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**To:** General Purposes Committee  
**From:** Peter Russell  
Director, Sustainability and District Energy  
**Re:** **Community Energy and Emissions Plan 2050**

**Date:** January 21, 2022  
**File:** 10-6125-07-02/2021-  
Vol 01

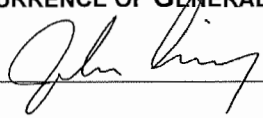

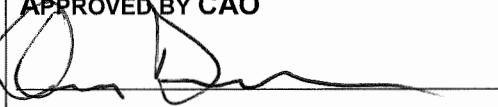
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**Staff Recommendation**

1. That the Community Energy & Emissions Plan 2050 in Attachment 1 of the report titled “Community Energy and Emissions Plan 2050” from the Director, Sustainability and District Energy, dated January 21, 2022 be endorsed;
2. That the Official Community Plan Bylaw 9000, Amendment Bylaw 10328, which would include accelerated greenhouse gas emission reduction targets for 2030 and 2050, consistent with limiting global average temperature rise to no more than 1.5 degrees Celsius by 2100, be introduced and given first reading;
3. That Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 10328, having been considered in conjunction with:
  - a. the City's Financial Plan and Capital Program; and
  - b. the Greater Vancouver Regional District Solid Waste and Liquid Waste Management Plans;is hereby found to be consistent with said program and plans, in accordance with Section 477(3)(a) of the Local Government Act;
4. That Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 10328, having been considered in accordance with Section 475 of the Local Government Act and the City's Official Community Plan Bylaw Preparation Consultation Policy 5043, is found not to require further consultation.
5. That the Climate Action Programs included in Attachment 3 of the report titled “Community Energy and Emissions Plan 2050” from the Director, Sustainability and District Energy, dated January 21, 2022 be received for information.

Peter Russell  
Director, Sustainability and District Energy  
(604-276-4130)

Att. 3

<b>REPORT CONCURRENCE</b>		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Economic Development	<input checked="" type="checkbox"/>	
Community Social Development	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Building Approvals	<input checked="" type="checkbox"/>	
Development Applications	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Transportation	<input checked="" type="checkbox"/>	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b> 	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

At the General Purposes Committee meeting held on March 25, 2019, City Council resolved that:

*“(1) That the public consultation program defined in the report titled Accelerating Local Action on Climate Change: Community Energy & Emissions Plan (CEEP) Renewal, from the Director, Engineering dated February 27, 2019, to gain feedback from residents and stakeholders regarding the recommended revised greenhouse gas (GHG) reduction target and revised climate action strategies and measures consistent with and in response to the UN’s Intergovernmental Panel on Climate Change report, be endorsed;”*

*“(2) That the City of Richmond declares and confirms a climate emergency; and”*

*“(3) That staff report back on:*

*(a) a specific statement in conjunction with the City’s Community Energy and Emissions Plan;*

*(b) the consideration of more energy and emissions targets and more often; and*

*(c) strategies for enforcement relating to the City’s bike lanes.”*

This report responds to items (1), (2), (3)(a) and (3)(b) in the above resolution. Item (3)(c) was addressed in a memorandum dated April 24, 2019.

This report also responds to Council direction on January 27, 2020, where City Council resolved:

*“(1) That the directions outlined in the report titled “Community Energy and Emissions Plan 2020-2050 Directions” from the Director, Sustainability and District Energy, dated November 29, 2019 be endorsed for the purposes of completing a draft plan and obtaining final public feedback; and”*

*“(2) That staff be directed to develop a Climate Action Strategy, as defined in the report titled “Community Energy and Emissions Plan 2020-2050 Directions” from the Director, Sustainability and District Energy, dated November 29, 2019, that communicates all of the City’s climate action related plans and strategies for Council consideration.”*

This report supports Council’s Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

*Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City’s unique biodiversity and island ecology.*






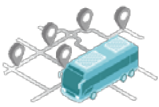


*2.1 Continued leadership in addressing climate change and promoting circular economic principles*

### Analysis

This report seeks Council’s endorsement of Richmond’s Community Energy and Emission Plan (CEEP) 2050 in Attachment 1, and approval to amend the current greenhouse gas (GHG) reduction targets in the Official Community Plan Bylaw 9000 to reflect a 50% emissions reduction from baseline year 2007, and achieving net zero GHG emissions by 2050. This report includes an additional document summarizing Richmond’s current climate-related strategies, entitled: “Climate Action Programs” (Attachment 3), to be received as information.

Richmond’s Community Energy and Emissions Plan 2050 includes 77 primary actions, and 199 related implementation steps that will set Richmond on a path to achieve 50% reduction in community GHG emissions by 2030, and reach net zero emissions by 2050. The following directions included in this plan (see Table 1) will allow Richmond to achieve deeper emission reduction targets, consistent with the International Panel on Climate Change (IPCC) 1.5° Celsius global warming limit.

**Table 1 – CEEP 2050 Strategic Directions**

	<p><b>1: RETROFIT EXISTING BUILDINGS</b></p>
	<p>Accelerate deep energy retrofits to existing buildings, and shift to low-carbon heating and cooling.</p>
	<p><b>2: TRANSITION TO ZERO EMISSION VEHICLES</b></p>
	<p>Facilitate electrical mobility for all residents and businesses in Richmond, with expanded options for charging at home, at work, and on the go.</p>
	<p><b>3: CARBON NEUTRAL NEW BUILDINGS</b></p>
	<p>All new buildings will be serviced by low-carbon energy systems, and built to the top performance level of the BC Energy Step Code by 2027.</p>
	<p><b>4: COMPLETE COMMUNITIES</b></p>
	<p>Implement OCP and Local Area Plan objectives for compact, complete neighbourhoods in Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.</p>
	<p><b>5: ACTIVE MOBILITY FOR ALL</b></p>
	<p>Prioritize active transportation with investments in walking, rolling and cycling infrastructure that is safe, connected, easy to navigate, and accessible.</p>
	<p><b>6: SUPPORT FREQUENT TRANSIT</b></p>
	<p>Work with TransLink to increase transit service frequency and foster wider use of transit by implementing and upgrading transit stops that are well integrated with active transportation (walking, rolling and bicycling) and with car-sharing networks.</p>
	<p><b>7: ENHANCE GREEN INFRASTRUCTURE</b></p>
	<p>Maximize the climate benefits of Richmond’s green infrastructure by protecting and expanding existing carbon stores in trees, vegetation and soils.</p>
	<p><b>8: TRANSITION TO A CIRCULAR ECONOMY</b></p>
	<p>Create a Circular Economy in Richmond that maximizes the value of resources by design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, equitable, low-carbon economy.</p>



## City of Richmond Community GHG Emission Reduction Scenarios and Targets

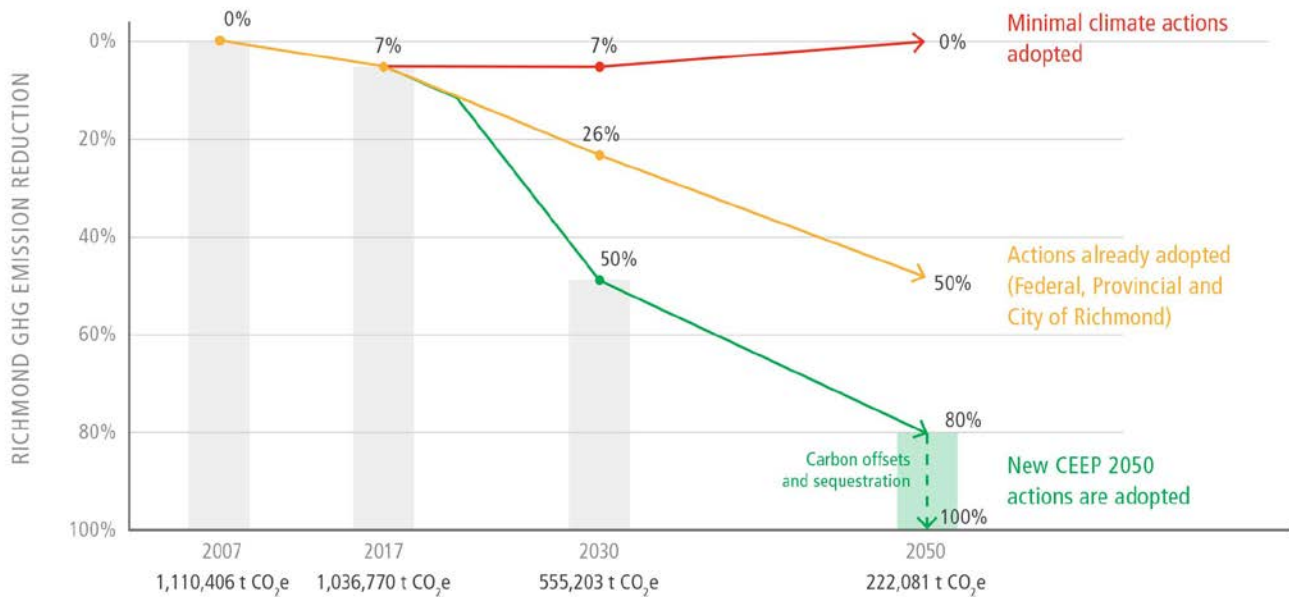
With Council direction in January 2020, staff conducted additional emissions forecasting of the impact of proposed CEEP actions, ahead of a planned third phase of community engagement. This included extensive scenario testing to confirm that sector emission reductions targets for new and existing buildings, sustainable and active transportation modes, and transition to zero emission vehicles could be achieved with full implementation of plan actions.

As new proposed actions and measures were refined in 2020 and 2021, emission forecasts were re-modelled so that a comparison could be made of GHG emission reduction progress to 2030 and 2050 for three emission reduction pathways (three trend lines) shown in Figure 1:

1. **Business-as-usual**, where only climate actions implemented prior to 2017 are included.
2. **Actions already adopted**, where the impact of climate action programs and policies already adopted by City of Richmond (including the previous Community Energy and Emissions Plan 2014), Province of BC and Federal Government are assumed fully implemented.
3. **Accelerated action trend line**, with all new CEEP 2050 actions included in this plan underway. This line represents actions that would achieve the IPCC 1.5° Celsius global warming limit.

Extensive modeling and forecasting indicates that with full implementation of actions within the Strategic Directions set out in this plan, Richmond would slightly exceed its targets, reducing emissions by 52% and 83% in 2030 and 2050 respectively. To be cautious in this regard, target citywide GHG emissions reductions have been kept to 50% by 2030, and 80% by 2050.

**Figure 1: Current and Projected GHG Emission Reduction Pathways for Richmond**



## GHG Emission Reduction Targets by Sector

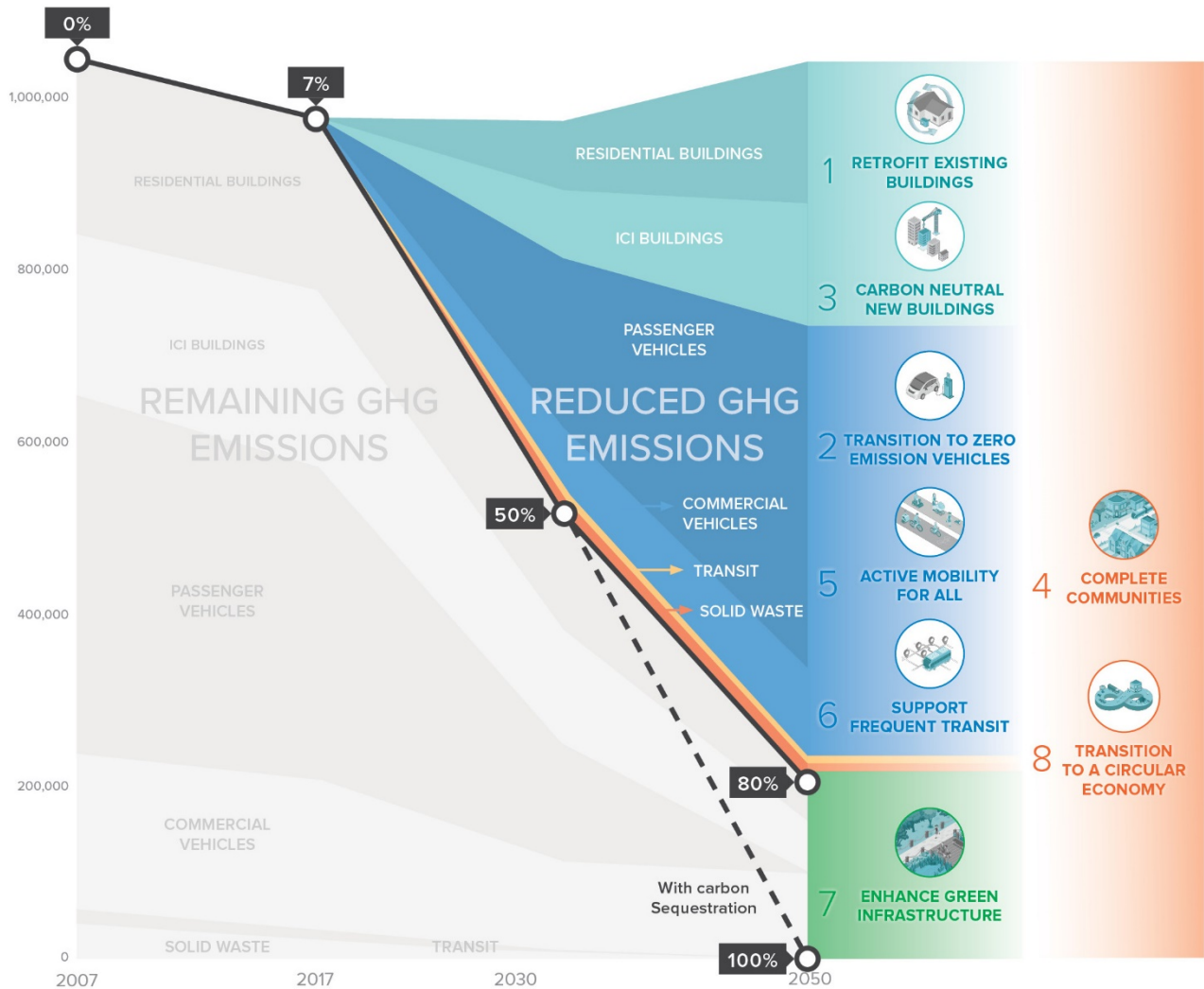
Implementing the actions contained in CEEP 2050 for new and existing buildings, transportation and waste will enable Richmond to achieve the deep GHG emission reduction targets for 2030 and 2050. See Figure 2 for the sector breakdown. Note that modelling data used for emission projections incorporates the best information currently available. As new or more accurate information becomes available, staff will update Council through CEEP progress reporting as discussed below.

For buildings, new incentives, clean energy initiatives, and greenhouse gas intensity limits will significantly reduce emissions. Large emission reductions will occur as we replace natural gas heating with electric heat pumps that combine high levels of energy efficiency with near zero emissions. The conversion to low-carbon energy systems in existing buildings is expected to also be part of a comprehensive retrofit program that seeks to achieve multiple objectives, such as improving occupant health and comfort by making these buildings more resilient to climate change. This would include provision of mechanical cooling in buildings and constant flow ventilation with a high level of filtration, as well as thermal envelope improvements to significantly lower energy costs. New programs to achieve deeper emission reduction in buildings will require close collaboration with senior levels of government to develop supportive regulations and incentives.

For transportation, the City will advocate for ongoing and/or strengthened Federal vehicle fuel efficiency and Provincial zero emission vehicle sales requirements, while working locally to rapidly expand electric vehicle (EV) charging opportunities for local residents, workers and visitors, accelerating the shift toward zero emission vehicles. Under this and other City plans, Richmond will accelerate expansion of sidewalks, crosswalks, and safe and accessible bike paths. The City will also collaborate with TransLink on improved zero emission transit service, providing more people with a convenient, low-emission travel option, and advocate for increased local transit service, as per the Southwest Area Transit Plan.

The Official Community Plan will continue to encourage the evolution of Richmond's neighbourhoods towards more energy efficient, climate-friendly design and land use and transportation patterns. The City will also continue advancing towards the goal of a zero waste city, further reducing emissions. As new data on Richmond's GHG emission inventories becomes available in subsequent years, staff will amend the figures in this plan, and will inform Council of the changes via memorandum.

**Figure 2: Sectoral Impact of CEEP 2050 Emission Reductions Strategies from 2007 Baseline**



NOTE: Data used for modelling incorporates the best available information. As new or more accurate information becomes available, staff will provide updates to Council through CEEP progress updates.

Collectively, action on territorial / municipal energy and emissions shown in Figures 1 and 2 are broadly captured in climate mitigation actions within the first six CEEP 2050 strategic directions.

Richmond’s Plan goes beyond a typical Municipal Energy and Emissions Plan

CEEP 2050 also considers emissions from goods and services that Richmond residents and businesses consume that are not inventoried. While the plan does not quantify consumption and material-based GHG emissions in Richmond, it does have specific policy and program actions identified to mitigate this type of emissions by transitioning from a linear to a circular economy (Strategic Direction 8).

A number of recommended actions are also included within the plan with respect to reporting on and reducing the embedded carbon content of construction materials used in buildings and infrastructure.

Specific actions to reduce embedded carbon in these materials are included in Strategic Direction 3 - Carbon Neutral New Buildings, and Strategic Direction 8 - Transition to a Circular Economy.

As progress is made to significantly reduce emissions from new and existing buildings, transportation and liquid and solid waste, residual emissions from these sectors may prove much harder to fully decarbonise. The City will have the option to partially offset residual emissions through natural carbon sequestration, or by technological means, such as direct air capture and carbon storage (Strategic Direction 7 - Enhance Green Infrastructure). The plan also identifies the benefits of protecting carbon already stored in areas such as the urban forest, and in peat soils and buried shoreline eelgrass beds.

### Advancing Equity through Plan Actions

In January 2020, Council endorsed that a people-centred plan be brought forward in the updated Community Energy and Emissions Plan. Staff have revised this concept to frame it as advancing equity through plan actions. As actions within the plan's Strategic Directions were further refined in 2020-2021, half of the mitigation actions in the plan's Implementation Roadmap have been identified as good opportunities to advance equity, fairness, wellness and inclusion. The plan also recognizes that the burdens, or negative impacts of climate change are not evenly distributed, with some groups more vulnerable and feeling the effects sooner, or to a greater degree than others do. This plan responds to this challenge.

Further detail on the equity approach is included within CEEP 2050, with a framework of intentions and objectives intended to centre equity during plan implementation. It is important to note that the plan serves as a starting point, setting up a journey to discover and engage, further improve and respond equitably, as action on climate change accelerates in Richmond. By including equity considerations directly into the plan, the City is consistent with a number of leading cities.

### Community and Stakeholder Engagement

To inform the development of the new Plan, three phases of community and stakeholder engagement were conducted between May 2019 and September 2021, with 775 people participating in surveys, and over 1,000 people participating in a variety of public events, community and stakeholder workshops. These three phases are summarized below:

#### **IDEAS PHASE** May - August 2019

- Priority themes and areas of focus identified for the updated climate action plan; and
- Community survey, Ideas Fair at City Hall, community and stakeholder workshops.

#### **DIRECTIONS PHASE** September - November 2019

- Identified eight Directions to support accelerated climate action, and six municipal levers that City of Richmond can utilize to support implementation of proposed actions; and
- Community survey, Directions Fair at City Hall, community and stakeholder workshops.

#### **CEEP 2050 PLAN FINALIZATION** August - September 2021

- Let's Talk Richmond online public engagement (six weeks) on draft plan, with 100+ proposed implementation actions (see Attachment 2 for summary of results); and
- Survey input on CEEP actions and emission reduction targets within each strategic Direction.

Concurrent with public engagement, City staff conducted iterative refinements of proposed implementation actions and targets, supported by emission modelling to forecast the impact of these climate action scenarios.

#### Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 10328 (Revised community GHG reduction targets and CEEP 2050)

As per Council direction, the proposed Amendment Bylaw 10328 included with this report updates Richmond's OCP emission reduction targets for 2030 and 2050 to be consistent with the IPCC 1.5 degrees Celsius global warming limit. Additionally, to reflect adoption of CEEP 2050, several text changes are proposed for the following policy statements within the OCP:

- Section 1.5 updates information on Richmond's GHG emissions in 2007, the imperative for climate action, and the overall challenges in achieving deep GHG reduction targets.
- Section 2.2 (Climate Change Mitigation) updates the climate action commitments made by Council to date, aligns the OCP objective with GHG reduction targets set out in CEEP 2050, and clearly identifies which policies are addressed in the CEEP.
- Section 12.4 (Energy) provides a closer focus on energy efficiency, while emphasizing the role of energy efficiency in achieving GHG reductions. Within this section, a redundant clause has been removed from Objective 1. Objective 2 is re-scoped to address existing buildings and transportation, and now references CEEP 2050. In Objective 3, revised text now references CEEP directly. Additionally, reference to the BC Energy Step Code is simplified for flexibility, while maintaining the overall intent and 2025 target of the previous version.

Community and stakeholder engagement on Richmond's new CEEP 2050 has met the requirement of Section 475 of the Local Government Act regarding amendments to the Official Community Plan.

Should Council give first reading to proposed Richmond Official Community Plan 9000, Amendment Bylaw 10328, a public hearing notice will be provided as per the Local Government Act and will include a notification in keeping with the Local Government Act requirements. Staff have reviewed the proposed Richmond Official Community Plan 9000, Amendment Bylaw 10328 with respect to the Local Government Act and the City's OCP Bylaw Preparation Consultation Policy 5043 requirements and do not recommend any further consultation. As part of the OCP Bylaw adoption process there will be multiple opportunities for interested stakeholders to share their views to Council including a public hearing.

#### City of Richmond Climate Action Programs

In January 2020, Council endorsed that a *Climate Action Strategy* be brought forward for communication purposes, with a goal of simplifying access to the City's programs by summarizing them into a single document. Staff retitled the document Climate Action Programs (Attachment 3) to be more aligned with the intent of the document. As noted above regarding GHG inventory figures, when new or updated information comes forward, or when projected climate impacts are re-assessed, staff will update the document and inform Council of the changes via memorandum.

The Climate Action Programs summarizes all of the plans, strategies and programs that Richmond has implemented to address climate change concerns. Information is summarized within climate

mitigation and adaptation categories, including select highlight projects. The document also includes an appendix with information on key anticipated climate impacts for Richmond and the region.

### **Financial Impact**

There is no immediate financial impact. Future expenditures required for implementation of CEEP 2050 strategies will be presented to Council for consideration during the budget process.

### **Conclusion**

Richmond now has over a decade of leadership in implementing climate action at the local level. The challenge posed by climate change for Richmond and the world has only increased. With the emergence of transformative new policy tools and technologies, as well as increased resolve and resourcing of climate action locally and nationally, indicates that Richmond is well positioned to implement and accelerate climate action.

Richmond's Community Energy and Emissions Plan 2050 includes 77 primary actions, and 199 related implementation steps that will set Richmond on a path to achieve 50% reduction in community GHG emissions by 2030, and reach net zero emissions by 2050. The Plan builds upon actions identified in the previous CEEP (2014), as well as current Federal and Provincial measures to address climate change.



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- Att. 1: Community Energy and Emissions Plan 2050
- 2: 2021 Let's Talk Richmond Public Engagement – Survey Response Report
- 3: City of Richmond Climate Action Programs




2050 | COMMUNITY ENERGY  
AND EMISSIONS PLAN











Richmond's Community Energy and Emissions Plan 2050 includes multiple actions within eight strategic directions that together will set Richmond on a path to achieve 50% reduction in community GHG emissions by 2030, and reach net zero emissions by 2050.

This plan builds upon Richmond's climate action leadership to date, and provides a roadmap for achieving the deeper greenhouse gas emission reduction targets set by Council, and consistent with the International Panel on Climate Change (IPCC) 1.5 degree Celsius global warming limit.

Implementing these actions will also improve Richmond's resiliency to the effects of climate change and support the City's equity, affordability and sustainability goals.

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City of Richmond Community Energy and Emissions Plan 2050

Version 1.0

February 14, 2022

# PLAN AT-A-GLANCE - 8 STRATEGIC DIRECTIONS FOR CLIMATE ACTION IN RICHMOND

## CARBON NEUTRAL NEW BUILDINGS

All new buildings will be serviced by low carbon energy systems and built to the top performance level of the BC Energy Step Code by 2027.

## RETROFIT EXISTING BUILDINGS

Accelerate deep energy retrofits to existing buildings, and shift to low-carbon heating and cooling.

## TRANSITION TO ZERO EMISSION VEHICLES

Facilitate electrical mobility for all residents and businesses in Richmond, with expanded options for charging at home, at work, and on-the-go.

## SUPPORT FREQUENT TRANSIT

Work with TransLink to increase transit service frequency and foster wider use of transit by implementing and upgrading transit stops that are well integrated with active transportation (walking / rolling / cycling) and with car-sharing networks.

## ACTIVE MOBILITY FOR ALL

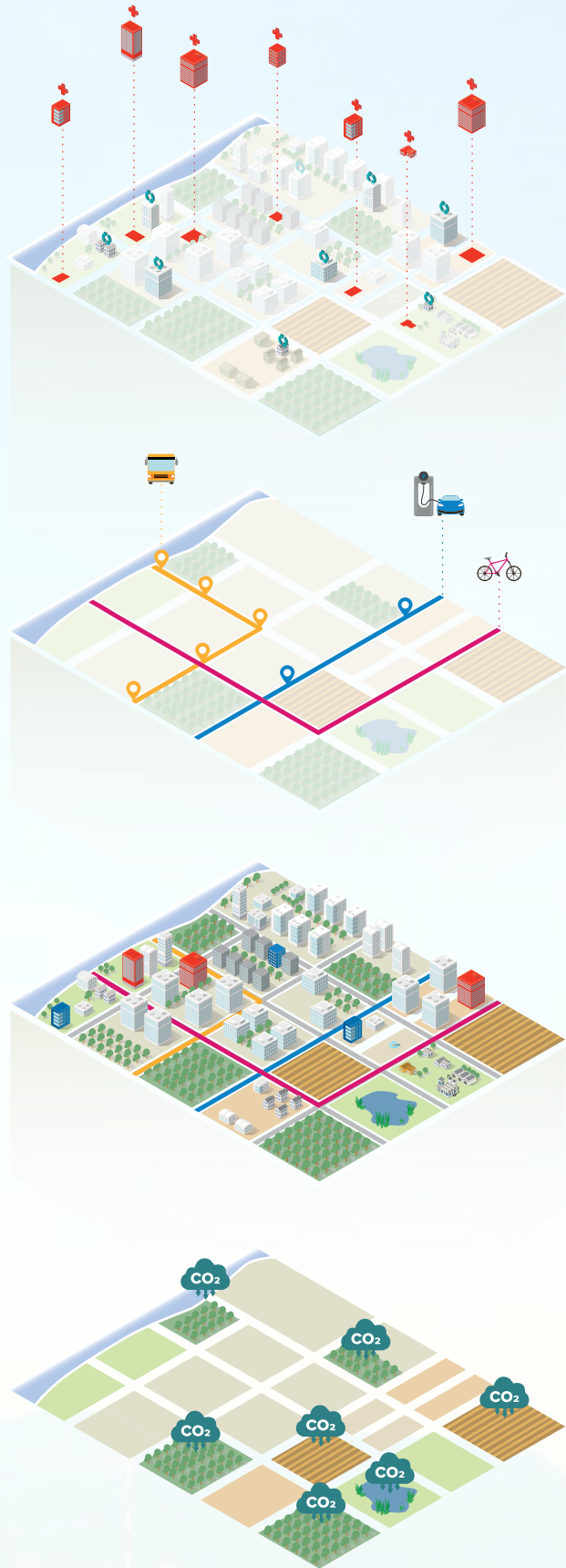
Prioritize active transportation with investments in walking, rolling and cycling infrastructure that is safe, connected, easy to navigate, and accessible.

## COMPLETE COMMUNITIES

Implement OCP and Local Area Plan objectives for compact, complete neighbourhoods throughout Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.

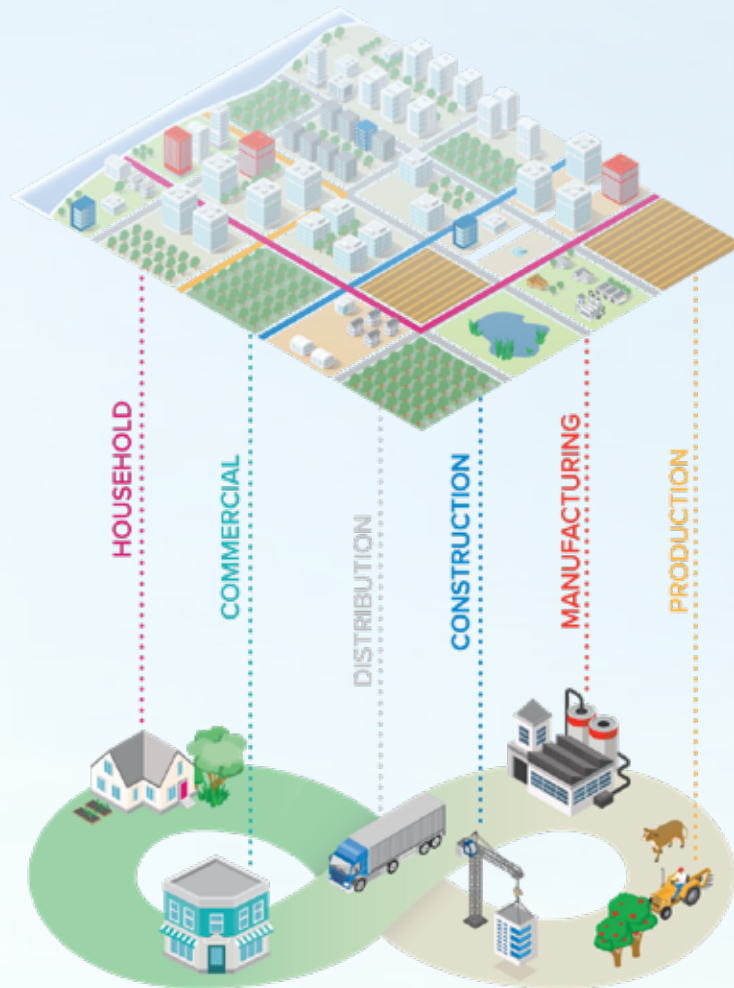
## ENHANCE GREEN INFRASTRUCTURE

Maximize the climate benefits of Richmond's green infrastructure by protecting and expanding existing carbon stores in trees, vegetation and soils.



## TRANSITION TO A CIRCULAR ECONOMY

Create a Circular Economy in Richmond that maximizes the value of resources by design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, equitable, low-carbon economy.



### ADVANCING EQUITY THROUGH PLAN ACTIONS

The City of Richmond has a long-standing commitment to lead on climate change, and deliver on its vision of a sustainable community that integrates environmental, social and economic dimensions with community well-being.

As the updated Community Energy and Emission Plan was developed, and actions within the Plan's Strategic Directions were defined, it became clear that many of the actions present opportunities to advance climate equity in Richmond, as we design, engage, and resource implementation actions. The plan also recognizes that the burdens, or negative impacts of climate change are not evenly distributed, with some groups more vulnerable and feeling the effects sooner, or to a greater degree than others. This plan responds to that inequity.

Further indications of the equity approach appear throughout this plan, but it is important to consider that the plan sets a framework of intentions and objectives, which is a starting point that sets up on a journey to discover, further improve and respond equitably, as the City accelerates action on climate change in Richmond, to meet our 2030 and 2050 targets.





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# SETTING THE STAGE

GP - 24

Richmond, BC. Photo by Marcos Badra

# CLIMATE CHANGE: THE CHALLENGE IN FRONT OF US



## CLIMATE LEADERSHIP

**The City of Richmond is taking bold action in tandem with other leading municipalities in BC, and across Canada, to achieve a common objective of mitigating and eventually eliminating global warming, and doing our part to ensure a sustainable future. The City also recognizes the challenges ahead that must be addressed.**

Humanity has now increased the concentration of (CO<sub>2</sub>) in the Earth's atmosphere from 270 to over 413 parts per million in 2020 – a 52% increase since the Industrial Revolution. Together with increased emissions of other greenhouse gases such as methane, this has already caused a 1.1° Celsius increase in global mean surface temperature (land and oceans) since the start of the 20th Century, with worldwide impacts on weather systems and ecosystems.

The Pacific Climate Impacts Consortium at the University of Victoria has developed climate projections for Metro Vancouver that scales and localizes the outputs of global climate projection models. These results indicate that as global average temperatures increase, Richmond will experience an increased frequency of climate extremes. For example, the prolonged 'heat dome' in Western Canada and the Pacific Northwest during the summer of 2021, placed extreme stress on people, local agriculture and fisheries, with some of the highest daytime temperatures on record, and resulting in one of the most extensive forest fire seasons ever seen in BC. Heat stress from this weather event was keenly felt by people living in buildings without air conditioning, and with little relief from temperatures that did not drop at night. Shoreline aquatic ecosystems and fisheries also experienced high mortality rates due to elevated

water temperatures, and land-based wildlife faced heat stress and a lack of freshwater due to drought. Extreme heat and lack of rainfall placed additional stress on our urban forest, which is vital for cooling the air and providing shade.

Climate modelling also indicates an increased intensity, duration and frequency of storm and extreme precipitation events in the future, which southwest BC experienced in the fall of 2021, with catastrophic rainfall resulting in widespread mudslides and flooding. The same climate models forecast a more rapid snow melt earlier in the year, leading to an increased risk of flooding during the springtime freshet along BC's river systems.

According to the International Panel on Climate Change (IPCC, 2018), concerted and accelerated action is needed to reduce and eliminate additional greenhouse gases by mid-Century, with accelerated climate action and GHG emission reduction achieved by the year 2030. The Paris Accord indicated that humanity can significantly reduce the negative impacts of climate change if we limit overall global temperature rise to no more than 1.5° Celsius by the end of this Century. Otherwise, we are on track to exceed 2.0° Celsius of warming by the year 2100, with resultant negative impacts.



# RICHMOND'S CLIMATE LEADERSHIP



Electric vehicle charging station



Geo-exchange heat pump system for Alexanra District Energy System

The good news is that we have a running start, as the City of Richmond has been taking action and demonstrating continued leadership on climate change for over a decade.




## EMISSION REDUCTION TARGETS IN RICHMOND OFFICIAL COMMUNITY PLAN 2041

In 2010, City Council adopted targets into Richmond's Official Community Plan aimed at reducing community GHGs by 33% below 2007 levels by 2020, and 80% below 2007 levels by 2050. These targets aligned with the Provincial GHG emission reduction targets adopted in 2007.

## COMMUNITY ENERGY AND EMISSIONS PLAN 2014

Richmond's first Community Energy and Emissions Plan (CEEP 2014) included a list of measures that, in combination with policies already adopted by the Province and the federal government, were projected to reduce community GHG emissions to 6% below 2007 emission levels by 2020, and 25% below 2007 levels by 2050, even with continued population and economic growth over this time.

The CEEP 2014 also recognized that the deep GHG emission reduction targets reflected in the OCP would not be achievable solely by City policies and programs alone, but would need the support of utilities, Province of BC and the Federal government in terms of incentive funding, policies, regulations to support decarbonisation and drive market transformation. Accordingly, CEEP 2014 included the following three 'big breakthroughs' that would be central to achieving the 2050 greenhouse gas reduction target.

BIG BREAKTHROUGHS	
	CARBON ZERO NEW BUILDINGS
	COMPLETE CONVERSION OF PASSENGER VEHICLES TO ELECTRIC
	MASSIVE RENEWAL OF RICHMOND'S EXISTING BUILDING STOCK

When CEEP 2014 was adopted, these breakthroughs were considered challenging 'stretch goals', given limited regulatory tools and product availability at that time. However, during the past six years, there has been a transformation in the range and effectiveness of low-carbon technologies. In addition, new policies and regulations are now available provincially and locally that support building energy efficiency and the transition to zero emission vehicles.





CEEP Outreach at Hamilton Community Centre.

### THE CITY'S TRACK RECORD

Richmond was the first jurisdiction in North America in 2017 to enact a 100% Level 2 electric vehicle charging readiness requirement in Bylaw for all non-visitor parking stalls in new residential buildings, enabling at-home charging. The City successfully secured \$440,000 in grant funding from Natural Resources Canada in 2018 to facilitate the largest expansion of public EV charging to date in Richmond. By the end of 2021, 28 new Level 2 charging points will be in place at various civic facilities, along with four new fast chargers.

Richmond was also an early proponent and adopter of the BC Energy Step Code in 2018 – Canada's first performance-based, "stretch code" energy standard. When the Step Code was adopted, Council made a commitment that all new buildings in Richmond would reach the top level of the Step Code starting in 2025. Since 2018, the City has hosted 'Builder Breakfast' learning events for homebuilders several times per year, and has supported the Step Code transition with air tightness training and hands-on courses in advanced building envelopes and mechanical systems.

By the end of 2020, more than 4,500 residential units, representing 4.9-million ft<sup>2</sup> of floor area, was being serviced by the City's Lulu Island Energy Company. The City's low carbon district energy system has become a recognized leader locally, nationally and internationally (18 awards as of 2020). The City also received a \$6.2-million grant from CleanBC Communities Fund for design and construction of the Oval District Energy Centre. With planned completion in 2024, 80% of district heating in the Oval District will be served by a renewable sewer heat recovery system.

Richmond was also the first municipality in Canada to engage private industry, suppliers and vendors in a half-day workshop in January 2020 on the City's proposed Circular Economy Procurement Policy, subsequently adopted in 2021. The City has prioritized a successful transition to a Circular Economy, and is participating in national and international collaborations, including the Circular Cities and Regions initiative in 2021, with 14 other Canadian municipalities.

### COMMUNITY ENERGY AND EMISSIONS PLAN 2050

CEEP 2050 recognizes the Big Breakthroughs identified in CEEP 2014 as vital to meet our 2030 targets, and the actions in this plan builds upon the leadership and momentum shown by Richmond and other partners in these areas. This new plan provides a roadmap to achieve the 50% emission reduction target by 2030, and near zero carbon by 2050.

This Plan:

1. Establishes revised GHG reduction targets for 2030 and 2050 for the City of Richmond, base reductions from 2007 baseline.
2. Confirms and supports Council's direction to develop a bold new plan that achieves the IPCC Paris Accord global warming limit.
3. Integrates the results and priorities from community and stakeholder engagement.
4. Includes eight Strategic Directions (broad areas of focus) in a plan framework that sets Richmond up for success in achieving deep emission reduction targets.
5. Describes shorter and longer-term actions within each Direction, and their role in meeting the 2030 and 2050 targets.
6. Identifies 'municipal toolkit' levers that can be used to implement plan actions.
7. Indicates plan actions with strong potential to advance equity, justice, fairness and inclusion during implementation.

CEEP 2050 contains an action-oriented roadmap of strategies and integrated actions that will guide current and future work by the City of Richmond in mitigating climate change, sufficient to reach GHG emission reduction targets in line with the IPCC (Paris Accord) 1.5°C global warming limit.

# COMMUNITY BENEFITS

In addition to the positive outcomes that can be realized by implementing CEEP 2050 with an equity lens, taking action on climate change yields additional benefits listed below:



*Children running through park*

## CLEANER AIR

Reducing combustion of fossil fuels by transitioning to electric vehicles and sustainable transportation modes such as walking / rolling, cycling and taking transit, will directly reduce health-impacting air pollutants such as carbon monoxide, nitrous oxide, sulphur dioxide and volatile organic compounds. Electric and other clean fuel vehicles also reduce or eliminate fine particulates in the local airshed (i.e., PM 10 and PM 2.5) generated from combustion of diesel, particularly along major arterials and trucking routes. Richmond's streets will be cleaner, quieter and healthier as a result.



*Active mobility cyclist*

## QUALITY OF LIFE AND IMPROVING HEALTH

As electrified light-duty and heavy-duty vehicles become more prevalent, our City becomes much quieter, even as our population grows and the economy expands. Those living next to busy arterials will experience significantly reduced road noise, and better air quality with greatly reduced pollution. Enhancing and expanding Richmond's urban tree canopy will provide cooler, comfortably shaded streets that provide relief on the hottest summer days. A more compact urban form will also make it easier for people to quickly and cost-effectively reach their destinations by foot, by bicycle / e-bike or by frequent transit, and do so without wasting time in traffic congestion.



*Window shading*

## HEALTHY, COMFORTABLE AND CLIMATE-RESILIENT BUILDINGS

The City of Richmond has already signalled its policy intention within the Official Community Plan, requiring that all new buildings achieve the top level of the BC Energy Step Code by 2027. Buildings constructed to the top level of the Step Code, or the certified Passive House standard, are by their nature ultra-low energy and highly resilient. They provide enhanced levels of comfort to building occupants because of their well-insulated draft-free construction, providing a thermally stable indoor environment. Additionally, these buildings feature filtration of supply air within the mechanical ventilation system, ensuring a balanced continuous supply of fresh, clean air to occupants when windows are closed. This feature becomes especially valuable during wood smoke events that have been present in southwest B.C. and the Pacific Northwest during recent summers.



*Energy efficient buildings*

## ECONOMIC INNOVATION AND NEW JOBS

The massive effort involved in comprehensively addressing global warming and transitioning to a low-carbon economy will generate hundreds of billions of dollars of investment annually worldwide, along with significant job creation. Leading jurisdictions like Richmond can expect to see new business and employment growth as a result. Economic benefits will also result from investments in building-scale and neighbourhoods-scale renewable energy systems. Retrofitting existing buildings of all types will help drive a growing regional economy in cost-effective building envelope and mechanical system upgrades that greatly improve energy efficiency and use zero-carbon energy.

The movement away from fossil fuels in transportation is already spurring innovation in electric vehicles, electric scooters, battery storage, as well as hydrogen fuel cell technology. Reducing waste and maximizing the reuse and repurposing of materials will be a normal business approach as we transition to a circular economy. Leading Richmond businesses are already rethinking and retooling their products and procurement processes to be compatible with a zero waste economy.

# ADVANCING EQUITY IN OUR PLAN



This plan identifies many opportunities to advance climate equity in Richmond as we design, resource, and implement actions in the plan. It places considerations of wellness, inclusion and fairness at the center of implementation, recognizing that vulnerability to the effects of climate change is frequently higher for indigenous people and First Nation communities, visible minorities, and low-income households. Women, new Canadians, persons with disabilities, as well as children and seniors, are also more likely to experience the negative impacts of climate change, or are made more vulnerable as a result. Richmond is a diverse community with 27 languages spoken, language can be a barrier, and newcomers may encounter challenges in finding out about supportive energy and climate action programs, if English is not their first language.

CEEP 2050 acknowledges the necessity to address these inequities by ensuring that new policies, programs and incentives are inclusive and broadly available, particularly with respect to improving resiliency to climate change and realizing better health outcomes in new and existing buildings. As initiatives are developed to decarbonize existing buildings and make them more energy efficient, buildings that are the least efficient and exhibit high energy costs for residents will be prioritized for improvements.

The plan also prioritizes frequent, convenient and sustainable transportation choices for all Richmond residents, making sustainable modes the preferred choice, lowering transportation costs and improving community health outcomes. Some households have high transportation costs relative to income, with adults often working more than one job and requiring a vehicle for work. These households may struggle in transitioning from an internal combustion engine vehicle to an electric vehicle, which would cut fuel and maintenance costs dramatically. As new programs roll out to accelerate local transition to zero emission vehicles, we need to ensure that residents and employees will not be left behind, and that they will have a range of EV charging options: at (or near) home, at work, and on the go.

Climate action can also support objectives such as ensuring wider housing choice and affordability, celebrating local diversity and providing opportunities for connection, collaboration and empowerment as new programs are developed. Climate action is also knowledge-based, and is already driving creativity and innovation in many sectors of the economy. This plan includes actions that provide opportunities to build knowledge capacity and competency in skills needed to design and construct highly efficient, zero emission buildings. Similarly, the City will continue to support the transition from a linear to an inclusive circular economy, focusing on developing the skills and training to help facilitate this transition, and ensuring that employability continues.

The climate equity approach in CEEP 2050 is intended to align with and support the following City's strategies and plans:

- Energy Poverty Toolkit for Low-Income Households and Service Providers (in 2022)
- Cultural Harmony Plan 2019-2029
- Official Community Plan 2041
- Social Development Strategy 2013-2022
- Community Wellness Strategy 2018-2023
- Resilient Economy Strategy
- Affordable Housing Strategy 2017–2027
- Volunteer Management Strategy 2018-2021
- 2022 Parks and Open Space Strategy
- Homeless Strategy 2019-2029
- Collaborative Action Plan to Reduce and Prevent Poverty in Richmond 2021-2031





# CURRENT AND PROJECTED EMISSIONS IN RICHMOND

# 2030 AND 2050 EMISSION REDUCTION TARGETS

Extensive GHG emission modelling and forecasting was conducted to assess the impact of current local policies, Federal and Province of BC regulatory standards, as well as current program and incentive measures at the local, Provincial and National levels. As new proposed actions and measures were identified for CEEP 2050, comparisons could be made of GHG emission reduction progress to 2030 and 2050 for the following emission reduction pathways (three trend lines shown in Figure 1).

1. Business-as-usual trend line, where only climate actions implemented prior to 2017 are included;
2. Actions already adopted trend line, where existing climate action programs and policies adopted by City of Richmond, Province of BC and Federal Government prior to 2020 are fully implemented; and
3. Accelerated action trend line with all new CEEP 2050 actions included in this plan underway. This line represents actions that would achieve the IPCC 1.5° Celsius average global warming limit.

Figure 1 shows that current (2021) policies, programs and regulations by the Federal and Provincial governments, as well as City of Richmond are projected to have a significant GHG emission reduction impact, reaching 26% reduction from baseline year 2007 levels by 2030, and 50% reduction by 2050. However, these projected reductions fall short of the deeper reductions necessary to achieve the IPCC 1.5° Celsius limit. Our modelling showed that the actions included in this plan (when fully implemented) would achieve the 50% emission reduction target by 2030, and reach effective decarbonisation by 2050.

Extensive modeling indicates that with full implementation of actions within the Strategic Directions set out in this plan, Richmond would slightly exceed its targets, reducing emissions by 52% and 83% in 2030 and 2050 respectively. To be cautious in this regard, we have kept our target citywide GHG emissions reduction to 50% by 2030, and 80% by 2050.

