



## **REQUEST FOR PROPOSALS**

**Title:** **Greenhouse Gas Emissions Modelling for Community Climate Action Strategy Update**

**Reference No.:** 1220-030-2020-014

**FOR PROFESSIONAL SERVICES (CONSULTANT)**

(General Services)  
Issue Date: April 22, 2020

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## REQUEST FOR PROPOSALS

### 1. INTRODUCTION

#### 1.1 Purpose

The purpose of this request for proposals (“RFP”) is to select a service provider (or service providers) to perform the services (“Services”) described in Schedule A.

#### 1.2 Definitions

In this RFP the following definitions shall apply:

“**BC Bid Website**” means [www.bcbid.gov.bc.ca](http://www.bcbid.gov.bc.ca);

“**City**” means the City of Surrey;

“**City Representative**” has the meaning set out in section 2.5;

“**City Website**” means [www.surrey.ca](http://www.surrey.ca);

“**Closing Time**” has the meaning set out in section 2.1;

“**Contract**” means a formal written contract between the City and a Preferred Proponent to undertake the Services, the preferred form of which is attached as Schedule B;

“**Evaluation Team**” means the team appointed by the City;

“**Information Meeting**” has the meaning set out in section 2.2;

“**Preferred Proponent(s)**” means the Proponent(s) selected by the Evaluation Team to enter into negotiations for a Contract;

“**Proponent**” means an entity that submits a Proposal;

“**Proposal**” means a proposal submitted in response to this RFP;

“**RFP**” means this Request for Proposals;

“**Services**” has the meaning set out in Schedule A;

“**Site**” means the place or places where the Services are to be performed; and

“**Statement of Departures**” means Schedule C-1 to the form of Proposal attached as Schedule C.

## 2. INSTRUCTIONS TO PROPONENTS

### 2.1 Closing Time and Address for Proposal Delivery

A Proposal should be labelled with the Proponent's name, RFP title and reference number. A Proposal should be submitted in the form attached to this RFP as Schedule C – Form of Proposal.

The Proponent should submit a Proposal by email electronically in a single pdf file which must be received by the City by email at: [purchasing@surrey.ca](mailto:purchasing@surrey.ca)

**on or before the following date and time**

**Time: 3:00 p.m., local time**

**Date: May 13, 2020**

**(the “Closing Time”).**

**PDF emailed Proposals are preferred** and the City will confirm receipt of emails. Note that the maximum file size the City can receive is 10Mb. If sending large email attachments, Proponents should phone [604-590-7274] to confirm receipt. A Proponent bears all risk that the City's computer equipment functions properly so that the Proposal is received on time.

### 2.2 Information Meeting

An information meeting may be hosted by the City Representative to discuss the City's requirements under this RFP (the “**Information Meeting**”). While attendance is at the discretion of Proponents, Proponents who do not attend will be deemed to have attended the Information Meeting and to have received all of the information given at the Information Meeting. At the time of issuance of this RFP a meeting has not been scheduled.

### 2.3 Late Proposals

Proposals received after the Closing Time will not be accepted or considered. Delays caused by any delivery, courier or mail service(s) will not be grounds for an extension of the Closing Time.

### 2.4 Amendments to Proposals

Proposals may be revised by written amendment, delivered to the location set out in Section 2.1, at any time before the Closing Time but not after. An amendment should be signed by an authorized signatory of the Proponent in the same manner as provided by section 3.3. E-mailed amendments are permitted, but such amendment should show only the change to the proposal price(s) and should not disclose the actual proposal price(s). A Proponent bears all risk that the City's equipment functions properly so as to facilitate timely delivery of any amendment.

### 2.5 Inquiries

All inquiries related to this RFP should be directed by email to the person named below (the “**City Representative**”). Information obtained from any person or source other than the City Representative may not be relied upon.

Name: Richard D. Oppelt, Manager, Procurement Services

Address: City of Surrey, Surrey City Hall  
Finance Department – Procurement Services Section  
Reception Counter, 5<sup>th</sup> Floor West  
13450 – 104 Avenue, Surrey, B.C., V3T 1V8, Canada

Business E-mail: [purchasing@surrey.ca](mailto:purchasing@surrey.ca)

Reference: 1220-030-2020-014

Inquiries should be made no later than seven (7) business days before Closing Time. The City reserves the right not to respond to inquiries made within seven (7) business days of the Closing Time. Inquiries and responses will be recorded and may be distributed to all Proponents at the discretion of the City.

Proponents finding discrepancies or omissions in the Contract or RFP, or having doubts as to the meaning or intent of any provision, should immediately notify the City Representative. If the City determines that an amendment is required to this RFP, the City Representative will issue an addendum in accordance with section 2.6. No oral conversation will affect or modify the terms of this RFP or may be relied upon by any Proponent.

## **2.6 Addenda**

If the City determines that an amendment is required to this RFP, the City Representative will issue a written addendum by posting it on the BC Bid Website at [www.bcbid.gov.bc.ca](http://www.bcbid.gov.bc.ca) (the “**BC Bid Website**”) and the City Website at [www.surrey.ca](http://www.surrey.ca) (the “**City Website**”) that will form part of this RFP. No amendment of any kind to the RFP is effective unless it is posted in a formal written addendum on the City Website. Upon submitting a Proposal, Proponents will be deemed to have received notice of all addenda that are posted on the City Website.

## **2.7 Examination of Contract Documents and Site**

Proponents will be deemed to have carefully examined the RFP, including all attached Schedules, the Contract and the Site (as applicable) prior to preparing and submitting a Proposal with respect to any and all facts which may influence a Proposal.

## **2.8 Opening of Proposals**

The City intends to open Proposals in private but reserves the right to open Proposals in public at its sole discretion.

## **2.9 Status Inquiries**

All inquiries related to the status of this RFP, including whether or not a Contract has been awarded, should be directed to the City Website and not to the City Representative.

### **3. PROPOSAL SUBMISSION FORM AND CONTENTS**

#### **3.1 Form of Proposal**

Proponents should complete the form of Proposal attached as Schedule C, including Schedules C-1 to C-5. Proponents are encouraged to respond to the items listed in Schedules C-1 to C-5 in the order listed. Proponents are encouraged to use the forms provided and attach additional pages as necessary.

#### **3.2 Signature**

The legal name of the person or firm submitting the Proposal should be inserted in Schedule C. The Proposal should be signed by a person authorized to sign on behalf of the Proponent and include the following:

- (a) If the Proponent is a corporation then the full name of the corporation should be included, together with the names of authorized signatories. The Proposal should be executed by all of the authorized signatories or by one or more of them provided that a copy of the corporate resolution authorizing those persons to execute the Proposal on behalf of the corporation is submitted;
- (b) If the Proponent is a partnership or joint venture then the name of the partnership or joint venture and the name of each partner or joint venturer should be included, and each partner or joint venturer should sign personally (or, if one or more person(s) have signing authority for the partnership or joint venture, the partnership or joint venture should provide evidence to the satisfaction of the City that the person(s) signing have signing authority for the partnership or joint venture). If a partner or joint venturer is a corporation then such corporation should sign as indicated in subsection (a) above; or
- (c) If the Proponent is an individual, including a sole proprietorship, the name of the individual should be included.

### **4. EVALUATION AND SELECTION**

#### **4.1 Evaluation Team**

The evaluation of Proposals will be undertaken on behalf of the City by the Evaluation Team. The Evaluation Team may consult with others including City staff members, third party consultants and references, as the Evaluation Team may in its discretion decide is required. The Evaluation Team will give a written recommendation for the selection of a Preferred Proponent or Preferred Proponents to the City.

#### **4.2 Evaluation Criteria**

The Evaluation Team will compare and evaluate all Proposals to determine the Proponent's strength and ability to provide the Services in order to determine the Proposal which is most advantageous to the City, using the following criteria:

<b>Experience, Reputation and Resources</b>
The Evaluation Team will consider the Proponent's responses to items in Schedule C-2.
<b>Technical</b>
The Evaluation Team will consider the Proponent's responses to items in Schedule C-3 and Schedule C-4.
<b>Financial</b>
The Evaluation Team will consider the Proponent's response to Schedule C-5.
<b>Statement of Departures</b>
The Evaluation Team will consider the Proponent's response to Schedule C-1.

The Evaluation Team will not be limited to the criteria referred to above, and the Evaluation Team may consider other criteria that the team identifies as relevant during the evaluation process. The Evaluation Team may apply the evaluation criteria on a comparative basis, evaluating the Proposals by comparing one Proponent's Proposal to another Proponent's Proposal. All criteria considered will be applied evenly and fairly to all Proposals.

#### **4.3 Discrepancies in Proponent's Financial Proposal**

If there are any obvious discrepancies, errors or omissions in Schedule C-5 of a Proposal (Proponent's Financial Proposal), then the City shall be entitled to make obvious corrections, but only if, and to the extent, the corrections are apparent from the Proposal as submitted, and in particular:

- (a) if there is a discrepancy between a unit price and the extended total, then the unit prices shall be deemed to be correct, and corresponding corrections will be made to the extended totals;
- (b) if a unit price has been given but the corresponding extended total has been omitted, then the extended total will be calculated from the unit price and the estimated quantity; and
- (c) if an extended total has been given but the corresponding unit price has been omitted, then the unit price will be calculated from the extended total and the estimated quantity.

#### **4.4 Litigation**

In addition to any other provision of this RFP, the City may, in its absolute discretion, reject a Proposal if the Proponent, or any officer or director of the Proponent submitting the Proposal, is or has been engaged directly or indirectly in a legal action against the City, its elected or appointed officers, representatives or employees in relation to any matter, or if the City has initiated legal action against any officers or directors of the Proponent.

In determining whether or not to reject a Proposal under this section, the City will consider whether the litigation is likely to affect the Proponent's ability to work with the City, its consultants and representatives and whether the City's experience with the Proponent indicates that there is a risk the City will incur increased staff and legal costs in the administration of the Contract if it is awarded to the Proponent.

#### **4.5 Additional Information**

The Evaluation Team may, at its discretion, request clarifications or additional information from a Proponent with respect to any Proposal, and the Evaluation Team may make such requests to only selected Proponents. The Evaluation Team may consider such clarifications or additional information in evaluating a Proposal.

#### **4.6 Interviews**

The Evaluation Team may, at its discretion, invite some or all of the Proponents to appear before the Evaluation Team to provide clarifications of their Proposals. In such event, the Evaluation Team will be entitled to consider the answers received in evaluating Proposals. Proponent management and technical personnel will be expected to participate in presentations, demonstrations and/or interviews, which will be made at no cost to the City.

All information and documents provided by the Proponents or gathered by the Evaluation Team during a presentation, demonstration or an interview may be considered by the Evaluation Team, which may revisit and re-evaluate the Proponent's Proposal or ranking on the basis of such information and documents.

#### **4.7 Negotiation of Contract and Award**

If the City selects a Preferred Proponent or Preferred Proponents, then it may:

- (a) enter into a Contract with the Preferred Proponent(s); or
- (b) enter into discussions with the Preferred Proponent(s) to attempt to finalize the terms of the Contract(s), including financial terms, and such discussions may include:
  - (1) clarification of any outstanding issues arising from the Preferred Proponent's Proposal;
  - (2) negotiation of amendments to the departures to the draft Contract, if any, proposed by the Preferred Proponent as set in Schedule C-1 to the Preferred Proponent's Proposal; and
  - (3) negotiation of amendments to the Preferred Proponent's price(s) as set out in Schedule C-5 to the Preferred Proponent's Proposal and/or scope of Services if:
    - (A) the Preferred Proponent's financial Proposal exceeds the City's approved budget, or
    - (B) the City reasonably concludes the Preferred Proponent's financial proposal includes a price(s) that is unbalanced, or
    - (C) a knowledgeable third party would judge that the Preferred Proponent's price(s) materially exceed a fair market price(s) for services similar to the Services offered by the Preferred Proponent as described in the Preferred Proponent's Proposal; or
- (c) if at any time the City reasonably forms the opinion that a mutually acceptable agreement is not likely to be reached within a reasonable time, give the Preferred Proponent(s) written notice to terminate discussions, in which event the City may then either open discussions with another Proponent or terminate this RFP and retain or obtain the Services in some other manner.



## **5. GENERAL CONDITIONS**

### **5.1 No City Obligation**

This RFP is not a tender and does not commit the City in any way to select a Preferred Proponent, or to proceed to negotiations for a Contract, or to award any agreement, and the City reserves the complete right to at any time reject all Proposals, and to terminate this RFP process.

### **5.2 Proponent's Expenses**

Proponents are solely responsible for their own expenses in preparing, and submitting Proposals, and for any meetings, negotiations or discussions with the City or its representatives and consultants, relating to or arising from this RFP. The City and its representatives, agents, consultants and advisors will not be liable to any Proponent for any claims, whether for costs, expenses, losses or damages, or loss of anticipated profits, or for any other matter whatsoever, incurred by the Proponent in preparing and submitting a Proposal, or participating in negotiations for a Contract, or other activity related to or arising out of this RFP.

### **5.3 No Contract**

By submitting a Proposal and participating in the process as outlined in this RFP, Proponents expressly agree that no contract of any kind is formed under, or arises from, this RFP, prior to the signing of a formal written Contract.

### **5.4 Conflict of Interest**

A Proponent shall disclose in its Proposal any actual or potential conflicts of interest and existing business relationships it may have with the City, its elected or appointed officials or employees. The City may rely on such disclosure.

### **5.5 Solicitation of Council Members, City Staff and City Consultants**

Proponents and their agents will not contact any member of the City Council, City staff or City consultants with respect to this RFP, other than the City Representative named in section 2.5, at any time prior to the award of a contract or the cancellation of this RFP.

### **5.6 Confidentiality**

All submissions become the property of the City and will not be returned to the Proponent. All submissions will be held in confidence by the City unless otherwise required by law. Proponents should be aware the City is a "public body" defined by and subject to the *Freedom of Information and Protection of Privacy Act* of British Columbia.

### **5.7 Reservation of Rights**

The City reserves the right, in its sole and absolute discretion, to:

- (a) amend the scope of Services, modify, cancel or suspend the competitive selection process at any time for any reason;
- (b) accept or reject any Proposal, based on the Evaluation Criteria;
- (c) waive a defect or irregularity in a Proposals, and accept that Proposal;

- (d) reject or disqualify or not accept any or all Proposals, without any obligation compensation or reimbursement to any Proponent or any of its team members;
- (e) re-advertise for new Proposals, or enter into negotiations for the Services or for Services of a similar nature;
- (f) make any changes to the terms of the business opportunity described in this RFP;
- (g) negotiate any and all aspects of Proposals; and
- (h) extend, from time to time, and date, time period or deadline provided in this RFP, upon written notice to all Proponents.

## **5.8 Acceptance of Proposals**

Notwithstanding anything to the contrary contained in the RFP or any other document, material or communication:

- (a) The City will not necessarily accept the Proposal with the lowest Proposal Price, or any Proposal, and the City reserves the right to reject any and all Proposals at any time, or cancel the RFP process, without further explanation and to accept any Proposal the City considers to be in any way advantageous to it. The City's acceptance of any Proposal is contingent on having sufficient funding for the solution and a Contract with a Proponent. Proposals containing qualifications will be considered to be non-conforming Proposals in that they will fail to conform to the requirements of the RFP documents and on that basis they may be disqualified or rejected. Nevertheless, the City may waive any non-compliance with the requirements of the RFP documents, specifications or any conditions, including, without limitation, the timing of delivery of anything required by these RFP documents, and the City, at its discretion, may consider non-conforming Proposals and accept a non-conforming Proposal.
- (b) Where the City is of the view, in its sole discretion, that there is an ambiguity or other discrepancy which cannot be discerned or resolved from examining the contents of the Proposal, then whether or not such an ambiguity or discrepancy actually exists on the face of the Proposal, the City may, prior to Contract award, solicit clarification from the Proponent or accept clarification from the Proponent on any aspect of its Proposal. Such clarification may include the acceptance of any further documents or information which will then form part of the Proposal. The soliciting or accepting of such clarification (whether or not solicited) by the City will be without any duty or obligation on the City to advise any other Proponents or to allow them to vary their Proposal Prices as a result of the acceptance of clarification from any one or more Proponents and the City will have no liability to any other Proponent(s) as a result of such acceptance of clarification.
- (c) If the City considers that all Proposals are priced too high, it may reject them all.
- (d) The City, prior to awarding of any Contract, may negotiate with the Proponent presenting the lowest priced Proposal, or any Proponent, for changes in the solution, the materials, the specifications or any conditions, without having any duty or obligation to advise any other Proponents or to allow them to modify their Proposal, and the City will have no liability to any Proponent as a result of such negotiations or modifications.
- (e) The City and its representatives, agents, consultants and advisors will not be liable to any Proponent for any claims, whether for costs, expenses, losses, damages, or loss of anticipated profits, or for any other matter whatsoever, incurred by a Proponent in preparing and submitting a Proposal, or participating in negotiations for a final Contract, or

other activity related to or arising out of this RFP, including in the event the City accepts a non-compliant Proposal or otherwise breaches the terms of this RFP.

- (f) A pre-award meeting may be conducted with the preferred Proponent prior to award to confirm project details and expectations of the City.
- (g) Proponents are solely responsible for their own expenses in preparing and submitting a Proposal, and for any meetings, negotiations or discussions with the City, or its representatives and consultants, relating to or arising from the RFP. The City will not be liable to any Proponent for any claims, whether for costs, expenses, losses or damages, or loss of anticipated profits, incurred by the Proponent in preparing and submitting a Proposal, or participating in negotiations for a contract, or other activity related to or arising out of this RFP.

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## SCHEDULE A - SCOPE OF SERVICES

### **PROJECT TITLE: GREENHOUSE GAS EMISSIONS MODELLING FOR COMMUNITY CLIMATE ACTION STRATEGY UPDATE**

#### **1. SERVICES**

The City of Surrey (the “City”) is inviting Proponents to submit Proposals to undertake strategic-level modelling of how to reduce community greenhouse gas (“GHG”) emissions to net-zero before 2050, to support the City in developing an updated Climate Change Action Strategy (“CCAS”). As discussed in the Background section below, this project is one of several underway to support the new CCAS.

#### **2. PROJECT BACKGROUND**

Surrey is one of the fastest growing cities in Canada and is expected to surpass the population in the City of Vancouver as the most populous municipality in British Columbia around 2041. Absent strong climate policy and action, this growth will continue to generate significant growth in GHG emissions.

The City’s overarching policy document is the Sustainability Charter<sup>1</sup>. The Sustainability Charter is aligned with the Official Community Plan<sup>2</sup> and articulates a long-term vision where Surrey is a “thriving, green, inclusive city”. According to the World Economic Forum’s (“WEF”) *Global Risk Report 2020*<sup>3</sup>, climate change is the driving force behind nearly all of the most important short- and long-term risks to global economic stability and thus the prosperity of societies. Responses to climate change—by the City, the senior governments under which it sits, neighbouring municipalities, and other government and non-governmental actors around the world—will have an outsized impact on the City’s ability to achieve its long-term vision. (Note: The WEF report was developed before the COVID-19 pandemic, which is undoubtedly the most important immediate risk to economies and societies.)

On November 4, 2019, the City declared climate change as an emergency. As part of this, Council directed staff to review the City’s community and corporate climate change targets in the context of the United Nations’ Intergovernmental Panel on Climate Change (“IPCC”) *Special Report on Global Warming of 1.5°C*<sup>4</sup> and to report back with an updated Community Climate Action Strategy (CR No. R213<sup>5</sup>).

On March 9, 2020, the City adopted new long-term community and corporate GHG reduction targets for inclusion in the City’s Official Community Plan (“OCP”). Surrey’s 2050 GHG reduction targets are now:

- Community: Reduce Surrey’s GHG emissions from non-agricultural and non-industrial activities to net-zero before 2050; and

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<sup>1</sup> “Sustainability Charter”, The City of Surrey. Available: <https://www.surrey.ca/community/3568.aspx>

<sup>2</sup> “Surrey Official Community Plan”, The City of Surrey. Available: <https://www.surrey.ca/city-services/1318.aspx>

<sup>3</sup> “Global Risk Report”, World Economic Forum 2007-2020. Available: [http://reports.weforum.org/global-risks-report-2020/shareable-infographics/?doing\\_wp\\_cron=1587229904.449119091033935468750](http://reports.weforum.org/global-risks-report-2020/shareable-infographics/?doing_wp_cron=1587229904.449119091033935468750)

<sup>4</sup> “Global Warming of 1.5°C”, IPCC. Available: <https://www.ipcc.ch/sr15/>

<sup>5</sup> “Corporate Report R213”, The City of Surrey (October 31, 2019). Available: [https://www.surrey.ca/bylawsandcouncilibrary/CR\\_2019-R213.pdf](https://www.surrey.ca/bylawsandcouncilibrary/CR_2019-R213.pdf)

- **Corporate:** Show corporate leadership by demonstrating best practices in climate change mitigation by reducing City of Surrey corporate GHG emissions to absolute zero before 2050.

Council directed staff to propose interim targets for 2030 and 2040 (CR No. R048<sup>6</sup>). Investigating and developing options for these targets is one aspect of this project.

Led by the Sustainability Office, City staff are currently working to develop a Climate Change Action Strategy (“CCAS”). The CCAS will replace 2013’s Community Climate Action Strategy and broaden the scope to include corporate action in addition to community. The updated CCAS will maintain a combined focus on both mitigation and adaptation, with the City increasingly working to take a “low carbon resilience” approach that tackles the sets of entangled issues in a coordinated, strategic way.

The CCAS is being developed through the coordination of multiple discrete projects with specific focus areas. The current RFP focuses on one of these projects, and the resulting deliverables will form critical input into the final CCAS and subsequent, more detailed action planning and development. More information on the CCAS development process and other related efforts is described in Section 6 (“Scope of Services”).

### **3. PURPOSE AND DESIRED OUTCOMES**

The purposes of this project are as follows:

- (a) to undertake community-scale GHG reduction modelling and analysis focused on identifying and understanding multiple GHG reduction scenarios and, in doing so, developing and characterizing a realistic path to achieving the City’s target of net-zero community GHG emissions before 2050. The results will inform and contribute to the City’s updated CCAS, and will thus provide direction and guidance for subsequent, more detailed GHG reduction action planning. Staff are seeking a consulting team to help them explore and understand multiple net-zero GHG scenarios so they can be confident subsequent CCAS and action planning work is centered around a robust and realistic path to achieving the City’s net-zero GHG target, recognizing work needs to proceed within the context of some remaining, unavoidable uncertainties.
- (b) to clearly describe what needs to happen to reach net-zero GHGs. While this will require modelling some of the actions (e.g. policies, regulations, programs), the purpose of this project is not to determine and detail specific City actions. Rather, the City is seeking GHG modelling and analysis to better understand and more effectively communicate what needs to occur for the City to transition to net-zero GHGs, given the current understanding of where and how different subsectors can and will decarbonize (or support decarbonization) over time. The final deliverables need to identify and describe the actions, asset and infrastructure changes, and interim outcomes that need to occur to achieve the modelled outcomes, as well as recommend actions and how to further explore or develop them; however, the successful Proponent will not be asked to detail the specifics for any action. For example, the successful Proponent needs to provide a target date for net-zero new construction across different building types and discuss the importance and implications of this, but does not need to detail the specific way to define net-zero emissions or how to phase it in. Similarly, the successful Proponent needs to identify and describe the rate and overall amount of decarbonization

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<sup>6</sup> “Corporate Report R048”, The City of Surrey (March 3, 2020). Available: [https://www.surrey.ca/bylawsandcouncilibrary/CR\\_2020-R048.pdf](https://www.surrey.ca/bylawsandcouncilibrary/CR_2020-R048.pdf)

retrofits that need to occur across different building types, but does not need to determine the specific tools and approaches the City should use to achieve this. Staff expect that achieving these deliverables will require a combined review of modelling findings and implications, examples from collected best practices, and the prior experience and existing knowledge of the successful Proponent.

- (c) develop clear, understandable, relatable characterizations of a realistic path for Surrey to achieve net-zero GHGs across transportation, buildings, and solid waste, accounting for the implications of major uncertainties. City staff's ability to communicate the results to diverse internal and external audiences is key (e.g. Council, City staff without climate or energy expertise, the public, stakeholders). The City is and will be working with other consultants to develop specific communications and engagement materials and will be developing the final CCAS internally. Staff need this project to result in written and visual materials that clearly convey the 'nature', 'scale', and 'pace' of the challenge in understandable terms, such that staff can easily communicate the findings and implications to others, and so that nonexpert audiences reading the materials can understand what it will take to reach net-zero GHG emissions. Put another way, the successful Proponent needs to generate modelling-supported descriptions and visual representations that clearly describe: 'nature', what needs to change and what is needed to achieve that change (at a high level); 'scale', how significant those changes are (both while occurring and at the end); and 'pace', how quickly the changes need to occur for the City to achieve its GHG target.

Through the project, the successful Proponent must generate and characterize results so that City staff:

- (a) deeply understand the GHG reduction paths that can achieve the City's net-zero GHG target, including interim targets the City should establish to guide action planning and implementation, and accounting for the possible impacts of 'major uncertainties';
- (b) have written and visual content they can use in and/or adapt for the CCAS and other reports, presentations, and other communications, during and after the project; and,
- (c) can characterize in simple, relatable terms what the modelled 'main path', its outcomes, and the major uncertainties mean for land use, transportation, energy systems, buildings, and solid waste in Surrey, and thus the teams managing related issues in the City.

In the near-term, the results of this project will support the development of the CCAS (with some results being included directly in the CCAS), public and stakeholder engagement, and the Sustainability Office's internal engagement and education efforts. The results will be instrumental in guiding more detailed action planning across sectors and subsectors (see more information on some of these in Section 6.5, "Understanding and aligning with related work"). The City is currently undertaking another project to inform key messaging and audience frames for the CCAS, and want the successful Proponent to use the resulting messaging guidance in crafting and writing the deliverables for this project (pending timelines aligning). The initial messaging themes are being organized under the eight themes of the Sustainability Charter.

The terms 'sector' and 'subsector' are used throughout the RFP and should be understood as follows:



- Sectors are the main spheres in which the City can take action to reduce GHGs. These include the main categories in the City's territorial GHG inventory (Buildings, Transportation, Solid Waste), as well as categories of action critical to addressing those (Land Use, Energy Systems).
- Subsectors are more specific action areas that generally, but do not necessarily, correspond to a given sector. Action in one of these areas often influences GHG outcomes across multiple sectors. Examples include the following, but Proponents may suggest other framings: new construction, existing buildings, passenger/light-duty vehicles, freight/medium-and-heavy duty vehicles, transportation mode, waste diversion, organic waste treatment, electricity supply, electricity distribution grid, biogas and biofuel supply, gas network, and district energy system.

For the purposes of this project, the City is most interested in GHGs categorized under transportation and buildings in its current (territorial) GHG inventory, and thus associated with land use and energy systems. Proponents should plan to dedicate less effort to solid waste.

Note that the City is currently planning or doing work to better understand 'negative emissions', 'consumption-based emissions', and 'embodied emissions'. For the purposes of this project, the modelling must inform the City as to the scale of negative emissions necessary to achieve the net-zero GHG target (i.e. to counterbalance residual GHGs in 2050), but do not need to provide information on how to achieve this. The successful Proponent will be encouraged to consider all three types of emissions in their work, and to highlight potential opportunities and risks that any of the resulting recommendations pose for these three types of emissions, but this is not a requirement of the project.

#### **4. PROJECT OBJECTIVES**

Working in collaboration with City staff, the successful Proponent must accomplish the following objectives through the project process and in the final deliverables. Section 6 ("Scope of Services") provides additional detail on the required services, noting which objectives relate to each subsection.

- (a) Identify, review, and summarize best practice examples of similar modelling, analysis, and communication projects (including a minority from nearby municipalities);
- (b) Model a business-as-usual forecast for energy, GHG emissions, and the activities that drive them, accounting for relevant municipal, regional, provincial, and federal policies;
- (c) Model an 'initial scenario' to achieve Surrey's net-zero GHG target (recognizing there will be residual GHGs) and that aligns with other relevant GHG reduction forecasts;
- (d) Model three-to-five 'uncertainty scenarios' with each representing at least one 'major uncertainty' that would require adjustments from the 'initial scenario' to hit the net-zero GHG target;
- (e) Concisely describe each scenario and its outcomes, including interim milestones and the general actions needed to achieve them, and highlighting the impacts and implications of the 'major uncertainties' in the 'uncertainty scenarios';
- (f) Review and compare all scenarios to determine and model a 'main path' for use in Surrey's updated CCAS after project completion (that may or may not be slightly different from all of the previous scenarios);

- (g) Propose options for interim GHG reduction targets for every 5-year increment from 2025 through 2045, with the 2030 and 2040 targets anchoring the others, based on the review and comparison of the modelled scenarios;
- (h) Identify interim targets and other leading and lagging indicators the City should consider for each subsector based on the review and comparison of the modelled scenarios as well as the results of the best practice review;
- (i) Describe in clear and relatable terms the 'nature', 'scale', and 'pace' of the 'main path' and its outcomes (including any residual GHGs), as well as the potential implications of the assessed 'major uncertainties', for use in Surrey's updated CCAS after project completion; and,
- (j) Identify and propose any additional energy, emissions, or other quantitative analyses the City should consider to address gaps in the scope of this analysis and to support more detailed GHG reduction action planning in the future.

Note that while community GHG emissions modelling by definition includes corporate GHG emissions, the successful Proponent will not need to model these emissions in detail nor do any analysis or produce detailed recommendations regarding corporate emissions. However, figures and text focused on the current GHG emissions context should include corporate emissions. Staff can provide recent inventories for both corporate and community GHG emissions.

## **5. PROJECT DELIVERABLES**

The successful Proponent will be required to deliver draft and final versions of the following:

- (a) Overview of best practice review and results to inform subsequent tasks and deliverables;
- (b) Overview of current energy and GHG emissions and relevant context;
- (c) Description of all modelled scenarios, findings, and their implications (including for interim GHG and sector-specific targets and indicators), via write-ups, figures, and data tables;
- (d) All figures and data tables such that City staff can adapt them to meet the format and design guidelines of future reports and presentations (in Excel);
- (e) Concluding discussion of overall findings and their implications;
- (f) Recommendations for subsequent work to further understand (quantitatively) how the City can achieve its existing and newly proposed GHG targets, as well as any recommendations regarding subsequent action planning; and,
- (g) Overview of each of the following:
  - project approach and methods;
  - model description, structure, key functions, and known limitations;
  - data sources, data assumptions, and scenario assumptions; and,
  - any 'major uncertainties' left unaddressed.



The City prefers to receive these deliverables in PowerPoint format to support easy sharing and modular use of components by City staff. Although in PowerPoint, the successful Proponent should treat and layout the deliverables as a report rather than a presentation (e.g. something a person would read on a computer rather than receive as a presentation audience member). The PowerPoint format must not affect the quality of writing in relation to project objectives. Staff are open to discussing any concerns regarding where content may suffer within the desired format.

For reasons discussed in Section 7 (“Project Tasks”), the City expects the successful Proponent to develop the various pieces of the final deliverables throughout the project process such that they require little if any revision to complete the project. To achieve this, early in the project, the City would like the successful Proponent to develop simple templates that communicate and ensure a shared understanding of the tangible outputs that each task will deliver, both in form and function (e.g. this section will include ABC with the purpose of accomplishing XYZ). The template should focus on presenting a clear layout and short but comprehensive overview of the text and/or graphics to be included in each section. Proponents should imagine this as similar to an outline of the full set of final deliverables, but with the layout also done, such that the content can just be added to the templates as it is developed throughout the project.

