energy benchmarking (measuring and comparing energy performance) for new and existing commercial and institutional buildings.*

Energy benchmarking (tracking and reporting energy use) is a simple and low-cost action that can provide valuable information for monitoring implementation of the green building requirements at a community scale, and encouraging energy efficient operations by building owners. It addresses the maxim that "what gets measured gets managed". Energy benchmarking would be an administrative requirement for all new Part 3 buildings, in which the building designer would set up an account through a free online reporting tool (Energy Star Portfolio Manager), the City would be designated as a reviewer of the account, and energy usage data from linked utility accounts would occur annually and for the most part automatically. More information is provided in ***Appendix B***.

## 4.0 CONSULTATION AND IMPLEMENTATION

### 4.1 Consultation

In developing the proposed green building policy and requirements, staff engaged with representatives from the development industry, including the Urban Development Institute and architects and engineers active in Part 3 building development in Burnaby. Several meetings and workshops were held and an online questionnaire was circulated to these stakeholders to seek further specific feedback and input. The proposed framework was adjusted in response to concerns including costs, design challenges and the need for timelines sufficient for the industry

to prepare, and circulated to additional stakeholders[4]. Response to the revised framework, as reflected in this report, was generally supportive. As such, the proposed approach is believed to offer a good balance between the interests of the development industry, those of building occupants and ratepayers, and community sustainability goals.

## 4.2 Implementation

### *4.2.1 Bylaw Requirements: Energy Modeling and Air Tightness Testing*

The proposed requirements for energy modeling and air tightness testing, applicable to all new Part 3 buildings, would be advanced as a Building Bylaw amendment (referencing a requirement to conform to Part 8 of the National Energy Code for Buildings, as noted in ***Appendix B***). Upon Council adoption, all new Building Permits issued for applicable Part 3 buildings would be required to meet the amended Bylaw.

### *4.2.2 Rezoning Requirements: Higher Energy Efficiency, Flexibility for Low-carbon Energy Systems (LCES), LCES Policy and Energy Benchmarking*

Standards for higher levels of energy efficiency, and flexible provisions and policy supporting low carbon energy systems would be implemented through the rezoning review process, and considered to be requirements of Council with approval of this report. Energy benchmarking would be considered an administrative requirement of rezoning. The specific framework and technical details of these requirements are further outlined in ***Appendix B***.

These rezoning requirements are proposed to take effect on 2019 July 1, the date conveyed to stakeholders in May 2018. This timeline is intended to give industry enough lead-time to prepare and adapt to new practices. At that time, new applications would be required to comply, except for rezoning applications that have already advanced past Second Reading. This is to account for the possibility that buildings that have advanced to a more detailed design stage may have difficulty complying with the new requirements. Rezoning applications received in the interim will, however, be encouraged to comply with the proposed policy framework if feasible.

### *4.2.3 Compliance*

Compliance with all requirements as outlined in this report would be ensured primarily through reliance on qualified professionals. Energy modeling of the building's energy and GHG performance (if applicable) would be signed off by a professional engineer and a report would be submitted to the City that documents that the building meets or exceeds the City's requirements. Air tightness testing would also be required when the building is nearing completion, as air leakage rates would need to validate the energy modeling. Submission of a final report

[4] The proposed policy was circulated to stakeholders including: individual industry professionals previously engaged, Urban Development Institute, Commercial Real Estate Development Association, Building Owners and Managers Association of BC, FortisBC, Fortis Alternative Energy Services, Smartforme, Corix, BC Hydro, BC Institute of Technology, Greater Vancouver Home Builders' Association, Metro Vancouver, the BC Building Safety Standards Branch, BC Housing, Engineers and Geoscientists BC, Architects of BC, Burnaby Board of Trade, and the Federation of Canadian Municipalities.

confirming the targeted energy efficiency, GHG limits and LCES criteria (if applicable) have been met would be a condition of the issuance of an occupancy permit.

### *4.2.4 Next Steps*

Upon Council's approval of this report and prior to the proposed requirements coming into effect, staff would undertake the following:

- Work with the City Solicitor to advance the necessary Bylaw amendments to implement the requirements for energy modeling and air tightness testing at the earliest opportunity.
- Develop resources as needed to further clarify application submission and compliance requirements.
- Communicate the pending policy requirements, and outline development application submission requirements to the development industry and on the City's website.
- Ensure staff have appropriate knowledge to process applications in line with the new requirements.