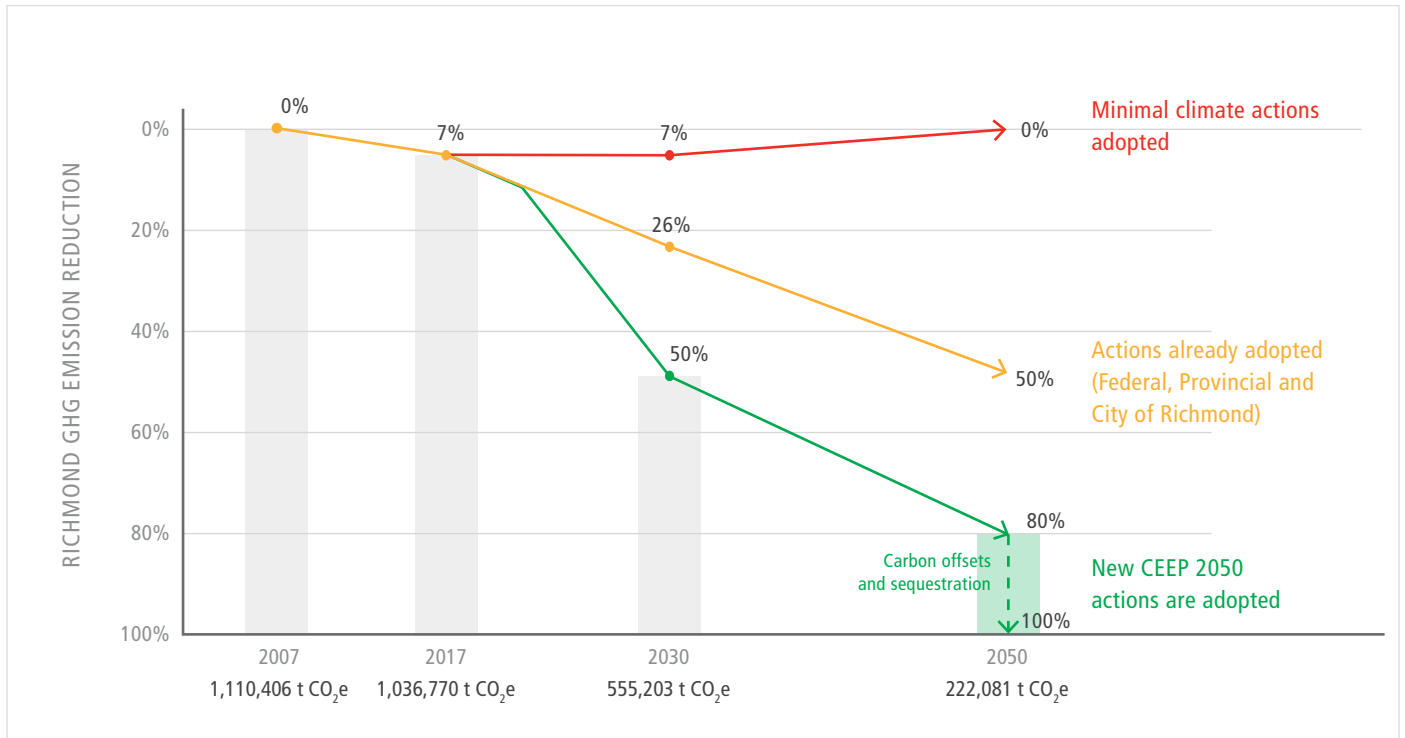


Figure 1 – Current and Projected GHG Emission Reduction Pathways for Richmond

# EMISSION REDUCTION TARGETS BY SECTOR

The actions contained in CEEP 2050 further reduce projected GHG emissions in 2030 and 2050. New incentives, clean energy initiatives, and greenhouse gas intensity limits will significantly reduce emissions from new and existing buildings. Significant GHG reductions are projected to result from replacing natural gas heating with electric heat pumps, which combine very high energy efficiency performance with low GHG emissions.

For transportation, the City will advocate for strengthening of Federal vehicle fuel efficiency and Provincial zero emission vehicle sales requirements, while working locally to rapidly expand EV charging opportunities for local residents, workers and visitors, accelerating the shift toward zero emission vehicles.

Under this and other City plans, Richmond will accelerate OCP 2041 targets to 2030 for expansion of sidewalks, crosswalks, and safe and accessible bike paths. The City will also partner with TransLink on improved, zero emission transit service, providing more people with a convenient, low-emission travel option.

Over the coming decade, Richmond's updated Official Community Plan will provide direction on how Richmond's neighbourhoods can become more energy efficient and lower carbon. The City will also continue advancing towards the goal of a zero waste city, further reducing GHG emissions.

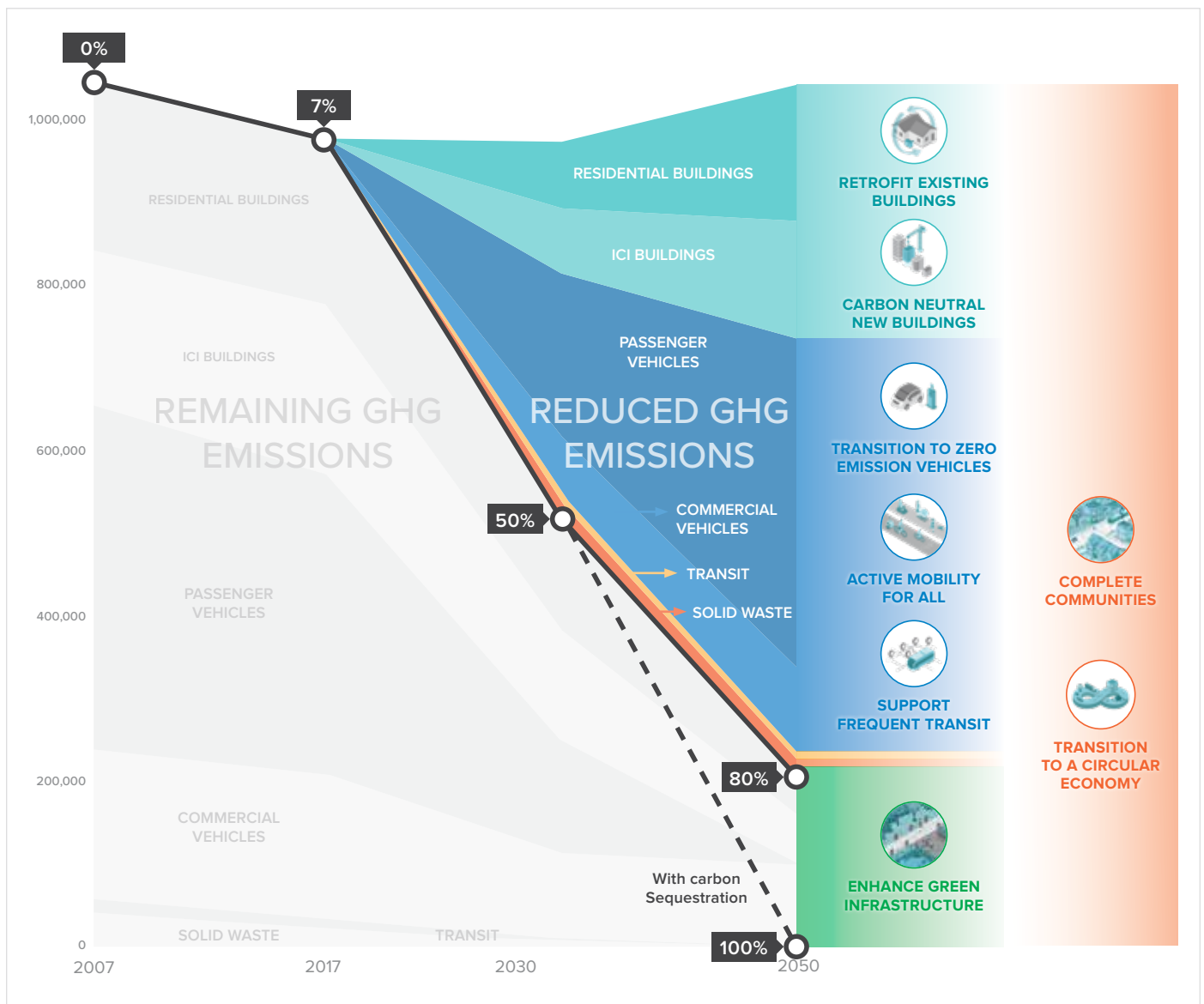


Figure 2 - Sectoral Impact of CEEP 2050 Emission Reduction Strategies from 2007 Baseline

# OUR PLAN GOES BEYOND A TYPICAL MUNICIPAL-BASED EMISSIONS REDUCTION PLAN

TYPICAL SCOPE

## MUNICIPAL OR TERRITORIAL GHG EMISSION INVENTORIES

### ADDRESS CITYWIDE GHG EMISSIONS FROM NEW AND EXISTING BUILDINGS, TRANSPORTATION AND WASTE

Richmond's CEEP 2050 plan includes actions and measures that mitigate greenhouse gas emissions from new and existing buildings, light and heavy-duty transportation, as well as liquid and solid waste. They comprise the emission inventories that local governments in BC (including City of Richmond) report on.

Municipal inventories (see Figure 1) are also used to measure and assess progress in meeting 2030 and 2050 emission reduction targets. These inventories are largely energy-based, reflecting fossil fuels used in moving people and goods within the community, energy to heat buildings and pools, or cook food. Additionally, methane emissions from anaerobic decomposition of waste materials is included in Richmond's municipal GHG emission inventory.

Action on territorial / municipal energy and emissions are largely captured in climate mitigation actions within the first six CEEP 2050 directions.

-  Retrofit Existing Buildings
-  Carbon Neutral New Buildings
-  Transition to Zero Emission Vehicles
-  Complete Communities
-  Active Mobility for All
-  Support Frequent Transit

EXPANDED SCOPE

## GHG EMISSIONS FROM MATERIAL FLOW, PRODUCT CREATION AND CONSUMPTION



### ADDRESS EMISSIONS FROM THE GOODS AND SERVICES THAT RICHMOND RESIDENTS AND BUSINESSES CONSUME

Our new plan goes beyond territorial emission inventories to consider 'consumption-based' and 'material-based' emissions. This would include GHG emissions from the materials, goods and services that are used or consumed in Richmond by local residents, businesses and organizations, regardless of where these goods are manufactured or produced. This could include food production, consumer and industrial goods, as well as the embedded carbon content in construction materials.

Research conducted by the Ellen MacArthur Foundation estimates that approximately 45% of total global emissions are due to production of consumer and industrial goods, food production as well as the embedded carbon used to create construction materials.

While CEEP 2050 does not quantify consumption and material-based GHG emissions in Richmond, it does have specific policy and program actions identified to mitigate this type of emissions by transitioning from a linear to a circular economy.

A number of recommended actions are also included within this CEEP direction focusing reporting on and reducing the embedded carbon content of construction materials used in buildings and infrastructure.

-  Transition to a Circular Economy
-  Carbon Neutral New Buildings

## CARBON SEQUESTRATION MEASURES

### SEQUESTER EMISSIONS TO FURTHER REDUCE AND OFFSET

As progress is made in significantly reducing emissions from new and existing buildings, transportation and liquid and solid waste, residual emissions from these sectors may prove much harder to fully decarbonize. These emissions could be offset through natural carbon sequestration, or by technological means, such as direct air capture and carbon storage.

CEEP 2050 also seeks to protect large amounts of carbon already stored in our urban forest, and in peat soils and buried shoreline eelgrass beds:

-  Enhance Green Infrastructure



No. 3 Rd at Saba

Hey Richmond,  
let's talk about  
energy and  
emissions.

Provide feedback on the  
Community Energy and  
Emissions Plan 2050.

Learn more at:  
[LetsTalkRichmond.ca](http://LetsTalkRichmond.ca)



# COMMUNITY ENGAGEMENT AND PLAN DEVELOPMENT



# COMMUNITY ENGAGEMENT PROCESS

Throughout the Plan development process, the City used a variety of ways to reach out and engage the community, in order to gather input on priority areas of concern, and gain feedback on proposed actions. A summary of surveys, promotion / outreach activities, and community events is summarized in this section. Additionally, each strategic direction includes a summary of what the City heard from our engagement relevant to that direction.

IDEAS PHASE MAY - AUG 2019	DIRECTIONS PHASE SEP - NOV 2019	PLAN FINALIZATION AUG - SEP 2021
<ul style="list-style-type: none"> <li>Identify priority themes and areas of focus for climate action</li> <li>Community survey, Ideas Fair at City Hall, community and stakeholder workshops</li> </ul>	<ul style="list-style-type: none"> <li>Identify 8 Directions to support accelerated climate action, and 6 municipal levers to support implementation of proposed actions</li> <li>Community surveys, Directions Fair at City Hall, community and stakeholder workshops</li> </ul>	<ul style="list-style-type: none"> <li>Let's Talk Richmond online engagement (six weeks) on draft plan, and 100+ proposed implementation actions</li> </ul>

SURVEY

### # of people who completed surveys

**386**

PHASE 1

**167**




PHASE 2

**222**

PHASE 3


### Age of respondents

<b>2%</b> - Under 18 years old	<b>36%</b> - 35 to 54 years old
<b>5%</b> - 18 to 24 years old	<b>21%</b> - 55 to 64 years old
<b>12%</b> - 25 to 34 years old	<b>23%</b> - Over 65 years old






PROMOTION


### To promote our events we...




Used posters and other promotional items available in City facilities, including community centres, libraries, and community service centres




Posted 9 animated social media posts on Facebook, Twitter and Instagram




Published print and digital ads in *Richmond News/Glacier Media, Richmond Sentinel, Ming Pao and Sing Tao, and Pattison Transit Shelter Ads*






Emailed and conducted in-person outreach to stakeholders and community members



Created a Climate Action eNewsletter with 10 issues published and over 300 readers subscribed to date



Gave away bookmarks, bubble tea sets, and reusable straws to invite participants

EVENTS



**1,000+ people**  
were engaged in  
person

**At our events...**

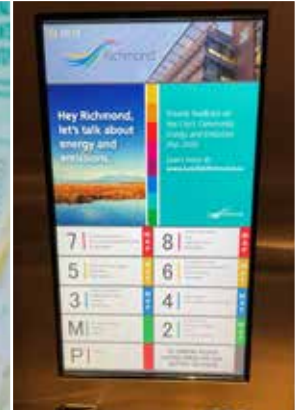
We facilitated  
**67 EV test drives**



We had the  
help of **100+**  
volunteers



**14 items** were fixed at  
the Fix-it Station, diverting  
waste from landfills



**We hosted:**

- 3** Major public consultation events
- 2** Community workshops
- 12** Presentations to stakeholder groups
- 9** Days of outdoor summer events (Sustain-a-Buck voting on Plan directions and proposed actions)
- 4** Youth-oriented Now-Wow-How workshop (highschool), youth focus groups (SFU), input by Sustainabiliteens





A person wearing a blue sweater is holding an open vintage-style compass. The background is a blurred mountain landscape with green hills and a blue sky. The text is overlaid on the bottom half of the image.

# **STRATEGIC DIRECTIONS AND ACTION PLAN FOR 2030 AND 2050**

# STRATEGIC DIRECTIONS FOR CLIMATE ACTION

The roadmap to achieve Richmond’s deeper GHG emission reduction targets for Richmond by 2030 and 2050 rests on implementing eight strategic directions. Each direction includes multiple actions that support achievement of these targets, and identifies where the City, as well as local residents, businesses, senior levels of government, non-profit organizations, external partners, and the design and development community, can play a lead or supporting role.

CEEP 2050 includes new actions that support the ‘major moves to 2030’. They are included within the following strategic directions: Retrofit Existing Buildings, Transition to Zero Emission Vehicles, and Carbon Neutral New Buildings. They build upon progress made in these areas since 2014. Equally necessary to achieving Richmond’s accelerated emission reduction targets are actions contained within Complete Communities, Active Mobility for All, Support Frequent Transit, Enhance Green Infrastructure, and Transition to a Circular Economy.

Progress in all eight directions is necessary to achieve our accelerated GHG emission reduction targets. Some actions within these directions are already underway, while others will start in the short term (next 1-3 years). The cumulative impact of other actions will be most evident over the medium to longer term, as new infrastructure is installed, older buildings are retrofitted and renewed, green infrastructure expands and Richmond heads toward a carbon neutral community.

The areas within these strategic directions are rapidly transforming, with new policy and program development underway. Accordingly, some CEEP 2050 actions may evolve over time to reflect the rapid pace of development and innovation that is occurring.

## 8 STRATEGIC DIRECTIONS FOR ACTION

The emissions targets and actions within each Direction will put Richmond on a path to achieve carbon reduction targets in line with the International Panel on Climate Change (IPCC) 1.5° Celsius global warming limit.

Each strategic direction includes:

- Carbon reduction targets for 2030 and 2050
- Why action is important
- Major actions and sub-actions (100+ in total)

### RETROFIT EXISTING BUILDINGS



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.

### TRANSITION TO ZERO EMISSION VEHICLES



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

### CARBON NEUTRAL NEW BUILDINGS



All new buildings will be serviced by low carbon energy systems and built to the top performance level of the BC Energy Step Code by 2027.

### COMPLETE COMMUNITIES



Implement OCP and Local Area Plan objectives for compact, complete neighbourhoods throughout Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.

### ACTIVE MOBILITY FOR ALL



Prioritize active transportation with investments in walking, rolling and cycling infrastructure that is safe, connected, easy to navigate, and accessible.

### SUPPORT FREQUENT TRANSIT



Work with TransLink to increase transit service frequency and foster wider use of transit by implementing and upgrading transit stops that are well integrated with active transportation (walking / rolling / cycling) and with car-sharing networks.

### ENHANCE GREEN INFRASTRUCTURE



Maximize the climate benefits of Richmond’s green infrastructure by protecting and expanding existing carbon stores in trees, vegetation and soils.

### TRANSITION TO A CIRCULAR ECONOMY



Create a Circular Economy in Richmond that maximizes the value of resources by design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, equitable, low-carbon economy.

# LOCAL GOVERNMENT IMPLEMENTATION TOOLKIT

## 6 TOOLS FOR IMPLEMENTATION

The City of Richmond has six methods or tools to help secure or encourage reductions in greenhouse gas emissions. They can be used individually or together when developing or implementing new programs or policies from the plan.

Different elements of the local government 'toolkit' can be used depending on:

- Specific toolkit lever(s) to advance action
- Relative jurisdiction or level of control by the City
- Resources or investment required

### POLICY AND REGULATION

City Council can develop and implement bylaws that set out legal regulations to govern specific activities carried out within the City of Richmond. Provincial legislation sets the areas in which Council has jurisdiction to implement bylaws. The City has the right to enforce adopted bylaws when a bylaw is violated. City Council may also adopt policies setting out standard procedures and priorities that staff and Council can use when evaluating and implementing plans and projects.

### COLLABORATION AND PARTNERSHIPS

Local governments may need to partner with provincial or federal governments, or with other agencies to have a sufficient mandate to implement prioritized climate actions. It may be more cost-effective for external agencies or non-governmental associations to implement specific climate actions on behalf of the City, or work with several governments to implement climate actions together.

### INFRASTRUCTURE

Local governments design, build and maintain a wide range of physical infrastructure that benefit the residents and economy of the City, including roads, sewers, street lights, electric vehicle (EV) charging facilities and community centres. Local governments also administer important public services for the community including fire protection, police and a range of social services.

### ADVOCACY

In some areas, local governments have little or no legal mandate to implement policies or programs to reduce GHG emissions. In these cases, City Council can make formal requests to the provincial and/or federal governments and their agencies on behalf of Richmond residents for policy changes and/or new regulations to be implemented. The City regularly calls on senior levels of government to take greater action on sustainability and climate change issues.

### INCENTIVES

City Council can provide incentives to encourage climate action by adjusting the allocation of City resources. Council can adjust the criteria by which the City charges municipal taxes or fees, and/or prioritizes service delivery. Incentives can only provide encouragement, they cannot prevent (or require that) an action be taken. However, well-designed incentives can influence decision makers to choose low-carbon options more often than they would otherwise.

### OUTREACH AND CAPACITY BUILDING

Local residents and businesses have sole responsibility for many decisions that affect the amount of GHGs being emitted within Richmond. Local governments can allocate resources to increase awareness of the climate impacts of building design and operations, energy use and transportation choices, and provide information and resources to assist local residents make low-carbon choices.



# RETROFIT EXISTING BUILDINGS

## STRATEGIC DIRECTION 1 - SUMMARY

# RETROFIT EXISTING BUILDINGS



## CARBON REDUCTION TARGETS

### 2030 TARGET

Achieve 70% reduction in GHG emissions from buildings representing 33% of Richmond's total building emissions in 2017.

### 2050 TARGET

Reduce GHG emissions from buildings built before 2018 by a further 28%, and reduce GHG emissions from buildings built between 2018 and 2030 by 21%.

## STRATEGIC DIRECTION

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.

MAJOR MOVE FOR 2030

## CURRENT EMISSIONS IMPACT

Richmond's 33,617 existing buildings emitted 398,000 tonnes of greenhouse gas emissions in 2017 (40% of total community emissions).

## WHY ACTION IS IMPORTANT

Retrofitting and decarbonizing a significant proportion of existing buildings in Richmond over the next 10 years is essential to achieve our 2030 GHG emission reduction targets, and build momentum for continued action to 2050. While this represents a challenge in terms of scale of effort, it also offers a clear opportunity to bring benefits to local residents and businesses, with improved energy efficiency and comfort, reduced energy costs, and a boost to the economy.

Space heating is the largest energy use in Richmond's buildings. Greater use of low carbon grid electricity for building heating and cooling would significantly reduce overall emissions. Energy efficient heat pumps will play a big role in the transition to zero emission mechanical systems, and will require the City and partners to develop a comprehensive program to incentivize and accelerate building energy retrofits. As the City's district energy systems mature, there may be opportunities for larger buildings to be retrofitted to connect to the City's low-carbon district heating system.

Through building energy retrofits and low-carbon mechanical system upgrades, this action plan will target the highest GHG-emitting buildings that are expected to remain in use over the next 30 years.



84.9% of survey respondents stated that this Strategic Direction was important to them.

## CLIMATE ACTION SUMMARY

As we develop, prioritize and rollout new programs and incentives for existing buildings, ensure that the benefits of lower energy costs and opportunities for healthier, more comfortable and resilient buildings are readily available to all residents, including renters, leaseholders or property owners. *(See page 49 for detailed roadmap of this direction)*

### CREATE A RICHMOND BUILDING RETROFIT PLAN

- Create a comprehensive, multi-year plan to accelerate the retrofit of existing buildings
- Integrate building, energy and spatial data to identify priority building types and optimal strategies to incent or require low-carbon energy improvements

### SET ENHANCED ENERGY AND EMISSION STANDARDS FOR EXISTING BUILDINGS

- Support timely development and adoption of energy efficiency requirements for retrofitting buildings
- Implement greenhouse gas (GHG) performance requirements for existing buildings
- Create a framework that guides the use of renewable natural gas (RNG) for heating in existing buildings

### PARTICIPATE IN REGIONAL BUILDING RETROFIT INITIATIVES

- Deliver a program for strata and rental apartment buildings incenting low-carbon systems and energy improvements focused on occupant health, comfort and affordability
- Achieve efficiencies of scale in marketing and administering building retrofit programs

### CREATE INCENTIVES AND REMOVE BARRIERS TO LOW CARBON ENERGY RETROFITS

- Explore policy, program and regulatory options to encourage installation of local carbon mechanical systems during building retrofits
- Develop a heat pump incentive program targeting residential buildings which currently lack mechanical cooling systems
- Partner with other interested municipalities, Metro Vancouver and the Province to implement a low-interest financing program for building energy retrofits
- Advocate for energy utility rates that encourage low-GHG building energy retrofits
- Develop a decarbonisation strategy for affordable housing in partnership with stakeholders

### BUILD INDUSTRY SUPPORT AND COMPETENCY FOR LOW CARBON MECHANICAL SYSTEMS

- Work with equipment suppliers and contractors and utility stakeholders to increase local availability of mechanical systems with a high coefficient of performance
- Improve building electrification awareness, coordination, and advocacy among key stakeholders

### ADVANCE BUILDING ENERGY AND EMISSIONS PERFORMANCE REPORTING AND DISCLOSURE

- Advance energy and emissions performance reporting and disclosure requirement for existing buildings

### EXTEND DISTRICT ENERGY SERVICE WHERE FEASIBLE

- Identify where larger existing buildings could be connected to City's district energy system





# TRANSITION TO ZERO EMISSION VEHICLES

STRATEGIC DIRECTION 2 - SUMMARY

# TRANSITION TO ZERO EMISSION VEHICLES



## CARBON REDUCTION TARGETS

### 2030 TARGET

Reduce GHG emissions from light-duty vehicles 50% below 2017 levels.

Reduce GHG emissions from heavy-duty vehicles 33% below 2017 levels.

### 2050 TARGET

Reduce GHG emissions from light duty vehicles to 5% of 2017 levels.

Reduce GHG emissions from heavy duty vehicles to 13% of 2017 levels.

## STRATEGIC DIRECTION

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

MAJOR MOVE FOR 2030

## CURRENT EMISSIONS IMPACT

Greenhouse gases (GHGs) emitted by cars, light and heavy-duty trucks accounted for 57% of Richmond's total emissions in 2017.

## WHY ACTION IS IMPORTANT

Reducing vehicle use through active modes (walking, rolling, cycling) and public transit is an important strategy for meeting our climate goals, while providing reduced transportation costs for residents and businesses, and positively contributing to health and quality of life. For these reasons, it continues to be a focus of the City's transportation strategy.

Transitioning to zero emission vehicles complements this approach, and will help to dramatically reduce transportation emissions to near zero by 2050. Since most of BC's electricity comes from clean energy sources, electric vehicles (EVs) are a highly effective strategy at reducing community emissions, emitting approximately 97% less GHGs than equivalent internal combustion vehicles.



84.6% of survey respondents stated that this Strategic Direction was important to them.

## CLIMATE ACTION SUMMARY

Ensure that access to electric vehicle (EV) charging is readily available at home, at work and on-the go throughout Richmond. Incentive programs should prioritize support for retrofitting existing multi-unit rental and strata buildings to enable Level 2 EV charging at home. *(See page 53 for detailed roadmap of this direction)*

### EXPAND PUBLIC ELECTRIC VEHICLE CHARGING OPPORTUNITIES

- Build out a network of public electric vehicle (EV) charging stations at civic facilities in Richmond to accelerate rate of local EV adoption
- Create mobility hubs with EV charging stations near transit stations, within neighbourhood service centres and at community centres
- Support curbside EV charging stations in areas where residents are less likely to be able to charge at home, and encourage car share providers to electrify and expand their fleets

### EXPAND ELECTRIC VEHICLE CHARGING OPPORTUNITIES ON PRIVATE PROPERTY

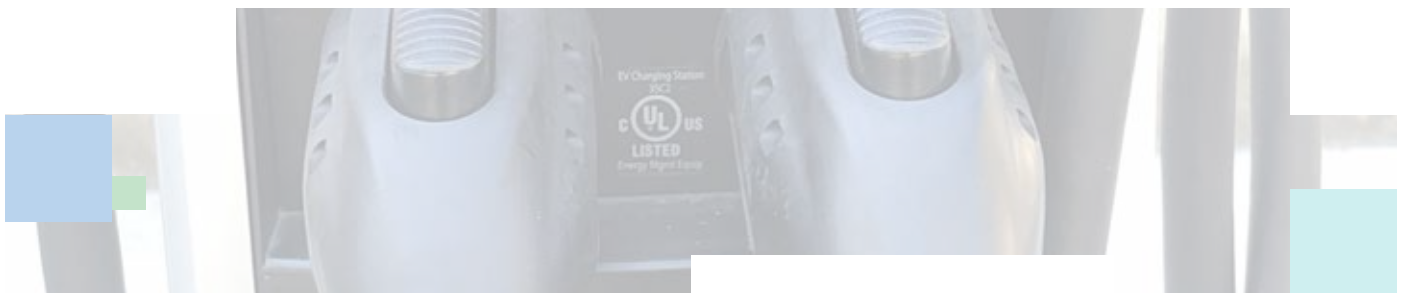
- Extend current residential EV charging requirements to include visitor and car-share parking stalls
- Establish light-duty EV charging requirements for parking stalls in new commercial and industrial development
- Support an EV Charging Retrofit Advisor program for existing multi-unit residential buildings
- Collaborate with other local governments to advocate for passage of provincial 'right-to-charge' legislation
- Support homeowners wanting to implement Level 2 EV charging at home

### ENCOURAGE ZERO EMISSION VEHICLE ADOPTION

- Advocate for low GHG emission requirements for ride-hailing services
- Increase public awareness of, and support for, car-sharing and electric mobility
- Support implementation of Provincial zero emission vehicle sales requirements and advocate for further improvements
- Work with partners to accelerate transition of heavy duty vehicles to zero emission fuels and/or battery electric power.

### ENCOURAGE LOWER EMISSIONS FROM INTERNAL COMBUSTION ENGINE VEHICLES

- Support continued implementation and further improvement to Federal vehicle fuel efficiency regulations





# CARBON NEUTRAL NEW BUILDINGS

STRATEGIC DIRECTION 3 - SUMMARY



# CARBON NEUTRAL NEW BUILDINGS



## CARBON REDUCTION TARGETS

### 2030 TARGET

Achieve 70% low-carbon energy supply for heating and cooling in district-energy-connected buildings in Richmond.

New buildings permitted as of 2027 (not connected to district energy) will consume 50% less energy and emit two-thirds less GHGs than new buildings permitted in 2018.

### 2050 TARGET

Incrementally reduce the embedded carbon content of materials used in the construction of new buildings in Richmond, by developing a cross-sector, regional framework that sets maximum embedded carbon intensity limits.

Reduce the GHG intensity of district-energy-connected buildings to 85% below the 2017 emission-intensity of natural gas heated buildings.

## STRATEGIC DIRECTION

All new buildings will be serviced by low carbon energy systems and built to the top performance level of the BC Energy Step Code by 2027.

MAJOR MOVE FOR 2030

## CURRENT EMISSIONS IMPACT

On any given year, newly constructed buildings have a comparatively small impact on total community greenhouse gas emissions relative to emissions from the entire stock of existing buildings in Richmond. But over a period of time, new buildings can represent a growing source of emissions, which means that improving their energy efficiency and carbon performance is one of the 'major moves' in achieving our 2030 GHG emission reduction target.

## WHY ACTION IS IMPORTANT

As a growing City, Richmond is expecting to add more than 28,000 new housing units during the next 20 years. New buildings can be a large source of greenhouse gas (GHG) emissions, primarily from space heating and hot water supply. Therefore, the overall energy efficiency of a building is critical, as is the transition toward mechanical (HVAC) systems powered by low-carbon energy.

Provincial and National building codes are moving toward 'near zero' energy performance standards for new buildings (like Net Zero Energy Ready and the Passive House standard). Nationally, this target is set for 2030, with 2032 being the target for the BC Building Code. What this means is that by the start of the 2030s, all new buildings will be so efficient (thermal envelope and mechanical systems) that they could be net zero on an annual basis, with the addition of future on-site renewable energy, or connection to neighbourhood-scale clean energy systems. As a leading municipality, the City of Richmond intends to effectively achieve this target by 2027 via the BC Energy Step Code, with requirements implemented in our Building Regulation Bylaw in 2025, subject to future approval by City Council.



84.9% of survey respondents stated that this Strategic Direction was important to them.

## CLIMATE ACTION SUMMARY

As new development occurs, advance equity and affordability in the community by ensuring the benefits of lower energy costs and healthier, more comfortable and resilient buildings are readily available to all residents, whether you are a renter or property owner. New buildings that are low carbon and highly energy efficient ensures occupants reap the benefits of improved energy security and quality of construction. *(See page 56 for detailed roadmap of this direction)*

### ACCELERATE TRANSITION TO THE TOP LEVEL OF BUILDING PERFORMANCE

- Support the construction of flagship high-performance, low-carbon buildings in Richmond
- Support training on designing, constructing and commissioning of high performance buildings
- Accelerate use of low-embedded carbon content materials in new construction

### SUPPORT CONTINUOUS IMPROVEMENT TO THE BC ENERGY STEP CODE

- Support ongoing improvements to Energy Step Code regulation and performance standards
- Advocate for adoption of emission intensity (GHGI) targets that local governments can reference in tandem with the Energy Step Code
- Ensure good practices in mechanical equipment design, installation and commissioning

### ADVANCE IMPLEMENTATION OF LOW CARBON ENERGY SYSTEMS IN NEW CONSTRUCTION

- Raise awareness of the benefits of building electrification
- Maximize low carbon energy in new construction
- Assess the feasibility of using Renewable Natural Gas (RNG) for residual or peak heating needs in new buildings
- Encourage local availability of low-carbon domestic hot water and space heating systems with a high coefficient of performance

### IMPLEMENT BUILDING ENERGY AND EMISSIONS PERFORMANCE REPORTING AND DISCLOSURE

- Build capacity and momentum for a mandatory energy and emissions reporting requirement for new buildings

### EXPAND LOW CARBON DISTRICT ENERGY SYSTEMS

- Continue expansion of City's low carbon district energy systems and explore new opportunities outside existing district energy service areas

### ENCOURAGE ON-SITE RENEWABLE ENERGY

- Encourage cost-effective on-site renewable energy generation in new construction

### ACCELERATE ADOPTION OF LOW GLOBAL WARMING POTENTIAL TECHNOLOGIES

- Support local certification of promising new building technologies not yet certified in Canada
- Encourage Provincial and Federal governments to enact more stringent regulation related to high global warming potential (GWP) coolants and technologies



# COMPLETE COMMUNITIES

STRATEGIC DIRECTION 4 - SUMMARY

# COMPLETE COMMUNITIES



## CARBON REDUCTION TARGETS

### 2030 TARGET

Achieve Richmond’s OCP travel mode-split targets for both active mobility and transit by 2030.

### 2050 TARGET

Ensure 90% of Richmond residences are within 400 metres (5 minute walk / roll) of transit, and no more than 1,600 metres from a neighbourhood mobility hub.

## STRATEGIC DIRECTION

Implement OCP and Local Area Plan objectives for compact, complete neighbourhoods throughout Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.

## CURRENT EMISSIONS IMPACT

Urban form has significant influence on the amount of energy used by transportation as well as heating and cooling of buildings. Policies in Richmond’s Official Community Plan (OCP) and City Centre Area Plan encourage compact development and have facilitated the extension of high-frequency rapid transit to Richmond, helping the City reduce overall greenhouse gas (GHG) emissions since 2007, even with continued population growth and economic expansion.

## WHY ACTION IS IMPORTANT

Richmond’s Official Community Plan is a key policy tool for implementing sustainable land use and transportation objectives expressed in this Plan, making our city less car reliant, more people-focused, and healthier. Carbon reduction objectives for complete communities are also supported by successful implementation of recommended actions within three Strategic Directions: Carbon Neutral New Buildings, Active Mobility for All, and Support Frequent Transit.

Compact development policies within our OCP and area plans are critical to achieving the types of land uses that support low- or zero-emission travel modes and energy efficient buildings. Having a wider range of services and amenities closer to home is strongly influenced by land use policies set in these plans, facilitating easy access by transit or active travel modes.

Neighborhood mobility hubs offer an integrated range of pedestrian-friendly transportation options such as public transit, cycling, e-scooter and car-share facilities, as well as taxi and ride hailing services and public electric vehicle charging. These hubs may also offer secure bicycle storage and repair services. By design, mobility hubs are well integrated with surrounding land uses, making everyday “first-to-last kilometre” journeys easy and sustainable.



85.7% of survey respondents stated that this Strategic Direction was important to them.



## CLIMATE ACTION SUMMARY

Policies that promote compact development create a range of benefits: residents become healthier as walking and rolling becomes easier within and between neighbourhoods, and the air is cleaner along quieter and safer roads. Complete communities support social equity, diversity, and inclusion when policies are used to encourage a broad range of housing solutions and choices within neighbourhoods.

Accessible, low-cost and sustainable travel options such as walking/rolling and cycling, using e-bikes/e-scooters, and public transit support equity and fairness objectives by providing quick and easy access to local services and amenities. *(See page 60 for detailed roadmap of this direction)*

### APPLY A CLIMATE LENS AS RICHMOND'S OCP AND LOCAL AREA PLANS ARE IMPLEMENTED

- Assess the impacts on energy use and greenhouse gas (GHG) emissions as new local area plans are introduced, and when there are amendments or updates to the Official Community Plan (OCP)
- Work to achieve a net reduction of community GHG emissions as new development occurs and transportation infrastructure is replaced or extended

### ENHANCE CHOICES FOR HOUSING AND SERVICES WITHIN NEIGHBOURHOODS

- Encourage the development of compact and complete communities with a wide range of housing options throughout Richmond, as per OCP direction
- Determine the land use and transportation policy implications of an increased number of residents working from home





# ACTIVE MOBILITY FOR ALL

STRATEGIC DIRECTION 5 - SUMMARY

# ACTIVE MOBILITY FOR ALL



## CARBON REDUCTION TARGETS

### 2030 TARGET

Increase walk / roll trips to reach 18% of all trips taken.

Increase bicycle ridership and micro-electric mobility to reach 10% of all trips taken.

### 2050 TARGET

Increase walk / roll trips to reach 25% of all trips taken.

Increase bicycle ridership and micro-electric mobility to reach 15% of all trips taken.

## STRATEGIC DIRECTION

Prioritize active transportation with investments in walking, rolling and cycling infrastructure that is safe, connected, easy to navigate, and accessible.

## CURRENT EMISSIONS IMPACT

No greenhouse gas (GHG) emissions are emitted from active mobility, so it can have a major role in reducing transportation emissions, by providing an easy and convenient alternative to driving to a destination.

## WHY ACTION IS IMPORTANT

Active mobility is zero or near zero emission by definition, as no fossil fuels are required to walk, cycle or roll, and electric scooters and e-bikes use BC's low-GHG electric grid to recharge batteries. Active modes are also simple, cheap and highly effective for shorter-distance trips. They can make up the majority of trips in compact, complete communities, where most destinations are close by. While these journeys are short, the avoided GHG emissions on a daily basis add up over time, which has a direct, positive impact on the environment and mitigates climate change, not to mention the health benefits that can be gained.

To make active mobility attractive, the City can provide safe and convenient infrastructure such as wider sidewalks and curb cuts, pedestrian activated crossing signals, comprehensive network of separated bike lanes, bike-share stations and plenty of racks to safely park your bicycle at destination points.



87.5% of survey respondents stated that this Strategic Direction was important to them.

## CLIMATE ACTION SUMMARY

Ensuring that nearby destinations in our community are easy and convenient to walk, roll or cycle to makes active modes of travel readily available for all ages and abilities. This plan supports active mobility because it is inclusive and participatory, supports a healthier community, and is affordable to the user. *(See page 61 for detailed roadmap of this direction)*

### ACCELERATE CITYWIDE USE OF ACTIVE TRANSPORTATION

- Prioritize walking, rolling and cycling as a preferred way to travel in Richmond
- Allocate annual capital funding for active transportation infrastructure sufficient to achieve Official Community Plan (OCP 2041) mode share targets by 2030

### REDUCE BARRIERS TO ACTIVE TRANSPORTATION WITHIN NEIGHBOURHOODS

- Expand existing walking and rolling connectivity within and between neighbourhoods
- Identify opportunities for creating walking and rolling connections between non-connecting streets

### ENGAGE RICHMOND RESIDENTS ON ACTIVE TRANSPORTATION

- Expand active transportation programs and services (e.g. shared e-bike and e-scooter services) in Richmond

### MAKE ACTIVE TRANSPORTATION THE CONVENIENT CHOICE FOR SHORTER TRIPS

- Ensure there are supportive land uses along transit routes so that active transportation is a convenient choice for shorter trips
- Maintain and expand investments in walking, rolling and cycling infrastructure within City Centre and within 400 metres of Neighbourhood Service Centres
- Maintain and expand investments in walking, rolling and cycling infrastructure within a 400 metre pedestrian catchment zone along Frequent Transit Network (FTN) routes

### SET PARKING STANDARDS TO SUPPORT SUSTAINABLE TRAVEL OPTIONS

- Establish further reductions for parking space requirements in new development, where appropriate
- Explore options to enable the conversion of parking spaces within existing buildings to support active transportation



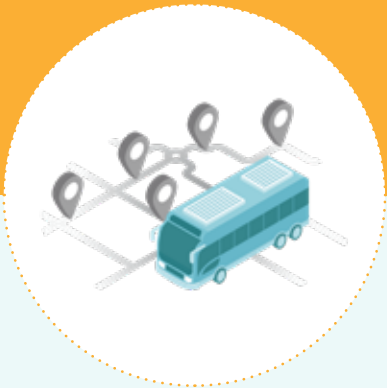




# SUPPORT FREQUENT TRANSIT

## STRATEGIC DIRECTION 6 - SUMMARY

# SUPPORT FREQUENT TRANSIT



## CARBON REDUCTION TARGETS

### 2030 TARGET

Increase transit mode share to reach 22% by 2030.

### 2050 TARGET

Increase transit mode share to reach 27% by 2050.

## STRATEGIC DIRECTION

Work with TransLink to increase transit service frequency and foster wider use of transit by implementing and upgrading transit stops that are well integrated with active transportation (walking/rolling, cycling) and with car-sharing networks.

## CURRENT EMISSIONS IMPACT

Greenhouse gas (GHG) emissions from all TransLink operations across Metro Vancouver increased 5% between 2014 and 2018, but with increased ridership, GHGs emissions per boarded passenger declined 14% over the same period.

## WHY ACTION IS IMPORTANT

For medium to longer distance trips, public transit is an essential strategy to reduce GHG emissions from transportation. Public transit is much more energy-efficient (on a per-person basis) than the use of private automobiles. Traveling on a diesel bus, rather than driving a conventional internal combustion vehicle, reduces carbon emissions per kilometre by 50%, while taking rapid transit (Canada Line or SkyTrain) or a battery electric-powered bus can reduce travel emissions by up to 99%.

Metro Vancouver has lower GHG emissions than most other public transit systems in North America due to comparatively high ridership levels, and because more than half of TransLink's fleet uses lower-GHG fuels and grid electricity, including compressed natural gas, hybrid diesel-electric buses and electric trolley buses.

In 2018, the TransLink board committed to have its fleet and operations run on 100% renewable energy by 2050. TransLink is now testing battery electric buses for use in Metro Vancouver, as well as hydrogen fuel cells.



91.1% of survey respondents stated that this Strategic Direction was important to them.

## CLIMATE ACTION SUMMARY

Public transit's role as an essential service is well recognized, but it also plays a key role in providing an affordable, inclusive and low-emission mode of travel. Making transit a convenient choice for longer trips (over 4 km) means it has to be frequent (at least 15 minute from morning to evening), and provide a safe and comfortable experience. The City is working closely with TransLink to achieve these objectives, so that residents of all ages and abilities can conveniently reach their destinations without having to use a vehicle. *(See page 64 for detailed roadmap of this direction)*

### ENSURE TRANSIT-SUPPORTIVE LAND USE

- Ensure supportive land use along high frequency transit routes so that transit is a convenient choice for most longer trips over four kilometres
- Increase the range of housing types, supply and tenure close to frequent transit

### INCREASE TRANSIT PROVISION AND SERVICE IMPROVEMENTS

- Facilitate expansion of high-frequency local and regional transit service with TransLink
- Work with TransLink to introduce rapid bus service on frequent transit routes and other transit service improvements identified in the Southwest Area Transport Plan

### ENCOURAGE HIGHER TRANSIT RIDERSHIP

- Reduce barriers to transit by investing in supportive, accessible, people-friendly infrastructure

### SUPPORT TRANSITION TO 100% ZERO EMISSION TRANSIT

- Expand battery electric bus service and implement e-bus charging facilities within Richmond

### ENGAGE RESIDENTS ON TRANSIT SERVICE AND MOBILITY HUB IMPROVEMENTS

- Engage residents on transit service and mobility hub improvements and benefits





# ENHANCE GREEN INFRASTRUCTURE

STRATEGIC DIRECTION 7 - SUMMARY



# ENHANCE GREEN INFRASTRUCTURE



## CARBON REDUCTION TARGETS

### 2030 TARGET

By 2030, measures have been identified and initiated to sequester 20% of Richmond's current annual GHG emissions (approximately 200,000 tonnes of carbon dioxide equivalent CO<sub>2</sub> per year by 2050).

### 2050 TARGET

By 2050, Richmond can verifiably show that 200,000 tonnes of CO<sub>2</sub> have been sequestered or directly removed from the atmosphere annually, as a city-wide carbon 'buffer' equal to 20% of Richmond's annual emissions in base year 2007.

## STRATEGIC DIRECTION

Maximize the climate benefits of Richmond's green infrastructure by protecting and expanding existing carbon stores in trees, vegetation and soils.

## CURRENT EMISSIONS IMPACT

It is estimated that below-ground soils in Richmond collectively store the equivalent of 7.7-million tonnes of carbon dioxide (CO<sub>2</sub>). Protecting the carbon stored in our soils (peatland and saltwater marsh habitat in particular) will prevent large amounts of sequestered carbon from being released into the atmosphere, and contributing to global warming. Protecting and enhancing the trees and vegetation within our parks and farmland, as well as the 'urban forest' along our streets and within our neighbourhoods, will contribute a modest offset to annual greenhouse gas (GHG) emissions.

## WHY ACTION IS IMPORTANT

Green infrastructure refers to natural and built biological environments that provide functions similar to traditional civic infrastructure. Green infrastructure can enhance Richmond's resiliency and adaptability to climate change by managing and filtering stormwater, reducing 'urban heat island' effects, improving local air quality, and supporting biodiversity.

Richmond's green infrastructure also includes its soils, agricultural areas with peatland soils, and the saltwater marshlands of Sturgeon Banks, which already contain large amounts of sequestered carbon. Carbon-smart land management has potential to sequester additional CO<sub>2</sub>, thereby helping reduce the City's net emissions. Keeping Richmond's natural 'carbon bank' intact is an important way to limit unwanted release of GHG emissions.

The target for 2050 implies that once significant emissions have been reduced from new and existing buildings, encouraging sustainable travel options, decarbonizing mobility and reducing waste, some remaining emissions will still need to be offset to achieve the City's net zero emissions goal. Residual emissions in Richmond could be annually offset using a combination of natural carbon sequestration as well as the use of technological means, such as direct air capture systems and carbon storage as these technologies mature and become cost-effective.



89.4% of survey respondents stated that this Strategic Direction was important to them.

## CLIMATE ACTION SUMMARY

Protecting and enhancing our urban tree canopy, and ecosystems within Richmond's parks and shoreline provides wider access and enjoyment of natural systems for local residents. While taking measures to protect the existing stock of sequestered carbon in Richmond, the City is also committed to ensuring that our natural areas are accessible for all ages and abilities. [\(See page 66 for detailed roadmap of this direction\)](#)

### EXPAND RICHMOND'S URBAN TREE CANOPY

- Achieve a robust, long-term urban forest on public and private land

### PROTECT EXISTING STOCKS OF SEQUESTERED CARBON

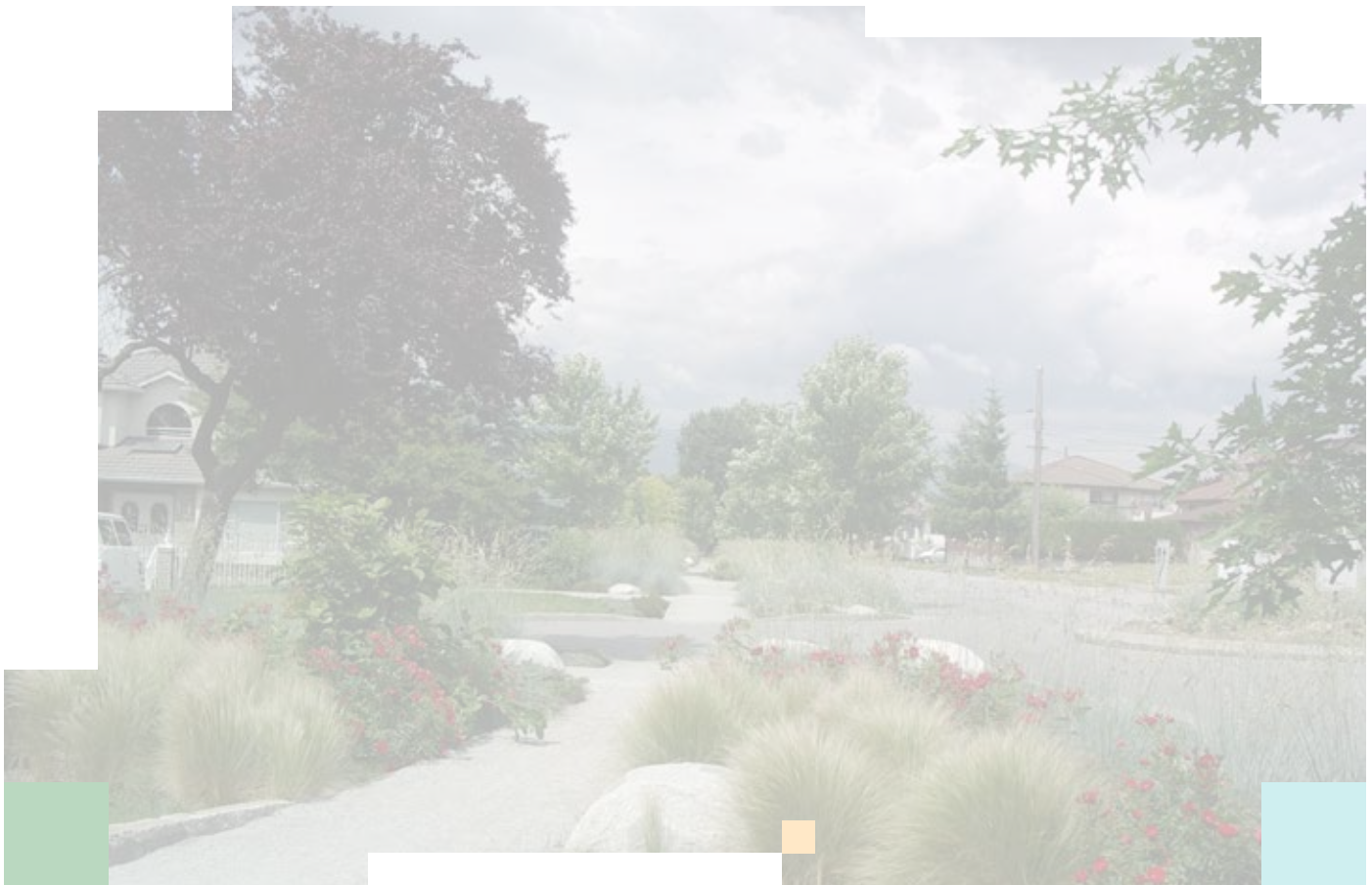
- Implement citywide strategy and actions to preserve Richmond's natural carbon stores

### PROMOTE SUSTAINABLE REUSE OF SOIL AND WASTE BIOMASS

- Consider opportunities to use agricultural waste as biomass fuel, partnering with the Agricultural Land Reserve (ALR) and Kwantlen Polytechnic University
- Assess potential to preserve Richmond soils for use as future agriculture, in partnership with developers and landowners

### PLAN NOW TO SCALE UP CARBON SEQUESTRATION AND OFFSETS IN RICHMOND

- Develop a strategy to achieve up to 200,000 tonnes of carbon dioxide (CO<sub>2</sub>) equivalent carbon sequestration annually by 2050





# TRANSITION TO A CIRCULAR ECONOMY

STRATEGIC DIRECTION 8 - SUMMARY

# TRANSITION TO A CIRCULAR ECONOMY



## CARBON REDUCTION TARGETS

### 2030 TARGET

By 2030, the City of Richmond's Circular Economy Strategy is fully deployed, with innovation being demonstrated by the City and local businesses in material use, waste and emission reduction from manufacturing, transporting and retailing of products and services.

