



# City of Richmond

## Report to Committee

**To:** General Purposes Committee **Date:** November 29, 2019  
**From:** Peter Russell **File:** 10-6125-07-02/2019  
 Director, Sustainability and District Energy  
**Re:** **Community Energy and Emissions Plan 2020-2050 Directions**

### Staff Recommendation

1. That the directions and associated targets 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.
  
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 climate action related plans and strategies for Council consideration.

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

Att. 7

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Community Social Development	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Engineering	<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>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	INITIALS: 	

## Staff Report

### Executive Summary

To facilitate accelerated action and development of an updated Community Energy and Emissions Plan, significant community engagement was undertaken in the spring and fall of 2019 under a branded process (“50 x 30 Advancing Richmond’s Climate Leadership”) to inform the following recommended strategic directions:

1. **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.
2. **Transition to Zero Emission Vehicles** – Foster electric mobility, with expanded options for charging at home, at work, and on-the-go personal electric vehicles, electric car share vehicles, e-bicycles / e-scooters.
3. **Carbon Neutral New Buildings and Energy Systems** – All new buildings will meet the top performance level of the BC Energy Step Code starting in 2025, and be powered by low carbon energy systems (in-building or district energy).
4. **Complete Communities** – Accelerate current OCP objectives for compact, complete communities throughout Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.
5. **Active Mobility for All** – Prioritize active transportation with investments in walking, rolling and biking infrastructure that is safe, connected, easy to navigate, and accessible.
6. **Support Frequent Transit** – Foster wider use of frequent public transit throughout Richmond by implementing and upgrading transit stops, well integrated with active transportation (walking / rolling, bicycling) and car-sharing networks.
7. **Enhance Green Infrastructure** – Maximize the climate benefits of Richmond’s green infrastructure by improving or expanding existing carbon stores in trees, vegetation and soils.
8. **Transition to a Circular Economy** – Create a circular economy in Richmond that maximizes the value of resources through smart product design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, low-carbon economy.

The above directions, and the emission targets listed for each sector in this report, will put Richmond on a path to achieve accelerated carbon reduction targets in line with the International Panel on Climate Change (IPCC) 1.5° C global warming limit. Staff are seeking Council endorsement of the proposed directions and associated targets to develop the Community Energy and Emissions Plan (CEEP) 2020-2050, and obtain final community input before presenting the plan to Council for adoption. Staff are also seeking Council support for developing a broader Climate Action Strategy, that will position all of the City’s climate-related policies and programs, into a single document for communication purposes. The CEEP 2020-2050 would be presented to Council for endorsement in 2020, together with revised emission targets for 2030 and 2050, to be referenced in the City’s Official Community Plan.

## Origin

At the General Purposes Committee meeting of 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 partly responds to items (1), (3a) and (3b) in the above resolution.

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

In January 2014, Council adopted the Community Energy and Emissions Plan (CEEP), which included strategies and actions to achieve the citywide greenhouse gas (GHG) emissions reduction commitments expressed in Richmond’s 2041 Official Community Plan (Bylaw 9000). Measures in the 2014 CEEP were projected to reduce Richmond’s GHG emissions by 6% by 2020, and 25% by 2050. ‘Big Breakthrough’ actions were also identified that would need to be achieved to reach the OCP targets of 33% by 2030, and 80% reduction by 2050. Since 2014, the City has since implemented policies, services and programs encompassing both Corporate and community-wide actions. The February 27, 2019 report titled, “Accelerating Local Action on Climate Change: Community Energy and Emissions Plan (CEEP) Renewal”, highlighted Richmond’s successes to date, summarized in Attachment 1.

Richmond's Greenhouse Gas Emissions Inventory and Forecast

An updated 2007 baseline year emissions inventory through to 2017 was developed for the purposes of assessing future scenarios. The inventory includes factors that the Province of BC has applied to the data from previous reporting years, within the relevant emission categories (e.g., fuel use by transportation and building types). 1,045,000 tonnes of CO<sub>2</sub> equivalent emissions were emitted in 2007 (Figure 1). By 2017, total emissions dropped 4% to 1,006,000 tonnes CO<sub>2</sub>e.

**Figure 1: 2017 Community Emission Inventory for Richmond, showing Current Plans GHG Emissions Trend to 2030 and 2050, compared with IPCC 1.5° C Reduction Target**

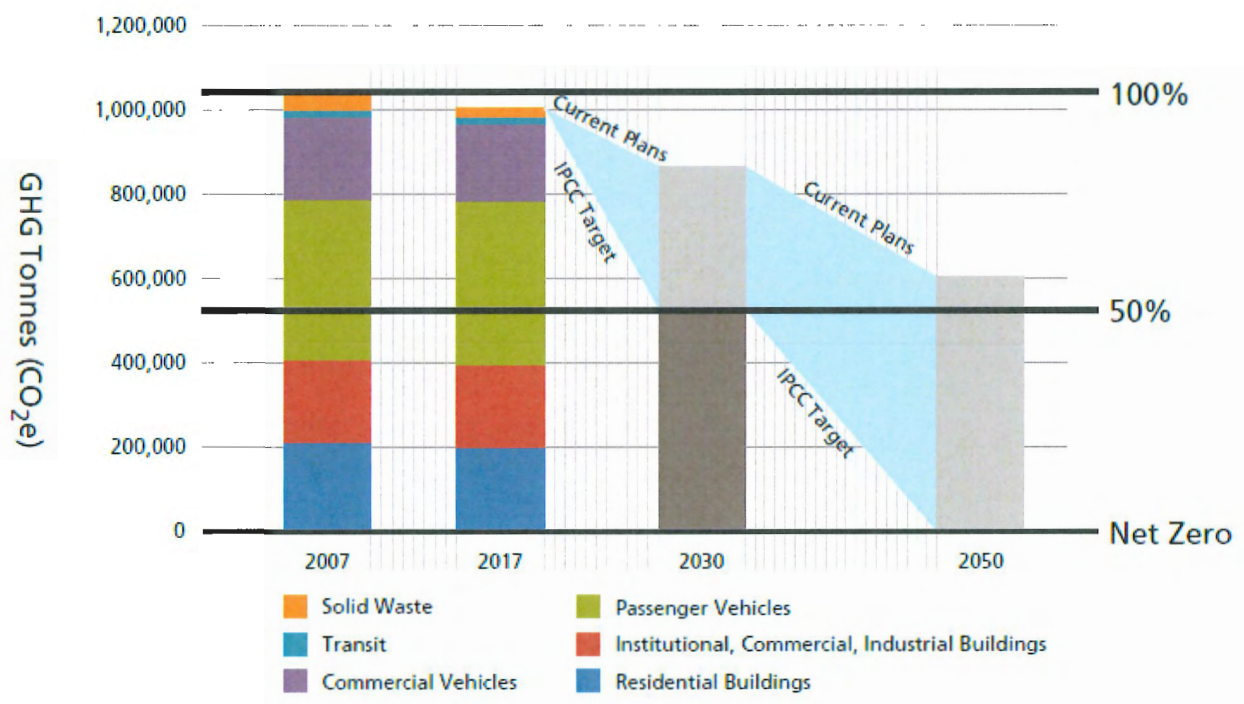


Figure 1 projects total GHG emissions in Richmond in 2030 and 2050 under a scenario, where current approved energy and climate-related policies and plans at the local, provincial and federal government level are fully implemented. This includes local adoption of the BC Energy Step Code, a 70% emissions-free target for all Lulu Island District Energy utilities, and realization of compact community policies as set out in the Official Community Plan, as well as existing federal and provincial policies for zero emission vehicles and low-carbon fuel standards.

Figure 1 also shows an IPCC Target emissions reduction trend line, in which greenhouse gas emissions are 50% below the 2007 baseline year by 2030, and achieve net zero carbon emissions by 2050, commensurate with global emission reductions required to limit global average warming to 1.5° C above pre-industrial temperatures.

### Deeper Emission Reductions are needed to Achieve the 1.5° C Global Warming Limit

Figure 1 indicates positive news for Richmond with respect to forecasted emissions reduction under a Current Plans scenario, resulting in a citywide GHG emission reduction of 25% from the 2007 baseline by 2030, and 50% reduction by 2050. The scenarios in Figure 1 include expected population growth in Richmond, from 2020 to 2050. The Current Plans forecast delivers an annual reduction of 10,692 tonnes CO<sub>2</sub>e between 2020 and 2030, and 13,100 tonnes CO<sub>2</sub>e from 2030 to 2050. While these emission reductions are impactful, they are far short of the level needed to meet the IPCC targets. Achieving these targets will require accelerated GHG reduction and climate change actions beyond measures already in place, as shown in Table 1.

**Table 1: Forecasted GHG Emissions Reductions – Current Plans and IPCC 1.5° C Limit**

	2007 Baseline tonnes CO <sub>2</sub> e	2017 tonnes CO <sub>2</sub> e	2030 tonnes CO <sub>2</sub> e	2050 tonnes CO <sub>2</sub> e
<b>Current Plans Forecast</b>				
Total Community Emissions	1,045,000	1,006,000	867,000	605,000
Average Reduction Per Year			10,692 (2017-2030)	13,100 (2030-2050)
<b>IPCC 1.5° C Target</b>				
Total Community Emissions	1,045,000	1,006,000	503,000	0
Average Reduction Per Year (Current Plans + new measures)			38,692 (2017-2030)	25,150 (2030-2040)

### Community and Stakeholder Engagement

The community has informed the development of the directions that set the policy framework for Richmond's proposed CEEP 2020-2050. Under the branded process "*50 x 30 Advancing Richmond's Climate Leadership*" the following engagement program used a range of input channels and formats to receive feedback from over 1,000 people:

- **Community Events:** Community Ideas Fair (June 2019) and Community Directions Fair (October 2019) at City Hall (275 attendees in total).
- **Workshops:** Three community and stakeholder workshops (Fall 2019).
- **Digital Engagement:** Print and social media and online contests resulted in 492 people interactions with #Rmd50x30, and 550 responses were received in two Let's Talk Richmond surveys.
- **Outreach Events:** City booth and 'Sustain-a-buck' voting opportunities at nine (9) outdoor events; the voting particularly popular with children, youth and young families.
- **Community Presentations:** From City staff to advisory committees, professional organizations and citizen environmental groups between June and November 2019.
- **Youth Engagement:** Youth-oriented 'Now-Wow-How!' workshop at a local school, and a youth focus group, organized by students from Simon Fraser University.

Attachments 2 (summary) and 3 (all feedback received) summarize all of the feedback received from the engagement program in 2019.

Tools for Local Government Climate Action

Staff developed a climate action toolkit, with six categories of action that the City can utilize individually, or in combination, to accelerate community GHG emissions reductions (Figure 2).

**Figure 2: City of Richmond Climate Action Toolkit**



Community engagement participants were asked to rank the relative usefulness or applicability of these tools to advance action within each climate action direction area (Attachment 4: Richmond Climate Action Toolkit Definitions). Feedback from the public and stakeholder organizations indicated support for using the levers the City has available to accelerate action.

Attachment 5: Eight Climate Action Directions for Richmond – Context Boards, and Attachment 6: Eight Climate Action Directions for Richmond – Survey Boards, contain consultation panels that were developed for the *50% by 2030 Advancing Richmond’s Climate Leadership* autumn 2019 engagement phase. The Survey Boards (Attachment 6) in particular outline potential actions that could be taken, as well as relative level of City or partner resources that would be required. The roll-up results from workshops, presentations, community events and the online survey, which have been very useful for identifying actions that are particularly important in meeting accelerated greenhouse gas emission targets within each of the proposed directions.

Proposed Climate Action Directions – Setting the Framework for a New Plan

In ramping up action on energy and climate in Richmond, eight strategic directions have been identified where the role of the City of Richmond, 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 in achieving the City’s targets.

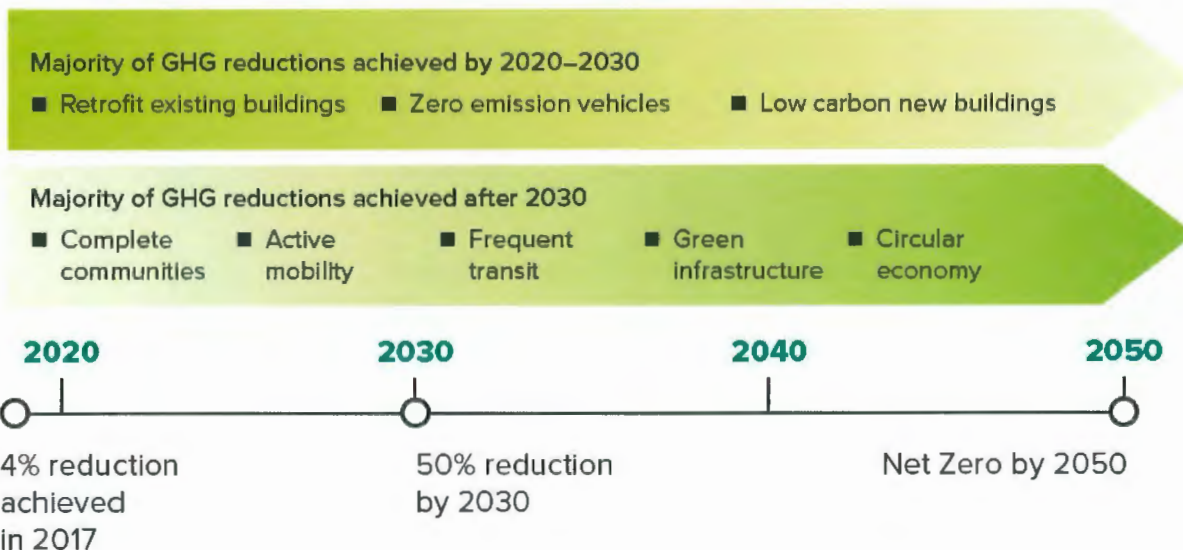
In the coming decade (2020-2030), Richmond will need to achieve significant emission reductions in new and existing buildings, and major progress on the transition to zero emission vehicles (Figure 3). Three directions are identified as ‘major moves’ and are key to meeting the 2030 GHG emission reduction target, and signaling that Richmond is on track to meet the IPCC 1.5° C global warming limit commensurate with Council’s climate emergency declaration

Equally significant, but taking place over a longer trajectory (2020 to 2050), are actions with respect to complete communities, active mobility, public transit, green infrastructure, and circular economy. The cumulative impact of these directions will be most evident over the mid to longer term, as Richmond heads toward a carbon neutral community.

The City of Richmond cannot achieve deep GHG reduction targets alone; supportive legislation (e.g. Energy Step Code changes, BC Zero Emission Vehicle mandate), and resources from senior levels of government (e.g. transit) will be critical for success. Partnerships and collaboration with utilities, municipal governments, local businesses and Richmond residents will also be required.

**Figure 3: Getting to Net Zero by 2050 – A Strategic Timeline for Richmond**

**TIMING OF EMISSION REDUCTIONS: 2020–2050**



A short summary of each strategic direction is included below, identifying bold actions that collectively will reduce community greenhouse gas emissions 50% by 2030, and signalling that Richmond is making significant progress toward the 2050 goal of a carbon neutral community. One-page summaries of each direction are also included in Attachment 7, detailing the shared benefits of achieving the objectives within the direction, as well as enabling City policies, plans and successes to date. Engagement highlights are also included, matched with the top three implementation tools (from consultation results) that were viewed as particularly effective.

**RETROFIT EXISTING BUILDINGS**

*Major Move for 2020-2030*

**DIRECTION 1**

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



**Carbon Reduction Impact by 2030:**

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



## TRANSITION TO ZERO EMISSION VEHICLES

*Major Move for 2020-2030*

### DIRECTION 2

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



#### Carbon Reduction Impact by 2030:

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



## CARBON NEUTRAL ENERGY FOR NEW BUILDINGS

*Major Move for 2020-2030*

### DIRECTION 3

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



#### Carbon Reduction Impact by 2030:

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



## COMPLETE COMMUNITIES

### DIRECTION 4

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



#### Carbon Reduction Impact by 2030:

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





## ACTIVE MOBILITY FOR ALL

### DIRECTION 5

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



#### Carbon Reduction Impact by 2030:

- ✓ Increase bicycle ridership and micro electric mobility to reach 10% of all trips taken by 2030, with further increases to 2050.
- ✓ Increase walk / roll trips to 18% by 2030, with further increases to 2050.

## SUPPORT FREQUENT TRANSIT

### DIRECTION 6

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



#### Carbon Reduction Impact by 2030:

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

## ENHANCE GREEN INFRASTRUCTURE

### DIRECTION 7

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



#### Carbon Reduction Impact by 2030:

- ✓ By 2030, measures have been identified and initiated sufficient to sequester and maintain 200,000 additional tonnes of CO<sub>2</sub>e per year by 2050.
- ✓ Achieving this target in 2050 could provide Richmond a 20% carbon reduction 'buffer' equivalent to 20% of Richmond's GHG emissions relative to the 2007 base year.

## TRANSITION TO A CIRCULAR ECONOMY

### DIRECTION 8

Create a circular economy in Richmond that maximizes the value of resources through smart product design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, low-carbon economy.



#### Carbon Reduction Impact by 2030:

- ✓ By 2030, the City of Richmond's Circular Economic Strategy will be fully implemented, driving innovation by the City and local business community in material use, waste reduction and emission reduction from the manufacture, transport and retailing of products and services.

### Climate Action Strategy

It is proposed that key directions and actions from the completed Community Energy and Emissions Plan (CEEP) 2020-2050 will be incorporated into a broad Climate Action Strategy, that positions all of the City's climate-related policies and programs into a single document for communication purposes. This will include leadership for the City's corporate buildings, and continued efforts to improve the climate adaptation and resiliency of Richmond's infrastructure.

### Leadership on Corporate Energy and Emissions

For over two decades, the City of Richmond has taken action to improve energy efficiency and reduce GHG emissions from corporate operations and contracted services, including ongoing implementation of the 2013 Green Fleet Action Plan and the Energy Management Program for Corporate buildings (see Attachment 1). The City has achieved net carbon neutral operations since January 2013 by offsetting all remaining GHG emissions from Corporate activities. Key measures have also been implemented to protect municipal operations from potential climate impacts. The new Climate Action Strategy will identify additional opportunities for emission reduction, energy conservation, and climate resiliency within the City's corporate and contracted operations, and include recommendations for continued leadership on climate change.

### A People-Centred Plan

It is staff's intent to bring forward an updated Community Energy and Emissions Plan that identifies people-centred initiatives and the shared benefits of action on energy use and climate change. As the Plan is further developed in 2020, recommended policies, programs and incentives will be informed by considerations of wellness, inclusion, equity and fairness. Critically, the Plan will also recognize that some members and groups in the community will be more exposed or vulnerable to the negative impacts of climate change, such as extreme weather or wood smoke in the regional air shed, due to housing that is poorly insulated and/or without adequate filtered mechanical ventilation. The Plan will incorporate these considerations as implementation actions are identified in 2020 with respect to improving climate resiliency.

### Implementation Resources

The renewed Community Energy and Emissions Plan will include a comprehensive set of prioritized implementation actions and order of magnitude costs. Given the need to double the City's actions, staff intend to bring forward a staffing request to support implementation of recommended program and policy actions.

### Next Steps

With Council approval of the climate action directions, staff will proceed on the following:

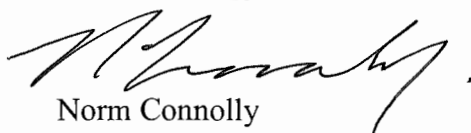
1. Integrate the Directions into a revised Community Energy and Emission Plan 2020-2050;
2. Identify specific initiatives and policies that improve the resiliency of Richmond to the effects of climate change for each Direction;
3. Further define community wellness, inclusion, equity and fairness objectives for the CEEP 2020-2050;
4. Conduct a final phase of community engagement in 2020; and
5. Present the CEEP 2020-2050 and Climate Action Strategy for Council endorsement, to include revised greenhouse gas emission reduction targets for 2030 and 2050 in the OCP.

### **Financial Impact**

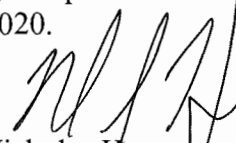
None.

### **Conclusion**

In response to Council's motion recognizing a climate emergency in March 2019, significant community engagement occurred in the spring and fall of 2019, with results informing eight broad directions for Richmond's revised Community Energy and Emissions Plan (CEEP 2020-2050). During the public engagement program, these directions played a key role in communicating potential actions and strategies that could be advanced to achieve accelerated community GHG emission reductions in line with the IPCC 1.5° C global warming limit. With Council endorsement of consultation results and directions, staff will proceed with the final phase of analysis and community consultation, and present the CEEP 2020-2050 and Climate Action Strategy for Council consideration in 2020.