### *4.2.5 Monitoring and Updating the Green Building Requirements*

Staff will monitor the implementation of the proposed green building requirements in new Part 3 development, including the general response of the market and industry, stakeholder feedback, the regulatory framework at provincial and federal levels, and specific outcomes and achievements. As noted above, energy benchmarking will also be used for monitoring general outcomes. In future, both minor adjustments and more significant updates are anticipated in order to respond to this dynamic sector and ensure progress toward the City's sustainability goals.

## 5.0 FUTURE PHASES OF GREEN BUILDING POLICY DEVELOPMENT – OTHER BUILDING TYPES AND ENVIRONMENTAL OBJECTIVES

### 5.1 Part 9 Buildings

Single and two-family homes, attached homes and low-rise apartments up to three storeys and less than 600m$^2$ in footprint (Part 9 in the BC Building Code) account for a significant proportion of the City's housing stock, energy use and GHG emissions. Development of green building policy for these buildings would be initiated in early 2019, and would include engaging builders in this sector. Proposed communication and engagement approaches may be modeled on successful approaches already undertaken in other jurisdictions.

### 5.2 Other Environmental Objectives

As outlined in previous reports to Council, energy and GHG emissions were identified as the highest priorities for Burnaby's green building policy. However, additional important environmental objectives can also be achieved through new building design and construction, such as water conservation, construction and demolition waste reduction, sustainable (i.e. recycled, low-carbon, low-emitting) building materials and finishes, and ecosystem/site

protection and enhancement. Specific metrics and requirements in such areas may be defined for future green building policy updates. In the meantime, the approved Environmental Sustainability Strategy and existing supporting policy will be referenced to address these and other opportunities. Through the development review process, proponents of large buildings are already asked to prepare a submission outlining how their project addresses and responds to the specific and relevant goals, strategies and actions of the ESS. Opportunities may be further considered to standardize or formalize this process to enhance clarity and consistency.

### 5.3 City Buildings

Development of the City's own buildings offers an important opportunity to demonstrate leadership in sustainability, foster learning, and support the green building industry. Burnaby has previously implemented green features in civic buildings, including geothermal heating at the Tommy Douglas library, and solar thermal heating of the pool at Bonsor Recreation Centre. With Council's approval in 2016 of the ESS and CEEP, signing the Climate Action Charter in 2017, and now introduction of ESC and Burnaby's green building policy, there is an opportunity to build on these previous successes and demonstrate next-level leading energy and GHG performance, and to seek opportunities for long-term operational cost savings.

The City's approved ESS and CEEP, and the implementation plan approved by Council in 2017, identify corporate sustainability, including in development of new City buildings, as a high priority and part of Phase 1 implementation. A "Quick Start" in support of ESS Manage goal 10.3 also notes that the City will *"review upcoming civic building projects for opportunities to demonstrate energy-efficient passive design and net-zero-energy."*

City administrative buildings would need to meet the green building requirements for Part 3 office buildings. Other building types do not have defined provincial energy performance targets, however some are in development for public sector buildings, including recreation centres and libraries. Pending review, these targets may be applied to the development of such facilities. Other building types without defined energy performance standards, such as ice rinks and fire halls, may require a different approach to address their unique uses and energy and GHG considerations.

In general, new City buildings would be intended to target an achievable standard appropriate for the building type, and in consideration of costs, benefits, design and building use, while demonstrating leadership in accordance with Council's direction noted in the ESS and CEEP. Future work and reports to Council will be undertaken to advance further specific policy and practice in this area, in support of the City's commitment to sustainability.

### 5.4 Existing Buildings

In future, approaches to encourage energy efficiency retrofits for existing buildings will be considered, as supported by the ESS and CEEP. Possible approaches may include, but are not limited to, energy benchmarking requirements, energy efficiency requirements for significant renovations, education campaigns, incentive programs, demonstration and pilot projects, and profiling and celebrating successes and leadership. These initiatives could include the City

playing a lead and/or supporting role, along with partnerships with agencies such as utilities, BC Housing, and other levels of government. Policy and/or programs for existing buildings would be considered and advanced for Council's consideration at a later date, following completion of green building policy for Part 9 buildings.

## 6.0 CONCLUSION

This report sets out a proposed green building policy framework for new Part 3 buildings in Burnaby that can reduce GHG emissions by 70% or more, lower energy use and costs, and improve health and comfort for building occupants.