### 2050 TARGET

By 2050, the City of Richmond is a fully circular city.

## STRATEGIC DIRECTION

Create a Circular Economy in Richmond that maximizes the value of resources by design, responsible consumption, minimized waste and re-imagining how resources flow in a sustainable, equitable, low-carbon economy.

## CURRENT EMISSIONS IMPACT

Greenhouse gas (GHG) emissions from the management of liquid and solid waste in Richmond constituted 2.2% of municipal emissions in 2017. But these statistics only incorporate direct emissions such as methane emissions from anaerobic decomposition of waste. From a Circular Economy perspective, the production, transportation, and retailing of products used by consumers and businesses are responsible for a significantly larger amount of carbon emissions from sectors of the economy that extend beyond municipal waste management.

## WHY ACTION IS IMPORTANT

Globally, 45% of carbon emissions originate from the production of vehicles, consumer goods and food, as well as construction materials used in buildings. Traditional product development uses a linear 'take-make-waste' approach.



By contrast, the Circular Economy maximizes value, and reduces or eliminates waste by transforming how products and services are designed, manufactured and used. Innovation is used to extend the lifespan of products and materials, reduce or eliminate emissions, and conserve natural resources. A comprehensive response to climate change considers the vast potential of a Circular Economy to reduce greenhouse gas emissions.

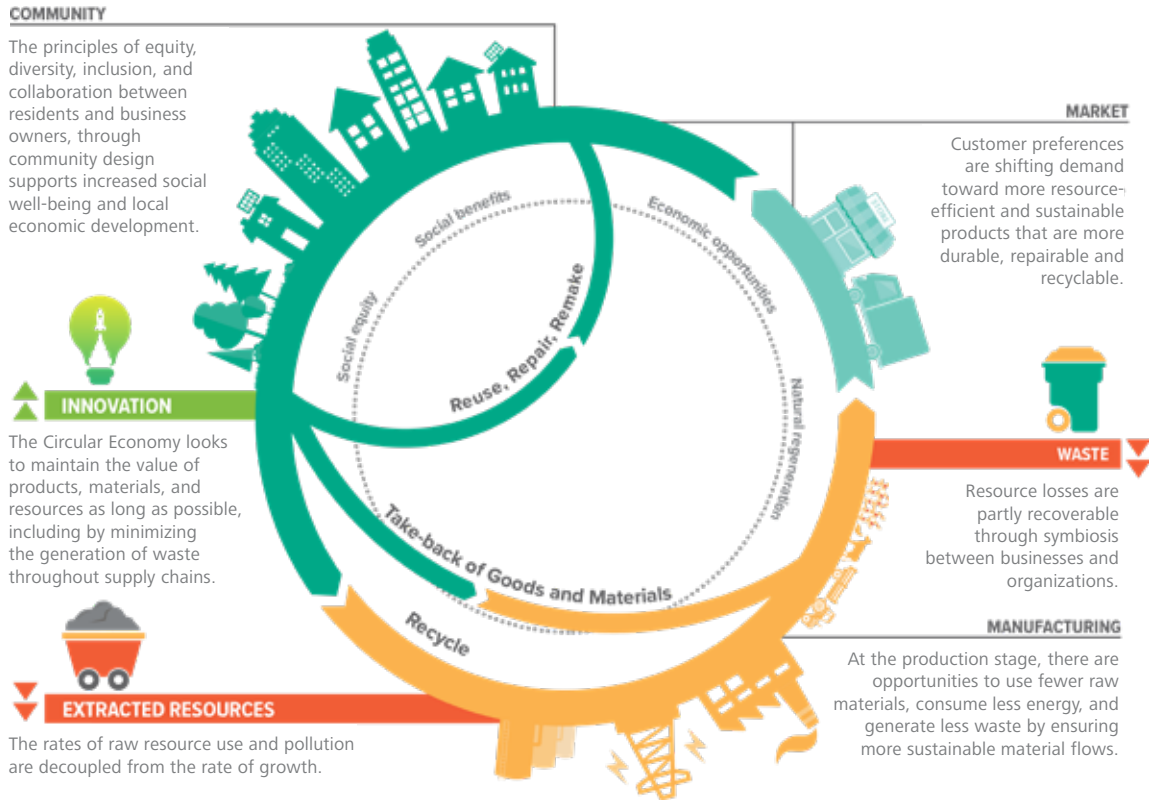


78.6% of survey respondents stated that this Strategic Direction was important to them.



The City of Richmond's vision for circular economy is to maximize the value of resources, by design, through responsible consumption, minimizing waste and re-imagining how resources flow in a sustainable, equitable, low-carbon economy.

The Circular Economy (CE) emerges as a counterpoint to the linear model. CE combines economic growth with a development cycle that preserves and enhances natural capital, optimizes resource production and minimizes risk through the management of limited resources. The loops inside the circle show how organizations and enterprises can reduce production costs and losses, generate new sources of revenue and reduce their dependence on natural raw materials.



## CLIMATE ACTION SUMMARY

Transitioning to a fully Circular Economy represents a massive transformation in the production and use of materials and energy, with significant opportunities for longer-lived goods, elimination of waste and pollution, and an open doorway to re-think processes and innovate. The City is committed to a successful and fair transition for local enterprises and organizations, and is supporting this through direct engagement, idea-sharing and knowledge-building. *(See page 68 for detailed roadmap of this direction)*

### ADVANCE IMPLEMENTATION OF CIRCULAR ECONOMY INITIATIVES BY CITY OF RICHMOND

- Integrate Circular Economy principles into the City's corporate plans, processes and standards to lead by example

### SUPPORT IMPLEMENTATION BY RESIDENTS

- Inspire residents to participate in the Circular Economy and accelerate demand for products derived from circular processes

### SUPPORT IMPLEMENTATION BY BUSINESSES

- Accelerate adoption of Circular Economy approaches by the private sector in the design, manufacture and retooling of products and services

### TRANSITION TO LOW EMBODIED CARBON CONSTRUCTION MATERIALS

- Accelerate the use of construction materials with low embodied carbon content







# ADDITIONAL ENABLING ACTIONS

# ADDITIONAL ENABLING ACTIONS

CEEP 2050 also identifies four enabling actions that would support progress on implementation actions in more than one Strategic Direction. A rationale for each enabling action is summarized below, and Attachment 1 includes additional detail associated with each enabling action.

## 1. ENSURE REGULAR PROVISION OF MUNICIPAL GREENHOUSE GAS EMISSION INVENTORIES

To assess year-by-year progress on reducing greenhouse gas emissions and associated targets, local governments will need consistent and reliable community-wide inventories. These inventories will need to be available to all local government jurisdictions in BC. In 2008, the Provincial government created the Community Energy and Emissions Inventory (CEEI) to provide municipal energy and emissions data to every local government in BC. While CEEI inventories were completed in 2007, 2010 and 2012, inadequate resourcing has prevented the Province from completing inventories in subsequent years.

### PROPOSED CLIMATE ACTION

#### ENSURE REGULAR PROVISION OF MUNICIPAL GREENHOUSE GAS EMISSION INVENTORIES

- Increase Provincial resources to provide annual or bi-annual reporting of municipal greenhouse gas inventories for all local government jurisdictions in British Columbia.

## 2. SUPPORT REGION-WIDE DELIVERY OF CLIMATE ACTION PROGRAMS

Many local governments within the Greater Vancouver Regional District (including City of Richmond) have adopted accelerated GHG emission reduction targets in line with the International Panel on Climate Change target of limiting global average warming to no more than 1.5 degrees Celsius. All of these local governments face similar challenges and opportunities presented by accelerated climate action, particularly for programs and incentives. Therefore, it makes sense to work together and pool resources. There may be considerable opportunities to increase the cost-effectiveness of local government programs for building retrofits, low-carbon new buildings and EV charging by enabling municipalities in Metro Vancouver to jointly deliver these initiatives across the region over a number of years. Currently, Metro Vancouver cannot administer a program longer than a 12-18 month period. Richmond can address this barrier by proposing the adoption of a service establishment bylaw by the Metro Vancouver Board to enable climate action programs by the region.

### PROPOSED CLIMATE ACTION

#### ENABLE REGION-WIDE DELIVERY OF CLIMATE ACTION PROGRAMS

- Extend the mandate of Metro Vancouver Regional District to enable cost-effective, regional delivery of climate action programs, in cooperation with member municipalities.



### 3. REDUCE EMISSIONS FROM PORTABLE GENERATORS AND GAS-POWERED EQUIPMENT

Fuel switching to low-carbon electric power is an effective approach in BC for significantly reducing greenhouse gas emissions, as well as health-impacting common air contaminants like carbon monoxide, nitrous oxide, sulphur dioxide, volatile organic compounds and fine particulates that result when burning fossil fuels.

The performance of batteries and small motors has now increased to the point that the dominant type of landscaping equipment sales are toward quieter and lighter plug-in equipment, or may have the additional feature of being able run solely by battery power. Policies or programs to accelerate a transition to electrified lawn equipment would also reduce carbon emissions and other pollutants, thereby improving air quality. For larger electric generators used in locations not accessible to the electric grid, portable gas or diesel generators were typically the only option. This is changing fast, with mobile units supplying higher-capacity batter power now readily available.

Metro Vancouver Regional District has a legislated mandate to protect air quality by regulating sources of contaminants, and has adopted GHG reduction targets at the regional level. Staff will work with Metro Vancouver to explore demonstration opportunities and policy measures to reduce greenhouse gas and air emissions from portable generators and gas-powered small equipment.

### PROPOSED CLIMATE ACTION

#### REDUCE EMISSIONS FROM PORTABLE GENERATORS AND GAS-POWERED EQUIPMENT

- Assess program, regulatory and technical options to encourage transition from fossil fuel-powered generators and handheld equipment to zero emission electric power.

### 4. SUPPORT PROVINCIAL COMMITMENT TO 100% CLEAN ELECTRICITY DELIVERY STANDARD

Most of the GHG emission reduction opportunities identified in this plan rely on shifting from fossil fuels to low-GHG emission electricity. In 2021, the CleanBC Roadmap to 2030 is committed BC to a 100% clean electricity delivery standard for BC Hydro, which may come into effect in 2030.

The average GHG intensity of the electricity consumed in British Columbia is very low compared to most jurisdictions around the world. However, depending upon the year, it may be three to four times higher than the official GHG intensity value set by the Province for planning and reporting purposes. This can complicate assessment of actual GHG reductions achieved through electrification. This enabling action advocates for a consistent downward track for remaining emission intensity of grid electricity in BC, and BC Hydro should begin work as soon as possible on a clean electricity delivery standard.

### PROPOSED CLIMATE ACTION

#### ENSURE PROVINCIAL COMMITMENT TO 100% CLEAN ELECTRICITY DELIVERY STANDARD

- Advocate for a clean electricity delivery standard to guarantee grid electricity with a reliable zero-GHG emission intensity no later than 2030.

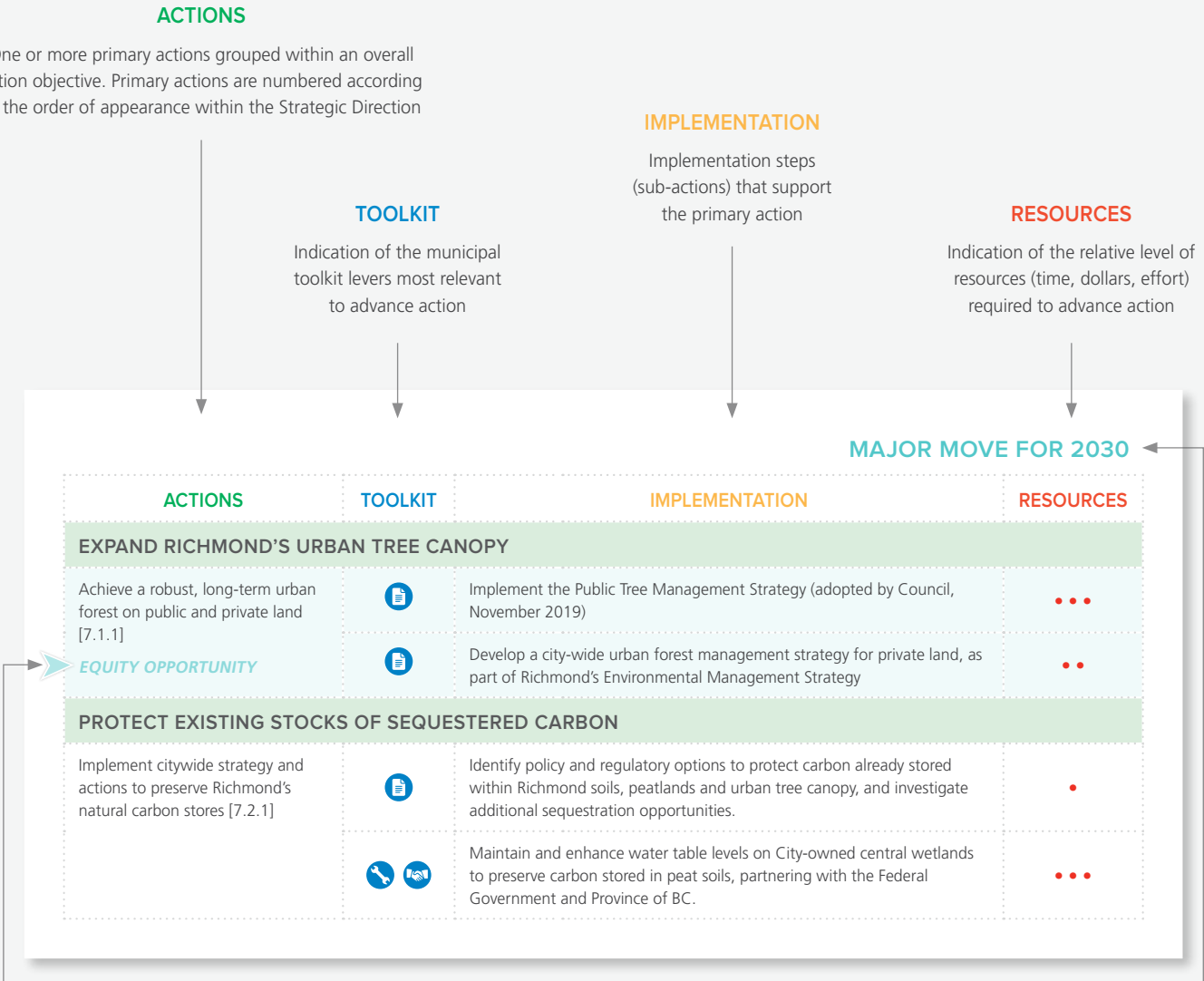


# IMPLEMENTATION ROADMAP

# IMPLEMENTATION ROADMAP

The eight strategic Directions set out in the Community Energy and Emissions Plan 2050 include multiple actions that together enable Richmond to fully achieve accelerated GHG emission reduction targets for 2030 and 2050. This includes 77 primary actions and 199 related implementation steps within this plan.

These will build upon progress resulting from leadership actions and measures implemented under the previous plan (CEEP 2014), as well as more recent policy targets, and regulatory standards initiated by the Province of BC and Federal Government up to 2020, such as the BC Energy Step Code, Zero Emission Vehicles sales targets (Provincial), and minimum vehicle fuel efficiency (Federal).



## EQUITY OPPORTUNITY

As emission reduction programs, policies and other actions are developed, the plan seeks to achieve an equitable transition on the journey to net zero emissions in Richmond. CEEP 2050 identifies actions that could be particularly strong levers to advance equity, fairness and inclusion during implementation.

## MAJOR MOVE FOR 2030

Following formal adoption of CEEP 2050, all eight strategic Directions will be implemented in tandem. However, making progress on actions within Carbon Neutral New Buildings, Retrofit Existing Buildings, and Transition to Zero Emission Vehicles is particularly critical over the next ten years to meet our 2030 emissions reduction target of 50% from 2007 levels.

# IMPLEMENTATION APPROACH

The following four key attributes inform our approach to plan implementation.

## OPPORTUNISTIC AND STRATEGIC

Achievement of deep emission reductions by 2030, and full decarbonisation by 2050, will require a scale-up of activity. Staff will take advantage of new opportunities, partnerships and collaborations that may arise over the years, with respect to new Federal and Provincial funding programs, expanded regulatory mandates, and emergence of 'break-through' technologies and approaches.

## A ROADMAP, NOT A WORK PLAN

CEEP 2050 it is not a detailed, phased work plan. Rather it is a roadmap, with a sufficient level of guidance and definition so that action can begin immediately, while allowing flexibility to further refine or modify plan actions as opportunities arise, as well as develop detailed work plans as needed.

## RESOURCES TO MATCH AMBITION

We will need to assemble resources sufficient to match the scale of effort required by the plan. This includes identifying sources of external or partner funding, creating dedicated operating budgets for initiatives that span several years, including additional level funding requirements. Increased competency and knowledge capacity for sectors related to building electrification and decarbonisation should receive high priority.

## EQUITABLE TRANSITION TO ZERO CARBON

Our plan acknowledges the opportunity to address inequities by ensuring that new policies, programs and incentives are inclusive and broadly available. It also recognizes that the negative impacts of climate change are not equitably felt, and that vulnerability to these effects is often higher for indigenous people and First Nations, visible minorities, low-income households, women, seniors, new Canadians and persons with disabilities.



# CENTERING EQUITY IN PLAN IMPLEMENTATION

A significant proportion of climate mitigation actions (37 actions out of 77) within the CEEP 2050 Implementation Roadmap are identified as particularly good opportunities to advance equity, fairness, wellness and inclusion in Richmond during implementation of that action. These are flagged within the Roadmap tables that follow.

To support implementation, a short checklist has also been developed to assist City staff and partner organizations in creating well thought-out and impactful programs, policies, infrastructure development, new regulation and engagement approaches that achieve Richmond’s accelerated GHG emission reduction targets. The following table contains points to consider when designing and implementing climate action, with the objective of centering equity as actions are resourced and rolled out.

CONSIDERATIONS FOR IMPLEMENTATION ACTIONS	SUPPORTIVE CITY POLICIES AND INITIATIVES
<ol style="list-style-type: none"> <li>1. Adopt an integrated, co-creative approach when designing the implementation action</li> <li>2. Identify who is being targeted or served by the action, as well as supportive partners and allies</li> <li>3. Understand the direct and indirect impacts of the proposed action</li> <li>4. Identify groups that are the most vulnerable to the negative impacts of climate change</li> <li>5. Consider the contextual factors experienced by groups / populations targeted by the action</li> <li>6. Determine a meaningful, culturally appropriate engagement approach that considers Richmond’s diverse population and languages when building awareness about new programs</li> <li>7. Engage and encourage participation by under-represented groups</li> <li>8. Build capacity by outlining how the action can support and empower vulnerable populations</li> <li>9. Design the implementation action so that the benefits are broadly available, and that the action is intended to target those who are at risk of the negative impacts of climate change, or are underrepresented in climate action programs</li> <li>10. Integrate spatial analysis and data analytics to help target climate action in Richmond, by identifying areas of highest need / vulnerability</li> <li>11. Define steps to nurture effective, long-term relationships</li> <li>12. Ensure that the implementation action supports a sustained relationship of mutual respect, trust and reconciliation with local First Nations and indigenous people</li> </ol> <p><b>NOTE:</b> Further guidance on the above can be accessed through the Canadian Urban Sustainability Practitioners (CUSP) Network, as well as Urban Sustainability Directors Network (USDN). See: <i>A Guidebook on Equitable Clean Energy Program Design for Local Governments and Partners (USDN, 2018)</i></p>	<p>When implementing strategies and actions from CEEP 2050, consideration should be given to the priority the City has placed on advancing social inclusion, and responding to the evolving needs of Richmond’s diverse population. Creating a cross-departmental team with a commitment integrating equity into plan actions can also assist in this regard.</p> <p>The following City strategies and plans should also be reviewed to help inform plan implementation:</p> <ul style="list-style-type: none"> <li>• Energy Poverty Toolkit for Low-Income Households and Service Providers (forthcoming in 2022)</li> <li>• Cultural Harmony Plan 2019-2029</li> <li>• Official Community Plan 2041</li> <li>• Social Development Strategy 2013-2022</li> <li>• Community Wellness Strategy 2018-2023</li> <li>• Resilient Economy Strategy</li> <li>• Affordable Housing Strategy 2017-2027</li> <li>• Volunteer Management Strategy 2018-2021</li> <li>• Parks and Open Space Strategy 2022</li> <li>• Homeless Strategy 2019-2029</li> <li>• Collaborative Action Plan to Reduce and Prevent Poverty in Richmond 2021-2031</li> </ul>

# RETROFIT EXISTING BUILDINGS



## IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>CREATE A RICHMOND BUILDING RETROFIT PLAN</b>			
Create a comprehensive, multi-year plan to accelerate the retrofit of existing buildings [1.1.1]  <b>EQUITY OPPORTUNITY</b>		Set an overall 2030 GHG reduction target for each major building archetype in Richmond	•
		Identify building types prioritized for retrofit initiatives and develop effective means of incenting or requiring low-carbon energy retrofits for these buildings	••
		Seek approval for a new staff role to develop and activate Richmond's building retrofit program	•••
		Create a five-year implementation plan for a building retrofit program, including annual capital and operating funding requirements. [Integrated with regional programs in 1.3]	•••
Integrate building, energy and spatial data to identify priority building types and optimal strategies to incent or require low-carbon energy improvements [1.1.2]  <b>EQUITY OPPORTUNITY</b>		Build upon data analysis and geospatial emissions forecasting completed in developing CEEP 2050, and seek opportunities to utilize new spatial visualization and data analysis tools to support implementation of the building retrofit plan	••
		Integrate data on social equity, housing need and energy poverty with other geospatial building attributes to identify areas of highest need and inform City policies and programs	••
<b>SET ENHANCED ENERGY AND EMISSION STANDARDS FOR EXISTING BUILDINGS</b>			
Support timely development and adoption of energy efficiency requirements for existing buildings [1.2.1]		Participate in the Province-led process to develop the BC Building Alteration Code by 2024	••
		Advocate for mechanical system retrofit design requirements in the proposed BC Building Alteration Code	•
		Once available, adopt the BC Building Alteration Code into local bylaws and enforce compliance	•••
Implement greenhouse gas (GHG) performance requirements for existing buildings [1.2.2]		Advocate for Provincial opt-in GHG performance requirements for existing buildings	•
		Adopt future BC Building Code emissions performance requirements into Richmond Building Regulation Bylaw when available	•
Create a framework that guides the use of renewable natural gas (RNG) for heating in existing buildings [1.2.3]		Work with FortisBC and other partners to identify regulatory mechanism to ensure use of RNG over the full lifespan of natural gas devices	•



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Outreach and Education

### RESOURCES

- Low
- Medium
- High

# IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>PARTICIPATE IN REGIONAL BUILDING RETROFIT INITIATIVES</b>			
Design and deliver a program for strata and rental apartment buildings incenting low-carbon heating systems and energy improvements focused on occupant health, comfort and affordability [1.3.1]	 	Partner with utilities and interested municipalities in Metro Vancouver to develop a program for long-term delivery	•••
	 	Work in partnership to identify incentives and secure funding for the program	••
	 	Work in partnership to promote and engage landlords, property managers and strata councils in this program	•
<b>EQUITY OPPORTUNITY</b>			
Achieve efficiencies of scale in marketing and administering building retrofit programs [1.3.2]	 	Partner with other local governments to advance a regional climate action through a Service Establishment Bylaw for Metro Vancouver	••
		Work with Metro Vancouver and member municipalities to jointly implement regional building retrofit programs where appropriate	•
<b>CREATE INCENTIVES AND REMOVE BARRIERS TO LOW CARBON ENERGY RETROFITS</b>			
Explore policy, program and regulatory options to encourage installation of local carbon mechanical systems during building retrofits [1.4.1]		Support Development Applications and Building Approvals staff on regulatory review of building mechanical systems	•
	 	Collaborate with local governments and BC Hydro to identify and implement best practice standards for permitting heat pumps, so as to ensure that permitting processes for heat pumps are not a barrier to increased implementation of heat pump systems	•
Develop a heat pump incentive program targeting residential buildings which currently lack mechanical cooling systems [1.4.2]	 	Create an inventory for Richmond of residential buildings that do not have mechanical cooling	•••
<b>EQUITY OPPORTUNITY</b>			



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Outreach and Education

### RESOURCES

- Low
- Medium
- High

# IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
Partner with other interested municipalities, Metro Vancouver and the Province to implement a low-interest financing program for building energy retrofits [1.4.3]		Partner with other interested municipalities and/or Metro Vancouver to encourage the Province to implement PACE enabling legislation	••
		Partner with other interested municipalities and/or Metro Vancouver to design a regional-scale building retrofit financing program that achieves efficiencies of scale	••
		Partner with other interested municipalities and/or Metro Vancouver to provide cost-efficient program delivery of a building retrofit financing program	••
		Partner with other interested municipalities and/or Metro Vancouver to jointly launch and promote the building retrofit financing program	•••
		Partner with other interested municipalities and/or Metro Vancouver to secure needed funding for a building retrofit financing program	••
Advocate for energy utility rates that encourage low-GHG building energy retrofits [1.4.4]		Support efforts by the Province and BC Hydro to implement revised electrical rates that encourage low-GHG building retrofits	••
		Advocate that BC Hydro revise electricity connection and upgrade fees to encourage low-GHG building energy retrofits	•
Develop a decarbonisation strategy for affordable housing in partnership with stakeholders [1.4.5]		Advocate for regular increases to the Provincial Carbon Tax, with the burden of increased fuel costs minimized for low-income households	•
		Work with the Province, utilities and other stakeholders to ensure that all British Columbians can participate in and benefit from building electrification	••
		Implement financing mechanisms to assist building electrification for low-income and affordable housing sectors	•••
<b>BUILD INDUSTRY SUPPORT AND COMPETENCY WITH LOW CARBON MECHANICAL SYSTEMS</b>			
Work with equipment suppliers and contractors and utility stakeholders to increase local availability of mechanical systems with a high coefficient of performance [1.5.1]		Work with HVAC and heat pump equipment manufacturers, suppliers and contractors to increase the availability of high-performance heat pumps in BC	••
		Participate in a stakeholder coalition to advocate for building electrification and track implementation	•
		Support a messaging campaign to HVAC industry to gear up for heat pump sales and installation	••
Improve building electrification awareness, coordination, and advocacy among key stakeholders [1.5.2]		Partner with municipalities, Province of BC, and Thermal Comfort Association of BC to increase industry knowledge and capacity on heat pumps	••
		Promote implementation of heat pump systems by distributing information to building owners and managers	•

**EQUITY OPPORTUNITY**



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### RESOURCES

- Low
- Medium
- High



ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ADVANCE BUILDING ENERGY AND EMISSIONS PERFORMANCE REPORTING AND DISCLOSURE</b>			
Advance energy and emissions performance reporting and disclosure requirements for existing buildings [1.6.1]		Advocate for a Provincial requirement that owners of commercial, institutional, and multi-unit residential buildings annually measure, report, and/or disclose energy usage and greenhouse gas emissions for their properties	•
	 	Require homebuilders to disclose at sale the energy-efficiency performance of homes to prospective buyers using an 'energy score'	•
		Richmond to annually report energy use and greenhouse gas emissions for civic buildings	•
<b>EXTEND DISTRICT ENERGY SERVICE WHERE FEASIBLE</b>			
Identify where larger existing buildings could be connected to City's district energy system [1.7.1]		Conduct a feasibility study to identify potential buildings and develop a business case	••
		Provide new district energy service or local shared low-carbon heating and cooling infrastructure to identified buildings	•••
	  	Encourage larger existing buildings that have a hydronic space heating system to connect to district energy when the current mechanical system is near replacement	••



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**RESOURCES**

- Low
- Medium
- High

# TRANSITION TO ZERO EMISSION VEHICLES



## IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>EXPAND PUBLIC ELECTRIC VEHICLE CHARGING OPPORTUNITIES</b>			
Build out a network of public electric vehicle (EV) charging stations at civic facilities in Richmond to accelerate rate of local EV adoption [2.1.1]		Secure funding for priority 'on the go' EV charging locations	••
		Implement and maintain public EV charging stations	•••
		Identify optimal locations for the City's public EV charging network as EV ownership and access to private EV charging expands	•
<b>EQUITY OPPORTUNITY</b>			
Create mobility hubs with EV charging stations near transit stations, within neighbourhood service centres and at community centres [2.1.2]		Develop guidelines for the provision of mobility hubs as part of a Transportation Demand Management (TDM) strategy within new developments	••
		Implement additional mobility hubs in Richmond as funding and development opportunities arise.	••
<b>EQUITY OPPORTUNITY</b>			
Support curbside EV charging stations in areas where residents are less likely to be able to charge at home, and encourage car share providers to electrify and expand their fleets [2.1.3]		Assess projected demand for 'at home' EV charging in Richmond neighbourhoods to identify areas that could benefit from public EV charging	•
		Implement curbside public EV charging stations as a demonstration project within City Centre in partnership car share providers	••
		In partnership with car share providers, identify other locations in Richmond where curbside charging would benefit EV owners unable to charge at home	••
<b>EQUITY OPPORTUNITY</b>			
<b>EXPAND ELECTRIC VEHICLE CHARGING OPPORTUNITIES ON PRIVATE PROPERTY</b>			
Extend current residential EV charging requirements to include visitor and car-share parking stalls [2.2.1]		Create a 'how to' guide for retrofitting existing visitor and car-share parking stalls with Level 2 EV charging capability	••
Establish light-duty EV charging requirements for parking stalls in new commercial and industrial development [2.2.2]		Develop Zoning Bylaw requirements for Level 2 EV charging infrastructure for visitor and workforce parking stalls	••
<b>EQUITY OPPORTUNITY</b>			



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### RESOURCES

- Low
- Medium
- High

# IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<p>Support an EV Charging Retrofit Advisor program for existing multi-unit residential buildings [2.2.3]</p> <p><b>EQUITY OPPORTUNITY</b></p>		Partner with interested municipalities to develop a project scope and implementation plan for a regional EV Charging Advisor program for strata and rental apartment buildings	••
		Work in partnership to identify incentives and secure funding for a regional-scale program	••
		Work in partnership to launch and promote the new program, and engage strata councils	•••
		Review policy, regulatory and program options to incentivize retrofit of existing parking spaces with EV charging capability	•
		Explore the City's ability to reduce the per-unit cost of electrical transformer upgrades in multi-unit residential, such as aggregating EV retrofit upgrades in adjacent buildings	•
<p>Collaborate with other local governments to advocate for passage of provincial 'right-to-charge' legislation [2.2.4]</p> <p><b>EQUITY OPPORTUNITY</b></p>		Work with Province of BC on regulatory support for residents in existing strata and rental apartment buildings so they can charge their vehicle at home	•
<p>Support homeowners wanting to implement Level 2 EV charging at home [2.2.5]</p>		Create how-to guides and bulletins on installing Level 2 EV charging in existing single-family, semi-detached homes, and townhouses	•



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### RESOURCES

- Low
- Medium
- High

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ENCOURAGE ZERO EMISSION VEHICLE ADOPTION</b>			
Advocate for low-GHG requirements in ride-hailing services [2.3.1]		Work with other local governments to advocate for changes to Provincial regulations on ride-hailing services	•
		Review regulatory options for local governments to require low-emission ride-hailing services within Richmond	•
Increase public awareness of, and support for, car-sharing and electric mobility [2.3.2]		Partner with organizations advocating use of low-carbon vehicles (e.g. Emotive, TransLink, car-share providers, Fraser Basin Council)	••
		Promote and distribute information on electric vehicles	•
Support implementation of Provincial Zero Emission Vehicle (ZEV) sales requirements, and advocate for further improvements [2.3.3]	 	Work with Metro Vancouver and other local governments to support continued implementation of, and improvements to, the BC ZEV sales mandate under the BC Zero-Emission Vehicles (ZEV) Act	•
	 	Work with Metro Vancouver and other local governments to advocate that BC adopt the California Air Resources Board (CARB) sales requirements for heavy-duty ZEVs	•
Work with partners to accelerate transition of heavy duty vehicles to zero emission fuels and/or battery electric power [2.2.4]	 	Conduct technical review of electric and other low-carbon fuel options (i.e., hydrogen, renewable natural gas, and other biofuels)	•
	 	Work with Metro Vancouver and other local governments to advance low-carbon fuel and EV charging infrastructure, as well as regulatory measures on land use to support this transition	•
	 	Position City of Richmond as an early adopter and innovator by participating in a local pilot project supporting heavy-duty zero emission vehicles	•••
<b>ENCOURAGE LOWER EMISSIONS FROM INTERNAL COMBUSTION ENGINE VEHICLES</b>			
Support continued implementation and further improvements to Federal vehicle fuel-efficiency regulations [2.4.1]		Work with Metro Vancouver and other local governments to support continued implementation and further improvements to Federal Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations	•
		Work with Metro Vancouver and other local governments to support continued implementation and further improvements to Federal Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations	•



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### RESOURCES

- Low
- Medium
- High



# CARBON NEUTRAL NEW BUILDINGS



## IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ACCELERATE TRANSITION TO THE TOP LEVEL OF BUILDING PERFORMANCE</b>			
Support the construction of flagship high-performance, low-carbon buildings in Richmond [3.1.1] <i>EQUITY OPPORTUNITY</i>		Continue to develop incentives to drive construction of low-carbon buildings to the top level of the Energy Step Code (i.e., Passive House / Net Zero Energy Ready)	••
		Partner with local governments and organizations to develop a regional high-performance incentive program, with targeted incentives and support for new affordable housing	•••
		Partner with Zero Emissions Building Exchange and Passive House Canada on industry education by showcasing leading buildings	•
		Work with partners to support demonstration projects and publish case studies on low-carbon mechanical systems	•
		Support local field tests and certification of promising new low carbon technologies within new buildings	••
Support training on designing, constructing and commissioning of high performance buildings [3.1.2]		Offer subsidized training on the Energy Step Code for homebuilders, designers and trades, to build competency with advanced envelope and mechanical systems	••
		Continue Richmond's Builder Breakfast engagement with homebuilders, designers and trades, with updates on the City's policies, incentives and compliance requirements	••
		Develop technical training on design, installation and commissioning of heat pump system technology, HVAC integration, and use of existing guidelines	••
		Promote technical bulletins, training sessions and accreditation opportunities offered by BC Institute of Technology (BCIT), BC Housing, Small Planet Supply, Passive House Canada and Zero Emission Building Exchange (ZEBx)	••
Accelerate use of low-embedded carbon content materials in new construction [3.1.3]		Assess policy and incentive options to help drive use of construction materials with low embodied carbon	••
		Introduce reporting requirements on total embodied carbon in new construction projects	•



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### RESOURCES

- Low
- Medium
- High

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>SUPPORT CONTINUOUS IMPROVEMENT TO THE BC ENERGY STEP CODE</b>			
Support ongoing improvements to Energy Step Code regulation and performance standards [3.2.1]		Advocate for improvements (as needed) to existing Provincial Step Code regulations	•
		Advocate for extending the Energy Step Code to other building types not currently covered in regulation	••
		Ensure ongoing Provincial commitment to meet CleanBC efficiency targets for new buildings in BC Building Code: 20% better in 2022, 40% better in 2027, and 'net zero energy ready' by 2032	•
Advocate for adoption of emission intensity (GHGI) targets that local governments can reference in tandem with the Energy Step Code [3.2.2]		Encourage the Province to develop and enact GHG intensity targets within BC Building Code by 2022	•
	 	Participate in a Province-led process to develop recommended GHG intensity targets for the BC Energy Step Code that local governments can choose to adopt	••
Ensure good practices in mechanical equipment design, installation and commissioning [3.2.3]	 	Work with Technical Safety BC and industry associations to help establish mechanical system permitting guidelines and requirements	•
	 	Work with Technical Safety BC to enable City building inspectors to review the records of equipment installations by contractors	•
<b>ADVANCE IMPLEMENTATION OF LOW CARBON ENERGY SYSTEMS IN NEW CONSTRUCTION</b>			
Raise awareness of the benefits of building electrification [3.3.1]	 	Support implementation of recommendations from the Building Electrification Roadmap (BERM) and outreach and awareness through the Building to Electrification (B2E) Coalition	••
Maximize low carbon energy in new construction [3.3.2]		If the Province delays GHGI standards in BC Building Code, provide a two-option approach for all Step Code regulated buildings, with a relaxation in Step level available for buildings connecting to or installing a low carbon energy system (LCES)	•
	 	Develop Energy Step Code and greenhouse gas intensity (GHGI) Bylaw requirements in consultation with local development community, and ensure that information on future requirements is signaled well in advance	•
		Implement Provincial GHGI requirements for new construction when available, and increase stringency of these requirements to near zero emissions by 2027	•
		Review policy options to secure higher energy performance and GHG intensity limits in new developments not regulated by the Step Code during Rezoning or Variance Permit process	•
		Review policy options to secure commitments to install a low carbon energy system at Tenant Improvement stage, during Rezoning or Development Permit process	•



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**RESOURCES**

- Low
- Medium
- High

# IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
Assess the feasibility of using Renewable Natural Gas (RNG) for residual or peak heating needs in new buildings [3.3.3]		Assess future prospects for RNG production, and determine best approach to secure use of RNG during lifecycle of equipment within a building	•
Encourage local availability of low-carbon domestic hot water and space heating systems with a high coefficient of performance [3.3.4]		Partner with other local governments, MVRD and/or Province of BC to provide training on heat pump systems	•
		Consider incentives for purchase and installation of heat pumps in new buildings	•
		Engage Province of BC and heat pump suppliers to advocate for increased availability of higher coefficient of performance (COP) equipment	•

### EXPAND LOW-CARBON DISTRICT ENERGY SYSTEMS

Continue expansion of City's low carbon district energy systems and explore new opportunities outside existing district energy service areas [3.4.1]



Maintain current City policy, and assess potential for shared renewable heating and cooling systems to serve new development in Richmond's Neighbourhood Service Centres

•••



Engage with affordable housing providers to identify challenges and incentives that could be provided with respect to low carbon energy provision

••

**EQUITY OPPORTUNITY**

### IMPLEMENT BUILDING ENERGY AND EMISSIONS PERFORMANCE REPORTING AND DISCLOSURE

Build capacity and momentum for a mandatory energy and emissions reporting requirement for new buildings [3.5.1]



Advocate for a Provincial requirement that owners of larger (Part3) commercial, institutional and multi-unit residential buildings annually measure, report and/or disclose their properties' energy usage and greenhouse gas emissions

•



Partner with other local governments to support voluntary energy and emissions benchmarking and reporting initiatives (e.g. Building Benchmark BC initiative)

••



Report as-built energy performance information for smaller (Part 9) residential buildings built to Energy Step Code requirements, once data on a sufficient number of buildings is available

•



Advocate that the Province implement mandatory home energy labelling at the time of listing properties for sale

•



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Outreach and Education

#### RESOURCES

- Low
- Medium
- High

# IMPLEMENTATION ROADMAP

## MAJOR MOVE FOR 2030

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ENCOURAGE ON-SITE RENEWABLE ENERGY</b>			
Encourage cost-effective on-site renewable energy generation in new construction [3.6.1]	 	Develop a policy and incentive approach to encourage on-site renewable energy, such as solar photovoltaic and solar thermal systems, electric heat pumps, and waste heat recovery with a net positive internal rate of return	• • •
		Promote and distribute information on new building-scale renewable energy systems	•
<b>ACCELERATE ADOPTION OF LOW GLOBAL WARMING POTENTIAL TECHNOLOGIES</b>			
Support local certification of promising new building technologies not yet certified in Canada [3.7.1]		Support local field test of promising new low-GHG technologies within new buildings	•
Encourage Provincial and Federal governments to enact more stringent regulation related to high global warming potential (GWP) coolants and technologies [3.7.2]		Encourage the Federal Government to accelerate the phase-out of high GWP coolants in building mechanical equipment	•
		Encourage the Province to include GWP requirements for refrigerants in the Energy Efficiency Standards Regulation	•
		Support action by the Province to ensure a quick market transition to low-GWP technologies and best practices	•



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### RESOURCES

- Low
- • Medium
- • • High



# COMPLETE COMMUNITIES



## IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>APPLY A CLIMATE LENS AS RICHMOND'S OCP AND LOCAL AREA PLANS ARE IMPLEMENTED</b>			
Assess the impacts on energy use and greenhouse gas (GHG) emissions as new local area plans are introduced, and when amendments or updates are made to the Official Community Plan (OCP) [4.1]		Review leading approaches to utilize data visualization and GHG emissions modelling to inform decision-making on land use and transportation options, and medium-term monitoring of progress toward plan objectives	••
		Integrate greenhouse gas intensity metrics for new buildings and existing buildings, as these are developed and released by Province of BC, and identify target metrics for embodied carbon in construction materials for buildings and infrastructure, in tandem with regional partners	•
		Create a model for calculating trip demand by travel mode to understand the GHG emission impacts of potential land-use options	••
Achieve a net reduction of community GHG emissions as new development occurs and transportation infrastructure is replaced or extended [4.2]		Work with partners to increase awareness and use of transit services, and engage on active mobility infrastructure and travel options to trip destinations	••
		Monitor progress toward climate equity objectives as new development and transportation improvements occur	•
		Assess building energy use, embodied and operation GHG emissions, travel mode changes and emissions avoided as a result of land use changes and transportation improvements	•
<b>ENHANCE CHOICES FOR HOUSING AND SERVICES WITHIN NEIGHBOURHOODS</b>			
Encourage development of compact and complete communities with a wide range of affordable housing options throughout Richmond, as per OCP direction [4.3]		Understand the role of innovative building design and construction approaches (prefabrication), low-carbon energy systems and incentives in supporting improved housing affordability	•
		Facilitate the use of innovative approaches that provide high energy performance, low GHG emissions and climate resiliency in purpose-built affordable housing	••
Determine the land use and transportation policy implications of an increased number of residents working from home [4.4]		Assess local changes in transportation patterns as a result of COVID-19 pandemic, and resultant impact on building energy use and GHG emissions	•
		Review projections of percentage of employees working from home to 2030, and required neighbourhood services and travel options	••

**EQUITY OPPORTUNITY**

**EQUITY OPPORTUNITY**

**EQUITY OPPORTUNITY**



- Policy and Regulation
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- Infrastructure
- Advocacy

- Incentives
- Outreach and Education

- RESOURCES**
- Low
  - Medium
  - High

# ACTIVE MOBILITY FOR ALL



## IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ACCELERATE CITYWIDE USE OF ACTIVE TRANSPORTATION</b>			
Prioritize walking, rolling and cycling as a preferred way to travel in Richmond [5.1.1] <i>EQUITY OPPORTUNITY</i>		Consider opportunities as they arise where traffic lanes could be temporarily closed to traffic during the summer months, and reallocated to pedestrians and cyclists	••
		Consider opportunities as they arise where road space could be permanently reallocated to active mobility (road diet)	••
		Complete work on the update to the Cycling Network Plan for new and upgraded walk / roll / cycle routes	••
		Implement All Ages and Abilities (Triple A) bike lane infrastructure protected from vehicle traffic along major streets	•••
		Review current inventory of public bicycle parking in Richmond, and bring forward recommendations on new bike parking infrastructure where needed	•
		Leverage senior government funding opportunities as they arise to accelerate build-out of active mobility infrastructure within a 400-metre radius of Neighbourhood Service Centres	•••
		Continue to improve existing walkways and sidewalks that are uneven due to growth of adjacent tree roots	•••
Allocate annual capital funding for active transportation infrastructure sufficient to achieve OCP 2041 mode share goal by 2030 [5.1.2] <i>EQUITY OPPORTUNITY</i>		Coordinate active infrastructure investment with anticipated new development, prioritizing connectivity and expansion of active travel routes	•••
		Develop a plan to provide e-bicycle and e-scooter charging opportunities at City facilities and mobility hubs	••
		Consider opportunities as they arise to prioritize active travel infrastructure that connects with regional and provincial-controlled roads and bridges, thereby improving inter-municipal links.	•••



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Outreach and Education

### RESOURCES

- Low
- Medium
- High

# IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>REDUCE BARRIERS TO ACTIVE TRANSPORTATION WITHIN NEIGHBOURHOODS</b>			
Expand existing walking and rolling connectivity within and between neighbourhoods [5.2.1]	 	Review development requirements and urban design guidelines as necessary to ensure streets, lanes, and walk / roll infrastructure are accessible, and easy to navigate for all ages and abilities.	• • •
<b>EQUITY OPPORTUNITY</b>	 	Identify gaps and implement upgrades to existing zero-emission active mobility infrastructure, prioritizing areas within City Centre and 400 metres of Neighbourhood Service Centres.	•
Identify opportunities for creating walking and rolling connections between nonconnecting streets [5.2.2]	  	Accelerate OCP policy to provide new walk / roll pathways between non-connecting streets within neighbourhoods as opportunities arise	• •
<b>EQUITY OPPORTUNITY</b>	 	Consider opportunities for infill multiplex housing or row housing that include provision for new active mobility right-of-ways	•
<b>ENGAGE RICHMOND RESIDENTS ON ACTIVE TRANSPORTATION</b>			
Expand active transportation programs and services (e.g. e-bike and e-scooter services) in Richmond [5.3.1]	 	Partner with organizers to co-sponsor community events (e.g., Car Free Day, Go by Bike Week, Emotive EV test drive, e-bicycle test drive)	•
<b>EQUITY OPPORTUNITY</b>		Continue funding of cycling education classes for the community and Richmond elementary school students	•
		Engage residents and business owners to encourage e-mobility and active travel modes.	•
<b>MAKE ACTIVE TRANSPORTATION THE CONVENIENT CHOICE FOR SHORTER TRIPS</b>			
Ensure supportive land use along frequent transit routes so that active transportation is a convenient choice for shorter trips [5.4.1]		Review current land use and zoning along frequent transit routes for alignment with 'Goal One' in TransLink's Transport 2050 plan, as part of Richmond's Official Community Plan (OCP) review	•
<b>EQUITY OPPORTUNITY</b>		As opportunities arise, implement improved sidewalks, upgraded pedestrian crossings, protected cycling routes, and re-allocation of road space to public-serving and active transportation within these areas.	• • •
Maintain and expand investments in walking, rolling and cycling infrastructure within City Centre and within 400 metres of Neighbourhood Service Centres [5.4.2]			
<b>EQUITY OPPORTUNITY</b>			