Because of this project’s role in a broader City effort to mitigate climate change, the final products do not need to be graphically designed. The layout, logic, and formatting of all final report elements must be understandable and suitable for internal consumption and communications. All figures and data tables must be accurate and provide everything necessary to be transformed by a graphic designer. The quality of writing must be suitable for public consumption and the general look and feel of any figures must be suitable for use in internal presentations and memos. For these reasons, the City requires the Microsoft Office versions of all deliverables in addition to PDFs.

To meet the project objectives, the successful Proponent must:

- (a) develop and lay out written content (main content, sidebars, bulleted lists, etc. as appropriate and determined through the project) that is understandable and requires little additional effort by the City to use it for public consumption (e.g. the City aims for a Grade 7 English reading level for public communications across media channels);
- (b) develop the necessary tables and figures in Excel with live links to their data sources (linked directly to model outputs where feasible), and,
- (c) where figures are determined to be out of scope but important for related climate work, produce data tables that allow the City to develop such figures in the future.

## **6. SCOPE OF SERVICES**

The sections below provide additional information to help Proponents develop a plan to achieve the project objectives. Each section starts by noting the project objectives relevant to the discussion. All objectives are covered; some objectives are listed under more than one section.

## **6.1 Learning from the latest and greatest examples of similar work to generate state-of-the-art deliverables;**

### *Objectives (a) and (j)*

In its efforts to mitigate and adapt climate change, the City recognizes that it (along with all other municipalities) depends on other governments to pursue actions of equivalent scale and pace to effectively deal with climate change. The City regularly benefits from the leadership of municipalities and other levels of government, locally and around the world, to advance its own understanding of and ability to pursue solutions. The City has committed to leadership roles on climate in the past, for example the development of the Surrey Biofuel Facility, and will continue to take leadership roles where possible.

The City wants to continue moving things forward for itself and others, first by learning from relevant work done by other municipalities, then by translating those lessons into processes and deliverables that can inspire and help others move forward. As such, the successful Proponent's first major task will be reviewing and drawing lessons from similar, high quality work done by leading municipalities, and capturing the results in written and visual content that will form part of the final report. The consulting team will then be expected to apply the learnings to the project plan, modelling and analysis approaches, and deliverable templates. Inevitably, it will not be feasible to apply some lessons into this project due to budget, time, methodological, or other limitations. In these cases, the successful Proponent will be expected to capture these lessons so they can guide and support future projects or other aspects of the City's work on climate change.

A key project risk inherent in best practice reviews involves the balance between the time and resources dedicated to doing the review compared to the ultimate relevance and usefulness of the results. Identifying and reviewing potential best practices can be very time intensive, while the resulting lessons can lack focus and provide limited value to the specific and immediate needs of the project and project team. The City proposes addressing this risk in the following ways.

First, the City and its staff hold membership in several intergovernmental networks focused specifically on climate and other sustainability issues—regionally, nationally, and beyond. This includes access to peer-to-peer resource hubs and contact information to helpful staff working on similar issues in municipalities across North America. City staff can thus help to identify and gather best practice examples for the successful Proponent to review, and then (where useful) connect with people involved in the development of the best practices to generate practical insights not found in any product.

Second, the City is interested in working with a Proponent that presents a clear, focused plan for the best practices review. To avoid generating outputs that have limited value, the City will be seeking an approach that is well-structured to focus on key issues of importance and constructed to populate a focused template designed to support subsequent project tasks and deliverables. The City expects the successful Proponent to develop this template and be clear about content that will be included in each section, in coordination with City staff, before beginning the best practices review. Possible items to address in the template include relevant insights regarding scope and scenario uncertainties as well as results and findings, and how they are communicated in final products (both written and visual), as well as types of actions that may be appropriate given Surrey's context.

Given the intent of this work, the successful Proponent will not be expected to develop templates for other deliverables until after the best practices review is complete. This will allow the Proponent and staff to apply lessons from the review to the templates.

To support the Proponents in developing their proposed approach, the City has identified a few best practice examples that staff feel align with the objectives and eventual deliverables of this project. These are included or listed in Schedule A-1. No examples are perfectly appropriate and the ability of this project to learn from and replicate these examples will depend in part on available resources. Proponents should be mindful of this when crafting their Proposal, and the City is interested in seeing Proposals that provide some clarity around what would or would not be achievable within the scope of this project, and how this project can set the City up to achieve some of what is not presently achievable through future work.

## **6.2 Modelling to yield a robust and realistic path to net-zero GHG emissions before 2050**

### *Objectives (b), (c), (d), and (f)*

The City is seeking community GHG reduction scenario modelling to better understand the ‘nature’, ‘scale’, and ‘pace’ of a realistic, robust path to net-zero GHG emissions before 2050. The results will be included in the CCAS, inform other strategic GHG reduction planning, and, subsequently, inform more detailed sector-specific research and action planning. The City wants the results of this project to convey the magnitude of the challenge (quantitatively and qualitatively), be clear about high-level trade-offs (e.g. waiting vs. acting early), include groups of strategic-level actions across all subsectors, and develop some common language and figures that can be used in future reports.

To ensure the path is realistic and robust, the successful Proponent will model three-to-five ‘uncertainty scenarios’ and use them to inform the final ‘main path’ to the City’s GHG target. These scenarios will represent and explore the implications of a discrete set of ‘major uncertainties’ that could have significant impacts on the City’s climate action planning and implementation. The uncertainty scenarios are discussed further in the next section.

Proponents will no doubt recognize that the City has limited and/or overlapping authority in some of these areas, so will need to coordinate and collaborate with more senior levels of government in detailed action planning and implementation. This project’s modelling will need to represent relevant existing, planned, and likely senior government policies (e.g. Corporate Average Fuel Economy Standard, Renewable and Low Carbon Fuel Requirements Regulation, Zero Emission Vehicle Act, Clean Energy Act). The modelling should also account for current and future land use (e.g. Surrey Official Community Plan) and major transportation projects (e.g. Surrey-Langley Skytrain). City staff do not anticipate asking the successful Proponent to do detailed modelling of other specific policies (i.e. City policy X yields GHG outcome Y). The modelling methods and project deliverables must clearly identify and describe issues where the City lacks or shares authority over a given action.

The modelling must cover all emissions in scope for municipal GHG inventories in British Columbia (with a greater emphasis on emissions from transportation and buildings than from solid waste), so should produce net-zero GHG scenarios that address each of the subsectors and associated high-level changes listed below. See Section 6.4 (“Data sources and compatibility”) for a list of data the Sustainability Office has or can gain access to.

- **Land Use:** Continuing the shift to more complete communities and town centres, with denser residential and mixed-use areas that provide greater opportunity for local employment and access to resident needs and community amenities.
- **Transportation Mode:** Shifting mode share to more walking, cycling, transit, and carsharing, and from single-occupancy vehicle use to carpooling.
- **Passenger / Light-duty Vehicles:** The pace of zero-emission vehicle adoption across a few different vehicle types (e.g. sedan, SUV, pickup truck).
- **Freight / Medium- and Heavy-duty Vehicles:** The transition to zero-emission drivetrains and fuels across a few different vehicle types (e.g. box truck, flat bed, semi).
- **Existing Buildings:** Undertaking a long-term building decarbonization program across all building types, from simpler equipment replacements to more complex building retrofits.
- **New Construction:** Transitioning to zero-emission requirements for different building types at different times, and the implications of delays for additional decarbonization retrofits.
- **Energy Systems:** Decarbonization of the electricity grid, natural gas network, and Surrey's district energy system.
- **Solid Waste:** Reaching near-100% organic waste diversion, running the Surrey Biofuel Facility at maximum capacity, and dealing with organics in construction waste.

As part of this project, the successful Proponent will be expected to accurately account for the net energy and emissions impacts of different activities, so must have a solid understanding of these from prior experience. This includes, but may not be limited to, the treatment of asset/capital additions vs. replacements (e.g. a new zero-emission building vs. a zero-emission building that replaces a previous building) and equipment/fuel switching (e.g. energy consumption implications of shifting from a furnace to an air source heat pump).

The successful Proponent is expected to model using high quality data and must use reasonable, data-supported assumptions for parameter values, model functions and processes, representations of uncertainties, and scenario and simulation choices. All data and assumptions must be documented and finalized in setting up the model and developing the 'initial scenario'. In Proposal submissions, the City wants to see clear explanations as to how the Proponent would meet these needs within the available resources and project limitations, what trade-offs may be required, and how the proponent would work with City staff to achieve the needed balance.

As previously noted, modelling must include corporate GHG emissions, but the successful Proponent will not be expected to simulate or analyze these emissions in much detail. For the purposes of modelling scenarios, the successful Proponent should assume the City achieves its target of absolute zero GHG emissions before 2050.

### **6.3 Simulating key uncertainties and exploring their implications**

*Objectives (d), (e), (f), (g), (h), (i) and (j)*

To allow the City to account for key uncertainties in developing the CCAS, the successful Proponent will model three-to-five 'uncertainty scenarios' and use them to inform the final 'main path' to the City's GHG target (for subsequent inclusion in the CCAS). These scenarios will represent and explore the implications of a discrete set of major uncertainties that could have significant impacts on how the City reaches net-zero GHGs. The successful Proponent will review and compare the simulation results to generate insights to be included in the final deliverables.

Staff envision focusing the ‘major uncertainties’ on some of the most significant potential decarbonization challenges facing various subsectors, such as the timing and nature of technology developments or constraints around a particular solution. The list below provides some examples, but Proponents are encouraged to propose the key uncertainties and scenarios to focus on:

- (a) timing of subsector technology readiness (e.g. zero-emission medium- and heavy-duty vehicles);
- (b) senior government policy timelines (e.g. CleanBC on target vs. delayed, an assumed federal policy arrives sooner vs. later);
- (c) changes in the need to ramp implementation up over time (e.g. retrofit rates due to technology costs or local industry capacity);
- (d) energy supply and system feasibility (e.g. constrained vs. unconstrained grid system, constrained vs. unconstrained RNG/biofuel supply);
- (e) longer-term policy wildcards by the regional, provincial, or federal government(s) (e.g. road pricing, NYC-style existing building requirements), and,
- (f) short- and medium-term impacts of COVID-19 and the design of senior government economic recovery packages.

Given the strategic-level focus of the project, and recognizing other limitations, proponents should clearly explain how they would approach these scenarios to meet the project objectives.

Note that staff will be participating in a series of training sessions focused on *Broadly Beneficial Clean Energy Planning*. The sessions will “guide local-government staff through a process of equity-centered scenario-based planning for community-level energy policy” and, by the end of the series, leave participants “equipped with concepts, practices, and resources to build and implement authentically inclusive, data-driven energy planning processes with their communities.” The specific links between the series and this GHG modelling project are not entirely clear, but the series does include a focus on data-driven and scenario-based planning, so staff may share relevant insights with the successful Proponent and request inclusion or consideration of certain issues. Staff would discuss these with the successful Proponent and expect that any requests would be minor (i.e. not requiring a change order).

#### **6.4 Data sources and compatibility**

##### *Objectives (b), (c), and (f)*

The successful Proposal will clearly demonstrate that they are aware of what data is necessary for their model(s) to simulate the desired scenarios, know what data they need from the City, and have or have access to necessary datasets not held by the City. Proponents should clearly explain what data they require, how they will get it, and how it will be used. Where deemed necessary, the successful Proponent will clearly demonstrate how they will strike a balance between available data, project limitations, and modelling-focused objectives.

The City has several datasets that are expected be useful for this work (listed below). Some datasets may require info sharing agreements with a third party or only be available in an aggregated form; staff

will work with the successful Proponent to provide the necessary data. Staff do not expect the successful Proponent to use all listed datasets, but do expect the model to accurately represent Surrey, with model inputs based (where feasible) on Surrey-specific and/or other locally relevant datasets.

Proponents can review Surrey's Open Data Catalogue<sup>7</sup> and GIS mapping system COSMOS<sup>8</sup> to identify other datasets that may be of value. Note that any GIS used for this project must be in Esri-compatible formats. Potential Proponents are encouraged to submit any questions they may have about available data.

Below are datasets held by the City. Not all datasets will be necessary to meet the requirements of this project and Proponents should be clear about the data they will need to conduct GHG modelling that meets the project objectives. This list does not include Surrey-specific datasets held by Metro Vancouver, the Province, or utilities. Potential Proponents are encouraged to contact the City if they have any specific questions regarding these or other datasets.

- **Land use:** Various GIS maps (check COSMOS site; not all COSMOS datasets are publicly available, so please submit questions if seeking something specific)
- **Transportation:** ICBC vehicle registration data (2006, 2011, 2016, 2017, 2018, potentially 2019)
- **Transportation:** Electric vehicle database and mapping tool (using ICBC vehicle data, building and land use data, Census demographic data, and public charger data)
- **Transportation:** Emme model outputs from simulating the current network, the network at full buildout (OCP with 1M people), and the network in 2050 for business-as-usual, heavy roadbuilding, and heavy transit supply scenarios (anticipated to be available from modelling currently being done for the Surrey Transportation Plan)
- **Transportation:** Aggregated freight / medium- and heavy-duty vehicle registration data by vehicle type
- **Buildings:** Current, 2046, and full buildout data on buildings, employment, and population, split to the TAZ level for residential (one- and two-family dwelling, townhouse and rowhouse, and apartment) and non-residential (industrial, commercial, and institutional) building types.
- **Buildings:** New construction statistics by building type
- **Buildings:** Existing building data in GIS or Excel formats
- **Buildings:** BC Assessment data (requires a special request; please contact us if you are seeking something specific)
- **Buildings:** EnerGuide home energy evaluation modelling (very small dataset; not representative of Surrey as a whole)
- **Energy system:** Community GHG inventory for 2016 (GPC+)
- **Energy system:** Corporate GHG inventory for 2018
- **Energy system:** District energy system production and consumption
- **Waste:** Surrey Biofuel Facility capacity and operations data
- **Waste:** Residential and some commercial waste collection and diversion data
- **Various:** 2016 census data
- **Various:** Population, household, and employment projections

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<sup>7</sup> "Surrey's Open Data", The City of Surrey. Available: <https://data.surrey.ca/>

<sup>8</sup> "Maps & COSMOS", The City of Surrey. Available: <https://www.surrey.ca/city-services/654.aspx>



A member of the Sustainability Office will be designated to coordinate data gathering from internal sources but, as needed, the successful Proponent will be expected to speak directly with other City staff to clarify any issues regarding specific datasets, with guidance from the City's lead for this project.

## **6.5 Understanding and aligning with related work**

*Objectives (a), (b), (c), (f), (h), and (i)*

The City is not doing this work in a vacuum, and the successful Proponent will need to understand some other ongoing projects and, where necessary, how to align with them. Other ongoing work falls into two categories: senior government climate action planning and concurrent City projects.

Regarding senior government climate action planning, the successful Proponent's modelling should align with Provincial (CleanBC, 2019) and regional (Metro Vancouver Climate2050, under development) climate action plans and (generally) the associated modelling work. This will ensure that senior government policies are properly accounted for and characterized in scenario modelling, and to leverage or incorporate assumptions or results from CleanBC and Climate2050 modelling efforts, the latter of which is ongoing as of the release of this RFP.

Staff are managing multiple projects as part of the CCAS update and coordinating across departments to incorporate climate change considerations. The successful Proponent will work with City staff to understand where and how these projects may have implications for this contract, and vice versa.

The five most important projects for this work and their possible impact on this contract are as follows:

- (a) CCAS Engagement and Communications: Alongside this modelling project, the Sustainability Office has and will again be seeking consulting support to conduct internal and external communications and engagement to inform the CCAS update. Interim and final outputs from the modelling project may be used to support these efforts. Engagement results and communications guidance may be used to inform the way the modelling results are characterized, described and communicated. As referenced elsewhere, the City is working with a consultant to develop key messaging and associated use guidelines. Staff anticipate these being ready by the time this modelling project begins, and the successful Proponent will be expected to review and consider these in developing project deliverables;
- (b) Surrey Transportation Plan ("STP") update: The "Climate Crisis" is one of the Transportation Plan's five pillars and the Sustainability Office is working with Transportation Planning staff to determine how best to incorporate climate action items in the Plan. Emme modelling is currently being done to support the development of that Plan. Anticipating alignment of CCAS and STP project schedules, the successful Proponent will be expected to integrate at least one set of Emme modelling results into the GHG modelling done for this project (to capture business-as-usual transportation estimates), and possibly more than one (representing possible transportation futures);
- (c) Formalizing a Low Carbon Resilience ("LCR") approach: The City is currently coordinating with Simon Fraser University's ("SFU") Adaptation to Climate Change Team ("ACT") to develop a Surrey-specific approach to ACT's Integrated Climate Action for BC Communities Initiative ("ICABCCI"). This work, which the Sustainability Office is planning to focus on both the CCAS and the STP, would guide staff from several departments through a series of

workshops that educate participants about the opportunities in taking a LCR approach, elucidate specific examples and their benefits, and develop and seek commitment for a systematic approach to accounting for climate change through LCR in both projects, as well as others in the future. The LCR work is expected to happen concurrently with the project described in this RFP, though at this time staff do not expect input from the LCR work would impact this project. Rather, the first two simulations discussed above (business-as-usual and 'initial path' to net-zero) would ideally be available for use during the first LCR session (date TBD);

- (d) Equity Transition Tools: Staff are developing a pair of tools that the Sustainability Office can use to systematically and consistently account for equity-related issues in climate action and possibly other work. An 'equitable engagement planning lens' will support staff to properly consider equity-related issues and take any steps necessary to account for those in the design of an engagement strategy or event. An 'equitable action planning lens' will similarly support staff in developing action plans or designing specific actions. Through this work and with these two tools, staff are seeking to expand and revise the way they work, so as to produce solutions and directions that are more equitable, inclusive, accessible, and broadly beneficial. This is in recognition of both the moral duty to ensure the transition to net-zero GHGs brings people along rather than leaving them behind, as well as the practical necessity to ensure broad participation in climate action if Surrey (and the rest of the world) is to achieve the transition at the scale and urgency demanded by the climate crisis; and,
- (e) Building Energy and Emissions Backgrounder and Data Tool: The Sustainability Office will be seeking a consulting team to develop the Backgrounder and do detailed planning and perhaps initial development of the Tool. The Backgrounder will provide a snapshot of Surrey's building stock, capturing data on relevant issues (e.g. to describe building stock, identify fossil fuel systems, capture modelled or actual energy performance). The Tool will allow staff to capture, track, and analyze building energy and emissions information on a regular basis. The purpose of the Tool is to act as the data foundation staff use to inform and monitor existing building retrofit actions in the coming decades. It will connect to at least one existing City tool, likely more, and should be designed to automatically (or easily) capture data from multiple internal and external sources on an ongoing basis. It will include a database, query functionality, and possibly graphical and/or map-based interfaces. The timing of this project is uncertain due to COVID-19 but will ideally be started during summer 2020.

Several other relevant projects (completed, ongoing, or potentially forthcoming) also involve Sustainability Office staff and may provide inputs or insights for this modelling project. These can be discussed with the successful Proponent during and after the kick-off meeting. They include but may not be limited to the following (all timelines subject to change due to COVID-19):

- Electric Vehicle Strategy (completion expected in July 2020);
- Zero Waste Strategy (contemplated to begin in 2020);
- piloting initial development of a consumption based GHG inventory and urban metabolism (completion expected in summer 2020);
- developing a low carbon energy strategy for the City's district energy system, Surrey City Energy (expected in 2020);
- formalizing regulatory requirements, establishing administrative requirements, and developing organizational processes and support materials for the City's building energy benchmarking requirement for new Part 3 buildings (project starting in June 2020);



- research and engagement to support the development of a municipal strategy to decarbonize medium- and heavy-duty vehicles (in collaboration with other municipalities; Proposals due by May 5, 2020; project completion by March 2021<sup>9</sup>);
- communitywide energy system supply and delivery analysis (a follow-up to this modelling project);
- (existing) building decarbonization action plan (expected to start in 2021);
- low carbon Step Code pathway for Part 9 buildings (in collaboration with other municipalities; potentially for enforcement as early as Jan 2021); and,
- corporate GHG reduction strategy (potentially starting in late 2020 or early 2021).

## **6.6 Assessing results, identifying implications, and characterizing them in relatable terms**

### *Objectives (e), (g), (h), and (i)*

The project deliverables will inform the City's overall Community Climate Action Strategy and sector-specific action planning, as well as the communication necessary to succeed with both. To support this future work, the successful Proponent will identify possible interim targets and other leading and lagging indicators for each subsector. Beyond sector and subsector GHG targets, the City is interested in leading and lagging indicators focused on activities and outcomes (e.g. number of decarbonization retrofits per year, electric vehicle share of total registered passenger vehicles in the city, zero-emission new construction requirement date, establishing policies and programs by a certain date and with suitable resources and capacity to achieve such activities and outcomes in coordination with regional and senior government efforts). The Proponent will involve staff in reviewing options and deciding which to include in final deliverables. Staff may ask the successful Proponent to consider and provide feedback on a few interim GHG target options.

As noted in the project objectives, City staff need the successful Proponent to visualize and characterize the results of this modelling project in understandable and relatable ways to support that work. The successful Proponent must be able to describe and visualize modelling results in ways that allow nonexperts to understand the following:

- The 'nature', 'scale', and 'pace' of the modelled scenarios and 'main path' (e.g. number of retrofits per year, rate of electric vehicle adoption, shift in mode share);
- What the modelling results mean for the City's overall CCAS and action to reduce GHGs from all included subsectors; and,
- Any GHG emissions remaining in 2050 that need to be addressed through actions that remove carbon dioxide from the atmosphere.

The City is not necessarily seeking modelling results to be translated to outcomes like net economic costs/benefits, health benefits, or impacts on other community objectives, though would value this type of information. Rather, the City's priority with this project is to explore GHG reduction scenarios and characterize the net-zero GHG path in ways that demystify what it means for the City to effectively mitigate climate change. This will require the successful Proponent to frame and communicate the 'main path', and what is required to achieve it, in ways that nonexperts can understand, conceive of, and relate to (professionally and personally) in ways that align with other City, resident, and stakeholder priorities.

<sup>9</sup> "RFP 20-109 Zero Emission Vehicle Strategy Development", Township of Langley. Available: <https://tol.bidsandtenders.ca/Module/Tenders/en/Tender/Detail/2abae4c7-3ba3-45c1-bdbe-c7eddb93d7ab>

For Objective (e), the City suggests structuring the scenario descriptions as brief overviews for each subsector in 5-year increments from 2020 to 2050. This format would help staff compare and discuss the results more easily and determine implications for interim GHG targets and subsector targets and indicators. A consistent format like this would also support more detailed action planning in the future, and could support the Sustainability Office monitor each subsector during implementation, allowing staff to more quickly and easily determine whether and how to adjust a given action plan and its implementation.

As noted above, the Sustainability Office is working with a communications consultant to understand how best to craft and deliver key messages on climate change and climate action. Staff expect to have additional insights and direction by the time this modelling project begins. These insights and/or directions could relate to audience profiles, associated message frames, and equity and other stakeholder priorities, as well as specific guidance on language choice and non-climate lenses to use in communications (e.g. resilience, infrastructure, health and safety, economics). As noted previously, the initial message frames are aligned with the Sustainability Charter’s eight themes.

## 7. PROJECT TASKS

Below is a set of contemplated tasks to deliver this project. Proponents are not required to follow this process; staff are interested in how Proponents would approach and execute this work.

- Task 1 – Host Kick-off Meeting and Develop a Shared Understanding of Project Plan
- Task 2 – Conduct Best Practices Review and Summarize Key Findings
- Task 3 – Develop Business-as-Usual Energy and GHG Emissions Forecast
- Task 4 – Model and Describe ‘Initial GHG Reduction Scenario’
- Task 5 – Model and Describe GHG Reduction Scenarios under ‘Major Uncertainties’
- Task 6 – Compare Scenarios and Determine ‘Main Path’ for CCAS
- Task 7 – Identify Interim Targets and Capture Climate Action Planning Implications
- Task 8 – Characterize Scenarios and ‘Main Path’ with Clear, Relatable Writing and Visuals
- Task 9 – Finalize Deliverables

Staff would like time and other resources dedicated to the project to be approximately split based on the table below. As above, staff are interested in Proponents’ Proposals for how best to allocate resources to effectively deliver the project.

<b>Tasks</b>	<b>% of project resources</b>
1	<5%
2	10-15%
3, 4, 5	50%
6, 7	15-20%
8	10-15%
9	<5%

Note that staff expect the successful Proponent to begin drafting the deliverables during Task 2. Assembling the final set of deliverables over time will allow staff to use interim findings to inform other related projects, ensure the entire project team has a shared understanding of a task’s findings before moving forward, and reduce backloading the project with drafting deliverables.

Proponents should also account for the following:

- Communicating with City staff and others to collect data and generate assumptions;
- Leading regular project team meetings and as-needed check-ins;
- Calls with Sustainability Office and possibly other staff working on related projects to ensure general alignment, test modelling assumptions, and get input on how best to design communication deliverables (e.g. CCAS team, Transportation Plan team, Key Messaging team); and,
- Recognizing that the ongoing COVID-19 situation may delay or otherwise alter the project process.

## **8. PROJECT TIMELINE**

The City is seeking a consulting team that can complete this project as quickly as reasonable so the results can inform other projects getting underway but does not intend to sacrifice the necessary quality of deliverables in favour of a faster turnaround. Under an ideal timeline, the consulting team would complete all deliverables by **July 31, 2020**, or approximately two months after project award.

Proponents are encouraged to detail what they could reasonably complete by this date, should delivering the entire project be infeasible. This will allow the City to better evaluate Proponents with higher scoring Proposals who cannot achieve the entire project by this date.

Note that this project may experience delays due to COVID-19.

## **9. PROPONENT EXPERIENCE AND PREFERRED QUALIFICATIONS**

The successful Proponent will demonstrate that they have:

- (a) the knowledge, capabilities, and experience (including doing community energy and emissions planning and modelling) to execute effectively;
- (b) a model or models they can use or adapt for this project;
- (c) a robust understanding, from knowledge and experience, of what it will take to significantly reduce GHGs and shift to zero-emission assets and systems (particularly from buildings and transportation, including the subsectors therein);
- (d) recent experience doing similar work with municipalities, preferably but not necessarily including in British Columbia;
- (e) an understanding of the key datasets and how to access them; and
- (f) experience communicating about climate action using relatable and understandable frames and language.

The successful Proponent will:

- (a) demonstrate that the Proponent understands the City's project needs without copy-pasting elements from this RFP;
- (b) lay out a clear plan and timeline to achieve the project objectives and described deliverables;
- (c) describe the approaches the Proponent will use to model multiple scenarios within the available time and budget;

- (d) demonstrate the Proponent has or has access to the resources to ensure timely completion, including people, existing model/tool(s), datasets, contacts, and anything else the Proponent deems necessary to deliver the project;
- (e) demonstrate that members of the Proponent's proposed team have the collective project experience to succeed with this project; and,
- (f) while still achieving the project objectives, identify any issues or potential risks the Proponent sees based on the project scope, and state how the Proponent recommends addressing those.

## **10. ESTIMATED BUDGET**

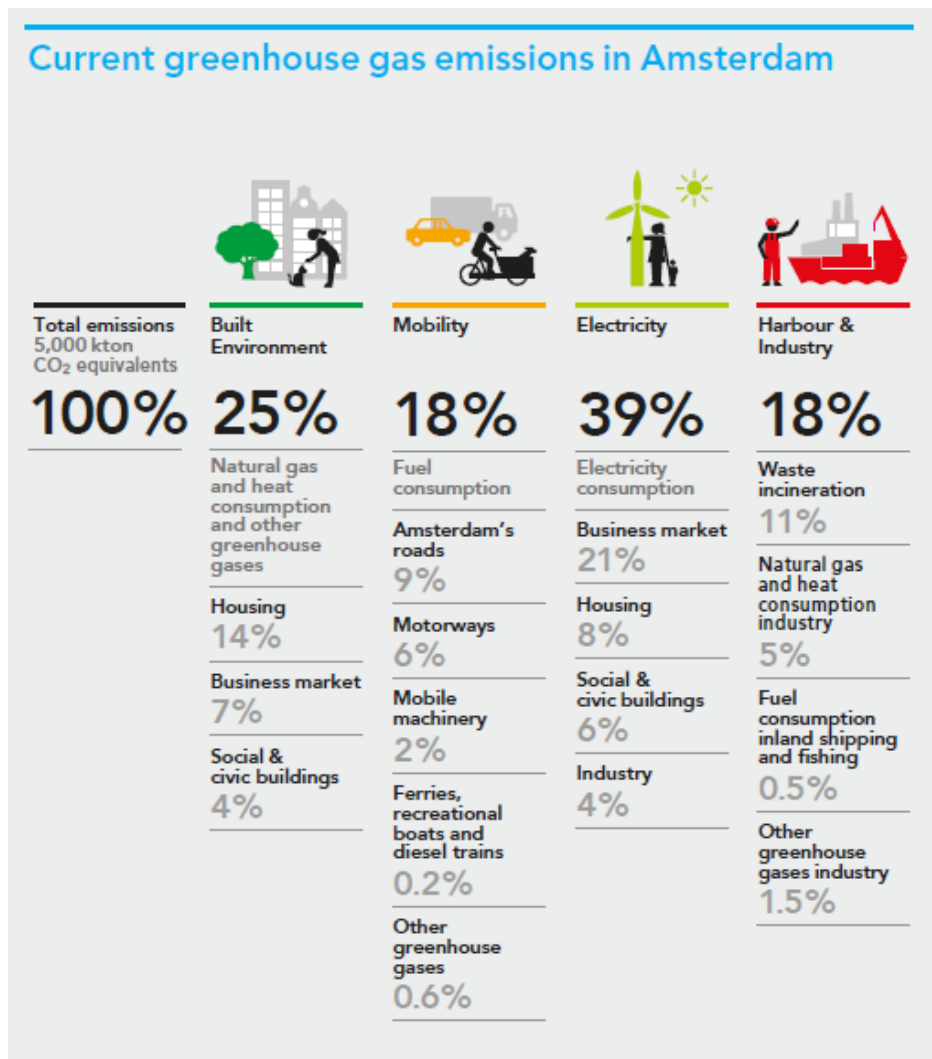
The estimated budget for the scope of work detailed within this RFP is **\$45,000** including Fees, Disbursements, and GST. Proponents should provide detailed fees relating to their proposed schedule of work. Proponents should clearly demonstrate the scope of work, including a summary of deliverables, they are prepared to offer within the project budget.

**-END OF PAGE-**

## SCHEDULE A-1 EXAMPLE DELIVERABLES

Below are screenshots and lists of reports and report elements that exemplify the sorts of deliverables and deliverable components the City wishes to achieve through and with this project. As stated in Schedule A (“Scope of Services”), the City does not require Proponents to do the level of graphic design that would be necessary for a public facing report; the City’s primary focus is on quantitatively understanding and characterizing potential paths to net-zero GHGs. However, the successful Proponent will be required to deliver most, if not all, figures and visuals necessary for a graphic designer to develop polished graphics (as well as any associated data), presented in appealing layouts that draw in desired audiences and allow them to understand what is being communicated.