Building on past successes, Council's approval of the Environmental Sustainability Strategy (ESS) and Community Energy and Emissions Plan (CEEP), together with the introduction of an updated provincial framework, have helped set the stage for the next generation of leadership in green buildings in Burnaby. The proposed approach outlined in this report was based on consideration of a range of relevant issues, available research and consultation with stakeholders including professionals in buildings and energy systems design, developers, other local governments and the Province. The new standards for rezoning would come into effect 2019 July 1 for new Part 3 buildings, and basic requirements for energy modeling and air tightness testing would apply as soon as Bylaw amendments are approved, in early 2019.

This report also proposes to develop, in future, requirements for Part 9 residential buildings, which include single family homes and multi-family homes up to three storeys, and policy for City buildings to demonstrate leadership.

Collectively, these initiatives and policy will make progress toward the goals and vision of the ESS and CEEP, and support social and economic sustainability.

It is recommended that Council approve the proposed requirements for new Part 3 buildings as outlined in this report, and authorize staff to work with the City Solicitor to make the necessary Bylaw amendments as outlined in this report.

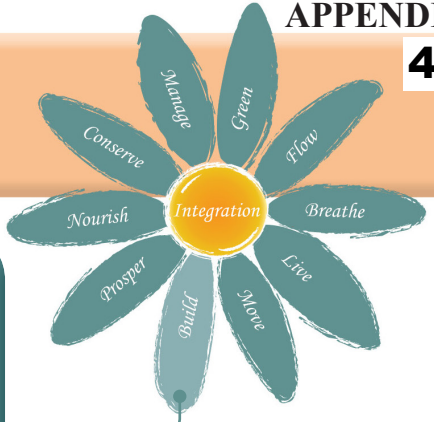
Lou Pelletier, Director
PLANNING AND BUILDING

LT:sla:sa
***Attachments***

cc: City Manager
Director Corporate Services
Director Engineering
Chief Building Inspector
City Clerk
Director Finance
Director Parks, Recreation and Cultural Services
Director Public Safety and Community Services
City Solicitor

*R:\Long Range Clerical\DOCS\LT\Committee Reports\2018\Green Building Requirements for New Part 3 Buildings (2018.11.14).docx*

# Build Green Buildings and Energy




## Why it matters:

- Nearly half (45%) of the city's community carbon emissions come from heating and cooling buildings.
- Energy efficient buildings cost less to heat and cool and are more comfortable.
- Buildings that use less resources, renewable energy systems and sustainable materials support a healthy environment.
- Buildings can last for many decades, so good design at the outset is important
- Making existing and new buildings more "green" helps to support the economy, creating jobs as well as markets for innovative technology and materials.
- Energy efficient homes support health and affordability, especially for low income households.
- Efficient and low-carbon buildings help us take action on climate change and meet our GHG reduction targets.

## Did you know?

Burnaby has many examples of green neighbourhoods and green buildings.

- Burnaby's award-winning UniverCity, a sustainable community home to over 4,000 people, has had green building requirements since 2010, including energy conservation and connection to a district low-carbon energy system.
- Solo in Brentwood Town Centre, among other recent developments, has a low-carbon energy system that uses heat from the ground to heat and cool the buildings.
- City facilities including Edmonds Community Centre, Tommy Douglas Library, and the new South Burnaby Ice Arena (will) have many green features that save energy and water, and reduce operating costs.

**GOAL:**
Buildings and infrastructure that have a positive impact on the environment.

Burnaby Environmental Sustainability Strategy

Community Energy and Emissions Plan

**In 2016, Council approved Burnaby's ESS and CEEP, including strategies for green and low-carbon buildings.**

READ MORE AT burnaby.ca/ess

# Proposed Green Building Policy (2019)

As outlined in this report, Burnaby's green building policy for Part 3 (large) buildings consists of five key components, supported by the Council-approved ESS and CEEP strategies listed:

- **Energy modeling and air tightness testing** for all new buildings

  ESS 6.1, CEEP 3.1 — Big Move in Progress: Meet updated energy performance building code requirements for new buildings

- **Higher energy efficiency** requirements for buildings subject to rezoning

  ESS 6.2, CEEP 3.2 — New Big Move: Improve building design and construction to meet higher standards of environmental performance

- **Flexibility** in energy efficiency performance requirements to encourage low carbon energy systems.