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Advocacy



Outreach and Education

## RESOURCES



- Low
- • Medium
- • • High



ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
Maintain and expand investments in walking, rolling and cycling infrastructure within a 400 metre pedestrian catchment zone along Frequent Transit (FTN) routes [5.4.3]		Consider opportunities as they arise to implement improved sidewalks, upgraded pedestrian crossings, and protected cycling routes along FTN routes within 400 metres of these routes.	...
<b>SET PARKING STANDARDS TO SUPPORT SUSTAINABLE TRAVEL OPTIONS</b>			
Establish further reductions for parking space requirements in new development, where appropriate [5.5.1]		Consider establishing a maximum number of parking stalls allowed for new commercial properties within the City Centre Area and Neighbourhood Service Centres, and along Frequent Transit Network	•
	 	Extend current policies to allow further reductions in parking stall minimum requirements in proportion to transit service levels within the City Centre Area and within 400 metres of Neighbourhood Service Centres and FTN routes	•
	 	Review existing policy allowing for deeper reductions in parking stall requirements in exchange for the provision of additional low-carbon transportation demand measures, and adjust as needed	•
Explore options to enable the conversion of parking spaces within existing buildings to support active transportation [5.5.2]		Investigate conversion of parking stalls in existing residential buildings to dedicated space for bicycles and e-scooters, including secure storage	•
		Investigate conversion of parking stalls in existing commercial buildings into dedicated space for bicycle commuting with secure storage	•



EQUITY OPPORTUNITY

EQUITY OPPORTUNITY



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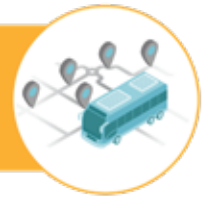
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- RESOURCES**
- Low
  - Medium
  - High



# SUPPORT FREQUENT TRANSIT



## IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ENSURE TRANSIT-SUPPORTIVE LAND USE</b>			
<p>Ensure supportive land use along high frequency transit routes so that transit is a convenient choice for most trips [6.1.1]</p> <p><b>EQUITY OPPORTUNITY</b></p>		Review current land use and zoning along Frequent Transit Network (FTN) for alignment with 'Goal One' in TransLink's Transport 2050 plan, as part of Richmond's Official Community Plan (OCP) review	•
<p>Increase the range of housing types, supply and tenure close to frequent transit [6.1.2]</p> <p><b>EQUITY OPPORTUNITY</b></p>		Ensure mix of land uses, diversity of housing types, tenures and incomes along frequent transit routes (per 'Goal Three' in TransLink's Transport 2050 plan)	•
<b>INCREASE TRANSIT PROVISION AND SERVICE IMPROVEMENTS</b>			
<p>Facilitate expansion of high-frequency local and regional transit service [6.2.1]</p>		Partner with the Mayors' Council and TransLink to secure additional funding from senior level governments for identified transit improvements	•••
<p>Work with TransLink to introduce rapid bus service on frequent transit routes and implement other transit service improvements identified in the Southwest Area Transport Plan [6.2.2]</p> <p><b>EQUITY OPPORTUNITY</b></p>		Work with TransLink to support accelerated implementation of transit service improvements in Richmond as identified in TransLink's Southwest Area Transport Plan (SWATP)	•
<b>ENCOURAGE HIGHER TRANSIT RIDERSHIP</b>			
<p>Reduce barriers to transit by investing in supportive, accessible, people-friendly infrastructure [6.3.1]</p> <p><b>EQUITY OPPORTUNITY</b></p>		Continue to install transit shelters at bus stops with daily average boarding greater than 25 passengers, prioritizing Frequent Transit Network routes	••
		Work towards 100% of bus stops and connecting pedestrian facilities being wheelchair accessible	••
		Define sustainable travel services and infrastructure that would be available to transit riders at Mobility Hubs in Richmond, and synchronize funding of Hub infrastructure with transit service improvements	•••
		Implement street improvements such as connecting pathways, accessible crosswalks, wider sidewalks, and cycling connections to support transit ridership	•••



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### RESOURCES

- Low
- Medium
- High

# IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>SUPPORT TRANSITION TO 100% ZERO EMISSION TRANSIT</b>			
Expand battery electric bus service and implement e-bus charging facilities within Richmond [6.4.1]	 	Work with TransLink on to implement the 2050 Low Carbon Fleet Strategy to advance battery electric bus service in Richmond	•
<b>ENGAGE RESIDENTS ON TRANSIT SERVICE AND MOBILITY HUB IMPROVEMENTS</b>			
Engage residents on transit service and mobility hub improvements and benefits [6.5.1]  <i>EQUITY OPPORTUNITY</i>	 	Encourage TransLink's TravelSmart outreach team's continued participation in local community events	•
	 	Build local awareness of Mobility Hub benefits for public EV charging, access to car sharing, cycling and walk / roll infrastructure, and seamlessly integrated with transit	••
	 	Promote the benefits and necessity of the transit system in meeting our social, economic and environmental objectives, and re-establish confidence in safety of the system as the COVID pandemic recedes	•



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### RESOURCES

- Low
- Medium
- High

# ENHANCE GREEN INFRASTRUCTURE



## IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>EXPAND RICHMOND'S URBAN TREE CANOPY</b>			
Achieve a robust, long-term urban forest on public and private land [7.1.1] <i>EQUITY OPPORTUNITY</i>		Implement the Public Tree Management Strategy 2045 (adopted by Council, November 2019)	•••
		Develop a city-wide urban forest management strategy for private land, as part of Richmond's Environmental Management Strategy	••
		Consider an incentive framework to encourage tree planting and retention on private urban lands within Richmond	•
<b>PROTECT EXISTING STOCKS OF SEQUESTERED CARBON</b>			
Implement citywide strategy and actions to preserve Richmond's natural carbon stores [7.2.1]		Identify policy and regulatory options to protect carbon already stored within Richmond soils, peatlands and urban tree canopy, and investigate additional sequestration opportunities.	•
		Maintain and enhance water table levels on City-owned central wetlands to preserve carbon stored in peat soils, partnering with the Federal Government and Province of BC.	•••
		Implement an outreach and education campaign to protect carbon in soils, increasing resiliency for agricultural landowners, in partnership with other organizations.	••
		Advocate for a stronger policy mandate over carbon sequestration within agricultural lands (e.g., authority to designate Environmental Site Assessments on agricultural land).	•
		Promote the value of central wetlands, Sturgeon Bank, and Richmond's urban tree canopy as long-term carbon storage using natural systems.	•
<b>PROMOTE SUSTAINABLE REUSE OF SOIL AND WASTE BIOMASS</b>			
Promote sustainable reuse of soil and waste biomass [7.3.1]		Consider opportunities to use agricultural waste as biomass fuel, collaborating with the Agricultural Land Reserve (ALR) Commission and Kwantlen Polytechnic University.	•
		Assess potential to preserve Richmond soils for use as future agriculture, in partnership with developers and landowners.	•



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### RESOURCES

- Low
- Medium
- High

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>PLAN NOW TO SCALE UP CARBON SEQUESTRATION AND OFFSETS IN RICHMOND</b>			
Develop strategy to achieve up to 200,000 tonnes of CO <sub>2</sub> equivalent sequestration annually by 2050 [7.4.1]		Assess the ongoing carbon sequestration capacity of Richmond's Ecological Network, including the Sun Hor Lum Conservation Area and the Garden City Lands, as contributions toward the 2050 annual carbon sequestration target	• •
	 	Review options to sequester carbon using current and enhanced land management approaches in BC, and identify areas where Richmond could generate additional carbon offsets from land management. Derive the cost-per-tonne for emission credits	• • •
	 	Assess current and projected performance of emerging technologies, including direct air capture, to offset large amounts of carbon, and derive the cost per tonne for emission credits	• •



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### RESOURCES

- Low
- • Medium
- • • High



# TRANSITION TO A CIRCULAR ECONOMY



## IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ADVANCE IMPLEMENTATION OF CIRCULAR ECONOMY INITIATIVES BY CITY OF RICHMOND</b>			
Integrate Circular Economy principles into the City's corporate plans, processes and standards to lead by example [8.1.1]		Integrate product footprint analysis and life-cycle assessment into the City's procurement process	•
		Incorporate circular economic thinking into City project development and operations management, with the goal to 'design out' waste and pollution	•
		Transition the City's product and service suppliers to utilize a circular approach in their business model	•
		Analyze material flows to improve utilization and longevity as part of minimizing embodied energy in products and materials that the City uses	••
		Increase proportion of recycled and reclaimed materials used by the City, to help drive the market toward a circular economy	••
		Provide additional space at City facilities for end-of-life sorting and reprocessing of products and materials	••
		Stimulate regional innovation through pilot demonstration projects, incubators, and showcasing leading solutions by businesses and organizations	••
<b>SUPPORT IMPLEMENTATION BY RESIDENTS</b>			
Inspire residents to participate in the Circular Economy and accelerate demand for products derived from circular processes [8.2.1]		Engage and educate the community on the need to transition toward a circular economy	•
		Support take-back programs that enable residents to return products or materials at end-of-life	••
		Encourage use of products derived from renewable materials, contributing to efficient use of sustainable natural capital	•
		Improve public awareness of best practices to prevent food waste, and support transition away from single-use plastic	•
		Enable innovation by local students in discovering new opportunities to apply a circular approach on material consumption and waste generation	•
		Create a City of Richmond Ideas Forum to stimulate innovation by exchanging knowledge across sectors and between organizations	••

**EQUITY OPPORTUNITY**



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### RESOURCES



- Low
- Medium
- High



# IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>SUPPORT IMPLEMENTATION BY BUSINESSES</b>			
Accelerate adoption of Circular Economy approaches by the private sector in the design, manufacture and retooling of products and services [8.3.1]		Create a 'model guide' for reducing food waste to be included with local business licenses and permits	•
		Encourage local businesses to adopt circular approaches, such as [refuse, reduce, re-use], [repair or re-manufacture] and [re-purpose or recycle]	••
		Enable sharing of products and assets to maximize use and longevity, enhance productivity and create value	••
		Develop a waste by-product tracking database for local firms with online tools for recovering and reusing products and materials through closed loop recycling, industrial symbiosis initiatives and upcycling	•••
		Implement a promotion and engagement program to drive circular innovation and create new business opportunities within the Richmond market	••
<b>TRANSITION TO LOW EMBODIED CARBON CONSTRUCTION MATERIALS</b>			
Accelerate the use of construction materials with low embodied carbon content [8.4.1]		Implement a requirement to report embodied carbon content of materials used in new buildings (reported at Building Permit)	•
		Develop a technical guide showing embodied energy and carbon in typical construction materials used in buildings	••
		Participate in regional efforts to develop embodied carbon targets for all new building archetypes, and disclosing the level of embodied energy and carbon at project completion	••
		Lead by example and showcase a low embodied carbon approach in the design and construction of a new City of Richmond building / facility	•••



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- RESOURCES**
- Low
  - Medium
  - High

# ADDITIONAL ENABLING ACTIONS

## IMPLEMENTATION ROADMAP

ACTIONS	TOOLKIT	IMPLEMENTATION	RESOURCES
<b>ENSURE REGULAR PROVISION OF MUNICIPAL GREENHOUSE GAS EMISSION INVENTORIES</b>			
Increase Provincial resources to provide annual or bi-annual reporting of municipal greenhouse gas inventories for all local government jurisdictions in British Columbia	 	Partner with other local governments to assess efficiencies and net cost savings of regularized Community Energy and Emissions Inventories	••
	 	Advocate with partners for increased Provincial resources to enable annual GHG emission inventories for local governments	•
<b>ENABLE REGION-WIDE DELIVERY OF CLIMATE ACTION PROGRAMS</b>			
Extend the mandate of Metro Vancouver Regional District (MVRD) to enable cost-effective, regional delivery of climate action programs, in cooperation with member municipalities	 	Develop a service establishment bylaw empowering MVRD to deliver climate action programs on behalf of member municipalities	••
	   	Advocate for adoption of the service establishment bylaw by the MVRD Board	•
<b>REDUCE EMISSIONS FROM PORTABLE GENERATORS AND GAS-POWERED EQUIPMENT</b>			
Assess program, regulatory and technical options to encourage transition from fossil fuel-powered generators and handheld equipment to zero emission electric power	  	Advocate for MVRD to implement policy measures reducing emissions from electric generators and gas-powered equipment, including phase-out of gas-powered equipment.	•
	 	Assess City's role in advancing mobile battery power units for off-grid applications where gas or diesel electricity generator are used (i.e. movie shoots)	•
<b>ENSURE PROVINCIAL COMMITMENT TO 100% CLEAN ELECTRICITY DELIVERY STANDARD</b>			
Advocate for a clean electricity delivery standard to guarantee grid electricity with a reliable zero-GHG emission intensity no later than 2030	 	Ensure that the actual GHG intensity of BC grid electricity and the Provincial grid intensity factor used for emission calculation and reporting are equivalent.	•
	 	Advocate for Provincial adoption of the 100% clean electricity delivery standard as early as possible, maximizing the GHG reductions achievable through electrification.	•



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### RESOURCES

- Low
- Medium
- High





2050 | COMMUNITY ENERGY  
AND EMISSIONS PLAN



# 2021 Let's Talk Richmond Public Engagement SURVEY RESPONSE REPORT





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# INTRODUCTION

To support the third and final phase of public engagement on Richmond's new Community Energy and Emissions Plan (CEEP) 2050, the City conducted an online campaign that ran from August 17 to September 26, 2021. The purpose of the consultation was to gain public and stakeholder input on proposed climate change mitigation actions within eight strategic directions within the Plan.

City staff developed a survey hosted on the Let's Talk Richmond online platform that coupled recognizable iconography, and local photo imagery for each of eight CEEP 2050 strategic directions that set the action framework for the new Plan. In addition to demographic information and staying involved through subscribing to the City's Climate Action eNewsletter, the survey asked participants one scaled question, and one open-ended question for each direction.

To promote the survey, staff placed QR-coded posters with business cards in community centres, ice rinks, pools and libraries, as well as City Hall elevators and transit shelters during the six-week campaign. As a response to COVID-19 health protocols, opportunities for direct, in-person engagement was not possible during the consultation period. As a result, staff focused on promoting online awareness of Let's Talk Richmond engagement campaign, with nine, animated videos: one for each of the strategic directions, and an introductory video. These videos were posted on the City's social media channels and were also streamed the on City television monitors inside community centres and recreation facilities.

Overall, social media posts related to the CEEP 2050 garnered the following views and reactions:

- » Facebook: 10 posts garnered 10,636 impressions
- » Twitter: 13 posts garnered 12,108 impressions
- » Instagram: 2 posts garnered 1,369 impressions



# RETROFIT EXISTING BUILDINGS

## STRATEGIC DIRECTION 1 SURVEY RESPONSES



# RETROFIT EXISTING BUILDINGS



## CARBON REDUCTION TARGETS

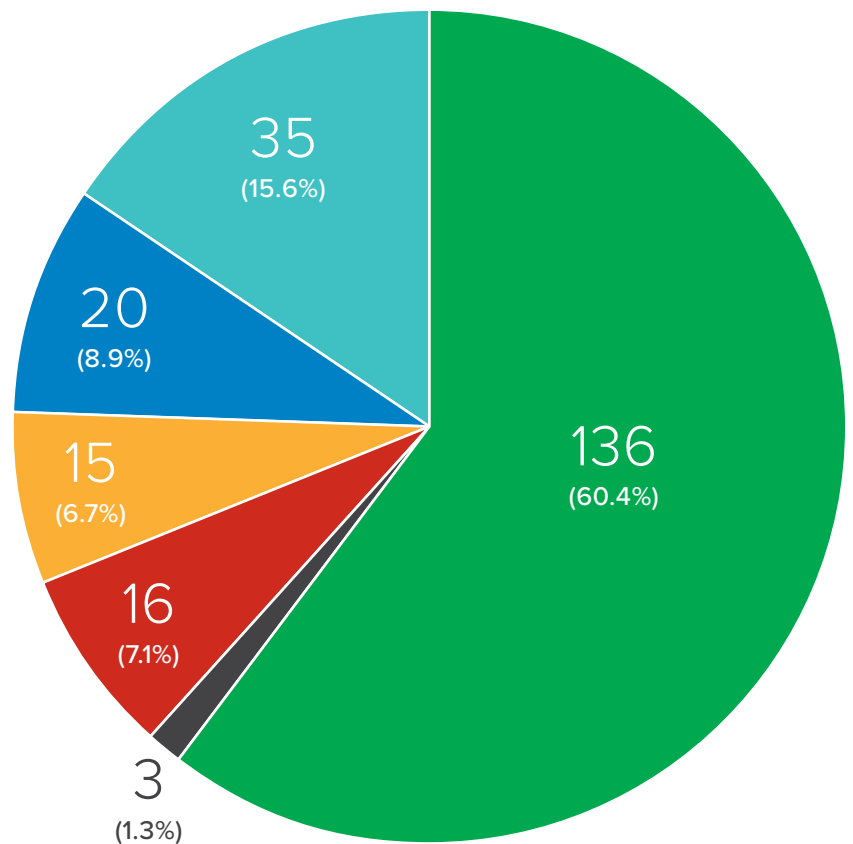
### 2030 TARGET

Achieve 70% reduction in GHG emissions from buildings representing 33% of Richmond's total building emissions in 2017.

### 2050 TARGET

Reduce GHG emissions from buildings built before 2018 by a further 28%, and reduce GHG emissions from buildings built between 2018 and 2030 by 21%.

## Q1: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

225 Responses total

## Q2: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO RETROFITTING EXISTING BUILDINGS?

1	Leave existing buildings alone and not spending additional tax dollars in this area.
2	When retrofitting, preserve or add green space that can further sequester carbon.
3	Start with every multifamily housing project, any residential structure with pools, etc.
4	Green roof, walls and more trees to provide more oxygen.
5	These solar panels ARE NOT RECYCLABLE MATERIALS and need to be replaced often.
6	Nothing! Update the building code for new buildings..leave the existing one alone. We're not made of money!
7	Change the building code to require solar and energy storage on ALL new houses Eliminate the use fo gas fires heating in all new buildings in Richmond....heat pumps. Eliminate garages for more than two cars in a single family home Allow large single family lots to be subdivided to allow building of more homes on the same land - this will allow the use of transit.
8	Make it easier (less red tape) and advertise the ways the city will help.
9	Heat pump/ac retrofits and two layer windows to keep l'm heat and save on energy.
10	Windows, insulation, chimney gates, draft elimination.
11	Support retrofitting of multiglazed windows and attic insulation of older houses. that's it.
12	Community Centers, Malls, sports centres.
13	More flexible zoning to allow modification for regulated densification.
14	Adding capacity for electric vehicle charging.
15	Allow for entire roofs to be used for solar panels. Allow for extra energy to be put back into the grid. Retrofit or modify existing roofs and building sides to be painted white to reflect sunlight. Upgrade AC units to low energy units with eco-friendly coolants. Upgrade washrooms to be touchless (saves water).
16	First, there should be a cost/benefit analysis done on retrofitting vs. building new. There are some great new technologies available that should be investigated. Look at Tesla Ener gy products such as their Solar and Megapack combos like what was installed in Australia and California, and soon Texas.
17	Encouraging business and homeowners to retrofit solar panels onto roofs, siding and garage doors.
18	Consider policy regarding multi-family older city center located buildings requiring mentioned refits. Present development trends will negate the need to upgrade older (30+ yrs).
19	<ol style="list-style-type: none"> <li>1. City incentive for installation of at home/apartment/co-op/condo electric vehicle charging station(s).</li> <li>2. City incentive for in home/apartment/co-op/condo water control valves for sinks (bathroom and kitchen).</li> <li>3. Determine and advertise the best carbon capture trees to plant in our yards in light of the expected temperature increases over the next decade or two...hopefully fruit bearing!</li> </ol>

## Q2: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO RETROFITTING EXISTING BUILDINGS? (CONTINUED)

20	Maximum use of solar panels.
21	Do not increase the burden on taxpayers.
22	Need to consider cost of maintenance and also the look of the retrofit.
23	Provide information and incentives but do not mandate.
24	A heat pump incentive by the City in combination with the plan offered by BC Hydro would greatly increase interest in the retrofit of existing electrically heated homes.
25	Nothing that I can think of that you have not included in the plan.
26	EV charging.
27	All buildings build from now and on to have geothermal, older buildings retrofit for solar panels. Street lights facing down all led lighting and solar. All city energy should be source by solar panels. Cars and trucks etc should be electric.
28	Building envelope studies and improvements. Funding for solar PV installation to offset electric heat pump added costs. Electric heat pump and electrical service upgrades, including support for Level 2 chargers. Battery back-up to provide stand-by power for up to 1 week, possible selling power back to grid.
29	Change from natural gas hot water to electric.
30	Utilize river currents to generate energy.
31	Good suggestions to the owners of the existing building, but let the owners make the choice.
32	Is it possible to map or visualize the age of existing buildings so we get a better sense of their installations and facilities in order to target them first?
33	It seems these actions are aimed toward larger buildings, I was thinking maybe there could be more incentives for individual home owners who might have more barriers to home renovation to apply retrofits to their houses.
34	Lobby for changes to the building code where the City would have retroactive power to improve energy efficiency in current buildings.
35	We need to do everything we can to address the climate crisis.
36	Older Buildings that have Solar Panels Installed especially Condos that have large roof presence would benefit the electrical grid in the future.
37	Link incentives to a cost -benefit analysis that proves an economic investment as well as a reduction in emissions.
38	My most important concern is how we can get start immediately in new construction to build net zero. This can be done very fast if council act and force construction industry. For example electric solar panels and heat pumps .considering the total construction cost of the house and adding these two things is very low. Few things are very important to consider what ever we are doing today and how we will deal with the end of life of that system.

## Q2: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO RETROFITTING EXISTING BUILDINGS? (CONTINUED)

39	If there that old build new. Do not waiste our money on old junk.
40	This "plan" is absolute garbage. 92% of the solar panels sold in Canada are made by slave-like labor in China, while causing uncontrolled environmental damage. Buying these panels supports CEEP 2050 Survey : Survey Report for 07 June 2010 to 28 September 2021 Page 6 of 146 the evil Communist politics, and the environmental destruction. When the panels are replaced, there is no recycling capability so they disposed in the landfill where they release clouds of lead poisoning so toxic that it causes neurological damage. LOOK IT UP> GOOGLE THESE FACTS>
41	I think requiring green energy improvements for new buildings is fine. Retrofitting existing buildings would be expensive and disruptive - likely driving up the cost of housing and rents which is already difficult for many.
42	I think looking at sustainable energy options such as solar for commercial businesses that want to supplement their energy needs would be helpful and incentives related to these retrofits would be helpful. Offering options to the residential market would be of personal interest too.
43	The city may need to provide detailed feedback to homeowner/building managers about their total GHG footprint (right now this is divided between BC hydro and Fortis reporting).
44	Not sure the expense will result in energy savings.
45	Make sure you are not wasting money and contractors don't rip you off. Myself as Taxpayer would not be happy if that happens.
46	Make it mandatory.
47	Use recycled materials wherever possible and carbon-neutral materials such as carbon-neutral steel and carbon-neutral concrete. Manufacturing these materials emits a huge amount of greenhouse gases.
48	Keep the initiative as a incentive approach, not a penalizing approach; there are still many barriers to attain the goal, we don't want to have a system that is hassle to residents, businesses or anyone involved.
49	Increase bike parking options and charging stations for electric vehicles.
50	We need a smarter grid that even older retrofitted buildings can begin to connect into so that we can have better ideas of how much we are using and where we can make improvements. But part of the problem is also what we are doing with old housing. I see so many duplex's in my neighbourhood getting torn down and rezoned into 2 single family homes. This is a huge waste and not at all helping either our climate or housing related goals. When discussing retrofitting we should also discuss what happens to buildings at the end of their life and what they are replaced with. We need to legalize building quadplexes on any SF lot and allow for low-rise condo's in any part of the city with sufficient access to transit.
51	Educate public on environmental impact of retrofitting buildings.
52	Introduction of incentives for heat pumps are critical to slowing the purchase of various conventional air conditioners. Development of online tools to assist consumers in choosing the appropriate type of heat pump, and estimating the long-term costs (or savings) of heat pumps vs. natural gas for heating, and vs. conventional A/C for cooling.
53	Perhaps where roofs don't support solar panels we look at green roofs (grass) there to benefit the environment.

## Q2: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO RETROFITTING EXISTING BUILDINGS? (CONTINUED)

54	2050 sounds way too late, should be more aggressive with approach for our dying planet.
55	2050 too late.
56	This needs to be highly subsidized by the federal and provincial governments. And always kept as a choice by the property owner. No authoritarian mandates.
57	Please ensure building materials protect against extreme heat events, such as that experienced in late June / early July 2021.
58	Perhaps cover certain commercial building roofs (based on energy consumption?) with grass, to reduce heat impact while providing oxygen & absorbing CO2.
59	Look into feasibility of wind energy for areas near the water that are always "breezy" Allow homeowners opportunities to assist in testing possible new technologies.
60	Retrofit buildings to use less energy and be more efficient, which will lower emissions and costs for the public.
61	More buildings need secure bike parking for residents as well as visitors.
62	propose very clear direction to homeowners with a fully worked out Richmond example(s) with great ROI and lowest possible outlay...complete with a list of recommended suppliers... dont expect 50,000 homeowners to do that sort of homework.
63	Would be good to be able to harness any extra energy to be used to charge vehicles or share.
64	Moving away from natural gas as an energy source.
65	Monetary incentive for private homes.
66	Need to incentivize landlords, who don't usually pay utility bills.
67	Incentives or help to improve insulation and air quality in residential buildings, strata property, and rentals. Strong incentives for private landlords to implement energy efficient upgrades, especially heat pumps and air quality improvement.
68	Don't just focus on the capital improvements. You should also consider operational changes/education that focuses on occupant wellness.
69	Greater attention to home affordability and equity issues.
70	Need for better insulation, improved ventilation for future pandemics.
71	City to provide incentives to support homeowners to install energy efficient systems.
72	I think it is important to retrofit and not to take down old buildings.
73	Insulation and solar panels.



## Q2: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO RETROFITTING EXISTING BUILDINGS? (CONTINUED)

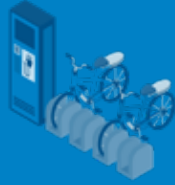
74	I would assume a retro fit includes "waste water" utilization.
75	More assistance for residents who wish to do retrofits, like how to find qualified contractors.
76	Better doors/windows to reduce loss of thermal energy, tankless water heaters, LED lighting, plant trees to provide shade.
77	Negotiate with BC Hydro on being able to sell excess energy back to the grid at the supplied cost.
78	None it will make no difference to the world climate.
79	More plants overall. They make people happier and helps the earth as well!
80	Charging stations.
81	Some buildings too old to bother. Ultimately it needs to be subsidized go get owners to invest in equipment. End of life equipment waste should be thought through, not just shipped off to another country.
82	Protect existing housing from roof shading by large structures in existing neighbourhoods.
83	Ensure that low income folks are not unfairly penalized by retrofit requirements. Prevent renovations in this process. Most importantly, ensure all new buildings are carbon neutral so you don't build yourself costly problems while working to retrofit older buildings.
84	Using solar panels are not a wise investment. We do not get enough sunlight here, using batteries to store energy is not efficient and when these solar panels need to be replaced, you cannot recycle them.
85	Cut the building code red tape. Allow rooftop solar with no restrictions and no permit.
86	Introduce carbon taxes and add solar panels.
87	Green gardens on rooftops to help absorb green house gases and control run off.
88	None. There is no "Climate Crisis."
89	Grants and advice will have to be made available to people.
90	Make sure to add a way to cool tenants as climate change is accelerating and worsening climate events like the heat dome we had.
91	Sorry I don't know what else could be done.
92	None...not your mandate!
93	Rooftop gardens.

## Q2: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO RETROFITTING EXISTING BUILDINGS? (CONTINUED)

94	Make licensing solar easier. The restrictions put on place by BC Hydro make it extremely difficult to install solar. Ease of licensing on small DIY systems for example. There used to be a path to allow home owners to install their own systems but that is now impossible.
95	Work towards refurbishing or deconstructing buildings rather than demolition, homeowner incentives.
96	More solar panels.
97	Encourage double (triple) glazing and other energy and acoustic/vibrational damping improvements especially for resident in close proximity to the airport. "Passive House" goals/standards for existing (retrofits) and future housing.
98	That all new buildings be climate control friendly.. Better sooner than later.
99	Working with other municipalities so work isn't replicated.
100	All new residential and commercial buildings undergoing >\$50K per annum renovations must be pre-wired for solar / wind panels and electric vehicle charging. Setting a sunset date for natural gas heating, cooking, fireplaces.
101	Single-family homes to retain use of hot air, natural gas furnace systems and to couple those with mechanical heat pumps. Working in the housing industry, properly insulated homes utilizing these systems are energy-efficient providing greater comfort at lower costs for homeowners. Since mechanical heat pumps lose efficiency at approximately 7 degrees celsius, the lower cost of hot air, natural gas furnaces provide better comfort for home owners at lower cost vs electric baseboard. Geothermal in Richmond is inconsistent and expensive - not an affordable option for either retro-fitting or operating in resident's single-family homes.
102	Reduce red tape. Start by looking to other municipalities on hire things are being done instead of reinventing the wheel each time. If they know what worked and what didn't work and why we would speed up all these decisions. I speak as someone who spent 1 year to be able to put up solar panels when other municipalities were already doing this.
103	Add solar panels.
104	All property owners in the commercial and industrial sectors must retrofit their existing buildings as well - make this a condition of business licenses - all new buildings must do better than 2018 or 2021 codes and be net zero now!
105	Energy saving windows and that's it.
106	Whatever would reduce energy costs. The budget is the most important. There is only so much money the average person can pay in taxes.
107	Ensure that buildings that opt in have the necessary funding/budgeting for proper maintenance of equipment. Ensure there are service providers available that are capable of performing inspections/maintenance.
108	It boils down to cost and city incentives to help with these costs.
109	Roof top gardens, that extend to the balcony's of every unit should be considered. The future to home improvement would be ideal if it were to include the growth of our own food.
110	Worthy of the above proposals: follow up, follow up to totally execute the works!

## Q2: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO RETROFITTING EXISTING BUILDINGS? (CONTINUED)

111	Do it.
112	Incorporation of more rain capture systems to lessen peak usage of our water supplies during summer. Incentives for alternative energy sources.
113	STOP pulling down existing housing! This is happening all over Richmond as we speak! If no retrofitting to take place, then when the house comes down at least charge the owner a good sized fee for recycling the product from the tear down and make sure it does not end up in a farmers' field to be buried as landfill as has often been the case, sometimes like our old growth trees perhaps perfectly good homes that could be retrofitted, these homes/buildings should be fiercely protected and stop with the vertical density and if it continues do not allow foreign ownership by way of bulk buying and then leaving the units empty, even if we have a vacancy tax, it does not mean that owners will honestly report it, Richmond Bylaws are overloaded as it is with other issues.
114	Nice words, but seemingly without any cost estimates. I live in a condo building with a geothermal exchange system. This 'modern utility' was marketed as green, efficient, always available, etc. In reality, it is some of those things and more than double the cost of my previous home heating and cooling. Let's see some numbers. I believe there is also growing evidence that solar panels are not green or sustainable to manufacturer, and have little potential to replace a meaningful amount of energy supply. I believe there is more bang for the buck elsewhere.
115	Try to save as much of the original buildings as possible. The characteristics of some of the older buildings should be kept.
116	Let building owners decide what is best for them based on needs and budget.
117	PACE financing, looking at other efficiencies than heating/cooling to increase resiliency of housing stock (ie, keeping in mind future water shortages, sea level rise, extreme weather events).
118	More solar energy.
119	Set quantitative targets as far as number of retrofits and emissions reduced through the program. Report annually on progress.
120	Include incentives and reduced Building Permit costs to enable building envelope upgrades, based on energy savings shown by accredited energy modeling.
121	Provide incentives in the form of rebates to motivate the community to act together.
122	Update ventilation systems as well as power systems.
123	Retrofit roofs to support both green roofs and solar panel installations.
124	Make sure all buildings have sufficient parking that has accessible power for EV cars.
125	More Solar power with battery packages on the massive parking lots. More Tesla cars are shown in Richmond, if there is power shortage for any cause, at least those car owner will not be stuck for long.
126	Don't lose the character of neighbourhood (e.g. Steveston) when retrofitting.



# TRANSITION TO ZERO EMISSION VEHICLES

## STRATEGIC DIRECTION 2 SURVEY RESPONSES

# TRANSITION TO ZERO EMISSION VEHICLES



## CARBON REDUCTION TARGETS

### 2030 TARGET

Reduce GHG emissions from light-duty vehicles 50% below 2017 levels.

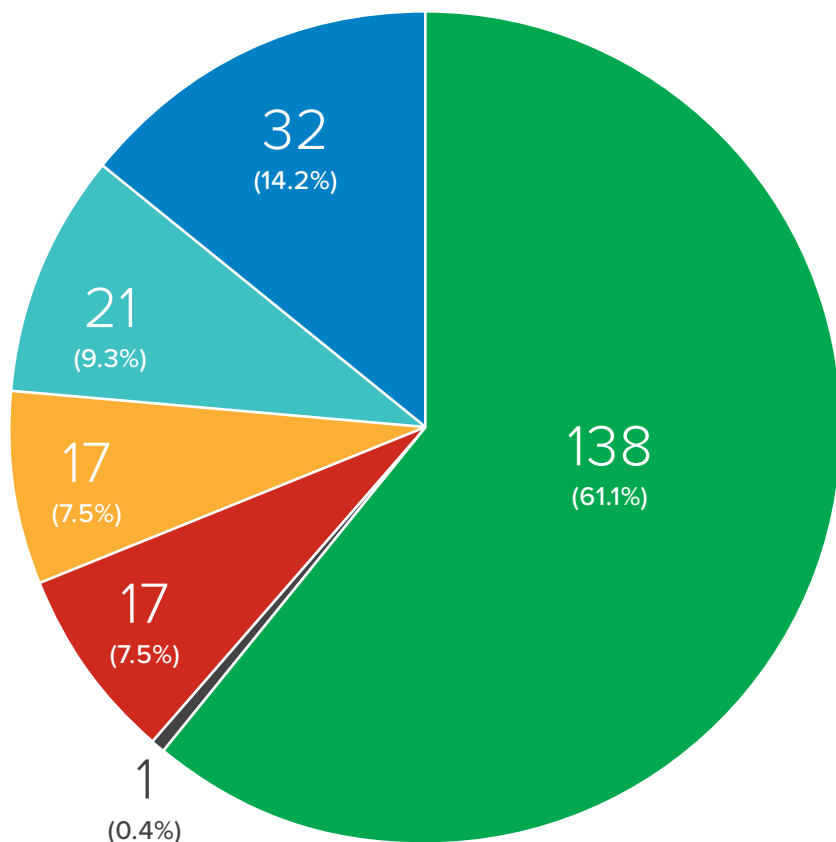
Reduce GHG emissions from heavy-duty vehicles 33% below 2017 levels.

### 2050 TARGET

Reduce GHG emissions from light duty vehicles to 5% of 2017 levels.

Reduce GHG emissions from heavy duty vehicles to 13% of 2017 levels.

## Q3: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

226 Responses total



## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES?

1	Increased access to transit and increased walkability.
2	City should not spending tax dollars in this area? But instead allow third party provider to install, maintain and upgrade charging stations with out cost to city. provider can charge a reasonable rates for users of the charging facilities.
3	Create incentives for businesses within the municipality to install charging stations in their private parking lots.
4	Add gas tax to every fossil fuel powered vehicle asap.
5	Require all new housing to install charging outlets.
6	Start charging people for the electricity they use.
7	Stupid idea! Current battery technology only has 1/100th the energy density of gas. Perhaps new batteries will arrive in 50-100 years.. but it's currently a non-starter.
8	Ban new gas stations and do not allow gas stations to add new pumps Require all new commercial buildings to add EV chargers. Electrify the City fleet. NO purchase of new ICE vehicles. On street parking spots for EVs only (premium spots) Congestion charge for ICE vehicles in the city centre or no ICE vehicles in the city centre form 08:00am to 4:00pm.
9	The cost of Public charging can be expensive. I would like to see discounts for those who have no other means of charging.
10	Zero emission vehicles are a pipe dream.
11	A tax credit for EV automobile owners.
12	Have a plan to supplement lost income from tax on gasoline.
13	Please encourage homeowners to add charging stations to their homes via a tax credit or break. Please encourage people to buy electric vehicles with a tax credit or break. Encourage people to trade in their non electric vehicles for recycling and reuse.
14	More BEV charging stations in more locations. Financial support for the installation of chargers in public & private areas. BEV's are the way of the future. Tesla will be producing 20 Million electric cars by 2030, and increasing 50% every year afterwards. BEV's will need support infrastructure in the grid to support charging. Installing Tesla Solar & Battery Storage Megapacks will aid the grid in supporting the increased use of electricity throughout Richmond. I frequently drive past the Tesla SuperCharger in the Bay parking lot, it is almost always at capacity. At the same time, the two generic charger stalls at Minoru Park are rarely in use.
15	Both a carrot and stick approach is needed to encourage the use of physically smaller vehicles and discourage the use of physically larger vehicles.
16	I live in an old building with no charger and a strata that hates change. Since the city started charging at their charge point stations it is much easier for me to access a public charger and I am happy to pay a service fee. When these were free they were monopolized by those who (evidently) had access to home charging, but were taking advantage of the free charge.
17	Ensure that EV are levied a transportation infrastructure maintenance tax like gas powered vehicles are.

## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES? (CONTINUED)

18	The EV industry, in time, will improve the range per charge and battery life. Residential charging stations will be demanded as society completes the change over.
19	City encouragement of Level II retro charging station implementation(s) in homes.
20	Fast charge EV stations for vehicles throughout Richmond, this will encourage purchase of EV.
21	This needs to be paid by EV owners.
22	The major problem is the rise in cost of electricity. Major investments should be made to increase power production and reduce cost in BC.
23	Provide incentive programs for private homes who install ev stations e.g. reduced property taxes.
24	To mandate all stalls must be able to charge EV adds costs to each development that get passed onto the consumer. its a nice idea but the costs may outweigh the benefits.
25	Nothing that you have not included in your plan.
26	The direction right now is also hydrogen cars; I believe we need to focus on both EVs and Hydrogen-powered vehicles.
27	Include e-bikes and car-share vehicles in existing and new residential.
28	Mandate existing buildings to include capacity to install Level 2 chargers, especially in townhouses and condo complexes. Use solar PV and battery back-up to help offset the cost of electricity to charge EVs.
29	Provide incentives to plug in hybrid owners by changing the fee structure to 1 hour of free and after that they have to pay but make the fee reflect the actual cost of the electricity.
30	Install more charging stations.
31	For new buildings only.
32	1) Under expanding EV infrastructure on private property, what about commercial spaces and malls in particular? 2) Related to 1), strip malls and parking spaces take up a significant portion of space in the Richmond core. What is the City of Richmond's plan to amend bylaws to reduce minimum parking space requirements esp. in denser parts of the city?
33	These actions reduce the barriers for adopters of zero-emission vehicles, but I think that further programs should be added to incentivize current internal combustion engine (ICE) vehicle users to switch to zero-emission vehicles, especially those who don't plan to purchase a new vehicle in the upcoming time frame. Maybe programs that trade-in or retrofit ICE vehicles?
34	The best zero emission vehicle is a person not using a car at all. The City should start to organize our streets so that walking and biking are recognized as legitimate transportation. In Richmond today, the reality is that such modes of movement are more or less some kind of recreation secondary to the free flow of automobiles.
35	It is important to transition to zero emission vehicles.
36	Firstly, Battery caused fire . It has to be fixed. Example of California couple's fire case.

## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES? (CONTINUED)

37	Increase availability of fast charging stations in different parts of Richmond.
38	Have consistent and large rebates for consumers to apply for and advertise for to get awareness out to move to EV vehicles.
39	Ensure the emissions from scrapping gas powered vehicles are accounted. Ensure EV owners pay their fair share of road taxes.
40	All EV manufacturers should be responsible to recycle batteries at the end of life of the car otherwise we are going to create very serious disaster.
41	Cooperate with Translink on infrastructure fitting should they decide to transition to zero emission vehicles.
42	Zero emission vehicles (electric cars) are no panacea. 4,000 lb vehicles will always take lots of resources to build and operate. Low-impact / energy options come from other mode and if transport - mass transit, cycling, etc.
43	Stop all money to fund this project. Let user pay like car owners pay.
44	The gross stupidity of EV is astounding. The materials are mined by children by hand in the Congo and the plains of Bolivia where massive environmental destruction occurs that cannot be restored for centuries. The freighters that ship the raw ore around the world emit as much pollution as ONE MILLION cars every day they are on the sea. EV cars are known to spontaneously EXPLODE, and create fires which cannot be extinguished. 54,000,000 TONS of ewaste are deposited in the third world EVERY year, poisoning the water and food. After 40 years in the marketplace and 500 models worldwide they have never broken 2% market share, with even 24% of all EV owners in California trading them in for fuel vehicles. Richmonds EV plug-in policy is more stupidity beyond comprehension when the overall environmental impact is considered.
45	Many existing buildings do not have the power infrastructure to permit a massive change to EV charging stations. In our condo that has 200 units we can put in about 10 using the existing power transformer and system. Subsidies or some kind of long term financing may be required to implement this transition.
46	All vehicles owned by the city should be zero emission by 2025.
47	Any advantage to support this including green vehicle parking and other civic incentives would help influence people to go greener when we have so many multiple vehicle households.
48	I live in Steveston. I live near Chatham Street I believe the city needs to take a strong stance with Translink to diesel buses to BEV for use in Richmond, specifically for vehicles that will be terminating their routes in Richmond. Priority should be given to delivery services that use BEV technologies The City of Richmond needs to push to use more BEVs in their fleets.
49	What is the cost of the alternate energy? Using batteries and charging them. How will used batteries be disposed of?
50	Giving free or discounted parking rates for lower costing electric vehicles. Those possibly can not afford electric but are making an effort to go green. Charge more for luxury vehicles.
51	Better recycling of lithium batteries; we are trading problems burning fuel with problems mining rare earth minerals in under developed countries with poor human rights and no environmental protections. Make car sharing easier, more accessible regionally and to the general population so that there are less cars on the road.

## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES? (CONTINUED)

52	More charging stations in Richmond. It is not clear to me what the plans are for more charging locations. I saw that there was a surgery done last year but no clear outcomes. Also, I know we have bike sharing in Richmond but wonder about whether there are ride sharing coming with zero emissions.
53	Require multi unit residences to provide charging stations.
54	The city needs to start using electric vehicles for their own vehicles and vehicle fleets such as police need to become electric as soon as possible.
55	A good supporting network of charging stations, not by addition tax or any tax burden on residents. The design of EV isn't sophisticated to attract all people, and citizens shouldn't pay for the choice they've made; currently, the financial onus should still be on the EV owners, or through incentive programs from the government.
56	Electric cars are still cars. We need to be focussing WAY more on alternatives to private car ownership. We need better transit. Safer and more numerous bike lanes. Bike share programs that don't suck. Car share programs throughout the city. Electric cars are a step in the right direction but this push NEEDS to be combined with efforts that are 100x greater to reduce car dependency. Which is currently NOT happening at all in the city. The current requirements for parking stalls make parking even MORE expensive than it already is to supply parking, which makes housing even more unaffordable. We need to be reducing parking minimums at the same time so that people who choose not to drive can live somewhere where they aren't paying an extra \$20,000 for 80 sq ft of pavement they don't want.
57	Ban approval of new gas stations. Develop strong incentives for deployment of charging stations in existing multi-unit buildings.
58	Good morning as a richmond resident with an EV, I would like to point out your charging system is too aggressive. People on low income with no other source of charging rely on city vehicle sites. You should adjust the cost for the first 2 hours to be between \$0.50-\$1.00 max and then to dissuade people taking the spots all day adjust to \$5.00 per hour. Many districts in the lower mainland do not charge yet and some private lots only charge \$0.50 or first hour free and then charge. Please review this and help out many richmond residents who want to go EV but live in older buildings.
59	Transition all fleet vehicles into electric where possible.
60	More L2EV charge stations are great. Just make sure the users can easily pay for the power usage like with a RFID tag or access code.
61	Prevent strata corporations from unreasonably denying ev charging requests by owners.
62	I foresee this being stalled by the current high cost of EVs. 1) Work with federal ministers to bring in a price cap comparable to a gas oline-powered vehicle. 2) Allow Hybrid vehicles similar privileges as full EVs.
63	Add a lot more charging stations, and make it cheaper to get zero emissions vehicles that compare to popular fuel vehicles.
64	Older building need to get a tax break if installing charging stations. My building has no intention of allowing ev charging.
65	piggy back on Vancouver's upcoming road usage tax... at least in the densest parts of Richmond. Also work to eliminating free parking and convert the parking lanes into bike lanes.
66	Infrastructure to support the extra demand on electricity.

## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES? (CONTINUED)

67	Provide secure charging stations for ebikes.
68	Ensure public charging stations are rapid recharge. Decline permits for any future fossil fuel stations. Commit to all city vehicles (light and heavy duty) being zero emission as soon as possible.
69	Comox is currently considering a proposal to remove the zoning that allows construction of new gas stations (existing stations are grandfathered in). Richmond should do the same.
70	Car shares! Push ev car shares! Especially the ones where you can park and pick up anywhere... Electric vehicles plus reduced private ownership of vehicles in the city would be great.
71	Follow Vancouver's building code changes.
72	More radical vision which prioritizes public and active transit, we need to de-incentivize half measures that still create labor and environmental issues with battery production and disposal!
73	What about supporting bicycles and walking and buses/trains more? All are more efficient than cars.
74	City to provide incentives to homeowners to support retrofitting homes to include charging stations.
75	I use a zero emissions vehicle daily for all my transport needs - a bicycle, but Richmond is almost impossible to get around safely by bike, so I do all my shopping in Vancouver.
76	Need to plan infrastructure for non-emitting alternative vehicles too, like bikes.
77	More charging stations.
78	More EV stations.
79	Electric Vehicles are important, but just part of the solution, we need diverse solutions that fit the diversity of needs and encourages people to leave private car at home, it would be nice to have less cars and use our streets for more active transportation and social/community activities.
80	None here.
81	Create more fueling stations.
82	You are importing old Japanese vehicles, selling huge suvs and trucks Expensive sports cars, and you want us to buy expensive electric vehicles Makes no sense.
83	Prioritize transitioning busses around Richmond to zero emission as well.
84	Charging stations.
85	Organized events by VEVA (Vancouver Electric Vehicle Association) to educate and inform the general public on the benefits of switching to electric vehicles.
86	220V EV plug in outlets with an easy way to pay should be widely available throughout the city.



## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES? (CONTINUED)

87	More important to change work vehicles than residential vehicles (should emphasis public transport for residents). For residential EVs -Need to provide incentives to existing residential complexes to have 2+ short term charging stations.
88	If bylaw does not yet exist, make it mandatory to build in Level 2 outlets into new single family housing.
89	I can't afford an electric car OR to live in a newly built place. Having all stalls being able to support the EV infrastructure seems unnecessary. Maybe something like 60% would be more reasonable. However, gasoline/fuel companies are the main polluters, so doing anything to lower that is great.
90	Electric vehicles alone will not get us out of the climate crisis. You need to be working on 15-minute neighbourhoods and prioritizing mode shift within Richmond. Richmond should be a cycling mecca due to its geography (it's flat!!) but the city has not prioritized the cycling network and therefore it is very dangerous. You need a target like: By 2030, 75% of households can access most of their daily needs within a safe 15-minute walk, cycle or transit trip from their home.
91	Our current electric cannot support moving to a full EV vehicle environment. You need to build the infrastructure before you build the end target. How do we generate enough electricity? Solar and wind are not the answer as they are not reliable and you cannot use battery technology to store energy efficiently.
92	Ban fossil fuel vehicles in city centre by 2025.
93	Convert to either electric or Hybrid vehicles.
94	Reduce speed limits and enforce. Put speed bumps on all farm roads so they are no longer alternate speed ways.
95	home owner incentives.
96	Prices have to come down.
97	Make more chargers for existing buildings, lower costs of technology as incentive.
98	None...not your mandate!
99	We should not be wasting the city taxes on these. The public should pay if they want them.
100	More fast charging stations.
101	Encourage and subsidize proper 250-350kW high speed chargers capable of charging cars in 30 minutes. 20-50kW chargers that take many hours to charge an electric car are not fast enough for travellers. However such 25-50kW chargers are a must for homes and businesses. Incentivize home owners and landlords to retrofit charging plugs.
102	Home owner incentives.
103	Work with others in the Lower Mainland to further develop an efficient zero emissions public transit system that will encourage more residents to get out of their cars and onto buses and the rapid transit system.
104	Have all commercial buildings provide EV charging stations.
105	Include bicycles in the definition of zero emissions vehicles. Improve/extend existing bicycling infrastructure for increased safety and thus adoption.

## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES? (CONTINUED)

106	Make the purchase of these vehicles cost more affordable.
107	Incentiving apartment developers and car sharing companies to have a dedicated parking stall in apartment buildings.
108	City to provide how EV chargers on public property to be funded before implementing. Given most residents cannot afford an EV, are they expected to pay taxes that will be used to charge the vehicles of more affluent EV owners?
109	I have heard that if everyone had an electrical car, there is not enough electrical generating capacity to recharge them all. When will dams and mini nuclear plants get underway?? Also, Canada produces about 1% of global emissions so what is really accomplished by any reduction other than a huge cost to the people. With Canada's population from immigration and new family formations increasing about 1 million per year, this will present an interesting challenge to reduce anything.
110	Should be looking at all new build having electric charge built in and how to assist all older residences to be able to convert to electric.
111	How will you collect taxes to pay for road work and bridge maintenance given no gas tax?
112	While I think this is a good move, I would like to see more work on making it easier for Richmondites to go car-free altogether by making the alternatives more convenient, even if that makes driving less convenient.
113	Mandate fast charging stations for both public and private sectors to meet growing demand.
114	The infrastructure of zero emissions vehicles also are part of the problem. Asphalt and concrete are CO2 emitters as well. Reducing car reliance is also important. Reduce zoning laws to allow for more light commercial in residential zones so that people can walk to local stores. Improve walking / cycling infrastructure. Sidewalks and cycle gutters are just that. Places to be on the side of roads. There needs to be less emphasis on car related life and more emphasis transportation without a car.
115	It's a ridiculous idea.
116	It is too soon. The batteries cannot be recycled is just one aspect. A traffic jam will use up all the power and it takes hours for an electric vehicle to recharge. We need another 10 years of development. I also think that people who actually have electric vehicles who take trips with the family and use the highways etc. should all be interviewed and asked many questions about the viability. Most used electric cars are not resellable due to the cost of new batteries.
117	Promoting good EV charging etiquette practices for users at public charging stations. Discussion on how EV owners can pay their fair share of road taxes that are found on gasoline taxes.
118	Richmond should try bringing in share ride options (ie EVO, MODO). Also improve transportation (ie bring the train all the way down to Steveston). Bringing in better transportation will (1) help eliminate the need for parking spaces; (2) promote the use of public transit, which can hopefully in future lower costs because of increased usage.
119	Include garbage trucks in the process.
120	The city is no place for personal daily use of a vehicle. Whether the need is work intended or not . Public transportation needs to be upgraded above the need of a car. Eliminate the need for public parking.
121	Provide \$ incentive to switch to 0-emission vehicles: say NO PST + \$5,000--to \$10,000 reduction on the total price.

## Q4: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO ZERO EMISSION VEHICLES? (CONTINUED)

122	Subsidise electric bikes too.
123	We are waiting for affordability on a zero emission vehicle.
124	Lots of nice words, again with no exposition of the costs, if any are yet known. The discussion of “right to charge” seems ridiculous and fraught with challenge. There is no right to drive an EV, let alone drive a car at all. It is an earned license. Trying to frame this as a rights issue is ridiculous.
125	Add more electric charging stations. Promote more use of bikes.
126	None. I believe that engineering solutions can make hydrocarbon running vehicles (gasoline) more efficient, and that supporting research to that end in applied sciences and university research is a great investment. Keep in mind that current battery technology is dependent on mining on countries with poor environmental records and that those resources are finite themselves. Polymer based batteries are themselves dependent on hydrocarbons (oil industry).
127	Vigorously working with TransLink/provincial government/federal government to get busses converted to zero emissions; requiring at least 50% charging stalls at commercial and industrial developments; at least 50% charging stalls on new public parking lots at community centres/libraries/etc; requiring all gas stations that undergo renovation/rezoning to install a DC fast charger; for every Tesla charger installed on private property require a standard charger to be installed as well (matching principle).
128	Work with other levels of government to provide incentives/rebates when purchasing hybrids.
129	Enabling charging stations or even just electrical outlets at all parking stalls for new and existing multi- resident is critical. Enforce new building requirements to archive this. Provide an incentive for residential upgrades. Set targets as far as new charging stations installed per year and report on progress.
130	City of Richmond should convert ALL of their fleet vehicles to zero emissions vehicles within the next 3 years to lead by example.
131	Electric vehicles would have to come down in price, not possible for majority of people to own one and another concern for me is disposal of the battery and how much harm to the environment it causes.
132	Provide more charging locations, provide free charging service or at a discounts for fast charging to motivate for more EV car purchases. Allow for more parking.
133	City to support or provide installation of charging stations on residential property, with a focus on multi family properties.
134	That making Richmond more bicycle and walkable should come before zero emission vehicles.
135	Give Tax Credit incentives to existing Strata that would cover the cost of installing EV outlets for all parking spaces.
136	Provide bigger rebates that are given to private citizens before numbered companies, commercial fleets etc.



# CARBON NEUTRAL NEW BUILDINGS

STRATEGIC DIRECTION 3  
SURVEY RESPONSES

# CARBON NEUTRAL NEW BUILDINGS



## CARBON REDUCTION TARGETS

### 2030 TARGET

Achieve 70% low-carbon energy supply for heating and cooling in district-energy-connected buildings in Richmond.

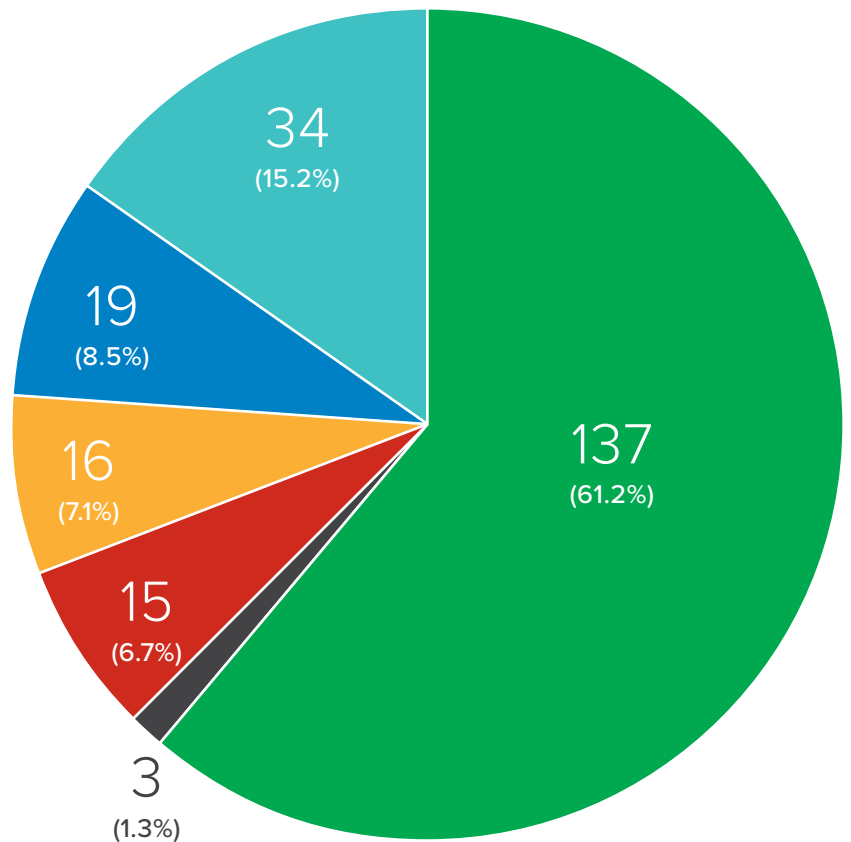
New buildings permitted as of 2027 (not connected to district energy) will consume 50% less energy and emit two-thirds less GHGs than new buildings permitted in 2018.

### 2050 TARGET

Incrementally reduce the embedded carbon content of materials used in the construction of new buildings in Richmond, by developing a cross-sector, regional framework that sets maximum embedded carbon intensity limits.

Reduce the GHG intensity of district-energy-connected buildings to 85% below the 2017 emission-intensity of natural gas heated buildings.

## Q5: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

224 Responses total



## Q6: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO MAKING NEW BUILDINGS CARBON NEUTRAL?

1	Go beyond carbon neutral and look for ways to be carbon negative.
2	Enough with the virtue signaling! This is not your mandate!
3	Ban gas heating Passive house standard.
4	Incentivization should not be used. It should be mandated. All new buildings should be forced to utilize the new technologies that save energy and keep houses warmer and cooler without emitting.
5	I would not. Carbon neutral is a ridiculous waste of money.
6	Add rooftop gardens and waste water recycling.
7	Instead of solely relying on technology, new buildings could also embrace the 'active house' process to design buildings with awareness of its surroundings - <a href="https://www.activehouse.info">https://www.activehouse.info</a>
8	If possible source materials from a low carbon supply chain (steel, concrete, etc.).
9	Most of the same answers as with retrofitting apply: allow for entire roofs (or close to entire roofs) to be outfitted with solar panels, ensure new buildings have white sidings and roofs, touchless washrooms, etc.
10	As a Northern country, the use of insulation is vital in reducing fuel/electricity consumption, while at the same time keeping the comfort levels. Do not ban the use of Natural Gas for heating/cooking. NG is clean and efficient.
11	Fund these buildings by raising property taxes.
12	None.
13	<p>1. Mandate (if possible) carbon capture concrete in all concrete structures and uses...  <a href="https://www.dezeen.com/2021/06/15/carboncapturing-concrete-carbcrete/">https://www.dezeen.com/2021/06/15/carboncapturing-concrete-carbcrete/</a>  <a href="https://www.dezeen.com/2021/06/14/carbon-climeworks-miningsky-interview/">https://www.dezeen.com/2021/06/14/carbon-climeworks-miningsky-interview/</a>            These articles are part of Dezeen's carbon revolution series, which explores how this miracle material could be removed from the atmosphere and put to use on earth. Read all the content at: <a href="http://www.dezeen.com/carbon">www.dezeen.com/carbon</a>.</p> <p>2. Vigorously encourage our local concrete manufacturing plant to incorporate CO2 as an additive to their concrete in place of calcium carbonate.</p>
14	This will only worsen the high cost of living and doing business in richmond.
15	There has to be a balance between cost and the impact of building. For example if you are using consultants and contractors who are flying in from other cities/countries and are negatively impacting the environment in order to make the building carbon neutral, then this may offset the benefit.
16	We need efficient buildings but mandating these items adds massive costs to not only commercial properties but makes family homes nearly unaffordable. we need a balanced approach to low carbon but also affordability.
17	Nothing that you have not already included in the plan.

## Q6: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO MAKING NEW BUILDINGS CARBON NEUTRAL? (CONTINUED)

18	Allow neighbourhoods to “band together” to create distributed power generation systems, and carbon neutral networks. Single homes or townhouse complexes may not have sufficient demand for a carbon neutral energy network, but combinations of buildings might.
19	New developments should be required to build with solar panels on roof.
20	Re-using materials from demolished buildings.
21	For on-site renewable energy, while solar PV costs have come up substantially in the last few years, I am quite skeptical over the participation rate of building owners who do not see the benefits/costs of installing on-site renewables. Can City of Richmond partner with neighbouring Metro Vancouver municipalities to develop a more coordinated policy approach to incentivizing small to large building owners (e.g. through form of net metering which was previously available, or some form of feed-in tariff)? Of course this would require substantial discussion with BC Government and BC Hydro as well as other stakeholders but I think this direction would be a great start to encourage new energy actors/movers in town.
22	I think that some of these new building requirements should also be applied to current existing ones if structurally possible, to accelerate the usage of carbon neutral technologies not only in new buildings but in those currently in use.
23	Must have EV charging at every parking spot.
24	Under the existing building code we can achieve very good results. To achieve another five percent gain is very costly and create more damage to the environment to produce it.
25	‘Carbon neutral’ new buildings still demand lots of resources and energy to construct. Offsets are not a means of being carbon neutral, please consider this.
26	Only do it if it costs the same as it costs to build a normal building. Costs are out of this world !!!
27	Buildings are not “carbon neutral” and never will be. Coal is used to create EVERY piece of steel in the building, and concrete has one of the worst environmental impacts of any product we use. Heat pumps are made in factories (many components from China) which have zero environmental responsibility, and rarely change temperature beyond 5 degrees. For the difference in performance they are stupid beyond belief, and ultimately will have ZERO effect on the climate as well proven over the last 50 years that they have been available. GOOGLE IT > LOOK IT UP and stop wasting taxpayers hard earned money ! !
28	Cost increases for new construction is the biggest concern in transitioning to carbon neutral buildings.
29	The City of Richmond should adopt standards for new building emissions that are at least as advanced as those enacted by the City of Vancouver. Specifically, enact a regulation regarding the installation of zero emission heating and cooling that is technically aligned and on the same timeframe as the City of Vancouver.
30	Require de construction for demolition instead of landfill. Give incentives to Richmond business performing these services.
31	Support mixed use buildings that are alive throughout the day. Currently buildings and land they occupy are setup for one kind of use (residences or shops or offices) and do not get used at other times of the day.
32	We need green space and trees.

## Q6: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO MAKING NEW BUILDINGS CARBON NEUTRAL? (CONTINUED)

33	It's better have have the new developments having the proposed designs, so that costly conversion will be avoided in future. Having said, solar power may not be the best solution for BC, and conversion to low carbon energy system may not be cost effective presently.
34	Incentivize passive haus buildings by allowing extra density for new builds meeting those requirements. We already need to allow more density by allowing maybe triplexes on all SF lots, but maybe if they meet passive haus standards their density is bumped to a quad or 6-plex potentially depending on the location and community plan. Also look towards the benefits of modular buildings from both a cost and an energy savings perspective (less materials used, incorporate more sustainable features cheaper and easier etc...). I think the city should partner with a modular home builder and start buying up lots with the intention of rezoning them and building on them as a way of providing city owned sustainable rental housing throughout the city. Being able to rezone the lots from SF to quad would also make this economically viable for the city.
35	Make it as easy as possible for the single home-owner to make changes and figure it all out (eg if permits and approvals are required).
36	Address external factors regarding climate effects on buildings and how they will maintain carbon neutrality.
37	Don't serve meat in city buildings or at city meetings.
38	Tax or prohibit using materials imported from any country that is a heavy polluter such as any that relies on coal fired plants without gas recapture and processing.
39	The plan looks good as is. The crew building the project replacing the old Staples property at Cook & No. 3 described to me the carbon-neutral features being included, & I support them. (plus they were proactively building for an aging population).
40	Aim even higher: require or motivate new buildings to be net carbon negative.
41	Future buildings should be built with adjustable shading provide ample shade to reduce air conditioning costs in the summer by blocking sunlight and reduce heating costs by allowing light into buildings.
42	Don't encourage changes, mandate them!
43	5 years later.
44	Include residential requirements, and pay attention to permeable surface and storm water collection/run off, increased green space, green roofs, less pavement, less impermeable surface over the city. Greater density, more green space and green surfaces, and include affordable rental housing in this initiative. Actually affordable, like 30% of average income, not 80% of market rental prices which is a joke. It's no use to make a lovely green city if the average income person can't afford to live here. And I mean people who aren't already homeowners, and whose parents aren't already homeowners.
45	See earlier comment on occupant wellness.
46	Greater integration of affordability in any building initiative.

## Q6: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO MAKING NEW BUILDINGS CARBON NEUTRAL? (CONTINUED)

47	Reduced current high carbon concrete use for alternatives.
48	Regulatory measures.
49	Remove surface parking lots (apart from a few spaces for people with mobility issues) so that getting to them is also carbon neutral.
50	Carbon offsets.
51	LEEDS already exists, non need to step into Federal & Provincial regulations, this at civic level just adds another layer of bureaucratic delay and cost.
52	Improve insulation, LED lighting, tankless water heaters, green roofs.
53	It won't make a difference tell us what is the point.
54	Unknown.
55	Do not buy any products from high GHG producing countries that still use non capture coal power generation.
56	Standardize building Regs across metro Van. Stop natural gas. More geothermal for new complexes.
57	No more glass high rises. They have a large energy footprint.
58	You should ban natural gas hookups in new buildings and retrofits immediately.
59	Energy efficiency is important but not at any cost.
60	Require passive house in the building code.
61	Only allow low carbon concrete for all buildings and new homes.
62	None. CO2 is the trace gas of life without which there would be no life on Earth; is photosynthesis still taught in schools? CO2 at its current 400ppm comprises 4% of 1% of the atmosphere! Meanwhile, the corrupt IPCC forbids climate scientists from including clouds, i.e. H2O, from any studies of "climate change."
63	Will take time but will have to be done.
64	None...not your mandate!
65	These policy keep increasing the cost of housing for people in the city. the impact is the opposite of what we should be doing.
66	Only build when needed for other issues. Retrofit buildings that are doing the job the workers need.
67	Offer subsidies for heat pumps. Encourage new buildings to consider ground source heat pumps as installation when construction is happening is cheap.

## Q6: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO MAKING NEW BUILDINGS CARBON NEUTRAL? (CONTINUED)

68	It is important not to increase the cost of construction to a point where it is unaffordable. A low steady move in this direction is good, not a large move.
69	Aim for "Passive House" standards whenever possible.
70	Any code the City creates not to supersede the BC building code. Cities which adopt one standard over another are seeing issues - City of Vancouver adopting LEED when other standards provide similar benefits at more palatable and recoverable costs. Further, will these standards be based on science provided by the building industry vs a single body (ie LEED) or, worse, vocal minority of voters whose personal opinions impact others (ie City's unjustifiable restrictions on AG-zoned properties above the BC building code and ALC).
71	Again as stated earlier make it easier to people to change these things. The city could advertise what and how people can make these adaptations.. Maybe even looking at grey water storage for watering.
72	Use solar systems.
73	Richmond should be careful with large scale DEU systems as they are less efficient than localized systems and may create significant liabilities for cities (and therefore residents) in the future, unless the sources are truly low carbon.
74	Low carbon energy systems not enough! Must be zero or net carbon positive for all new Buildings and existing buildings now.
75	None. Its a waste of money.
76	Follow what works and and do not use untested materials and methods just to appease the theory of carbon footprints.
77	This is all good (in theory), but how well can it be implemented (in practice). Do we know where the materials for specific projects are coming from. How are they being vetted by gov. agencies in terms of cost, transportation, disposal, etc. What are the impacts. We constantly provide notices for re-zoning, but never notices with regards to this work. I think an action plan that's more detailed will be helpful to answer such questions.
78	Go full out on solar panels.
79	Please refer to my suggestion on providing a building that eliminates the need to visit the vegetable stand.
80	Watch those building construction shortcuts... and audit results.
81	Update building codes.
82	You are asking a reverse of the retrofiting, by introducing what to do with new buildings, cannot a retrofit building become carbon neutral??



## Q6: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO MAKING NEW BUILDINGS CARBON NEUTRAL? (CONTINUED)

83	I have direct experience working within MCAL. While the system is modern and understandably as such, needed a lot of time to work out the kinks, the ultimate control system is located remotely at another Richmond facility. Someone has to call someone else to make a change at MCAL - a modern system shackled with a manual reliance on a phone call or other communication to another person, located elsewhere, hoping they are available, and able to make MCAL's need an issue. Not ideal or practical for the dynamic nature of the activities at MCAL. I DO like the idea of planning new buildings with roof materials in colours other than back. I understand there is growing evidence that this simple change may indeed provide substantial returns.
84	Make it a condition for any developers to add into their projects.
85	None! Buildings bring people together. People exhale CO2. Plant trees - they consume CO2. Problem solved. Besides, even if in the wonder worlds as all buildings were built under these "funny codes" they're impact on real world co2 emissions would be BARELY noticeable - and not worth the cost.
86	Public buildings should be carbon neutral. They have a long lifespan (usually 50 years or more) so any built now would be operational past the 2050 carbon neutral target. All buildings constructed now should be to passive standard. New construction should not be permitted to connect to natural gas. Should include natural solutions, including shade trees, green roofs, etc.
87	Stop with the 'advocate', 'encourage' or 'support' language, it means nothing. Build the requirements into building code and enforce the changes you want to see. Show leadership and take the initiative to make the changes you want to see.
88	Include higher building envelope performance to enable passive energy efficiency rather than "techno-complexity".
89	My philosophy is to repair and update and keep old structures if possible. Less garbage going to the dump site.
90	Requiring renewable heat/cooling sources.
91	Very Important for the building to have backup power plan with solar and big battery power packs, in emergency days, petrol may be cutoff by other causes, the only independent power Richmond have is the Solar power battery packs. in case flooding, at least, some roots with power can be emergency usage.



# COMPLETE COMMUNITIES

## STRATEGIC DIRECTION 4 SURVEY RESPONSES

# COMPLETE COMMUNITIES



## CARBON REDUCTION TARGETS

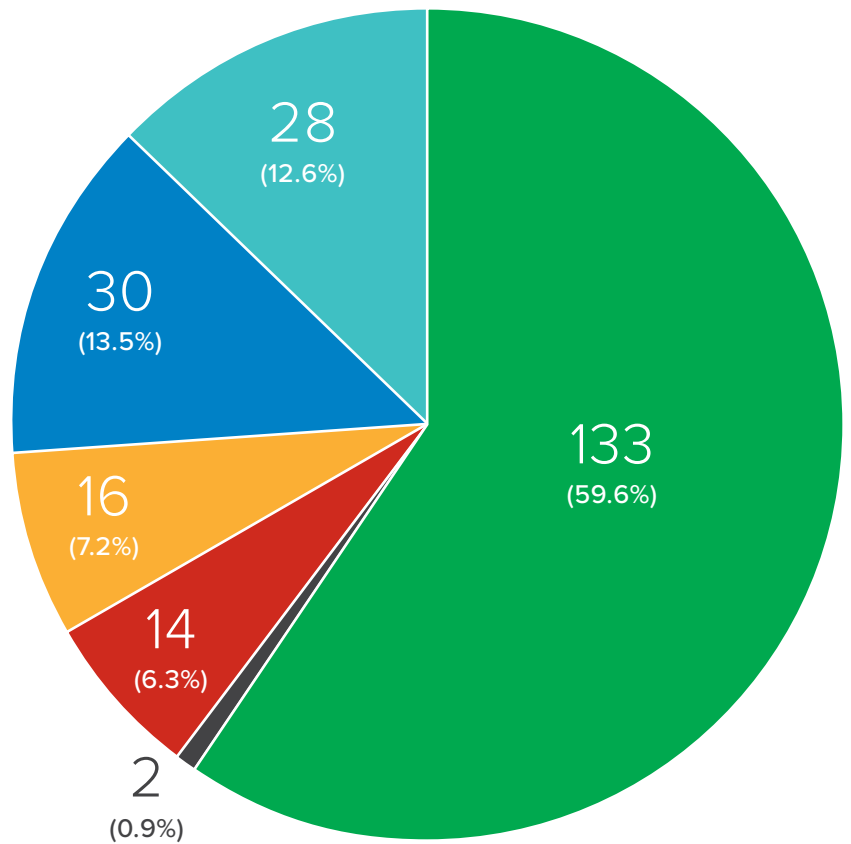
### 2030 TARGET

Achieve Richmond's OCP travel mode-split targets for both active mobility and transit by 2030.

### 2050 TARGET

Ensure 90% of Richmond residences are within 400 metres (5 minute walk / roll) of transit, and no more than 1,600 metres from a neighbourhood mobility hub.

## Q7: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

223 Responses total

## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES?

1	Add lanes along all major routes for safe riding of electric scooters, bikes etc to enable electric riding for groceries etc.
2	Why should some be rewarded with low income housing while the rest of us are being punished for working and owning?
3	Not your responsibility. Leave climate to the Province and Feds. We don't need another level of government shredding our tax dollars.
4	Allow the subdivision of large single family lots to allow people to build smaller houses. The McMansions in this city are energy hogs.
5	As new communities are planned having local amenities is important so one can walk to them.
6	Cars, pedestrians and bicycles need to be planned into new developments.
7	Not necessary to do this nonsense.
8	Improve public transport.
9	Include cycling and pedestrian paths with shade trees, ideally on the east side of north-south paths to provide shelter from hot afternoon sun.
10	Mixed use zoning to allow essential/local business to be within walking distance of every neighbourhood I can't stress enough the importance of 'complete neighbourhood' where residents can accomplish daily needs without the reliance of cars. As of now, most parts of Richmond are car dependent, with unsafe/undesirable side walk and bike lane, or the lack there of. I hope Richmond to one day become what 'Mount Pleasant, Vancouver' is today.
11	Create entire communities with walkable distance to essential amenities: grocery stores / supermarkets, doctors / dentists, post offices, liquor stores, restaurants, recycling depots / return its, exercise gyms, libraries, etc. Develop East Richmond neighborhoods to be self sustainable and complete.
12	MORE AFFORDABLE RENTAL HOUSING! Affordable and efficient public transportation.
13	Prioritize pedestrian and bicycle traffic over motor vehicle traffic timings and convenience. Build separate infrastructure for active transport that isn't in the scope of the motor vehicle act. Fund development by raising property taxes.
14	I work in healthcare with 2 young children. I really like living in Richmond, but I'll never be able to get out of stacked living. I wish there were opportunities for middle income people, like those of us in health and education, to have some choice in housing. There are so many mansions here that destroy our planet and increase carbon output, and the folks in those mansions don't provide the services that keep our community going.
15	Encourage the Federal government to eliminate home/land purchases by non-Canadian citizens and require Canadian citizens to have paid Federal/Provincial/Municipal taxes for at least 3 (5?) years before being allowed to by a home/land. - The intent being that folks who live in the community will be better able to afford to buy homes in the community where they have lived.
16	Separate biking lanes all over Richmond.

## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES? (CONTINUED)

17	More information regarding what is a compact community is this just higher density? if so leads to decreased livability. Needs of mobility impaired not explained in the plan. Sounds good but have considerable concerns about what this really looks like. Also mix of housing - most of what I see being built today does not consider mobility needs (3 storey townhouses with lots of stairs) not a good plan for the elderly or mobility impaired.
18	Nothing that has not been included in the plan.
19	Carbon neutrality is mandated. Include Scope 3 emissions as well (e.g., concrete created in a way that minimizes GHG emissions).
20	Richmond will require more commercialized zones in order to attribute to better community. Driving is a must to get anywhere, transit is great.
21	As a frequent commuter cyclist and transit user, I urge for greater densification so as to avoid further pressure and infringements on ALR lands and surrounding areas and more initiatives to support neighborhood or community associations. Along with densification, I also would like to see greater focus on making the city core more pedestrian and cyclist friendly. While the City has made improvements over the years, it seems that congestion has gotten worse and it has made for some less than safe travels for pedestrians and cyclists, especially along No. 3 road and Garden City Road. My final thought is surrounding the new intersections around recently developed areas such as the Olympic Oval and around Capstan Way. Having cycled and driven through those areas, I've found the area to be riddled with traffic lights, lack frequent bus transit options, and far too accustomed to car traffic. I don't think those areas were seriously planned out with other road/sidewalk users in mind.
22	Zero-emission transit would be a boon to many communities.
23	Complete communities are not "gentle densification", built along arterial corridors. Complete communities look more like the medium-density Olympic Village with with comprehensive commercial services and community amenities where many from young families to the elderly would want to and could afford to live.
24	Aged over 40-year Codons have to be rebuilt /rezoned rather than inspect and repair maintenance . Original owners should have priority to come back to new building if they prefer rather just let them go other places.
25	Plan and allow for sufficient parking in high density areas.
26	Work towards Housing affordability requires drastic measures to truly help - social housing, co-ops, city-owned subsidized housing on a mass scale, etc are what's needed. Every condo built is a housing unit not helping someone truly in need when the city controls all levers/aspects of development. It's up to you to make the difference and set an example for the lower mainland.
27	Stop all funding . It is a waste of time with all the crap china and india putout. Let all who want to stop paying for these taxes. If you want it you pay simple.
28	You want a complete community? Then stop bulldozing duplexes and 4 plexes to be replaced by BS Brodie mega-mansions that no one lives in. Make it a law that a duplex must be replaced by a duplex, and every 4th home a builder constructs must be a duplex or 4plex. We had it in the 1960-70s, and it worked well until "developers" it appears bought off the mayor and council.
29	Create more community parks.



## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES? (CONTINUED)

30	Continue design and development of new projects to keep the connection of these areas with safe bike and rolling lanes.
31	This planning needs to be broad-based in nature where vested interests (Developers or fossil fuel providers) do not have an undue influence.
32	Increasing density has not proved to make housing more affordable. I wonder if this is possible in the current market
33	Having less people in our city would help. Stop the insanity.
34	Communities must include variety of different workspaces (offices, shops, some kinds of factories) to reduce commute times, increase land use and build a local self-contained community. Walkability and short distances are a must.
35	There is a huge need for more coops in Richmond as working families are priced out of the market.
36	Are compact and complete communities in line with the pandemic precautions? Highly densified city centre design may not be the suitable solution, provide incentive, accommodations, infrastructure for people to move outside the city core may be better.
37	ensure facilities needed on a regular basis (shops, school, community centers) are no further than a 15 min walk.
38	No where on here does it say: update the OCPs to reflect the climate crisis we've declared. The OCPs are woefully outdated, even though not that old. The game has changed. We need to move in a bold new direction and quickly. All of these words are nice but then you go and ram 2 new 4 lane roads through A PARK at the lansdowne development and it's clear that the city has no intention of actually taking the crisis seriously. Parking minimums need to go. Car dependency needs to go. Those who want to drive should still have all the same access to a car that they have now, but the city should be designed with pedestrians, cyclists, rollers FIRST in mind with cars the lowest priority. Transit needs expanding. Not much Richmond can do alone there but they need to continue to push for better transit by calling for less resources to be spent on Highway widenings and new tunnels that will not make a dent in traffic and more money spent on transit. We need car sharing for those that don't want to own a car but occasionally need to use one. But first and foremost the OCPs need an urgent and radical overhaul!
39	Complete evaluation of zoning bylaws with the view of how zoning prohibits complete communities. For example, allow small retail/corner grocery stores in the middle of large blocks of residential areas. For example, allow laneway/secondary residential construction on single family lots.
40	Expand network of dedicated walking and bike lanes seperated from roadways. Convert some arterial roads to one-way traffic, if necessary, to create the network of seperated lanes.
41	Continue building bike lanes, supporting small businesses and encouraging new builders to include community opportunities in their plans.
42	In many areas it is necessary to have a car to obtain groceries etc. New communities should be build to include as many amenities as possible so access is readily available.
43	Work towards reduced traffic neighborhoods.

## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES? (CONTINUED)

44	The city core should be strictly high density mid towers. We do not need coach houses and shacks here in Richmond. The temporary modular housing program should have a clear end point within 5 years or less to mandate these taxpayer subsidized users into treatment or to find work.
45	Please increase the minimum amount of residential rental units allocated to below market value. The city's rental pool is no longer affordable for the majority of people living in Vancouver, especially millennials who grew up in Richmond and want to stay in the city.
46	Reducing need for using a vehicle would be the most important. Encourage the development of full spectrum shopping plazas (aka strip malls) within populated neighbourhoods. Promote and support activities (e.g. BBQs in season & other block parties) to facilitate people mixing and communicating, to get to know more neighbours in a relaxed purposeful setting. More green space, including parks with ponds & benches in populated areas.
47	Increasing amenities in neighbourhoods to reduce the need to travel long distances to participate in community activities.
48	Make public transit more accessible, much of East Richmond is not close to a train station.
49	Increase transit connections and bikeways.
50	Make the Richmond Neighbourhood well-defined on maps ... encourage residents to also identify with their neighbourhood and build up from there ... one the worst defined neighbourhood are around Blundell/Woodwards probably for lack of a unifying community centre. Use nextdoor app or an inhouse equivalent to make it easy for neighbours to connect , exchange with each other, and celebrate local neighbourhood things to build up community quickly.
51	Ensure that public transit is easily accessible.
52	<ol style="list-style-type: none"> <li>1. Rezone single-family housing neighbourhoods to allow multifamily housing, commercial, recreational, etc. If stores, schools, and homes are located close together, the need for carbon-emitting vehicles is reduced, not to mention the reduction of traffic.</li> <li>2. Move neighbourhoods walkable and bike-friendly, away from car-centric neighbourhoods. This can be seen in:               <ol style="list-style-type: none"> <li>a) Car-free neighbourhoods (except for delivery and emergency)</li> <li>b) Raised pedestrian intersection crossings</li> <li>c) Separated bike lanes</li> <li>d) Bike paths circumventing traditional roads</li> <li>e) Reduced road speeds through physical traffic calming (narrower roads, removing unnecessary setbacks for buildings, especially narrow points for pedestrian and bicycle crossings, etc.)</li> <li>f) Removing slipways for cars. This slows speeds for cars, providing safer intersections for everyone while returning more public space to citizens. Can be used as bicycle parking.</li> <li>g) Providing the necessary infrastructure for bicycles (secure bicycle parking, tools for fixing bicycles (as seen in the one by Burnett Secondary) a nationwide registration system for stolen and lost bikes, education for how to bring bikes on transit, connecting the currently fragmented bike lanes, provide safer ways to bike to Vancouver/Delta and beyond).</li> </ol> </li> </ol>
53	Don't assess and encourage, mandate!
54	Stop building high rises.
55	When you say affordable housing really mean it. If people shouldn't be paying more than 30% of their income in housing then make that the goal across the board. Which probably means more rental housing and rents fixed at that income test bracket. All these "luxury" townhomes going up are depressing to those of us that rent. It's impossible to buy if you don't already own, are wealthy, or have generational land wealth to draw on. Make rental housing a secure and attractive option among your "wide range of housing options." Renting shouldn't be something to be ashamed of, nor should we live with the insecurity of a landlord selling our home out from under us for profit.

## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES? (CONTINUED)

56	In Denmark, there is this ingenious man-made mountain called Copenhill ( <a href="https://www.copenhill.dk/en">https://www.copenhill.dk/en</a> ) which is a waste management centre that doubles as a recreational hiking area. If something like this was done in Richmond, it would be a great place for local families to trek up to, enjoy the view, and maybe zipline, cart, or sled/ski/snowboard downhill. It is also another tourism venue.
57	Again, this is not just about reducing the carbon footprint of buildings through legislation. Please also consider leadership in occupational best practices and education.
58	Why is this such a minimally elaborated action point? "Wide range of housing options" is vague. Where is affordability? Equity? Active transportation?
59	Not having to use a car ALL the time is very important.
60	Critical improvement in cycling infrastructure, something sadly lacking in the city.
61	Alternative transit support from hubs, primarily free, efficient, and secured bike storage lockers.
62	The width of many of the sidewalks (and the street furniture that is built in the middle of these very narrow spaces) means there is a lot of work to be done to encourage walking in neighbourhoods. Cycling as transport in most of Richmond is impossible due to the lack of infrastructure for safety.
63	Better than the box store suburb approach.
64	More parks and community centres.
65	Yes! avoid long commuting. Create communities where people can work, live and play. More space for people, less space for private cars.
66	This assumes every one is mobile and/or close to transit. Not remotely applicable to much of west Richmond!!
67	Need more amenities (shops, services) for the areas outside of the City Centre if you wish to build complete communities. Right now it's mostly just houses outside of the city core.
68	Add environmental tax to properties lacking mature trees, lawns. Green roofs could reduce the tax.
69	Stupid.
70	More corner stores, make streets walkable and bikable.
71	Working from home is ideal with today's technology. Richmond has a large proportion of obsolete power poles which also carry data lines. Richmond should mandate a clear path to buried/vault power and data lines to prevent the constant outages whenever there is a windstorm (at least 2 major storms per year).
72	Further reduce the size of homes that can be built on residential and ALR lots. Update zoning and other bylaws to recognize the growing interest in tiny homes. Work with developers to build tiny house villages. Offer smaller residential lots for smaller houses.

## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES? (CONTINUED)

73	This affects individuals on a day to day level. Providing a community that allows us to walk, enjoy nature, meet with our neighbours ... gives us a home to enjoy. Give us more community gardens, walking areas, parks where we can meet one another and become one community. More flexible housing bringing in a mix of people, not just wealthy retired.
74	Make the community of Hamilton more walkable.
75	We need more schools with the increased population density.
76	You need a target in this area, such as "by 2030, 75% of households can access most of their daily needs within a safe 15-minute walk, cycle or transit trip from their home."
77	Allow for subdividing of lots to increase density - this will drive transit adoption.
78	Create local eco corps to join members of the entire community in clean ups and habitat rehab. Eg collectin plastics and debris in parks and community settings such as Steveston.
79	Diversity and Inclusion are nothing but Neo-Marxist hype intended to create "useful idiots" of what were once thinking people.
80	?
81	Bike lanes with better signage as too many cyclists use the sidewalks and to improve communities we must make sure to improve access to both methods of transportation.
82	Make land available in East Richmond for a grocery store to encourage less driving.
83	Stop shredding my tax dollars!
84	Not sure I'd want to increase the number of corner markets just to reduce travel time to purchase food and other necessities.
85	Improve transit options in East Richmond. Especially late night service.
86	Adding a strong heritage preservation focus as densification continues.
87	Provide affordable housing for the seniors. sooner the better. Do not put up more high rises. Richmond is over populated already for the amenities that we have.
88	What is included in "work to achieve " or encourage development. What are you doing? Include commitment dates.
89	Design communities for pedestrians instead of vehicles.
90	Improve the speed at which building applications are processed. Consider new housing models on merit, not if it fits some box the City has. Permit more legal suites throughout different residential home zonings (not just residential but AG, etc).
91	I support more density. But we're density increases you need to increase green space, This includes community gardens, sports fields and large and small park spaces. I think Richmond need to come up with a green space ratio. This should include how much green space per capita, and how close it is . Vancouver has a commitment of have a green space within a walk of a couple of block for all residence. And they track the areas they call park deficient. Pocket parks are added in many of these places. Park can be a small playground, sports field, basketball courts. Skate park, gardens etc. diversity is important even in what is green spaces use.

## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES? (CONTINUED)

92	Have only Cdn citizens allowed to buy houses in Cda. There are too many empty foreign owned houses. All the foreign buyers need to do is put numbers on pieces of paper and buy up our country. 50% of the houses in our neighborhood do not put garbage cans out, hence they are sitting empty. You need people living in the houses to create a community.
93	A big part of this should be relaxing zoning to allow mixed use for more commercial outlets within residential zones reducing the need for cars.
94	This should be more specific: more density within neighbourhoods, NOT just along arterial roads! Duplex, triplex, TH, and even low rise apartment should all be considered in subdivisions to promote housing affordability.
95	Similar comment to car issues. Communities need to be more complete with more local options. Relaxing zoning laws to allow for commercial in residential zones, less parking spaces, more dedicated walking and cycling routes and less car centric culture.
96	None.
97	We cannot compete with the emissions of China and India. The added cost of all these new materials will greatly increase the price of new homes. The average new home furnace is over 1000.00 more due to the energy efficient additions. Insulation and window improvements along with hot water tank and furnace improvements are simple ways to work towards reducing the cost of energy for a home owner. A development with everything green will make the price of the home prohibitive. Sometimes a balance has to be achieved with cost and goal. New ideas must be met with logic and reason.
98	High housing is still the biggest barrier towards home owner for most people. Introduce more bike pathways to get around the city.
99	Maintain & increase green space to help clean air, and allow nature options in dense living. Severely limit mega home sizes to less than 8,000 square feet.
100	A good diverse mix of people (not just races, but their economicsocial status), transportation and community services with the infrastructure to support current and future growth.
101	I would add; On every new block of land proposed for community living, provide a section of its area to grow sustenance.
102	Promote no vehicular use in these areas.
103	Community parks with local artists representing would be nice.
104	Up-zone areas currently zoned as single-family housing to include mixed-medium zoning so that community amenities, affordable housing, and small retailers are within walking or cycling distance. There is too much reliability on private vehicles in Richmond.
105	More mixed-used zoning per neighbourhood. Making places more walkable and less reliant on travelling requiring vehicles.
106	Complete communities exist in our imagination overshadowed by tear downs and overbuilding to densify communities, especially right now on No. 3 Road corridor and Garden City area.

## Q8: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO CREATING COMPLETE COMMUNITIES? (CONTINUED)

107	Again, costs. You cannot, and should not suggest taking actions without a sober review of the costs. Also, why the need to inject the current social fascination with equity and fairness?? How are those terms even defined? How can one suggest actions without a full disclosure of what those terms mean?
108	I think also important to enhance choices for housing within neighbourhoods; we must consider banning the practice of tearing down perfectly livable & structural sound single detached home in favour of building a much larger home on the same property with a larger carbon footprint.
109	Lets keep more trees and green spaces. too many trees cut down and too much development on our green spaces.
110	Although Richmond is a southern Canadian city with mild weather throughout the year, and despite the overall misconception that climate change is slowly turning our patch of BC into an inferno, I still think that in the next several (perhaps 100 or more) years ahead, heating our homes will be a common need for the populace, particularly in the winter months. Meeting those needs, with abundant sources of natural gas and other such resources would make the transition to this idyllic rolling society a lot more pleasant.
111	Allow more density in single family neighbourhoods. Mega houses (like the Mondes) are not helpful. Duplexes, triplexes, row houses should all be permitted in single family home areas. Arterials and neighbourhoods with existing low rise apartments should be permitted to also build new low rise apartments. Bike lanes must be on main roads and be All Ages All Abilities and connect to retail and services.
112	Set quantitative targets and set policies to achieve them. Measure the impacts against your targets and report on them.
113	Create planning for mini-villages in densification zones to reduce the need for people to travel for basic food, pharmacy, shopping. Allow easier development of retail spaces in local nodes.
114	Affordable housing needs to include low-income families and seniors. More subsidized and co-op housing is needed.
115	Support working from home with incentives for businesses and updated building codes for new homes. Have more amenities available in neighbourhood hubs so people don't have to use cars.
116	Enforce rules of road on cyclists so others feel less negative about them.
117	Richmond is a Car city, unfortunately. Walking paths along the waste gas road is not attractive at all. More prefer larger pet friendly and regional parks like dea island park. or dyke trails. So many parks in Richmond is ridiculously banned for dogs.
118	Discourage buying the properties for the sole purpose of investing. Housing is a necessity; not a commodity for the rich or foreign investors.





# ACTIVE MOBILITY FOR ALL

## STRATEGIC DIRECTION 5

### SURVEY RESPONSES

# ACTIVE MOBILITY FOR ALL



## CARBON REDUCTION TARGETS

### 2030 TARGET

Increase walk / roll trips to reach 18% of all trips taken.

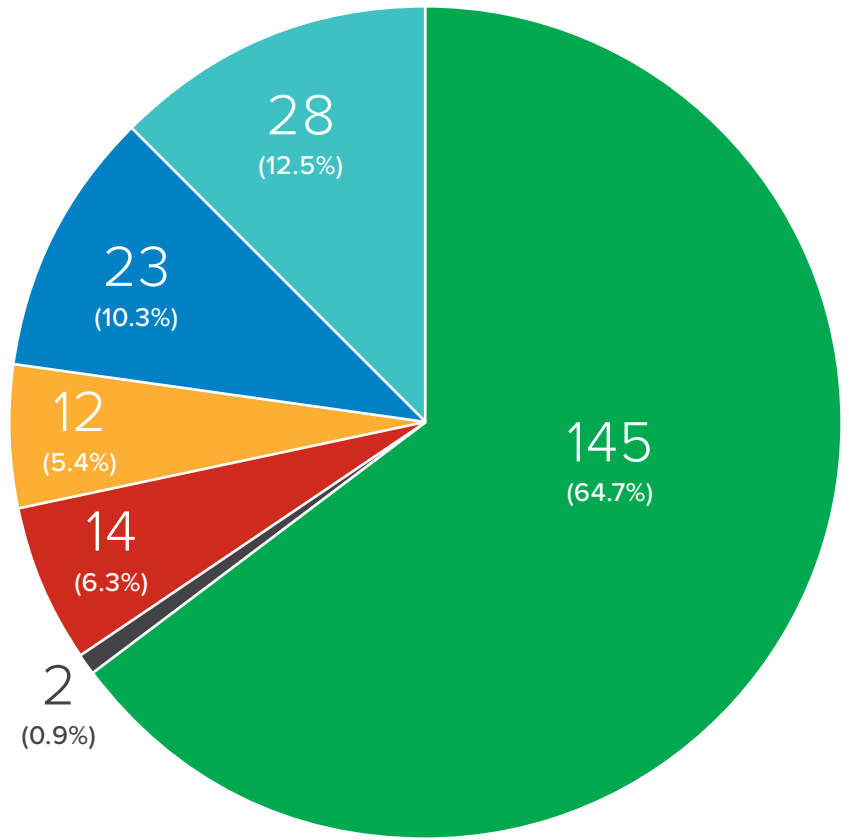
Increase bicycle ridership and micro-electric mobility to reach 10% of all trips taken.

### 2050 TARGET

Increase walk / roll trips to reach 25% of all trips taken.

Increase bicycle ridership and micro-electric mobility to reach 15% of all trips taken.

## Q9: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

224 Responses total

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL?