### Example Report Components (e.g. pages, sidebars, coordinated use of text and graphics)



New Amsterdam Climate – Roadmap: Amsterdam Climate Neutral 2050, City of Amsterdam, March 2020, [https://assets.amsterdam.nl/publish/pages/938968/roadmap\\_amsterdam\\_climate\\_neutral\\_2050.pdf](https://assets.amsterdam.nl/publish/pages/938968/roadmap_amsterdam_climate_neutral_2050.pdf)

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## 2050

- All buildings in the city are carbon-neutral
- Harbour & Industry climate-neutral and circular

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## 2040

- All districts in Amsterdam natural-gas free

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## 2030

- 50 MW extra wind energy generated
- Half of all suitable rooftops fitted with solar panels: 550 MW
- Municipal organisation climate-neutral
- Amsterdam's traffic emissions-free
- Energy label 'A' for offices

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## 2025

- All permits granted for new wind turbines
- Implementation of carbon capture system at AEB

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## 2024

- Realisation of 100 MW electrolysis plant H2ermes, Tata Steel

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## 2023

- Housing corporations' carbon emissions reduced, from 1.5% in 2019 to 3% in 2023

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## 2022

- Three districts/twelve neighbourhoods in an irreversible process to become natural gas-free

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## 2020

- Tightening of national legislation on energy-neutral buildings (BENG)
- 'Year of the Sun'
- New strategy for a sustainable harbour
- First 29 GVB buses emissions-free

New Amsterdam Climate – Roadmap: Amsterdam Climate Neutral 2050, City of Amsterdam, March 2020, [https://assets.amsterdam.nl/publish/pages/938968/roadmap\\_amsterdam\\_climate\\_neutral\\_2050.pdf](https://assets.amsterdam.nl/publish/pages/938968/roadmap_amsterdam_climate_neutral_2050.pdf)



# The Key Takeaways



Rooftop photovoltaic installation. Photo credit: City of Boston

The results of our assessment demonstrate that carbon neutrality in Boston depends on three self-reinforcing strategies, all of which must be pursued in a synergistic and socially equitable manner:

- Improve the energy efficiency of all activities;
- Electrify activities to the fullest extent feasible;
- Purchase 100 percent GHG-free electricity and sustainably sourced fuels.

Pursuing these strategies and accelerating movement to carbon neutrality requires a comprehensive set of actions occurring in parallel and phased in over time, across different sectors and levels of government. The City will need to be intentional in its design and implementation of these actions to integrate positive equity, public health, and economic outcomes, especially for historically disadvantaged and vulnerable populations. This will require close collaboration with businesses and communities, especially when it comes to the structure of necessary regulations and pricing policies because voluntary programs alone will not achieve the scale of change required. This will also help to foster trust, even as decisionmakers need to act with imperfect knowledge about costs, consumer behavior, and the pace of technological innovation, while also considering time and budget constraints.

The City will not be able to achieve carbon neutrality on its own, and the coordination and design of actions must extend beyond Boston. The private sector owns and operates the vast majority of buildings and vehicles. The Commonwealth of Massachusetts sets building and energy codes, regulates utilities, runs the regional transportation systems, and has authority over state and local tax rates and related fees. Regional entities control the port, airport, public transit, water supply, and wastewater treatment infrastructure, and the federal government has oversight over a number of emission standards. Climate action will be most effective when it is done in partnership with other sectors and levels of government, and is included in the City's state and federal legislative agendas.

Effective climate action also fosters an informed and engaged constituency that demands—and votes for—decisive action and accountability over time. For this advocacy to occur, these actions must align with Bostonians' priorities and therefore must reinforce the expansion of economic opportunities for all, improved public health, and stronger social and climate resilience.

In short, carbon neutrality requires a strong, long-term commitment and leadership from City Hall that will support action and coordination across all agencies. It demands a shared vision, set of objectives, and commitment to act across different levels of government and sectors. It will entail both acting on its own and expanding partnerships with the private sector and communities. And it will only be possible with an informed and engaged constituency calling for continued action, follow through, and accountability over time.

This hard work will generate rich dividends. A carbon-neutral city is healthy, safe, and resilient in the face of climate change. The investment that underpins the transformation of Boston will create enormous opportunities for entrepreneurship and workforce development. The collaboration required to reach carbon neutrality will improve the connection between the City, neighboring communities, the state, the business community, and, most importantly, the people of Boston. That collaboration will ensure that every person that lives, works or visits Boston has equitable access to the benefits and opportunities of a carbon-neutral city.

Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

## Scenario Analysis

To form the pathway to carbon neutrality described in the subsequent chapters, we conducted a sequence of assessments for each sector:

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### 1. Baseline

First, we defined a *baseline pathway* for future GHG emissions that incorporates the projected changes in energy consumption and energy efficiency caused by existing and planned action at the city, state, and federal level. These included the City's green building and large-building energy efficiency requirements, and federal vehicle fuel-efficiency standards. The baseline also included projections of future economic conditions and population growth in the city. Appendix B provides more detail on the baseline pathway.

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### 2. New Action on Energy Efficiency (Current Grid)

We then assessed how additional, new action by the City can further reduce the demand for energy and improve energy efficiency as means to reduce GHG emissions, using the current (2017) GHG intensity of the regional grid.

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### 3. New Electrification Action (Current Grid)

Next, we evaluated the impact of electrification of buildings and transportation under the current grid emissions intensity.

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### 4. Massachusetts Clean Energy Standard

We then applied the efficiency and electrification strategies in (2) and (3) with the grid intensity that will exist in each year through 2050, assuming compliance with the state's clean power law. We separated this effect to illustrate the influence that this important state action has on Boston's energy decisions.

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### 5. 100 Percent Clean Supply

Next, we assessed the impact of the purchase of a quantity of GHG-free electricity such that, when combined with the electricity purchased from the grid, Boston's total supply of electricity is effectively 100 percent free of GHGs.

---

### 6. Residual Emissions

Finally, we calculated and discussed a set of residual GHG emissions that remain after implementation of steps (2) through (5). Some uses of fossil fuels may be very difficult to eliminate, such as diesel fuel in heavy-duty transportation and emergency backup energy services, and natural gas used in district energy and heating in some buildings. Residual emissions from waste and wastewater treatment have no ready technological solution. In the Offsets chapter, we discuss how the City could address residual GHG emissions to reach carbon neutrality.

Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>



# The Path to a Carbon-Neutral Boston

## The Essential Elements of a Carbon-Neutral Boston

About two-thirds of Boston's GHG emissions come from buildings, including the electricity used and the heating oil and natural gas burned to warm living space, produce hot water, and prepare food. The bulk of the remaining emissions come from the energy used to transport people and goods. For Boston to be carbon neutral, we must alter the way we design and operate our buildings, heat our homes, power our businesses, and get from place to place. The "we" here is a collective "we." Every Bostonian must work with the City government, state and regional planners, designers, building owners, and energy utilities to make this happen.

At a high level, what must be done is clear. The results of our assessment define a straightforward vision for carbon neutrality that depends on three self-reinforcing strategies, all of which must be pursued in a synergistic and socially equitable manner:

- **Maximizes Efficiency:** A carbon-neutral city minimizes the demand for energy. Every building is a high-performance building; travel shifts from single-occupancy vehicles to public transit, biking, walking, and shared modes; and waste diversion is maximized.
- **Electrifies Activity:** A carbon-neutral city converts systems that currently run on fossil fuels, such as cars, furnaces, and stovetops, to use electricity instead. Heating systems are converted to heat pumps and electric boilers where feasible. Light-duty and medium-duty vehicles are powered by electric motors.
- **Runs on Clean Energy:** A carbon-neutral city purchases electricity that is 100 percent GHG-free, and it fully utilizes the potential for in-city renewable generation, such as rooftop solar. Sustainably sourced renewable fuels are used in highly efficient district energy systems, emergency backup energy systems, and heavy-duty vehicles.

## Accelerating the Path to Carbon Neutrality

These strategies are a common theme through each of the pathways to carbon neutrality we described in the Buildings, Transportation, Waste, and Energy chapters. Together, they produce a 90 percent citywide reduction in GHG emissions by 2050 relative to 2015 (Figure 48). However, a straight-line path to carbon neutrality from 2015 to 2050 will not result in sufficiently rapid reductions in GHG emissions to support the effort to keep global temperature increases below 1.5°C, nor does it meet the City's interim target of a 50 percent reduction in GHG emissions by 2030 relative to 2005.

Our analysis indicates that Boston can help meet that global climate goal and its own 2030 and 2050 emissions targets if it makes procurement of GHG-free electricity an immediate high priority. Figure 48 shows a pathway in which the City procures 100 percent GHG-free electricity by 2030. This path produces a steep decline in emissions that is generally consistent with a 1.5°C mitigation strategy, with emissions in 2030 57 percent lower than 2015, and within 10 percent of the 2050 neutrality target by 2050.

## Energy Efficiency and Clean Electrification Are Keys to Carbon Neutrality

We emphasize energy efficiency and clean electrification (including City procurement) because the necessary technologies are in some cases already available and cost-effective, and the remaining enabling technologies are likely, in our judgment, to become economical at scale before 2050. Even when available and economical, we also recognize that energy efficiency and building electrification face significant funding and implementation challenges, especially at the necessary scale and speed necessary to attain carbon neutrality in a disparate, aging building stock. However, challenges in the area of financing and implementation are those that are within the span of control of the City and its stakeholders. They can be overcome through larger efforts, new financing approaches, and new policies. In contrast, techno-economic leaps and breakthroughs are largely outside the City's control, and it is much less clear how to integrate them into near-term City actions.

Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

# Sectors That Drive GHG Emissions

## Buildings

In the buildings sector we modeled energy conservation and electrification strategies in 15 building use classes (single-family, multifamily, office, etc.) over five vintages representing period-specific advances in building construction. We frame the adoption of these strategies with policies (e.g., mandates vs. incentives) to show the citywide potential of building intervention measures.

## Transportation

In the transportation sector we assessed emissions associated with on-road vehicles (cars and trucks), rail, and local waterborne navigation (ferries). Our assessment of strategies to reduce on-road household vehicle emissions was based on a coupled approach to model travel mode choice and electric vehicle adoption. The mode choice model represents the factors (cost, travel time, traveler preference) that influence a decision to take a particular mode of transportation (personal vehicle, walk, bike, public transit). This enabled the evaluation of travel pricing and transit improvement policies that act to shift a trip's mode of travel. Additionally, an electric vehicle adoption model was used to explore how various incentives could increase adoption rates.

## Waste

Waste reduction strategies proposed by the Zero Waste Boston initiative are evaluated for their impact on emissions. We assessed how these policies reduce and divert different types of waste materials (organics, glass, plastics, etc.) from combustion to other processes. We also assessed emissions from wastewater treatment at the Deer Island treatment facility, which processes wastewater from the City and surrounding region.

## Energy Supply

Our analysis of the energy sector focused on three elements of supplying GHG-free electricity. First, we assessed the impact of electrification in the buildings and transportation sectors by evaluating the resulting changes in electricity demand. We then evaluated the options for in-city energy systems such as rooftop solar energy and district energy. Next, we assessed the options available to Boston to acquire GHG-free electricity. Finally, we assessed the potential of low- and zero-GHG fuels to reduce emissions where electrification is impracticable.

Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

**To meet its 2050 GHG goal, Oakland must take targeted near- and long-term actions to achieve five key changes to its buildings and transportation systems**

**Five changes need to be achieved to meet Oakland's GHG reduction goal:**

- 1 Shift to 100% carbon-free energy
- 2 Eliminate fossil fuels from building heating systems
- 3 Improve building insulation and windows
- 4 Significantly shift people away from private auto trips
- 5 Accelerate the electrification of vehicles

**City action is needed to achieve these changes:**

**Near-Term Actions (2018-2030)**

- Update codes for new buildings to eliminate gas heating systems by 2030
- Accelerate the electrification of space heating systems and dramatically improve building envelopes in existing buildings
- Increase mass transit options and coverage
- Continue to build out pedestrian and bike infrastructure.
- Accelerate the electrification of private vehicles and low capacity taxi/INC vehicles

**Long-Term Actions (2030-2050)**

- Eliminate fossil fuel use in all buildings
- Continue to support large investments in transit
- Prioritize low carbon modes of transportation in infrastructure investments
- Ensure the electrification of shared mobility vehicles

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Pathways to Deep GHG Reductions in Oakland: Final Report, Bloomberg Associates, March 2018, <https://cao-94612.s3.amazonaws.com/documents/City-of-Oakland-CURB-Climate-Model-Final-Report.pdf>

Intro → Overview → Pathways → Policy → Conclusions → Appendices

## The analysis utilized CURB to support data-driven climate action planning in Oakland

Bloomberg Associates and the City of Oakland, with technical support from CURB's development team, piloted a unique six-part methodology to utilize CURB to support data-driven climate action planning.

- 1 Gathered Baseline Data**

Identified data from the best available sources to estimate where Oakland's building, transportation, and energy systems are today and to forecast population and economic trends.
- 2 Engaged Local and National Experts**

Interviewed more than 30 local and national experts and hosted a series of sector-specific workshops with more than 50 Bay Area experts to refine the baseline data and collaboratively estimate the city's projected trajectory and actions needed to achieve GHG reduction goals.
- 3 Outlined Key Assumptions**

The analysis assumes Oakland reaches 100% carbon-free energy by 2030. A carbon-free energy grid is the backbone of future deep GHG reductions and is critical to Oakland achieving an 83% reduction by 2050. The analysis also rests upon core (in-boundary) assumptions for buildings and transportation that are detailed in the next section of the report.

Oakland tracks both core (in-boundary) and consumption-based emissions, however this analysis is limited to core GHG emissions due to the parameters of the CURB tool.
- 4 Developed GHG Reduction Scenarios**

Developed two scenarios for the CURB tool:

  - **Projected Trajectory:** Assumes technological advances and market adoption/penetration, stated State and Federal policies, existing City policies and funded programs, and limited City actions responding to market trends.
  - **Deep Decarbonization:** the actions needed to achieve an 83% reduction in GHG emissions by 2050.
- 5 Analyzed Gaps Between Scenarios**

Compared GHG emissions reductions from the Projected Trajectory to the reductions achieved in Deep Decarbonization to identify the key gaps between what the city is projected to achieve and what it needs to achieve to meet its GHG reduction goals. This part of the analysis identified the key gaps where City action is required.
- 6 Identified Policy Areas and Case Studies**

Based upon the gap analysis and the modeled GHG reduction impacts, the analysis identified priority policy areas where City action is needed. These policy areas should help shape the ECAP update.

The report also includes case studies from other cities around the world that could serve as models for Oakland in the targeted areas it needs to take action to achieve deep GHG reductions.

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Pathways to Deep GHG Reductions in Oakland: Final Report, Bloomberg Associates, March 2018, <https://cao-94612.s3.amazonaws.com/documents/City-of-Oakland-CURB-Climate-Model-Final-Report.pdf>

Intro → Overview → Pathways → Policy → Conclusions → Appendices

## The analysis was limited by several important factors


<b>Data Availability</b>	<ul style="list-style-type: none"> <li>• There are no comprehensive, detailed databases on the conditions or types of systems in Oakland's building stock or vehicles, nor is there detailed mode share information for the city. As a result, the analysis utilizes proxy data or educated assumptions based on research and expert interviews.</li> </ul>
<b>Underlying Assumptions</b>	<ul style="list-style-type: none"> <li>• Analysis that models more than 30 years into the future is an inherently projective exercise that involves a series of key underlying assumptions. While transparently documented in this report, the analysis relies upon assumptions on technology development, market changes and the impacts of State-level policies. It does not incorporate any assumptions regarding behavioral changes that could change consumption patterns (e.g., increasing plug loads for electronics). These are largely outside the City's control, yet for the purposes of this analysis, shape the determination of where City action is needed.</li> </ul>
<b>Core Versus Consumption Emissions</b>	<ul style="list-style-type: none"> <li>• Oakland is a leading city in measuring consumption-based emissions in addition to core (in-boundary) emissions. Reducing consumption-based emissions over the long term is critical to reducing the impacts of climate change; however, it often falls outside the scope of traditional city-level powers and responsibilities. Due to the setup of CURB, this analysis was limited to core (in boundary) emissions.</li> </ul>
<b>Constraints of the CURB Tool</b>	<ul style="list-style-type: none"> <li>• The structure for transportation actions in CURB includes grouping many individual potential actions within broader categories (e.g., passenger mode shift). The outputs of the tool, therefore, do not allow for granular analysis in the impact of any one individual action to shift modes. This particularly limited the assessment of the economic costs of transportation actions to shift modes and electricity vehicles.</li> </ul>
<b>Climate Change</b>	<ul style="list-style-type: none"> <li>• This analysis does not account for the impacts that climate change may have on energy consumption patterns. While a warming climate is likely to shift heating and cooling loads in Oakland, this analysis does not attempt to forecast the extent or pace of such changes.</li> </ul>

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Pathways to Deep GHG Reductions in Oakland: Final Report, Bloomberg Associates, March 2018, <https://cao-94612.s3.amazonaws.com/documents/City-of-Oakland-CURB-Climate-Model-Final-Report.pdf>



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## Key assumptions for the Projected Trajectory and Deep Decarbonization scenarios

BA

### Key overarching CURB assumption

- Oakland's electricity grid will be served by 100% carbon-free energy by 2030.

### Key building-related assumptions

- California's energy efficiency laws will continue to drive significant improvements in building efficiency, particularly for new buildings. These mandates should lead to near-zero net energy for all new construction by 2020 for residential buildings and 2030 for commercial properties.
- Oakland's current renovation program is reaching 1-2% of multi-family properties per year. At best that program will upgrade 66% of multi-family properties in Oakland by 2050.

### Key transportation-related assumptions

- California incentives will increase adoption rate of zero/low emission vehicles for private autos and light-duty trucks over historical trends. New sales of electric/low emissions vehicles will increase from current 5% of total sales to 40% by 2030 and 90% by 2050.
- Fuel efficiency improvements will continue to be driven by CAFE standards set by the State and Federal Government.
- 2030 projections do not account for autonomous vehicles due to uncertainty over near-term technological and regulatory hurdles; by 2050 AVs will be a normalized part of the transportation system.

More detailed assumptions can be found in Appendix A and B 'Technical Materials'.

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## The CURB analysis shows that a few changes are key to reducing Oakland's GHG emissions



While cities must take an "all of the above" approach to climate action to achieve deep reductions, the analysis shows that not all actions are equal. Given the projected changes that will occur to Oakland's building and transportation systems as new technologies are adopted and State and Federal regulations take effect, **there are a few changes that have an outsized impact on the city's GHG emissions.**

- 1 Shift to 100% carbon-free energy
- 2 Eliminate fossil fuels from building heating systems
- 3 Improve building insulation and windows
- 4 Significantly shift people away from private auto trips
- 5 Accelerate the electrification of vehicles

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## CARBON NEUTRAL ENERGY FOR NEW BUILDINGS

*Major Move for 2020-2030*

### DIRECTION 3

All new building applications will meet the applicable (for building type) top performance level of the BC Energy Step Code starting in 2025, and be powered by low carbon energy systems (in-building or district energy).



### Carbon Reduction Impact by 2030:

- ✓ Achieve 80% low-carbon energy supply for heating and cooling district-energy-connected buildings in Richmond.
- ✓ All new buildings completed after 2025 (not connected to district energy) will consume 50% less energy and emit two-thirds less greenhouse gases than new buildings built in 2017.



Report to Committee: Community Energy and Emissions Plan 2020-2050 Strategic Directions, City of Richmond, November 29, 2019,

[https://www.richmond.ca/shared/assets/1\\_CEEP\\_2020\\_2050\\_Directions\\_GP\\_01202055534.pdf](https://www.richmond.ca/shared/assets/1_CEEP_2020_2050_Directions_GP_01202055534.pdf)

## COMPLETE COMMUNITIES

### DIRECTION 4

Accelerate current OCP objectives for compact, complete communities throughout Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.



#### Carbon Reduction Impact by 2030:

- ✓ Extend Frequent Transit with supportive zoning, enabling sufficient number of residents and transit-supportive service levels.
- ✓ Extend existing complete community policies to expand access to walkable neighbourhood services.



Report to Committee: Community Energy and Emissions Plan 2020-2050 Strategic Directions, City of Richmond, November 29, 2019,

[https://www.richmond.ca/\\_shared/assets/1\\_CEEP\\_2020\\_2050\\_Directions\\_GP\\_01202055534.pdf](https://www.richmond.ca/_shared/assets/1_CEEP_2020_2050_Directions_GP_01202055534.pdf)

## RETROFIT EXISTING BUILDINGS

## Major Move for 2020-2030

### DIRECTION 1

Accelerate deep energy retrofits to existing residential, institutional, commercial and industrial buildings and shift to low-carbon heating and cooling using in-building systems or district energy.



#### Carbon Reduction Impact by 2030:

- ✓ Retrofit buildings representing half of all GHG emissions, achieving an average GHG reduction of 70% in these buildings, through partnerships with senior levels of government, utilities and building operators.
- ✓ Where possible, apply the anticipated future Provincial energy retrofit code when implemented, as per Clean BC Plan.
- ✓ Achieving net zero requires 25% of remaining gas use in existing buildings to be renewable natural gas by 2050.



Report to Committee: Community Energy and Emissions Plan 2020-2050 Strategic Directions, City of Richmond, November 29, 2019,

[https://www.richmond.ca/\\_shared/assets/1\\_CEEP\\_2020\\_2050\\_Directions\\_GP\\_01202055534.pdf](https://www.richmond.ca/_shared/assets/1_CEEP_2020_2050_Directions_GP_01202055534.pdf)

## SUPPORT FREQUENT TRANSIT

### DIRECTION 6

Foster wider use of frequent public transit throughout Richmond by implementing and upgrading transit stops, well integrated with active transportation (walking / rolling, bicycling) and with car-sharing networks.



#### Carbon Reduction Impact by 2030:

- ✓ Increase transit mode share from 12.5% (2017) to 22% by 2030, with further increases to 2050.



Report to Committee: Community Energy and Emissions Plan 2020-2050 Strategic Directions, City of Richmond, November 29, 2019,

[https://www.richmond.ca/shared/assets/1\\_CEEP\\_2020\\_2050\\_Directions\\_GP\\_01202055534.pdf](https://www.richmond.ca/shared/assets/1_CEEP_2020_2050_Directions_GP_01202055534.pdf)

## TRANSITION TO ZERO EMISSION VEHICLES

### *Major Move for 2020-2030*

### DIRECTION 2

Foster electrical mobility for all residents and businesses in Richmond, with expanded options for charging at home, at work, and on-the-go personal electric vehicles, electric car share vehicles, e-bicycles / e-scooters.



#### Carbon Reduction Impact by 2030:

- ✓ Reduce total annual GHG emissions from light-duty vehicles in Richmond to 50% below 2017 levels by 2030.
- ✓ Reduce total annual GHG emissions from heavy-duty vehicles in Richmond to 33% below 2017 levels by 2030.



Report to Committee: Community Energy and Emissions Plan 2020-2050 Strategic Directions, City of Richmond, November 29, 2019,

[https://www.richmond.ca/shared/assets/1\\_CEEP\\_2020\\_2050\\_Directions\\_GP\\_01202055534.pdf](https://www.richmond.ca/shared/assets/1_CEEP_2020_2050_Directions_GP_01202055534.pdf)





## At its current pace, Oakland will not meet its 2050 GHG reduction goal

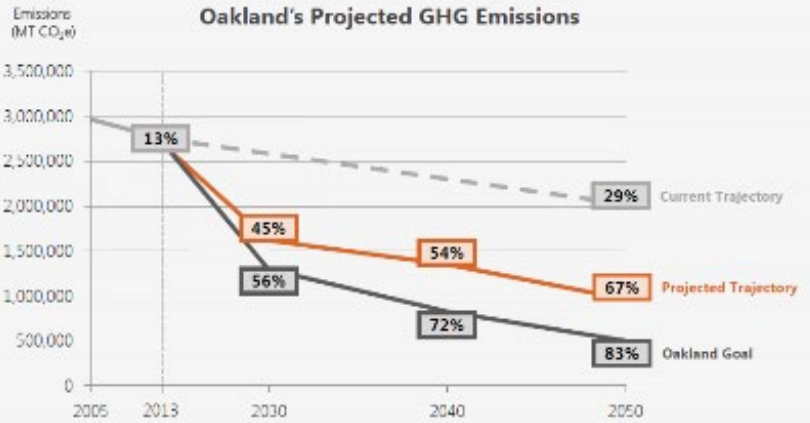


In 2009, Oakland adopted an ambitious greenhouse gas (GHG) goal to reduce its core emissions 83% by 2050 from a 2005 baseline.

In 2013, Oakland's GHG emissions decreased 13% from its 2005 baseline. If Oakland continues on its Current Trajectory, it will only achieve a 29% decrease in emissions by 2050, accounting for population and economic growth – far short of its adopted target.

Even accounting for expected changes, including market trends and technological advances, State and Federal policies, and adopted and funded City policies (Projected Trajectory) Oakland will not achieve its 2050 goal.

Meeting the 2050 goal is technically feasible, but will require significant City leadership, investment, and policy changes in both the near term and long-term.



Source: Bloomberg Associates Analysis, CURB

1

Pathways to Deep GHG Reductions in Oakland: Final Report, Bloomberg Associates, March 2018, <https://cao-94612.s3.amazonaws.com/documents/City-of-Oakland-CURB-Climate-Model-Final-Report.pdf>







## A Scenario-based Approach

San Francisco has been tracking and reporting emissions using globally accepted protocols since 2008 and has a deep understanding of the emissions produced from different sectors. Based on this understanding, the city has developed two scenarios, each of which uses San Francisco’s 2017 emissions inventory as a baseline: A business-as-usual (BAU) scenario and a Goals scenario. The BAU scenario assumes the city does not advance or accelerate its climate efforts further and consequently, does not reach its goals. The Goals scenario examines the potential emissions reductions that can be achieved if the city meets its 0-80-100-Roots commitments.

This analysis also examines how emissions reductions in the transportation and buildings sectors might be impacted by the timing of meeting the 0-80-100-Roots commitments. Specifically, for the transportation sector we evaluated the impact of slowing down the time to achieve 80% sustainable trips, while for the building sector we evaluated the impact of speeding up the timing to achieve zero emissions new buildings.

**TABLE 2 - ANALYSIS ASSUMPTIONS<sup>7 8 9</sup>**

	<b>BAU Scenario Assumptions</b>	<b>Goals Scenario Assumptions</b>
<b>Energy</b> 	The electricity mix remains the same as in 2017, with renewables remaining at only 64% of the mix between now and 2050.	Future energy demands from the transportation and building sectors are met by a continued increase in renewables, with 100% renewable electricity by 2030 maintained through 2050.
<b>Buildings</b> 	Energy efficiency savings in new and retrofitted buildings do not increase more than current standards. The ratio of natural gas and electricity used in buildings remains the same as 2017.	New buildings are net zero emissions by 2030 and approximately 3% of existing buildings are retrofitted each year, resulting in a nearly 100% efficient existing-building stock and all-electric no later than 2050.
<b>Transportation</b> 	Trips taken by walking, biking and transit remain at 54% with no further increase between 2017 and 2050. Electric vehicles continue to be less than 2% of total vehicles registered in the City.	By 2030, 80% of all trips are taken by walking, biking, or transit, and 25% of private vehicles registered in San Francisco are electric.
<b>Zero Waste</b> 	Levels of refuse generated and disposed per capita remain the same as in 2017, however due to population growth the total amount generated and disposed increases.	Refuse generation is reduced 15%, and disposal is reduced 50% by 2030 despite population growth.

<sup>7</sup> The main assumptions of the BAU and Goals scenarios are summarized in Table 2 and described in detail in Appendix A.

<sup>8</sup> Renewable energy in San Francisco is defined as solar (PV), wind, small hydro and existing large hydroelectric, geothermal, and biomass.

<sup>9</sup> The World Green Building Council defines net zero carbon buildings as a building that is highly energy efficient and fully powered from on-site and/or off-site renewable energy sources (non-CO<sub>2</sub> emitting).

Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019,  
[https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)

## Transportation Strategic Priorities

80% of all trips in 2030 are taken by walking, biking and transit

25% of private cars and trucks are electric by 2030 and 100% by 2040

Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019, [https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)

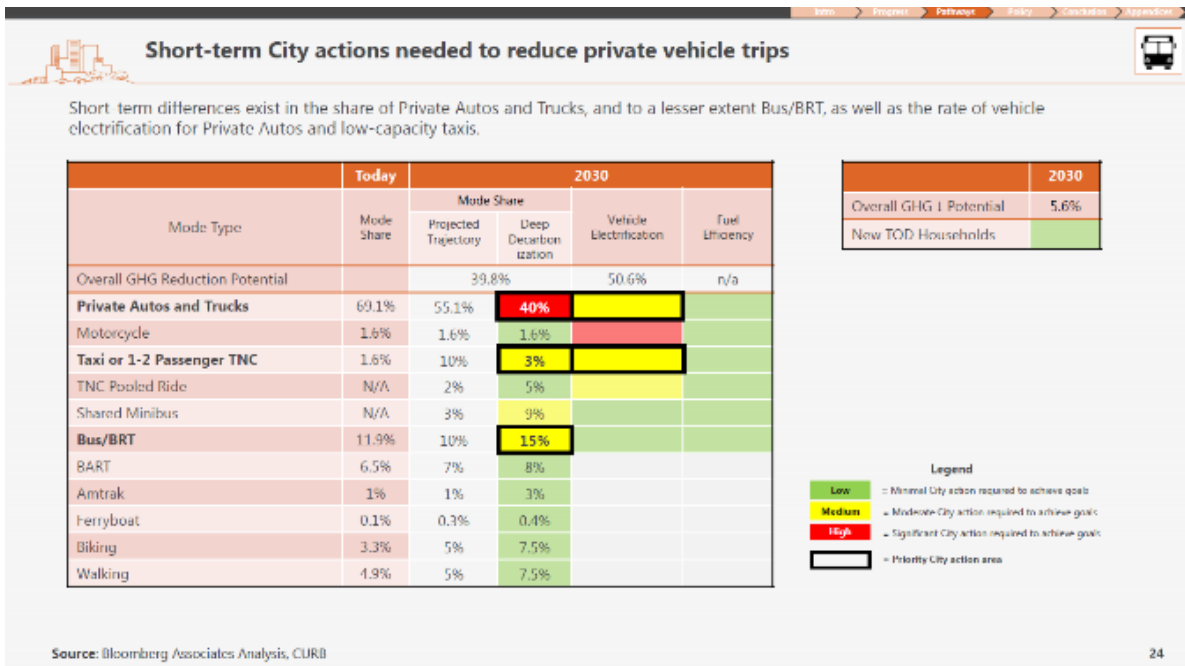
## Example Data Tables

**Table 7. Current and Projected Fuel Use by Sector and Associated GHG Emissions**

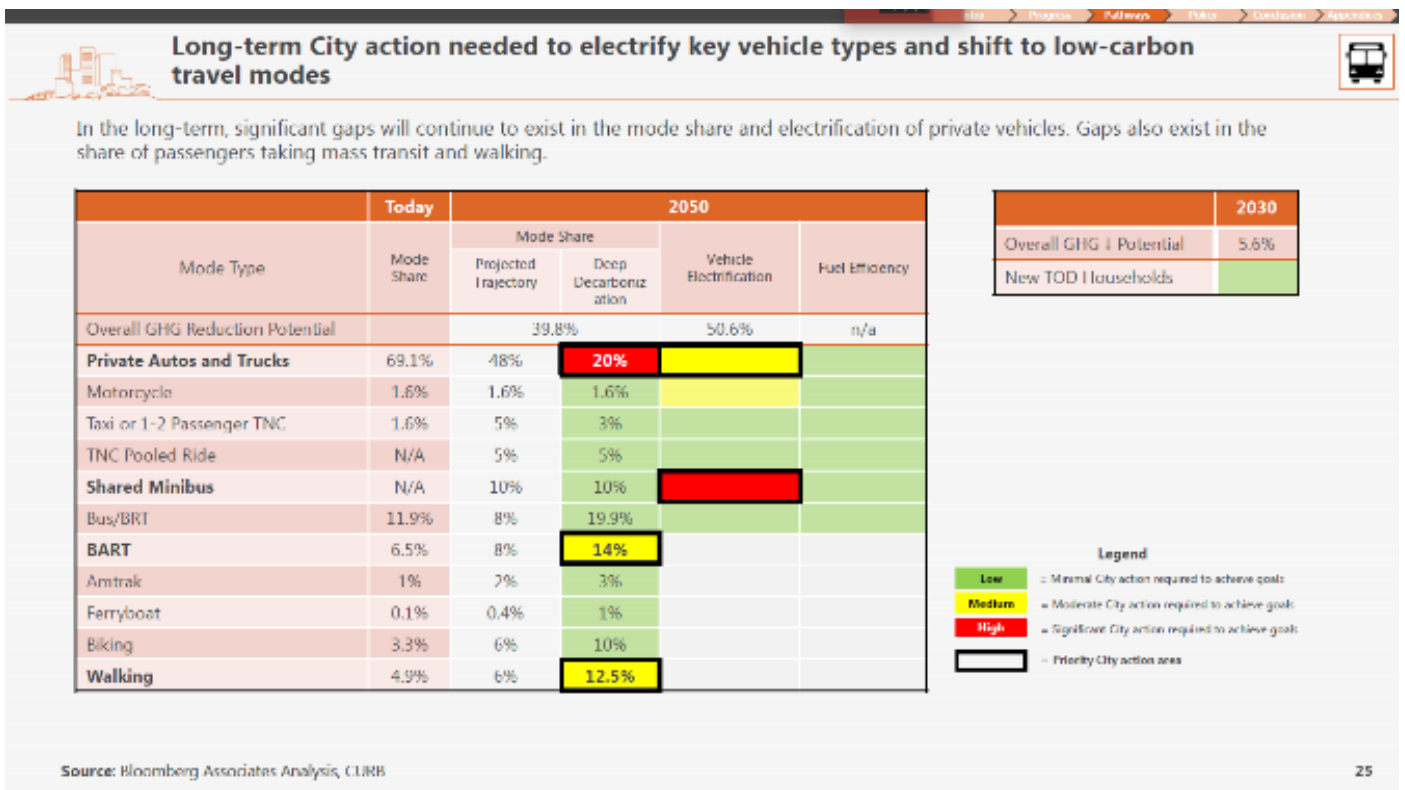
Sector	Remaining Service	Current Demand (TWh)	Estimated 2050 Demand (TWh)	Current Emissions (kt CO <sub>2</sub> e)	2050 Emissions (kt CO <sub>2</sub> e)
Transportation	Heavy trucking, ferry	7.29	0.38	1,937	102
Buildings	Backup generation, legacy equipment, difficult/costly to electrify systems	12.05	2.90	2,239	528
MWRA	Backup generation	0.03	0.03	7	7
Massport	Backup, generation, snow melting, air support equipment	0.24	0.08	59.6	18.5
MBTA	Space heating, backup generation	0.07	0.02	18.9	5.1
<b>Total</b>		<b>19.7</b>	<b>3.4</b>	<b>4,262</b>	<b>661</b>

\* Notes: Estimates of 2050 demand in buildings and transportation are taken from each sector's high electrification scenario. The estimates for other services reflect the continued use of fuels for critical services (backup generation, snow melting, etc.) and partial electrification of some services (e.g., Massport buildings and ground equipment). Source: Model calculations.

Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>



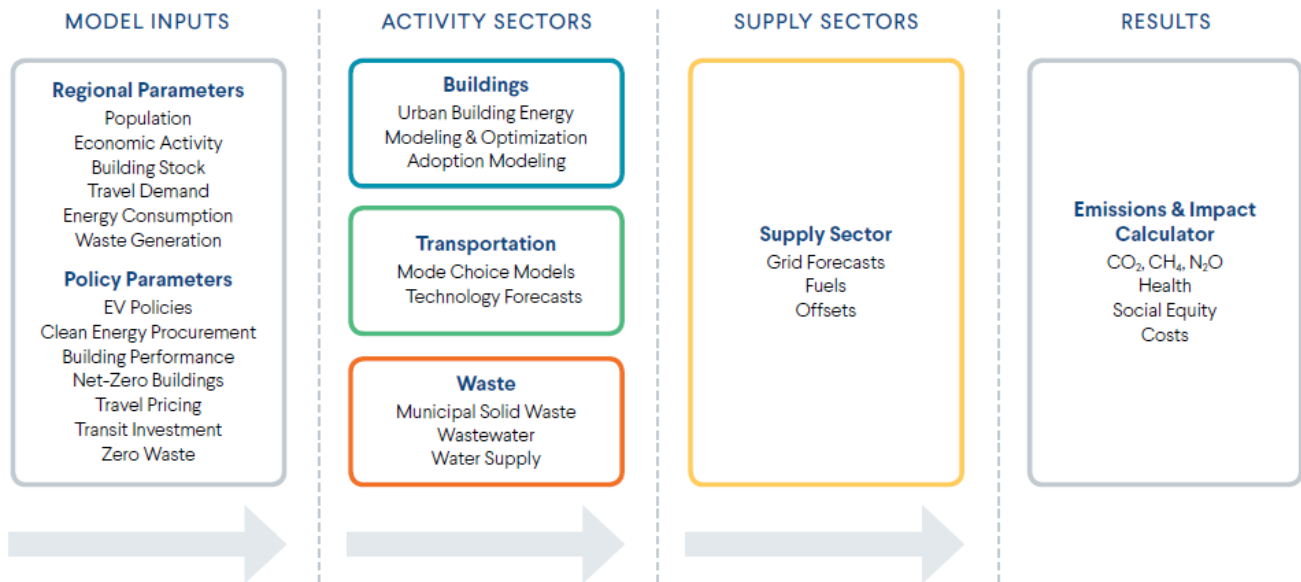
Pathways to Deep GHG Reductions in Oakland: Final Report, Bloomberg Associates, March 2018, <https://cao-94612.s3.amazonaws.com/documents/City-of-Oakland-CURB-Climate-Model-Final-Report.pdf>



Pathways to Deep GHG Reductions in Oakland: Final Report, Bloomberg Associates, March 2018, <https://cao-94612.s3.amazonaws.com/documents/City-of-Oakland-CURB-Climate-Model-Final-Report.pdf>

## Example Figures (and associated text)

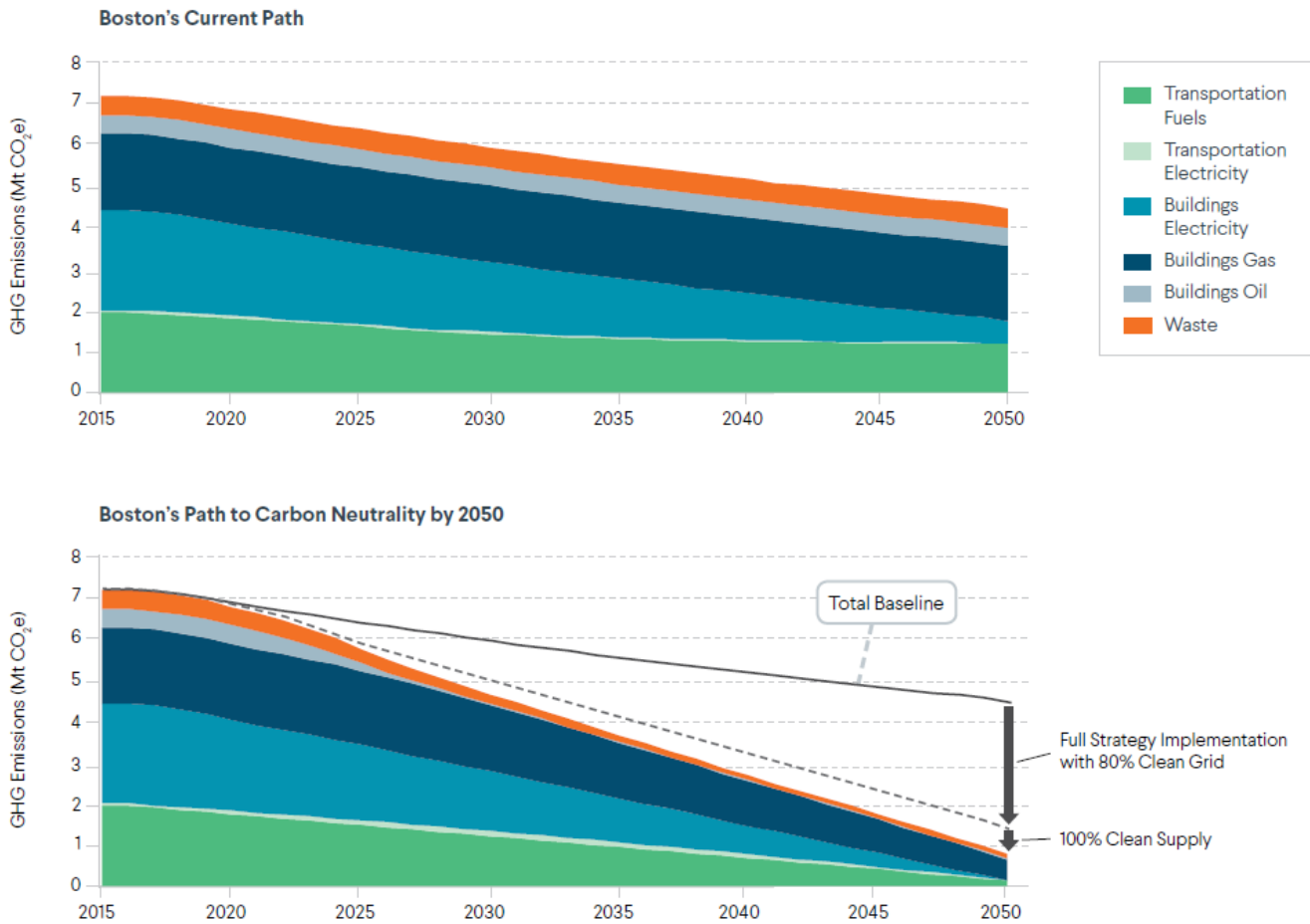
Figure 6. Modeling Framework for Carbon Free Boston



Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

### Figure 3. Boston's Roadmap to Carbon Neutrality by 2050

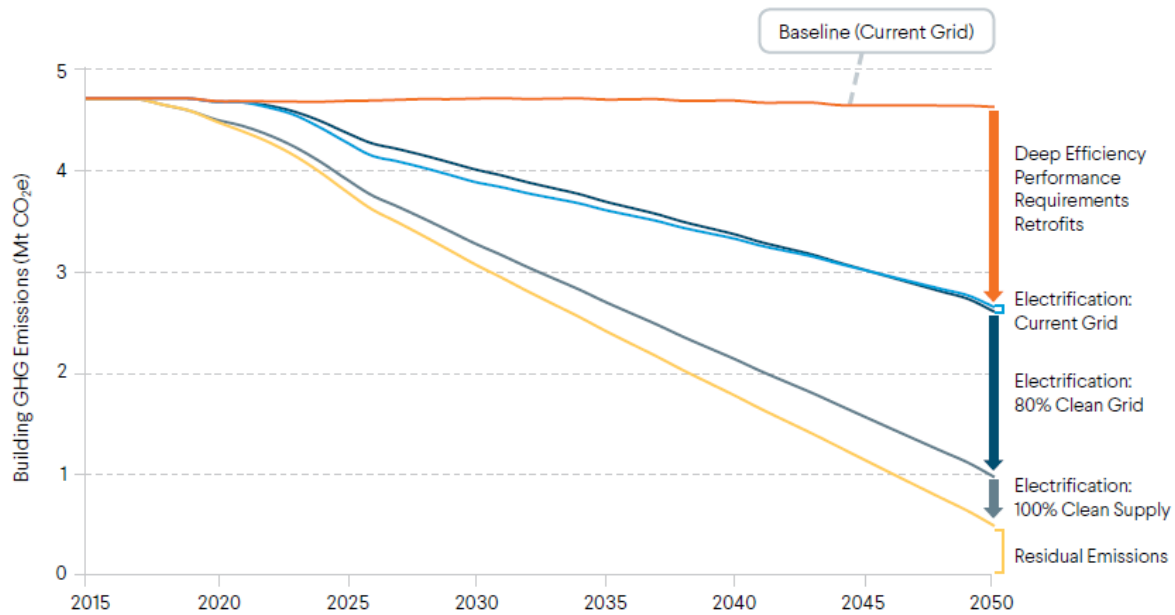
**Top:** Emissions forecast for a baseline scenario with no additional City action in which emission reductions are primarily driven by increasing efficiency in transportation due to federal vehicle fuel efficiency standards, and a reduction in the GHG intensity of the electricity grid caused by the Massachusetts Clean Energy Standard (80% low- to zero-carbon electricity by 2050). **Bottom:** Emissions forecast for a scenario that represents forceful city action on GHG mitigation across all sectors ("Full Strategy Implementation"). The solid line is the baseline scenario in the top figure. The dashed line indicates the impact of efficiency and electrification measures alone, while additional reductions are achieved by the City's procurement of 100% zero-GHG electricity by 2050. Source: Institute for Sustainable Energy model calculations.



Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

### Figure 17. Pathway to Eliminating Carbon Emissions in the Buildings Sector

The key to carbon neutrality in buildings is the combination of deep energy efficiency and the electrification of heating and cooking with GHG-free electricity. Wedges represent the impact of specific, consecutive actions starting from today's conditions [Baseline (Current Grid)], which reflects expected growth in buildings and current policies in place. Requirements for deep efficiency performance (light blue) include strong new-building performance standards and deep energy retrofits aligned with a critical intervention point (e.g., major renovation) in a building's life cycle. Deep energy retrofits are defined by their goal of a 50% reduction in energy use per square foot. Electrification includes the deployment of heat pumps in residential and some commercial buildings, electric boilers in larger buildings, and the electrification of most hot water and cooking services. Source: Institute for Sustainable Energy model calculations.

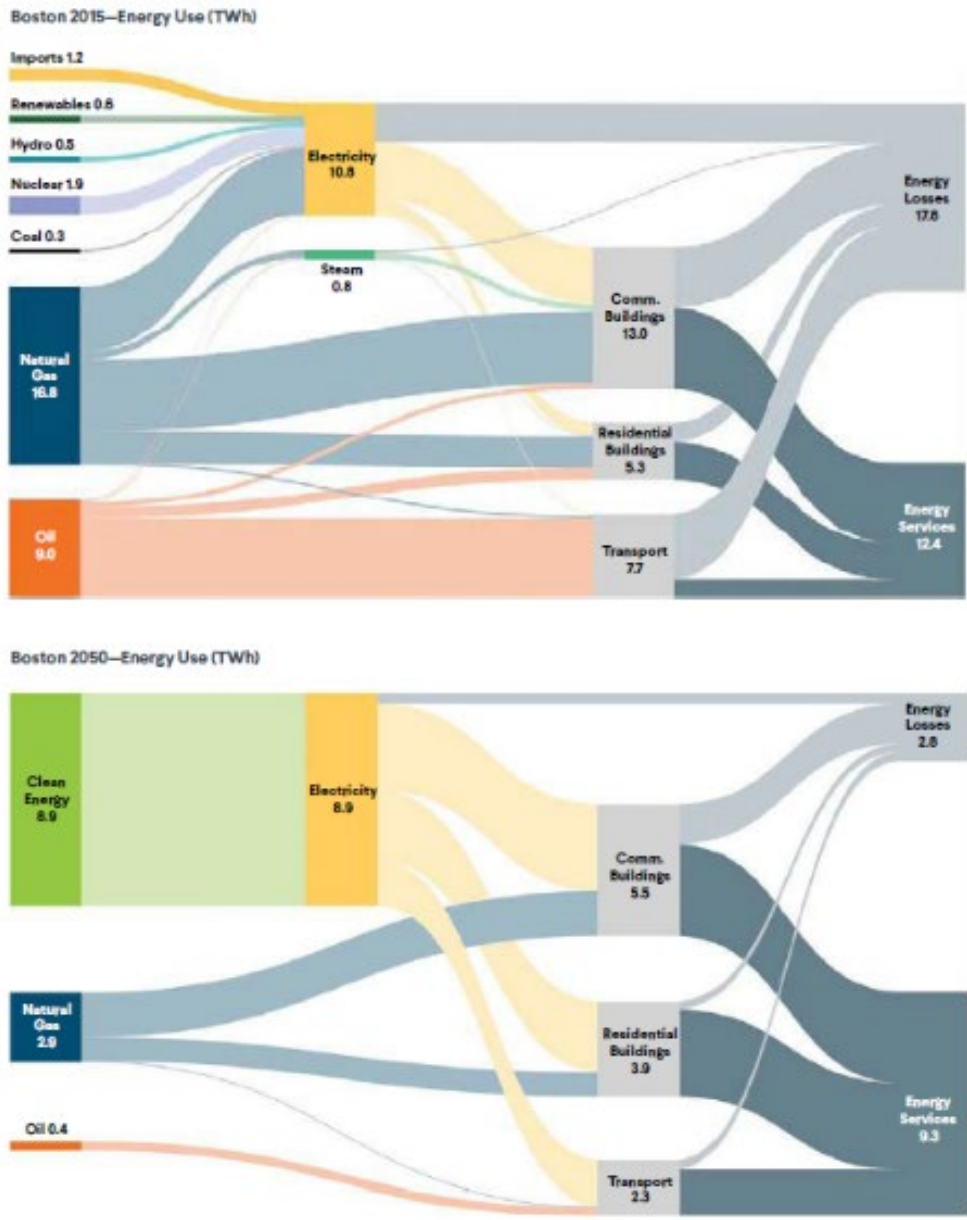


Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>



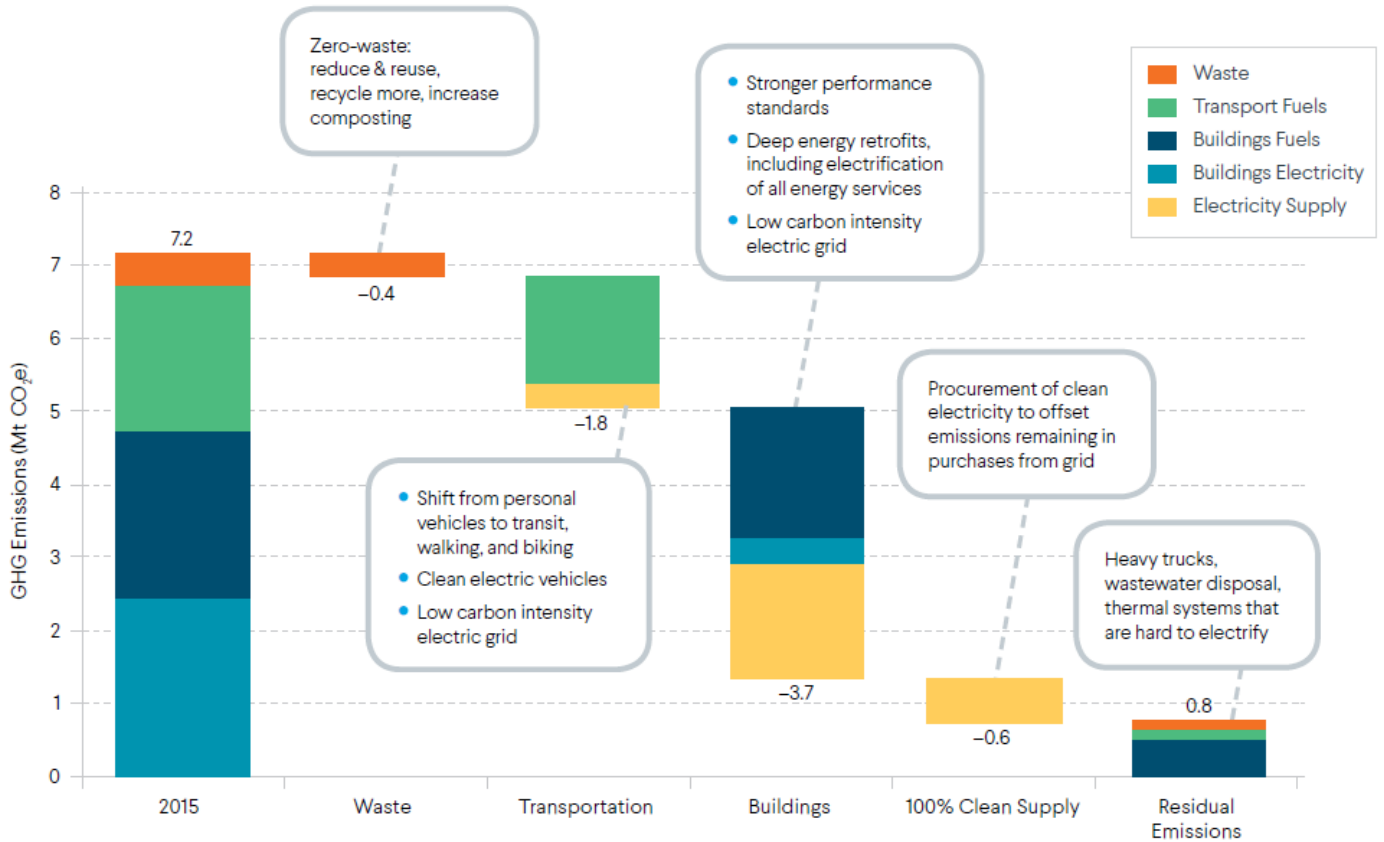
**Figure 2. Current and Future Energy Use in Boston**

**Top:** In 2015, fossil fuels dominate total energy use, and energy is used inefficiently. **Bottom:** In 2050, clean fuels and electricity dominate energy use, and little energy is wasted. On the left are energy sources used in the City. The height of a bar indicates the relative quantity of energy used. On the right are energy services such as mobility, heating and cooling, lighting, etc. Also shown are energy losses, i.e. the energy consumed in buildings and transportation that does not provide a useful service, such as the heat released by car engines and leaky windows. In the middle are the sectors that transform the energy inputs into the energy services. Steam from district systems could play a role in 2050 but is not explicitly assessed. Sources: Boston Community Greenhouse Gas Inventory and Institute for Sustainable Energy model calculations.



### Figure 4. Steps to Carbon Neutrality in Boston

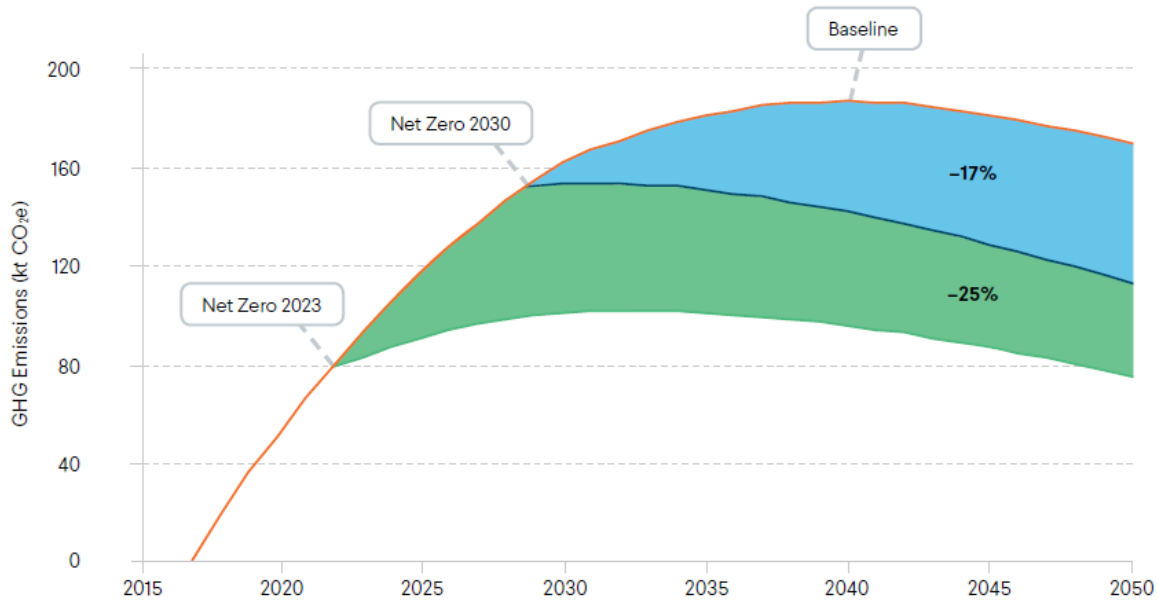
In 2015, GHG emissions in Boston were about 7.2 Mt CO<sub>2</sub>e. Each subsequent column indicates reductions in each sector that are possible by 2050. In the transportation and buildings columns, the yellow portion reflects the reduction in emissions caused by the expected contribution of the Massachusetts Clean Energy Standard (80% clean electricity by 2050). "100% Clean Supply" refers to the emissions reduction associated with the procurement of 100% GHG-free electricity. Residual emissions are generated by sectors that are difficult to fully decarbonize and will likely require the use of low-carbon fuels or offsets. Source: Institute for Sustainable Energy model calculations.



Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

### Figure 15. Reducing GHG Emissions in New Buildings

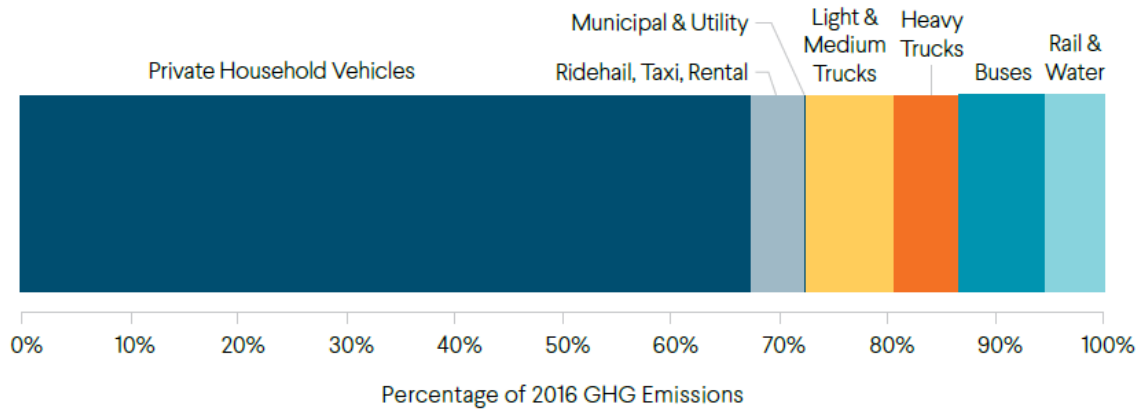
Early action to reduce GHG emissions yields a large reduction in the long run. This chart shows annual emissions from cumulative new-building construction: without a new-buildings performance policy (Baseline), from a net-zero policy implemented in 2030, and from a net-zero policy implemented in 2023. In the baseline, emissions increase with the growing stock of new buildings, but eventually level off and decline. The baseline scenario is based on our assumptions that the state building code will strengthen, and that the grid becomes cleaner due to the Massachusetts Clean Energy Standard. A net-zero buildings policy instituted in 2030 will reduce cumulative emissions through 2050 by 17%. A net-zero buildings policy instituted in 2023 will reduce cumulative emissions through 2050 by 42%. Source: Institute for Sustainable Energy model calculations.



Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

### Figure 20. Transportation Emissions by Mode of Travel in 2016

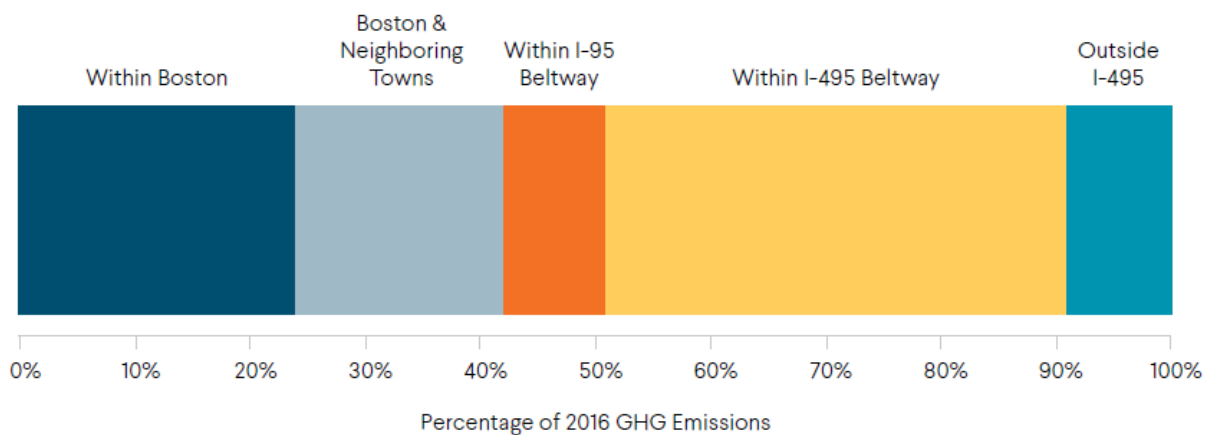
Rail refers to the MBTA commuter and subway lines. Water refers to MBTA water ferries. Source: Institute for Sustainable Energy model calculations.



Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

### Figure 21. Transportation GHG Emissions by Region in 2016

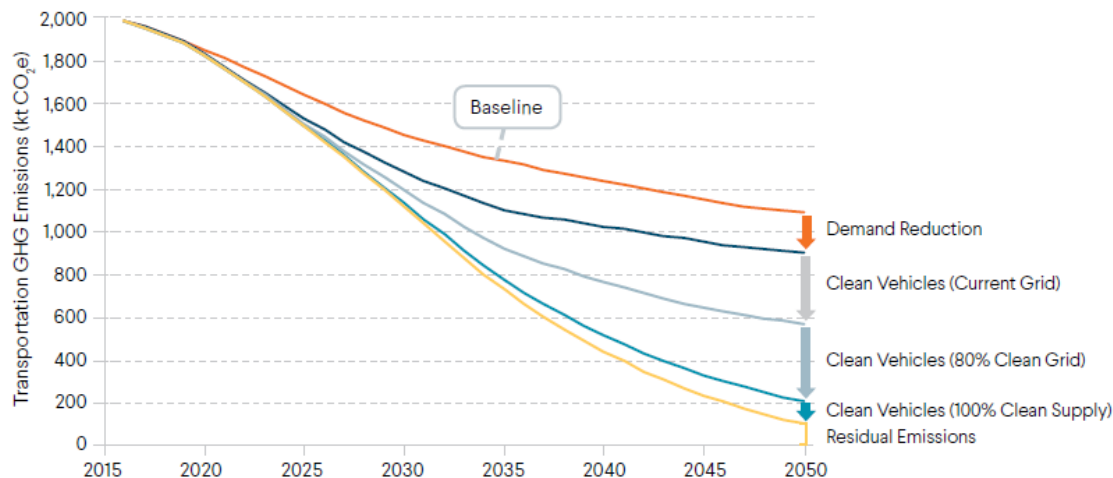
Sources: Institute for Sustainable Energy model calculations and Central Transportation Planning Service.



Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

### Figure 27. The Path to Carbon Neutrality in Transportation

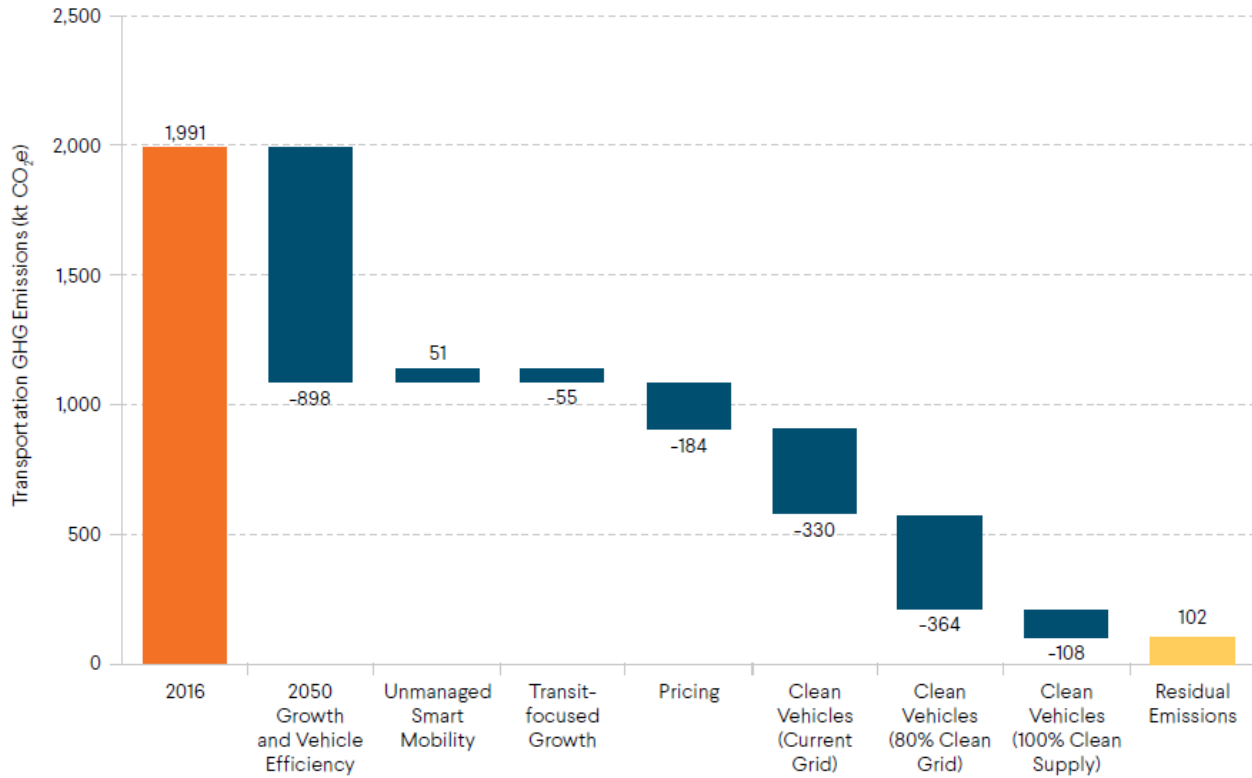
Vehicle miles traveled (VMT), and hence GHG emissions, increase due to the (presumed) lower cost in time and money to travel by an autonomous vehicle. Transit-focused Growth refers to the combined impacts of investment in transit, walking, and biking, plus the effect of future growth in the City being concentrated near transit. Pricing refers to the combined impacts of a VMT fee, a congestion (cordon) fee, a parking fee, a subsidy to shared smart mobility, and free/reduced cost public transit. Clean Vehicles (Current Grid) represent 100% EV use with the current GHG intensity of the regional grid. Clean Vehicles (80% Clean Grid) reflects a grid that is 80% GHG-free by 2050. The Clean Vehicles (100% Clean Supply) scenario assumes that the City procures a quantity of zero-carbon electricity that “offsets” all the GHGs in the electricity it purchases from the grid. Residual emissions are the GHGs that remain after all the strategies are implemented. Source: Institute for Sustainable Energy model calculations.



Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

### Figure 28. Steps to Carbon Neutrality in Transportation

In 2016, GHG emissions from transportation in Boston were about 2.0 Mt CO<sub>2</sub>e. Each subsequent column indicates reductions caused by specific actions that are possible by 2050. "80% Clean Grid" reflects the reduction in emissions caused by the expected contribution of the Massachusetts Clean Energy Standard (80% clean electricity by 2050). "100% Clean Supply" assumes that the City procures a quantity of zero-carbon electricity that "offsets" all the GHGs in the electricity it purchases from the grid. Residual emissions remain due to our assumption that the heavy-duty truck, intercity bus, and ferry sectors will be electrified at a much slower rate than light- and medium-duty vehicles, and thus continue to use fuels that release GHGs. Residual emissions are generated by sectors that are difficult to fully decarbonize and will likely require the use of low-carbon fuels or offsets. Source: Institute for Sustainable Energy model calculations.

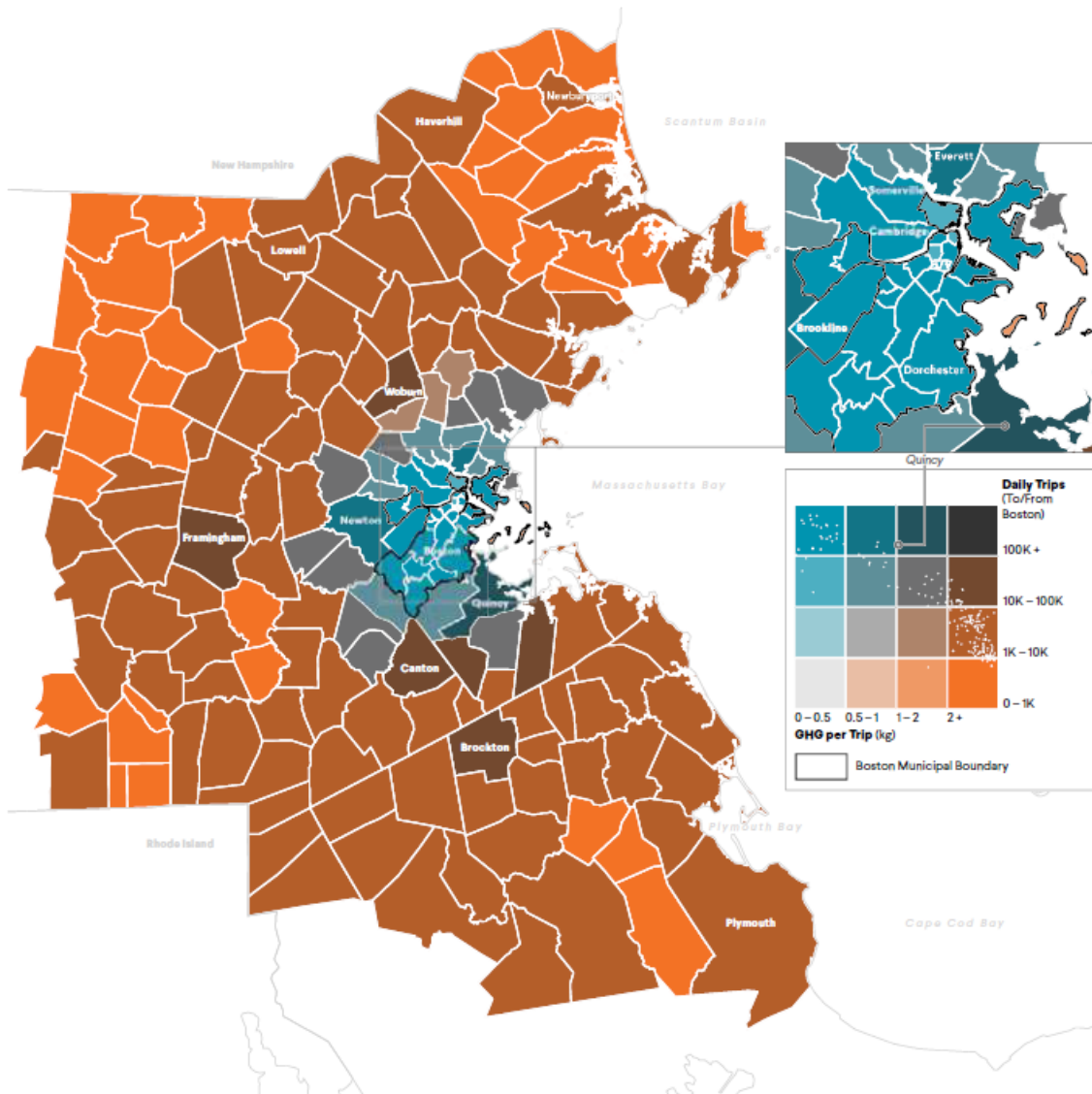


Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>



**Figure 22. Trips and GHG Emissions in 2016**

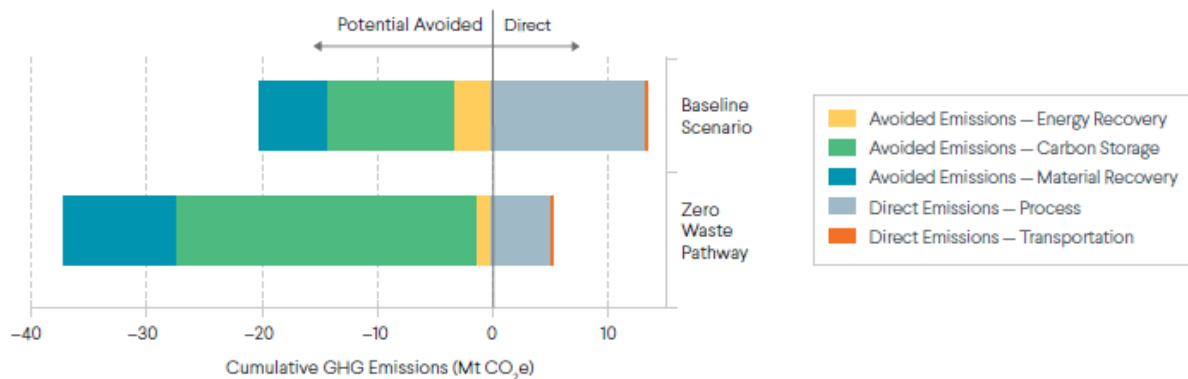
**Map:** This map depicts the relationship among three factors: the number of trips made to/from Boston, the GHG released per trip, and the distance from Boston. A color represents two dimensions: the number of trips that start or end in Boston, and the quantity of GHG released per trip. The blue inner core has a greater number of trips, but much lower GHGs per trip compared with outer regions. **Inset Graph:** The vertical axis is the average number of daily trips to/from Boston; the horizontal axis is the GHG released per trip. Source: Institute for Sustainable Energy model calculations and Central Transportation Planning Service.



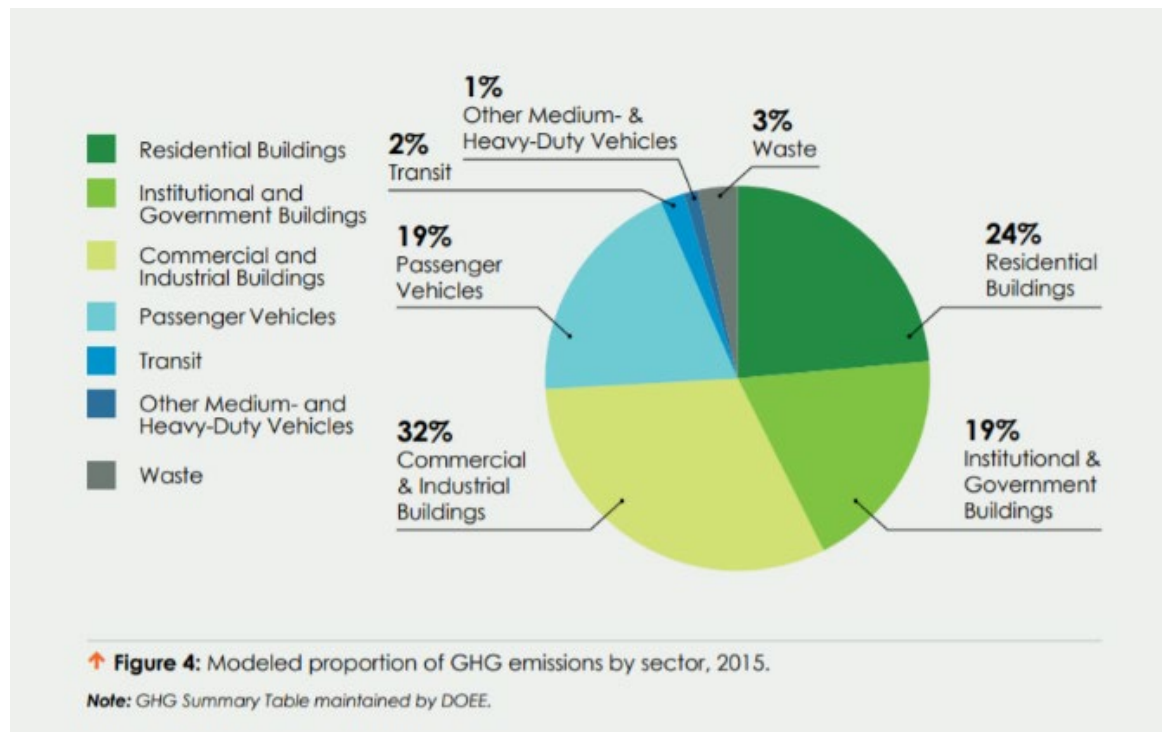
Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>

**Figure 37: Cumulative Solid Waste GHG Emissions from 2020 to 2050**

We present our results here as cumulative emissions to capture the time dynamics associated with the evolving carbon intensity of the avoided emissions from energy recovery. The benefits of energy recovery will decline as the New England grid decarbonizes. We anticipate that the emissions intensity of the avoided emissions from material recovery will also decline as the national economy decarbonizes, but we cannot reasonably estimate that change. Additional avoided emissions from carbon storage can vary significantly by location. Source: Institute for Sustainable Energy model calculations.

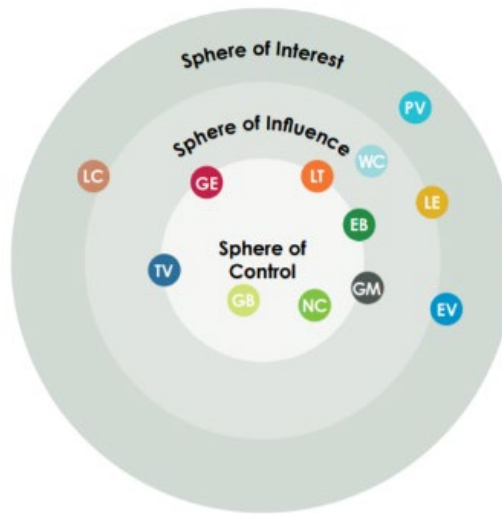


Carbon Free Boston: Summary Report 2019, Boston Green Ribbon Commission and Boston University, 2019, <https://www.greenribboncommission.org/wp-content/uploads/2019/01/Carbon-Free-Boston-Report-web.pdf>



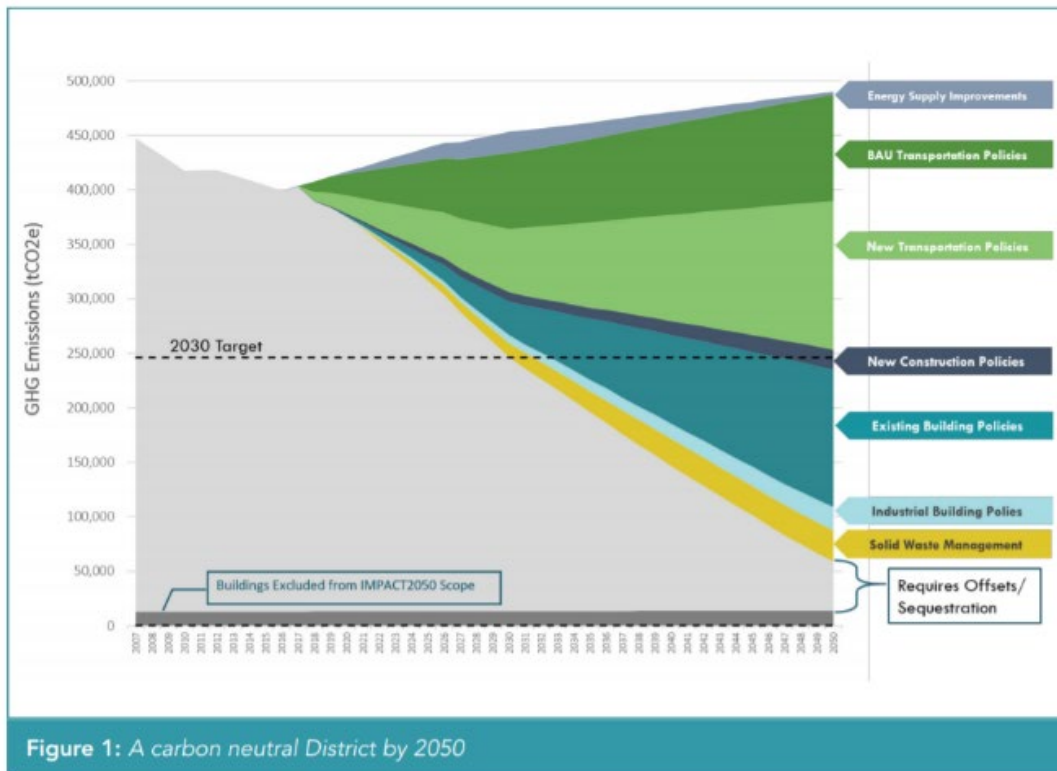
Clean Energy DC, District of Columbia, August 2018, [https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page\\_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report\\_0.pdf](https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf)

- EB Existing Buildings
- NC New Construction
- GB Government Buildings
- GE Grid Electricity Sources
- LE Local Electricity Supply
- LT Local Thermal Energy
- GM Grid Modernization
- EV Electric Vehicle Adoption
- TV Transit Vehicle Efficiency & Fuel Type
- PV Private Vehicle Efficiency
- WC Walking, Cycling & Transit Use
- LC Lifestyle Choices & Purchase Decisions



Clean Energy DC, District of Columbia, August 2018,

[https://doee.dc.gov/sites/default/files/dc/sites/doe/page\\_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report\\_0.pdf](https://doee.dc.gov/sites/default/files/dc/sites/doe/page_content/attachments/Clean%20Energy%20DC%20-%20Full%20Report_0.pdf)

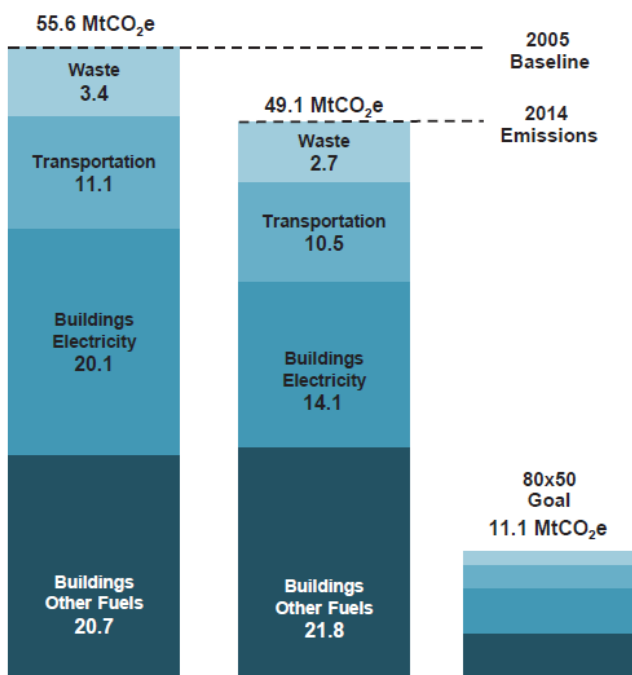


Impact 2050: Community Energy & Emissions Plan, District of North Vancouver, December 2019,

<https://www.dnv.org/sites/default/files/edocs/Community-Energy-Emissions-Plan.pdf>

Cities are also taking the lead in the global effort to reduce GHG emissions. In 2014, New York City joined leading cities around the world in committing to cut citywide GHG emissions by 80 percent by 2050 (80 x 50) — defined by the United Nations as the reduction necessary in developed countries to limit global temperature rise to under two degrees Celsius.

Fig. 1. 80 Percent GHG Emissions Reduction to 2050, in Million Metric Tons of Carbon Dioxide Equivalent (MtCO<sub>2</sub>e)

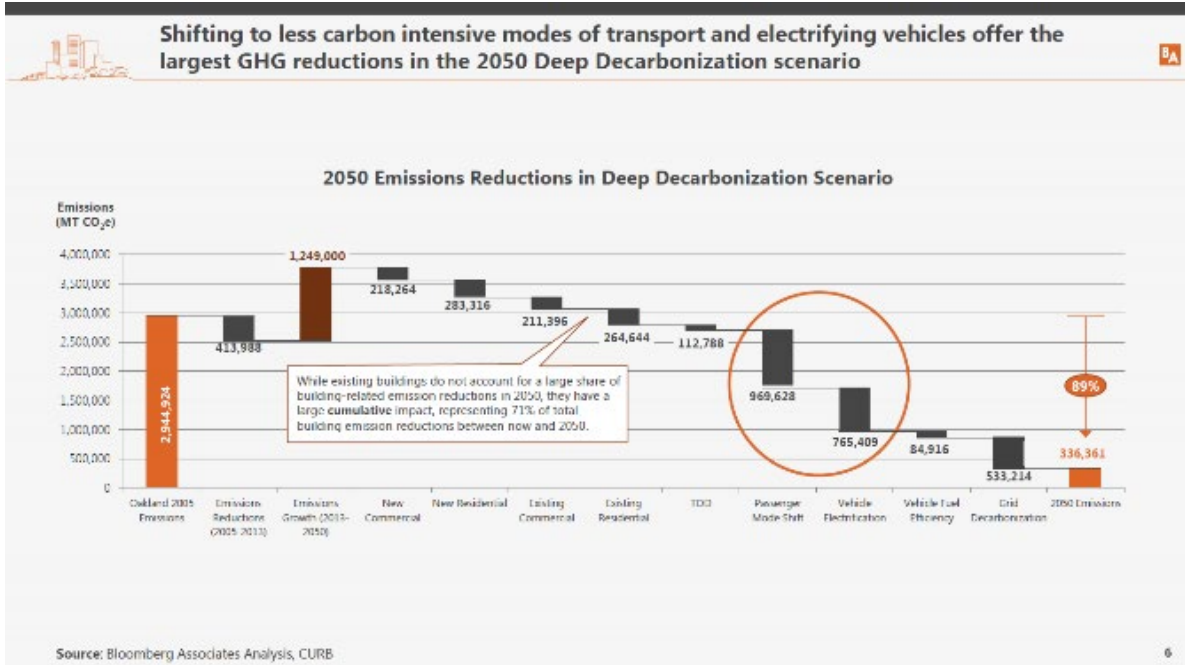


Source: Inventory of New York City Greenhouse Gas Emissions in 2014

**Achieving 80 x 50 will require a dramatic transformation in the way New Yorkers use energy, and the energy used in buildings accounts for the greatest share of citywide emissions.**

Reducing GHG emissions by 80 percent in New York City is an enormous challenge and must be accomplished without compromising economic and population growth. By 2050 New York City will have to reduce its annual GHG emissions 44.5 million metric tons of carbon dioxide equivalent (MtCO<sub>2</sub>e) from its 2005 baseline of 55.6 MtCO<sub>2</sub>e — or by more than the current GHG emissions from the entire state of Connecticut.<sup>4</sup> This will require decreasing total energy use in New York City and converting a significant proportion of fossil fuel-based energy to cleaner sources, including renewable energy sources. Currently, more than 80 percent of the energy used in New York City comes from the combustion of fossil fuels to: generate electricity, produce heat for buildings, and power on-road vehicles.

One City Built to Last – Technical Working Group Report: Transforming New York City Buildings for a Low-Carbon Future, City of New York, [http://www.nyc.gov/html/gbee/downloads/pdf/TWGREport\\_2ndEdition\\_sm.pdf](http://www.nyc.gov/html/gbee/downloads/pdf/TWGREport_2ndEdition_sm.pdf)



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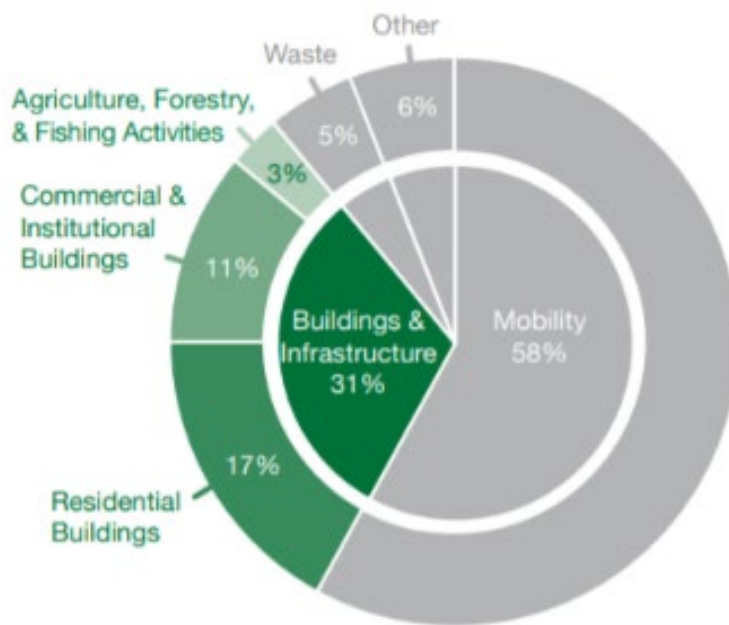


Figure 11. Building & Infrastructure emissions in Saanich Territorial GHG Inventory, 2017

2020 Climate Plan: 100% Renewable and Resilient Saanich, District of Saanich, 2020, <https://www.saanich.ca/assets/Community/Documents/Planning/sustainability/2020-climate-plan-web-v13.0.pdf>



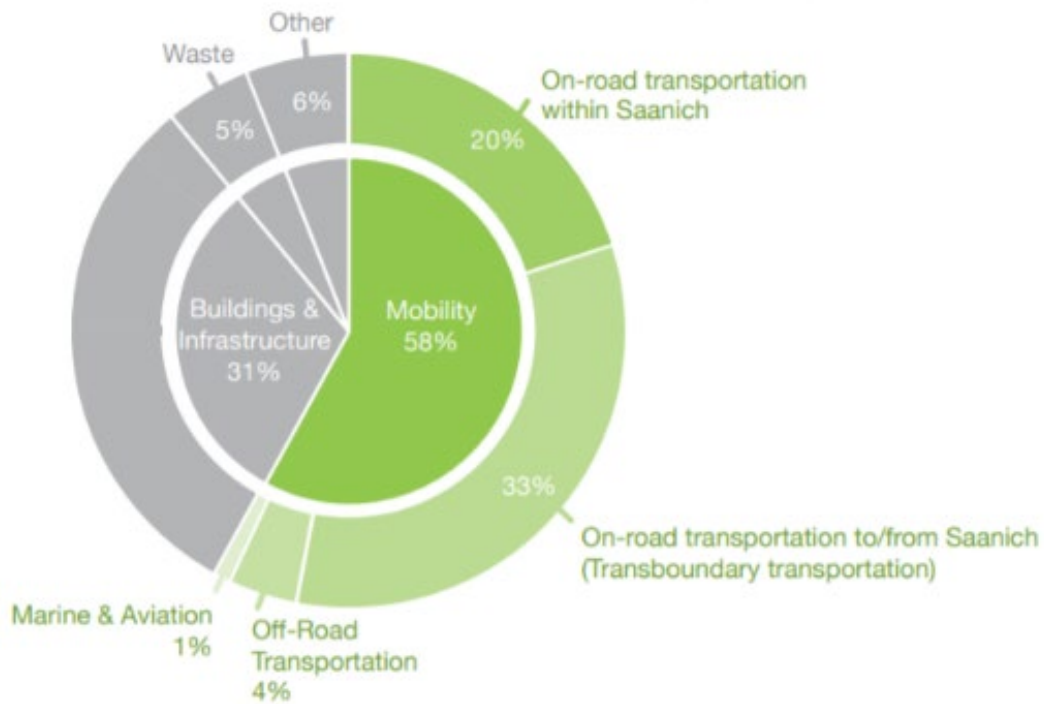


Figure 7. Transportation emissions in Saanich Territorial GHG Inventory, 2017

2020 Climate Plan: 100% Renewable and Resilient Saanich, District of Saanich, 2020,  
<https://www.saanich.ca/assets/Community/Documents/Planning/sustainability/2020-climate-plan-web-v13.0.pdf>



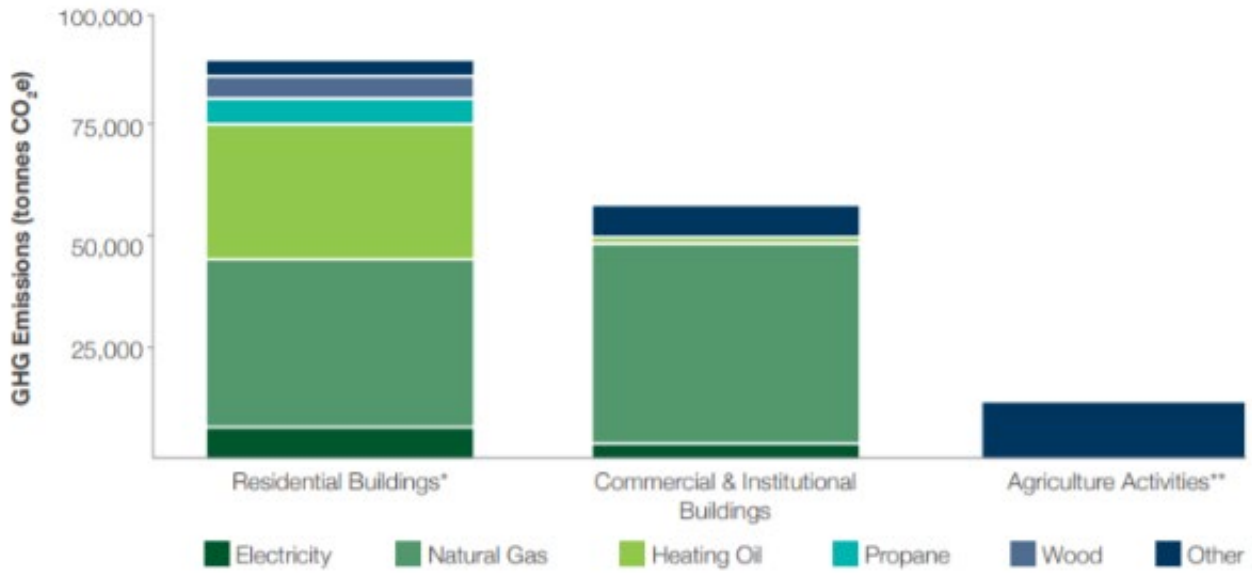


Figure 14. Building sector GHG emissions by energy source

\* Residential Buildings includes most housing types except some large multi-family buildings, which are included in the Commercial and Institutional Buildings category based on their account type with their energy utilities.  
 \*\* Agricultural Activities here refers to the GHG emissions from "stationary energy", i.e., energy to heat agricultural buildings.