  ESS 6.6, CEEP C3.6 — Encourage a shift to renewable energy for buildings where possible

- **Low-carbon energy system policy** that supports a variety of efficient, cost-effective and properly maintained systems at the building and neighbourhood scale

  ESS 6.5, CEEP C3.5 — Investigate district and energy sharing opportunities and encourage their development in appropriate locations

- **Monitor and report energy use** over time (energy benchmarking) for all new Part 3 buildings

  CEEP C3.3 — Develop policies and programs to measure and communicate how much energy a building uses, for example… energy benchmarking

**APPENDIX B**

**GREEN BUILDING POLICY (PART 3 BUILDINGS) - TECHNICAL DETAILS**

## Overview

The proposed green building requirements are summarized in more technical terms as follows. The requirements for energy efficiency (Steps) reference the amended BC Building Code for Energy Step Code (ESC), Sections 9.36 and 10.2.

Under the City's green building policy, a proponent of a Part 3 building (including residential, or business, personal services or mercantile occupancies) has the following options:

1) Develop in accordance with prevailing zoning, and undertake energy modeling and air tightness testing (Step 1 of the Energy Step Code);

2) Seek rezoning, under which two options are offered:
   a. Meet Step 3 of the Energy Step Code; or
   b. Meet Step 2 of the Energy Step Code, with implementation of a low carbon energy system and a greenhouse gas intensity (GHGI) limit of 6kg/$m^2$/y.

These initial requirements would likely be adjusted in future to achieve higher levels of energy efficiency and lower carbon emissions, within approximately two to five years. The specific date of future updates would be confirmed later, based on monitoring. It is anticipated that wood-frame buildings may be subject to an earlier update for requiring higher standards, based on industry input and research indicating these building types can more easily accommodate higher energy performance requirements at more modest cost.

More details regarding the components of the policy, including energy modeling, air tightness testing, energy efficiency performance metrics, GHG limits, low-carbon energy systems, and energy benchmarking, are further explained in sections below.

## Energy Modeling

All Part 3 buildings would be required to undertake energy modeling and air tightness testing in order to demonstrate compliance with the required Step of ESC. Energy modeling is becoming a common best practice in Part 3 buildings already, and helps to predict the future energy use of various building and energy system design choices.

**Requirement:** All Part 3 projects will be required to produce an energy model of the building to estimate and confirm that it will meet or exceed minimum energy targets and (if applicable) GHG limits. The ESC references the City of Vancouver's Energy Modeling Guidelines to undertake this modeling. Energy models will be required to be professionally signed and sealed, and submitted to the City in support of an application for all Part 3 buildings.

## Air Tightness Testing

Air tightness testing is undertaken when the building is nearing completion and is used to ensure that the building envelope does not have air leaks that would significantly affect energy

performance[1]. Specific air leakage rates are not specified in ESC for Part 3 buildings, however, designers must verify that leakage rates assumed in the energy modeling are met or exceeded. This practice is new to BC, but is required in other jurisdictions. Compliance with ESC is demonstrated in the building's design, and through air tightness testing, but not actual energy performance once the building is occupied.

**Requirement:** Air leakage rates are one of the inputs to energy modeling. Developments will be required to conduct a test of actual air leakage rates near the time of the building's completion, to confirm the building's performance meets or exceeds modeled performance with regard to air tightness. Designers will be encouraged to assume conservative air leakage rates, to hire contractors experienced in ensuring necessary air tightness, and to perform mid-stage diagnostic testing, in order to avoid failing to meet the required Step of ESC due to unexpected air leakage, and delays to address and mitigate air leaks to the satisfaction of the Chief Building Official.

## Energy Efficiency Performance Metrics

Energy efficiency of buildings can be improved in many different ways. The Energy Step Code establishes a performance-based approach, which states the required performance metrics, but does not stipulate how a building is to achieve this outcome. This type of approach is generally preferred by designers and builders, as it allows for a variety of creative approaches and designs.

To comply with Burnaby's proposed green building policy, the key metrics are Thermal Energy Demand Intensity (TEDI), Total Energy Use Intensity (TEUI), and, for projects incorporating low carbon energy systems, Greenhouse Gas Intensity (GHGI) as explained in the following section. The specific TEDI and TEUI requirements are outlined in the amended BC Building Code for Energy Step Code (ESC), Sections 9.36 and 10.2.