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- Att. 1: City of Richmond Climate Action Leadership – Reducing GHG Emissions
- 2: Engaging our Community – At a Glance Results
  - 3: Engaging our Community – Results in Detail
  - 4: Richmond Climate Action Toolkit Definitions
  - 5: Eight Climate Action Directions for Richmond – Context Boards
  - 6: Eight Climate Action Directions for Richmond – Survey Boards
  - 7: Eight Climate Action Directions for Richmond – Carbon Reduction Impacts by 2030

## **Attachment 1: City of Richmond Climate Action Leadership – Reducing GHG Emissions**

*[Extracted from the report to Council titled, “Accelerating Local Action on Climate Change: Community Energy & Emissions Plan (CEEP) Renewal,” dated February 27, 2019.]*

In January 2014, Council adopted the *Community Energy and Emissions Plan* (CEEP). The City has since implemented a wide range of greenhouse gas (GHG) emission reduction initiatives targeting both corporate activities and city-wide (community) sources. Examples of City’s initiatives that have reduced corporate and community GHG emissions include the following:

- **Land Use Planning:** The CEEP is informed by the 2009 City Centre Area Plan (2009), enabling high-density development to be effectively supported by low-carbon rapid transit. The CEEP is also congruent with city-wide OCP priorities for the redevelopment of neighbourhood centres and Arterial Road Development (i.e. along TransLink’s frequent transit network), reinforcing the land use – transportation link.
- **District Energy:** Since 2011, buildings in City Centre are required to be “District Energy-Ready” (i.e. using a hot water-based heating system, or connected to the City’s Lulu Island Energy Company (LIEC) infrastructure for space heating<sup>1</sup> and hot water services). The City’s DEU systems already provide more than 3.6 million ft<sup>2</sup> of residential and commercial floor space with energy-efficient and cost-effective energy services. LIEC’s Alexandra District Energy System uses a renewable geo-exchange system to provide heating and cooling for new buildings in the area, including the first Walmart in North America to be connected to a civic thermal energy utility, and Richmond Fire Hall #3. LIEC’s plan is to access the sewer heat resource of the Gilbert Road sanitary forcemain to generate energy for the Oval Village District Energy Utility.
- **Energy Efficient New Development:** The City Centre Area Plan established a policy, in effect from 2009 to 2018, that new developments greater than 2000m<sup>2</sup> achieve a LEED Silver-equivalent level of performance as a consideration of rezoning. In September 2014, Council adopted the City’s Townhouse Energy Efficiency and Renewable Energy policy, in effect until 2018, which required that all new townhouse units resulting from rezoning applications be designed and built to achieve an “EnerGuide 82” energy efficiency performance rating or better, and comply with the BC Solar Hot Water ready regulation, or alternatively, connect to a renewable energy system. In 2018, both policies were superseded by more stringent Energy Step Code requirements for new development (see below). New detached homes are also required to meet the requirements of the BC Solar Hot Water Ready regulation.
- **Electric Vehicles:** As of February 2019, the City has installed 10 public L2 EV charging ports at five different locations in Richmond, with the installation of 6 additional ports (including 2 L3 ports and a sixth location) planned. A new Richmond requirement that 100% of new residential parking spaces be supplied with EV charging infrastructure is a

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<sup>1</sup>Cooling is also provided in some cases.

North American first and an increasingly influential precedent for other local governments.

- **Energy Efficient Existing Buildings:** EnergySave Richmond ([www.energy.richmond.ca](http://www.energy.richmond.ca)) has offered a suite of programs for residents, businesses and developers:
  - Building Energy Challenge: A friendly competition between building owners to promote energy performance and reporting of energy use (2015-2017);
  - ClimateSmart: Energy efficiency and GHG reduction coaching for local businesses (2016-2018);
  - Richmond Carbon Market: Program for purchasing carbon credits from Richmond-based GHG reduction projects (since 2015); and
  - Targeted incentives for Energy Star clothes washers (since 2010), replacement restaurant hot water spray-valves (2016), and “smart” thermostats (2016-2017).
  - The website also hosts on-line registration forms for the City of Richmond Airtightness Training Program that supports local builders and construction trades workers in building successfully to the City’s Energy Step Code requirements.
- **Active Transportation and Walkability:** Since 2010, the City has issued Building Permits for 4,773 new City Centre building units within a 5-minute walk of Canada Line stations (including 2,292 units near the planned station at Capstan Way), with many more to come. New transit shelters, crosswalks, bike lanes and other cycling facilities have been installed throughout Richmond to encourage low-carbon active transportation. Between 2006 and 2016, the transit mode share for journey to work trips increased from 11.8% to 19.1%, and vehicle trips declined from 82.2% to 74.2%. The City has also supported the introduction and expansion of car-share services and is currently piloting a public bike-share system.
- **Civic Buildings:** New civic buildings have been built to LEED Gold levels of environmental performance, including the City Centre Community Centre, Fire Hall No.1 and the new Minoru Centre for Active Living, while Fire Hall #3 and the attached ambulance station are connected to the Alexandra DEU. The City reduced GHGs from City buildings by 25% between 2007 and 2017 by implementing energy efficiency and fuel-switching initiatives. Council has approved a target of reducing corporate GHG emissions to 65% below 2007 levels by 2020.
- **City Fleet:** Through implementation of the City’s *Green Fleet Action Plan*, Richmond was the first local government to achieve an E3 Fleet<sup>2</sup> “Platinum” rating.
- **Parks Services:** Staff are assessing the carbon storage capacity of the North East Bog Forest to advance the City’s carbon neutrality efforts as well as the Ecological Network; if the assessment shows promising results, staff intend to assess the carbon stored within the Garden City Lands.

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<sup>2</sup> E3 Fleet: “Energy, Environment, Excellence”: <https://www.e3fleet.com/>

- **Waste Diversion:** Richmond achieved 78% diversion of organic wastes from single family homes in 2016, greatly reducing GHG emissions from anaerobic decomposition. Also in 2016, Council adopted the *Demolition Waste and Recyclable Materials Bylaw*. The City is aiming for 80% waste diversion by 2020.
- **Carbon Neutral Operations:** Building on GHG emission reductions achieved through the City’s waste diversion, parks, civic building and city fleet initiatives (see above), the City has additionally purchased locally-generated GHG offsets through its innovative Richmond Carbon Marketplace program to achieve carbon neutral corporate operations every year since 2013, and plans to maintain this success going forward.
- **Solar energy:** Staff developed the Solar Friendly Richmond framework in 2016, proposing corporate and community-focused policies and programs. City facilities with solar energy generation installed include:
  - South Arm Community Centre and Hamilton Fire Hall (solar air pre-heating)
  - Steveston Fire Hall No 2, South Arm Outdoor Pool, and the old Minoru Aquatic Centre (solar hot water).
  - Planned solar PV installations at the new Fire Hall No 1.
 Staff are currently assessing a solar policy for new development per the referral from the December 18, 2018, Planning Committee meeting, and intend to bring a report to Council in spring 2019.
- **BC Energy Step Code:** From 2016 through to the present, the City has played a key role in both developing and implementing the Province’s new Energy Step Code (ESC), a new set of “better-than-code” energy efficiency standards available for voluntary adoption by local governments in British Columbia. Richmond became the first municipality in BC to announce its intent to begin stakeholder consultations on local adoption of the ESC. Richmond’s approach to ESC targets sets out differentiated Step Code targets that incent the use of “low-carbon energy systems” including District Energy. See Attachment 2 for a table of current and proposed ESC requirements for new construction in Richmond, consistent with achieving net-zero energy ready construction for new developments as soon as 2025.
- **Civic Leadership and Advocacy:** The City regularly calls on senior levels of government to take greater action on sustainability and climate change issues. Within recent years, Council has provided input to the development of the 2015 BC *Climate Leadership Plan* and the recent *CleanBC* plan (see below), and has successfully championed resolutions on building energy benchmarking and the right to a clean environment through the Union of BC Municipalities (UBCM). Richmond has also consistently taken a leadership position among local governments, pioneering new EV charging requirements for residential development, and leading research on incentives for heat pump technology. Richmond’s leadership in adopting the Energy Step Code has already inspired many other local governments in BC to follow suit, and the City’s Energy Step Code targets, regulatory procedures and well-regarded stakeholder consultation process are all being widely cited as best practice by both industry and government.

**50%**  
**30** ADVANCING RICHMOND'S CLIMATE LEADERSHIP

# ENGAGING OUR COMMUNITY

AT A GLANCE  
June to November 2019

## SURVEY

Number of people who completed our surveys:

**386** **167**

Phase 1 Phase 2

### Relationships with Richmond

- 505 live in Richmond
- 218 work in Richmond
- 35 have a business in Richmond
- 30 study in Richmond
- 87 own a property in Richmond\*
- 36 visit Richmond
- 9 have no existing relationship
- 3 other
- 1 prefer not to answer\*



### What's your age?

- 0 – 0 to 12 years old\*
- 29 – 13 to 18 years old
- 18 – 19 to 24 years old
- 116 – 25 to 39 years old
- 147 – 40 to 54 years old
- 215 – 55 to 75 years old
- 24 – over 75 years old
- 3 – prefer not to answer

### Feedback

- "Climate Change Response is not an option. It is a must and the City must lead by example."
- "I'm glad the city is taking climate change and its risks seriously."
- "Look to diverse community groups to spread the message and importance of GHG reduction."

\* Questions only asked in Phase 2 of the survey

## EVENTS



**1,000+** people were engaged in person at our public consultation

### 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:

- 2 major public consultation events
- 2 community workshops
- 2 stakeholder meetings
- 12+ presentations and were on-site during
- 9 days of summer events



## 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 ads, contests and organic posts on Facebook, Twitter and Instagram



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



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



Created a new e-newsletter with 4 issues published already and 300 readers subscribed



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



Families



Volunteers



Solutions



Feedback

**5%**  
**30** | **ADVANCING  
RICHMOND'S  
CLIMATE  
LEADERSHIP**

# SURVEY REPORT

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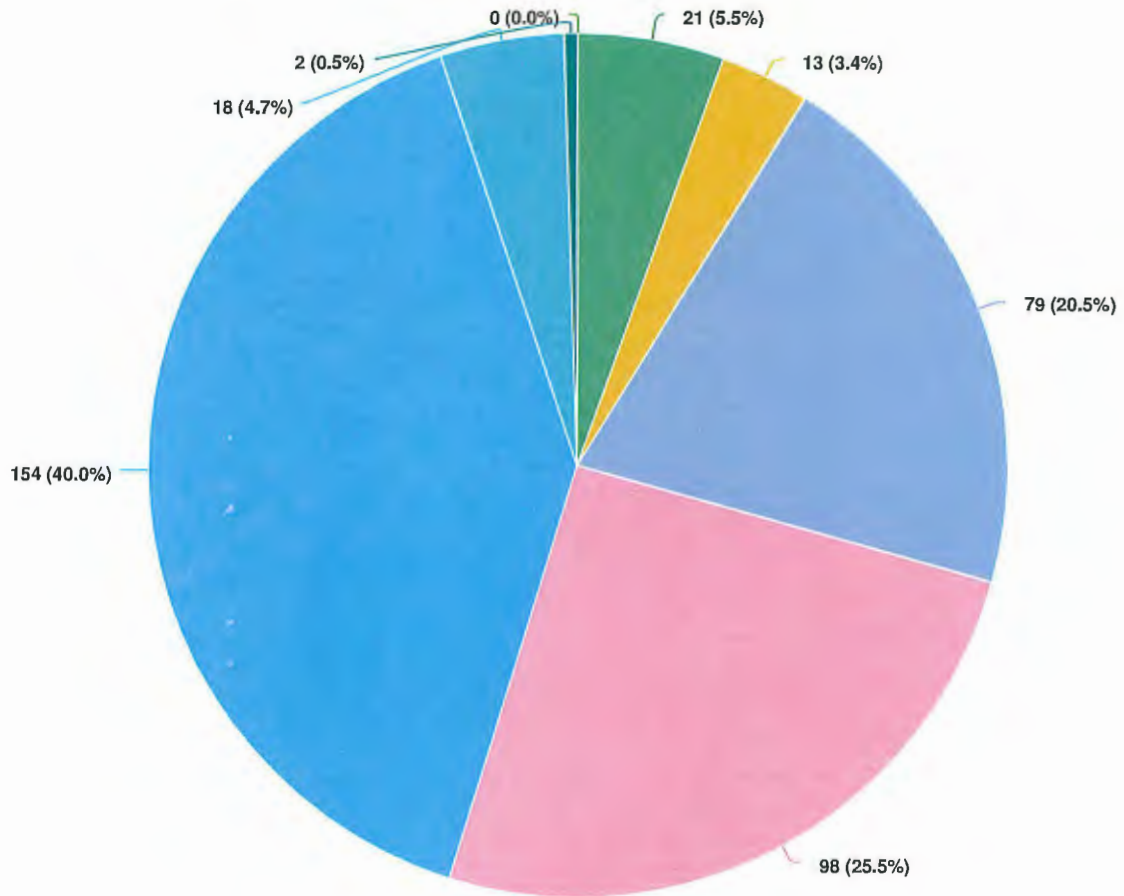
PHASE I:  
JULY 17 TO AUGUST 18, 2019



LET'S TALK RICHMOND



Q1 I belong to the following age group:



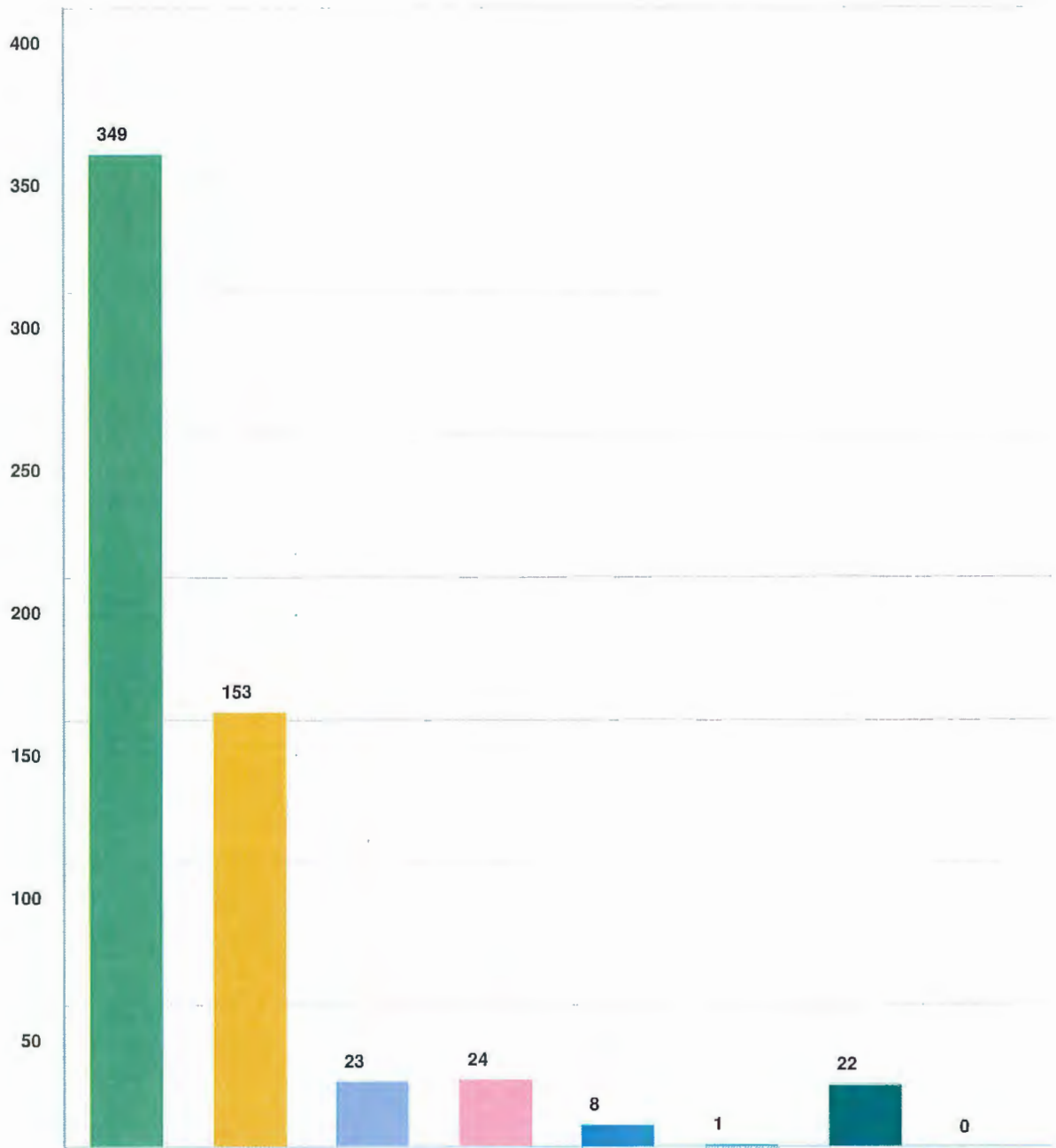
Question options

- Between 13 to 18
- 19 to 24 years old
- 25 to 39 years old
- 40 to 54 years old
- 55 to 75 years old
- Over 75 years old
- Prefer not to answer
- Under 12

(385 responses, 1 skipped)

Q2: There were home postal codes provided.

**Q3 I have the following relationship with Richmond:**

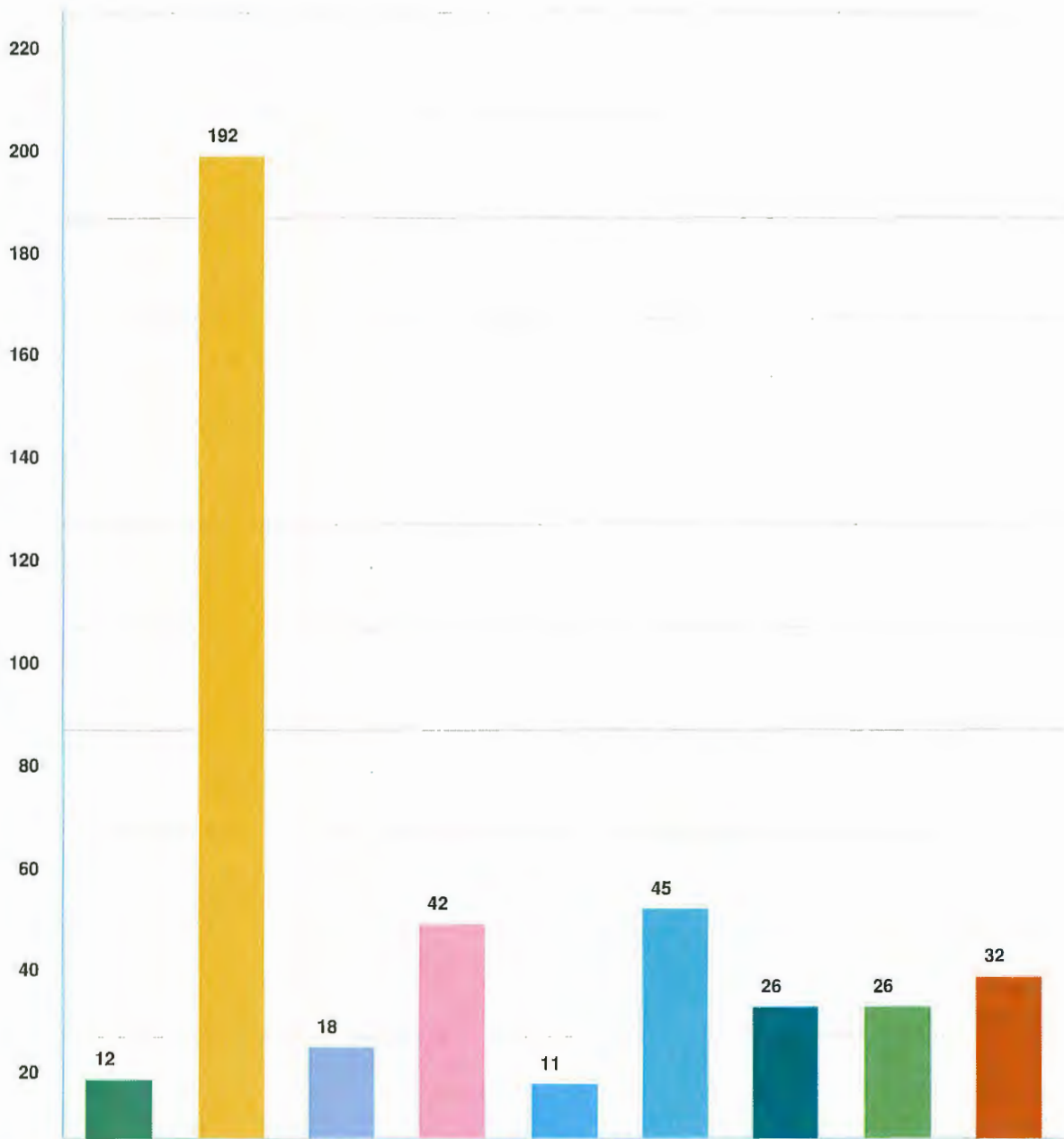


**Question options**

- I live in Richmond
- I work in Richmond
- I have a business in Richmond
- I visit Richmond often
- Other
- I do not have an existing relationship with Richmond
- I study in Richmond
- I prefer not to answer

*Optional question (385 responses, 1 skipped)*

**Q4 I heard about this survey: (Please select all that apply.)**



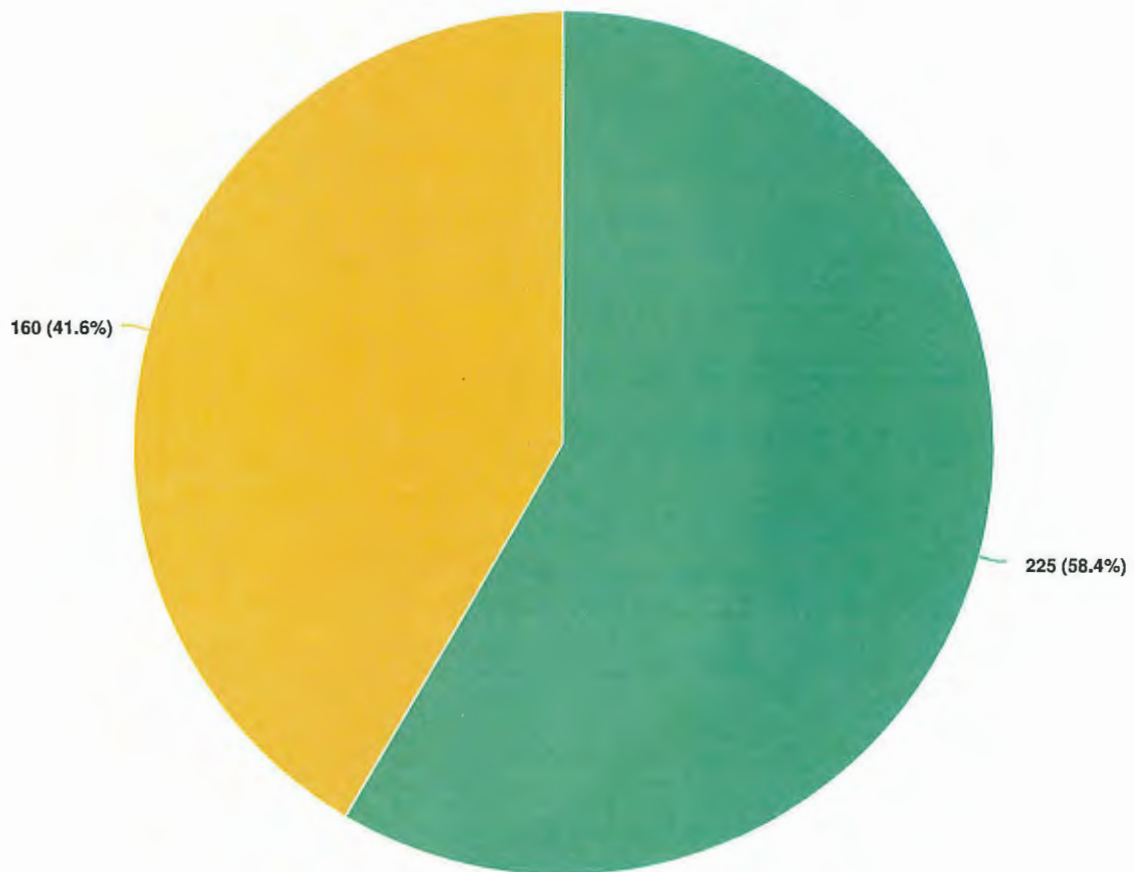
**Question options**

- Newspaper ad
- By email
- An article written by a local newspaper
- City of Richmond booth at a public event
- City of Richmond Twitter account
- Other social media accounts
- Word of mouth
- Other
- City of Richmond Facebook page

(385 responses, 1 skipped)

Other: There were 25 responses in this section.