1	Wider sidewalks, sidewalks on both sides of streets, better lighting for increased safety.
2	Less roads, more escooter, ebike and bike lanes. Cash back for those using them to commute.
3	Stop limiting and punishing drivers. How many people can realistically cycle from Richmond to downtown Vancouver, change into work attire, put in a full day then cycle back? This is ludicrous.
4	Get out of my life! I'll decide how I want to get around..I don't need you to hold my hand.
5	Segregated bike lanes (not just paint) MUCH better bike connection to Bridgport Station. Current bike routes are dreadful.
6	One function should not stop another. I am all for bike lanes but they must be safe yet still allow traffic to move freely. Congestion causes more CO2 currently as cars are idling in traffic of badly designed roads and traffic systems. The new cameras at junctions were meant to stop that but I still see traffic held up at red lights when nothing is going the other way.
7	Retrofitting is important, but will eventually not be necessary as new neighbourhoods will be well-planned in this respect.
8	Its a waste of time and effort.
9	Incorporate shade trees along walking and cycling paths.
10	plan dedicated bike routes, separate from vehicular traffic, that connects essential point of interests.
11	Educate the public on proper etiquette between pedestrians, bikes, e-transport, and traditional vehicles.
12	Ensure bike lanes are safe for cyclists, skateboarders, and electric scooter riders - people won't adopt these measures if the stereotype of the "Richmond Driver" persists. Create more parking (and lockers) of active mobility vehicles.
13	Give more support to eBikes and heavier eScooters. Make Bike Paths wide enough to be safe for bikers. Many bike routes are too narrow to be safe - Minoru from Granville to Westminster, the new River Road from Gilbert to Cambie. The installation of standard 110 Volt plug-ins at various public areas such as parks, in Steveston, and at shopping malls would greatly help. I would love to be able to top up my battery while shopping or visiting a restaurant or park. I've checked a number of public vehicle charging stations and none that I have seen support standard 110 Volt plug-in charging. I would be happy to pay a small fee for destination charging to allow me to go further afield.
14	Build separate infrastructure that is not a highway under the motor vehicle act so that adoption of new electric transport can be used without requiring provincial legislation.
15	To think that people should bike or walk as a primary mode of transportation is ridiculous. A comprehensive plan that upgrades vehicle infrastructure AND non vehicle traffic is needed to ensure long term viability.
16	I love biking, and regularly take 20-30km bike trips with my children. Biking in Richmond is terrifying. Infrastructure and bike lanes don't join up well. Drivers are willing to kill bikers and there seems little understanding or respect for risks of speed and distraction. I'd wish for better bike lanes and increased management of reckless driving.
17	Pressure Provincial government to widen George Massey tunnel and feeder streets such as Steveston Highway.

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

18	Improve access to links to/from Vancouver for bicycle/e-bike commuting. 2. Implement bicycle physically separated lanes around the new Richmond dyke improvement process.
19	Transit is unsafe and slow. And outdoor Travel is unrealistic in our Weather.
20	We need more and better bike lanes in Richmond. In East Richmond (Cambie/Bridgeport) there are zero bike lanes. We need lanes going from East to West (towards the sky train) as then it will be easier and more bike friendly to use our bikes. We also need more awareness in our drivers so we can become a bike friendly city. Our driver's are not used to being a bike city, so we need more signage to help them become more aware so the city can evolve and have more bikes on the road.
21	this should be in addition to motor vehicles and we should not be closing access down to areas to accommodate this.
22	Separate bike/walking lanes all over Richmond.
23	Again great plan for the very mobile does not reflect the needs of the mobility impaired or aging population.
24	Glad to see a focus on cycling!
25	Add more bike lanes!
26	Ask the cyclist for input for safe lanes, bylaws for electric bikes and scooters
27	Increasing pedestrian and cycling infrastructure throughout the city, especially North-South and along major/main routes, across the city is very important to encourage cycling and walking as main transportation options for residents in Richmond.
28	1) More cycling routes need to be added (across town, No. 1 and No. 5) and be made safer (e.g. Garden City Road). 2) Revise plans (or redesign streets) so that they consider other users, not just those behind the wheel. 3) Advocate for priority of frequent bus routes for underserved areas or areas under rapid development (e.g. Capstan Way/Oval).
29	Incentives to make bicycles more attractive as a means of transport? More and safer bike routes, and greater enforcement of traffic laws in bike-friendly roads to prevent dangerous driving (especially during non-daylight hours). Easier transitions from bicycles to transit (eg. Canada Line), bike cages to deter theft.
30	Fire all of the fat people at City Hall who are still treating walking like it's nuisance to motor vehicle flow. Banish the word J-walker. Make it easy and convenient for me to do my errands on foot. Get rid of pedestrian activated "beg-me" crosswalk buttons that only allow 4 to 6 seconds to enter a crosswalk.
31	Motorcycles or bicyclers or E-scoopers has to be limited speed less than 20km /h on residential roads, otherwise they would cause most incidents for local residents.
32	Richmond is too large for human powered transportation. It is also too wet and cold. I know - I bicycled to work nearly all my life and to expect even half of the population to do so is foolhardy and dreaming. For short distances, walking is fine, but any other method exposes the traveler to the weather and ensures they arrive wet and smelly.
33	Make adequate allowance for motor vehicle ownership. It will be a fact for many years to come.

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

34	Richmond is positioned to be the best place for cycling in North America - this is no exaggeration. There's space for bike lanes, the city is flat, year-round cycling is easy, and density in many areas is high and rising in other areas. This component is crucial, and with the options around bikeshare, e-bikes, etc, a Richmond-specific model could be tailored to suit the cities needs.
35	Put in side walks and roads that do not jar the shit out of wheelchair an scooter users. They are soooo ruff. They are dangerous to use at night. What a hazard.
36	We live in a wet cold climate where these walking/riding initiatives remain unused for half the year, at the expense of the pollution caused by these initiatives as traffic is grid-locked in inclement weather. This is not southern California. Enough is enough with causing pollution with this airhead waste of taxpayer money.
37	New technology will affect what is the best options for transportation and transit. With the implementation of EV and Driverless vehicles, companies like Uber may take away much of the transit ridership making investments in this area less effective.
38	Create pedestrian only shopping areas; bicycle routes should take priority over adding lanes for cars; current two lane streets should be reduced to one lane with the other lane reserved for bikes.
39	The current reality is that a Richmondite cannot conduct business by bike (except downtown). There simply are not safe ways to access businesses. The city should require new shopping centres and large multipurpose buildings to offer not only bike parking but also bike access in a way that is safe for cyclists. Currently, it feels very unsafe biking into existing strip malls that prioritize parking lots. It is neither fun nor safe to wind through unpredictable, congested cars, and often these parking lots can only be accessed from busy streets. The reality is, people will not bike to do their errands if there is no safe way to do so. The city should mandate that all new shopping centres must be designed to allow cyclists to enter and park in a way that feels safe (without having to wind through traffic). This could be done in several ways. For example: *Shopping centres could be required to offer pedestrian and cyclist access via quiet neighbourhood streets. Shopping centres could also be required to locate ample, undercover bike parking at these pedestrian/cyclist access points. Ideally, the city should also designate more key neighbourhood streets as bike routes, especially those that connect key shopping and business centres. *Shopping centres which cannot connect to quiet streets or bike routes could be required to have bike lanes or other access from the street so that cyclists do not need to wind though parking lots. *For shopping centres adjacent to busy streets that have bike lanes, the city should add special traffic lights or other traffic measures to allow bikes travelling in both directions to access the shopping centres without having to find a way to cross busy traffic. *The city should try to designate bike/pedestrian-only roads and paths through key Downtown Richmond areas. These paths should be made to connect with key shopping centres and their bike parking spaces. The city could also offer incentives to existing shopping centres to renovate to make these kinds of changes. Strong bikefriendly regulations on new shopping centres and multipurpose buildings should be the norm.
40	Please address cycle route discontinuities - they are disruptive (and can be very dangerous for lesser-skilled cyclists). Please review how plastic stick dividers are used to demark cycle lanes (specifically on River Parkway). Installing the dividers wholly inside the cycle lane rather than centered on the painted line seems incorrect.
41	Have sidewalks on all city streets. Add dedicated bike lines on all major streets.
42	Introduce physical barriers for rolling and biking; Mandate all buildings to provide secure indoor storage of bikes; it is very discouraging to take up biking when you cannot secure it at your destination and it gets stolen; Crack down on bicycle thefts and stricter police action including bike registration and tracing.
43	Enforce the rules. Right now ebikes and scooters are a danger to pedestrians. Need special paths to protect all.

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

44	Free access to all public transit.
45	Prioritize walking, cycling, rolling by NOT prioritizing driving. Unless you specifically say that you are, finally, moving the private vehicle to the bottom of the priority list you cannot be believed that you are truthfully and honestly prioritizing active transport. Also there needs to be an audit of accessibility on Richmond streets. I encounter many obstacles as I walk around this city that would be insurmountable to someone using a wheelchair, mobility scooter, walker or other accessibility device. Sidewalks with telephone poles right in the middle. Simple things like hedges that have grown so much as to render the sidewalk too narrow to be passed. Sidewalks that don't have curb cuts. Speed limits also need to be reduced so that the road is safer for ALL users. 30km/hour (if it is good enough for Burkeville, why not the rest of the city?) on all residential streets and 40km/hour on arterials. Paint slapped down on the road does not constitute a bike lane (a la Garden City Road). We need to be ensuring that we are creating safe AND separated infrastructure.
46	Add more bikelanes for intercity commutes. Major roads should all contain safe bike lanes or at the very least wide shoulders to promote safe and accessible transportation alternatives with focus not just on recreational use but as a daily work commute.
47	The biggest deterrent for many is the safety of biking in Richmond due to our Richmond drivers. perhaps install more of the rubber barriers on the bike corridors to provide additional protection for bikers trying to commute to work or school.
48	Focus more on better transit than encouraging biking. Most people live far from work to even bike.
49	New roads / developments should plan for a fully segregated bike corridor to reasonably reach all parts of the main city. Vehicles turning right must have a dotted line and be informed to block the bike lane so that no one gets crushed by a vehicle. Cycling laws need to be more clear or reinforced with signage : A cyclist must stay as close to the curb as practicable and ride single file with other cyclists. Riding at night requires a red light facing rear and white light facing front. These lights must be projected ahead but not into the eyes of motorists. I would like to see a technical definition of light output maximum and projection cast angles. Cyclists can only use a left turn bay on a single lane road where they leave the curb. I see many cyclists illegally using left turn bays on multi lane roads. Police should be enforcing these laws when mixing in with vehicle traffic before someone is injured or killed.
50	Ensure multi use paths/trails are wide enough where possible to be safely used by all, complete north-south bike routes such as Shell and Garden City Roads river side to river side.
51	Please add "Go By Bike Week (formerly Bike to Work Week) in addition to "Bike to Work Day" Please ensure new developments on major arterials such as No. 3 Rd have protected bike lanes integrated into their frontages...so many missed opportunities there to build out the cycling network by leveraging private development.
52	Looks good. Especially the idea of making these walking routes connect to most used amenities, to reduce automotive trips. Better bus coverage(more of the unserved direct routes, e.g. Two Rd to One Rd, along Blundell) and frequency, for those trips not accessible by walking would help, too..
53	Be prepared to safely integrate e-bikes, e-scooters and other new modes of transportation into current cycling system.
54	Expand skytrains throughout Richmond, such as East Richmond and not just on Cambie Street.
55	If bikeways are not all ages, all abilities, they won't be used by the « masses ».
56	Build a really complete separated bike lanes network, and they WILL come; allow enough width so cargo bikes can operate on them too... and deliver goods for the last mile. Continue working on a robust solution to bike theft which is a huge deterrent for some of these goals....perhaps with permnent bike valets jobs, expansion of garare529 or providing a fleet of bike rental stations with a company that will stick around and promote the idea seriously.



## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

57	Have safe routes easily accessible for non motor vehicle travel - dedicated bike lanes going east- west on north and south ends of Richmond. South dyke road would have been well served by having dedicated bike lanes as so many people bike along there.
58	Bikes: 1) Separated bike lanes with either parked cars, concrete barriers, trees, etc. separating moving traffic from cyclists. 2) An integrated regional bike-share program for the Lower Mainland. 3) Bike parking: More: like the parkade at Bridgeport station, Secured: registration system, For everyone: parkades for larger bikes, tricycles, cargo bikes, etc. 4) Improve the state of footpaths: many are very bumpy, making it difficult to bike on or build separated bike paths.
59	Commit to no increases in car infrastructure.
60	Compensate going carless. Focus on pedestrian and manual transport devices. Discourage electric bike and electric scooter uses.
61	Richmond is built around automobiles. All planning must prioritize and incentivize other forms of transportation.
62	I've been pleased with the increased bike infrastructure. The city is so flat we should be able to bike safely from anywhere in the city to any other part. There's potential to increase bike routes within Richmond neighborhoods that have been designed to slow car traffic. Make it easy to get through the neighborhoods for kids, and avoid major car routes. That along with safer bike infrastructure on select major roads n/s and e/w would be great.
63	Consider all alternative modes of transportation. Endorse bike and scooter rental. Create a separation of bicycle/scooter/ ebike transportation from pedestrian modes. They should not be mixed!!
64	Great to see this, but link all of the action points together! Active transportation should be evident across all directions! Here too, reducing barriers isn't enough - there needs to be a concerted focus on transportation equity! Also we need long distance routes like there exists elsewhere in the region and even more so in Europe. Simply filling in gaps still will result in a piecemeal approach. Focus cannot just be "short distances".
65	Physically separate bike lanes from car lanes is important for safety. The more safe it feels, the more cyclists will use it.
66	Currently Richmond has very limited safe cycling infrastructure. This need to be addressed on an urgent basis. This included safer bridge crossings, separated bike routes on main roads and improved bike storage.
67	More bike lanes, safer bike lanes.
68	Alternative transit support from hubs, primarily free, efficient, and secured bike storage lockers.
69	In financial terms, putting in safe cycling and walking infrastructure is the cheapest and most cost effective way to reduce greenhouse gas emissions (and particulates from car/truck brakes). However, the infrastructure has to be all ages and abilities.
70	We need more cycling routes now. Too many bike routes that end with no alternative routes. And the Massey Tunnel bike shuttle needs to meet the demands of cycling in 2021 not 1988.
71	More bike share programs.
72	More driver, cyclists and e-bike users education on road sharing and riding skills and knowledge.

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

73	We need to dramatically increase the bicycle paths, connect all Richmond, not just some streets. Reduce speed limit for cars, make more convenient to bike than to take your car... if you build it they will come! We need clear rules for pedestrians and bicycles, and enforcement of those rules.
74	See last comment. What percentage of Richmond residents are seniors; are bike riders; have transit/transit corridors within walking distance?
75	Infrastructure upgrades should include end of trip facilities, such as safe bike parking, to encourage active transportation. Many areas in Richmond don't have bike racks.
76	Public education campaign regarding sharing the road safely with cyclists and any infrastructures improvements for those commuting by bicycle to UBC/Vancouver via the No. 2 Road and Arthur Laing Bridge or riding into our city from UBC/Vancouver over the Arthur Laing Bridge and No. 2 Road.
77	Add sidewalks to all streets, improve street corner slope to allow wheelchair access, eliminate street parking.
78	Bike lanes that are physically separated from car lanes.
79	You guys are arrogant and ignorant How many people ride bike in this climate or physically capable. Fix traffic signals build a new Massey tunnel or bridge extend the Canada line.
80	Safer bike lanes.
81	More separated bike lanes.
82	Bike lanes should be segregated with a concrete wall if possible. Vehicle right turn bays need to be dotted to block the bike lane to avoid anyone being crushed accidentally. Bikes making a left turn may only enter the roadway turn bay from a single lane road.
83	Bike lanes need to be safe and separate from cars. A painted line is not safe. Less parking, more walking and riding options. Less space for cars on the road and more space for people. Encourage people to walk, ride, take public transportation by making cars the least preferred option.
84	I thought these initiatives were already taking place through guidance from the Richmond Active Transportation Committee. I wouldn't use schools for any of this as they should be concentrating on more important things. They are already dealing with too much.
85	Cycling infrastructure in Richmond is abysmal. Bike lanes disappear, go up on to sidewalks, and do other inexplicable things without notice. Great Canadian Way and Bridgeport area is a prime example, and this is the main connecting route to the Canada Line Bridge! It is obvious that the City does not prioritize cyclists, and until we have safe, separated bike lanes, the majority of citizens will not feel comfortable cycling in Richmond.
86	Make it possible to cycle from Steveston to Bridgeport on segregated bike lanes. What exists now is a total mess. Provide lots of bike lockups. The one at Bridgeport is WAY over built. They can be done for 1/10th the the cost.
87	Increase secure parking at recreation centers and all municipal buildings.
88	Continue to add safe biking corridors to existing roads including Steveston hwy. remove as many barriers to safe cycling as possible including the provision of bus pullouts, particularly those buses waiting at an exchange/driver change spot-thinking here along Steveston hwy near the ironwood shopping area - dangerous not only for cars but also cyclists that use that road in such a congested area. Consider parking garages for safe parking for bikes and scooters-like in Amsterdam.

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

89	There is so much required here I don't know where to start. Let's try east west cycling corridors besides railway.
90	Fund bicycle roadways with license fees just as cars are licensed to pay for roads (and road improvements by ICBC).
91	It will make for a healthier lifestyle in many ways.
92	Well marked bike lanes, and enforcement of sidewalks only for pedestrian use.
93	Stop shredding my tax dollars!
94	We live in a rain forest 1/2 the year. Don't get carried away with all this biking and walking paths at the expense of car lanes.
95	Install a dedicated bike lane like on westminster highway down one side of Sidaway road. It is extremely busy with bike traffic and we have watched endless accidents resulting in cyclist roadkill.
96	More dedicated walking and bike lanes will be needed, esp with ebikes, as they go fast and risk of collisions with pedestrians.
97	I agree with the initiatives, however I encourage you not to be punitive to those who must use cars and not to reduce lanes etc.
98	In addition to cycling, make certain to include (continuous longdistance) running and other athletics paths and infrastructure (welllit, marked paths, with distance markers whenever possible).
99	Make public transportation more user friendly. Less cars on the road.
100	Again, not much specific commitment. 2030 is a long time away.
101	The continued development of battery technology will likely increase the variety of ebikes, e scooters, wheelchairs, and other new devices that blur the line between existing mobility options. These adaptation to these new options, plus increase demand, will place a much greater demand on our future infrastructure than is currently anticipated. Essentially, our plans for 2041 are almost obsolete.
102	Considering the decentralized nature of the City further complicated by the overservice of City amenities in some neighbourhoods while others receive next to none, build active mobility around vehicular traffic, not in replacement of. Cars are a necessity of life and someone living in Ironwood - for example - shouldn't be forced to walk/bike/bus for hours to reach the Oval.
103	Many roads like 4 Road are overbuilt you could make it instead of 4 lanes 2 lanes in each direction 1 turning lane and bike lanes in each direction. Bike lanes are going to have to widen with the increase in power assisted bike etc because we will have 2 speeds in these lanes. Also as much as I love trees instead of planting in sidewalks like on 4 Road in the sidewalk which make the sidewalk too narrow for wheelchairs and strollers , etc. Instead give home owner incentive to plant trees like coupons for trees upon approval by location. So the right size tree is planted.
104	Make it safe for people to ride a bike in Richmond. There is virtually no police presence in Richmond so automobile drivers in Richmond are constantly driving recklessly. Ride up the bike lane on Railway. Get rid of the RCMP and hire enforcers.

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

105	Emphasis on prioritize walking, rolling and cycling routes. I agree with prioritizing if it really is prioritizing. Every house seems to have super convenient access to a road, but not so with walkways or even cycle ways. Maybe consider development where walking and bike access are given priority over cars and not "as part of transportation network", but actual priority. Dis-incentivizing car use by closing streets and turning existing roadways into pedestrians / low speed ways. Make it more difficult to use cars and easier to use something else.
106	Keep internal combustion cars and trucks on the road.
107	I like the smaller buses I see on some routes. And the bicycle lanes are a good idea but some bicycle riders go right through red lights and I feel that the Police should be giving tickets to them. People are not going to give up our cars unless they absolutely have to. We are used to the freedom that vehicles allow and it does rain for about 9 months of the year. Richmond has an aging population and they cannot ride bikes or roller blade. But most can still drive a car. So do not ignore this segment of the population.
108	Ensure built-in methods to slow bikes down on joint usage pathes or provide barrier divided walk/bike pathes especially in Steveston.
109	Increased areas of walk-able and bike-able areas. Increased public transportation or vehicle share-options.
110	Provide public toilets.
111	The need for speed is gone. Provide mobility scooters their own pathways. Perhaps employees would prefer to use a scooter than a car, truck or van to get to and from work.
112	As a senior this is terribly important for quality of life & safety. Promote limited vehicular use with good policing actions.
113	Make better connections for paths. It's hard to transition and I've been lost a few times.
114	Work to improve cycling and/or rolling infrastructure in all areas of the city including more suburban areas of Richmond.
115	This is a positive thought that needs more work because when something is built or produced to accommodate activity mobility it is mobbed and not useful to all who wish to participate.
116	What is an Emotive electric vehicle??
117	I think this is one of the most important initiatives that we need to accelerate. The sooner we can stop relying on our cars for doing everyday essential activities. The less gasoline cars will be on the road.
118	Find ways to promote more cycling. the No 3rd road bike path is terrible. I hardly ever use it because it's too dangerous and too much car traffic.
119	You have to consider that many Richmondites do not work in Richmond. While I walk daily on trails near to me, I do so for my own health benefit, and I will then drive my gas-guzzling van to work in Vancouver. Taking transit is a dead alternative as it would make impossible for me to walk inthe morning before work!
120	All Ages All Abilities bike routes are a must. This means fully separated - all the way to the intersection - like Vancouver. The new plastic bollards on Granville aren't sufficient and most disappointingly disappear dozens of feet before the intersection which is where most people get hit! Why are fast right hand turns for cars prioritized over safe biking? There are so many good examples of bike lanes out there, please build them in Richmond!

## Q10: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ACTIVE MOBILITY FOR ALL? (CONTINUED)

121	Adopt world class standards for alternative transportation, we're decades behind and it's embarrassing that we haven't made any material progress. Prioritize safety of alternative transportation over the convenience of cars or we will remain in the 1980's.
122	Ideally it would be great if kids attended schools in their catchment and not be chauffeured.
123	More bike lanes or widen to allow for electric scooters/bikes.
124	Get cyclists off pedestrian sidewalks by creating safer cyclist corridors away from traffic.
125	Please ALWAYS be conscious of people who are unable to walk, cycle or afford something that will roll so as not to alienate people who are already over stressed by challenges.
126	Again, cyclists are so minor and bikings along the waste gas road is not attractive at all. Please do not having ridiculous biking lanes on important roads. it just create more wasted gas in the traffics caused by bike lanes!!!!!!
127	Have options for all ages from children to seniors.

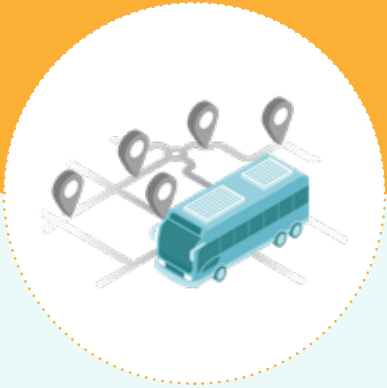


# SUPPORT FREQUENT TRANSIT

## STRATEGIC DIRECTION 6 SURVEY RESPONSES



# SUPPORT FREQUENT TRANSIT



## CARBON REDUCTION TARGETS

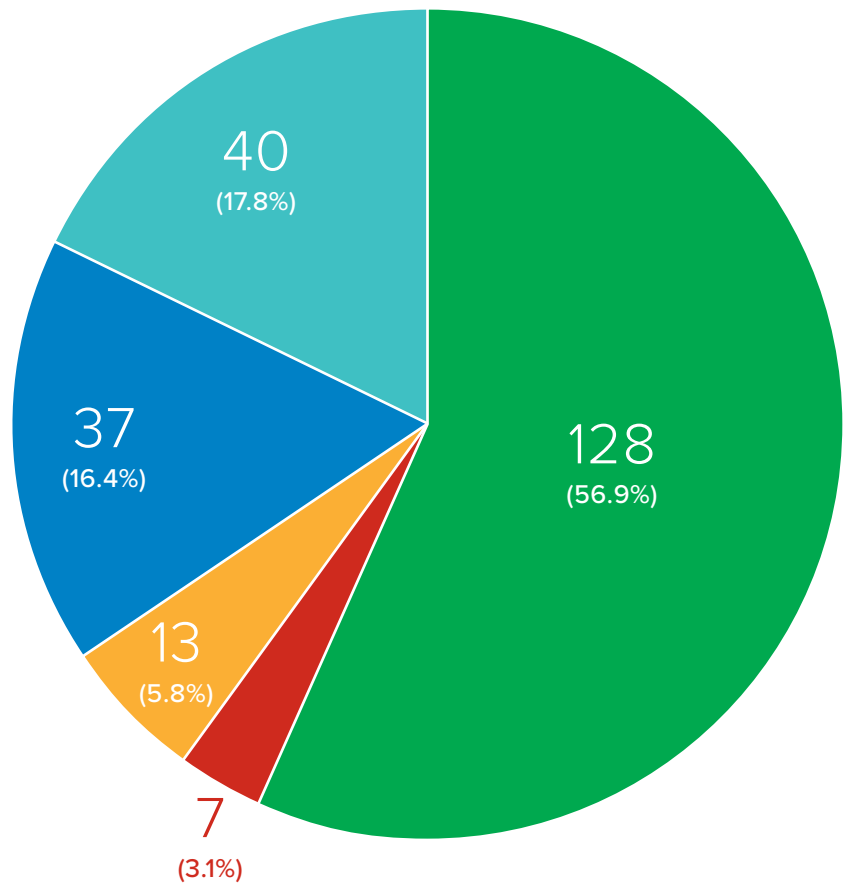
### 2030 TARGET

Increase transit mode share to reach 22% by 2030.

### 2050 TARGET

Increase transit mode share to reach 27% by 2050.

## Q11: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

225 Responses total

## Q12: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO SUPPORTING FREQUENT TRANSIT?

1	Layer evening service.
2	The Canada Line is crowded and there is no convenient access for those living in the southwest of Richmond. It takes a long time to bus from Steveston and No 1 Rd and the alternative of park and ride at Bridgeport is just as bad. Extending the Canada Line to Steveston highway or a direct shuttle from a park and ride at Steveston as well as more frequent train times or longer trains is needed to make this an attractive option.
3	Add more buses.
4	You can't be trusted with the transit file.
5	Subdivide large lots to allow greater densification - this drives transit provision and use.
6	Make sure all busses are electric. Make transit easy and affordable especially to low-income families.
7	The eBus option is quite stupid.
8	Create parking lots next to skytrain and bus loop stations.
9	Prioritize public transit on public roads so to not stuck in congestion as private vehicles.
10	Make short transit trips more affordable for those who don't use it enough to justify a monthly pass. Today it is more economical for someone with a car to drive within Richmond than take transit.
11	Long term: Develop a Canada Line extension or SkyTrain (not LRT) to Surrey, Delta, or Ladner/Tsawwassen, or a rapid transit to East Richmond / New Westminster.
12	I probably won't live long enough to use it, but I would love to see SkyTrain extended from YVR Airport to the Tsawwassen Ferry Terminal, and also a Southern connection to hook up with the new Langley SkyTrain line. Perhaps connecting to the King George Station, making a loop so we don't have to go all the way downtown Vancouver to get out to Surrey. Also, PUT PUBLIC WASHROOMS AT ALL NEW TRANSIT HUBS! And retrofit them into existing stations.
13	Build more infrastructure to support active transport with transit. Individual bike lockers, clean showers at all connecting stations and SkyTrain stations. Require Street level storage for bikes accessible from the outside for all new condo developments (see Netherlands).
14	Promoting transit when it is unsafe (people don't feel safe, especially with the increase in mentally ill and addicts on Richmond streets), uncomfortable, unreliable and an easy way to transmit germs is not viable and not something that should be forced on people.
15	With Covid protocols, I do not support greater transit, I believe EV and bicycles is most important.
16	Transit seems like a good idea. However it is unsafe in many ways including close proximity to others.
17	Extend Canada line to Steveston. Make it easier and faster to access sky train e.g. Park and Ride stations. Currently the only option is at River rock and this was full by 8:30am in pre-COVID times.

## Q12: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO SUPPORTING FREQUENT TRANSIT? (CONTINUED)

18	When commuting to work to Vancouver, the skytrain is a great option, but then trying to bus back home (especially late at night) becomes hard because the buses become infrequent or the bus stop distance from ones home is too far to walk at night. In East Richmond, passing through a park or walking the main street at 8/9pm in the Fall/Winter is a scary thing. The community shuttles shuts off around 630pm, so that distance walking back to your home is dark and scary. We need to offer longer time frames people feel safe to use transportation all the way home, instead of just to the skytrain and then trying to find a ride or grabbing a cab which doesn't help our zero emission case.
19	Nothing that has not already been included in the plan.
20	Look into transit — be it LRT or SkyTrain — to Steveston and Southern Richmond.
21	Input from the citizens.
22	Transit only works if you do not deviate from normal commuting patterns. For parents with children in daycare, transit often does not work. How transit can allow for more localized transportation to avoid having people getting cars in the first place is important.
23	Why can't Richmond install trolley wires for electric buses like Vancouver.
24	May require more bus stops throughout Richmond.
25	Expand bus services, and implement more frequent and reliable transit.
26	Fix the Canada line agreement that guarantees another 30 years of symmetrical service to YVR as Brighouse, despite much lower ridership. Focus on fair distance -priced transit for short intra-city trips.
27	They should expand the existing Skytrain network from Brighouse down to Ladner or Tsawwassen Mills to avoid having to use cars.
28	Make it very low cost to use. Forget buses - they suck unless they run on their own transitway (Ottawa). You need to make transit so that one does not need to plan to use it - make it so that one can walk out and take transit and it does not take significantly longer than driving.
29	Park and ride initiatives have been ignored. They were discussed for Canada Line but ignored. Provide substantial park and ride facilities at Canada Line stops.
30	Don't be afraid to add dedicated bus lanes or take space from cars as needed - cars have been given priority for far too long, and look where that's gotten us in regards to how cities have grown in unsustainable ways.
31	Let people buy there own houseing like i did . Or move like I did !!! And pay for there own energy use of all kinds!
32	Electric busses ? Is this insanity or what ? there isn't one city in the world which is able to replace a conventional bus with an electric bus on the same route. Their maximum range is 25 miles on the flat, and take 12-15 hours to re-charge. In china a whole row of them recently spontaneously burned to the ground when the batteries caught on fire. Stupid, stupid. GET THE FACTS> GOOGLE IT. Stop wasting taxpayer money.

## Q12: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO SUPPORTING FREQUENT TRANSIT? (CONTINUED)

33	In my experience from frequent usage, Richmond's busses are much slower than Vancouver's. I think this is because Richmond's busses stop very frequently compared to the main Vancouver routes—in Richmond, busses are constantly starting and stopping rather than actually getting anywhere. Therefore, Richmond should introduce new express busses along the most-used routes. Vancouver already has excellent express busses, for example, the new R4. This route tends to be just as fast as driving, or faster, due to bus lanes that let busses pass traffic. The key? The R4 stops infrequently and only at strategic locations. Richmond badly needs express busses. If taking the bus were just as fast as driving, people would take the bus. Right now, though, busses are much slower. Richmond could also consider designating key streets as bus/pedestrian/bike corridors, similar to Granville Street in downtown Vancouver. For example, one candidate could be the recently-built stretch of River Road. Another candidate could be Richmond's Granville Street. If these were designated only busses and bikes, this would also have the advantage of extending key bike corridors (the dyke and the Railway Greenway) to connect to more businesses. The city could mitigate inconvenience to residents along these routes by permitting local traffic on short, connecting sections. Nevertheless, I am convinced that Richmond's bus problems are too-frequent stopping, not a need of bus lanes/roads.
34	Please strengthen the support for BEV solutions - it seems illogical that frequency could be increased but by using fossil fuelled vehicles.
35	Major stops should have lighted bus shelters with bus timing and wifi.
36	Current rail system is hub and spoke model with all transit leading to downtown Vancouver; provide faster options for transit between suburbs. Setup denser office cores and open floor plan office towers in downtown Richmond.
37	Worry less about ebus and more about frequency and ease of access to transit.
38	Free access for all public transit.
39	Look at routes with frequent delays and consider transit only lanes, or bus only lights on those routes to create a more reliable transit system. Acknowledge publicly that backing a scaled down Canada Line was a bad idea and identify options for what happens when Canada Line is running at 100% capacity which will soon be the case. Create safe-car free zones around transit stops that incentive people to travel to Richmond for the day. Getting off the train into a public square with retail, parks etc... all accessible without having to worry about cars is a huge draw and currently not many people travel into Richmond from Vancouver for leisure. Lobby for Canada Line expansion East from Bridgeport but also down granville and railway or possibly tie in the railway greenway with the planned trolley down arbutus if feasible.
40	I hope you are successful. The bus system in Richmond is frustrating and time consuming if you have to catch more than one bus.
41	Review our transit routes - I think we lack easy east-west routes that do not require having to go into the city centre or have to transfer. For example, it takes me 10 min by car to go to Ironwood but over 30 min by transit.
42	Better bus hubs and network. Richmond is large but the network sucks.
43	More transit hubs outside of Brighthouse Station/loop.
44	Skytrain must run 24/7/365. Bus feeders are already running every 15 minutes during peak hours, 22 hours a day. Any new mass transit proposals such as a line to Steveston or to Ladner must be grade separated. Surface LRT such as what was proposed for Surrey must never be considered. Surface LRT would stifle traffic movement causing a drastic increase in travel times, pollution and loss of economic efficiency. The city council was wrong in opposing the 10 lane bridge to replace the Massey Tunnel. The current 8 lane design (3+3) vehicle with no stack interchange will be totally inadequate come 2030.

## Q12: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO SUPPORTING FREQUENT TRANSIT? (CONTINUED)

45	Please consider pick-up and drop-off space at busy frequent stations such as Brighthouse Station.
46	This must include universal access for all; currently wheelchair users are often passed up because the tie-down spaces are occupied by strollers, including those containing groceries &/or pets.
47	Increase the reliability of technologies that track buses to reduce the user waiting times at stops.
48	VERY IMPORTANT, much of Richmond is not walkable and is reliant cars. In future planning, it is important to focus less on cars and more on transit.
49	If I am not biking or walking, I use transit. It is not frequent to go thru the tunnel to Ladner or tsawassen.
50	Start including a robust secure peer-to-peer car sharing as well as on-demand minibus service...maybe start planning now for driverless taxis.
51	Dedicate some buses for fewer stops so that the trip is faster for long trips across Richmond.
52	Stations and Bus Loops 1) Washrooms at stations 2) Steveston bus loop 3) Bike parking Buses 1) Covered seating 2) Bus priority for intersections 3) Bike parking Other 1) RapidBus from Steveston to Richmond-Brighthouse 2) Direct bus route from Steveston to Riverport.
53	Extend skytrain to Steveston.
54	Improve ability to access real-time information about bus arrivals through smart phones.
55	Reducing the time and increasing the ease of getting around Richmond by transit would be wonderful.
56	The transit system is hugely inefficient. smaller/more frequent modes and expanded Canada line is required.
57	Why not talk about cocktail transportation options - Connecting transit to pedestrian and cycling options. Great to see affordability here, but we also don't want to cluster just lower income folks at transit hubs, we need mixed density plans!
58	Having transit stations near high density living makes a lot of sense.
59	currently limited transit options in the city, as Richmond is a very automobile centric city.
60	Alternative transit support from hubs, primarily free, efficient, and secured bike storage lockers.
61	As someone who has to visit medical clinics and the hospital regularly, I find the transit options to these very poor. Why not look at where people need to go and provide bus-only lanes so they can get there?
62	Congestion pricing.
63	Better connectivity between transportation options... multi-modal transportation, short, medium and long distances. Above all, make more convenient to leave your private car at home!!!
64	All above points are very valid. Right now need much more East-West transit here, it is largely North-South.
65	I highly support increasing transit provision and service improvements. Many of the feeder bus routes connecting to the SkyTrain run infrequently, which is inconvenient.

## Q12: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO SUPPORTING FREQUENT TRANSIT? (CONTINUED)

66	Eliminate street parking, or levy fees on street parking earmarked for public transit.
67	Do it only more of it.
68	Bring Mitchell Island into the transit system.
69	Any future mass transit systems must be grade separated such as the existing Skytrain systems. The city should ban any surface LRT. Otherwise use a HOV lane with BRT for lower rider volumes.
70	Protect greenways from being repurposed for rail rapid transit.
71	How are you going to convince Translink to increase frequency. Have you managed to convince them to put in a bus station in Steveston and get them off Chatham and away from cyclists? We need more (smaller?) busses across Richmond.
72	These sound like regurgitated policies from previous studies. How many affordable housing units are being provide by multifamily development along the major routes? Often sidewalks are handed over to developers who them make them impassable for extended period of time. I realize this is necessary but an alternate route be provided, for example closing a traffic lane for pedestrians use.
73	I hope there are bathrooms planned to be opened at stations. It's difficult to travel with young children or with chronic stomach problems.
74	Allow subdivision of lots to increase density.
75	Increase e-bus charging facilities.
76	Expand elevated rapid transit (eg Canada line). Expand Canada line from Bridgeport to Steveston hwy and work with others to expand it to the ferry terminal.
77	A caution: If too many stations are added, "rapid transit" becomes a misnomer and begins to look like bus service.
78	Install many more bus shelters with designed protection from wind and rain.
79	Enough already!!! Stop shredding my tax dollars!
80	Why am I as a tax payer subsidizing affordable housing. Enough of this. The more affordable housing you build, the more poor people come here from the rest of Canada for this cheap housing! Affordable housing should be in less desirable and cheaper areas. Williams Lake, Quesnel, 100 mile house etc. Kootenays.
81	Straighten winding routes in Richmond. They take much longer than by auto.
82	Increase skytrain service hours. Run hourly trains 24/7.
83	Bus ridership is diminishing, not a time to expand.
84	This seems to always taking to long to complete. Sometimes you just have to get it done.



## Q12: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO SUPPORTING FREQUENT TRANSIT? (CONTINUED)

85	Invest in people friendly infrastructure. What does this mean? How much money?
86	Are transit infrastructure needs to be future adaptable to the whims of individual travellers. Residents will expect that they can “call” transit service to arrive close to their home, and deliver them to their destination with few, if any, transfers. Vehicle automation will make this a private sector option — but we need to build this future flexibility into our public systems so that they don’t become obsolete within a few decades.
87	Design transportation to ensure it’s accessible who have different levels of mobility. Make it easy for people with walkers, mothers with baby strollers to bring these and navigate inside buses and on trains.
88	See my last remarks. Further, Translink cannot service all residents’ mobility needs. Cars are a necessity for the average resident, not luxury to be administered punitive planning measures or fees.
89	Make more shortcuts through neighbourhoods to get to main road easier to connect transit.
90	Provide parking near some of the terminals.
91	Transit needs to be more comfortable with more space for people - not jammed in cheek by jowl - more frequent electric skytrains and double decker buses with seats spread out more and better ventilation.
92	There’s an image of a sky train here, but that’s only good for North South Travel along #3 road and getting in/out of Vancouver proper. Unless there’s a proposal for light rail in Richmond, transit means busses. I unfortunately don’t know enough about the transit to provide good comments, but I live in the community bounded by No 4, Westminter HWY and Granville. We have no transit passing through here and what transit we do have heads North to the skytrain (Vancouver), East to the sky train (Vancouver) and East, then south along No 4 to Ironwood plaza. There’s no transit related way for me to get to the bridgeport commercial corridor, the no 3 commercial corridor, Stevenson or any real shipping center that’s more practical than car or even biking, even with the limited bike infrastructure. Frequency is nearly a non-issue unless our population increases 10x and bus frequency drops to every 2-4 minutes.
93	Nothing else.
94	I think Electric Buses will not be a viable option. They will take too long to charge and if they are stuck in traffic they will have a dead battery.
95	I would like to see expansion of the skytrain system.
96	Add Express bus to River Rock transit hub from Steveston. Extend Canada Line to Steveston.
97	As a public transit user, I’ve noticed that there’s an increase of usage since the loosening of restrictions with regards to COVID-19, yet the frequency and adding of busses has not increased. This should have been the priority looked at and should still be looked at. Again, it boils down to ensuring that there is an infrastructure that supports current commuters and future commuters.
98	Expand platforms so that longer trains can be used.
99	With respect to community living, what exists today has come a long way from yesterday. Perhaps the future looks brighter for frequent transit than ever before. If a person can make it on their own to the street in front of their house, public transportation should be available. Make it so, and the need for taxi drivers will wipe out the need for taxi’s.
100	The List above exhibit good approach & sensitivity to the issues on hand. Somebody did a great job!

## Q12: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO SUPPORTING FREQUENT TRANSIT? (CONTINUED)

101	Work with TransLink to introduce quieter, low-emission hybrid buses to Richmond instead of regular diesel buses.
102	This has some merit, but it also allows for more mobility for the criminal element to easier access areas to accommodate their choice (or lack of) making a living. As well the issue of passenger assaults reported or unreported needs to be dealt with in a very serious manner.
103	An open review in simple language. Where are we at now? What is the target? How can we get there (which is somewhat suggested above) and what do those steps and actions cost?
104	Public transportation is not inclusive as long as mask mandates stay in place. Put Rosa Parks in the back of the bus, right?
105	Two things would make transit more appealing: bus shelters (it's wet a lot of the year) and bike racks at each stop.
106	Expand transit to include more late night trips.
107	What are the affordable housing targets? How much capita to be allocated towards these objectives? What measurable results will be achieved? Again, the steps above are simply flowery language without having quantitative, measurable targets.
108	Transit is crucial but for seniors and disabled that is not always an option.
109	Increase bus service on certain routes. There should be a direct line east/west on Steveston Highway, running frequently.
110	I would add that Richmond needs to take a leadership role in having some sort of railway/skytrain/tram/interurban rail to Tsawwassen rather than continue to increase the amount of car traffic through the tunnel.
111	More collector buses in neighbourhoods and vast publication of bus routes, accessibility, schedules, and connections. (Not via computers or social media).
112	I hope the train systems can carry on during the extreme weathers, really important, if flood comes, and car bridges are down due to escaping car traffics, the train or even the train bridge [people can walk over during extreme weather] is like the only way that Richmond people to get out to higher ground in Vancouver and Burnaby. Really important! Image the flood news this year happened in other big cities, if these flood happens in Richmond, what people will do? The most cars will be stuck in the ground parkyard already, highways/tunnel/bridges are down by the traffics, how richmond people escapes?
113	Make transit riding cool and not just for those that can't afford a car.



# ENHANCE GREEN INFRASTRUCTURE

## STRATEGIC DIRECTION 7 SURVEY RESPONSES

# ENHANCE GREEN INFRASTRUCTURE



## CARBON REDUCTION TARGETS

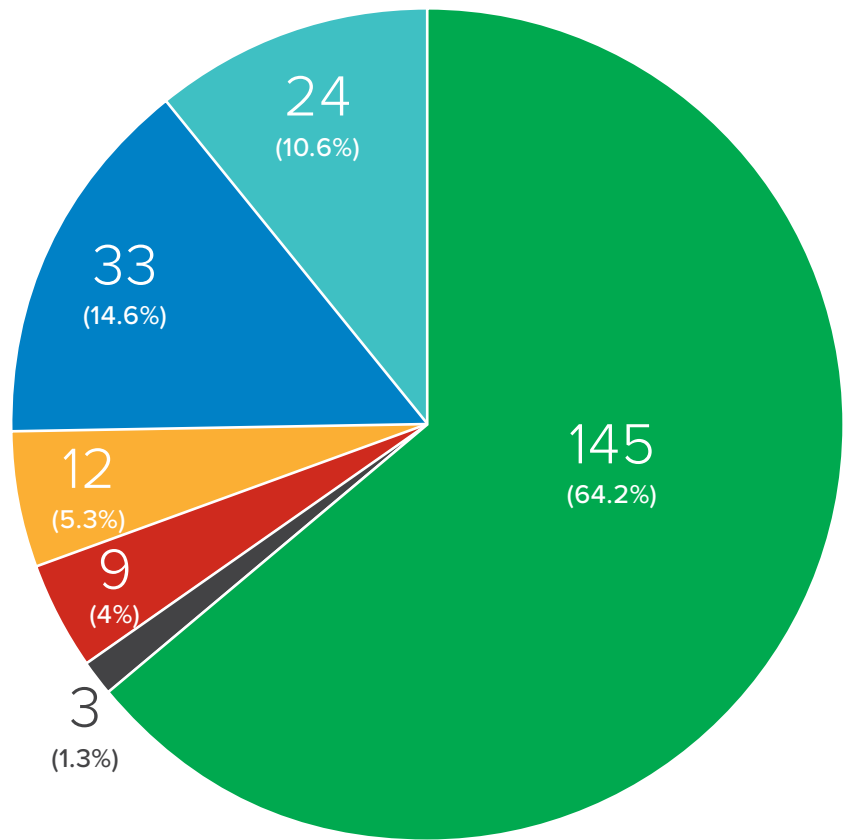
### 2030 TARGET

By 2030, measures have been identified and initiated to sequester 20% of Richmond's current annual GHG emissions (approximately 200,000 tonnes of carbon dioxide equivalent CO<sub>2</sub> per year by 2050).

### 2050 TARGET

By 2050, Richmond can verifiably show that 200,000 tonnes of CO<sub>2</sub> have been sequestered or directly removed from the atmosphere annually, as a city-wide carbon 'buffer' equal to 20% of Richmond's annual emissions in base year 2007.

## Q13: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

226 Responses total

## Q14: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ENHANCING GREEN INFRASTRUCTURE?

1	Incentivize farmers to plant cover crops and not leave fields fallow. It's such low hanging fruit and a powerful way to sequester carbon. It would position Richmond as a true leader in the fight against climate change.
2	Major tree planting project in new Garden City park would provide shade for walkers, sequester carbon and a cooling effect for the center of Richmond. That area is too open. More trees in Terra Nova would be good too.
3	Work on lowering taxes instead.
4	NOTHING!!! STOP SHREDDING MY TAX DOLLARS!
5	Stop building on the ALR (I mean really stop). Raise the dikes and incorporate better bike paths/greenways.
6	No Biofuels. To be truly net-zero emissions we must not release carbon back by burning it. We need to find alternatives to burning fuels that release carbon.
7	The carbon sequestration idea is a complete waste of money and resources.
8	Incentivize planting shade trees in landscaping to provide natural air conditioning. Relax the tree bylaw for homeowners as it inhibits planting.
9	Consult indigenous authorities of the land, for what plants/trees are local and more resilient to the weather - More protection and plating of mature trees.
10	Stop building mega mansions that are not lived in on ALR land.
11	Sequester as much carbon as possible into the concrete foundations and stable clays and minerals in and around Richmond soils and dyke infrastructure, which will ensure its stability and may prevent liquefaction in case of an earthquake. Plant significantly more trees along side and main roads and city center areas. Richmond can be the "greenest" city in BC (in Canada?) In more ways than one.
12	Planting more trees where it is appropriate is a good plan, also protecting existing trees, and replacing diseased trees with healthy new ones.
13	I fully support the planting of more trees on public land. The draconian rules around trees on private land are ridiculous and unfair to home owners.
14	Require developers and contractors to save existing mature green infrastructure. Impose strong, expensive penalties for violations, i.e. loss of business license. "It's much easier to ask for forgiveness than to ask for permission."
15	Please see earlier suggestion for carbon capture. There should be consideration of the probable increase in temperatures when making suggestions for horticultural carbon capture suggestions.
16	Increase parks space drastically.
17	There has to be a balance between cost and benefit, for example if the cost and impact of maintenance outweighs the benefit then projects should not go ahead.