**Summary of ESC Performance Metrics, from BC Housing ESC Design Guide:**

| Thermal Energy Demand Intensity (TEDI) | Total Energy Use Intensity (TEUI) |
|---|---|
| *Thermal Energy Demand Intensity* is a measure of the total heating energy necessary to maintain a comfortable indoor temperature over the course of a year, measured and expressed in kWh/m²/year. The metric considers both passive gains (e.g. incoming solar radiation, heat generated by indoor appliances) and losses (e.g. heat losses through the building envelope), as well as any energy needed to mechanically heat a building or warm incoming ventilation air.<br><br>To achieve a TEDI target, professionals must maximize gains and minimize losses as much as possible, and reduce reliance on mechanical systems.<br>Strategies for achieving TEDI targets:<br>• *Minimize heat loss*<br>• *Consider occupant and unit density*<br>• *Optimize fenestration*<br>• *Increase building R-values*<br>• *Reduce thermal bridging*<br>• *Increase airtightness*<br>• *Recover heat during ventilation* | *Total Energy Use Intensity* is a measure of the total amount of energy a building uses over the course of a year, per unit of building area. The metric considers all energy used in a building, including plug loads (e.g. lighting, appliances) and process loads (e.g. elevators, mechanical systems, fans). Like TEDI, TEUI is measured and expressed in kWh/m²/year.<br><br>Strategies for achieving TEUI targets:<br>• *Consider occupant and unit density*<br>• *Optimize fenestration*<br>• *Increase airtightness*<br>• *Recover heat during ventilation*<br>• *Separate heating and cooling from ventilation* |

[1] For more background see: Building Science Corporation, BSD-040: Airtightness Testing in Large Buildings. https://buildingscience.com/documents/digests/bsd-040-airtightness-testing-in-large-buildings

## Greenhouse Gas (GHG) Limits

The BCBC provisions for energy efficiency outlined above (Energy Step Code) do not directly address GHG emissions, as the focus is on reducing overall energy demand, while allowing for any mix of fuel systems for heating and cooling. However, this limitation may result in negligible or modest GHG reduction, depending on the type of fuel used for heating and cooling.

For example, as shown in ***Table B1*** below, a multi-unit residential building (MURB) constructed to meet Step 2 of ESC may achieve about a 10% reduction in GHG emissions if it uses natural gas for all space heating and domestic hot water, whereas the same building supplied by a low-carbon energy system could achieve a 70% GHG reduction.

***Table B1:*** *Estimated potential GHG reduction for a multi-family residential building at ESC Steps 2 and 3 for a building supplied with different energy sources.*[2]

| | Expected GHGI emissions intensity (kg/m2/ year) | Percent GHG reduction from baseline |
|---|---|---|
| Baseline: typical outcome of current requirements for Part 3 building (BC Building Code) | 20 | N/A |
| High rise MURB* using natural gas for heat (common areas and suites) and domestic hot water at Step 2 | 18 | 10 |
| High rise MURB* using natural gas for heat (common areas and suites) and domestic hot water at Step 3 | 15 | 25 |
| High rise MURB using natural gas for common area heating and domestic hot water and electric heating of suites, at Step 2 or 3 | 9 | 55 |
| High rise MURB* using low-carbon district energy for heat (common areas and suites) and domestic hot water at Step 2 | 6 | 70 |
| High rise MURB* using low-carbon district energy for heat (common areas and suites) and domestic hot water at Step 3 | 5 | 75 |
| High rise MURB* using exclusively electricity for all heat and domestic hot water at Step 2 or 3 | <2 | >90 |

**MURB means multi-unit residential building*

For these reasons Burnaby's proposed green building policy for Part 3 buildings includes provisions to encourage the use of low carbon energy systems. GHG emissions are typically measured in GHG intensity (GHGI), the total amount of GHGs emitted by a building's energy use over a year, a direct measure of environmental impact that can ensure a specific, measurable and consistent standard.

A GHGI of 6 kg/m$^2$/y would be applied at the outset[3] and would apply only to projects seeking the low-carbon option offered through rezoning. As shown in Table B1, implementing a GHGI of 6 (regardless of the Step) would result in 70% GHG reduction. In future, the GHGI could be updated and applied more broadly, to further reduce community carbon emissions. Compliance with the GHGI would be demonstrated through energy modeling, which can be done together

[2] Sources: (1) Baseline: aggregate value for all building types, based on City of Vancouver Building Bylaw requirements pre-2016; (2) MURB scenarios: ReShape Strategies, Promises and Pitfalls of New Green Building Policies, IDEA Q2 2018.