**Q6** I would like to be updated about the City of Richmond's climate actions (By selecting yes, you consent to receiving information and updates about the City of Richmond's climate actions.):



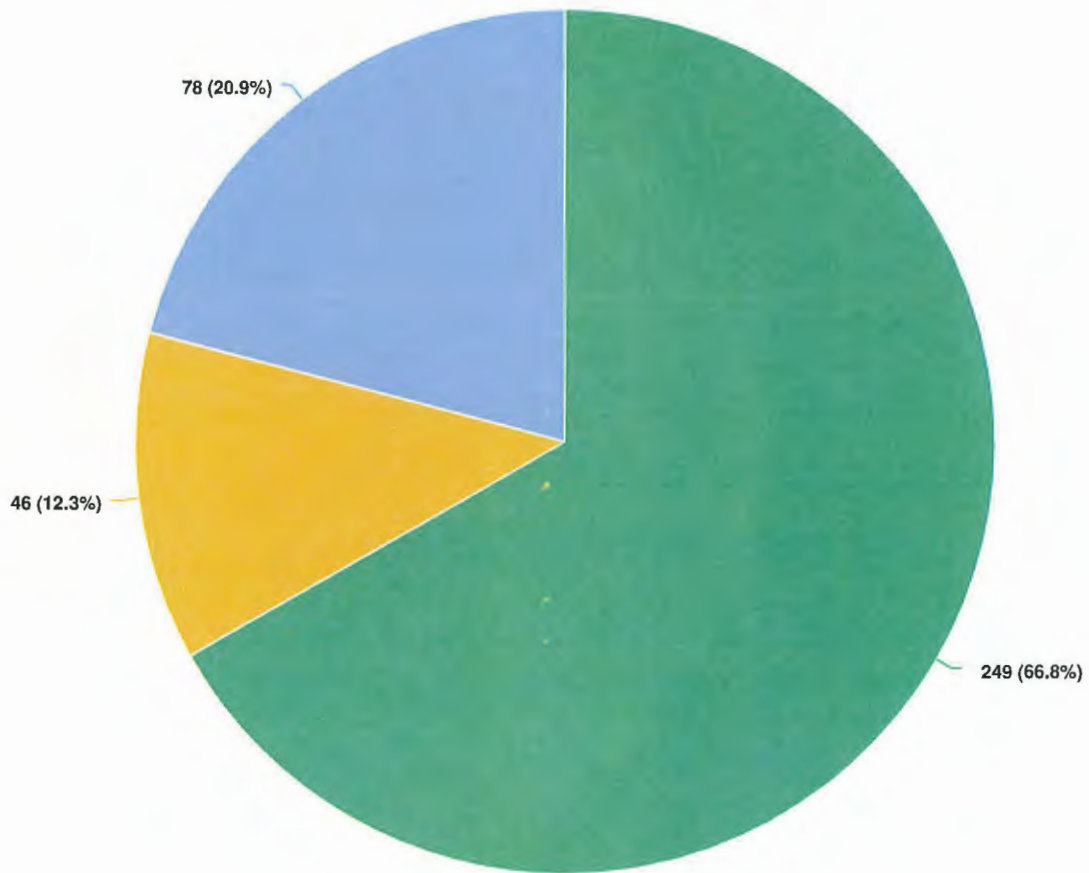
**Question options**

- Yes
- No

*(385 responses, 1 skipped)*

**Q7:** There were email addresses provided.

**Q9 I prefer the following compliance path:**

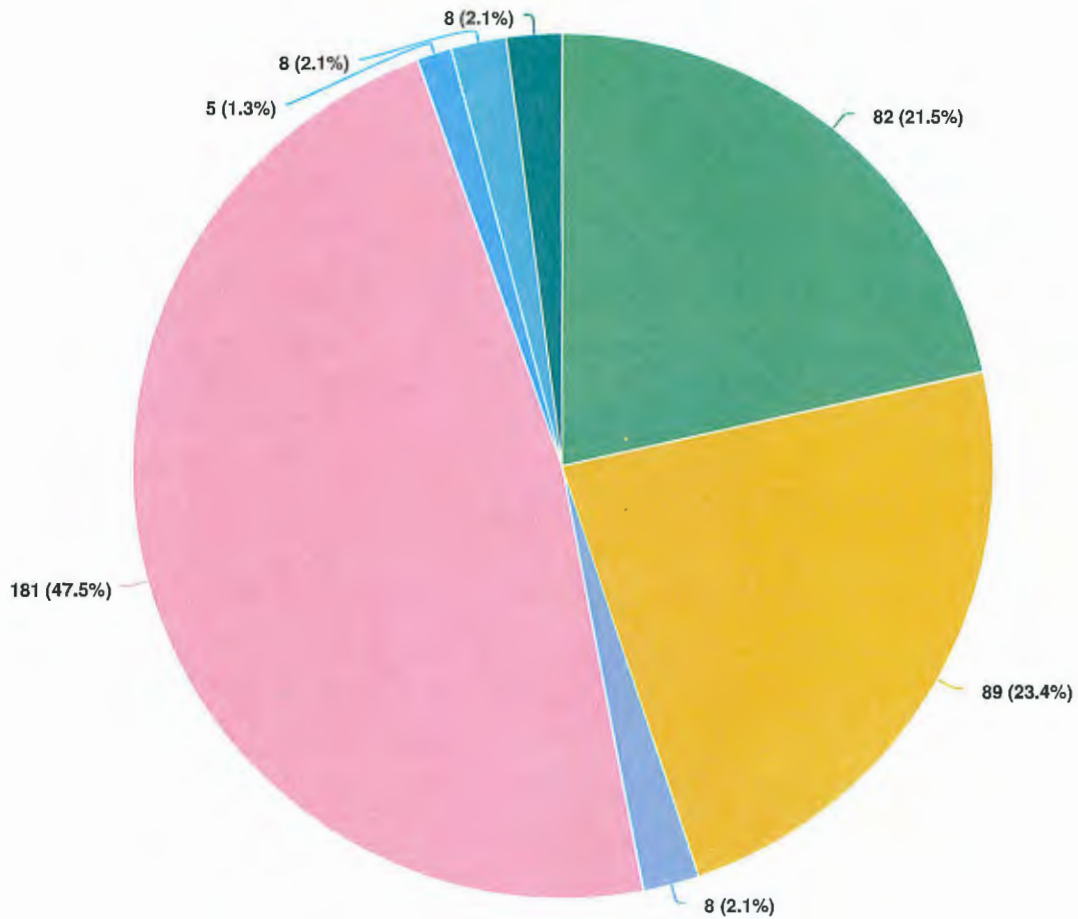


**Question options**

- OPTION 1: Step 2: 10% improvement in energy efficiency and greatly reduced GHG emissions
- I have no opinion on this
- OPTION 2: Step 3: 20% improvement in energy efficiency without specific GHG reduction requirements

*Optional question (373 responses, 13 skipped)*

**Q10 | I live in the following type of building:**

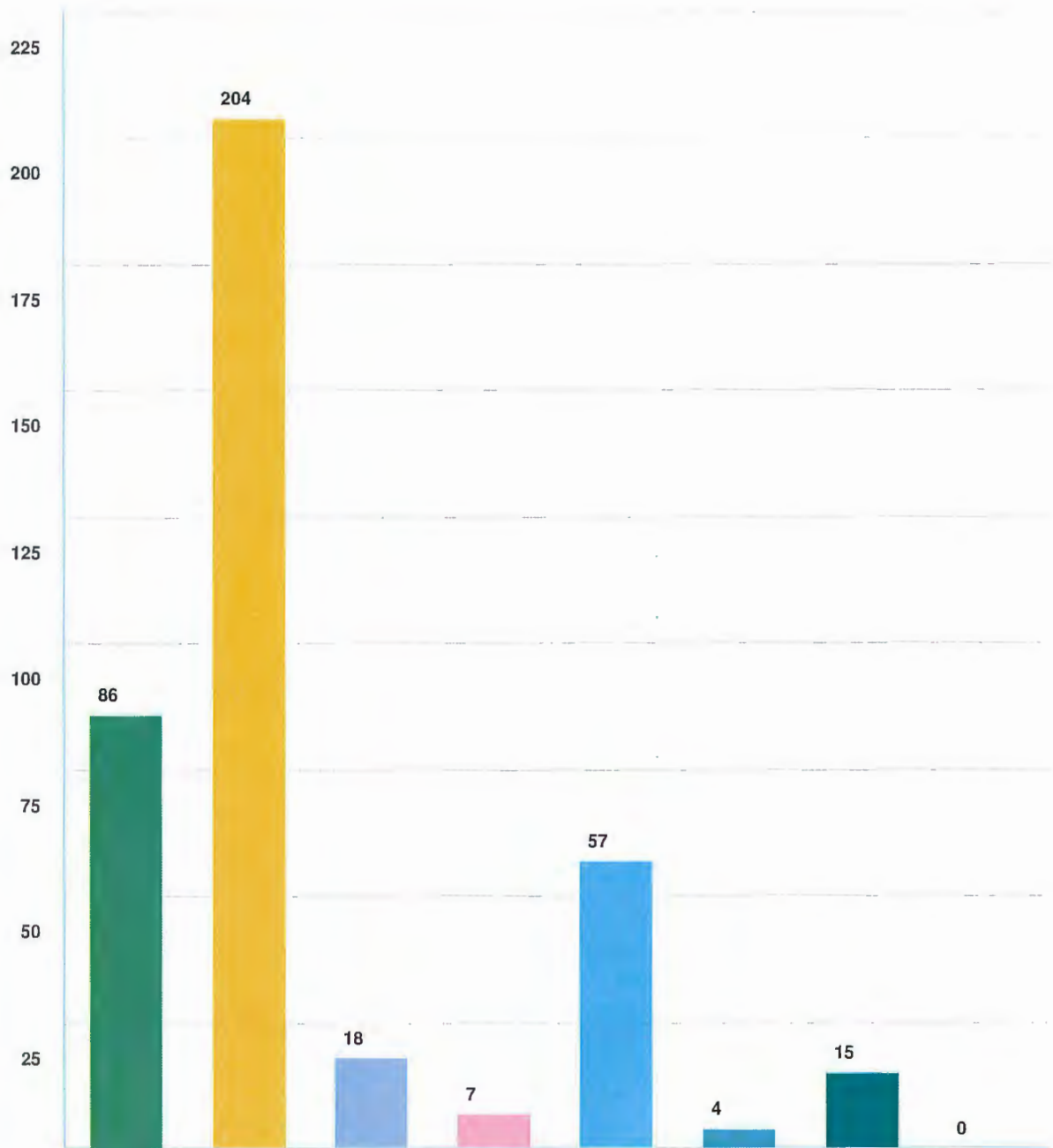


**Question options**

- Apartment
- Townhouse
- Duplex
- Detached home
- Secondary suite
- Other
- I prefer not to answer

Optional question (381 responses, 5 skipped)

**Q11 I have the following hot water heating system in my home: (Please select all that apply.)**

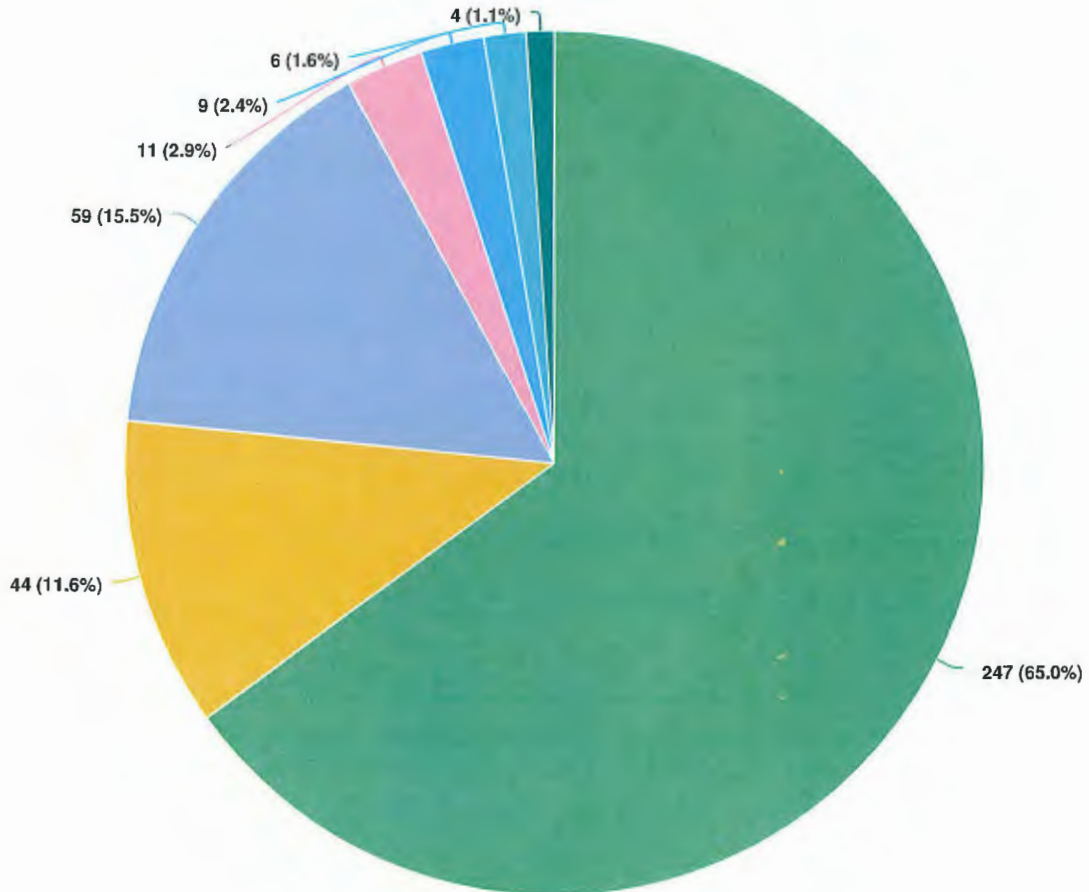


**Question options**

- Electric hot water tank
- Natural gas hot water tank
- Instantaneous hot water (no tank)
- Hot water heat pump
- I don't know
- I prefer not to answer
- I don't live in Richmond
- Solar hot water

*Optional question (380 responses, 6 skipped)*

**Q12 With regard to air conditioning (i.e. air cooling) in my home:**



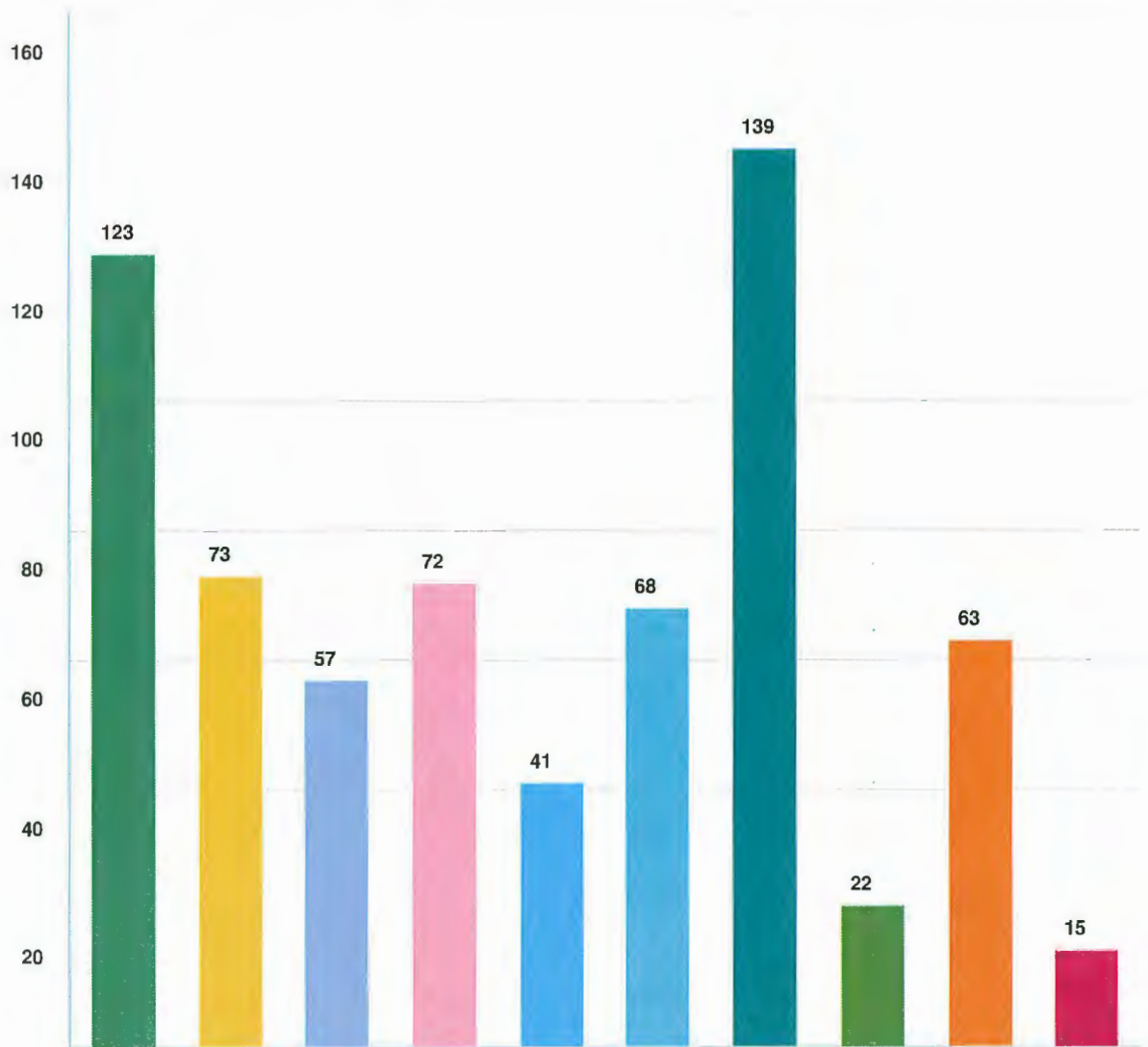
**Question options**

- I don't have an air conditioner at home, and I am not interested in getting this installed
- I don't currently have an air conditioner at home, but I would like to have this installed
- I have one or more room air conditioner units in my home
- I have a central air conditioner in my home
- I have a heat pump in my home, which also provides heating in winter
- I don't know
- I prefer not to answer

*Optional question (380 responses, 6 skipped)*



**Q13 I would consider or support my strata council in replacing my home's current heating system with a low-GHG heat pump under the following condition: (Please select all that apply.)**

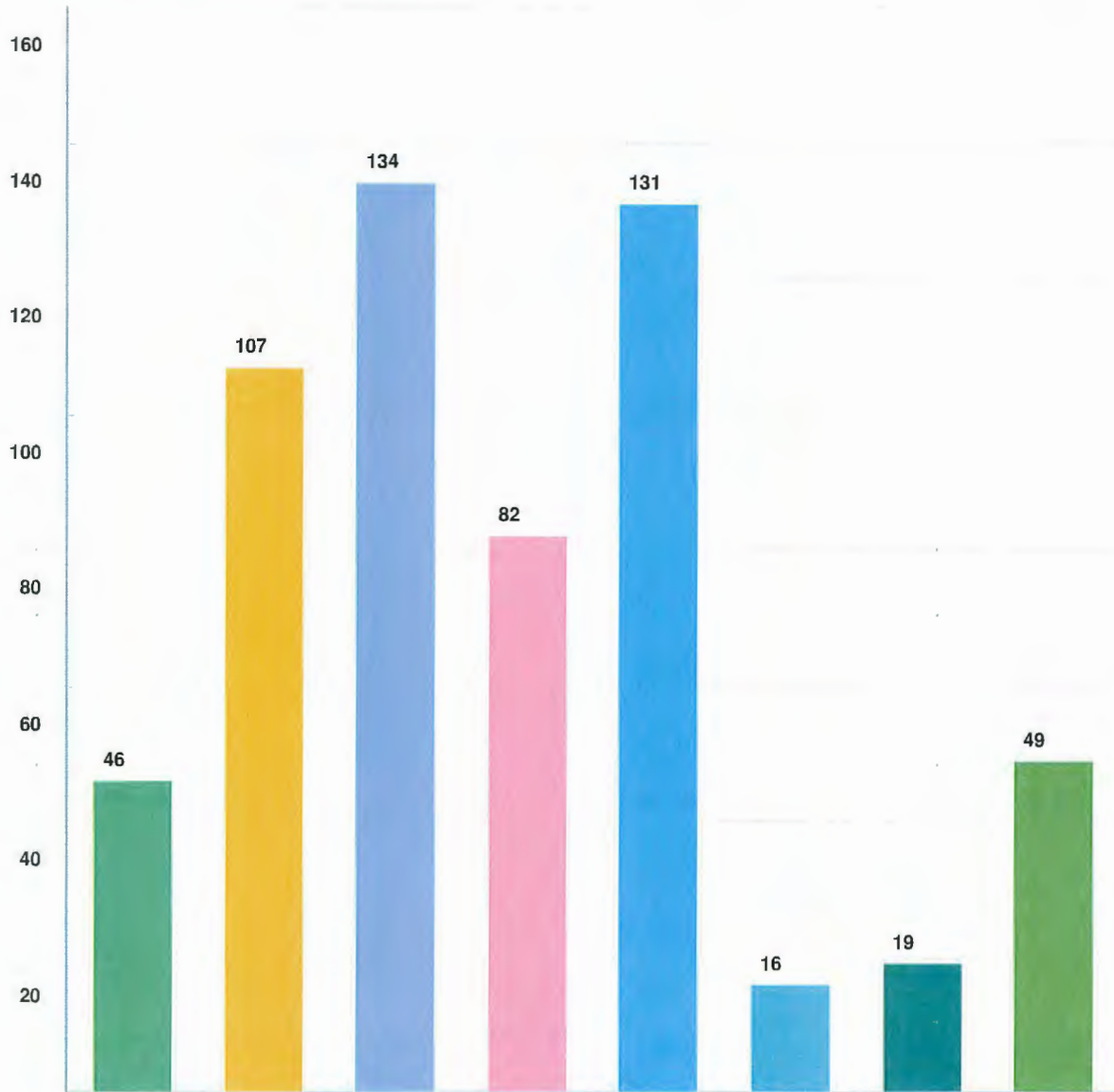


**Question options**

- Having less GHG emissions is sufficient reason to install heat pumps
- The benefit of adding summertime cooling is sufficient reason to install heat pumps
- I would consider heat pumps when costs are comparable to a new natural gas system plus air conditioner
- I would consider heat pumps when costs are comparable to a new natural gas system
- Instead of a heat pump, I would consider using low-GHG Renewable Natural Gas for my home heating and hot water
- Government should discourage the installation of natural gas furnaces and hot water heaters
- Government should provide incentives to reduce the cost of heat pumps
- I prefer not to answer
- I don't know
- I don't live in Richmond