2020 Climate Plan: 100% Renewable and Resilient Saanich, District of Saanich, 2020,  
<https://www.saanich.ca/assets/Community/Documents/Planning/sustainability/2020-climate-plan-web-v13.0.pdf>

## BUILDING & INFRASTRUCTURE EMISSION REDUCTION STRATEGIES

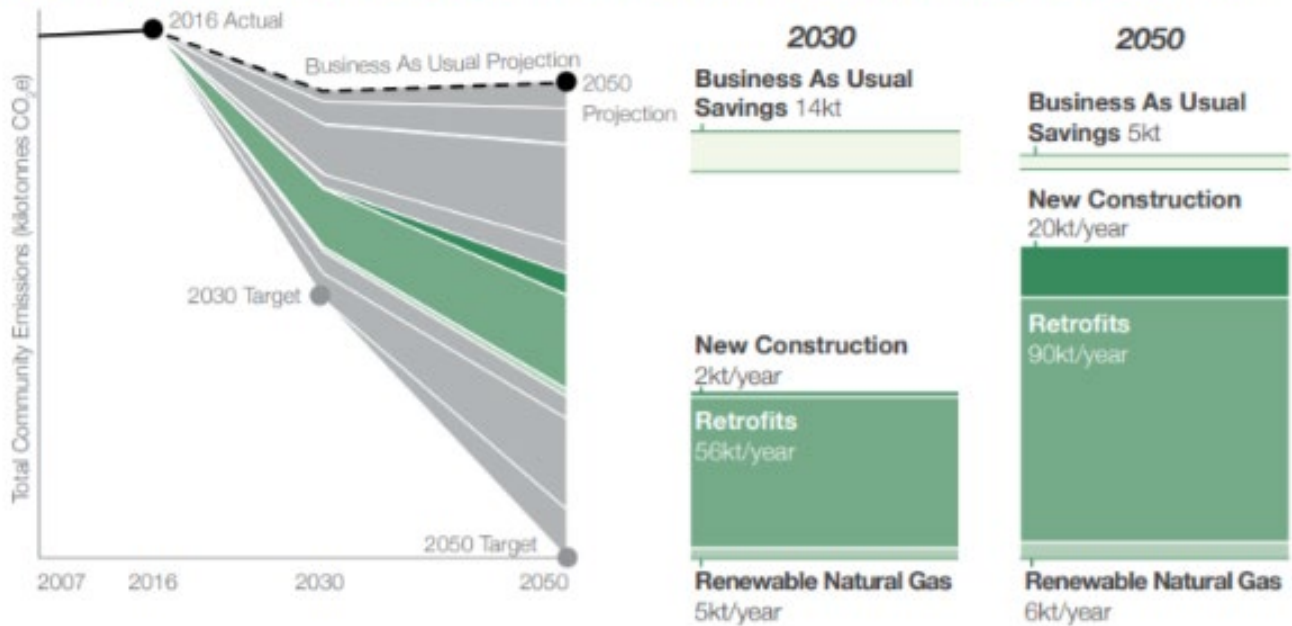


Figure 13. Buildings & Infrastructure emission reductions for 2050

**Business As Usual Savings:** Reductions from policies already in place.

**New Construction:** All new buildings achieve the higher steps of BC Energy Step Code by 2025. All new buildings are net-zero carbon by 2032.

**Retrofits:** 100% of oil heating systems replaced by heat pumps by 2030. 40% of buildings have modest envelope upgrades

(e.g., window upgrades, major air sealing, etc.) by 2030, 80% by 2050. 40% of natural gas space and hot water heating systems replaced by renewable energy by 2030, 100% by 2050.

**Renewable Natural Gas:** 90,000 GJ a year of conventional natural gas is replaced with renewable natural gas before 2030, and 128,000 GJ a year after 2030.

2020 Climate Plan: 100% Renewable and Resilient Saanich, District of Saanich, 2020, <https://www.saanich.ca/assets/Community/Documents/Planning/sustainability/2020-climate-plan-web-v13.0.pdf>

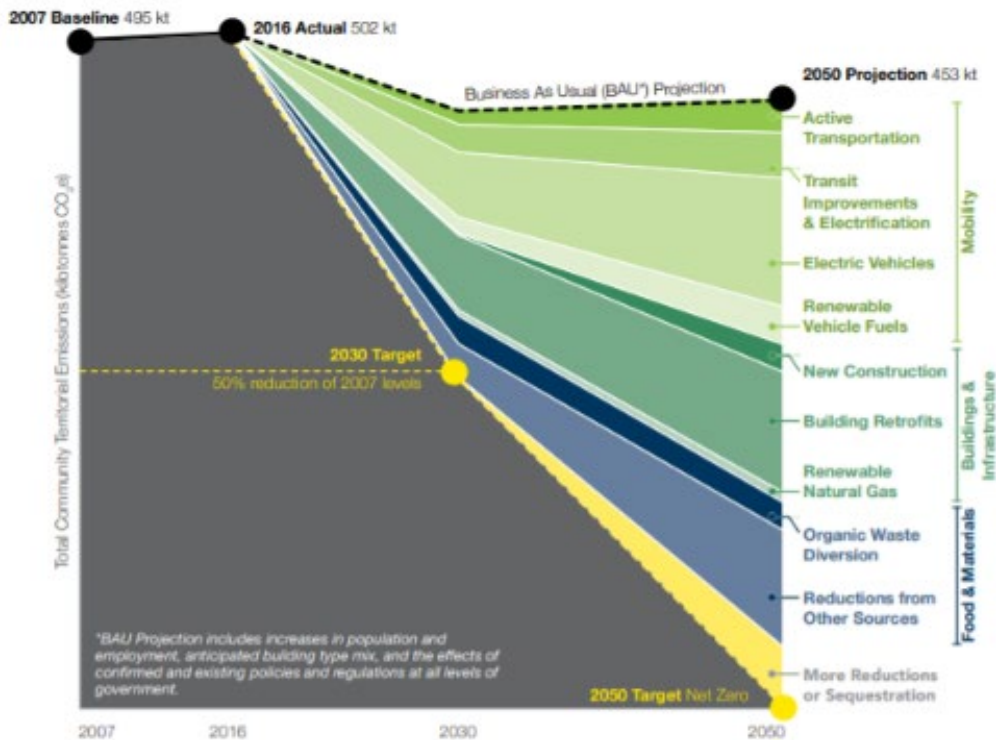
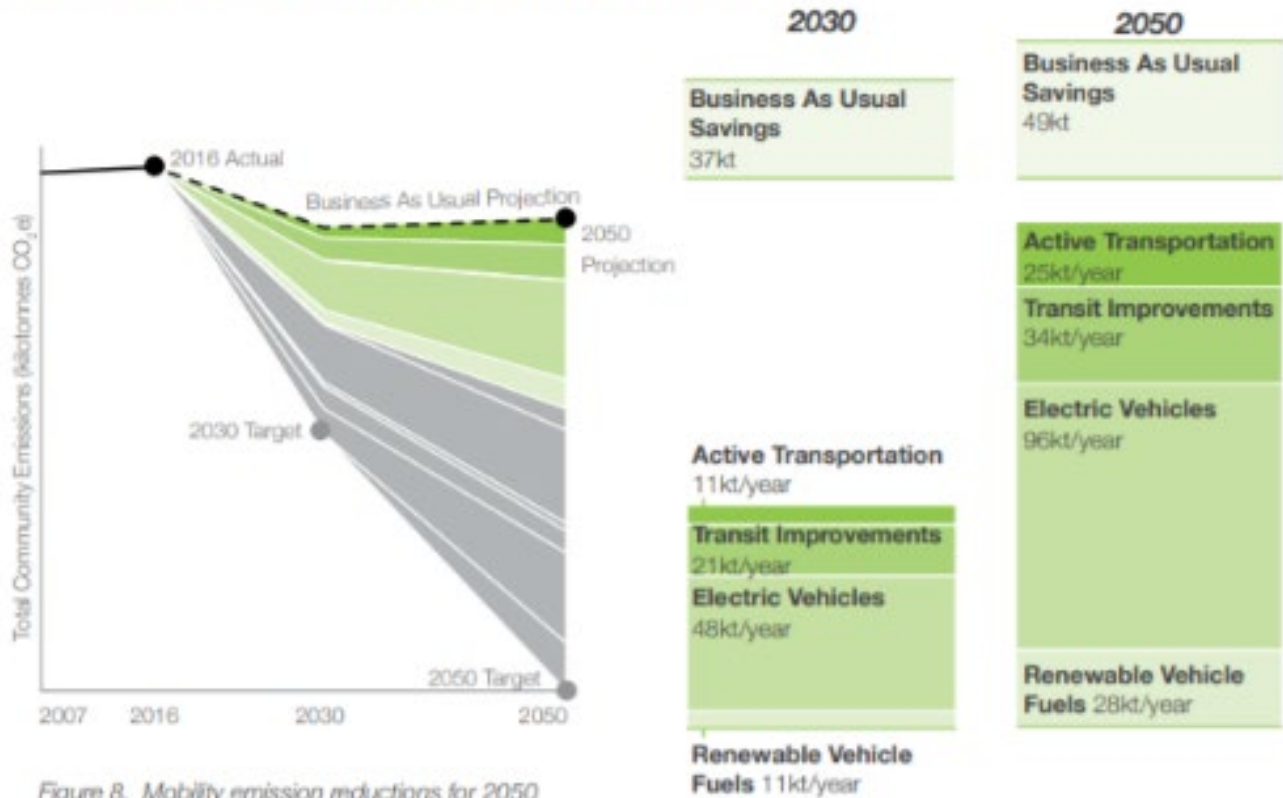


Figure 5. Modeled pathway for Territorial GHG emission reductions in Saanich

- |   |   |  |
|---|---|--|
| <p><b>Active Transportation (5.1%):</b></p> <ul style="list-style-type: none"> <li>•22% of trips by 2030, 30% by 2050</li> </ul> <p><b>Transit Improvements &amp; Electrification (7%):</b></p> <ul style="list-style-type: none"> <li>•14% of trips by 2030, 20% by 2050</li> <li>•100% electric buses by 2030</li> </ul> <p><b>Electric Vehicles (19.3%):</b></p> <ul style="list-style-type: none"> <li>•36% of personal vehicles by 2030</li> <li>•90% of personal vehicles and 50% of commercial vehicles by 2050</li> </ul> <p><b>Renewable Vehicle Fuels (5.6%):</b></p> <ul style="list-style-type: none"> <li>•10% of remaining transport fuel is biofuel by 2030, 100% by 2050</li> </ul> | <p><b>New Construction (4%):</b></p> <ul style="list-style-type: none"> <li>•Highest steps of Step Code by 2025</li> <li>•100% net-zero carbon by 2032</li> </ul> <p><b>Building Retrofits (18.3%):</b></p> <ul style="list-style-type: none"> <li>•100% oil heating replaced by heat pumps by 2030</li> <li>•40% of natural gas space and hot water systems replaced with renewable sources by 2030, 100% by 2050</li> <li>•40% of all building envelopes upgraded by 2030, 80% by 2050</li> </ul> <p><b>Renewable Natural Gas (1.3%):</b></p> <ul style="list-style-type: none"> <li>•Renewable natural gas use in buildings</li> </ul> | <p><b>Organic Waste Diversion (4.3%):</b></p> <ul style="list-style-type: none"> <li>•100% diversion of compostable organic waste</li> </ul> <p><b>Reductions from Other Sources** (17.5%):</b></p> <ul style="list-style-type: none"> <li>•33% reduction by 2030 and 100% by 2050 in all other sources of emissions</li> </ul> <p><small>**Other sources include industrial processes, products (e.g., refrigerants, foams, aerosols), land use change, livestock, manure, fertilizer and agricultural soil management.</small></p> <p><b>More Reductions or Sequestration (8.8%):</b></p> <ul style="list-style-type: none"> <li>•To be developed</li> </ul> |
|---|---|--|

2020 Climate Plan: 100% Renewable and Resilient Saanich, District of Saanich, 2020,  
<https://www.saanich.ca/assets/Community/Documents/Planning/sustainability/2020-climate-plan-web-v13.0.pdf>

## MOBILITY EMISSION REDUCTION STRATEGIES



**Business As Usual Savings:** Reductions from policies already in place.

**Active Transportation:** 22% of all trips by Saanich residents are taken by walking and cycling by 2030, 30% by 2050.

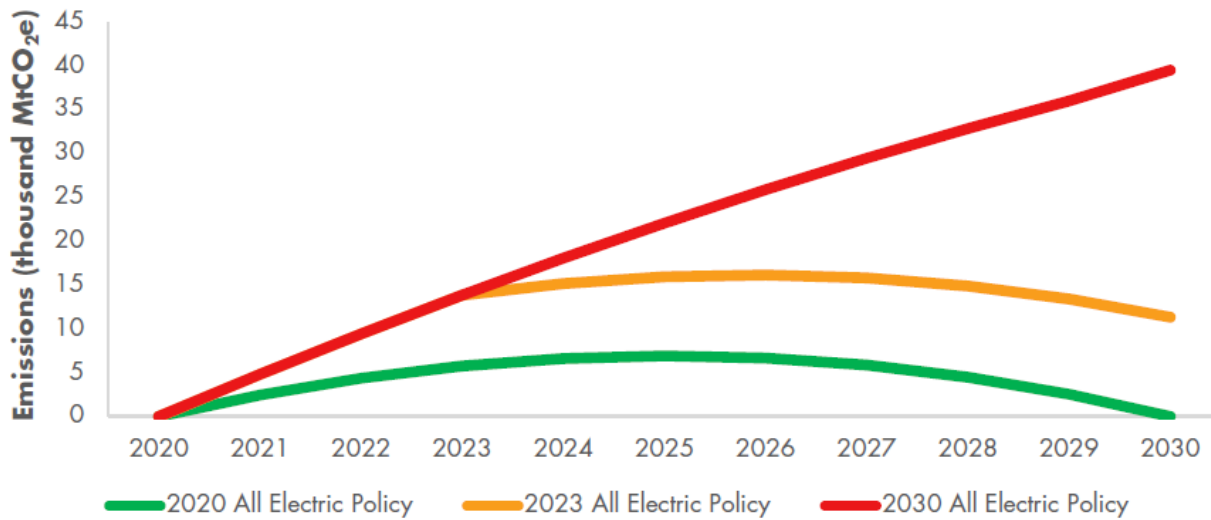
**Transit Improvements:** 14% of all trips are taken by transit by 2030, 20% by 2050. All BC Transit buses are electrified by 2030.

**Electric Vehicles:** 36% of all personal vehicles are electrified by 2030, 90% by 2050. 50% of commercial vehicles are electrified by 2050.

**Renewable Vehicle Fuels:** 10% of remaining fuel is biofuel (in addition to existing federal standards) by 2030, 100% by 2050.

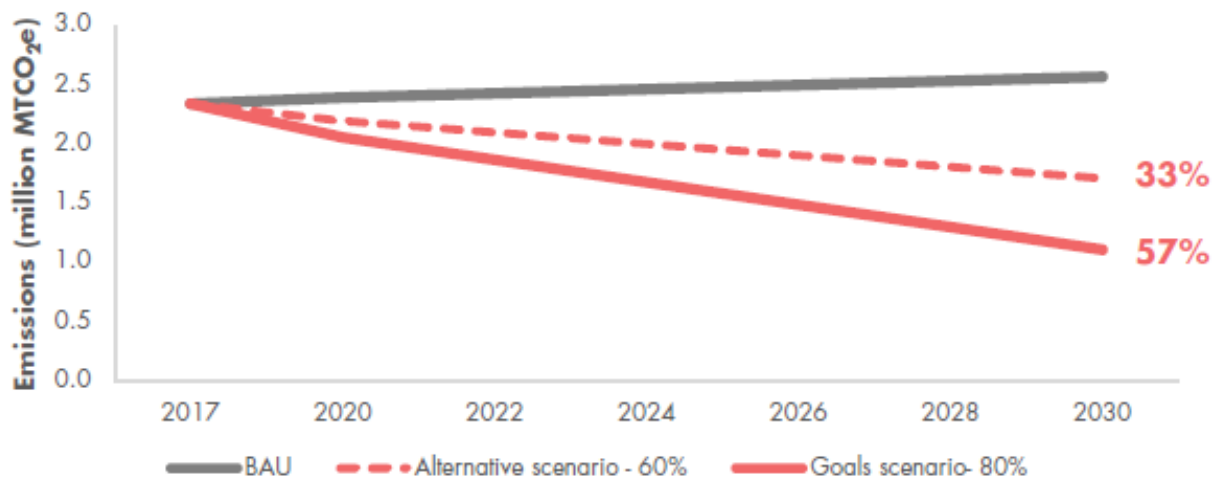
2020 Climate Plan: 100% Renewable and Resilient Saanich, District of Saanich, 2020,

<https://www.saanich.ca/assets/Community/Documents/Planning/sustainability/2020-climate-plan-web-v13.0.pdf>



**FIGURE 7 - IMPACT OF ACHIEVING ALL-ELECTRIC NEW CONSTRUCTION IN 2020 VERSUS 2023 AND 2030**

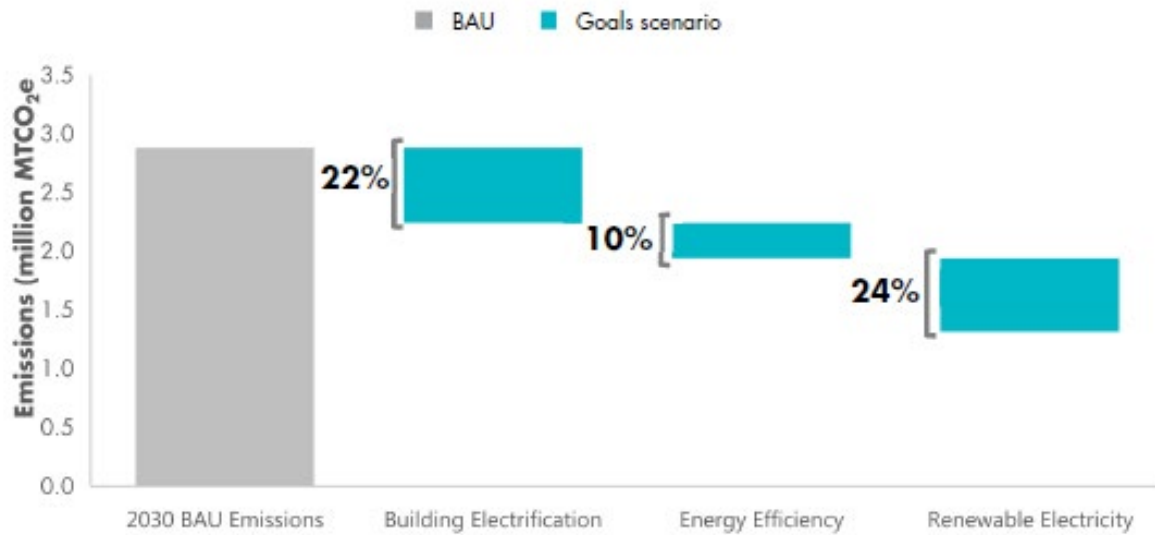
Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019,  
[https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)



**FIGURE 11 - IMPACT OF ACHIEVING 80% SUSTAINABLE TRIPS IN 2030 ON EMISSIONS REDUCTION**

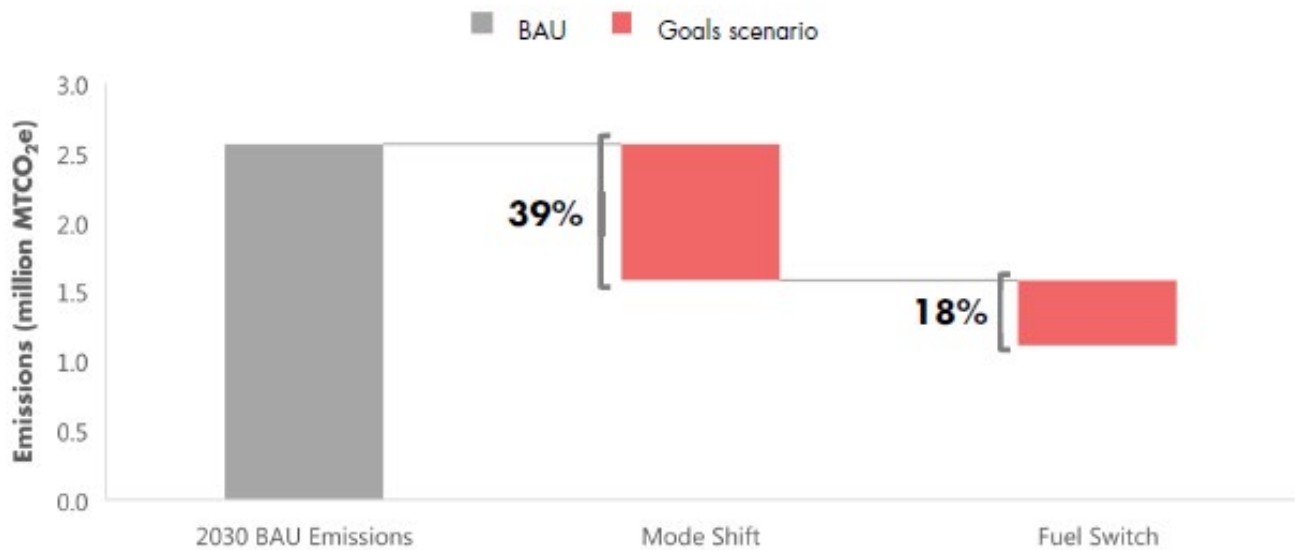
Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019,  
[https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)





**FIGURE 6 - POTENTIAL EMISSIONS REDUCTIONS IN THE BUILDING SECTOR BY 2030**

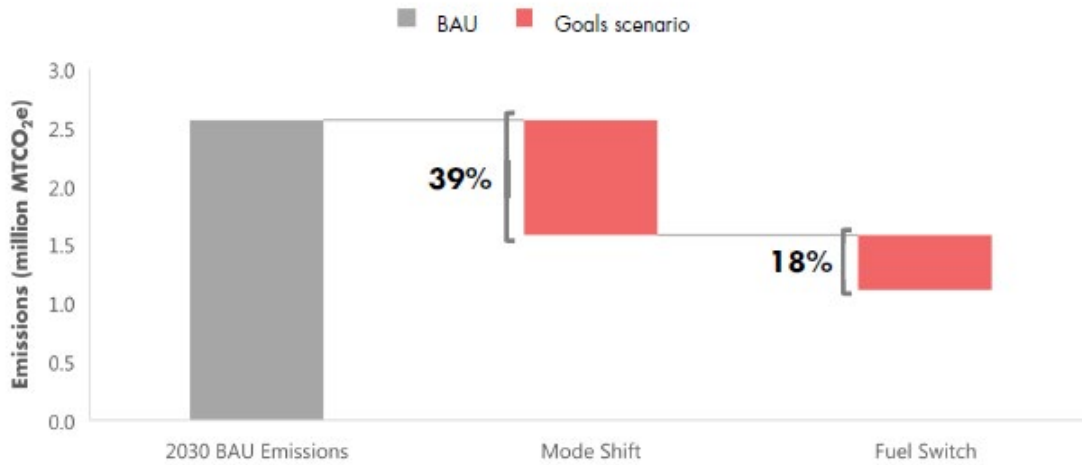
Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019, [https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)



**FIGURE 10 – POTENTIAL EMISSIONS REDUCTIONS IN THE TRANSPORTATION SECTOR BY 2030**

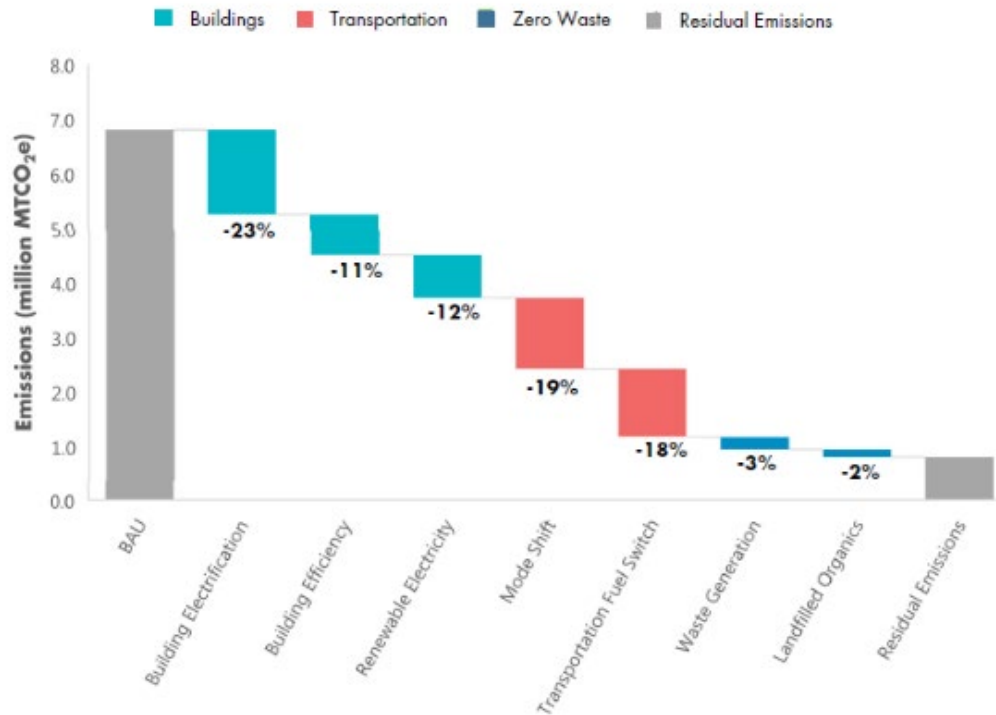
Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019, [https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)





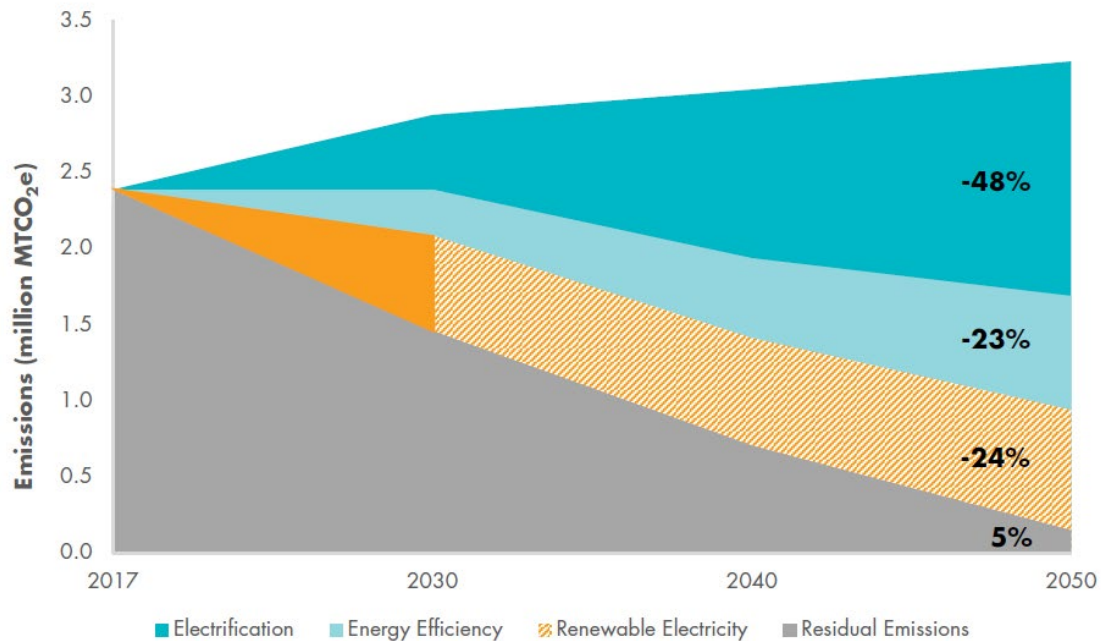
**FIGURE 10 – POTENTIAL EMISSIONS REDUCTIONS IN THE TRANSPORTATION SECTOR BY 2030**

Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019, [https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)



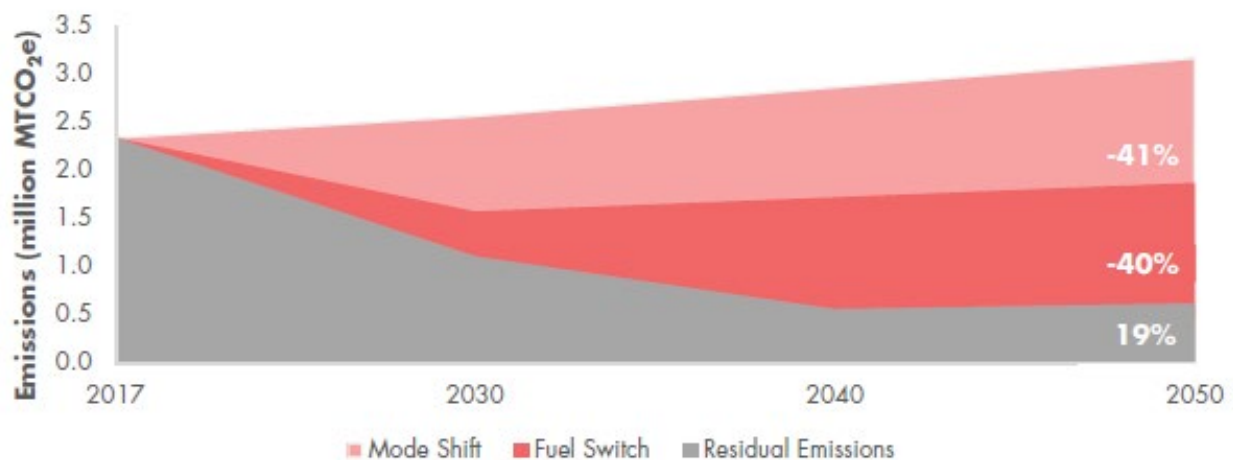
**FIGURE 20 - POTENTIAL EMISSIONS REDUCTIONS BY STRATEGIC PRIORITY BY 2050**

Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019, [https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)



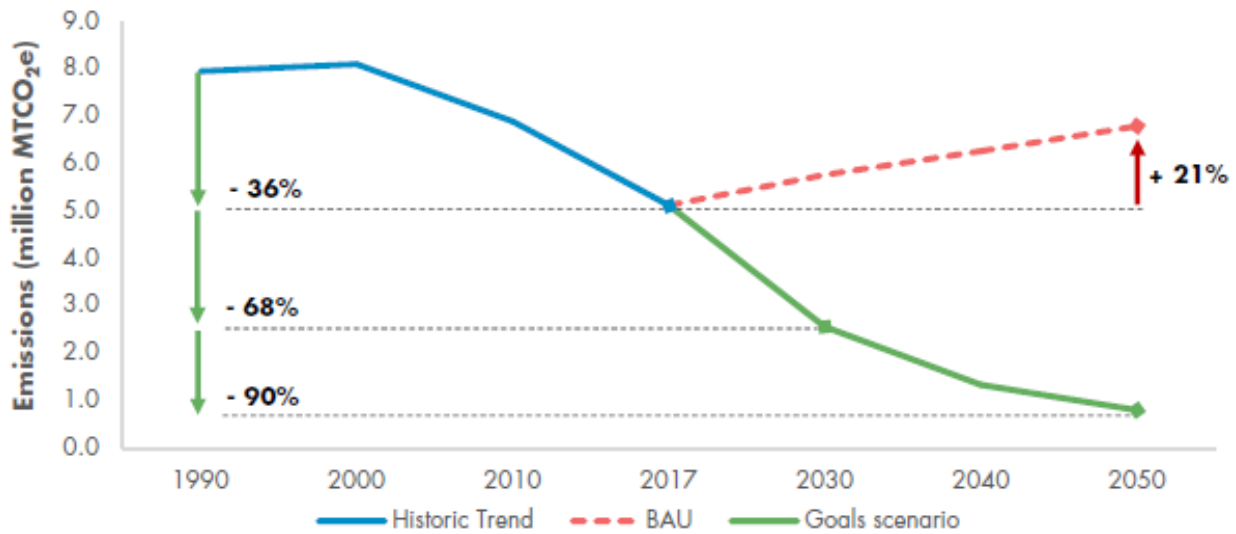
**FIGURE 8 - PATH TO ZERO EMISSIONS IN BUILDINGS**

Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019,  
[https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)