[3] This value was informed by approaches undertaken in other jurisdictions, available studies, and consultation with stakeholders. As shown in Table B5, a GHGI of 6 (regardless of the applicable Step).

with the energy efficiency performance requirements. Further compliance after occupancy is not proposed at this time, but energy benchmarking, explained below, would provide feedback to allow evaluation of GHGI outcomes broadly. Implementation of the GHGI could also support carbon accounting for potential offsetting of the City's corporate emissions, an opportunity currently being investigated.

## Low Carbon Energy Systems (LCES) Policy

An LCES can be described as *a professionally operated and maintained, highly efficient mechanical system that supplies a building's space, heating, cooling and domestic hot water heating demand primarily from renewable energy sources, and meets defined GHG limits.* Specific technical criteria for LCES are outlined in a policy that would be provided to applicants.

A variety of types of systems could be chosen, and supportable LCES technologies include, but are not limited to, air and ground source heat pump systems, waste heat recovery systems, biomass systems, and solar collectors, all of which have previously been implemented in Burnaby and neighbouring municipalities. In Burnaby an LCES would typically be owned and operated by:

- A utility at the building or site scale, such as Solo District's geo-exchange system, owned/operated by FortisBC Alternative Energy Services;
- A utility at the neighbourhood scale, such as the SFU Neighbourhood Energy Utility, owned/operated by Corix;
- A user or building owner, provided that specific conditions are met to ensure professional standards of maintenance.

The LCES policy is intended to deliver not only low carbon emissions but also superior energy efficiency, comfort and cost-efficiency for users. Therefore, the proposed policy includes an efficiency standard (*co-efficient of performance*) and a requirement that the LCES be professionally operated and maintained. These provisions would discourage certain types of systems, such as some less efficient natural gas boilers, and electric baseboard resistance heating. Although some of these systems can be cheap to install, they can incur higher operating costs compared to other available systems, particularly at the lower steps of ESC and in consideration of future utility rate increases.

Some types of energy systems also cannot provide cooling in an efficient manner, which is becoming an important priority with climate change effects already being experienced. At this time, the alternative Step 3 rezoning option does not propose to restrict systems choices or fuels, allowing for more flexibility in the policy implementation. As part of ongoing monitoring, staff would evaluate this approach and future consideration may be given to further means to encourage more efficient energy systems more broadly that can deliver benefits including cooling and improved efficiency.

Further technical criteria supporting the LCES policy are available in the Planning and Building Department in a document that would be provided to applicants.

## Energy Benchmarking

Energy benchmarking (tracking and reporting energy use) is the process of regularly tracking the energy use in a building and comparing it to the building's own historical energy use, and the energy use of other similar buildings. It is typically used for larger buildings including commercial, industrial, institutional and multi-family residential buildings. At least 20% of commercial floor space in Canada is already being voluntarily benchmarked, and 23 North American cities, three states and the province of Ontario require benchmarking. Most programs use Energy Star Portfolio Manager, which is provided for free online by Natural Resources Canada.

Energy benchmarking is supported by Burnaby's approved CEEP[4]. It is a low-cost and low-effort action that can provide valuable information for monitoring. Benchmarking is not a requirement of Energy Step Code, but would support Burnaby's green building policy for Part 3 buildings, by providing a means for the City to evaluate energy policy effectiveness, providing feedback to support informed decision making by building owners and managers to optimize energy system performance, and reducing energy costs and GHG emissions. Energy benchmarking would be required for all new Part 3 buildings as an administrative requirement of Burnaby's green building policy

To set up energy benchmarking, the building designer (engineer/architect) would input basic information about the building's design and systems, link utility accounts, and designate the City of Burnaby as a "reviewer". To comply with the City's requirement, the developer would submit a short report/memo to the City confirming these actions have been carried out and providing any necessary account information for City access. Supported by BC Hydro and Fortis programs, anonymized energy usage data would automatically be reported. Building owners/managers could access the data and update building system information but would not be required to do anything other than simply allow the annual reporting to occur. City staff would have access to download and analyze this data as needed to inform general reporting and monitoring of policy outcomes. As part of implementation, methods to ensure continued annual reporting may be explored, to ensure the data continues to flow to the City after the project is handed off to a strata.

The energy data reported to the City would not be used for compliance of individual projects with Step Code/GHG policy or bylaws. At this time, the energy benchmarking requirement is proposed to be a City administrative requirement applicable to new Part 3 buildings, for City review but not public disclosure.

[4] CEEP Build Strategy C3.3: *Develop policies and programs to measure and communicate how much energy a building uses, for example using energy audits and EnerGuide labels and/or* ***building benchmarking***.