*Optional question (353 responses, 33 skipped)*

**Q14 With regards to my plans, or my strata council's plans, to improve the energy efficiency of my home: (Please select all that apply.)**



**Question options**

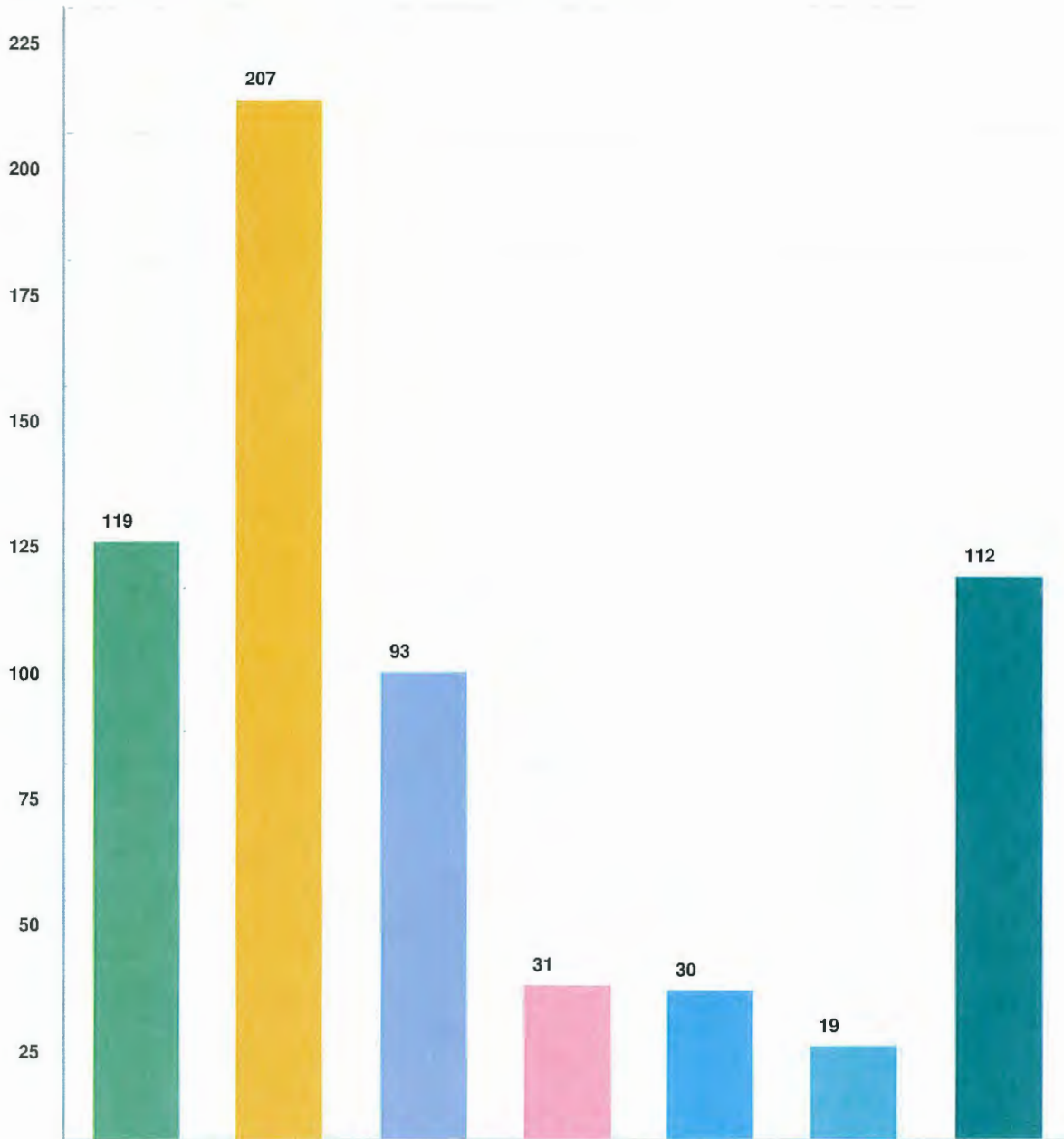
- I do not plan, and/or would not support plans to improve the energy efficiency of my home for the foreseeable future
- I have already installed energy efficiency improvements in my home
- I have plans, and/or would support my strata council to improve the energy efficiency of my home to reduce energy costs
- I have plans, and/or would support my strata council to improve the energy efficiency of my home to improve home comfort
- I have plans, and/or would support my strata council to improve the energy efficiency of my home to reduce GHG emissions
- I prefer not to answer
- I don't live in Richmond
- I don't know

*Optional question (361 responses, 25 skipped)*

**Q15 | I frequently use the following modes of transportation to get around within Richmond:**



**Q16 I would consider WALKING/ROLLING to my destination within Richmond more frequently than I already do if: (Please select all that apply.)**



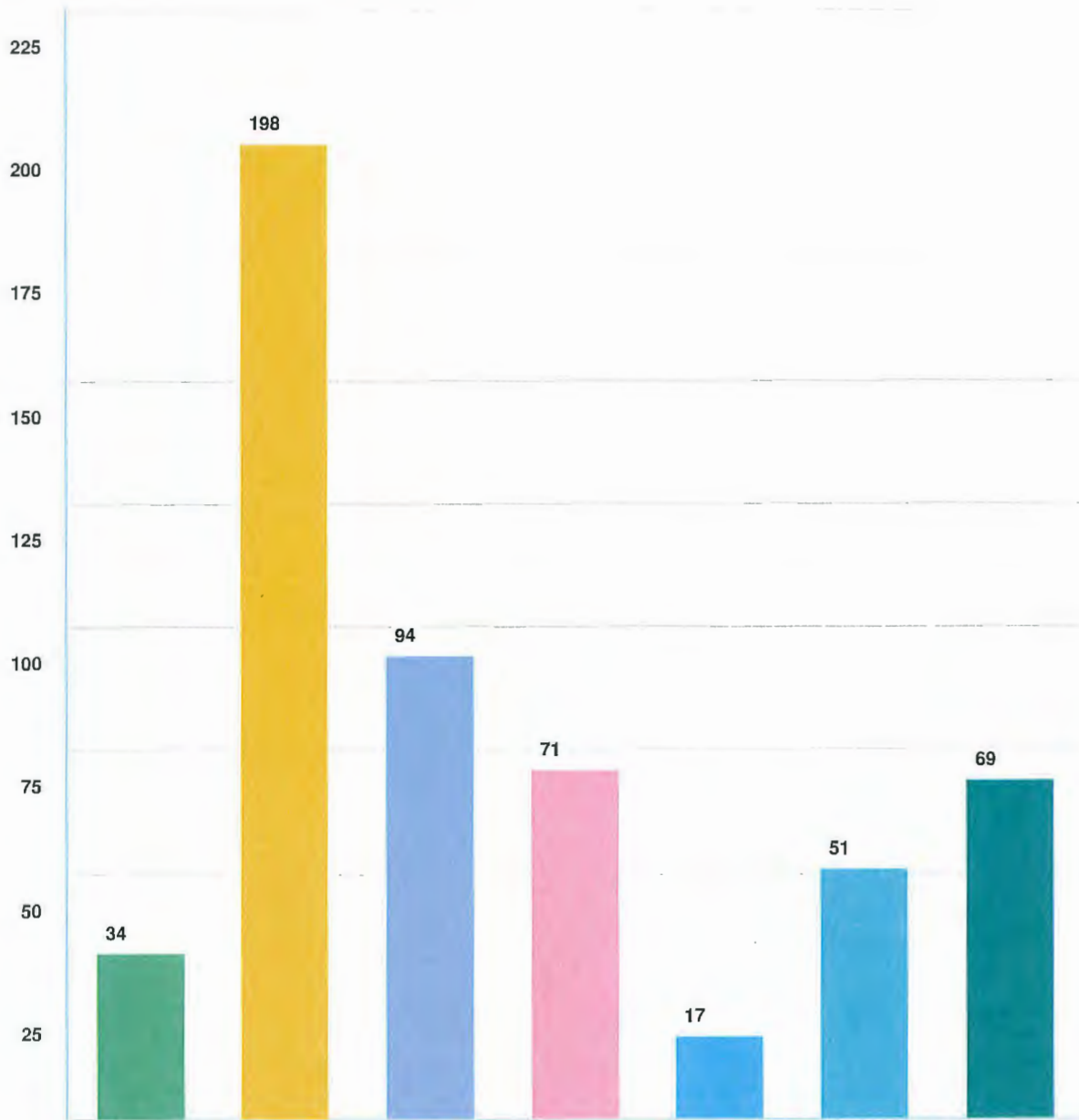
**Question options**

- I already walk/roll daily/almost daily (five to seven days per week).
- No reason would convince me to consider walking/rolling.
- Other reasons (please specify in the next question)
- This option is cheaper
- I had more time to walk/roll
- My destination(s) were closer
- It was safer and more convenient (sidewalks, streetlights, crosswalks, benches, ramps, etc.)

*Optional question (374 responses, 12 skipped)*

**Q17: Other reasons: There were 30 comments provided in this section.**

**Q18** I would consider CYCLING to my destination within Richmond more frequently than I already do if: (Please select all that apply.)



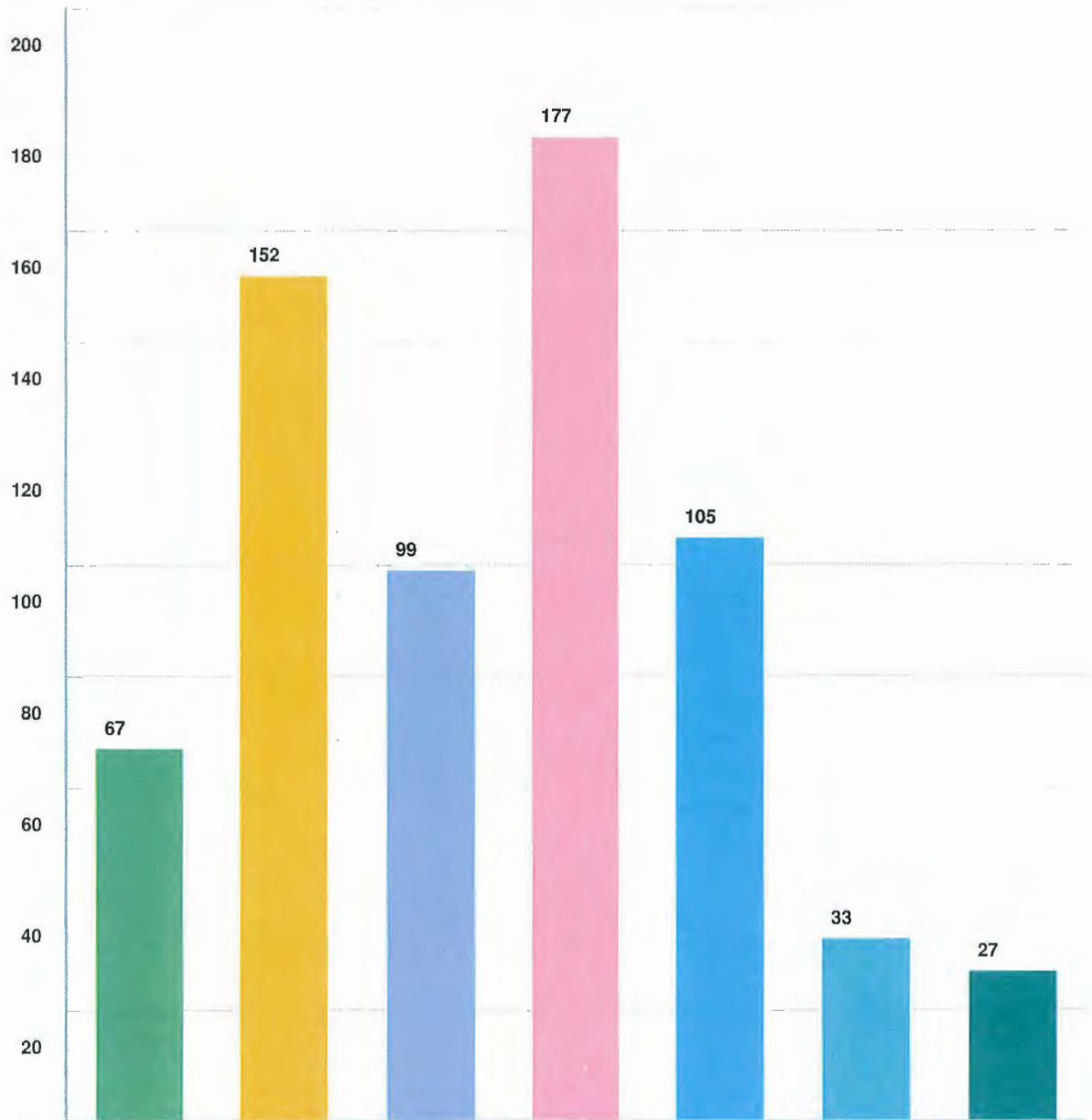
**Question options**

- No reason would convince me to consider cycling
- Other reasons (please specify in the next question)
- This option is cheaper
- I had more time to cycle
- My destination(s) were closer
- It was safer and/or more convenient (bike paths, bike racks, etc)
- I already cycle daily or almost daily (five to seven days per week)

*Optional question (379 responses, 7 skipped)*

**Q 19: Other reasons: There were 50 comments provided in this section.**

**Q20** I would consider TAKING TRANSIT (SkyTrain, Canada Line, bus) to my destination within Richmond more frequently than I already do if: (Please select all that apply.)



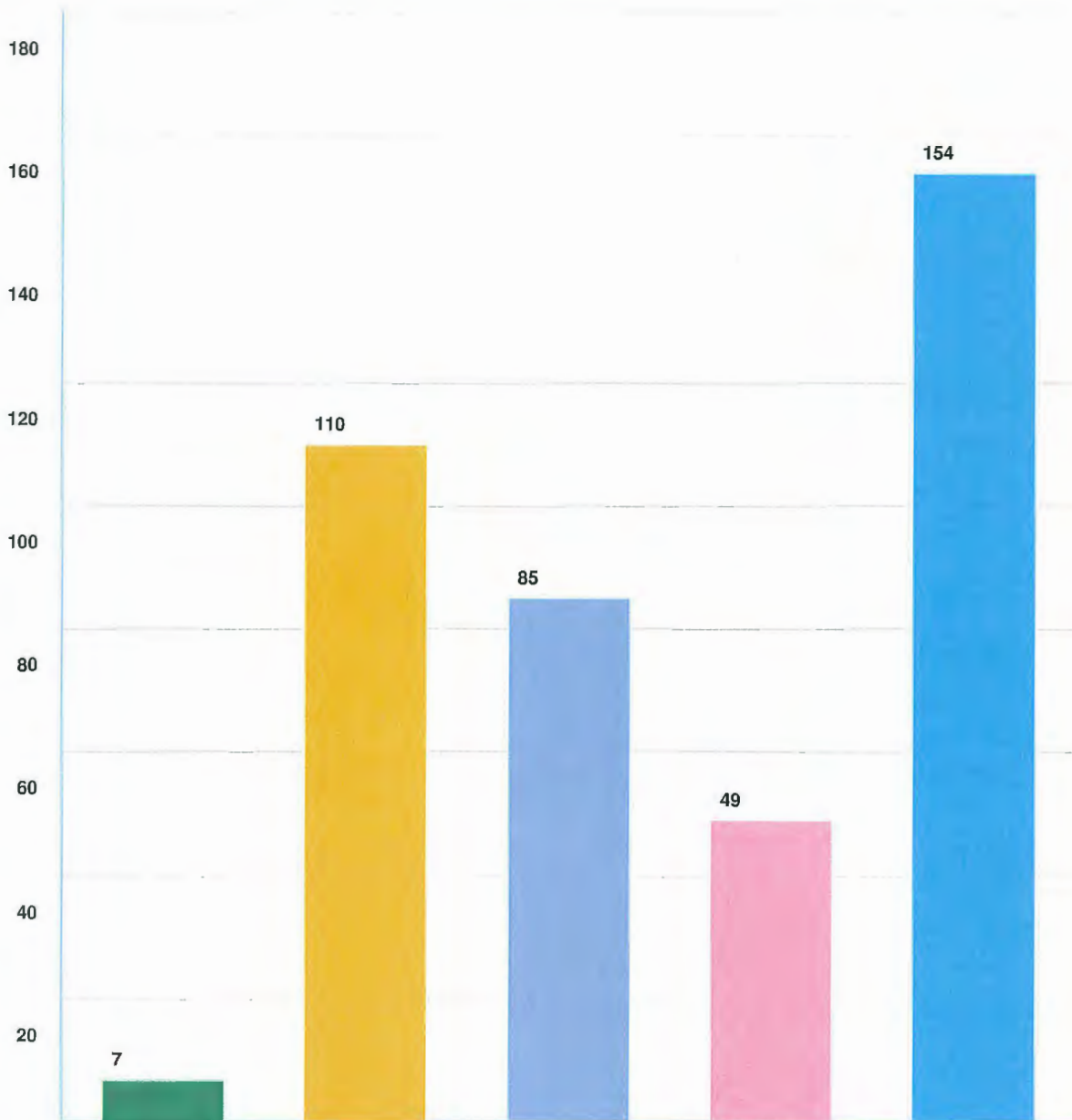
**Question options**

- No reason would convince me to consider taking transit
- Other reasons (please specify in the next question)
- This option is cheaper
- It takes less time to travel by transit
- My destination(s) has transit service
- It was safer and more convenient (closer bus stops, more frequent service, later service, less crowded, etc.)
- I already take transit daily/almost daily (five to seven days per week)

*Optional question (368 responses, 18 skipped)*

**Q21:** There were 31 comments provided in this section.

**Q22 I would consider using a CAR-SHARE SERVICE (such as Modo, Zipcar, car2go) to my destination within Richmond more frequently than I already do if: (Please select all that apply.)**



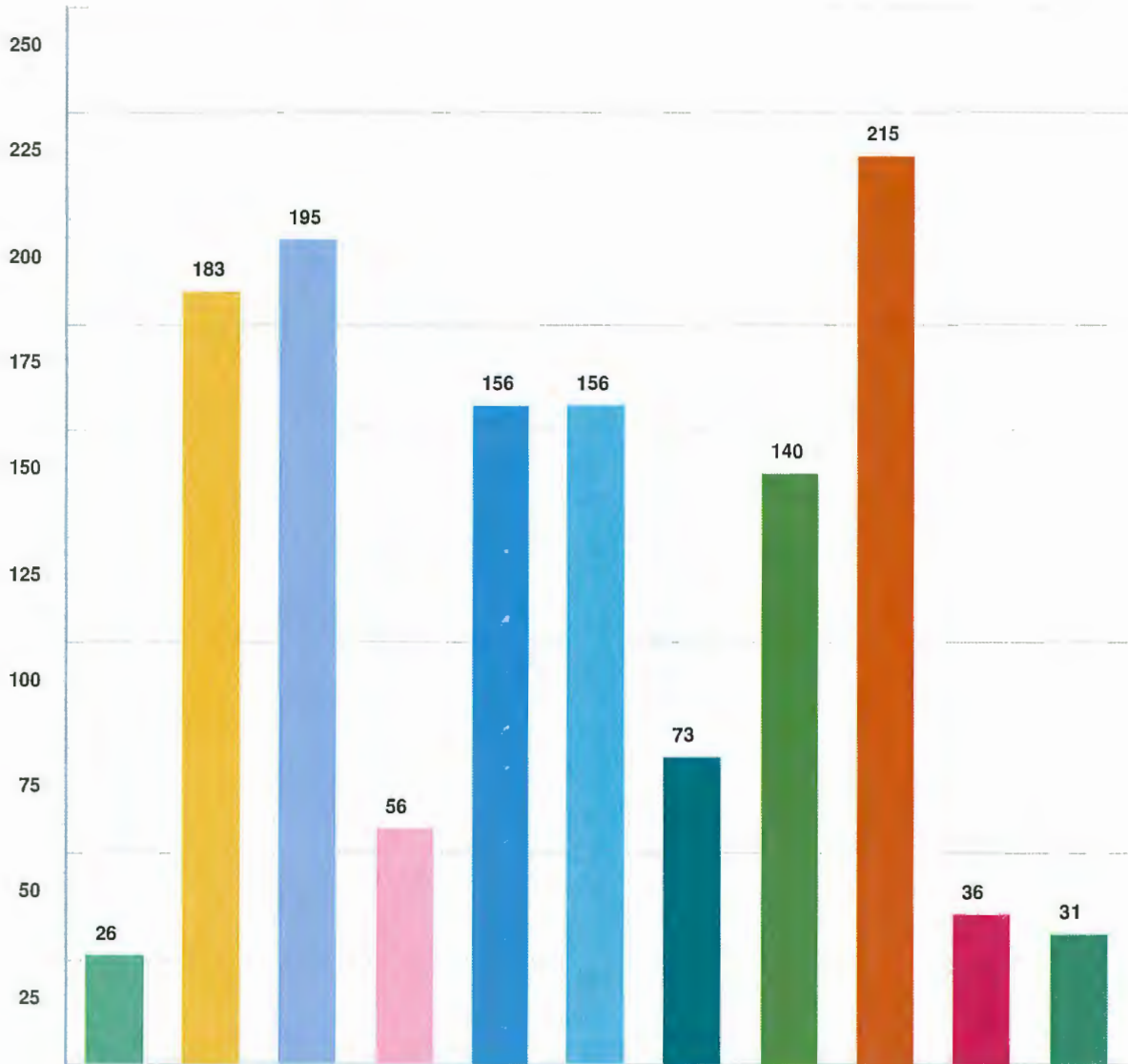
**Question options**

- No reason would convince me to consider using a car-share service
- Other reasons (please specify in the next question)
- This option is cheaper
- If it was safer and convenient (safer roads, car-share stations close by, more car-share stations available, etc)
- I already use a car-share service daily/almost daily (five to seven days per week)

*Optional question (356 responses, 30 skipped)*

**Q23: Other reasons: There were 49 comments provided in this section.**

**Q24 I would consider PURCHASING AN ELECTRIC VEHICLE (EV) or PLUG-IN HYBRID as my next car: (Please select all that apply.)**



**Question options**

- No reason would convince me to consider purchasing an EV or plug-in hybrid.
- Other reasons (please specify in the next question)
- If EVs were a cheaper option
- If EVs had sufficient range before they need to be recharged
- If there are SUV or pick-up models available
- If there were more public charging available
- If I had access to an EV charging at home
- Because they are cool
- Because I want to save money on fuel and maintenance
- Because I want to reduce greenhouse gas emissions (GHG) from my commute by more than 90%
- I already own an electric vehicle (EV) or plug-in hybrid.