**FIGURE 12 - PATH TO ZERO EMISSIONS IN THE TRANSPORTATION SECTOR**

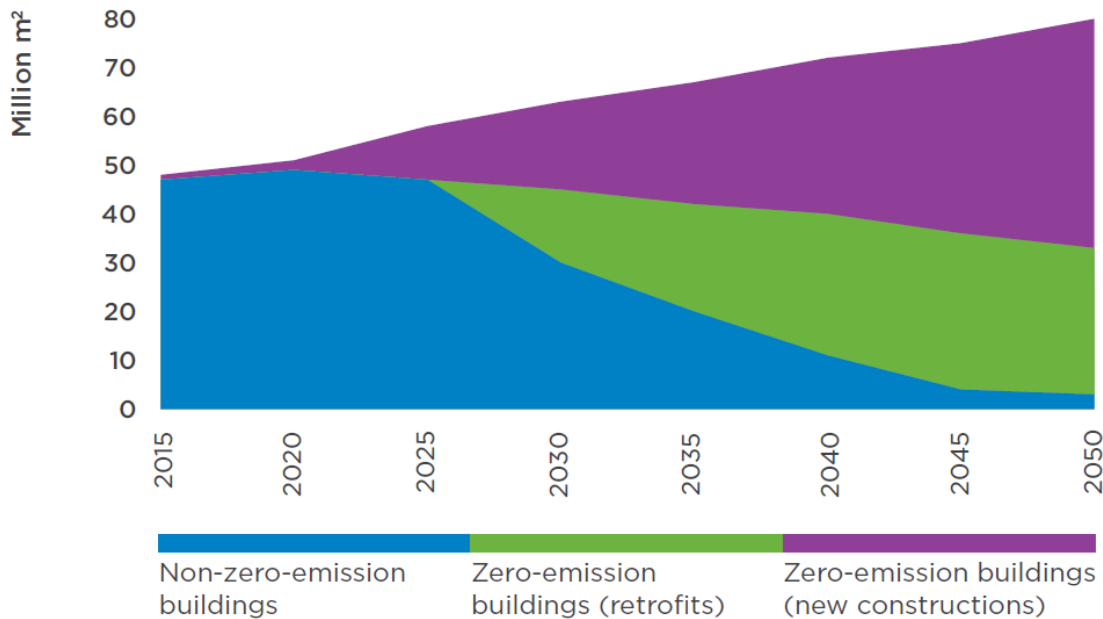
Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019,  
[https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)



**FIGURE 19- POTENTIAL EMISSIONS REDUCTIONS COMPARED TO 1990 LEVELS**

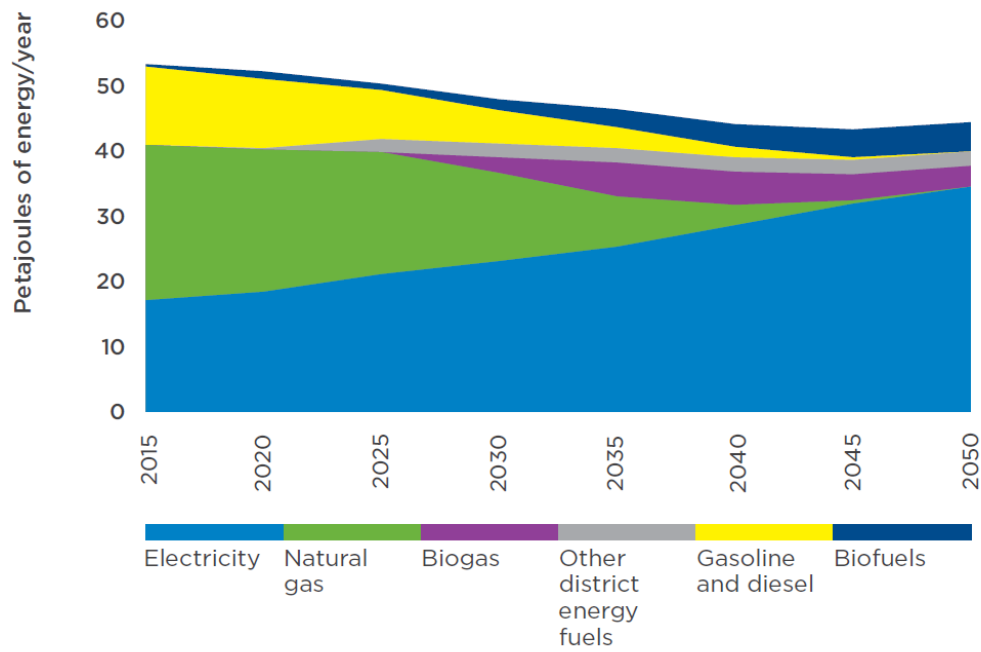
Focus 2030: A Pathway to Net Zero Emissions, SF Environment, July 2019, [https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_focus\\_2030\\_report\\_july2019.pdf](https://sfenvironment.org/sites/default/files/fliers/files/sfe_focus_2030_report_july2019.pdf)

### Building floorspace in Vancouver



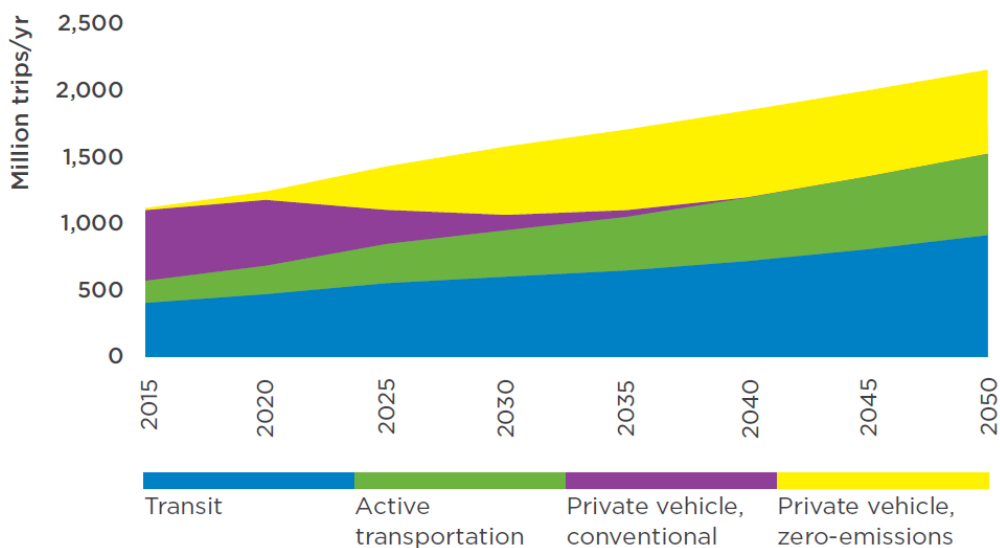
Renewable City Action Plan – Economic Modelling Results, City of Vancouver, <https://vancouver.ca/files/cov/energy-and-emissions-forecast-final-report.pdf>

### Energy use by type



Renewable City Action Plan – Economic Modelling Results, City of Vancouver,  
<https://vancouver.ca/files/cov/energy-and-emissions-forecast-final-report.pdf>

### Mode share

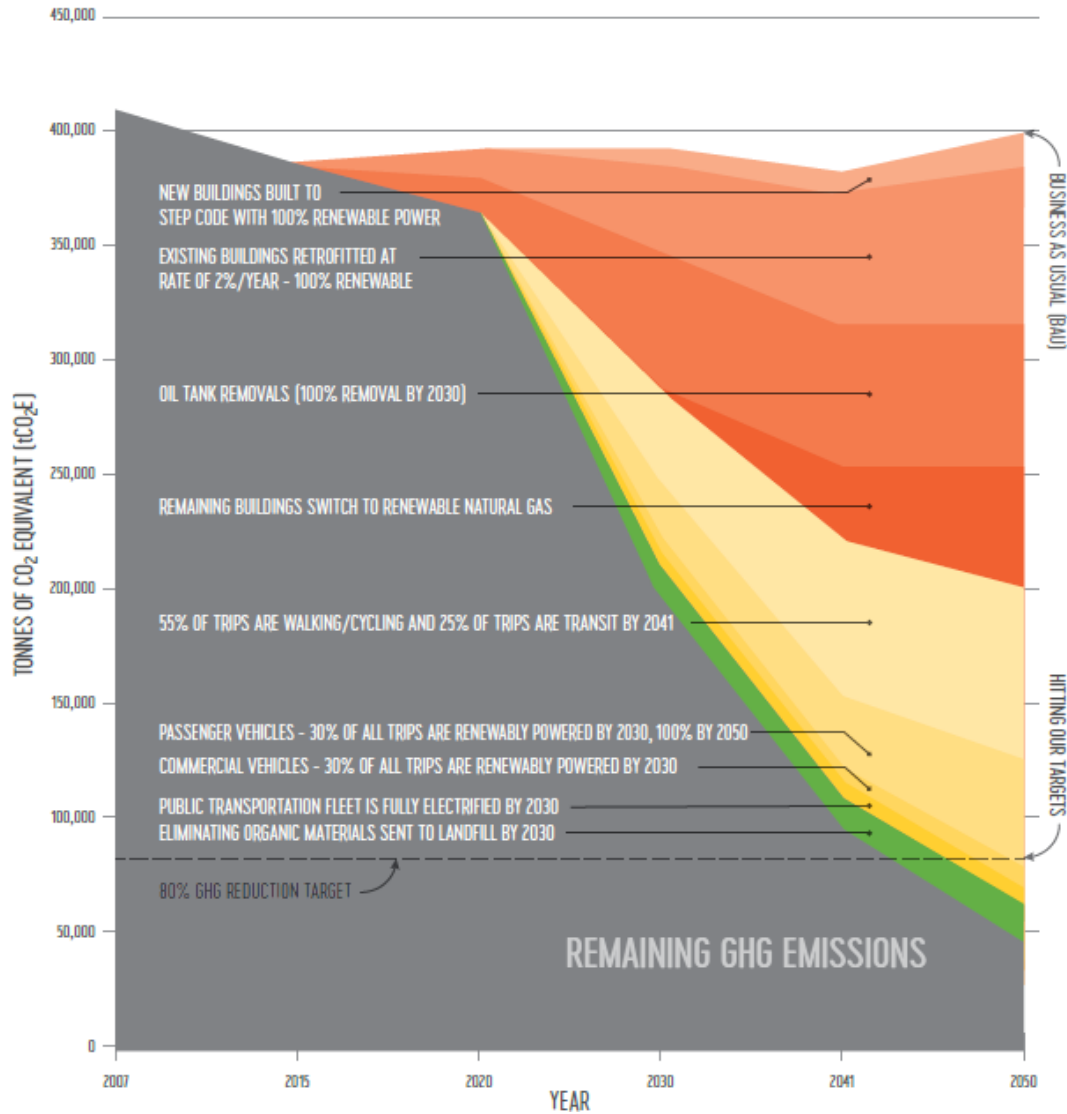


Renewable City Action Plan – Economic Modelling Results, City of Vancouver,  
<https://vancouver.ca/files/cov/energy-and-emissions-forecast-final-report.pdf>

This diagram shows how each strategy creates a reduction in GHGs and how, collectively, they will get us to an 80 percent reduction in GHGs.



### PATHWAYS TO 2050 GHG REDUCTION TARGETS



Climate Leadership Plan, City of Victoria, 2018,  
[https://www.victoria.ca/assets/Departments/Engineering~Public~Works/Documents/City%20of%20Victoria%20Climate%20Leadership%20Plan%20\(1805\).pdf](https://www.victoria.ca/assets/Departments/Engineering~Public~Works/Documents/City%20of%20Victoria%20Climate%20Leadership%20Plan%20(1805).pdf)

**SCHEDULE B – DRAFT CONTRACT**



**PROFESSIONAL SERVICES AGREEMENT**

**Title:** Greenhouse Gas Emissions Modelling for Community Climate Action Strategy Update

**Reference No.:** 1220-030-2020-014



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**APPENDIX 1 – SCOPE OF SERVICES**

**APPENDIX 1A – EXAMPLE DELIVERABLES**

**APPENDIX 2 – FEES AND PAYMENT**

**APPENDIX 3 – TIME SCHEDULE**

**APPENDIX 4 – PERSONNEL AND SUB-CONSULTANTS**

**APPENDIX 5 – ADDITIONAL SERVICES**

**SCHEDULE 1 – PRIVACY PROTECTION SCHEDULE**

**SCHEDULE 2 – CONFIDENTIALITY AGREEMENT**

## Greenhouse Gas Emissions Modelling for Community Climate Action Strategy Update

THIS AGREEMENT is dated for reference this \_\_\_\_\_ day of \_\_\_\_\_, 201\_.

AGREEMENT No.: 1220-030-2020-014

### BETWEEN:

**CITY OF SURREY**  
13450 - 104 Avenue  
Surrey, British Columbia, V3T 1V8, Canada  
(the "City")

### AND:

\_\_\_\_\_  
*(Insert Full Legal Name of Consultant)*

(the "Consultant")

WHEREAS the City wishes to engage the Consultant to provide Services in connection with

## Greenhouse Gas Emissions Modelling for Community Climate Action Strategy Update

THEREFORE in consideration of the payment of one (\$1.00) dollar and other good and valuable consideration paid by each of the parties to the other (the receipt and sufficiency of which is hereby acknowledged) the City and the Consultant agree as follows:

### 1. INTERPRETATION

#### 1.1 Definitions

In this agreement the following definitions apply:

"Disbursements" has the meaning set out in section 5.3;

"Dispute" has the meaning set out in section 14.1;

"Fees" has the meaning set out in section 5.1;

"Indemnitees" has the meaning set out in section 7.1;

"Invoice" has the meaning set out in section 5.2(a);

"Services" has the meaning set out in section 2.1;

"Term" has the meaning set out in section 2.5; and

"Time Schedule" has the meaning set out in section 2.6.

## **1.2 Appendices and Schedules**

The following attached Appendices are a part of this agreement:

Appendix 1 – Scope of Services;  
Appendix 1A- Example Deliverables;  
Appendix 2 – Fees and Payment;  
Appendix 3 – Time Schedule;  
Appendix 4 – Personnel and Sub-Consultants;  
Appendix 5 – Additional Services;

Schedule 1 – Privacy Protection Schedule; and  
Schedule 2 – Confidentiality Agreement.

## **2. SERVICES**

### **2.1 Services**

The City hereby retains the Consultant to provide the consulting and professional services as described generally in Appendix 1, including anything and everything required to be done for the fulfillment and completion of this agreement (the "**Services**").

### **2.2 Amendment of Services**

The City may from time to time, by written notice to the Consultant, make changes in the scope of the Services. The Fees will be increased or decreased by written agreement of the City and the Consultant according to the rates set out in Appendix 2.

### **2.3 Additional Services**

The Consultant will, if requested in writing by the City, perform additional services as may be listed in Appendix 5. The terms of this agreement will apply to any additional services, and the fees for additional services, and the time for the Consultant's performance, will generally correspond to the fees and time of performance as described in Appendices 2 and 3. The Consultant will not provide any additional services in excess of the scope of services requested in writing by the City.

### **2.4 Standard of Care**

The Consultant will perform the Services with that degree of care, skill and diligence normally provided by a qualified and experienced practitioner performing services similar to the Services, and on the understanding that the City is relying on the Consultant's experience and expertise. The Consultant represents that it has the expertise, qualifications, resources and relevant experience to provide the Services.

### **2.5 Term**

The Consultant will provide the Services for the period commencing on (START DATE) and terminating on (END DATE) (the "**Term**").

The parties may extend the Term by mutual agreement. If the Term is extended, the provisions of this agreement will remain in force except where amended in writing by the parties.]

## **2.6 Time**

The Consultant acknowledges that time is of the essence with respect to the provision of the Services and accordingly the Consultant will provide the Services within the performance or completion dates or time periods (the "**Time Schedule**") as set out in Appendix 3, or as otherwise agreed to in writing by the City and the Consultant. If at any time the Consultant discovers that the Time Schedule cannot be met it will immediately advise the City in writing and provide a revised Time Schedule.

## **3. PERSONNEL**

### **3.1 Qualified Personnel**

The Consultant will provide only professional personnel who have the qualifications, experience and capabilities to perform the Services.

### **3.2 Listed Personnel and Sub-Consultants**

The Consultant will perform the Services using the professional personnel and sub-consultants as may be listed in Appendix 4, and the Consultant will not remove any such listed personnel or sub-consultants from the Services without the prior written approval of the City.

### **3.3 Replacement of Personnel or Sub-Consultants**

If the City reasonably objects to the performance, qualifications, experience or suitability of any of the Consultant's personnel or sub-consultants then the Consultant will, on written request from the City, replace such personnel or sub-consultants.

### **3.4 Sub-Consultants and Assignment**

Except as provided for in section 3.2, the Consultant will not engage any personnel or sub-consultants, or sub-contract or assign its obligations under this agreement, in whole or in part, without the prior written approval of the City.

### **3.5 Agreements with Sub-Consultants**

The Consultant will preserve and protect the rights of the City with respect to any Services performed under sub-contract and incorporate the terms and conditions of this agreement into all sub-contracts as necessary to preserve the rights of the City under this agreement. The Consultant will be as fully responsible to the City for acts and omissions of sub-consultants and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by the Consultant.

## **4. LIMITED AUTHORITY**

### **4.1 Agent of City**

The Consultant is not and this agreement does not render the Consultant an agent or employee of the City, and without limiting the above, the Consultant does not have authority to enter into any contract or reach any agreement on behalf of the City, except for the limited purposes as may be expressly set out



in this agreement, or as necessary in order to perform the Services. The Consultant will make such lack of authority clear to all persons with whom the Consultant deals in the course of providing the Services. Every vehicle used by the Consultant in the course of performing the services shall identify the Consultant by name and telephone number.

## 4.2 Independent Contractor

The Consultant is an independent contractor. This agreement does not create the relationship of employer and employee, a partnership, or a joint venture. The City will not control or direct the details, means or process by which the Consultant performs the Services. The Consultant will determine the number of days and hours of work required to properly and completely perform the Services. The Consultant is primarily responsible for performance of the Services and may not delegate or assign any Services to any other person except as provided for in section 3.4. The Consultant will be solely liable for the wages, fringe benefits, work schedules and work conditions of any partners, employees or sub-contractors.

## 5. FEES

### 5.1 Fees

The City will pay to the Consultant the fees as set out in Appendix 2 (the "Fees"). Payment by the City of the Fees and Disbursements will be full payment for the Services and the Consultant will not be entitled to receive any additional payment from the City.

Fees, Disbursements, and GST will not exceed the amount of ~~<insert contract price in numbers>~~ without the prior written approval of the City. ~~<<if multiple term periods then delete this paragraph only.>>~~

### 5.2 Payment

Subject to any contrary provisions set out in Appendix 2:

- (a) the Consultant will submit a **monthly** invoice (the "**Invoice**") to the City requesting payment of the portion of the Fees and the Disbursements relating to the Services provided in the previous month, and including the following information:
  - (1) an invoice number;
  - (2) the Consultant's name, address and telephone number;
  - (3) the City's reference number for the Services; P.O. # **(to be advised)**
  - (4) the names, charge-out rates and number of hours worked **in the previous month** of all employees of the Consultant and any sub-consultants) that **has/have** performed services during the previous **month**;
  - (5) the percentage of Services completed at the end of the previous month;
  - (6) the total budget for the Services and the amount of the budget expended to the date of the Invoice;
  - (7) taxes (if any);
  - (8) grand total of the Invoice;
- (b) the Consultant will on request from the City provide receipts and invoices for all Disbursements claimed;
- (c) if the City reasonably determines that any portion of an Invoice is not payable then the City will so advise the Consultant;
- (d) the City will pay the portion of an Invoice which the City determines is payable within 30 days of the receipt of the Invoice, except the City may hold back from payments 10% of

- the amount the City determines is payable to the Consultant until such time as the Consultant provides its Final Report to the City; and
- (e) if the Consultant offers the City a cash discount for early payment, then the City may, at the City's sole discretion, pay the portion of an Invoice which the City determines is payable at any time after receipt of the Invoice.

Invoices will be submitted by the Consultant by mail to:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

### **5.3 Disbursements**

In addition to the Fees, the City will reimburse the Consultant for actual out-of-pocket costs and expenses (“**Disbursements**”) as identified in Appendix 2 which the Consultant, and approved sub-consultants, incur in the performance of the Services, plus any additional Disbursements with the prior written approval of the City.

For greater certainty, costs of general management, non-technical supporting services and general overheads are deemed to be covered by the Fees and will not be subject to additional payment by the City.

### **5.4 Records**

The Consultant will prepare and maintain proper records related to the Services, including records, receipts and invoices relating to Disbursements. On request from the City, the Consultant will make the records available open to audit examination by the City at any time during regular business hours during the time the Consultant is providing the Services and for a period of six years after the Services are complete.

### **5.5 Non-Residents**

If the Consultant is a non-resident of Canada and does not provide to the City a waiver of regulation letter, the City will withhold and remit to the appropriate governmental authority the greater of:

- (a) 15% of each payment due to the Consultant; or  
(b) the amount required under applicable tax legislation.

## **6. CITY RESPONSIBILITIES**

### **6.1 City Information**

The City will, in co-operation with the Consultant make efforts to make available to the Consultant information, surveys, and reports which the City has in its files and records that relate to the Services. The Consultant will review any such material upon which the Consultant intends to rely and take reasonable steps to determine if that information is complete or accurate. The Consultant will assume all risks that the information is complete and accurate and the Consultant will advise the City in writing if in the Consultant's judgment the information is deficient or unreliable and undertake such new surveys and investigations as are necessary.

## **6.2 City Decisions**

The City will in a timely manner make all decisions required under this agreement, examine documents submitted by the Consultant and respond to all requests for approval made by the Consultant pursuant to this agreement.

## **6.3 Notice of Defect**

If the City observes or otherwise becomes aware of any fault or defect in the Services, it may notify the Consultant, but nothing in this agreement will be interpreted as giving the City the obligation to inspect or review the Consultant's performance of the Services.

## **7. INSURANCE AND DAMAGES**

### **7.1 Indemnity**

The Consultant will indemnify and save harmless the City and all of its elected and appointed officials, officers, employees, servants, representatives and agents (collectively the "**Indemnitees**"), from and against all claims, demands, causes of action, suits, losses, damages and costs, liabilities, expenses and judgments (including all actual legal costs) for damage to or destruction or loss of property, including loss of use, and injury to or death of any person or persons which any of the Indemnitees incur, suffer or are put to arising out of or in connection with any failure, breach or non-performance by the Consultant of any obligation of this agreement, or any wrongful or negligent act or omission of the Consultant or any employee or agent of the Consultant.

### **7.2 Survival of Indemnity**

The indemnity described in section 7.1 will survive the termination or completion of this agreement and, notwithstanding such termination or completion, will continue in full force and effect for the benefit of the Indemnitees.

### **7.3 Consultant's Insurance Policies**

The Consultant will, without limiting its obligations or liabilities and at its own expense, provide and maintain throughout this agreement the following insurances in forms and amounts acceptable to the City from insurers licensed to conduct business in Canada:

- (a) commercial general liability insurance on an occurrence basis, in an amount not less than three million (\$3,000,000) dollars inclusive per occurrence against death, bodily injury and property damage arising directly or indirectly out of the work or operations of the Consultant, its employees and agents. The insurance will include cross liability and severability of interests such that the coverage shall apply in the same manner and to the same extent as though a separate policy had been issued to each insured. The insurance will include, but not be limited to: premises and operators liability, broad form products and completed operations, owners and Consultants protective liability, blanket contractual, employees as additional insureds, broad form property damage, non-owned automobile, contingent employers liability, broad form loss of use, personal injury, and incidental medical malpractice. The City will be added as additional insured;
- (b) professional errors and omissions insurance in an amount not less two million (\$2,000,000) dollars insuring all professionals providing the Services from liability resulting from errors or omissions in the performance of the Services, with a 12 month maintenance period; and

- (c) automobile liability insurance on all vehicles owned, operated or licensed in the name of the Consultant in an amount not less than three million (\$3,000,000) dollars per occurrence for bodily injury, death and damage to property.

#### **7.4 Insurance Requirements**

The Consultant will provide the City with evidence of the required insurance prior to the commencement of this agreement. Such evidence will be in the form of a completed certificate of insurance acceptable to the City. The Consultant will, on request from the City, provide certified copies of all of the Consultant's insurance policies providing coverage relating to the Services, including without limitation any professional liability insurance policies. All required insurance will be endorsed to provide the City with thirty (30) days advance written notice of cancellation or material change restricting coverage. To the extent the City has an insurable interest, the builder's risk policy will have the City as first loss payee. The Consultant will be responsible for deductible amounts under the insurance policies. All of the Consultant's insurance policies will be primary and not require the sharing of any loss by the City or any insurer of the City.

#### **7.5 Consultant Responsibilities**

The Consultant acknowledges that any requirements by the City as to the amount of coverage under any policy of insurance will not constitute a representation by the City that the amount required is adequate and the Consultant acknowledges and agrees that the Consultant is solely responsible for obtaining and maintaining policies of insurance in adequate amounts. The insurance policy coverage limits shall not be construed as relieving the Consultant from responsibility for any amounts which may exceed these limits, for which the Consultant may be legally liable.

#### **7.6 Additional Insurance**

The Consultant shall place and maintain, or cause any of its sub-consultants to place and maintain, such other insurance or amendments to the foregoing policies as the City may reasonably direct.

#### **7.7 Waiver of Subrogation**

The Consultant hereby waives all rights of recourse against the City for loss or damage to the Consultant's property.

### **8. TERMINATION**

#### **8.1 By the City**

The City may at any time and for any reason by written notice to the Consultant terminate this agreement before the completion of all the Services, such notice to be determined by the City at its sole discretion. Upon receipt of such notice, the Consultant will perform no further Services other than the work which is reasonably required to terminate the Services and return the City's property to the City. Despite any other provision of this agreement, if the City terminates this agreement before the completion of all the Services, the City will pay to the Consultant all amounts owing under this agreement for Services provided by the Consultant up to and including the date of termination, plus reasonable termination costs in the amount as determined by the City in its sole discretion. Upon payment of such amounts no other or additional payment will be owed by the City to the Consultant, and, for certainty, no amount will be owing on account of lost profits relating to the portion of the Services not performed or other profit opportunities.

## **8.2 Termination for Cause**

The City may terminate this agreement for cause as follows:

- (a) If the Consultant is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of its insolvency, or if a receiver is appointed because of its insolvency, the City may, without prejudice to any other right or remedy the City may have, terminate this agreement by giving the Consultant or receiver or trustee in bankruptcy written notice; or
- (b) If the Consultant is in breach of any term or condition of this agreement, and such breach is not remedied to the reasonable satisfaction of the City within 5 days after delivery of written notice from the City to the Consultant, then the City may, without prejudice to any other right or remedy the City may have, terminate this agreement by giving the Consultant further written notice.

If the City terminates this agreement as provided by this Section, then the City may:

- (c) enter into contracts, as it in its sole discretion sees fit, with other persons to complete the Services;
- (d) withhold payment of any amount owing to the Consultant under this agreement for the performance of the Services;
- (e) set-off the total cost of completing the Services incurred by the City against any amounts owing to the Consultant under this agreement, and at the completion of the Services pay to the Consultant any balance remaining; and
- (f) if the total cost to complete the Services exceeds the amount owing to the Consultant, charge the Consultant the balance, which amount the Consultant will forthwith pay.

## **8.3 Curing Defaults**

If the Consultant is in default of any of its obligations under this agreement, then the City may without terminating this agreement, upon 5 days written notice to the Consultant, remedy the default and set-off all costs and expenses of such remedy against any amounts owing to the Consultant. Nothing in this agreement will be interpreted or construed to mean that the City has any duty or obligation to remedy any default of the Consultant.

## **9. APPLICABLE LAWS, BUILDING CODES AND BY-LAWS**

### **9.1 Applicable Laws**

This agreement will be governed by and construed in accordance with the laws of the Province of British Columbia. The City and the Consultant accept the jurisdiction of the courts of British Columbia and agree that any action under this agreement be brought in such courts.

### **9.2 Codes and By-Laws**

The Consultant will provide the Services in full compliance with all applicable laws, building codes and regulations.

### **9.3 Interpretation of Codes**

The Consultant will, as a qualified and experienced professional, interpret applicable codes, laws and regulations applicable to the performance of the Services. If an authority having jurisdiction imposes an

interpretation which the Consultant could not reasonably have verified or foreseen prior to entering into this agreement, then the City will pay the additional costs, if any, of making alterations so as to conform to the required interpretation.

## **10. CONFIDENTIALITY AND DISCLOSURE OF INFORMATION**

### **10.1 No Disclosure**

Except as provided for by law or otherwise by this agreement, the Consultant will keep strictly confidential any information supplied to, obtained by, or which comes to the knowledge of the Consultant as a result of the performance of the Services and this agreement, and will not, without the prior express written consent of the City, publish, release, disclose or permit to be disclosed any such information to any person or corporation, either before, during or after termination of this agreement, except as reasonably required to complete the Services.

### **10.2 Freedom of Information and Protection of Privacy Act**

The Consultant acknowledges that the City is subject to the *Freedom of Information and Protection of Privacy Act* of British Columbia and agrees to any disclosure of information by the City required by law.

### **Refer to Schedule 1 Privacy Protection Schedule, and Refer to Schedule 2 Confidentiality Agreement]**

The Privacy Protection Schedule and Confidentiality Agreement attached to this agreement forms a part of and is incorporated into this agreement.

### **10.3 Return of Property**

The Consultant agrees to return to the City all of the City's property at the completion of this agreement, including any and all copies or originals of reports provided by the City.

## **11. USE OF WORK PRODUCT**

The Consultant hereby sells, assigns and transfers to the City the right, title and interest required for the City to use and receive the benefit of all the reports, drawings, plans, designs, models, specifications, computer software, concepts, products, designs or processes or other such work product produced by or resulting from the Services rendered by the Consultant.

## **12. WORKERS' COMPENSATION BOARD AND OCCUPATIONAL HEALTH AND SAFETY**

12.1 The Consultant agrees that it shall, at its own expense, procure and carry, or cause to be procured, carried and paid for, full Workers' Compensation Board coverage for itself and all workers, employees, servants and others engaged in or upon any work or service which is the subject of this agreement. The Consultant agrees that the City has the unfettered right to set off the amount of the unpaid premiums and assessments for the Workers' Compensation Board coverage against any monies owing by the City to the Consultant. The City will have the right to withhold payment under this agreement until the Workers' Compensation Board premiums, assessments or penalties in respect of the Services have been paid in full.

12.2 The Consultant will provide the City with the Consultant's Workers' Compensation Board registration number and a letter from the Workers' Compensation Board confirming that the Consultant is



registered in good standing with the Workers' Compensation Board and that all assessments have been paid to the date thereof prior to the City having any obligations to pay monies under this agreement.

- 12.3 The Consultant agrees that it is the prime contractor for the Services as defined in the *Workers Compensation Act*, R.S.B.C. 1996, c. 492 as amended and will ensure compliance with the *Workers Compensation Act* and Regulations in respect of the workplace. Without limiting its responsibilities under the legislation, the Consultant will coordinate the activities of employers, workers and other persons at the workplace relating to occupational health and safety. The Consultant will have a safety program in place that meets the requirements of the Workers' Compensation Board Occupational Health and Safety Regulation and the *Workers Compensation Act*. As prime contractor, the Consultant will be responsible for appointing a qualified coordinator for insuring the health and safety activities for the location of the Services. That person will be the person so identified in Appendix 4 of this agreement, and the Consultant will advise the City immediately in writing if the name or contact number of the qualified coordinator changes.
- 12.4 Without limiting the generality of any other indemnities granted by the Consultant in this agreement, the Consultant shall indemnify and save harmless the Indemnitees from and against all claims, demands, causes of action, suits, losses, damages, costs, liabilities, expenses, judgements, penalties and proceedings (including all actual legal costs) which any of the Indemnitees incur, suffer or are put to arising out of or in any way related to unpaid Workers' Compensation Board assessments owing from any person or corporation engaged in the performance of this agreement or arising out of or in any way related to the failure to observe safety rules, regulations and practices of the Workers' Compensation Board, including penalties levied by the Workers' Compensation Board.
- 12.5 The Consultant will ensure compliance with and conform to all health and safety laws, by-laws or regulations of the Province of British Columbia, including without limitation the *Workers Compensations Act* and Regulations pursuant thereto.
- 12.6 The City may, on twenty-four (24) hours written notice to the Consultant, install devices or rectify any conditions creating an immediate hazard existing that would be likely to result in injury to any person. However, in no case will the City be responsible to ascertaining or discovering, through inspections or review of the operations of the Consultant or otherwise, any deficiency or immediate hazard.