## Q14: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ENHANCING GREEN INFRASTRUCTURE? (CONTINUED)

18	We need more (usable) green space in Richmond. We have the Richmond Nature park, but that place is not useable in the sense of picnics, playing the the park. The nature park is very specific with what one can do there. We need more park space that emphasis's more time outdoors, more playing space, more family gatherings place. King George park is the only parks on the East side that has all of this, and then becomes over crowded. Parking overflows, and continues to the streets which then disrupts the traffic flow, or the parking for the businesses gets used which then disrupts the traffic for the businesses. Another green space similar to King George park is needed in Richmond East, to help garner these problems. Also, a better transit system to East Richmond (more buses from across Richmond/Skytrain coming to East Richmond- Community Shuttle running on the weekends, as parents are reluctant to take their kids on the bigger bus) can also help the traffic/overflow of the parking.
19	I know that in order to cut down a large tree in the City, a citizen has to acquire a permit and that the City employs arborists to inspect trees before a permit is issued, but I would like to be assured that the arborists are not unduly influenced by citizens who simply feel a tree is "dirty" because it drops too much debris on their property. Also severe pruning of existing greenery should be discouraged.
20	Take care in neighbourhoods with respect to planting trees that have root systems that do not cause structural damage and do not require high amounts of water to survive.
21	Keep farm land, not for big houses but for farming. Big taxes for those who do not put the land towards produce.
22	Please ensure that pressure on ALR lands are reduced.
23	Ascribe higher weight to existing biological carbon sinks (eg. trees of significant age or size).
24	Hire new staff at the City who don't worship Eisenhower era standard for bike lanes and sidewalks.
25	As long as no extra taxes added on property.
26	Develop property tax rules that lower taxes for treed properties Lower water rates for owners with gardens: Implement lower sewage rates for garden owners who have a penalty incurred because sewer rates are based on water consumption, while that water is used to keep trees alive not go down the sewer.
27	You have already built on the best farm land in BC! Why stop now!!!
28	Sequester 200,000 tons of CO2? Is that a joke? All life on earth DIES at 150ppm. We are barely at 400ppm, and Richmond wants to reduce it from 400ppm while plants need 950-1050ppm to survive. How stupid. Growers ADD CO2 to greenhouses to help plants grow ! ! Want to sequester CO2 and produce O2, then start planting trees, like boulevard trees in front of every house on every street. Now that's a REAL solution. GOOGLE IT !
29	This change is likley going to produce the least reduction to greenhouse gases while being quite expensive to implement. Prioritizing other initiatives with funding may produce better reductions.



## Q14: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ENHANCING GREEN INFRASTRUCTURE? (CONTINUED)

30	Private residents should rarely, if ever, be permitted to cut down trees. Moreover, there must be strict and meaningful enforcement. A few years ago, my neighbour was permitted to cut down about a dozen trees on the condition that they plant replacements. The replacements only lasted a year before they, too, were cut down (presumably without city permission), after which the owner sold the property. The city needs to have meaningful enforcement to make sure that owners keep replacement trees as agreed upon. A first step should be that, when property is sold, the city should check that there are not any trees "missing" that were agreed to have been there. The city should also check in (every 5-10 years) to make sure that replacement trees are kept, with strict enforcement and re-planting as necessary.
31	Green roofs - make them accessible to public or at least the residents of the building; Other it is limited private use only and does not benefit the community.
32	It is important enhance as stated above with considerations to existing infrastructure and homes.
33	Less concrete more grass to absorb rain.
34	The city should buy back unused farm lands in ALR, especially peat land and turn them back into bog forest to help with carbon capture. The city should hire experts that can teach local farmers how to farm crops without using sprays.
35	More green space, less people density.
36	I don't know much in this area. But I've seen hours of council and staff time taken up to change housing plans for 1 tree. There should be some tradeoff. Retaining trees is incredibly important but so is dealing with our housing crisis. Maybe have a system where if trees need to be removed then the sustainability requirements of the building should be much higher to offset the tree removal while still allowing it to house people.
37	More trees!
38	Include citizens in greenspaces through participation. ie community gardens, more activated outdoor spaces.
39	Limit size of buildings and paved surfaces where possible, especially on the ALR. Climate change is likely to bring more intense storms, and paved surfaces cannot absorb rainfall.
40	Engage community in conversations before simply filling up small parks with trees as having open green space is great for games of soccer and other fun games where simply planting trees could make that impossible.
41	Not specifically mentioned but I'd like to see a recycling strategy for clothing, sheets and other fabric items. I believe Toronto has one. (PS - I think our recycling program is generally terrific!)
42	Stop cutting, more planting.
43	Promote tree planting on private lands with a small property tax rebate if maintaining some x amount of trees. However if a property owner does not wish to retain trees for any reason, there should be no issue with removal. The current authoritarian policy is wrong and discourages anyone from planting a tree that in the future would be a headache and expense to remove or even prune.
44	Massively support creation of green parks/areas for walking, talking, & even resting/reading. I'd love it if everyone was in walking distance of such an amenity, to provide peace, coolness, & oxygenation of the city air.

## Q14: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ENHANCING GREEN INFRASTRUCTURE? (CONTINUED)

45	More green spaces in community, so people feel connected to green spaces.
46	Plant more trees.
47	Create healthy fun competition between well-defined Richmond neighbourhoods to see who has the healthiest ecosystems using citizen-science type indicators; create a special currency to motivate private land owners to plant the right kind of trees that promote biodiversity (and that currency would be redeemable against city of richmond services.
48	Encourage use of rainwater for gardening and car washing.
49	Replace grassed areas (curbsides, front lawns of schools and City Hall, etc.) with native plants Plant trees along roads to provide shade for pedestrians and bikers.
50	Voluntary programs to support this. Involve school age children to promote awareness.
51	Re-wet and restore active peatlands.
52	Looks like the right track to me, green space and attention to surfaces to reduce the urban heat effect is probably important as an adaptation strategy.
53	It would be great to see food security and urban farm/garden/orchards as a priority too. Fruit trees!
54	Zoning needs to allow higher density in the current living areas and very restrictive for the green areas...
55	Alternative transit support from hubs, primarily free, efficient, and secured bike storage lockers. Bike paths improved to ensure safe connectivity. Currently too many drop offs where cyclists, adults and kids, are left to navigate themselves between neighborhoods.
56	Don't allow mega mansions on the ALR.
57	Plant more trees.
58	We need a much greener city; 200,000 tons CO2 sequestration by 2030, not 2050!
59	Need to stop developers from stripping properties of shrubbery & top soil. not sure where this comment fits, but demo'd homes should have much of the material re-cycled.
60	Levy taxes on properties without mature trees and greenspaces, rebate for green roofs.
61	None.
62	include living dikes into infrastructure plans.
63	The city should be looking at enhancing the city owned lands with more trees/plants, though thought needs to be given for security/lighting. Private owned lands should be upto that property owner entirely.
64	Create additional community gardens. Increase fines for ontravention of tree protection bylaws. Fine residents up to \$10,000 for destroying Riparian Management Areas. Compensate for Environmentally Sensitive Areas lost to development. Encourage farmers to plant hedgerows, riparian buffers, and grass margins.

## Q14: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ENHANCING GREEN INFRASTRUCTURE? (CONTINUED)

65	More trees and shrubs , less pavement. Pull up pavement wherever possible and replace with trees and shrubs. Support programs that help apartment and condo complexes to have green plantings on roofs as well as ground level.
66	Why doesn't the city implement the Public tree Management Strategy? Also trees are constantly being remove from land that is being redevelopment. The city's action on this front has been poor to date. Also Sturgeon Banks will be underwater in the next 50 years.
67	Modify housing design requirements to require rain-water collection system reservoirs. Not thinking barrels but an actual reservoir built into the house with a rain-water collection system on the roof. Saw a great design on a new build in Australia. Would help with watering and keeping private yards/gardens and trees healthy during drought conditions and also lessen impacts on existing sources of water for domestic uses. Consider the same for all new commercial builds as well.
68	Green infrastructure is the most important issue for me. The urban forest/green space is disappearing creating a number of invisible issues in neighbourhoods and the city as a whole. Progressive, knowledgeable governments are working overtime to replace and restore green canopy lost to over-development and neglect. The benefits of urban forests/canopy, though largely invisible, are numerous and education and enforcement of tree retention and replacement should be a high priority throughout the city. Our farmland also should be a priority. Good farm land is "not just dirt". Wetland protection is also crucial in our transition to climate change adaption.
69	Lawn cutting every two weeks Ban all internal combustion mowers and edgers. For 15 minutes of use these contribute as much carbon as a car idling for an hour.
70	This is a case of cognitive dissonance and perhaps the way out of the City's faux anthropogenic "climate change" agenda: The City wants to reduce atmospheric CO2 and at the same time also wants to plant more trees which thrive off CO2. Plant growth is spurred by high levels of CO2 which is why greenhouses have CO2 pumped into them at levels of 1200-1800ppm (compared to the current atmospheric 400ppm.) More CO2 makes the planet more verdant, increasing food crops to feed the third world (in particular.) Wonderful! Truly the trace gas of life on Earth. Bravo to Council if they can grasp that CO2 is not the demon the IPCC (errantly) claims it to be!
71	Will help to make life better and more healthy.
72	When revamping parks and other public areas please retain the natural feel and be mindful of the ecosystems and animals in these spaces.
73	Give each landowner a tree to plant on their property.
74	Virtue signaling.stop it!
75	Province is covered in forests. Saving a few trees around richmond is costly and of very little impact over all. One small provincial park would do what the city is trying to 100 times over. These plans are just expensive window dressing for people who do not leave Richmond.
76	Green roofs and green walls.
77	Free trees for land owners.
78	Identify actions farmers can take as well: to reduce erosion, leeching of chemicals into waterways, plants that sustain bees, butterflies etc in perimeter areas surrounding fields

## Q14: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ENHANCING GREEN INFRASTRUCTURE? (CONTINUED)

79	Encourage/expand green/living walls and roofs in existing and new construction and infrastructure.
80	How many trees will be planted in what. Of time? Developers have been given too much leeway cutting trees down.
81	Promote tree retention on City properties and remove punitive measures on private property owners - those residents carry all the costs of ownership and maintenance and deserve the autonomy to decide what plantings they want on their own properties. Since city boulevards exist along a large number of streets, that is a more appropriate place to commit plantings towards the goal of an increased urban tree canopy and sequestering carbon.
82	There should be a mandatory tree ratio to ALL new builds. Because Richmond has to load the lands before building many trees are taken down. 1st we should see if trees can be saved 2nd can they be moved and when replaced upon building if they can not put trees back. There should more inspection on tree choices. First we see monster homes built with little tree planting, this should be upgraded to a ratio of planting area. Also see townhouse going in with 2 or more trees which will get too big. There are varieties that do not get as big they should be used or 1 large tree. There should be a canopy cover amount used and where it can not accommodate they should pay into a fund which the city could use to plant on municipal spaces, edges of highways etc. This is an area city could ask residences to send in areas which are tree deficient. So they can use the budget or large trees being moved.
83	Add more garden Greenspace.
84	C'mon. Only a moron would see any value in carbon sequestration.
85	I love the flowers and gardens in our lovely city. I only wish people were allowed to top and thin existing trees. In fact some trees should be removed since they are unsafe. Also dead trees are a fire hazard as they will go up in flames with a spark. No one is addressing this and along every main road you can see dead bushes and trees. When they blow down they will destroy the power lines or the roof of a house. The roots of these over grown trees are impeding the sewer lines and water lines. Please reevaluate your present bylaw refusing people to remove 10-20 feet of a 50 foot tree. I know that new developments are allowed if they replace the trees with smaller versions which I think is a very good idea. 30-50 foot high trees in neighborhoods with larger homes on small lots is not a safe idea.
86	Add more community gardens, restrict size of mega homes, protect ALR, plant fruit trees on city park land.
87	Enhancing this area is simple. The city should promote urban agriculture (ie community gardens/farming).
88	Relocate the airports. Provide courses on all aspects of growing our own food, from the compost of our own waste. Provide the essentials for every home to recycle 100% of their own waste. Support self sufficiency. Teach those who are depending on others for their food, garbage etc how to be more independent.
89	Can the city support a natural greenhouse for educational and tourist attractions. Most great cities have greenhouses as community focal point. A dome maybe, ideal for the open space next to the soon vacant space next to arena (old pool house).
90	More green everywhere. Allow the public to access private condo parks.
91	Stop building hotels and castles (for whatever these monstrosities are used for) on arable land, what kind of a carbon footprint is this?
92	Lots of assessing to be done, this sounds like a bit of a wish list without any solid metrics to guide the action list.

## Q14: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO ENHANCING GREEN INFRASTRUCTURE? (CONTINUED)

93	Deforestation is a major source of carbon emission into the atmosphere. We must do everything we can to scale up carbon sequestration. Enhance green space is a very important initiative.
94	Stop cutting trees down. too much loss of green space for big developments.
95	Plant trees, get rid of that ones (fire hazard), create green spaces in urban areas that are enjoyable to walk through while moving from destinations. Trees and shrubbery are great carbon sinks if cared for properly.
96	Remove carbon capture technology- this technology is not currently viable. Protect our mature trees- new development must build around mature existing trees instead of planting little saplings that die. There are so many dead saplings on newly developed lots all around Richmond and it's not okay. Rainwater capture programs, like barrels or cisterns, for irrigation purposes on residential, commercial, industrial lands. Selling low cost trees to the public, like Vancouver's annual tree sale. (Adding in native species shrubs would be a great addition that would help biodiversity and urban habitat.)
97	Encourage homeowners to plant more trees by making them available at a very low cost.
98	City should play a bigger roll in preventing the cutting of trees with much stiffer penalties. Make sure all new trees are watered, not depending on people who live there.
99	Stop letting developers destroy neighborhood canopy for their new housing. A mature tree is worth more than a new one that will take years to provide the same shade. With climate change we need more mature tree canopy not less. It should be a criminal offence to cut down a mature tree to accommodate a new house. Higher fines are needed. Shaming tactics too.
100	Would like to see some enforcement of the tree bylaw when new houses are built. Orange fencing around trees most of the time does nothing to save the trees.
101	Keep boulevard trees trimmed to promote appreciation rather than distain for them by adjacent residents. And, stop what appears to be a double-standard when it comes to valuing farm land, and then allowing massive compounds (not buildings I would ever call a home) being built on the land. Also prevent the appearance of a double-standard when it comes to tree removal and offer up a detailed explanation when the City decides to remove trees (such as around Minoru and the City Hall before expansion) and then not allowing removal by private citizens.
102	Leave this beautiful budget to other important topics like if Richmond is sinking.
103	Encourage planting of trees for many reasons: natural beauty, promotion of clean air, keeping cool in warm weather.



# TRANSITION TO A CIRCULAR ECONOMY

## STRATEGIC DIRECTION 8 SURVEY RESPONSES



# TRANSITION TO A CIRCULAR ECONOMY



## CARBON REDUCTION TARGETS

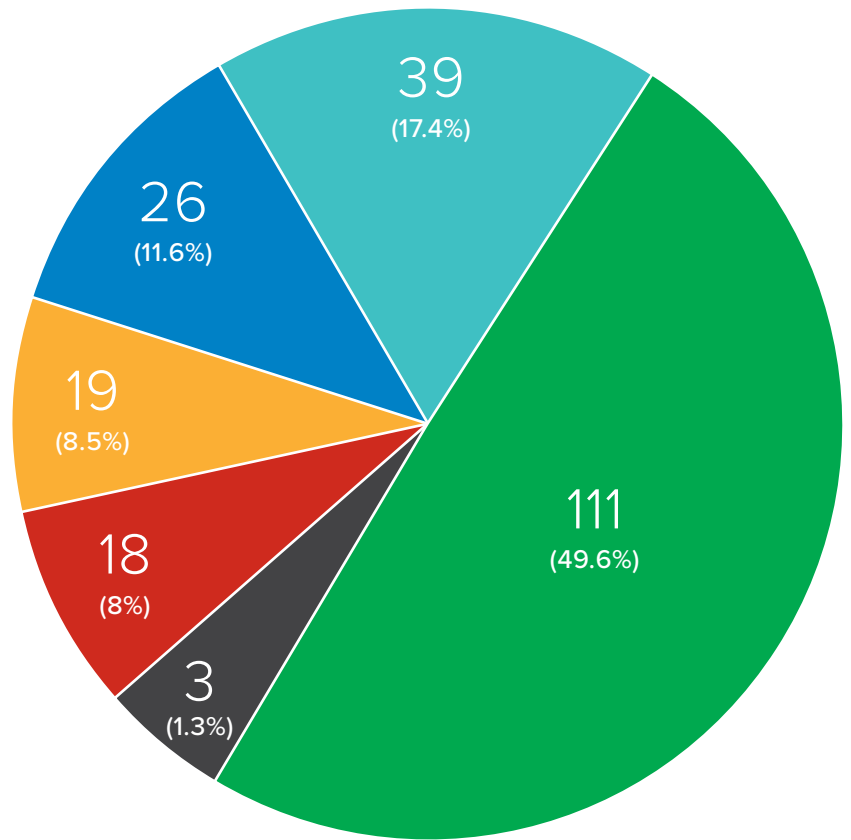
### 2030 TARGET

By 2030, the City of Richmond's Circular Economy Strategy is fully deployed, with innovation being demonstrated by the City and local businesses in material use, waste and emission reduction from manufacturing, transporting and retailing of products and services.

### 2050 TARGET

By 2050, the City of Richmond is a fully circular city.

## Q15: HOW IMPORTANT IS THIS DIRECTION TO YOU?



- Very Important
- Fairly Important
- Important
- Slightly Important
- Not at all Important
- No opinion

224 Responses total

## Q16: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO A CIRCULAR ECONOMY?

1	Incentivize local food production and sourcing of goods. This will help our community be more connected, resilient and have a positive impact on the environment.
2	Implement large item recycle weeks where residents can put items on the curb and people that need those items can pick them up for free. Anything remaining would be picked up by the city.
3	What the hell does this even mean?
4	You can't be trusted with your current budget.
5	Ban the use of single use plastics as much as possible (this is very easy in some sectors like restaurant and take-out food). Charge for garbage by weight (Difficult to enforce but not impossible).
6	The city needs to work with the province, in making sure that everything that is allowed to be sold is; Repairable (right to repair), Packaged without the use of plastics and is recyclable after use. The focus needs to be on the companies and not the individuals. Most people will buy what they see at the right price. People will not look at the packaging or even know how it is packaged until after buying. Set rules that all must abide by in order to sell their products in this province.
7	There is no such thing as a circular economy.
8	Encourage deconstruction and recycling of materials rather than demolitions and dumping.
9	Physical infrastructures (i.e. affordable retail spaces) and programs that support and encourage local businesses, including farmers and food producers.
10	Not understandable.
11	Advocate and encourage reuse, recycling of consumer goods. Subsidize / reward companies that repair items or reuse them instead of buying new products. Actually recycle plastics and household items rather than ship them off to third world countries. Consider an in-house recycling program, which would create jobs for low income people.
12	Remove taxes and provide grants & zero cost loans to purchase newer building materials.
13	I get excited by these ideas. Are there ways to discourage constant tearing down of buildings for new ones? This seems more prevalent in richmond than in other places.
14	Reuse or repurpose. Actively support organizations and businesses which provide accept used articles for re-sale.
15	What can we do locally with our garbage to reduce the total amount in general and specifically work to eliminate single use plastics and also in packaging?
16	Balance cost, benefited efficiency.

## Q16: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO A CIRCULAR ECONOMY? (CONTINUED)

17	I think all produce should be from BC. We are one of the best producers of food, we have many farms that grow amazing fruits and vegetables. But to see fruit from California or Ontario at Save on Foods, Superstore, Safeway or even Shoppers doesn't make any sense. Buying fruit/vegetables from the local farmers can reduce our carbon footprint and also helps us re-invest in our communities. For those people who are unable to go to different farm markets, this helps them eat fresh food made right in our Province, which is truly local.
18	Feels too vague to comment.
19	Need more info on what this really means - examples please.
20	No ideas at this point but glad to see a focus on this area!!
21	Promote local economy.
22	Provide toolkits, strategies and incentives for businesses who want to minimize takeout disposables or switch to compostable materials.
23	Further composting programs (using unsold agricultural / fishery products)?
24	I'm dubious that Richmond can do much towards becoming self sustaining. We will never grow tomatoes in winter - or if we try it will use more energy than just transporting them from somewhere else. And let's face it, Richmond will never make cars or televisions. I think this idea only sounds good on paper.
25	Develop measuring criteria for this objective.
26	Tell China and India to step up First ! then if they do I would thinkabout it.
27	It can start with the STUPID decision by the city to prevent re-use and re-purposing at the recycling yard. Destroying perfectly good bicycles, power tools, and appliances is IGNORANT, and points back to the spineless legal department at Richmond. Cut the BS - its re-use, repurpose and recycle -- not collect and destroy.
28	This initiative is the hardest for government to implement. May work through tax incentives and zoning etc.
29	Again having some support and incentives for local companies to be able to retool especially after the pandemic is key to kick start the circular economy.
30	Tell the construction industry to do their part in wasting goods due to lazy and stupidity of construction workers. Also standing around in a group while 1 or 2 guys are actually doing the work.
31	Not likely to be work sustainably unless tarrifs from outside the country is in place.
32	Enhance recycling, banish plastic bags to start.
33	The city should host the regular swap meets where people can come and give away unwanted items to other people who want them for free.
34	I'm skeptical about how effective recycling is, and is it worth the effort. I've heard lots of stories about the façade of recycling, and the newer term circular economy, and how it's all a lie. I believe showing the entire process and mechanism, the journey and outcomes will persuade citizens to be supportive of this.

## Q16: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO A CIRCULAR ECONOMY? (CONTINUED)

35	Not tearing down a SFH to replace it with a SFH is important here. We need to be smarter in which buildings we allow to be torn down and what they're replaced with. Create an online exchange portal for people to share things. Create tool libraries and other type of community amenities that will allow a greater number of people to use items that many own but only use occasionally and could benefit from having shared ownership of.
36	Not sure what this means to be honest.
37	It's painful to see houses just get broken up in to scrap in replaced. Is there a possibility of incentivising reuse of old building materials through something like the Re:store or some such.
38	Support Richmond's existing CSA box company and help to grow the supply of locally grown produce to residents wanting to reduce their carbon footprint.
39	We're way too reliant on foreign help... Good luck.
40	Device repair shops are extremely rare. Most devices are quite complex, and not designed to be easily serviceable. Maybe the city could encourage these types of businesses with a subsidy. Repairing must be inexpensive or the consumer will likely just purchase a new device matching that function. Teach children electronics by offering programs to those interested. There are stores such as Lee's Electronics on Fraser St in Vancouver that have robot kits that would provide a motivation to learn basic electronics and microcontroller programming. These kids might grow up with an interest and be able to better service devices rather than discard.
41	I have a membership list of thousands who were part of the temporarily defunct (due to Yahoo closing groups) Richmond Freecycle. We are seeking a new home; I'm preparing a proposal for City Hall and will submit it once complete. /George Pope, 778-882-7673.
42	Support local businesses and provide greater incentives (economically) to allow this to happen.
43	Over packaging should be eliminated, as well as vegetables packages in styrofoam at grocery stores, what happened to paper produce boxes...
44	Circular Economy within Richmond can be boosted with a Richmond Currency backed by CoR services (everything including swimmingpool access and paying city utilities and taxes). Such municipal based currencies build community and strengthen the local economy for the downtimes. Maybe consider preparing to use the right kind of crypto currency as well.
45	Incentivize packaging-free stores.
46	Revisit in 10 years.
47	Expand on the successful Recycle BC model. Make recycling the responsibility of those who extract primary resources.
48	I'm unclear on exactly what this means, repair, reuse, repurpose things? That's awesome. Food production? Less practical. People think local food is best, but it depends on how things are grown and the time of year. Trucking field grown tomatoes from Mexico is a better carbon choice in the winter than buying fresh BC tomatoes grown in a heated greenhouse, for example. Local eggs from a factory farm have a feed/waste cycling problem since grain is imported for feed and then we're left with excess manure/nutrient waste here in the Fraser Valley.

## Q16: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO A CIRCULAR ECONOMY? (CONTINUED)

49	We need support for bicycle economies, repair shops, good training for mechanics, etc which links with other transportation points. As the pandemic showed with backlogs in repairs and purchasing, we don't have the labor force or supply chains to support quality bicycle vehicles and maintenance!
50	It's just a buzz phrase. And it's going to be abused until you have some concrete guidelines.
51	Need to stop using high carbon concrete.
52	Right to repair legislation.
53	This is very important too, but goes beyond just Richmond, CE is great but it has some important barriers determined by our macroeconomy... we need to face those too, would you?
54	Nothing.
55	Bring manufacturing of biodegradable packaging to Richmond, creating jobs and reducing local use of styrofoam packaging.
56	Just words empty platitudes meaningless for the woke university crowd.
57	Teach people/children how to repair by offering courses. Mechanical, electronic devices can often be repaired and kept in use or sold within the economy rather than being turned to waste. (See YouTuber Louis Rossmann).
58	The recycling centre at Lynas Lane is something to be proud of - promote this to encourage all richmondites to use it. Make it part of the school system - have students collect material at home and bring to the recycling centre. Teach the young to reuse and they will teach their families.
59	Strongly encourage use of household products in non-single use containers... thinking here of products like laundry soap that comes in strips/cardboard packaging (ie tru-earth products). Imagine the impact of switching away from laundry products contained in plastic jugs. Consider banning plastic jugs and bottles/beverages can all be contained in cans... get rid of plastic water bottles. Please expand curbside collection of items like light bulbs. Styrofoam, batteries.
60	Read Mark Carney' s "Values".
61	Again, my issue here is with the demonization of CO2 as a pollutant.
62	we are a very wasteful society, try to get to true recycling.
63	Not your mandate!
64	Seems way beyond what the skills or abilities of the City of Richmond are to take on.
65	Support small garden farming in Richmond and provide more venues for purchase of Richmond grown produce.
66	Increase business opportunities for small farms by increasing the number of things that can be done on farmland. For example a farm can be a winery but not a brewery.
67	deconstructing homes and buildings rather than demolition, so materials do not go to landfill and lumber, etc can be reused.
68	Find ways to encourage and support innovative businesses engaged in developing circular economy initiatives.

## Q16: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO A CIRCULAR ECONOMY? (CONTINUED)

69	Increase/expand community gardening, "farmer's marketing" thinking to to areas like Sea Island.
70	Related, the City's decision to eliminate single-use plastic bags has an (unforeseen by the City?) effect on housing costs for homeowners. Residents tend to use those plastic bags in their home waste bins making these bags more than single-use. Banning these bags means residents are buying more bags creating more waste and adding additional costs for residents. Further, plastic bags in Richmond can be mandated to be made from post-consumer sources which retailers and grocers have already begun doing so. A simple, broad ban on single-use plastic bags is ignoring household realities and advances in bag production itself.
71	A bold target, need upper gov't buy in.
72	Very difficult to achieve - need more business located within Richmond - create nodes of commercial/retail/residential throughout Richmond including the residential suburban areas.
73	Circular Economy? Are you kidding me? More moronic United Nations globalist nonsense.
74	It all comes down to cost and can the average family afford to purchase a home with all these improvements.
75	Tax breaks for for fruit and veg farmers so we can afford to buy local. Faster permit process for businesses in Steveston.
76	According to the World Resources Institute, the city just needs to find a way to design out products and materials that create waste and pollution for products/materials that have a longer life span and can regenerate natural systems within the community. Essentially, make better use of scarce resources by designing a system to avoid waste.
77	So many jobs will be created by a circular economy. Keep the work force and the alchemy of material needs at home before purchasing elsewhere. Lead by example. A circular economy sounds like it will bring back the economy Canada lost. Canadian Identity was in the proud citizens that created Canadian products, not just in the men and women that fought for it in the wars before us.
78	Enforce & audit the execution of the plan.
79	Support local thrift or second-hand/consignment stores, promote the idea of fixing and repairing items instead of throwing away lightly used items.
80	This idea has merit, but does it have feet to get moving and if it is promoted, can we stop all the big builds that overshadow all the good that this survey is promoting or do we continue with the status quo because it make Richmond money via building costs/fees paid by the big builders.
81	I can't make a comment on actions without - again - any meaningful definitions of terms. What are the principles and approaches?? Why would I be in favour of taking action to support something not defined?
82	I firmly believe in circular economy. Therefore, the life cycle of any non-perishable products must be must include re-birth at the end of the usable product in its intended design. I also believe that there is a real problem with the way products are over packaged or not packaged with simple recyclable materials. Also, packaging materials need to be straight forward for the consumers to recycle. Overly complicated packaging that relies on the consumers to decide whether it is recyclable or not; more often than not would end up in the landfill.

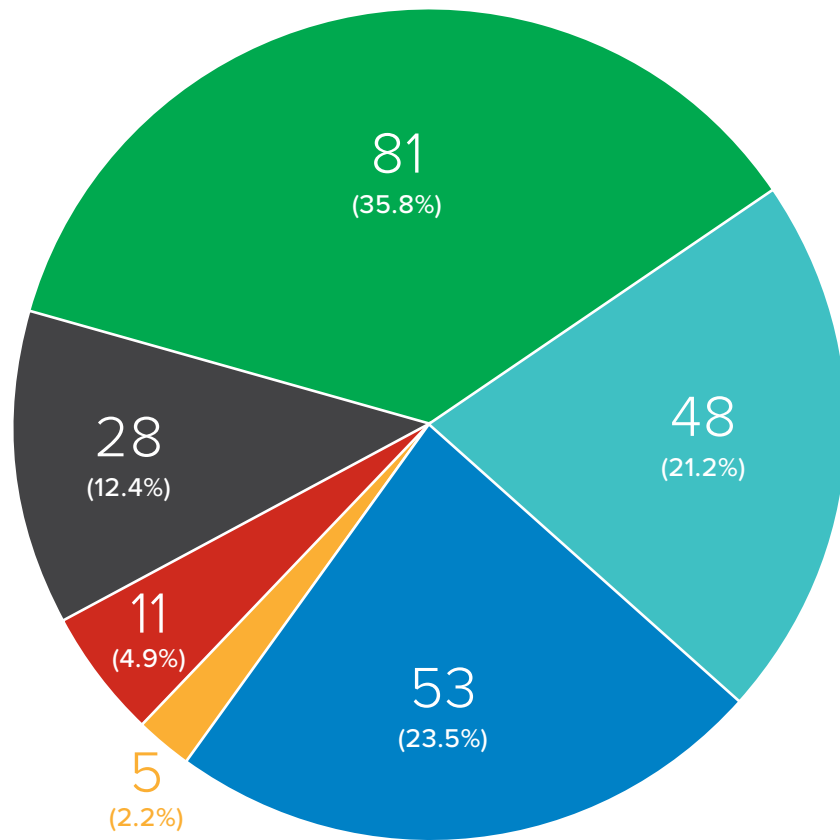


## Q16: WHAT ACTIONS WOULD YOU ADD WITH RESPECT TO TRANSITIONING TO A CIRCULAR ECONOMY? (CONTINUED)

83	It amazes me that in the 21st century, we are still debating 18th century wisdom: "Nothing is lost, nothing is created, all is transformed". Let garbage decompose, let recyclables be recycled. A truly circular economy would NOT rely on rare earth metals mined from places where nobody gives a damn about the environment. A conscious circular economy would cherish national resources (like oil from the prairies, pipelines to transport them, refineries to transform them into usefuk goods) and care to recycle and reuse these goods at the end of their lives.
84	Some circular economy programs are expensive up-front to lower income residents. For example, reusable shopping bags should be distributed through the food bank and other non-profits that help low income residents. The recycling yard is often full of items that are simply discarded or require minor repairs. Salvage should be permitted or partner with businesses who want to repair/upcycle recycle yard items. Keeping items at their highest and best use for as long as possible is a central principle of the circular economy. Recycling should be second to last resort (garbage is last resort).
85	The above actions have zero specific steps that will be taken, no success criteria and no measurement. These are not goals or objectives, rewrite this section entirely to address the goals you intend on achieving.
86	I'm proud of the fact that I have Braun coffee maker and Braun coffee bean grinder that been used almost daily for over thirty years!
87	All excess plastic packaging from places like Costco should be eliminated. Stores should be required to take back their waste.
88	Address the conspicuous consumerism that most Richmond residents believe in.
89	I'm aware that many residents who are needing to down-size try unsuccessfully to re-cycle furniture and household goods by either selling it, or giving it to a charity. Many people do not want it to go to a "For Profit" thrift store. I know there is Richmond Cares/Richmond Shares and the Poverty Response committee but what seems to be lacking in making these things available for families in need (living in poverty/burned out without insurance/refugees/women fleeing violence/ students) is the lack of a storage space, and transportation that is timely. Once people decide to get rid of something they don't want it hanging around so they hire someone to take it to the Landfill. If the City would provide a warehouse somewhere, and have a truck with a couple of strong people who are on salary to transport the donations, (and deliver them to recipients) I'm sure they could get volunteers to organize, catalogue and display the goods so they could be accessible to those truly in need. I think the amount of reusable furniture that ends up in the landfill is staggering!
90	Richmond does not have enough farms to feed richmond people, please make sure to make more friends in Delta Government, so they can ship over food if Richmond is in trouble.

# DEMOGRAPHICS

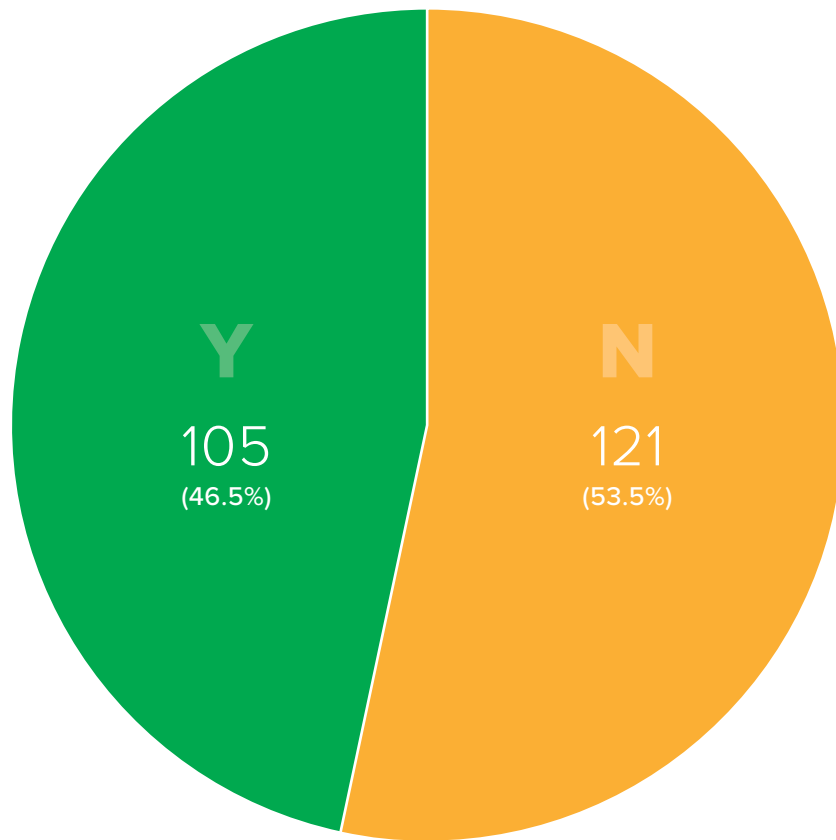
## Q17: WHAT IS YOUR AGE?



- 65+
- 55 to 64
- 35 to 54
- 25 to 34
- 18 to 24
- Under 18

226 Responses total

Q18: WOULD YOU LIKE TO RECEIVE OUR CLIMATE ACTION E-NEWSLETTER?

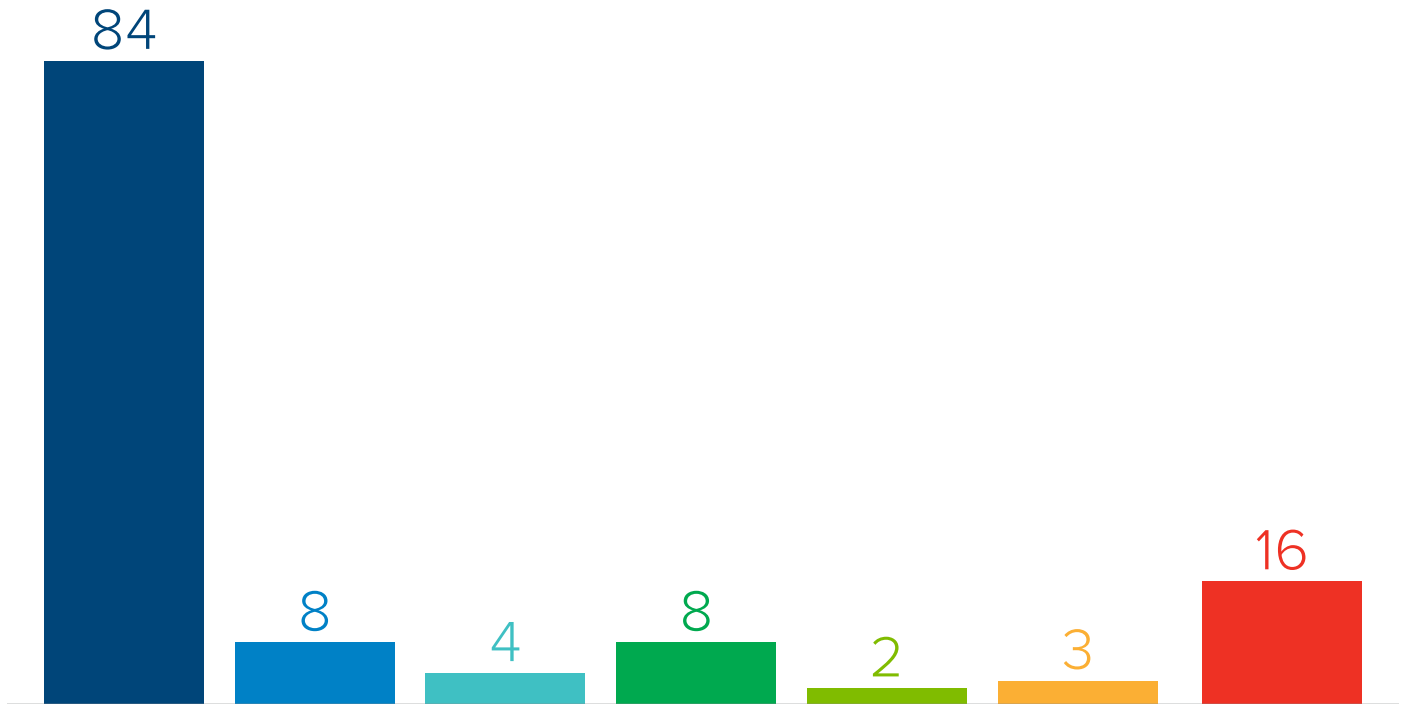


● Yes

● No

226 Responses total

## Q19: HOW DID YOU HEAR ABOUT THIS ENGAGEMENT? (CHECK ALL THAT APPLY)



- Email from LetsTalkRichmond.ca
- Visiting LetsTalkRichmond.ca website
- Visiting richmond.ca website
- City of Richmond's social media channels (Facebook, Twitter or Instagram)
- Poster at a City facility
- In-person discussion with a City sustainability ambassador
- Word of mouth

114 Responses total

## SOCIAL MEDIA ENGAGEMENT



10  
POSTS



10,636  
IMPRESSIONS



13  
POSTS



12,108  
IMPRESSIONS



2  
POSTS



1,369  
IMPRESSIONS





CITY OF RICHMOND

# Climate Action Programs





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# Overview and Context

This document stitches together the City's varied plans, strategies and actions that directly and indirectly address climate change issues in Richmond. An overview of anticipated local impacts are summarized in Attachment 1. By 2050, the City's integrated climate actions will be major contributors to realizing Richmond's vision to be the most appealing, livable and well-managed community in Canada.

*Climate change is not just a long-term threat, it is also a present-day reality.* As a community made up of islands located in the Fraser River's estuary, the City of Richmond was one of the first municipalities to establish itself as a national climate action leader. The City's actions have had significant impact and have been widely recognized. The programs outlined in this document summarize, in one location, the numerous mitigation and adaptation plans, actions and strategies that have guided the City's climate action work. Showcase projects are highlighted throughout the document.

The City of Richmond is taking a comprehensive and integrated approach to climate change. Strategies summarized in this document outline Richmond's climate adaptation and mitigation plans, actions and achievements. The City provides regular updates to Council and the community on many of these issues. The most recent information can be found at [www.richmond.ca](http://www.richmond.ca).

## The City is undertaking both adaptation and mitigation efforts in addressing climate change.

**Climate mitigation** actions limit the magnitude or rate of global warming and its related effects. In short, reduce greenhouse gas emissions.

**Climate adaptation** actions reduce the negative impact of a changing climate, while taking advantage of potential new opportunities.

*The City's targets are informed by the work of internationally recognized experts.* In the fall of 2018, the United Nations' Intergovernmental Panel Climate Change (IPCC) released updated information that caught the world's attention in a different way than previous reports. The IPCC released their 'Special Report on Global Warming of 1.5 °C'<sup>1</sup> in response to the climate action target set within the 2015 Paris Climate Agreement. This commitment has been ratified by Canada and by 190 other countries responsible for 97.7% of the world's human-caused GHG emissions.<sup>2</sup>

The IPCC report detailed the necessary actions to prevent global average temperatures from rising more than 1.5 degrees Celsius above pre-industrial levels, concluding that that signatory countries would have to cut global greenhouse gas emissions (GHGs) by 45 percent below 2010 emission levels by 2030, and further reduce GHGs to net zero by 2050. These concerns were reiterated in IPCC's Sixth Assessment Report<sup>3</sup>, published in 2021, which states that "it is unequivocal that human influence has warmed the atmosphere, ocean and land," that "human-induced climate change is already affecting many weather and climate extremes in every region across the globe," and that "global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in carbon dioxide (CO2) and other greenhouse gas emissions occur in the coming decades."<sup>4</sup>

1 <https://www.ipcc.ch/sr15/>

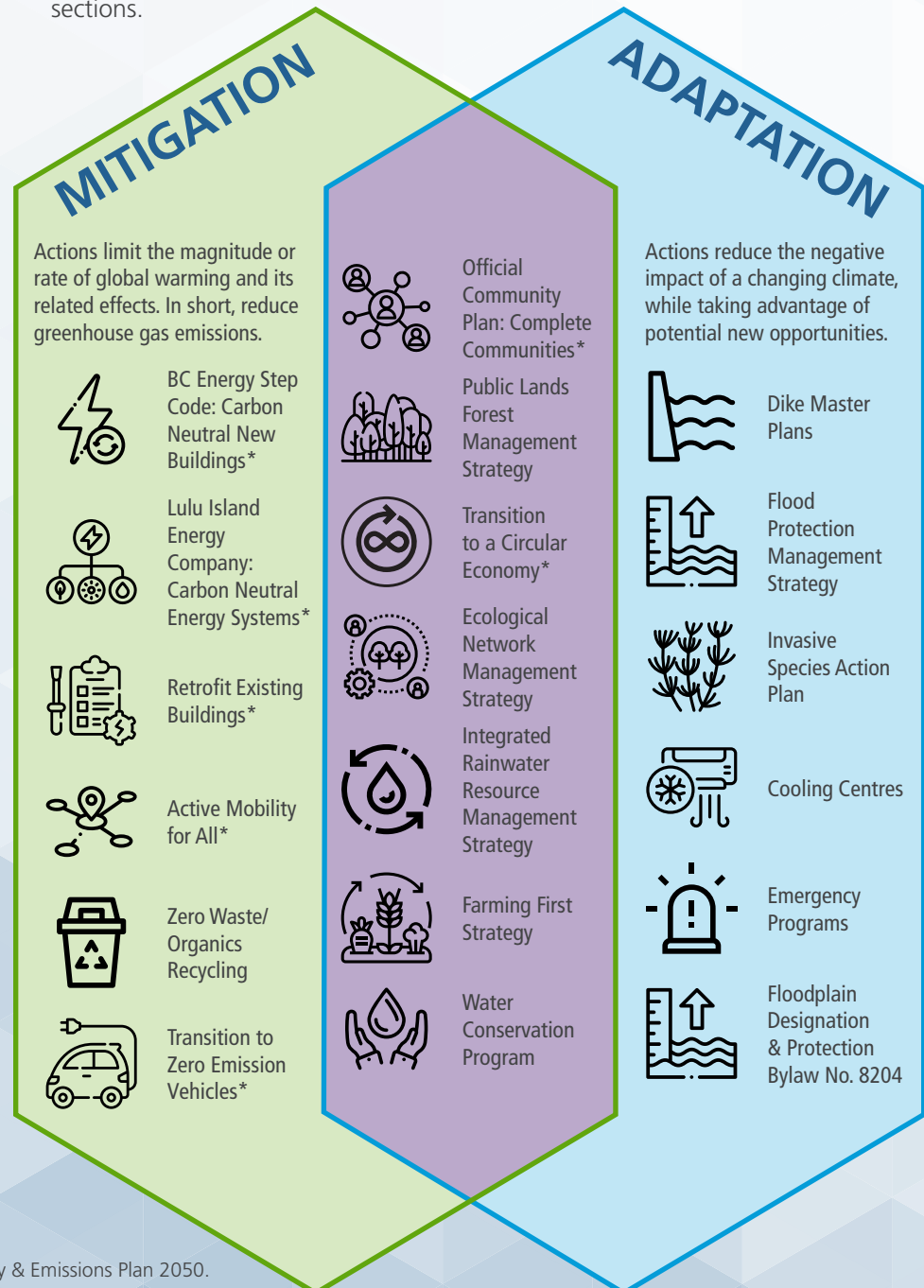
2 As of October 26, 2021, only Eritrea, Iran, Iraq, Libya and Yemen are not party to the Paris Agreement. The US rejoined the Paris Agreement in 2021, after briefly withdrawing at the end of 2020.

3 [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_SPM.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_SPM.pdf)

4 [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_Headline\\_Statements.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Headline_Statements.pdf)

# Richmond's Climate Action Programs

Richmond has undertaken the necessary planning and implementation actions to reduce the negative impacts of climate change. This image summarizes Richmond's comprehensive approach to address climate change locally. More information about the strategies highlighted below can be found in the following sections.



\* Key strategy in the Community Energy & Emissions Plan 2050.

# 1. Leadership in Climate Change Mitigation

The City's efforts started getting traction in the 1990's when Council adopted the City's first corporate energy efficiency policy. That early step led to a long list of initiatives over the decades that have made the City a national leader in climate change mitigation. The City's investments in infrastructure, policy and capacity building have mainly focused on reducing emissions from new and existing buildings. Transportation and solid waste sources.<sup>5</sup> These City investments also advance a wide range of additional local and regional sustainability goals.

Richmond's accelerated GHG emissions reduction targets for 2030 and 2050 are defined in the updated Community Energy and Emissions Plan, with the intent to have our OCP 2041 amended in 2022 to include these new emission targets.<sup>6</sup> The Community Energy and Emissions Plan 2050 (CEEP) identifies the following Strategic Directions and associated actions to meet these targets:

1. Retrofit Existing Buildings
2. Transition to Zero Emission Vehicles
3. Carbon Neutral New Buildings
4. Complete Communities
5. Active Mobility for All
6. Support Frequent Transit
7. Enhance Green Infrastructure
8. Transition to a Circular Economy

In 2019, City Council directed staff to renew Richmond's Community Energy and Emissions Plan (CEEP), with updated actions to achieve accelerated GHG emission reduction targets in line with IPCC (2015 Paris) Climate Accord. Extensive community and stakeholder consultation was conducted in 2019 and 2021, with over 1,150 Richmond residents engaged, along with modeling the collective emissions reduction impact of over 100 proposed actions in the new CEEP 2050 plan. More information here<sup>7</sup>.

## CO-BENEFITS OF CLIMATE MITIGATION EFFORTS

The City's climate mitigation actions also improve the quality of life for residents and businesses in Richmond—moving away from fossil fuels to low carbon alternative sources of energy will make the air we breathe cleaner and our streets quieter and more liveable. Designing walkable, bike and transit friendly neighbourhoods and a vibrant City Centre will support healthier lifestyles, and great neighbourhoods with convenient access to amenities. Improving building energy use can provide healthier indoor spaces, while lowering costs.

<sup>5</sup> GHG sources (2017): 40% buildings and 58% transportation for a total of 98%.

<sup>6</sup> While the IPCC target is stated as "45% below 2010 levels by 2030" Richmond's base year for GHG emissions is 2007. Because Richmond's GHG emissions were estimated to have been higher in 2007 than in 2010, staff recommended an equivalent target using the 2007 base year.