*Optional question (377 responses, 9 skipped)*

**Q25: Other reasons: There were 36 comments provided in this section.**

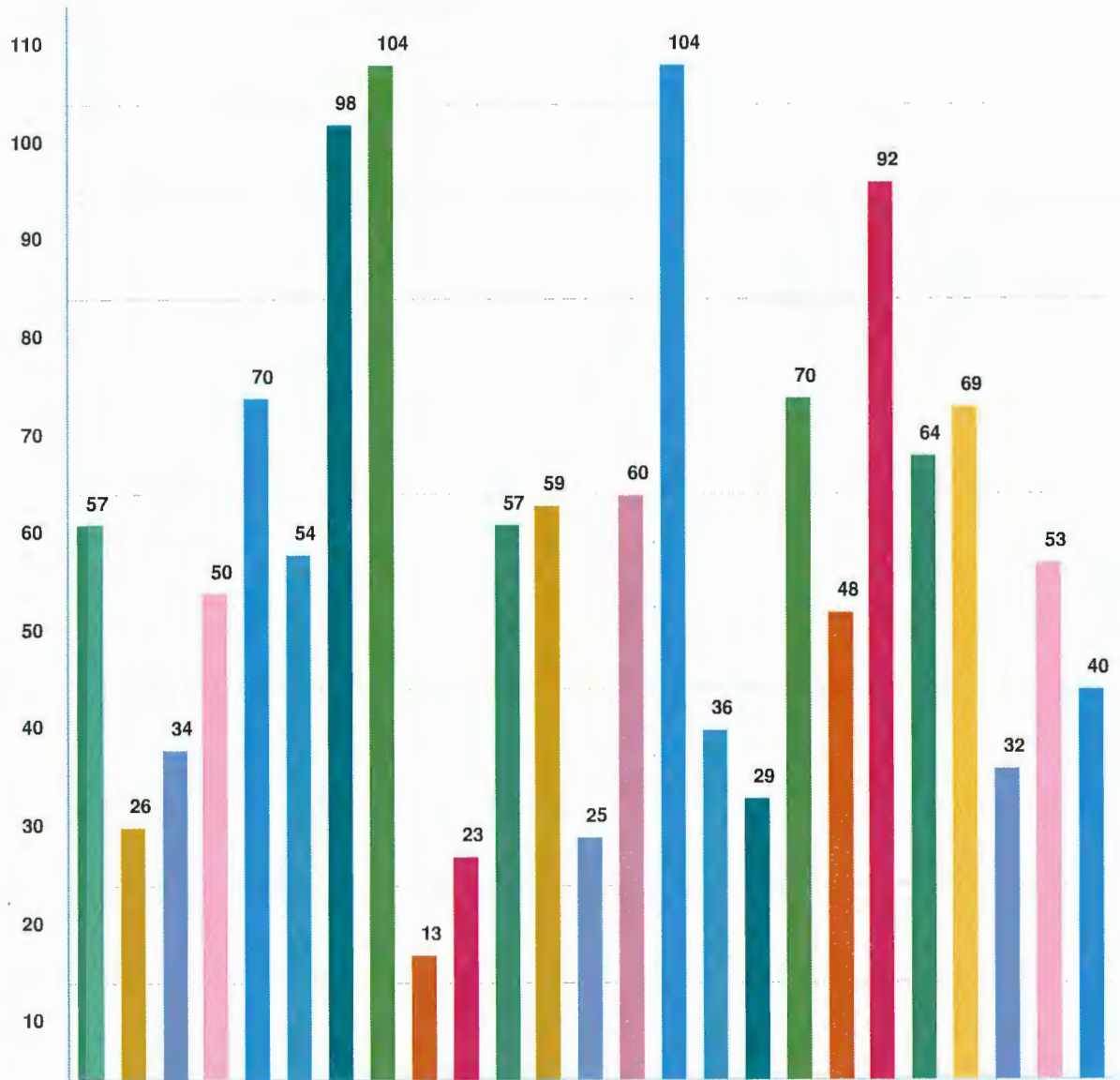


**Q32** I would prefer the City of Richmond to protect and/or invest in the following types of green infrastructure: ([Rank your preference from 1 to 5, with “1” being your most preferred, and “5” being your least preferred.]

<b>OPTIONS</b>	<b>AVG. RANK</b>
Natural landscapes (e.g. Forest, grasslands, shrublands, and saltwater marsh)	2.07
Agricultural land	2.63
Urban parks, trails, and greenways	2.63
City streetscapes (eg. Street trees, bioswales, rain gardens, and structural soil cells)	3.38
Landscaping on private property (eg. Trees, plant beds, and green roofs)	4.14

*Optional question (376 responses, 10 skipped)*

**Q33 The following elements of a complete community are currently missing from my neighbourhood: (Please select all that apply.)**



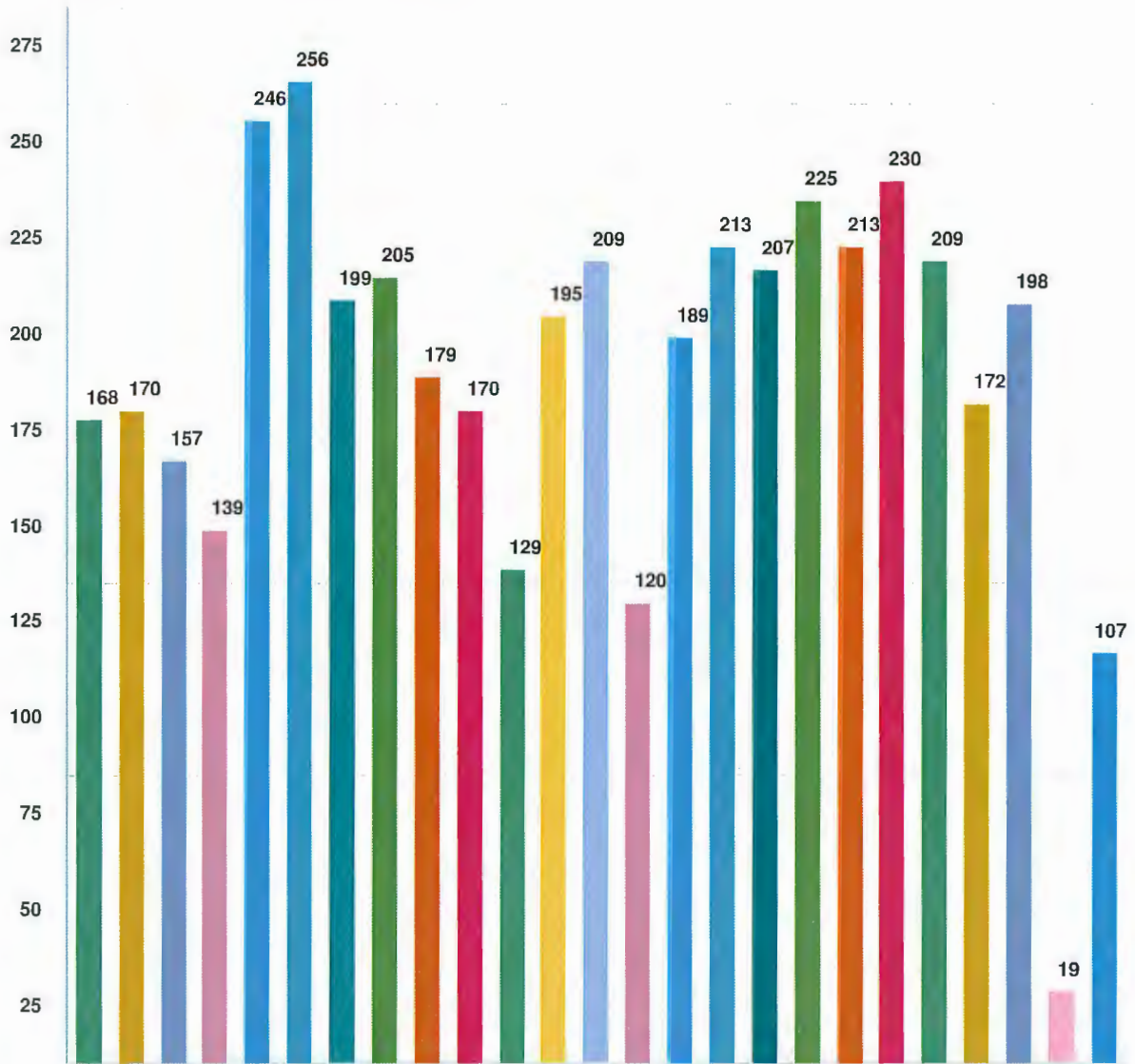
**Question options**

- Access to establishments that promote my culture
- Healthcare (physical and mental health)
- Access to arts and culture
- Places of worship
- Walking and biking infrastructure
- Duplexes
- Accessible infrastructure for people who use mobility aids
- Shopping facilities
- Parks
- Community centres
- Access to locally-grown food
- Places to eat and drink
- Facilities to support older adults
- Childcare
- Post-secondary schools
- Secondary schools
- Elementary schools
- Jobs
- Access to nature
- Mixed-use housing (commercial and residential)
- Single-family homes (with secondary suites and coach houses)
- Townhouses
- Apartments
- Other

Optional question (330 responses, 56 skipped)

**Q34: Other:** There were 32 comments provided in this section.

**Q35 I support having the following elements of a complete community within my own neighbourhood:(Please select all that apply.)**



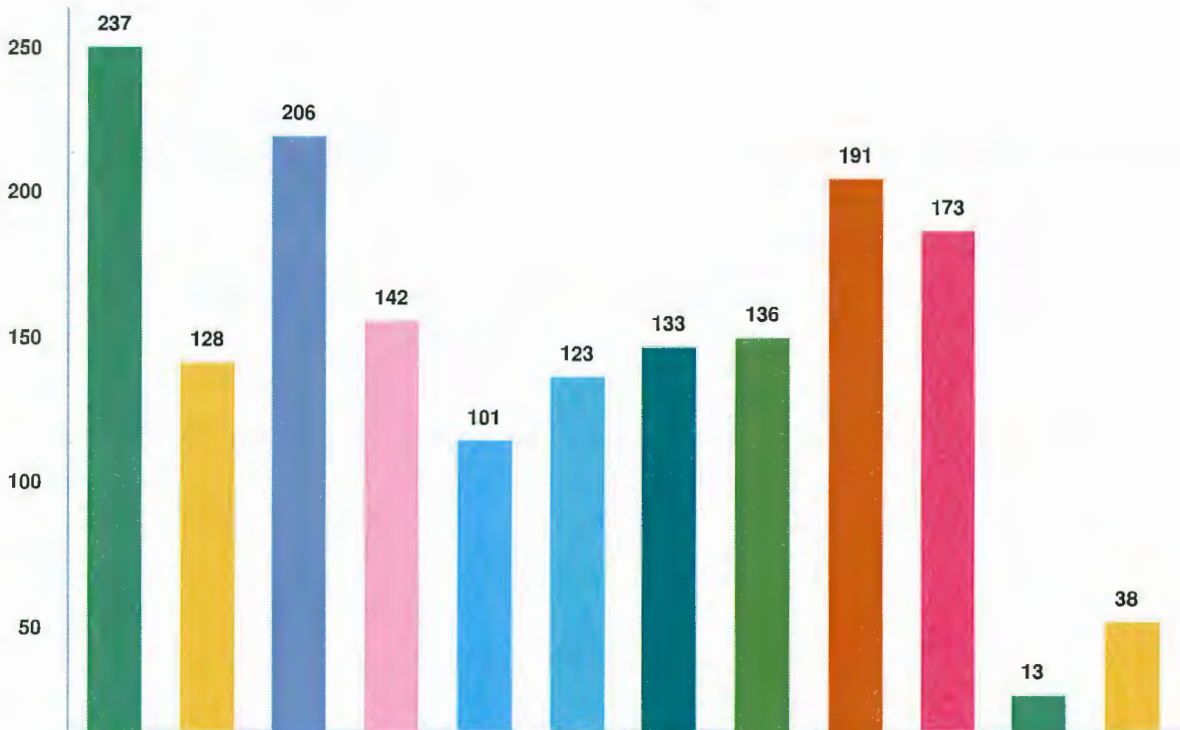
**Question options**

- Access to establishments that promote my culture    ● Other    ● Access to nature    ● Access to arts and culture
- Wellness facilities (such as gyms, recreational centres)    ● Parks    ● Community centres    ● Access to locally-grown food
- Places to eat and drink    ● Facilities for older adults    ● Childcare    ● Places of worship
- Healthcare (physical and mental health)    ● Shopping facilities    ● Post-secondary schools    ● Secondary schools
- Elementary schools    ● Jobs    ● Accessible infrastructure for people who use mobility aids
- Walking and biking infrastructure    ● Access to public transit    ● Duplexes
- Single-family homes (with secondary suites and coach houses)    ● Townhouses    ● Apartments

Optional question (345 responses, 41 skipped)

**Q36: Other: There were 18 comments provided in this section.**

**Q37 I would choose the following to spend City funds on: (Alphabetical order - Please select up to five.)**



**Question options**

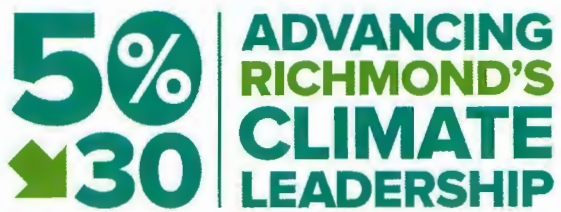
Other    None of these options

- Finance low-carbon energy in existing homes: Electrically powered heat pumps can be three times as efficient as the natural gas units they replace, and have very low GHG emissions. They also provide air conditioning!
- Increase spending on alternate transportation: By providing more civic infrastructure like bike lanes, bus shelters and benches, the City can support increased use of the low-GHG transport modes of walking, cycling and public transit by residents.
- Encourage compact development: Building compact developments near transit reduces GHGs from both transportation (increased walking, cycling and transit use) and from buildings (apartment buildings have lower energy use per household).
- Support adoption of low-GHG commercial trucks: Electric vehicles in BC have very low GHG emissions, and within the next few years, an increasing range of electric trucks will become available.
- Subsidize residential electric vehicle (EV) chargers: Subsidizing the cost of installing EV chargers in residential buildings could help to reduce one of the biggest barriers to EV adoption – access to overnight vehicle charging at home.
- Finance low-carbon energy in new homes: Electrically powered heat pumps can be three times as efficient as the natural gas units they replace, and have very low GHG emissions. They also provide air conditioning!
- Educate the community: A city-wide public outreach campaign educating residents and businesses about climate change, its impacts, and options to reduce GHG emissions can inspire people to take action to reduce their own GHG emissions
- Require low-carbon energy in new buildings: By requiring connections to the City's District Energy networks, or the use of heat pumps, the City can oblige new developments to install low-carbon energy systems.
- Install more public electric vehicle (EV) chargers: Thanks to our low-GHG hydroelectricity supply, driving electric vehicles (EVs) in BC results in very low GHG emissions. Richmond currently has 10 "Level 2" public charging stations for EVs.
- Plant more trees: As forests grow, they absorb carbon dioxide, and convert it to biomass (including rich soil), removing GHG from the atmosphere. If the forest burns or is cut down, the GHGs go back into the atmosphere.

*Optional question (380 responses, 6 skipped)*

**Q38: Other: There were 37 comments provide in this section.**

**Q: 39: I would like to add the following comments regarding the City of Richmond's climate actions: There were 205 comments provided in this section.**



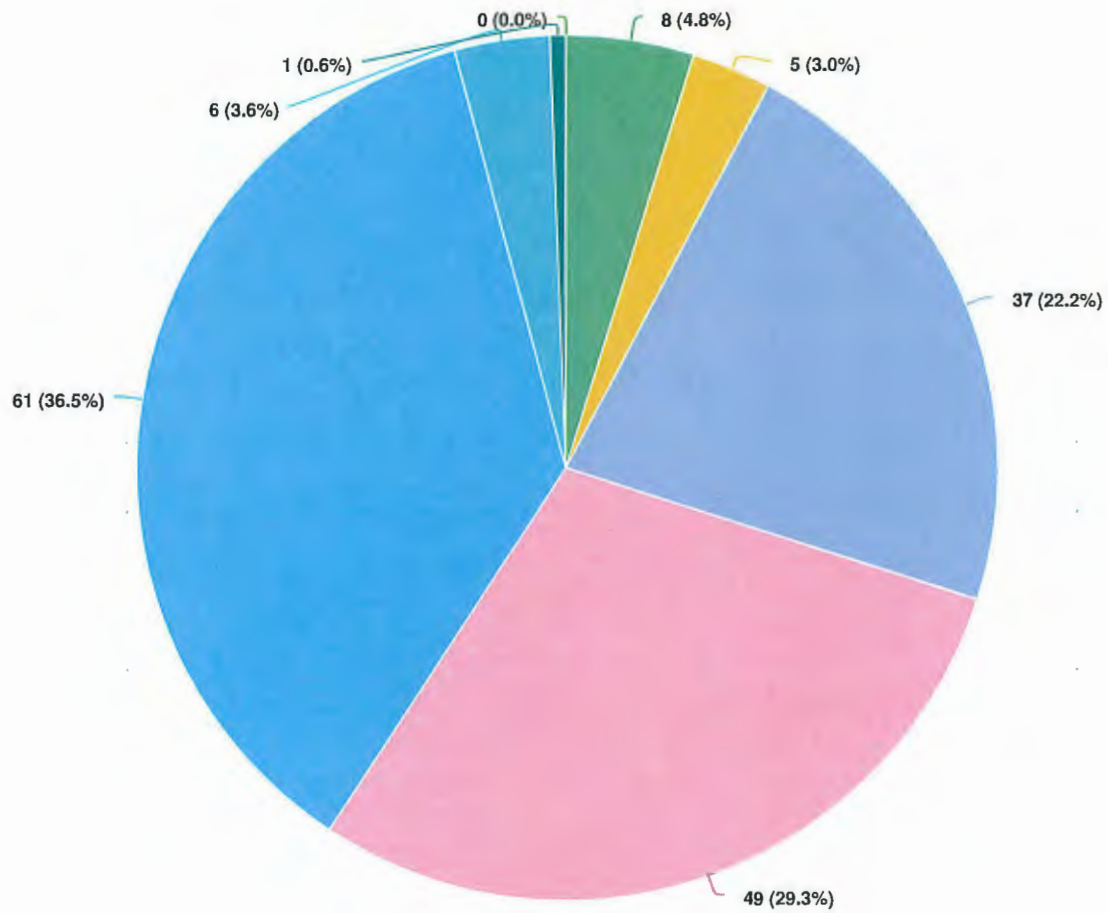
# SURVEY REPORT

PHASE II:  
OCTOBER 18 TO NOVEMBER 17, 2019



LET'S TALK RICHMOND

**Q1 I belong to the following age group:**



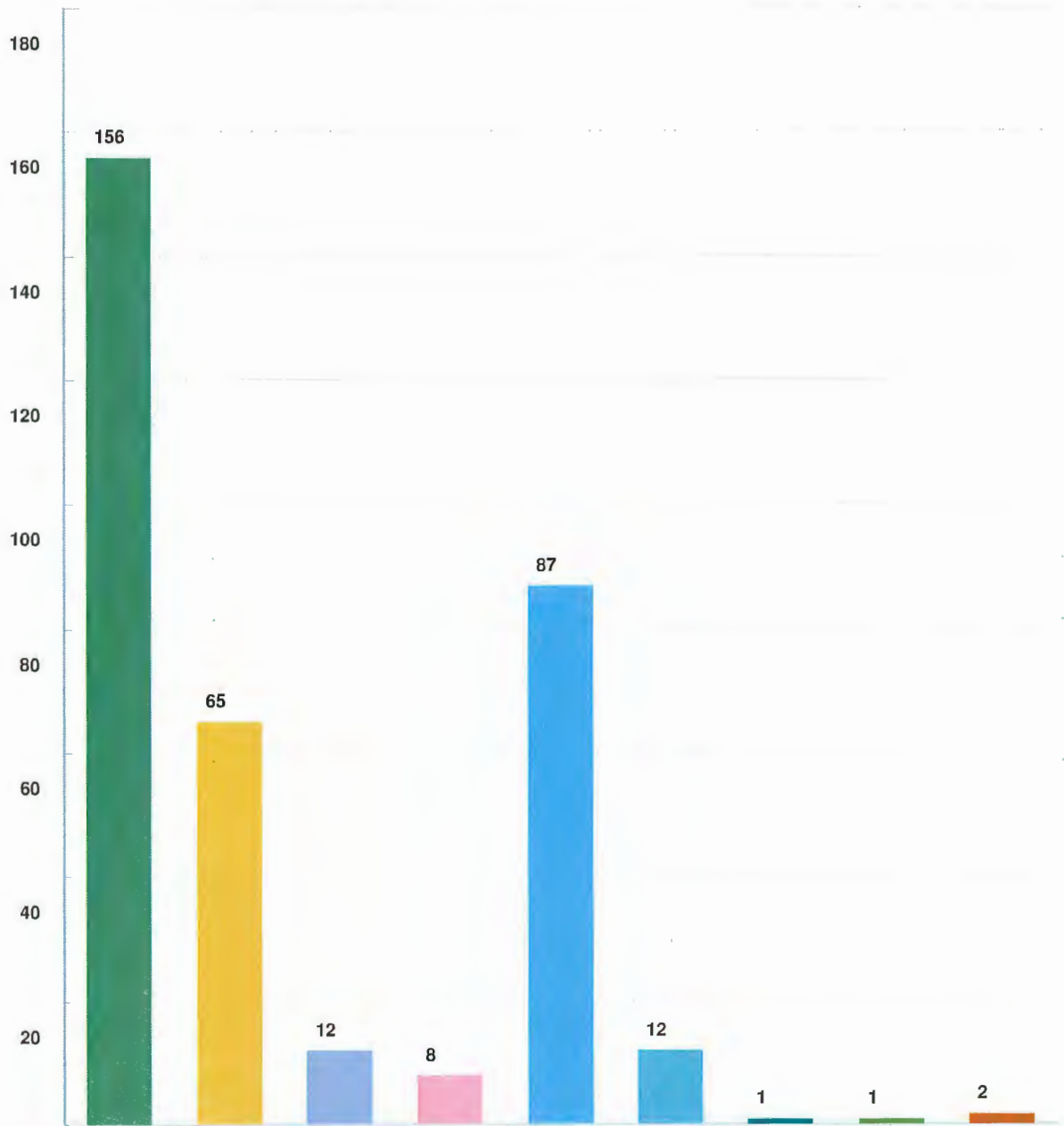
**Question options**

- 13 to 18 years old
- 19 to 24 years old
- 25 to 39 years old
- 40 to 54 years old
- 55 to 75 years old
- Over 75 years old
- Prefer not to answer
- 12 years old or younger