### **13. BUSINESS LICENSE**

- 13.1 The Consultant will obtain and maintain throughout the term of this agreement a valid City of Surrey business license.

### **14. DISPUTE RESOLUTION**

#### **14.1 Dispute Resolution Procedures**

The parties will make reasonable efforts to resolve any dispute, claim, or controversy arising out of this agreement or related to this agreement ("Dispute") using the dispute resolution procedures set out in this section 14.

- (a) Negotiation  
The parties will make reasonable efforts to resolve any Dispute by amicable negotiations and will provide frank, candid and timely disclosure of all relevant facts, information and documents to facilitate negotiations.
- (b) Mediation  
If all or any portion of a Dispute cannot be resolved by good faith negotiations within 30 days, either party may by notice to the other party refer the matter to mediation. Within 7 days of delivery of the notice, the parties will mutually appoint a mediator. If the parties fail to agree on the appointment of the mediator, then either party may apply to the British Columbia International Commercial Arbitration Centre for appointment of a mediator. The parties will continue to negotiate in good faith to resolve the Dispute with the assistance of the mediator. The place of mediation will be Surrey, British Columbia. Each party will equally bear the costs of the mediator and other out-of-pocket costs, and each party will bear its own costs of participating in the mediation.
- (c) Litigation  
If within 90 days of the request for mediation the Dispute is not settled, or if the mediator advises that there is no reasonable possibility of the parties reaching a negotiated resolution, then either party may without further notice commence litigation.

## **15. JURISDICTION AND COUNCIL NON-APPROPRIATION**

- 15.1 Nothing in this agreement limits or abrogates, or will be deemed to limit or abrogate, the jurisdiction of the Council of the City in the exercise of its powers, rights or obligations under any public or private statute, regulation or by-law or other enactment.
- 15.2 The Consultant recognizes and agrees that the City cannot make financial commitments beyond the City's current fiscal year. The City will annually make bonafide requests for appropriation of sufficient funds to cover all payments covered by this agreement. If City Council does not appropriate funds, or appropriates insufficient funds, the City will notify the Consultant of its intention to terminate or reduce the services so affected within 30 days after the non-appropriation becomes final. Such termination shall take effect 30 days from the date of notification, shall not constitute an event of default and shall relieve the City, its officers and employees, from any responsibility or liability for the payment of any further amounts under this agreement.

## **16. GENERAL**

### **16.1 Entire Agreement**

This agreement, including the Appendices and any other documents expressly referred to in this agreement as being a part of this agreement, contains the entire agreement of the parties regarding the provision of the Services and no understandings or agreements, oral or otherwise, exist between the parties except as expressly set out in this agreement. This agreement supersedes and cancels all previous agreements between the parties relating to the provision of the Services.

### **16.2 Amendment**

This agreement may be amended only by agreement in writing, signed by both parties.

### 16.3 Consultant Terms Rejected

In the event that the Consultant issues an invoice, packing slip, sales receipt, or any like document to the City, the City accepts the document on the express condition that any terms and conditions in it which constitute terms and conditions which are in addition to or which establish conflicting terms and conditions to those set out in this agreement are expressly rejected by the City.

### 16.4 Survival of Obligations

All of the Consultant's obligations to perform the Services in a professional and proper manner will survive the termination or completion of this agreement.

### 16.5 Cumulative Remedies

The City's remedies under this agreement are cumulative and in addition to any right or remedy which may be available to the City at law or in equity.

### 16.6 Notices

Any notice, report or other document that either party may be required or may wish to give to the other should be in writing, unless otherwise provided for, and will be deemed to be validly given to and received by the addressee, if delivered personally, on the date of such personal delivery, if delivered by facsimile, on transmission, or if by mail, five calendar days after posting. The addresses for delivery will be as follows:

(a) The City:

City of Surrey, Surrey City Hall  
<img alt="redacted" data-bbox="264 546 294 558"/> **insert department/division/section name**>  
13450 – 104 Avenue, Surrey, B.C., Canada, V3T 1V8

Attention: <img alt="redacted" data-bbox="264 598 294 610"/> **insert contact name**>  
<img alt="redacted" data-bbox="264 615 294 627"/> **insert title**>

Business Fax No.: <img alt="redacted" data-bbox="321 650 351 662"/> **insert**>  
Business Email: <img alt="redacted" data-bbox="321 667 351 679"/> **insert**>

(b) The Consultant (**Contract Administrator**):

<img alt="redacted" data-bbox="264 732 294 744"/> **insert name and address**>

Attention: <img alt="redacted" data-bbox="264 767 294 779"/> **insert contact name**>  
<img alt="redacted" data-bbox="264 784 294 796"/> **insert title**>

Business Fax No.: <img alt="redacted" data-bbox="321 818 351 830"/> **insert**>  
Business Email: <img alt="redacted" data-bbox="321 835 351 847"/> **insert**>

### **16.7 Unenforceability**

If any provision of this agreement is invalid or unenforceable, it will be severed from the agreement and will not affect the enforceability or validity of the remaining provisions of the agreement.

### **16.8 Headings**

The headings in this agreement are inserted for convenience of reference only and will not form part of nor affect the interpretation of this agreement.

### **16.9 Singular, Plural and Gender**

Wherever the singular, plural, masculine, feminine or neuter is used throughout this agreement the same will be construed as meaning the singular, plural, masculine, feminine, neuter or body corporate where the context so requires.

### **16.10 Waiver**

No waiver by either party of any breach by the other party of any of its covenants, obligations and agreements will be a waiver of any subsequent breach or of any other covenant, obligation or agreement, nor will any forbearance to seek a remedy for any breach be a waiver of any rights and remedies with respect to such or any subsequent breach.

### **16.11 Signature**

This agreement may be executed in one or more counterparts all of which when taken together will constitute one and the same agreement, and one or more of the counterparts may be delivered by fax or PDF email transmission.

### **16.12 Enurement**

This agreement shall enure to the benefit of and be binding upon the respective successors and permitted assigns of the City and the Consultant.

**IN WITNESS WHEREOF** the parties hereto have executed this agreement on the day and year first above written.

**CITY OF SURREY**

**I/We have the authority to bind the City.**

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)

**[ INSERT FULL LEGAL NAME OF CONSULTANT]**

**I/We have the authority to bind the Consultant.**

\_\_\_\_\_  
(Legal Name of Consultant)

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)

## **SCHEDULE 1 - PRIVACY PROTECTION SCHEDULE**

(Included for reference purposes – will be attached to final agreement)

This Schedule forms part of the agreement between City of Surrey (the "Public Body") and \_\_\_\_\_ (the "Consultant") respecting Greenhouse Gas Emissions Modelling for Community Climate Action Strategy Update, Reference No. 1220-030-2020-014 (the "Agreement").

### **Definitions**

1. In this Schedule,
  - (a) "access" means disclosure by the provision of access;
  - (b) "Act" means the Freedom of Information and Protection of Privacy Act (British Columbia), as amended from time to time;
  - (c) "contact information" means information to enable an individual at a place of business to be contacted and includes the name, position name or title, business telephone number, business address, business email or business fax number of the individual;
  - (d) "personal information" means recorded information about an identifiable individual, other than contact information, collected or created by the Consultant as a result of the Agreement or any previous agreement between the Public Body and the Consultant dealing with the same subject matter as the Agreement but excluding any such information that, if this Schedule did not apply to it, would not be under the "control of a public body" within the meaning of the Act.

### **Purpose**

2. The purpose of this Schedule is to:
  - (a) enable the Public Body to comply with its statutory obligations under the Act with respect to personal information; and
  - (b) ensure that, as a service provider, the Consultant is aware of and complies with its statutory obligations under the Act with respect to personal information.

### **Collection of personal information**

3. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Consultant may only collect or create personal information that is necessary for the performance of the Consultant's obligations, or the exercise of the Consultant's rights, under the Agreement.
4. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Consultant must collect personal information directly from the individual the information is about.
5. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Consultant must tell an individual from whom the Consultant collects personal information:
  - (a) the purpose for collecting it;
  - (b) the legal authority for collecting it; and
  - (c) the title, business address and business telephone number of the person designated by the Public Body to answer questions about the Consultant's collection of personal information.

### **Accuracy of personal information**

6. The Consultant must make every reasonable effort to ensure the accuracy and completeness of any personal information to be used by the Consultant or the Public Body to make a decision that directly affects the individual the information is about.

### **Requests for access to personal information**

7. If the Consultant receives a request for access to personal information from a person other than the Public Body, the Consultant must promptly advise the person to make the request to the Public Body unless the Agreement expressly requires the Consultant to provide such access and, if the Public Body has advised the Consultant of the name or title and contact information of an official of the Public Body to whom such requests are to be made, the Consultant must also promptly provide that official's name or title and contact information to the person making the request.

### **Correction of personal information**



8. Within 5 business days of receiving a written direction from the Public Body to correct or annotate any personal information, the Consultant must annotate or correct the information in accordance with the direction.
9. When issuing a written direction under section 8, the Public Body must advise the Consulate of the date the correction request to which the direction relates was received by the Public Body in order that the Consultant may comply with section 10.
10. Within 5 business days of correcting or annotating any personal information under section 8, the Consultant must provide the corrected or annotated information to any party to whom, within one year prior to the date the correction request was made to the Public Body, the Consultant disclosed the information being corrected or annotated.
11. If the Consultant receives a request for correction of personal information from a person other than the Public Body, the Consultant must promptly advise the person to make the request to the Public Body and, if the Public Body has advised the Consultant of the name or title and contact information of an official of the Public Body to whom such requests are to be made, the Consultant must also promptly provide that official's name or title and contact information to the person making the request.

#### **Protection of personal information**

12. The Consultant must protect personal information by making reasonable security arrangements against such risks as unauthorized access, collection, use, disclosure or disposal, including any expressly set out in the Agreement.

#### **Storage and access to personal information**

13. Unless the Public Body otherwise directs in writing, the Consultant must not store personal information outside Canada or permit access to personal information from outside Canada.

#### **Retention of personal information**

14. Unless the Agreement otherwise specifies, the Consultant must retain personal information until directed by the Public Body in writing to dispose of it or deliver it as specified in the direction.

#### **Use of personal information**

15. Unless the Public Body otherwise directs in writing, the Consultant may only use personal information if that use is for the performance of the Consultant's obligations, or the exercise of the Consultant's rights, under the Agreement.

#### **Disclosure of personal information**

16. Unless the Public Body otherwise directs in writing, the Consultant may only disclose personal information inside Canada to any person other than the Public Body if the disclosure is for the performance of the Consultant's obligations, or the exercise of the Consultant's rights, under the Agreement.
17. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Consultant must not disclose personal information outside Canada.

#### **Notice of foreign demands for disclosure**

18. In addition to any obligation the Consultant may have to provide the notification contemplated by section 30.2 of the Act, if in relation to personal information in its custody or under its control the Consultant:
  - (a) receives a foreign demand for disclosure;
  - (b) receives a request to disclose, produce or provide access that the Consultant knows or has reason to suspect is for the purpose of responding to a foreign demand for disclosure; or
  - (c) has reason to suspect that an unauthorized disclosure of personal information has occurred in response to a foreign demand for disclosure the Consultant must immediately notify the Public Body and, in so doing, provide the information described in section 30.2(3) of the Act. In this section, the phrases "foreign demand for disclosure" and "unauthorized disclosure of personal information" will bear the same meanings as in section 30.2 of the Act.

#### **Notice of unauthorized disclosure**

19. In addition to any obligation the Consultant may have to provide the notification contemplated by section 30.5 of the Act, if the Consultant knows that there has been an unauthorized disclosure of personal information in its custody or under its control, the Consultant must immediately notify the Public Body. In this section, the phrase "unauthorized disclosure of personal information" will bear the same meaning as in section 30.5 of the Act.

#### **Inspection of personal information**

20. In addition to any other rights of inspection the Public Body may have under the Agreement or under statute, the Public Body may, at any reasonable time and on reasonable notice to the Consultant, enter on the Consultant's premises to inspect any personal information in the possession of the Consultant or any of the Consultant's information management policies or practices relevant to its management of personal information or its compliance with this Schedule and the Consultant must permit, and provide reasonable assistance to, any such inspection.

#### **Compliance with the Act and directions**

21. The Consultant must in relation to personal information comply with:

- (a) the requirements of the Act applicable to the Consultant as a service provider, including any applicable order of the commissioner under the Act; and
- (b) any direction given by the Public Body under this Schedule.

22. The Consultant acknowledges that it is familiar with the requirements of the Act governing personal information that are applicable to it as a service provider.

#### **Notice of non-compliance**

23. If for any reason the Consultant does not comply, or anticipates that it will be unable to comply, with a provision in this Schedule in any respect, the Consultant must promptly notify the Public Body of the particulars of the non-compliance or anticipated non-compliance and what steps it proposes to take to address, or prevent recurrence of, the non-compliance or anticipated non-compliance.

#### **Termination of Agreement**

24. In addition to any other rights of termination which the Public Body may have under the Agreement or otherwise at law, the Public Body may, subject to any provisions in the Agreement establishing mandatory cure periods for defaults by the Consultant, terminate the Agreement by giving written notice of such termination to the Consultant, upon any failure of the Consultant to comply with this Schedule in a material respect.

#### **Interpretation**

25. In this Schedule, references to sections by number are to sections of this Schedule unless otherwise specified in this Schedule.

26. Any reference to the "Consultant" in this Schedule includes any sub-consultant or agent retained by the Consultant to perform obligations under the Agreement and the Consultant must ensure that any such sub-consultants and agents comply with this Schedule.

27. The obligations of the Consultant in this Schedule will survive the termination of the Agreement.

28. If a provision of the Agreement (including any direction given by the Public Body under this Schedule) conflicts with a requirement of the Act or an applicable order of the commissioner under the Act, the conflicting provision of the Agreement (or direction) will be inoperative to the extent of the conflict.

29. The Consultant must comply with the provisions of this Schedule despite any conflicting provision of this Agreement or, subject to section 30, the law of any jurisdiction outside Canada.

30. Nothing in this Schedule requires the Consultant to contravene the law of any jurisdiction outside Canada unless such contravention is required to comply with the Act.

The foregoing Privacy Protection Schedule and terms and conditions contained herein are accepted and agreed to on this \_\_\_\_\_ day of \_\_\_\_\_, 2018.

**PROPONENT**

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
Printed Name and Position of Authorized Signatory

Business E-mail Address: \_\_\_\_\_

Business Telephone: \_\_\_\_\_

Business Facsimile: \_\_\_\_\_

## SCHEDULE 2 - CONFIDENTIALITY AGREEMENT

**PROJECT TITLE: GREENHOUSE GAS EMISSIONS MODELLING FOR COMMUNITY CLIMATE ACTION STRATEGY UPDATE**

**Reference No.: 1220-030-2020-014**

**BETWEEN:**

**CITY OF SURREY**  
13450 - 104 Avenue,  
Surrey, B.C., V3T 1V8, Canada  
(the “City”)

**OF THE FIRST PART**

**AND:**

**[COMPANY]**, having an office at [ADDRESS], [CITY], [POSTAL/ZIP CODE], [COUNTRY]

*(Insert Full Legal Name and Business Address of Consultant)*

(the “Consultant”)

**OF THE SECOND PART**

**WHEREAS:**

- A.** The Consultant and the City acknowledge that the process of the Consultant having access to information will involve the verbal, electronic, written, or other disclosure of information, and documentation to the Consultant. In this Confidentiality Agreement confidential information (the “Confidential Information”) means any information regarding potential City land sites, technical data, or know how, including, but not limited to that which relates to services, processes, designs, drawings, diagrams, specifications, business strategies, finances whether communicated orally or in writing, specifications and associated documentation, and any equipment, machinery, or other property all of which owned by the City.
- B.** The Consultant has agreed to maintain the Confidential Information as confidential and to the non-disclosure of same, all in accordance with this Confidentiality Agreement.

**THEREFORE, IN CONSIDERATION OF THE PREMISES AND OF THE MUTUAL COVENANTS SET FORTH HEREIN, THE PARTIES AGREE AS FOLLOWS:**

1. The Consultant shall hold the Confidential Information in strict confidence recognizing that the Confidential Information, or any portion thereof, is comprised of highly sensitive information. The Consultant acknowledges that the disclosure or use of the Confidential Information, or any portion thereof, will cause the City substantial and irreparable harm and injury and the City shall have the right to equitable and injunctive relief to prevent the unauthorized use or disclosure, and to such damages as there are occasioned by such unauthorized use or disclosure, and the Consultant hereby consents to the granting of such equitable and injunctive relief.

2. The Consultant shall not divulge or allow disclosure of the Confidential Information, or any part thereof, to any person or entity for any purpose except as specified by the City, unless expressly authorized in writing to do so by the City, provided however, the Consultant may permit the limited disclosure of the Confidential Information or portion thereof only to those of the Consultant's directors, officers, employees, and sub-consultants who have a clear and *bonafide* need to know the Confidential Information, and provided further that, before the Consultant divulges or discloses any of the Confidential Information to such directors, officers, employees, and sub-consultants, the Consultant shall inform each of the said directors, officers, employees, and sub-consultants of the provisions of this Confidentiality Agreement and shall issue appropriate instructions to them to satisfy the obligations of the Consultant set out in this Confidentiality Agreement and shall, at the request of the City, cause each of the said directors, officers, employees, and sub-consultants to execute a confidentiality agreement in a form satisfactory to the City, in its sole discretion.
3. The Consultant agrees not to use any of the Confidential Information disclosed to it by the City for its own use or for any purpose except to carry out the specific purposes designated by this Confidentiality Agreement.
4. The Consultant shall take all necessary precautions to prevent unauthorized disclosure of the Confidential Information or any portion thereof to any person, or entity in order to prevent it from falling into the public domain or the possession of persons other than those persons authorized hereunder to have any such information, which measures shall include the highest degree of care that the Consultant utilizes to protect its own confidential information of a similar nature.
5. The Consultant shall notify the City in writing of any misuse or misappropriation of Confidential Information which may come to its attention.
6. The Consultant shall not mechanically or electronically copy or otherwise reproduce the Confidential Information, or any portion thereof, without the express advance written permission of the City, except for such copies as the Consultant may require pursuant to this Confidentiality Agreement in order to prepare the Report. All copies of the Confidential Information shall, upon reproduction by the Consultant, contain the same the City proprietary and confidential notices and legends that appear on the original Confidential Information provided by the City unless authorized otherwise by the City. All copies shall be returned to the City upon request.
7. The Confidential Information received by the Consultant and all formatting of the Confidential Information, including any alterations to the Confidential Information, shall remain the exclusive property of the City, and shall be delivered to the City by the Consultant forthwith upon demand by the City.
8. The Consultant acknowledges that the City is a public body subject to the *Freedom of Information and Protection of Privacy Act* ("FIPPA") and as such the Confidential Information is protected pursuant to the provisions of FIPPA. The Consultant further acknowledges that the collection, use, storage, access, and disposal of the Confidential Information shall be performed in compliance with the requirements of FIPPA. Information which is sent to the City by the Consultant in performance of this Confidentiality Agreement is subject to FIPPA and may be disclosed as required by FIPPA. The Consultant shall allow the City to disclose any of the information in accordance with FIPPA, and where it is alleged that disclosure of the information, or portion thereof, may cause harm to the Consultant, the Consultant shall provide details of such harm in accordance with section 21 of FIPPA.
9. The Consultant acknowledges and agrees that nothing in this Confidentiality Agreement does or is intended to grant any rights to the Consultant under any patent, copyright, or other proprietary right, either directly or indirectly, nor shall this Confidentiality Agreement grant any rights in or to the Confidential Information.
10. Disclosure of the Confidential Information to the Consultant the terms of this Confidentiality Agreement shall not constitute public disclosure of the Confidential Information for the purposes of section 28.2 of the *Patent Act*, R.S.C. 1985, c. p-4.

11. This Confidentiality Agreement shall be binding upon and for the benefit of the undersigned parties, their successors, and assigns and the Consultant hereby acknowledges that the obligations imposed on the Consultant hereunder shall survive the termination of the Consultant's dealings or engagement with the City.
12. The Consultant represents that is not now a party to, and shall not enter into any agreement or assignment in conflict with this Confidentiality Agreement.
13. This Confidentiality Agreement shall be governed and construed in accordance with the laws of the Province of British Columbia and the Consultant and the City irrevocably attorns to the exclusive jurisdiction of the courts of the Province of British Columbia to adjudicate any dispute arising out of this Agreement.



***(APPENDICES 1 THROUGH 5 WILL BE INSERTED LATER WHEN AN AGREEMENT IS ASSEMBLED FOR EXECUTION INCLUDING INFORMATION FROM THE RFP AND SUCCESSFUL PROPOSAL.)***

**APPENDIX 1 – SCOPE OF SERVICES**

**APPENDIX 2 – FEES AND PAYMENT**

**APPENDIX 3 – TIME SCHEDULE**

**APPENDIX 4 – PERSONNEL AND SUB-CONSULTANTS**

**APPENDIX 5 – ADDITIONAL SERVICES**

**SCHEDULE 1 – PRIVACY PROTECTION SCHEDULE**

**SCHEDULE 2 – CONFIDENTIALITY AGREEMENT**

## SCHEDULE C – FORM OF PROPOSAL

**RFP Project Title:** Greenhouse Gas Emissions Modelling for Community Climate Action Strategy Update

**RFP Reference No.:** 1220-030-2020-014

**Legal Name of Proponent:** \_\_\_\_\_

**Contact Person and Title:** \_\_\_\_\_

**Business Address:** \_\_\_\_\_

**Business Telephone:** \_\_\_\_\_

**Business Fax:** \_\_\_\_\_

**Business E-Mail Address:** \_\_\_\_\_

TO:

City Representative: Richard D. Oppelt, Manager, Procurement Services

E-mail for PDF Files: [purchasing@surrey.ca](mailto:purchasing@surrey.ca)

Dear Sir:

**1.0** I/We, the undersigned duly authorized representative of the Proponent, having received and carefully reviewed all of the Proposal documents, including the RFP and any issued addenda posted on the City Website and BC Bid Website, and having full knowledge of the Site, and having fully informed ourselves as to the intent, difficulties, facilities and local conditions attendant to performing the Services, submit this Proposal in response to the RFP.

**2.0** I/We confirm that the following schedules are attached to and form a part of this Proposal:

Schedule C-1 – Statement of Departures;  
Schedule C-2 – Proponent’s Experience, Reputation and Resources;  
Schedule C-3 – Proponent’s Technical Proposal (Services);  
Schedule C-4 – Proponent’s Technical Proposal (Time Schedule); and  
Schedule C-5 – Proponent’s Financial Proposal.

**3.0** I/We confirm that this proposal is accurate and true to best of my/our knowledge.

**4.0 I/We confirm** that, if I/we am/are awarded a contract, I/we will at all times be the “prime contractor” as provided by the *Worker’s Compensation Act (British Columbia)* with respect to the Services. I/we further confirm that if I/we become aware that another consultant at the place(s) of the Services has been designated as the “prime contractor”, I/we will notify the City immediately, and I/we will indemnify and hold the City harmless against any claims, demands, losses, damages, costs, liabilities or expenses suffered by the City in connection with any failure to so notify the City.

**This Proposal** is submitted this **[day]** day of **[month], [year]**.

**I/We have the authority to bind the Proponent.**

\_\_\_\_\_  
(Legal Name of Proponent)

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Signature of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)

\_\_\_\_\_  
(Print Name and Position of Authorized Signatory)

**SCHEDULE C-1 - STATEMENT OF DEPARTURES**

1. I/We have reviewed the proposed Contract attached to the RFP as Schedule “B”. If requested by the City, I/we would be prepared to enter into that Contract, amended by the following departures (list, if any):

<b>Section</b>	<b>Requested Departure(s) / Alternative(s)</b>
_____	_____
_____	_____

2. The City of Surrey requires that the successful Proponent have the following in place **before commencing the Services**:

- (a) Workers' Compensation Board coverage in good standing and further, if an “Owner Operator” is involved, personal operator protection (P.O.P.) will be provided, Workers' Compensation Registration Number \_\_\_\_\_;
- (b) Prime Contractor qualified coordinator is Name: \_\_\_\_\_ and Contact Number: \_\_\_\_\_;
- (c) Insurance coverage for the amounts required in the proposed agreement as a minimum, naming the City as additional insured and generally in compliance with the City’s sample insurance certificate form available on the City’s Website at [www.surrey.ca](http://www.surrey.ca) search [Consultants Certificate of Insurance](#);
- (d) City of Surrey or Intermunicipal Business License: Number \_\_\_\_\_;
- (e) If the Consultant’s Goods and Services are subject to GST, the Consultant’s GST Number is \_\_\_\_\_; and
- (f) If the Consultant is a company, the company name indicated above is registered with the Registrar of Companies in the Province of British Columbia, Canada, Incorporation Number \_\_\_\_\_.

As of the date of this Proposal, we advise that we have the ability to meet all of the above requirements **except as follows** (list, if any):

<b>Section</b>	<b>Requested Departure(s) / Alternative(s)</b>
_____	_____
_____	_____

3. I/We offer the following alternates to improve the Services described in the RFP (list, if any):

<b>Section</b>	<b>Requested Departure(s) / Alternative(s)</b>
_____	_____
_____	_____

4. The Proponent acknowledges that the departures it has requested in Sections 1, 2 and 3 of this Schedule C-1 will not form part of the Contract unless and until the City agrees to them in writing by initialling or otherwise specifically consenting in writing to be bound by any of them.

**SCHEDULE C-2 - PROPONENT'S EXPERIENCE, REPUTATION AND RESOURCES**

Proponents should provide information on the following (use the spaces provided and/or attach additional pages, if necessary):

- (i) Location of primary business, branch locations, background, stability, structure of the Proponent and number of years business has been operational;
- (ii) Proponent's relevant experience and qualifications in delivering services similar to those required by the RFP;
- (iii) Proponent's demonstrated ability to provide the Services;
- (iv) Proponent's equipment resources, capability and capacity, as relevant;
- (v) Proponent's references (name and telephone number). The City's preference is to have a minimum of three references for each organization included in the Proposal;
- (vi) Proponent's financial strength (with evidence such as financial statements, bank references);
- (vii) Describe any difficulties or challenges you might anticipate in providing the Services to the City and how you would plan to manage these;
- (viii) an overview of each personnel proposed to undertake the project, addressing their knowledge, capabilities, and experience as they relate to the required Services and the points included in Section 9 ("Proponent Experience and Preferred Qualifications") of Schedule A – Scope of Services. Attach resumes, if available. (use the spaces provided and/or attach additional pages, if necessary):

**Key Personnel**

Name: \_\_\_\_\_

Experience: \_\_\_\_\_

Dates: \_\_\_\_\_

Project Name: \_\_\_\_\_

Responsibility: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Dates: \_\_\_\_\_

Project Name: \_\_\_\_\_

Responsibility: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Project Approach – Team Roles**

- (ix) Proponents should provide an outline of the resource roles and estimated effort required for this project. (use the spaces provided and/or attach additional pages, if necessary):  
and

Role	Name	Forecasted Project Days/Hrs.

**Sub-Consultants**

- (x) Proponents should provide the following information on the background and experience of all sub-consultants proposed to undertake a portion of the Services (use the spaces provided and/or attach additional pages, if necessary):

DESCRIPTION OF SERVICES	SUB-CONSULTANTS NAME	YEARS OF WORKING WITH PROPONENT	TELEPHONE NUMBER AND EMAIL



### **SCHEDULE C-3 - PROPONENT'S TECHNICAL PROPOSAL (SERVICES)**

Proponents should provide the following (use the spaces provided and/or attach additional pages, if necessary):

- (i) **Project Understanding:** A concise narrative that illustrates an understanding of the required Services, deliverables, project objectives, and broader project context;
- (ii) **Approaches and Methodologies:** Description of the general approaches and methodologies the Proponent would employ in executing the proposed work plan and in performing and delivering all elements of the City's required Services, including a clear description of the proposed modelling (type(s), data inputs, assumptions, key functions/dynamics, outputs, and software) and related analyses;
- (iii) **Work Plan Description:** A narrative that illustrates how the Proponent will complete the scope of Services, manage the Services, and accomplish required objectives within the City's timeline, at the detail necessary for the City to ensure the various considerations included in the description of the required Services have been considered and will be addressed throughout the project. Proponents are encouraged to reference the approaches and methodologies described above;
- (iv) **Interim and Final Deliverables:** A list of deliverables (reports and otherwise) that you would anticipate providing the City's project team during and by the end of the project, including their relationship to project milestones, as well as the specific filetypes;
- (v) **Proponent Standards:** A description of the standards to be met by the Proponent in providing the Services;
- (vi) **Work Plan:** A detailed work plan and timeline to deliver the required Services and achieve the project objectives, clearly specifying whether the Proponent anticipates a phased approach that sees partial completion of the Services by the date given in Section 8 ("Project Timeline") of Schedule A – Scope of Services and how that proposed approach would work. The Proponent's work plan should make reference to the requirements;
- (vii) **Team Structure:** A description of the proposed management structure for this project and a project organizational chart in the attachments. Include on the narrative a description of the responsibilities of all involved organizations and proposed team members (people) involved, and reporting relationships and lines of communication within and between each organization if more than one is involved;
- (ix) **Environmental and Social Responsibility:** Describe your commitment to environmental stewardship initiatives, recycling practices and carbon footprint reduction;
- (x) **Value Added Services:** The Proponent should provide a description of value added, innovative ideas and unique services that the Proponent can offer to support the City's requirements relevant to the scope of Services described in this RFP. Unless otherwise stated, it is understood that there are no extra costs for these Services;



**SCHEDULE C-5 - PROPONENT'S FINANCIAL PROPOSAL**

Indicate the Proponent's proposed fee (excluding GST), and the basis of calculation (use the spaces provided and/or attach additional pages, if necessary) as follows (as applicable):

- (i) monthly fee;
- (ii) hourly rates for all team members if payment is to be made on an hourly basis; or
- (iii) lump sum fee.

**Schedule of Rates:**

Item No.	Description	Estimated Quantity of Hours	Hourly Rate	Total Price
	<b>Labour:</b>			
	<b>Materials:</b>			
	<b>Disbursements:</b>			
	<b>Subtotal:</b>			
	<b>GST:</b>			
	<b>TOTAL PROPOSAL PRICE:</b>			

**SAMPLE**

**Additional Expenses:**

The proposed Contract attached as Schedule "B" to the RFP provides that expenses are to be included within the fee, other than the expenses listed in the Contract as disbursements. Details of disbursements are to be shown in the chart above. Please indicate any expenses that would be payable in addition to the proposed fee and proposed disbursements set out above:

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**Payment Terms:**

A cash discount of \_\_\_\_\_% will be allowed if account is paid within \_\_\_\_\_ days, or the \_\_\_\_\_ day of the month following, or net 30 days, on a best effort basis.