<sup>7</sup> <https://www.richmond.ca/sustainability/energysrvs/energy-plan.htm>



## Lulu Island Energy Company (LIEC): Low-Carbon District Energy Services

District energy systems centralize space heating, cooling, and/or domestic hot water heating production on the neighbourhood scale. Centralized infrastructure is a more energy-efficient way of providing these services to customers of all kinds, including residential, commercial, hotel and retail. Further, district energy systems can be powered by many types of energy sources, which means that they are able to take advantage of new energy technologies as they emerge. The City established LIEC in 2013 as a municipal corporation, wholly-owned by the City of Richmond, to implement and operate district energy systems in Richmond's City Centre area. LIEC currently operates the following three distinct service areas: the Alexandra District Energy Utility, the Oval Village District Energy Utility and the City Centre District Energy Utility. More information [here](#)<sup>8</sup>.



Established in 2012, the Alexandra District Energy Utility (ADEU) is the City's first district energy system and was established as a part of its commitment to reduce community GHG emissions. ADEU extracts thermal energy from the earth through the use of ground-source heat pumps and geo-exchange technology. Two park areas serve a second, hidden, function as ground heat resource fields, hosting 726 vertical loops of heat-exchange pipe—each 76m (250 ft.) deep. The heat energy extracted from the fields is transferred at the neighbourhood's Energy Centre to underground distribution piping that connect to buildings situated throughout the West Cambie neighbourhood. Depending on energy demands, ADEU's heat pumps can either extract energy from the ground for heating services during the cooler months of the year or extract unwanted summertime heat from these buildings (thereby cooling them down), and then pump this heat into the ground heat resource field for later re-use. More information [here](#)<sup>9</sup>.

<sup>8</sup> <http://www.luluilandenergy.ca/>

<sup>9</sup> <http://www.luluilandenergy.ca/>



## Complete Communities

The City's Official Community Plan (OCP), including the City Centre Area Plan, is a key tool for implementing sustainable land use and transportation objectives, making the city less car reliant through the creation of walkable, transit-supportive neighbourhoods. Complete communities support a broad range of uses in walking distance from housing, activate transportation routes and transit. More information [here](#).<sup>10</sup>

## Application of the BC Energy Step Code in Richmond

The Province of British Columbia's Energy Step Code (ESC) was the product of a multi-year collaboration between the Province, industry stakeholders, utilities and local governments. City of Richmond staff were and remain key contributors to the ESC. Adopted by the Province in April 2017, the Energy Step Code allows BC local governments to voluntarily reference a series of progressively more stringent energy performance "steps" in regulation. The Province has indicated that future iterations of the base BC Building Code will align with the Energy Step Code, and has committed that the BC Building Code will achieve "net zero energy ready" levels of performance by 2032, equivalent to the highest "step" of the Energy Step Code. Richmond was the first local government to announce its intent to implement the ESC and after extensive building and developer engagement, the City brought new construction under ESC regulation in 2018. The Energy Step Code focuses on the building envelope performance and energy efficient systems that encourages efficient heat delivery, cooling, ventilation, hot water, and lighting systems.

Active engagement with local homebuilders has been a key strategy for success in bringing in the stricter energy efficiency requirements of the BC Energy Step Code. The City has hosted well-attended Builders' Breakfast events since 2017 (in webinar format since March 2020), bringing in subject experts to present on energy-efficient and low carbon buildings. The City has funded training on proper air barrier installation techniques, as well as blower door tests for homes under construction in order to help local builders build successfully to the new requirements. The result has been a dramatic improvement in the airtightness and overall energy efficiency of new homes, and a near-perfect compliance rate with Richmond's tougher energy efficiency requirements for new construction.



## CAPACITY BUILDING, EDUCATION AND PUBLIC ENGAGEMENT

### Youth Engagement:

Climate Change Showdown, annual REaDY Summit; Evie and Green Ambassador Program

### Building Sector—

#### BC Energy Step Code:

Programs and incentives for homebuilders including subsidized Airtightness, Blow Door Testing, and Passive House training. Minimum 3 meetings each year to showcase advanced techniques for high performance buildings.

**Communication:** Progress Updates. Climate Action Newsletter, Videos

#### Active Transportation:

Cycling skills education courses for all Grade 6 and 7 students, learn to ride courses for new immigrants, annual regional Go by Bike and Shop by Bike events, Richmond Active Transportation Committee (informal advisory committee to Council)

<sup>10</sup> <https://www.richmond.ca/plandev/planning2/ocp.htm>

## Sustainable Transportation

Mobility and access are vital to the life of a city. Residents, employees and visitors need to get to places to work, live and play, and to access health care services and recreational, shopping and cultural activities. Businesses require efficient goods movement and emergency service providers need clear and convenient access. Transportation GHG emissions in 2017 were 57% of the City's total inventoried GHG emissions. For many Richmond residents, many trips are well within range of walking or cycling or transit; what is needed is the infrastructure to make these choices safer and more convenient. In this context, broadening low/zero carbon transportation options, such as walking, cycling and transit, will contribute to reduced GHG emissions. The City's related objectives are embedded in the Official Community Plan (Section 8)<sup>11</sup> and City Centre Area Plan (Section 2.3)<sup>12</sup>. Supportive infrastructure investments made by the City to encourage low-carbon active transportation include new transit shelters, crosswalks, bike lanes and cycling facilities throughout Richmond.



The City continues to expand its active transportation network with a balance of facilities protected from traffic on major roads and neighbourhood bike routes on local roads that have lower traffic volumes and speeds. Over the past five years, City capital projects have expanded the network by over 10 km (e.g., River Parkway) with additional facilities secured via the development application process (e.g., Capstan Village area). To increase zero emission travel options for the community, the City is participating in the provincial electric kick scooter (e-scooter) pilot program. A public shared e-scooter system as a pilot project to be operated by a third party at no cost to the City will be launched in early 2022.

<sup>11</sup> [https://www.richmond.ca/shared/assets/OCP\\_9000\\_mobility34182.pdf](https://www.richmond.ca/shared/assets/OCP_9000_mobility34182.pdf)

<sup>12</sup> [https://www.richmond.ca/shared/assets/23\\_mobility23839.pdf](https://www.richmond.ca/shared/assets/23_mobility23839.pdf)

## Public and at-Home Electric Vehicle Charging

In December 2017, City Council adopted an amendment to the Richmond Zoning Bylaw requiring that all new residential parking spaces feature an energized outlet capable of providing “Level 2” electric vehicle (EV) charging.<sup>13</sup> The City of Richmond was the first jurisdiction in North America, if not the world, to enact such a requirement.<sup>14</sup> This move addresses one of the top barriers to faster EV adoption: the lack of access to EV charging at home, and demonstrates the important role local governments can play in promoting the use of electric vehicles. EVs result in zero tailpipe emissions, reducing air pollution and greenhouse gas emissions. They are also much lower cost to operate, are fun to drive and offer a range of performance benefits compared to fossil-fuel powered vehicles. The City of Richmond is also building out a network of public electric vehicle (EV) charging stations throughout the community and has a goal that when residents or businesses visit a City facility, their EV can be charged. To promote efficient use by the greatest number of Richmond residents and visitors, and to support sustainable service as the City expands its network of public EV charging stations, the City implemented a user fee for charging EVs in 2019. More information can be found [here](#).<sup>15</sup>



In December 2017, the City became the first city on North America, if not the world, to require that 100% of residential parking spaces feature an energized outlet capable of providing “Level 2” EV charging for all new buildings.

Between 2013 and 2020, 20 charging points were installed at 8 locations. In 2021, the City expanded its public EV charging adding 28 Level 2 ports and 4 DC Fast Charging ports at 12 City facilities.

<sup>13</sup> At the time of publication of this document in 2021, the City was developing a plan to require energized outlets capable of providing “Level 2” EV charging for commercial and industrial developments.

<sup>14</sup> Many other municipalities within Metro Vancouver have since followed Richmond’s lead, including Vancouver, Surrey, Burnaby, City of North Vancouver, West Vancouver and Port Moody. See: <https://pluginbc.ca/policy/>

<sup>15</sup> <https://www.richmond.ca/newsevents/city2020/evstations14jan2020.htm>



## Solid Waste Management

Waste that is not diverted through recycling, reuse and composting programs may end up at the landfill. Through decomposition, methane, a potent GHG, can be released into the atmosphere if not managed at the landfill. Community GHG emissions from this process is estimated at 3% of the total GHG emissions in Richmond. The City's exemplary waste management system has achieved outstanding results: the City has achieved a 79% landfill diversion rate from single detached homes and duplexes, and over 209,000 visits to the Recycling Depot in 2020. For more information, please see annual solid waste reporting. More information can be found [here](#)<sup>16</sup>.



As nearly 99% of plastics are derived from fossil fuels, greenhouse gas emissions from plastics could reach 15% of the global carbon budget by 2050. Richmond's Single-Use Plastic and Other Items Bylaw No. 10000, works to reduce the community's GHG contribution by reducing the use of unnecessary single-use plastics. Effective March 27, 2022, Richmond will ban plastic checkout bags, plastic straws and foam food service ware. This important step will require businesses and consumers to shift away from wasteful single-use items and instead select materials that can be composted, reused and recycled multiple times adding to the circular economy in Richmond.

<sup>16</sup> [https://www.richmond.ca/shared/assets/2020\\_Solid\\_Waste\\_Annual\\_Report58732.pdf](https://www.richmond.ca/shared/assets/2020_Solid_Waste_Annual_Report58732.pdf)

## Carbon Neutral Civic Operations

The City, through its commitment under the Province's Climate Action Accord, has achieved carbon neutral operations since 2013, as guided by the City's "Towards Carbon Neutrality: Implementation Strategy". The strategy defined the following four key steps for meeting carbon neutrality commitments: measure, reduce, compensate (or offset) and report. The City is reducing its GHG emissions through the implementation of the Green Fleet Action Plan, Energy Management Program (for civic buildings and infrastructure), the Richmond Carbon Market program and other initiatives (more below). The City's public reporting can be found [here](#)<sup>17</sup>.

## Sustainable High Performance Building Policy

The 'Sustainable "High Performance" Building Policy for City Owned Facilities' was initially adopted in 2005. The policy set specific management objectives and evaluation criteria for the development of City buildings culminating in the adoption the Leadership in Energy and Environmental Design (LEED) rating system as the measurement tool for new buildings and major renovations. The policy sets clear direction for the sustainable construction of new City buildings, targeting better than code construction and sets a path for zero carbon existing buildings by 2030. More information here<sup>18</sup>. With a growing focus on the energy and GHG emissions performance of buildings in the BC Building Code, the City intends to bring forward a revised policy in 2022.



Brighthouse Fire Hall No. 1. (6960 Gilbert Rd) is designed to withstand disasters and maintain operations post-event, and has a hybrid steel and mass timber roof. The facility optimized energy efficiency and achieved a LEED Gold certification. The facility was fitted with 136 solar panels that generate 60,000 kWh of electricity per year (equivalent of what 5 homes consume per year) and provide continuous power to the fire hall.

<sup>17</sup> <https://www.richmond.ca/sustainability/energysrvs/report-carip.htm>

<sup>18</sup> <http://csw eb01/docs/2307.pdf>

## Energy Management Program (EMP) for Civic Buildings

The City's EMP is integral to the long term goal of maintaining carbon neutral operations through projects that reduce natural gas use. The City also remains committed to electricity use optimization and reduction through BC Hydro's Corporate Energy Manager program. Annually, staff submit capital funding requests for new projects as part of the EMP. The EMP focuses on three main action areas:

1. Energy conservation: reduce the overall demand for energy
2. Energy efficiency: reduce the energy required for operations
3. Renewable and clean energy: increase the use of renewable energy or decarbonize existing buildings

The City reduced GHGs from City buildings by 45.8% between 2007<sup>19</sup> and 2020<sup>20</sup> by implementing energy efficiency and fuel-switching initiatives.



Heating and cooling upgrades at the Richmond Library & Cultural Centre (7700 Minoru Gate) were completed in 2021. Aging boiler equipment was replaced with highly efficient heat pumps to reduce greenhouse gas emissions by 65%.<sup>21</sup> The project benefited from funding from the Federation of Canadian Municipalities, BC Hydro, and Fortis BC.

19 2007 data: Buildings: 5,845 t CO<sub>2</sub>e "Corporate Sustainability Framework – Climate Change Strategic Program" p.GP-39: Corporate Emissions 2007. June 1, 2010 [https://www.richmond.ca/\\_shared/assets/Sustainability\\_GP\\_06211026740.pdf](https://www.richmond.ca/_shared/assets/Sustainability_GP_06211026740.pdf)

20 2020 data: Buildings: 3,169 t CO<sub>2</sub>e. "Carbon Emission Provincial Reporting Worksheet for 2020." p.GP-16 [https://www.richmond.ca/agendafiles/Open\\_GP\\_6-21-2021.pdf](https://www.richmond.ca/agendafiles/Open_GP_6-21-2021.pdf)

21 [https://www.richmond.ca/agendafiles/Open\\_Council\\_6-28-2021.pdf](https://www.richmond.ca/agendafiles/Open_Council_6-28-2021.pdf) p. CNCL-70



## Green Fleet Action Strategy

Richmond relies on its fleet of vehicles to maintain roads, provide bylaw enforcement, manage water and sewer services, keep parks beautiful and clean and provide many other services in the community. Aware that fleet operations also generate greenhouse gas (GHG) emissions, the City of Richmond's Green Fleet Action Plan, is shifting the City's vehicle fleet towards "green" operations. The Green Fleet Action Plan aims to reduce GHG emissions through strategies to purchase vehicles that have lower emissions, and setting out options to cut fuel consumption. In 2016, the City became the first municipality to receive a Platinum Rating from E3 Fleet, a national program that recognizes excellence in fleet management and environmental performance. An E3 Fleet Platinum Rating is the highest mark of achievement for fleet management in Canada. More information [here](#)<sup>22</sup>.



E3 Fleet awarded the City with the first platinum rating in Canada for the City's excellence in fleet management and environmental performance. The City's actions are far-reaching: using alternative fuels, driver training and fleet electrification are just a few initiatives. To date, the City has 20 EV units (including road vehicles, an ice resurfacer, fork lifts, and generators), 16 Plug-in Hybrid EV's, 37 Hybrid units and one hydrogen vehicle.

<sup>22</sup> <https://www.richmond.ca/sustainability/energysrvs/energy-emissions/Fleet.htm>

## Environmentally Sensitive Areas

Today's marshes, wetlands, beaches and open spaces need to be preserved for the future. Our common environment depends on the sustainability of Richmond's natural areas. By being involved in the preservation and maintenance of these environmentally-sensitive areas, the community can protect and improve our unique local waterfront, and bringing positive results to an already fragile ecosystem. The City has designated Environmentally Sensitive Areas (ESA) in the City's Official Community Plan (OCP) for the protection of the natural environment, its ecosystems and biodiversity. The City's objective is to achieve long-term protection of all ESAs, encourage the restoration of natural habitats within these areas and connect ESAs with other ecological areas. Where development impacts to the ESA are unavoidable, the City will work with applicants to minimize disturbance, ensure a net gain in habitat area and ecosystem function.

## Circular Economy Leadership

To achieve the climate goals, while creating a prosperous and resilient Richmond economy, it is imperative to transform how products and food are designed, manufactured, and consumed. The City of Richmond's vision for the circular economy is to maximize the value of resources, by design, through responsible consumption, minimizing waste and reimagining how resources flow in a sustainable, equitable, low-carbon economy. Economic growth is combined with a development cycle that preserves natural capital, optimizes resource production, and minimizes risk by managing limited resources and renewable loops. The City has demonstrated leadership in circular innovation by developing innovative policies, programs, and services shaped by community and stakeholder participation.

- In February 2020, the City hosted Canada's first vendor-focused Circular Economy Engagement Workshop organized and facilitated by the City, with over 70 participants in attendance. The City launched a pilot project in October 2020 to use 40% Reclaimed Asphalt Pavement on a major municipal road. A total of twenty pathways have been paved throughout Richmond using high RAP since 2020.
- In May 2021, the City of Richmond successfully applied to join the Circular Cities and Regions Initiative (CCRI) P2P Network, which will in turn lead to the development of Richmond's circular roadmap in 2022.
- Due to demolition, land clearing and construction (DLC) waste accounts for 30% of total waste disposed in the region, in 2018 the City's has updated the Demolition Waste and Recyclable Materials Bylaw No. 9516 to require that 70% of the demolition waste be salvage, recycled or reused. With over 1,000 permits issued since the introduction of the bylaw, it is estimated that over 75,000 tonnes of DLC waste has been diverted from disposal. The House Move and Salvage Program successfully provides a streamlined regulatory process and supporting infrastructure for the public to consider house moving and/or salvaging of building materials as alternatives to demolition.

More information [here](#)<sup>23</sup>.

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23 <https://www.richmond.ca/sustainability/circulareconomy.htm>



### RICHMOND FOOD RECOVERY NETWORK PROGRAM

The City partnered with FoodMesh to mobilize local food manufacturing, processing and retail businesses to adopt circular economy practices. An online exchange platform enabled the diversion of surplus or off-spec food products away from waste streams to secondary markets or local charities. The initial partnership with FoodMesh and investment of \$25,000 was successful in establishing a critical mass of users on the Richmond Food Recovery Network. In its first year, this program helped reduce CO2 emissions by 788,423 KG in CO2. Now that a robust user base has been secured, the network is self-sustaining; existing and new companies and social groups can continue to use the platform in perpetuity. In 2021 the City was awarded the Community Project Award by the BC Economic Development Association for this initiative. The following outcomes were achieved in the pilot year:

	Projected	Results	% of Target
<b>Participating organizations</b>	30	59	197%
<b>CO2 emissions saved</b>	427,917 KG	788,423 KG	184%
<b>Total weight of food diverted</b>	225,000 KG	414,555 KG	184%
<b>Number of meals created</b>	300,000	644,800	215%
<b>Savings to food brands and charities</b>	\$1,250,000	\$2,207,971	177%
<b>Weight of food turned into animal feed</b>	50,000 KG	17,532 KG	35%

## 2. Leadership in Climate Change Adaptation

Over the last decade, Richmond has implemented a series of strategies and plans that, in combination, respond to anticipated climate change impacts projected for Richmond over the coming century. Staff continue to actively monitor climate change projections and associated impacts as new information becomes available to ensure that potential vulnerabilities are appropriately addressed in a timely manner.

A key area of focus relates to increasing global and local temperatures expected to cause oceans to thermally expand, and contribute to the melting of glaciers. In addition, the City has to contend with regional "subsidence", the slow settlement of soft deltaic soils, that is expected to raise local relative sea levels in Richmond by about 20cm over the next century. These changes are driving investments in perimeter diking. Investments in drainage infrastructure is being driven by growing seasonal variances in precipitation (Attachment 1). Other concerns related to climate adaptation relate to invasive species, changes in the natural environment, and human health. The City's adaptation strategies and programs are described below.

### FLOOD PROTECTION SYSTEM IS COMPRISED OF



**49 km** of dikes



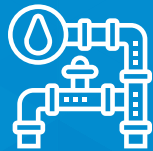
**61 km** of box culverts



**39** drainage pump stations



**165 km** of water-courses



**585 km** of drainage pipes



**\$34 million** in senior government grants



## Drainage, Flood Protection and Sea Level Rise

### **DRAINAGE AND DIKING UTILITY (2002)**

The City's Drainage and Diking Utility was created to develop a reserve fund to operate, maintain, and upgrade Richmond's flood protection infrastructure. Since 2003, Council has approved increasing annual funding levels for the Drainage and Diking Utility from \$0.6M to its current level of \$13.4M.

Since 2005, the total capacity of the City's drainage pump stations has increased by 29%. Over the last 20 years, since the City introduced the Drainage and Diking Utility, the City has rebuilt 14 of its 39 drainage pump stations and has performed significant upgrades on four.

### **FLOOD PROTECTION MANAGEMENT STRATEGY**

The City's Flood Protection Management Strategy is the City's guiding framework for continual upgrades and improvements to the City's flood protection system. Richmond is a recognized as a leading dike authority in British Columbia and a key component of the City's success is the Flood Protection Management Strategy, which provides high-level guidance for flood risk management in the City. As sea level rise science evolves and the population and economic investment in Richmond continues to increase, the City's priorities and management of flood risk need to be reviewed to incorporate best practices and current science. The Flood Protection Management Strategy outlines short- and long-term strategies for policy planning, infrastructure upgrades and other areas related to flood risk mitigation.

### **DIKE MASTER PLANS**

A key action identified in the City's Flood Protection Management Strategy involves continuing to upgrade the City's perimeter dike in anticipation of climate change induced sea level rise. The City's Dike Master Plans address this need by recommending dike upgrade options for each dike section throughout the City. Richmond is protected from flooding by infrastructure that includes 49 kilometres of dike. The Dike Master Plans and Flood Protection Management Strategy identify strengthening and raising the City's perimeter dike to 4.7 metres geodetic elevation as the priority response to sea level rise. All new dikes are designed to accommodate a further height increase to 5.5 metres to address sea level rise beyond 2100. In addition, the City is actively pursuing opportunities to construct superdikes, where land behind the dike is built up to the same elevation as the dike. This eliminates visual impacts of a raised dike structure on waterfront views while providing an enhanced flood protection structure for the City. Superdikes constructed through development to date include sections near the Richmond Olympic Oval, Parc Riviera and at the Imperial Landing and Kawaki developments in Steveston.

### **FLOOD PLAIN DESIGNATION AND PROTECTION BYLAW**

The City's Flood Plain Designation and Protection Bylaw No. 8204 was adopted by Council in 2008 to guide development setback, flood construction levels and exemption areas.



The City successfully upgraded 650 m of dike along the Fraser River's south arm between Gilbert Road and No. 3 Road. This upgrade raised the dike by approximately 1.5 m and included a multi-use trail separated from traffic lanes and incorporated seating, picnic areas and arrival points with wayfinding and parking.

## Integrated Rainwater Resource Management Strategy

The majority of the Richmond's land mass is located on Lulu Island which forms a single watershed with carefully engineered drainage catchments that include channelized watercourses, sloughs and ditches that serve drainage, irrigation and habitat functions. As a floodplain municipality with soft soils, low gradients and a high water table, the City has unique stormwater management issues and needs compared to regional neighbours.

The Integrated Rainwater Resource Management Strategy (IRRMS) outlines initiatives to manage stormwater that aim to minimize the effects on drainage infrastructure and identify opportunity to use rainwater as a resource. The IRRMS also identifies strategies for reducing the impacts that new development may have on stormwater flows and water quality. The contributions of the IRRMS are significant as it relates to managing the expected increase in rainfall intensities due to climate change. The Strategy is guided by four main goals to address these specific needs: (1) minimize the impacts of future development and redevelopment on drainage infrastructure and ecological health; (2) reduce potable water use; (3) address existing and future sedimentation issues; and, (4) support the City's Ecological Network.



## Natural Environment

### ECOLOGICAL NETWORK MANAGEMENT STRATEGY

In order to protect, enhance and expand a diverse, connected and functioning Ecological Network, Richmond City Council adopted the Ecological Network Management Strategy in September 2015. The strategy provides a framework for managing and guiding decisions regarding the city-wide system of natural areas in Richmond and the ecosystem services they provide on City, public and private lands. The strategy, intended to be opportunistic and collaborative, sets out priority areas and actions for the on-going and long-term implementation of the Ecological Network (EN). The strategy notes that impacts of climate change and sea level rise will impact the City.

### INVASIVE SPECIES ACTION PLAN

In January 2016, Council adopted the Invasive Species Action Plan in order to “reduce the economic and environmental risks of invasive species in Richmond, which are caused, in part, by climate change and associated ecological shifts that influence the proliferation of invasive species. More information [here](#)<sup>24</sup>.



The City managed a three year, pesticide free management program for Brazilian elodea, an invasive plant commonly used in aquariums, concluded in the summer of 2021. Effective 2022, the site will be monitored for resurgences.

<sup>24</sup> <https://www.richmond.ca/shared/assets/ISAP43428.pdf>

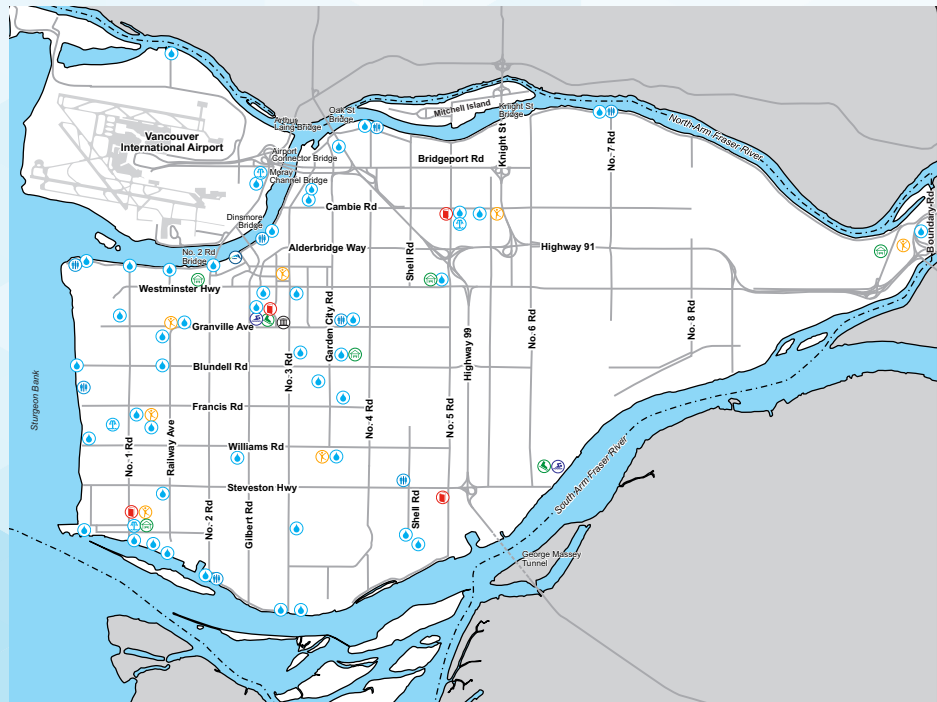
## PUBLIC LANDS FOREST MANAGEMENT STRATEGY

In 2019, Council adopted the Public Lands Forest Management Strategy to maximize the multiple benefits that trees provide for Richmond, including local shading and cooling effects that counter urban heat island effects. Trees and vegetation generally will be stressed as local climate conditions change such as heat stress during the summer, waterlogging in the winter and/or pest outbreaks. The strategy lays out a path to create an evolving urban forest that will be less vulnerable to climate change. A healthy urban forest will complement the City's adaptation efforts by providing cooling refuges, absorbing rainwater and preventing erosion, reducing air pollution, buffering severe wind and sequestering carbon. More information [here](#)<sup>25</sup>.

## Health

### COOLING CENTRES

The City offers clean air cooling stations as a response to heat waves and poor air quality events. The City encourages the use of Richmond community centres, community centres, pools, water parks, libraries and arenas, as clean air cooling stations for residents vulnerable to heat stress and/or respiratory conditions. The City also provides tips for staying cool from provincial and federal health ministries.



25 [https://www.richmond.ca/parks/about/planning/Public\\_Tree\\_Management\\_Strategy.htm](https://www.richmond.ca/parks/about/planning/Public_Tree_Management_Strategy.htm)

## Emergency Programs

The scope of the City's Emergency Programs includes services to ensure the protection of life, public infrastructure, private property and the environment in the event of an emergency or disaster situation. While not explicitly focused on climate change adaptation, Emergency Programs serve as an important backstop should climate related impacts such as flooding be experienced locally. More information [here](#)<sup>26</sup>.

## Food Security

Agriculture is an important part of the local and regional economy, and it is a major land use in Richmond. Over 40 percent of Richmond's land base is agricultural; of that, 39 percent is in the Agricultural Land Reserve. The Farming First Strategy includes objectives and policies to guide decisions on the land use management of agricultural land, enhance public awareness of agriculture and food security issues, and strengthen agricultural viability in Richmond. Theme 4 in the strategy includes an objective and associated actions to mitigate the impacts of climate change on agricultural production. More information [here](#)<sup>27</sup>.

In 2016, Council adopted the Richmond Food Charter that includes a commitment to 'preserve and strengthen land and water resources that support food production' and to 'promote food industry practices that reduce environmental impacts and greenhouse gas emissions". More information [here](#)<sup>28</sup>.



26 <https://www.richmond.ca/cityhall/departments/safety/emergency.htm>

27 [https://www.richmond.ca/shared/assets/18-Farming-First-Strategy\\_CNCL\\_02082157706.pdf](https://www.richmond.ca/shared/assets/18-Farming-First-Strategy_CNCL_02082157706.pdf)

28 <https://www.richmond.ca/shared/assets/7-RichmondFoodCharter44751.pdf>



## Attachment

# Anticipated Climate Impacts

Local impacts of climate change impacts in a given location will be influenced by human and economic dynamics, local geography, climatic conditions and certainly, the extent in which mitigation and adaptation actions are effectively implemented. Sources for the information below is noted in each section. The information is not exhaustively reported but aims to paint a picture of anticipated climate impacts if global, regional and local mitigation and adaptation measures are not implemented.

### STRATEGIES OUTLINED IN SECTION 2:

- Flood Protection Management Strategy
- Integrated Rainwater Resource Management Strategy

## Local Weather Conditions

The Pacific Climate Impacts Consortium at the University of Victoria completed the Climate Projections for Metro Vancouver<sup>29</sup> report for the Metro Vancouver Regional District in 2016. The report “downscaled” global climate models, translating the outputs from the IPCC’s low-resolution global-scale climate models into high-resolution projections at the local scale. The report provided regional projections of climate change impacts derived from the IPCC’s 1.5°C, 2°C and 4°C scenarios of global average warming, for both the 2050s and the 2080s. Results were compared against 1970-2000 historical averages for the region. Projected regional impacts within Metro Vancouver for the 1.5 and 2.0°C scenarios follow.

- **Precipitation:** Within Metro Vancouver, projections show that there is likely to be a shift towards an increase in intensity, duration and frequency of precipitation events. Within the drinking water supply areas of Metro Vancouver, increased rainfall intensity can exacerbate landslides and turbidity events in the reservoirs. Richmond’s drainage system is designed to accommodate a 10-year return period rainfall event. Although there have been some instances of minor localized surface ponding in Richmond due to heavy rainfall that exceeded a 10-year return period rainfall event, Richmond’s robust flood protection and drainage systems and proactive maintenance programs have mitigated significant flood risks. With continued Council support for capital upgrades through the City’s Drainage and Diking Utility, the City’s flood protection and drainage systems will continue to protect residents from climate change induced flood risks.
- **Summertime drought:** Regional climate projections indicate a modest increase in total annual precipitation under both 1.5°C and 2.0°C scenarios – showing a shift towards wetter fall-spring periods, which is partially offset by dryer summers. The biggest declines in summertime precipitation are forecast for the 2°C scenario.
- **Heat wave:** The IPCC report projects worse heat waves at 2°C compared to 1.5°C globally.

<sup>29</sup> <http://www.metrovancouver.org/services/air-quality/AirQualityPublications/ClimateProjectionsForMetroVancouver.pdf>



## Sea Level Rise and Freshet Flooding

The IPCC report projects a global average rise in sea level of 0.26 to 0.77 m by 2100 (relative to average sea levels in 1986-2005) with 1.5°C of global warming. This is 10 cm less that would be experienced with 2°C of global average warming. The report also states that “sea level rise will continue beyond 2100 even if global warming is limited to 1.5°C in the 21st century.” The IPCC report goes further by suggesting that if destabilization of polar ice sheets is avoided, global average sea levels could regain equilibrium after a rise of “0.5–1.2 m and 0.6–1.7 m in 1.5°C and 2°C warmer worlds, respectively.”

The Climate Projections for Metro Vancouver report does not include a downscaled projection of sea level rise for Metro Vancouver, but in 2018 the Washington Coastal Hazards Resilience Network produced sea level rise projections to 2150 for more than 100 locations on the coast of Washington State, for both the 2°C global average warming and 4°C global average warming scenarios.<sup>30</sup> The projections for Point Roberts (the closest modelled location to Richmond) show mid-range sea level rise estimates of 1.3 ft. (40 cm) and 1.8 ft. (55 cm) by 2100 under the 2°C and 4°C scenarios respectively, with 3% and 9% respective probabilities of sea level rise exceeding 0.91 m (3 ft).

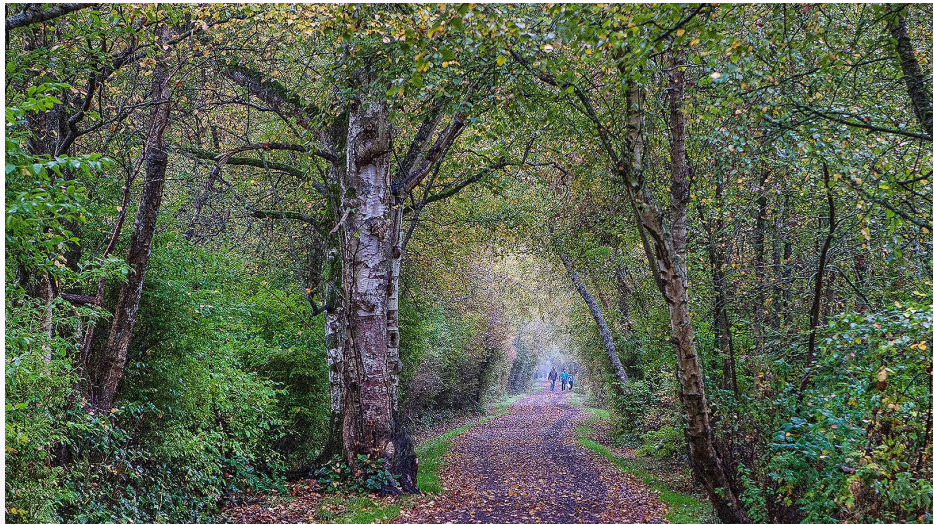
The City is implementing the Dike Master Plan, which provides full protection against 1 m of sea level rise, with the ability to accommodate up to 1.8 m of sea level rise if necessary. As such, work already underway is sufficient to protect Richmond against projected local sea level rise out to 2100.

### STRATEGIES OUTLINED IN SECTION 2 ADDRESS THESE IMPACTS:

- Flood Protection Strategy
- Dike Master Plans

<sup>30</sup> i.e. downscaled projections of the IPCC’s RCP4.5 and RCP8.5 scenarios respectively. This work did not include projections based on the RCP2.5 scenario that results in 1.5 oC of global average warming.





**STRATEGIES  
OUTLINED IN  
SECTION 2  
ADDRESS THESE  
IMPACTS:**

- Flood Protection Management Strategy
- Dike Master Plans
- Ecological Network Management Strategy
- Public Lands Forest Management Strategy
- Invasives Species Action Plan  
Community Energy & Emissions 2050  
(Strategic Direction #8)

## Ecosystems and the Natural Environment

The Climate Projections for Metro Vancouver report notes that rising temperatures and changes in precipitation will affect ecosystems including urban forests, parks, and wetlands. These changes will see changes in the survivability of trees and plants if no adaptations are made over time. A combination of decreasing snowpack, frost days, and summer precipitation, and increasing temperatures ‘will cause stress to some forests that may cause tree growth to decline and mortality rates in vulnerable species to rise’ and through these processes bring an increase in wildfire risk. Prolonged dry spells, stressed reservoirs, and warmer summer temperatures would be expected to reduce soil moisture in the summer could affect urban tree growth and increased tree mortality.

The report notes that pests and invasive species ‘may be better able to thrive in changing conditions and may out-compete native species’. All of the above processes may also impact soil chemistry and soil capacity to retain water, increasing potential frequency and severity of flooding. Finally, the report noted that the above changes will impact ‘terrestrial species, decreased plant growth, heat stress, and scarcity of water reduce the quality of forage crops, causing increased competition for resources.’

More broadly, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services 2019 Global Assessment on Biodiversity and Ecosystem Services report<sup>31</sup> highlighted that if ‘action is not taken to sustainably manage changes in land and sea use; reduce direct exploitation of organisms; address climate change, pollution and invasive alien species, a 1,000,000 species will be threatened with extinction’. The Report conclusions were supported by five decades of historical assessments that linked economic development and associated impacts on nature.

<sup>31</sup> <https://ipbes.net/global-assessment>





Finally, the UN's 2020 Convention on Biological Diversity's "The Global Biodiversity Outlook 5 (GBO-5)<sup>32</sup> offered an 'authoritative' overview of the state of nature. The report called for 'a shift away from "business as usual" across a range of human activities'. The report outlined eight transitions that recognize the value of biodiversity, the need to restore the ecosystems on which all human activity depends, and the urgency of reducing the negative impacts of such activity. Specifically for cities, the transition strategy advises 'deploying 'green infrastructure' and making space for nature within built landscapes to improve the health and quality of life for citizens and to reduce the environmental footprint of cities and infrastructure'. Climate actions need to employ nature-based solutions, alongside a rapid phase-out of fossil fuel use, to reduce the scale and impacts of climate change, while providing positive benefits for biodiversity and other sustainable development goals.

32 <https://www.cbd.int/gbo/gbo5/publication/gbo-5-spm-en.pdf>



**STRATEGIES  
OUTLINED IN  
SECTION 2  
ADDRESS THESE  
IMPACTS:**

- Cooling Centres
- Emergency Programs

## Health

Vancouver Coastal Health (VCH) has resources and information related to heat stress and related health impacts that “will become more of an issue as the climate warms”. They note that heat-related illnesses such as heat exhaustion, heat stroke “in extreme situations, can lead to permanent disability or death” noting that older adults, people with chronic conditions, people on certain medications, infants and young children are especially sensitive to the health effects of heat. They also advise that severe cases have the potential to lead to heat stroke, a condition requiring immediate medical care. VCH offers detailed resources to manage heat stress.<sup>33</sup>

Finally, VCH also notes that during the summer months, both heat and wildfire smoke can be a health concern. Wildfire smoke is a mixture of air pollutants and can lead to important health concerns.. VCH notes that as the climate warms ‘the number, size and duration of wildfires are expected to increase and seriously impact air quality in British Columbia. Wildfire smoke causes episodes of the worst air quality that most people will ever experience in BC.’

<sup>33</sup> <http://www.vch.ca/public-health/environmental-health-inspections/healthy-built-environment/air-quality/outdoor-air-quality/extreme-heat>



## Equity

The Canadian Urban Sustainability Practitioners<sup>34</sup> (CUSP) network have developed Canadian-specific resources for how to address equity issues when undertaking climate action work. They note that the 'growing wealth disparity between low- and moderate-income households and other underserved groups and those with greater affluence is reflected through the disproportionate uptake of clean technologies by higher-income households in U.S. and Canadian municipalities'. Barriers exist, such as affordability, up front costs, access to credit, and others, that prevent or frustrate the adoption of clean energy technologies for these households. CUSP's work highlights that 'inequity within communities is exacerbated by additional factors beyond income, including race, ethnicity, citizenship, ability, age, and fluency with the dominant language'. CUSP created a guidebook that provides guidance on how equity issues can be recognized in policy and/program design. This work in cities across North America is an evolving area of practice leading to emerging approaches and best practices.

### STRATEGIES OUTLINED IN SECTION 1:

- Community Energy and Emissions Plan 2050 identifies specific actions that present opportunities to advance equity, fairness and inclusion during plan implementation
- Energy Poverty Toolkit for Low Income Households and their Service Providers

<sup>34</sup> <https://cuspnetwork.ca/wp-content/uploads/2020/03/USDNEquitableCleanEnergyGuidebookCompressed-2.pdf>



## City of Richmond

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**Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 10328 (Revised community GHG reduction targets and CEEP 2050)**

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Official Community Plan Bylaw 9000, as amended, is further amended by:
  - a. deleting the text of the “Climate Change and a Large Environmental Footprint” subsection in Section 1.5 (Key Issues to Address in Planning for the Future) and replacing it with the following:

“The earth’s climate is changing. Increasing greenhouse gas (GHG) emissions are causing a rapid rise in global temperatures and the effects will be felt both now and into the future. The UN Intergovernmental Panel on Climate Change’s (IPCC’s) Sixth Assessment Report, published in 2021, states that ‘human-induced climate change is already affecting many weather and climate extremes in every region across the globe.’ The report also states that global warming will exceed the 1.5°C target set in the 2015 Paris Agreement ‘unless deep reductions in carbon dioxide (CO<sub>2</sub>) and other greenhouse gas emissions occur in the coming decades.’

A fundamental challenge for Richmond and all communities will be to reduce GHG emissions even with a growing population and an expanding economy, while ensuring the City adapts to the anticipated impacts of climate change. Richmond will not only need to mitigate climate change by rapidly reducing GHG emissions from both buildings and in transportation, but also help shift the local consumption of goods and services towards a ‘circular economy’ model, while greatly increasing the extraction of GHGs directly from the atmosphere. At the same time, Richmond will also need to adapt to the local impacts of global warming, including managing the impacts of sea level rise, storm events, and rising temperatures as well as the local repercussions of climate change impacts occurring elsewhere;”

- b. deleting Section 2.2 (Climate Change Mitigation) and replacing it with the following:

“2.2 Climate Change Mitigation

OVERVIEW:

In 2007, emissions of greenhouse gases (GHGs) generated by the Richmond community were approximately 1,100,000 tonnes of CO<sub>2</sub> equivalent (according to data available in 2020). Approximately 58% of the community’s greenhouse gas



emissions were transportation-related and about 38% were generated from energy use in buildings. Waste contributed about 4% of emissions.

On May 17, 2010, Council adopted greenhouse gas reduction targets of 33% below 2007 levels by 2020 and 80% by 2050, and on January 27, 2014, Council approved Richmond's first Community Energy and Emissions Plan (CEEP). Thanks to actions taken by Richmond, and at the provincial and federal level, data available in 2020 indicates that total community GHG emissions decreased 7% below 2007 levels by 2017, even with a growing population and a larger local economy.

In March 2019, Richmond Council directed staff to revise the City's existing Community Energy and Emissions Plan (CEEP 2014) with additional measures to achieve community-wide GHG emission reductions consistent with the global targets recommended by the Intergovernmental Panel on Climate Change (IPCC) to limit global warming to 1.5°C above pre-industrial levels. In March 2022, Council adopted the updated Community Energy and Emissions Plan 2050, and the community-wide GHG emission reduction targets noted in Objective 1 below.

The City of Richmond has already established itself as a leader in implementing important climate action initiatives. However, concerted effort by all parties will be needed to achieve the GHG reductions needed to limit climate change to levels that will avoid unmanageable impacts and costs. The Federal and Provincial governments have extensive jurisdiction over the two major sectors responsible for the majority of Richmond's community GHG emissions—transportation and building infrastructure - so action by senior levels of government is critical. Equally important will be changes implemented by Richmond residents and businesses to reduce GHG emissions from transportation and buildings, both by reducing total energy demand, and by shifting away from the use of fossil fuels.

#### OBJECTIVE 1: REDUCE GHG EMISSIONS

Reduce community-wide GHG emissions 50% below 2007 levels by 2030, and achieve net zero GHG emissions by 2050. Continue to reduce direct GHG emissions from City operations and services, and maintain the City's standard of net zero GHG emissions.

#### POLICIES:

The City shall:

- a) advance GHG emission reduction planning and actions consistent with the City's Sustainability Framework;
- b) advocate that senior governments take a leadership role in reducing GHG emissions (e.g., legislation, programs, education, capital investments);



- c) request that senior governments provide funding and incentives to municipalities and other parties to reduce GHG emissions (e.g., existing building retrofits, new building improvements, transit, ride sharing, electrical vehicle plug-ins, recycling);
- d) Maintain and update Richmond's Community Energy and Emissions Plan (CEEP) that identifies and advances strategic actions to achieve community-wide GHG emission reduction targets. The CEEP should include strategies and actions that:
  - 1) reduce GHGs from existing buildings through energy retrofits;
  - 2) reduce GHGs from transportation by encouraging a shift to electric vehicles;
  - 3) reduce greenhouse gas emissions from new developments through high performance building design standards;
  - 4) strengthen land use and development policies that support compact and complete communities, sustainable transportation and sustainable resource use, including energy, water and materials;
  - 5) reduce automobile reliance through compact land use, transit-oriented development practices and strengthened investments in alternative modes of transportation;
  - 6) reduce net GHG emissions through capture and secure storage of GHGs from the atmosphere;
  - 7) minimize GHG emissions and maximize the value of resources within goods and services consumed by using Richmond's Circular Economy Vision and Principles;
  - 8) establish and regularly update sector-specific GHG reduction targets, including but not limited to building energy use, transportation and waste generation; and
  - 9) regularly report community-wide GHG emissions.
- e) maintain corporate energy and emissions programs that identify and advance strategic actions to reduce GHG emissions from City services and operations;
- f) regularly measure and report GHG emissions from City services and operations with evolving methodologies;"



- c. deleting the text of the “Overview” subsection in Section 12.4 (Energy) and replacing it with the following:

“OVERVIEW:

On July 26, 2010, Council endorsed the Corporate Sustainability Framework, Energy Strategic Program, which included a target ‘to reduce energy consumption in the Richmond community by at least 10% from 2007 levels by 2020’.

The objectives and policies below focus on reducing energy use and emissions from buildings, while those relating to transportation and waste management are located in other sections of the Official Community Plan.

The City of Richmond is a leader in corporate energy management of its own facilities. The City has been recognized by BC Hydro as a Municipal Power Smart Leader (the highest recognition BC Hydro gives to organizations) several years in a row due to its outstanding efforts to incorporate new and alternative technologies into its energy system, and improve its corporate energy management program. The experience and knowledge which the City has gained through its energy management initiatives informs its community-wide energy use and emissions reduction efforts.

In 2007, almost 59% of the energy consumed in Richmond occurred in commercial buildings and residences. The BC Energy Step Code was established in 2017 by the province of British Columbia; it is a standard that local governments can choose to reference that requires improved energy performance from most types of new construction over and above what is required by the BC Building Code. There is a need to improve the energy performance of new buildings using tools such as the BC Energy Step Code, as well as speed the adoption of energy upgrades and renovations to existing buildings. Doing so will not only help the City achieve its emissions goals, but can also improve indoor environmental quality, health, productivity, and foster economic opportunity and jobs.”

- d. deleting clause c) in the text of the “Objective 1” subsection in Section 12.4 (Energy);
- e. deleting the text of the “Objective 2” subsection in Section 12.4 (Energy) and replacing it with the following:

“OBJECTIVE 2:

Improve the energy efficiency of existing buildings and vehicles and transportation infrastructure to reduce GHG emissions and other environmental impacts of energy use, and to reduce energy costs.



POLICIES:

- a) Implement the strategies and actions recommended in the Council-adopted Community Energy and Emissions Plan;”
- f. deleting the text of the “Objective 3” subsection in Section 12.4 (Energy) and replacing it with the following:

“OBJECTIVE 3:

Improve the energy efficiency and greenhouse gas emissions performance of new construction.

POLICIES:

- a) Implement the strategies and actions recommended in the Council-adopted Community Energy and Emissions Plan.
  - b) Implement the BC Energy Step Code (and greenhouse gas emission standards, as these become available for implementation by local governments) in a manner that maximizes the reduction of greenhouse gas emissions, while also increasing energy efficiency over time.
  - c) Set out incremental increases in requirements for new construction, in consultation with stakeholders, so that starting in 2025, new buildings covered by the BC Energy Step Code will, by bylaw, have to achieve:
    - 1. near-zero GHG emissions from operation, and/or
    - 2. the highest applicable level of energy efficiency under the BC Energy Step Code.”
2. This Bylaw is cited as “**Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 10328**”.

FIRST READING

PUBLIC HEARING

SECOND READING

THIRD READING

ADOPTED

Ready for

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MAYOR

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CORPORATE OFFICER