(167 responses, 0 skipped)

**Q2: There were home postal codes provided.**

**Q3 I have the following relationship with Richmond: (Please select all that apply)**



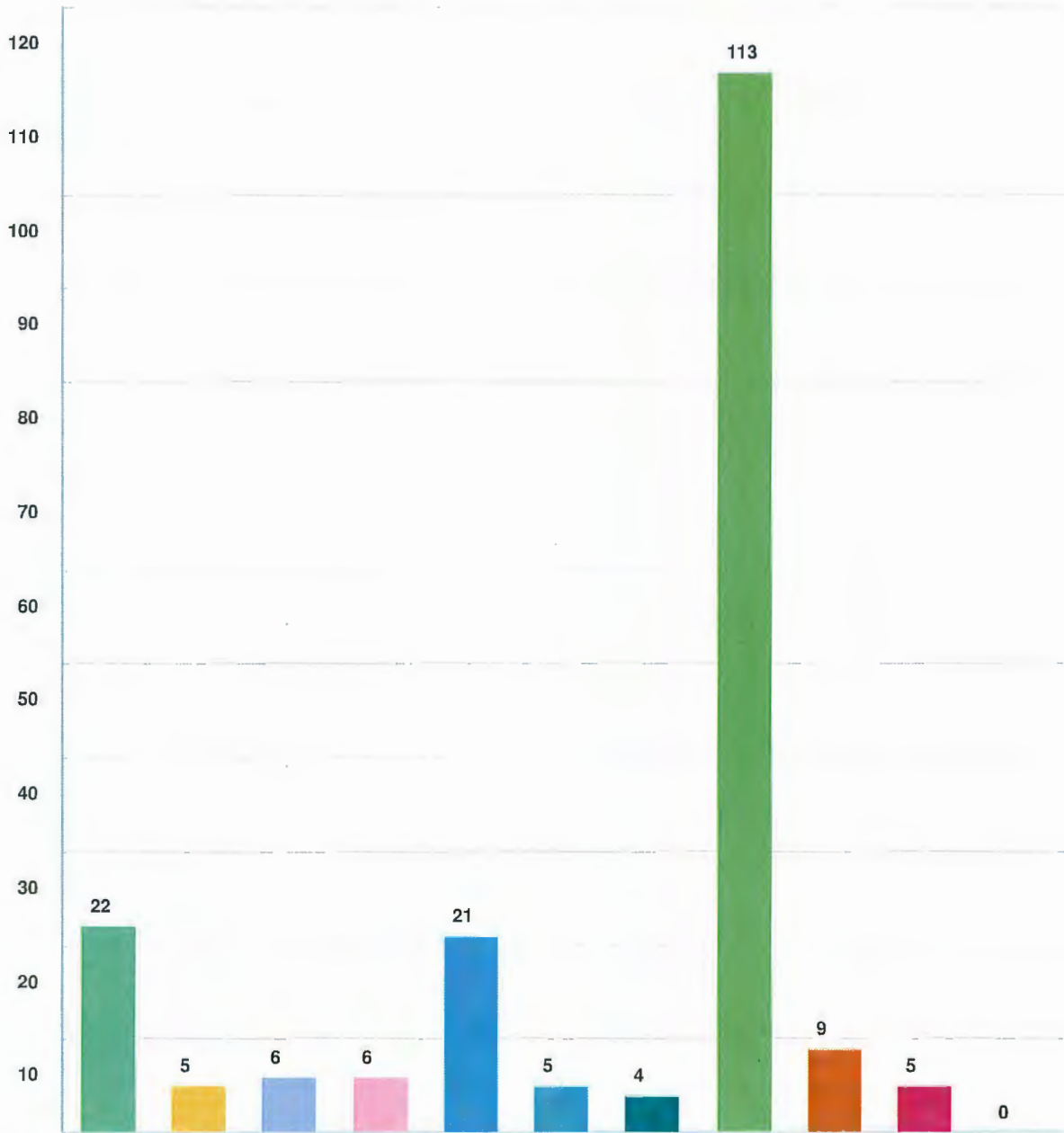
**Question options**

- I live in Richmond
- I work in Richmond
- I run a business in Richmond
- I study in Richmond
- I own a property in Richmond
- I visit Richmond often
- I do not have an existing relationship with Richmond
- Prefer not to answer
- Other (please specify)

(167 responses, 0 skipped)



**Q4 I heard about this survey: (Please select all that apply)**

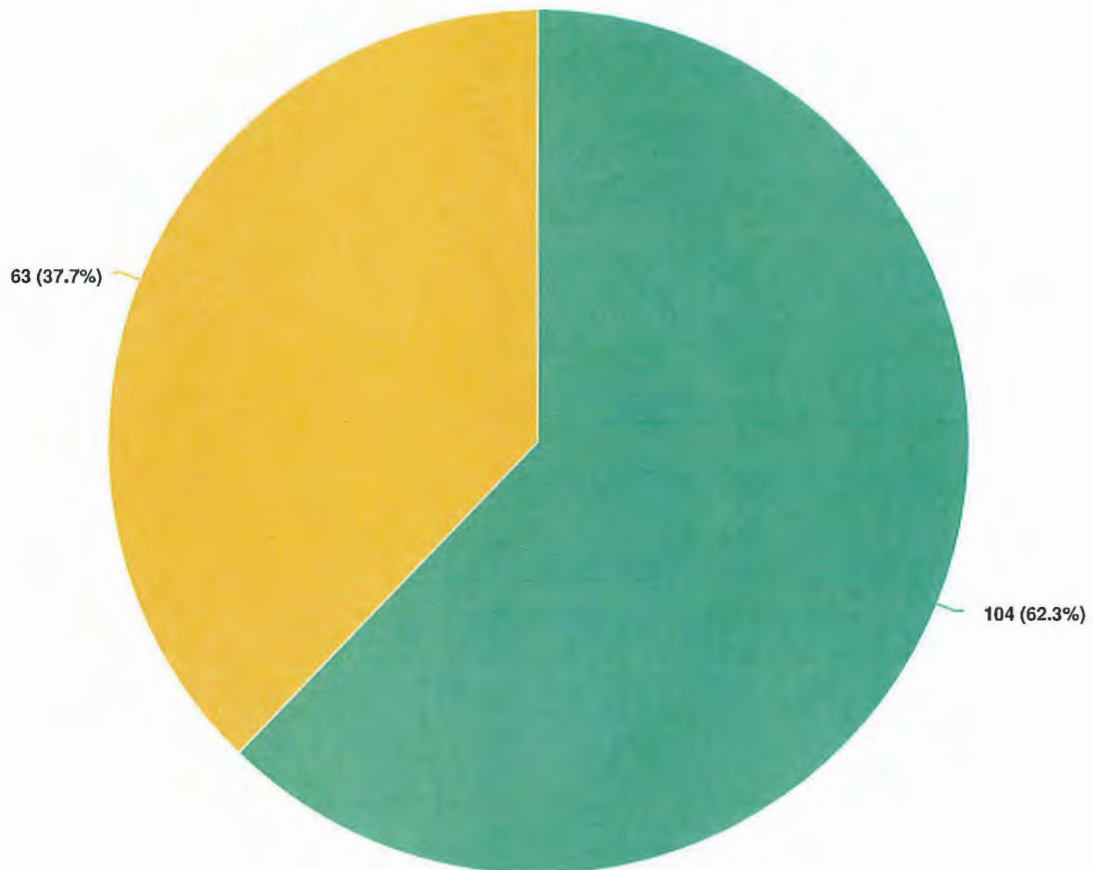


**Question options**

- Climate Action e-Newsletter
 ● An article (online or print) written by local newspaper
 ● City of Richmond event
- City of Richmond Twitter account
 ● City of Richmond Facebook page
 ● Other social media accounts
 ● Word of mouth
- Let's Talk Richmond email
 ● Other email
 ● Other (please specify)
 ● Prefer not to answer

(167 responses, 0 skipped)

**Q5** I want to receive updates about Richmond's climate action plan and would like to sign up for the Climate Action e-newsletter (and unsubscribe at any time):



**Question options**

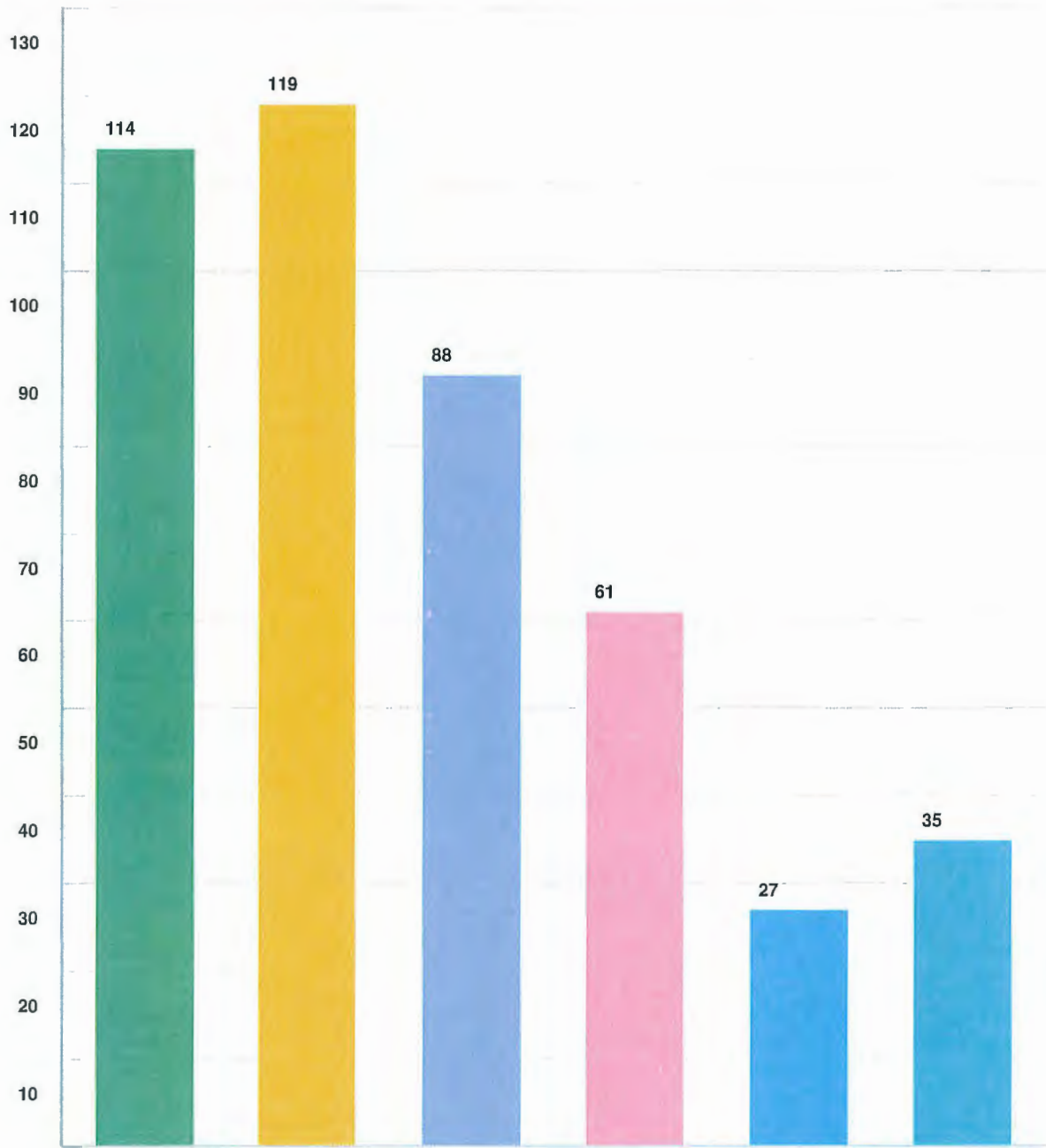
- Yes
- No

(167 responses, 0 skipped)

**Q6:** There were email addresses provided.

**Complete Communities**

**Q8 Which activities should the City focus on? Select up to three.**



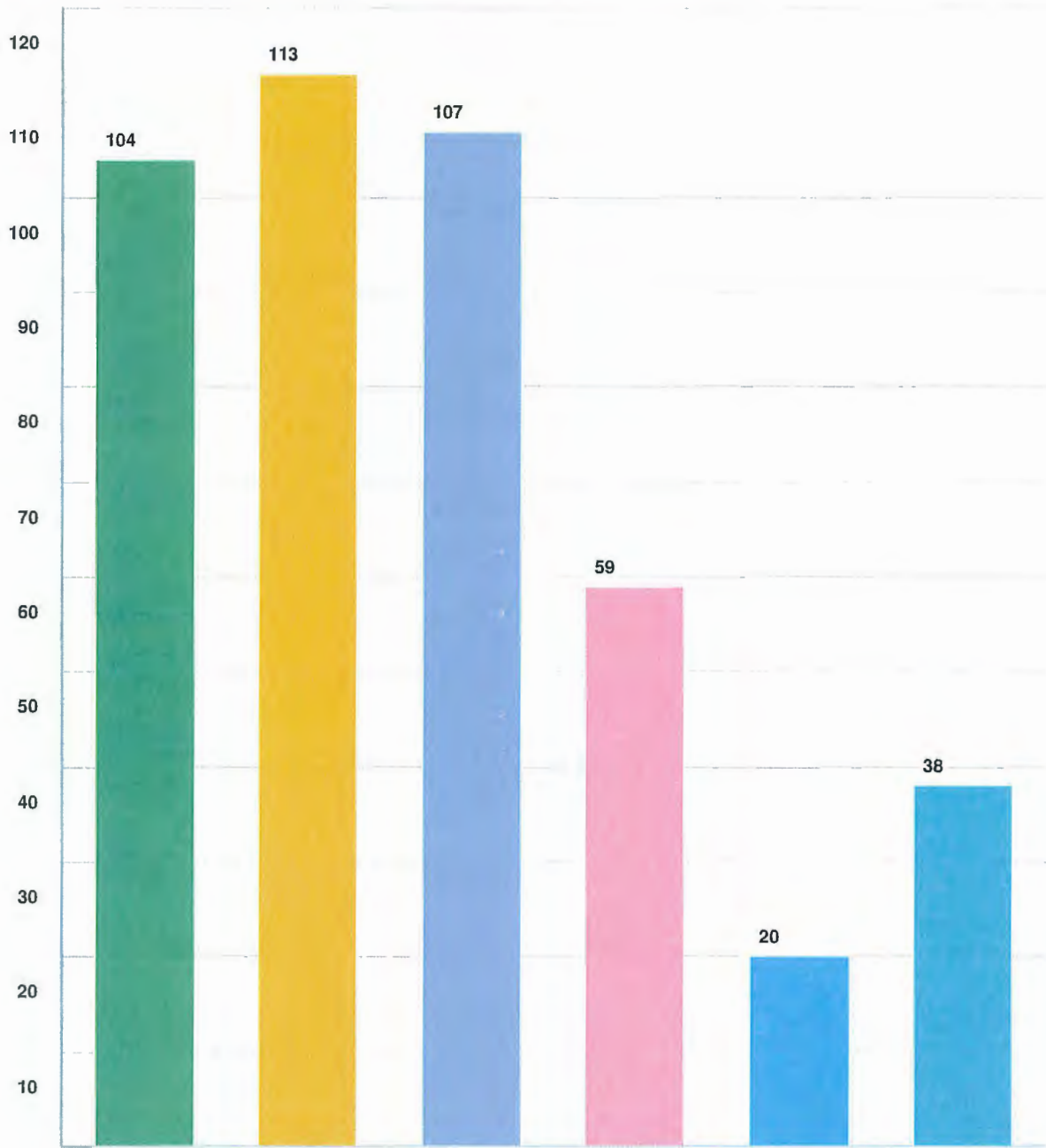
**Question options**

- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

*Optional question (162 responses, 5 skipped)*

**Existing Buildings**

**Q9** Which activities should the City focus on? Select up to three.



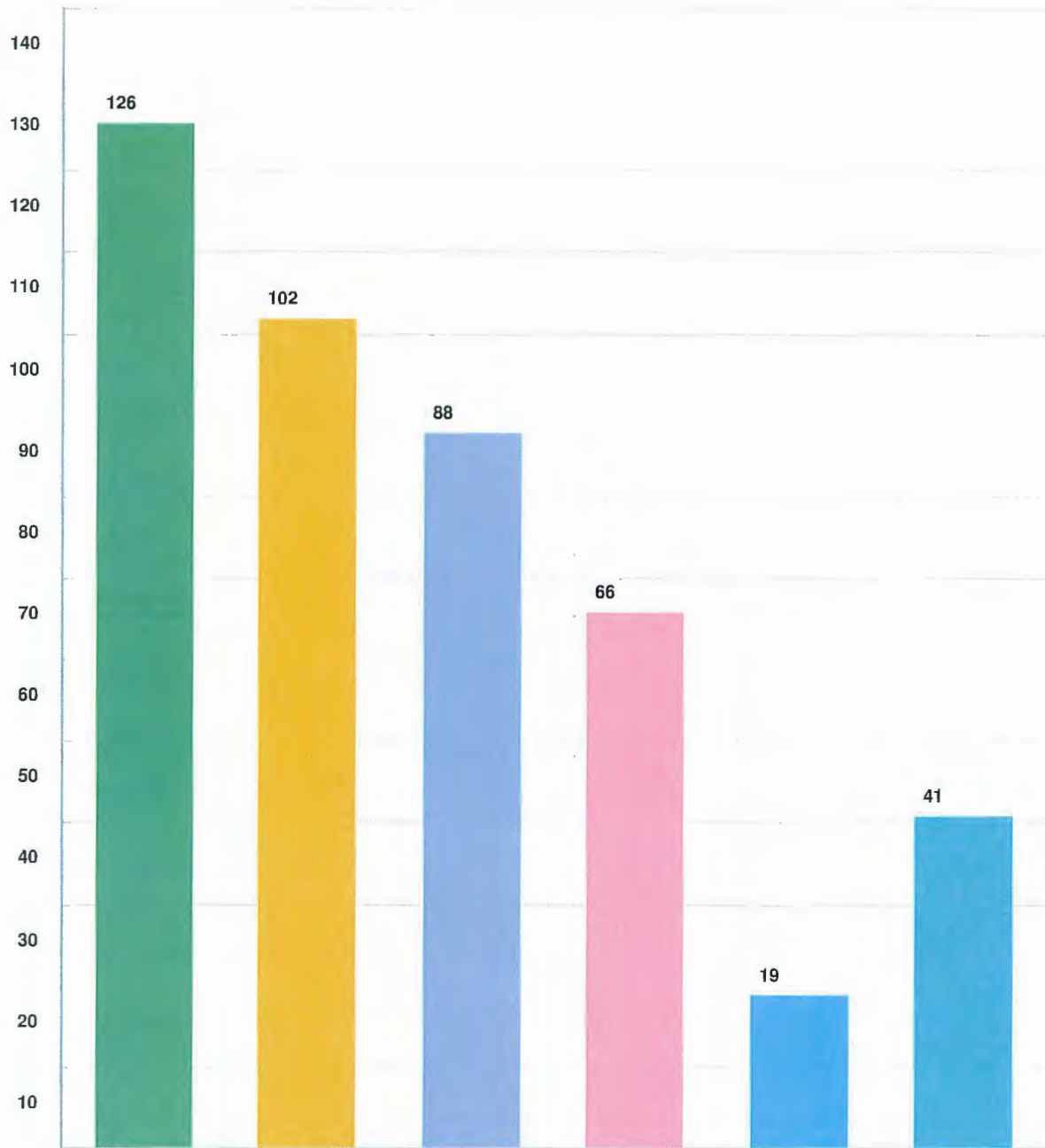
**Question options**

- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

*Optional question (160 responses, 7 skipped)*

## New Buildings

Q10 Which activities should the City focus on? Select up to three.



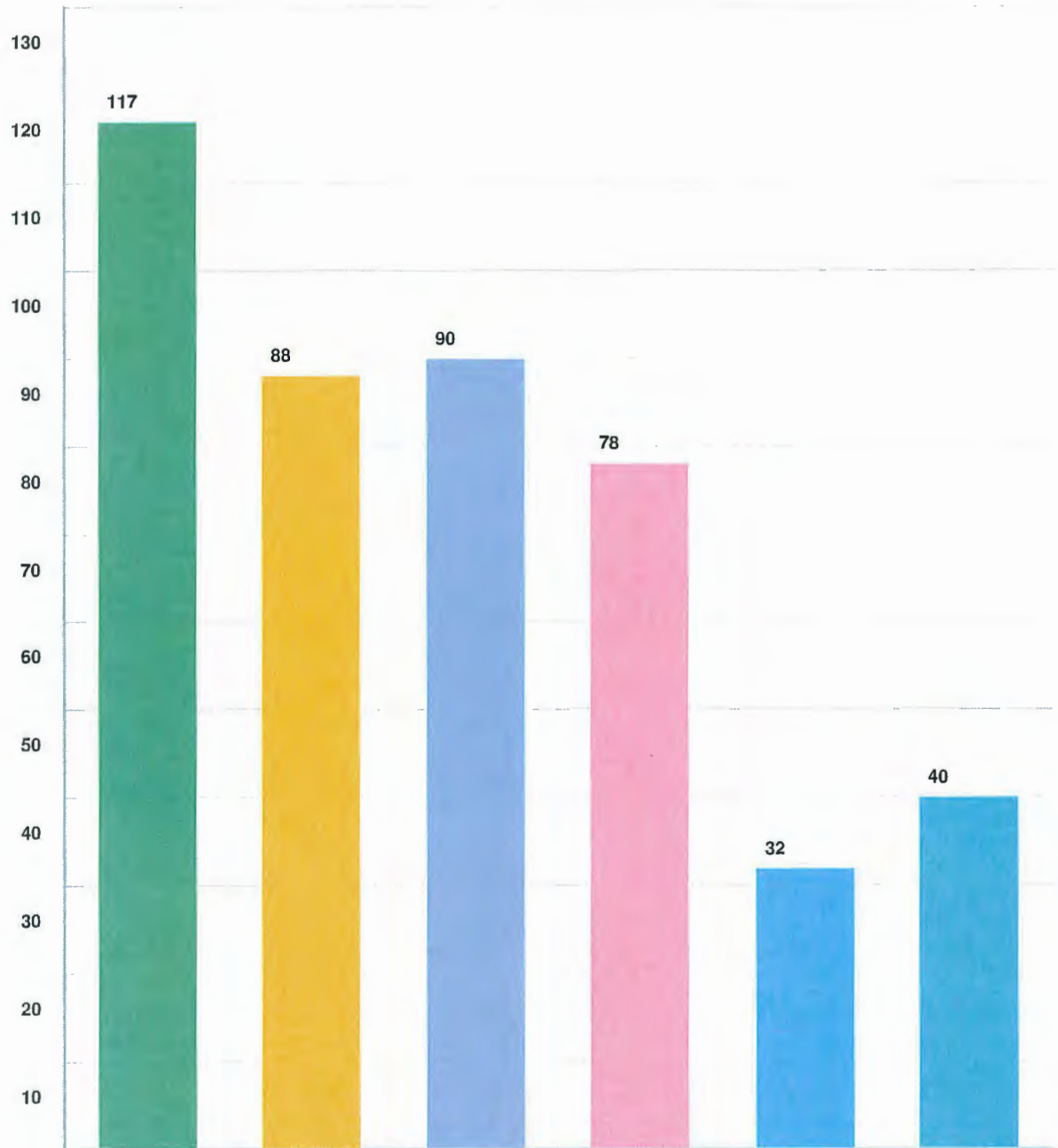
### Question options

- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

Optional question (162 responses, 5 skipped)

### Green Infrastructure

Q11 Which activities should the City focus on? Select up to three.



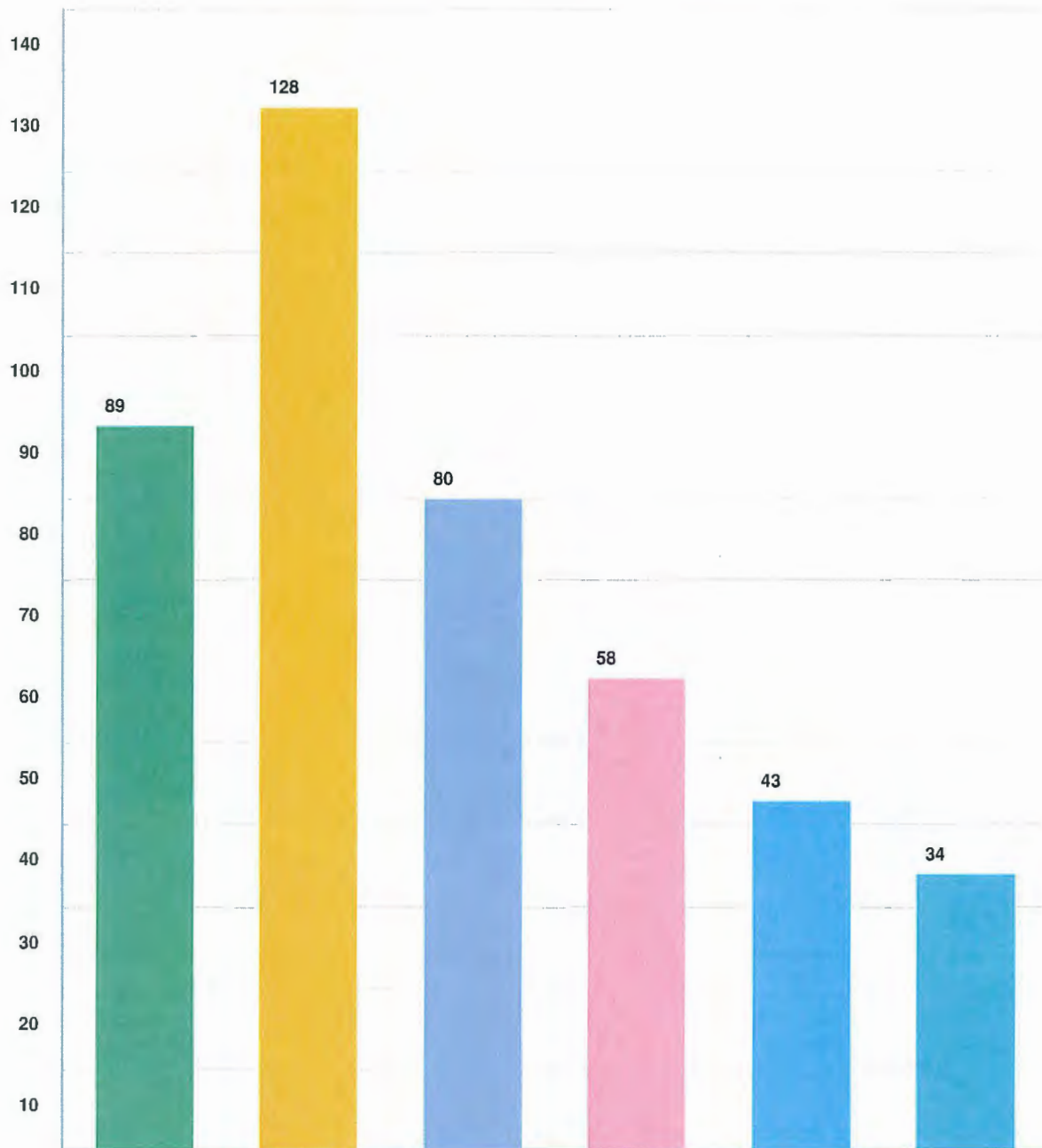
**Question options**

- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

*Optional question (162 responses, 5 skipped)*

Walk/Roll/Cycle

Q12 Which activities should the City focus on? Select up to three.



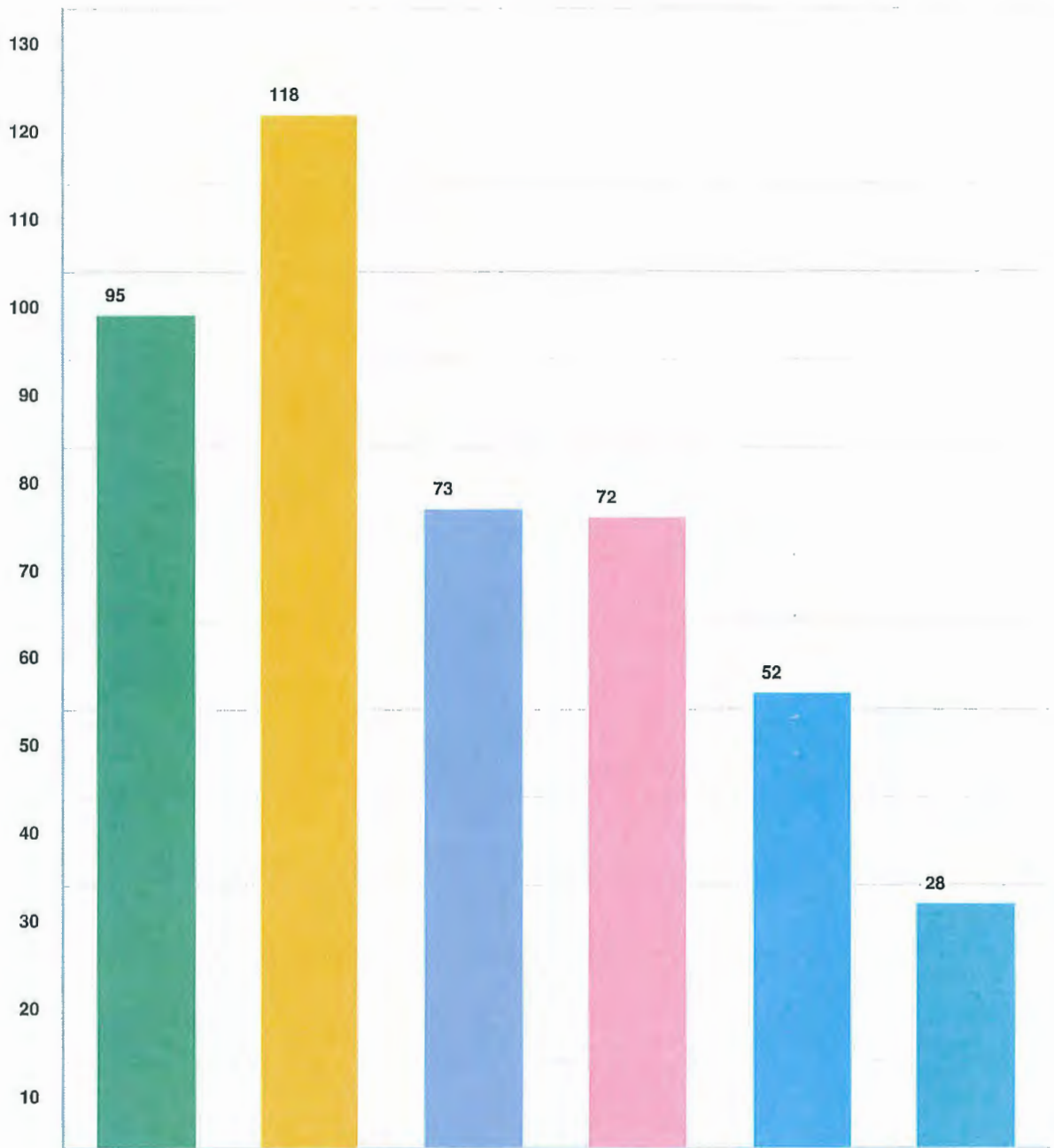
Question options

- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

Optional question (161 responses, 6 skipped)

**Transit**

**Q13** Which activities should the City focus on? Select up to three.



**Question options**

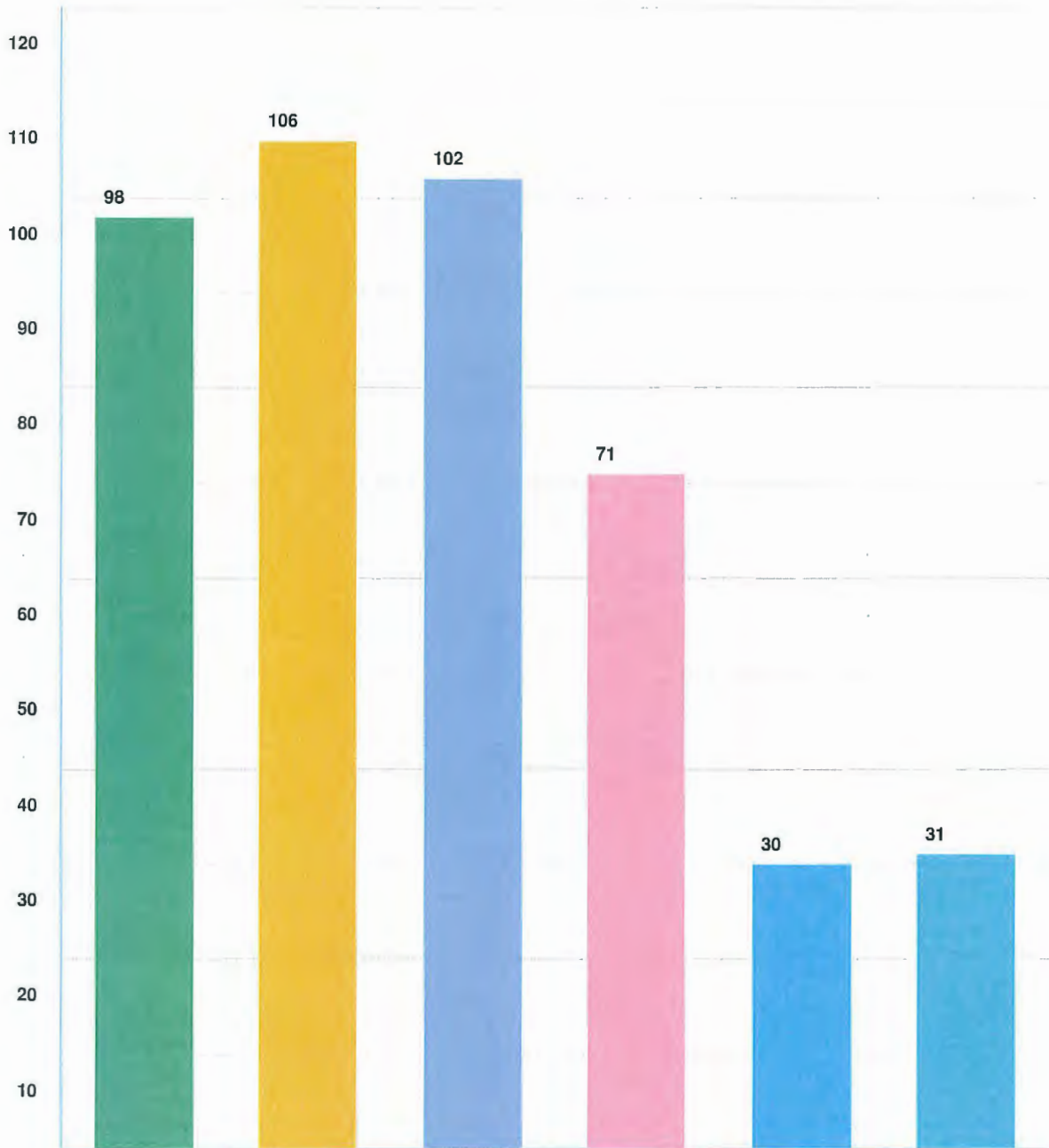
- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

*Optional question (163 responses, 4 skipped)*



### Electric Vehicles

Q14 Which activities should the City focus on? Select up to three.



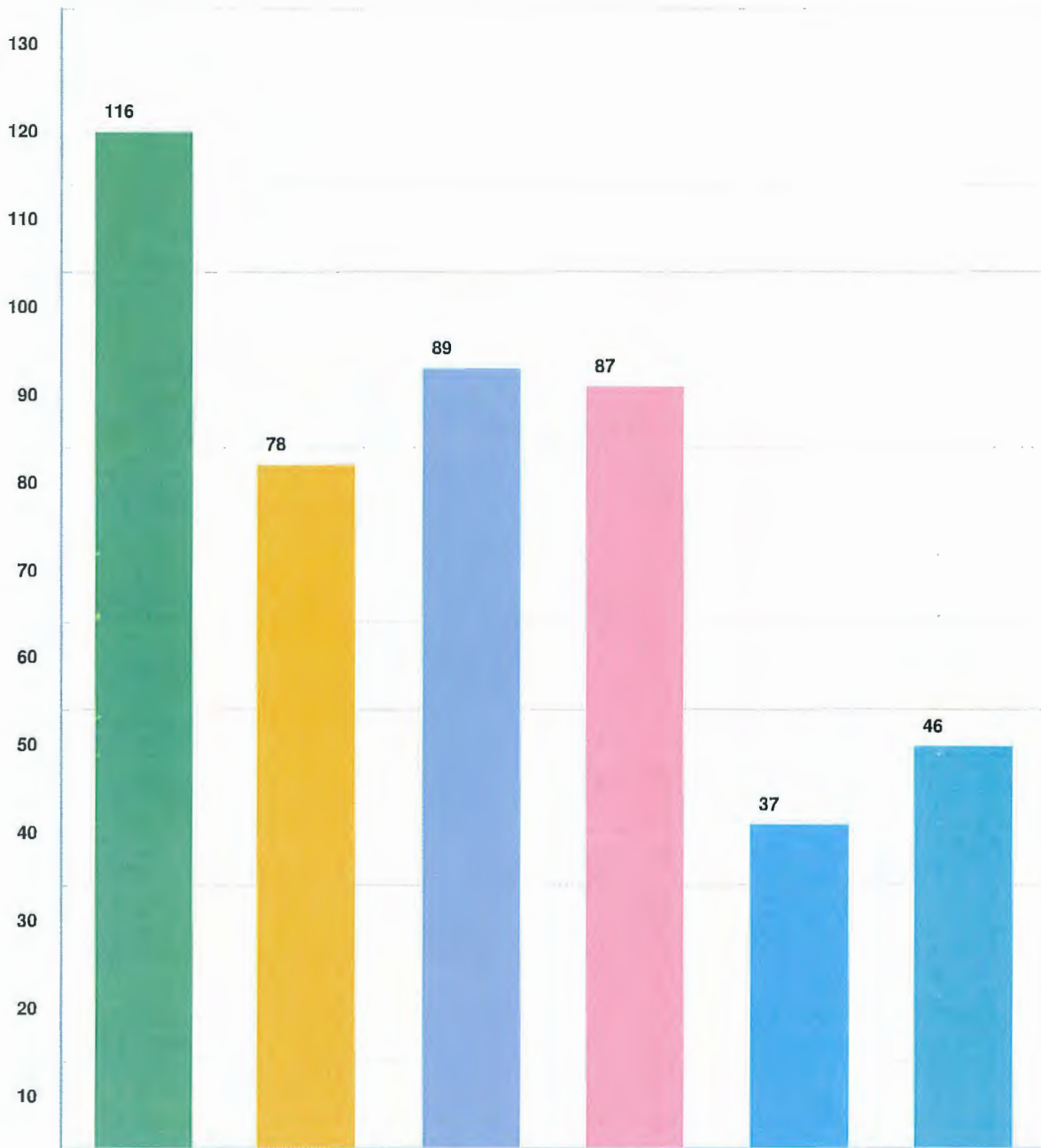
**Question options**

- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

*Optional question (162 responses, 5 skipped)*

**Circular Economy**

**Q15** Which activities should the City focus on? Select up to three.



**Question options**

- Policy & Regulation
- Infrastructure
- Incentives
- Collaboration & Partnerships
- Advocacy
- Outreach & Capacity Building

*Optional question (163 responses, 4 skipped)*

**Q16:** I have the following additional comments: There were 83 comments provided in this section.

**5%**  
**30**

**ADVANCING  
RICHMOND'S  
CLIMATE  
LEADERSHIP**

# COMMUNITY WORKSHOPS

OCTOBER 1 & 3, 2019



## **COMPLETE COMMUNITIES**

### **Group Consensus Ranking:**

- 1. Infrastructure**
- 2. Policy and Regulation**
- 3. [Tied] Advocacy and Collaboration & Partnerships**

The group sees strong link between **Collaboration & Partnerships** and **Advocacy** as strategic for building consensus and support for complete communities in Richmond.

### **Post-It note and flipchart comments on Complete Communities:**

- *Support viable farming in our community*
- *Get more people on board with supporting complete communities through outreach, capacity-building and collaboration*
- *Revisit allowable floor area for single-detached lots from current zoning requirements [to encourage better use of land] and more floor space per person*
- *Combine mix of land uses within neighbourhoods*
- *Create more end-of-trip facilities through policy and regulation for new buildings*
- *Use zoning [bylaw] to create more compact neighbourhoods*
- *[Creating more] affordable housing helps create complete communities*
- *Need free bicycle share system*
- *Improve infrastructure for walking and cycling (relates to infrastructure as well as policy and regulation)*

Climate Action Plan Direction Options – Community Workshop #1  
Historic Chinese Bunkhouse, Steveston, October 1, 2019

## **EXISTING BUILDINGS**

### **Group Consensus Ranking:**

- 1. Incentives**
- 2. Policy and Regulation**
- 3. [Tied] Advocacy and Infrastructure**

The group also sees **Advocacy** and **Infrastructure** as necessary tools to improve energy efficiency and reduce GHG emissions from existing buildings in Richmond.

### **Post-It note and flipchart comments on Existing Buildings:**

- *Strengthen regulation for maintaining strata buildings in good condition*
- *Retrofit older buildings to have electric vehicle charging infrastructure, energy efficient windows and building envelope, and [low carbon] heating systems*
- *Need incentives and funding [programs to make this happen]*

**NEW BUILDINGS**

**Group Consensus Ranking:**

1. **Policy & Regulation**
2. **Infrastructure**
3. **Incentives**

Note: Group also felt that **Advocacy** as well as **Outreach & Capacity-Building** are key in the transition to low-energy / low-emission new buildings.

The group also sees a strong correlation with **Complete Communities** topic. Group cited example of placing parking behind commercial buildings, and having commercial spaces next to the sidewalk / street.

**Post-It note and flipchart comments on New Buildings:**

- *Deal with oversized new homes [in Richmond], and incentivize smaller units and two-generation homes*
- *Encourage drainwater heat recovery systems*
- *[Use] recycled material content in new buildings (set minimum requirement)*
- *Have a variety of low-carbon energy systems within district energy service area (i.e., consider some distributed renewable systems as well)*
- *Create living spaces and destinations within neighbourhoods (e.g., Morgan Crossing in Surrey)*
- *[For commercial and industrial buildings] target high GHG tenants / uses in new buildings to decarbonize*
- *Encourage the conversion of existing gas furnaces to high-efficiency*
- *[Use] permeable pavers to lower the use of concrete in driveways, parking lots*
- *[Consider] variety of housing tenures in new buildings (e.g., co-operative housing, co-housing, land trusts)*

**Individual Ranking and Comments**

Rank	Direction Choices and Written Comments (Participant #1)
1	<p><b>Policy &amp; Regulation</b></p> <ul style="list-style-type: none"> <li>– <i>Percentage of recycled materials in new buildings</i></li> <li>– <i>Energy efficiency targets [for new buildings]; for energy, water, electricity</i></li> <li>– <i>Push for higher level of the Step Code</i></li> </ul>
2	<p><b>Infrastructure</b></p> <ul style="list-style-type: none"> <li>– <i>Increase Lulu Island Energy Company to provide energy to smaller groups of buildings / neighbourhoods</i></li> </ul>

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3	<b>Incentives</b> – [Make incentives] <i>work better for individuals</i>
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Rank	Direction Choices and Written Comments (Participant #2)
1	<b>Policy &amp; Regulation</b> – <i>Require developers to meet GHG emission targets or caps [prior to] developing in Richmond, and allow a variety of ways to [achieve the target / or cap]</i>
2	<b>Infrastructure</b> – <i>Build additional City-run district energy systems to allow local control of energy use. Connect more new buildings to Alexandra District Energy utility.</i>
3	<b>Incentives</b> – <i>Meaningful incentives to build to zero carbon or energy-positive buildings</i>

Rank	Direction Choices and Written Comments (Participant #3)
1	<b>Policy &amp; Regulation</b> – <i>Most powerful lever</i> – <i>Require low-carbon construction materials</i> – <i>Putting caps on building emissions</i>
2	<b>Infrastructure</b> – <i>Expand municipal energy projects</i>
3	<b>Incentives</b> – <i>Can we find more meaningful incentives to ensure there are motivated builders to choose low-carbon options?</i>

Rank	Direction Choices and Written Comments (Participant #4)
1	<b>Policy &amp; Regulation</b> – <i>[Set] energy efficiency requirements</i> – <i>Potential for effectiveness</i>
2a	<b>Collaborations &amp; Partnerships</b> – <i>Good potential to generate solutions with modest cost [by City]</i>
2b	<b>Outreach &amp; Capacity-Building</b> – <i>Good potential to generate solutions with modest cost [by City]</i>
3	<b>Infrastructure</b> – <i>Potential to design effective ‘neighbourhoods of structures’ and supportive utilities (e.g., heat exchangers, water collection), streets, parking lots, parks</i>

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**ACTIVE TRANSPORTATION – WALK / ROLL / BIKE**

**Group Consensus Ranking:**

- 1. Infrastructure**
- 2. Collaboration & Partnerships**
- 3. Outreach & Capacity-Building [and] Policy & Regulation**

Note: Group felt that the above two City actions listed for #3 were equivalent. Other consensus comments are included below:

- **Policy & Regulation** is important with respect to bicycle storage / parking requirements; more paid parking on streets and AAA dedicated bicycle lanes
- **Collaboration & Partnerships** are especially key when conducting multi-modal transportation planning with Province of BC (Ministry of Transportation), TransLink, private companies, and Richmond School Board.

**Post-It note and flipchart comments on Active Mobility:**

- *Need connections between pockets of walkability [in Richmond]*
- *Need [bicycle / walking] connections between Richmond and Vancouver*
- *More bike lock-ups, and security at malls, Richmond Night Market, and shopping centres*
- *For the new Deas Island Tunnel, will there be provision for bicycles?*
- *How can we build out the network earlier for AAA walk / roll / bike [infrastructure]*
- *For pedestrians and bicycles, use really good design at major intersections for safety*
- *Ironwood has lots of services and amenities, but not easy to get to by active modes*
- *Connect the bicycle and pedestrian (sidewalk) grid!*
- *[Need] better lighting on key bike routes for nighttime and winter season safety*
- *Railway Avenue greenway is safe, healthy, long and functional – Kudos to the City!*
- *Need dedicated and separated lanes for bicycles*
- *Active mobility [yields] well-being and health, safety, less car reliance, and mobility options*
- *Need [more] signs with bike and waling routes through neighbourhoods (to navigate better)*
- *For multi-purpose pathways, ensure adequate [lane] size for bicycles and walk / roll mobility*



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**Individual Ranking and Comments**

Rank	Direction Choices and Written Comments (Participant #1)
1	<b>Infrastructure</b> <ul style="list-style-type: none"> <li>– <i>Contiguous and consistent walk / cycle lanes for safety, creates an incentive to cycle or walk</i></li> <li>– <i>Sidewalks and bike lanes need to be continuous from the outset</i></li> <li>– <i>Development fees should fund [this infrastructure] for present and future</i></li> </ul>
2	<b>Collaboration &amp; Partnerships</b> <ul style="list-style-type: none"> <li>– <i>Work with TransLink and Province of BC to better integrate walk / bicycle options with road use</i></li> </ul>
3	<b>Policy &amp; Regulation</b> <ul style="list-style-type: none"> <li>– <i>Strong link to Community Design [Complete Communities] topic</i></li> </ul>
Other	<b>Advocacy / Incentives</b> <ul style="list-style-type: none"> <li>– <i>Encourage bicycle / road safety ‘rodeos’ at schools</i></li> <li>– <i>Car Free Days [in Richmond]</i></li> </ul>

Rank	Direction Choices and Written Comments (Participant #2)
1	<b>Infrastructure</b> <ul style="list-style-type: none"> <li>– <i>Connect existing dedicated bike and pedestrian pathways [in Richmond]</i></li> <li>– <i>Do the same on major routes to shopping areas (e.g., Steveston Highway and Ironwood)</i></li> <li>– <i>Lighting for safety</i></li> </ul>
2	<b>Collaboration &amp; Partnerships</b> <ul style="list-style-type: none"> <li>– <i>[Work] with shopping malls and companies to provide safe bike parking, and shower facilities at work to promote active transportation</i></li> </ul>
3	<b>Policy &amp; Regulation</b> <ul style="list-style-type: none"> <li>– <i>Need better regulations for bike parking, green space, sidewalks and safe bike lanes</i></li> <li>– <i>Increase rates for parking</i></li> </ul>

Rank	Direction Choices and Written Comments (Participant #3)
1	<b>Infrastructure</b> <ul style="list-style-type: none"> <li>– <i>Separated bike lanes – for safety</i></li> <li>– <i>Connect gaps [bicycle / walk / roll] gaps along major community routes (e.g., Garden City Road)</i></li> <li>– <i>Allow people to ride safely to ‘destinations’ such as parks [and other amenities]</i></li> </ul>

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2	<b>Policy &amp; Regulation</b> <ul style="list-style-type: none"> <li>- <i>Make it less convenient to drive using policy tools such as removing free parking</i></li> <li>- <i>Use revenue from parking to fund cycling and walking infrastructure</i></li> </ul>
3a	<b>Collaboration &amp; Partnerships</b> <ul style="list-style-type: none"> <li>- <i>Work with schools, workplaces, businesses and nonprofits to incentivize cycling or walking for employees</i></li> </ul>
3b	<b>Outreach &amp; Capacity-Building</b> <ul style="list-style-type: none"> <li>- <i>Make [active] modes of transport the 'norm' by ensuring citizens understand the benefits, and help reduce barriers</i></li> </ul>

Rank	Direction Choices and Written Comments (Participant #4)
1	<b>Infrastructure</b> <ul style="list-style-type: none"> <li>- <i>Connect existing networks</i></li> <li>- <i>Prioritize commuter routes that can connect major areas (i.e., north-south, east-west, Richmond-Vancouver)</i></li> <li>- <i>Allow people to ride safely to 'destinations' such as parks [and other amenities]</i></li> </ul>
2a	<b>Advocacy</b> <ul style="list-style-type: none"> <li>- <i>Collaborative approach with [Province of BC] Ministry of Transportation, TransLink, and businesses</i></li> </ul>
2b	<b>Collaboration &amp; Partnerships</b> <ul style="list-style-type: none"> <li>- <i>Connecting modes of transport</i></li> </ul>
3	<b>Outreach &amp; Capacity-Building</b> <ul style="list-style-type: none"> <li>- <i>Creating a sense of community action</i></li> <li>- <i>Car Free Days</i></li> <li>- <i>[Health and] wellness</i></li> </ul>

## TRANSPORTATION – TRANSIT

### Group Consensus Ranking:

1. **Collaboration & Partnerships**
2. **Advocacy**
3. **Policy & Regulation**

The group sees **Advocacy** and **Collaboration & Partnerships** as key in working with regional authority (TransLink) as well as Province of BC and Federal government for major transit funding initiatives. The group also sees car sharing as transit-supportive and another important strategy to reduce car reliance for Richmond households.

### Post-It note and flipchart comments on Existing Buildings:

- ***Collaborate** with TransLink to provide various sized buses, and replace existing diesel buses with electric, and improve east-west transit in Richmond.*
- ***Advocate** with Province of BC and Federal government to improve transit infrastructure, such as: extend Canada Line, Massey Tunnel crossing improved for future train access, improvements to east-west buses [routing and frequency], vehicle parking near Canada Line for those not served well by connecting bus routes.*
- ***Policy and Regulation:** Investigate car sharing and ride sharing in Richmond.*
- *Create neighbourhoods as destinations. Think Morgan Creek in Surrey, on a larger scale. More transit hubs.*
- *Bus service in the 1980s was bad then; east-west transit options are still awful. [Need better] frequency on evenings and weekends. [Lack of frequent transit is a] disincentive to use.*
- *Provide choice in transit options. Canada Line should not be the only option for accessing the city, or south of the Massey Tunnel.*
- *[Should have] Canada Line to link with Sky Train along the Marine Drive corridor (minimizes impact on housing, as area is largely light industrial [and there is an existing rail alignment along the river]).*
- *Advocate for a transit link between Richmond Centre and Surrey Centre.*
- *Advocate for a link between Richmond and Burnaby.*
- *No Port [of Metro Vancouver] trucks in Massey Tunnel during the day.*

## TRANSPORTATION – ELECTRIC VEHICLES

### Group Consensus Ranking:

1. **Collaboration & Partnerships**
2. **Infrastructure**
3. [Tied] **Advocacy and Outreach & Capacity Building**

The group sees **Advocacy** and **Outreach & Capacity Building** as tied for third place in the ranking, but that all four are necessary to support and accelerate the transition to zero emission vehicles in Richmond.

### Post-It note and flipchart comments on Existing Buildings:

- **Collaboration and Partnerships:** *The City of Richmond can't do everything on its own, so working with partners to provide incentives, increase infrastructure, provide advocacy and educate [consumers and businesses] is necessary*
- **Infrastructure:** *Retrofit existing buildings to have electric vehicle charging infrastructure, in tandem the current EV charging readiness requirement for new residential buildings. [City should have a program to] encourage businesses to provide EV charging.*
- **Outreach and Capacity Building:** *Build partnerships to increase capacity [in the community] to educate and change minds of people and businesses. Need more information on City website.*
- **Advocacy:** *More power to advocate when more people are on board with electric vehicles [and] advocate for Provincial rebates on electric bicycles.*

## **GREEN INFRASTRUCTURE**

### **Group Consensus Ranking:**

- 1. Policy and Regulation**
- 2. Incentives**
- 3. Outreach and Capacity Building**

This group was wondering how agricultural land fits into the green infrastructure equation. Do we know how to define and incentivize farmers and land holders to do climate-smart agriculture? Group felt it would be useful to show how farms can also be 'carbon sinks' while growing food, instead of a source of GG emissions.

### **Post-It note and flipchart comments on Green Infrastructure:**

- *For Policy & Regulation, we need to update bylaws and set minimum requirements*
- *There is need for Incentives to change current practices*
- *Outreach and capacity-building [with farmers and land owners] is necessary to explain what carbon-smart agricultural practices are, and why its important*

## WASTE MANGEMENT AND CIRCULAR ECONOMY

### Group Consensus Ranking:

1. Infrastructure
2. Outreach & Capacity Building
3. Incentives

The group sees education and outreach on waste reduction and reuse as essential. Recycling is the last “R” in the trio of words describing waste management, and noted that biodegradable and compostable materials still have an environmental impact.

### Post-It note and flipchart comments on Waste Management & Circular Economy:

- *Encourage a culture of caring [like in Costa Rica] through tons of signs encouraging people to save water in hotels and not waste food in buffets*
- *Signage should be educational, ubiquitous and cheap / easy [to implement]*
- *Support tiffin’s for small restaurants with takeout – remove single-use takeout containers*
- *Support and incentivize [use of] reclaimed wood from redevelopments, and encourage re-use companies*
- *Re-use building materials*
- *We need to figure out regional composting*
- *Richmond does have a green ambassadors program, which is helpful*
- *The City could distribute standardized recycling bins, [and make this] available to multi-unit residential buildings and businesses. [Relates to] infrastructure, collaboration and partnerships, as well as incentives.*
- *Incentives – Neighbourhood grants for local collection drives for other recyclable wastes*
- *[We could develop a] neighbourhood ambassador program for waste recycling*
- *[Recycling could be] done at community centres, or have a collection drive one day per month*
- *Encourage grey water for plants, flushing [of toilets] and heat recovery*
- *Single-use plastics, such as plastic bags, can be reused many times by residents. Plastic is useful in a rainy place like Richmond.*
- *Capacity-building – Using renewable resources and promoted by social media*
- *Make recycled materials cool. Re-position re-use of materials [as cool, as it is] more effective than shaming.*
- *Trites [verify spelling] Road Recycling Centre has shut down, as it was not practical to recycle styrofoam and paint*
- *[Need] more local recycling depots (styrofoam, paint, electronics, etc.)*
- *Collaboration – With strata condominium buildings, need lots of outreach to get them on board*

## **COMPLETE COMMUNITIES**

### **Group Consensus Ranking:**

- 1. Policy & Regulation**
- 2. Infrastructure**
- 3. Collaboration & Partnerships**

### **Sticky Note Comments on Complete Communities:**

- *City subsidize TransLink for expanding transit services in specific areas*
- *Congestion points: some areas can be prioritized for better mobility efficiency while making overall City friendly to active modes*
- *[Build] green walkways (hike trails) [at] different pockets of areas*
- *Steveston Ironwood [is a] good example of walkable [and] cycle friendly neighbourhood.*
  - *Challenge: still too car centric, more needs to be done*
  - *Road space re-allocation for bikes*
  - *More shuttle and car share services to help decrease car use*
- *Need more of easy walking connections and paths within neighbourhoods*
- *Walking in the City [is] linked to better health and positive living and enjoyable city*
- *Targeting demographic groups in terms of what complete communities means to them [to] provide an entry point for ideas*
- *Bus/transit is a good companion for mobility in tandem with bike paths and pedestrian routes*
- *Accessibility is very key in terms of neighbourhood and street/sidewalk design and crossings*
- *Keep in mind people with disabilities [are] vulnerable*
  - *Accessible paths*
  - *Good lighting so walkers feel (and are) safe*

## **EXISTING BUILDINGS**

### **Group Consensus Ranking:**

- 1. Incentives**
- 2. Outreach & Capacity Building**
- 3. Policy & Regulation**

### **Sticky Note Comments on Existing Buildings:**

- *Difference between higher cost of electricity and lower cost of natural gas is problematic from a low carbon transition perspective*
- *Strata energy program would be helpful (we also need one for rental apartment buildings)*

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- *Some homes in [the] City were originally all electric. We should look at RAP grants for comprehensive home retrofits*
- *Time equipment change out at [end of] lifecycle and match with incentives to encourage low carbon*
- *Home retrofit programs should be watched with energy coaching and advice*
- *Use city-imposed empty house tax to help fund retrofitting initiatives*
- *Incentives to change energy efficient light bulbs and sensor light on parking and common area to save electricity for the buildings*

## **NEW BUILDINGS**

### **Group Consensus Ranking:**

- 1. Policy & Regulations**
- 2. Infrastructure**
- 3. Outreach & Capacity Building**

### **Sticky Note Comments on New Buildings:**

- *Incentives for folks who want to downsize [their house]*
- *Ground-source heat is expensive (condo fees are high)*
- *Make developers [build] all [new] buildings zero emissions (cost of doing business)*
- *Incentives to home owners to purchase zero GHG homes*
- *Award recognition for low GHG buildings*
- *Limit floor space per house*
- *Educating [people] on the benefits of retaining and restoring existing housing stock*

## **TRANSPORTATION – WALK/ROLL/BIKE**

### **Group Consensus Ranking:**

- 1. Infrastructure** (in tandem with supporting policy and regulation)
- 2. Outreach & Partnerships** (engage, support, and influence)
- 3. Policy & Regulations** (could also be tied to incentives)

### **Sticky Note Comments on Transportation – Walk/Roll/Bike:**

- *Multi-use active transportation: e-bike, e-scooter, shared transport*
- *We should reconsider the current electric scooter ban in effect (in Richmond)*
- *Need to also start with young people [through] education and experience programs*
- *Education and motivation to walk is key [but] not everyone is aware of the benefits [of walking] to [their] health*
- *Bicycle network should be connected in terms of service, safety, [and] quality*



- *“safe and not competing with cars” (you want to feel this way as a pedestrian and cyclist)*
- *Need to connect bike route gaps (it throws you off)*
- *Active mobility is happy mobility*
- *In community neighbourhoods, we need through routes that are pedestrian/bike friendly*
- *Proper and secure bike parking for longer term stops (like at work)*
- *Active transport systems and infrastructure need to be well integrated with transit*
- *[Construct] safe bike lanes for major streets. Routes to schools to encourage [students to] bike to school*
- *Safer crossings for pedestrians [to] increase [people’s] desire to walk*

## **TRANSPORTATION – TRANSIT**

### **Group Consensus Ranking:**

**(N/A)**

### **Sticky Note Comments on Transportation – Transit:**

- *City subsidize TransLink for expanding transit services in specific areas*
- *Free week transit pass*
- *Incentives to car-free households*
- *Aquabus [ferries] to Ladner*
- *Safer crosswalks to transit*
- *Transit needs a lot of improvement*
  - *Everything has to go through City Centre*
- *Electric vehicles for car share*
- *Car-sharing is awesome! (City should work with car-sharing folks)*
- *Approve Uber/Lyft if they have electric vehicles (policy & regulations)*
- *Bike racks at bus stops (infrastructure)*
- *Richmond ideal for biking! (flat)*
- *Advocate acceleration to zero greenhouse gas transit fleet*
- *Bus prioritization at transit lights*
- *Frequent bus service to Steveston/Ironwood*
- *City to encourage private transit options*
- *Teach [about] bus riding at schools*
- *Info outreach to schools (ie. nearby bus services)*
- *Transit liaison at schools*

## **TRANSPORTATION – ELECTRIC VEHICLES AND CHARGING INFRASTRUCTURE**

### **Group Consensus Ranking:**

- 1. Incentives**
- 2. Collaboration & Partnerships**

### 3. Outreach & Capacity Building

#### Sticky Note Comments on Transportation – Electric Vehicles and Charging Infrastructure:

- *Are there EV car rental firms?*
- *Partner with schools [at] parent info night [about EV]*
- *Work with car dealership [to build] EV charging stations*
- *Require [developers to build] EV charging station at new retail developments*
- *Vandalism with EV charging station?*
- *Partner with retailers [stores] to install EV charging [stations] (where you will park [more than] for 30 minutes)*
- *Convert low-use gas stations to EV charging stations*
- *Advocate for Federal/Provincial EV charging support [money]*
- *[Could] the City provide rebate for [purchasing] EVs?*
- *Tax break on EV charging?*
- *Incentives to install EV chargers?*

#### GREEN INFRASTRUCTURE AND NATURAL ENVIRONMENT

##### Group Consensus Ranking:

1. Policy & Regulations
2. Collaboration & Partnerships
3. Infrastructure

#### Sticky Note Comments on Green Infrastructure and Natural Environment:

- *City needs to be planting species [that are] adaptive to [the] new climate*
- *How can we help farmers to prosper?*
- *Encourage local food production for local [consumers]*
  - *High value produce*
  - *Organic farming*
- *Advocate for buy-BC food policy for BC*
- *Promote local food delivery/farmer's markets*
- *Work with non-profits to reduce food waste*
- *Advocate for revised food safety requirements (allow re-use of not-spoiled food)*
- *New buildings need to have community gardens (rooftops)*
- *Green roofs*
- *Increase tree canopy in arterial roads, mall parking lots, large open spaces*
- *Encourage cannabis production within Richmond (good income for farmers)*
- *[Encourage] developers [to] have vegetative cover target*
- *Harvest rainwater/reuse wastewater*
- *Mandate ban on single-use plastics*
- *Limit use of single-use plastics*
- *More composting bins in community centres*

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- *Retain rainwater in cisterns for summer use*
- *We do a good job of recycling within the community*

## **WASTE MANAGEMENT AND CIRCULAR ECONOMY**

### **Group Consensus Ranking:**

- 1. Outreach & Capacity Building**
- 2. Advocacy** (at all levels [of government])
- 3. Policy & Regulations**

### **Sticky Note Comments on Waste Management and Circular Economy:**

- *[Outreach and collaborate] with strata/condo division*
- *People need to see best practices (e.g. one restaurant provide a durable and reusable container for takeout)*
- *Consumer education needed to improve how we dispose of materials and avoid contaminating recycling streams*
- *Find ways to reduce "contamination" of waste streams is a problem for recycling*
- *Reusing and reducing should be at top of list [and should be] ahead of recycling*
- *Moving away from single use plastic and one-time use containers*
- *For organic composting, [I] suggested to use brown paper to wrap organic materials to prevent smells*
- *Establish liaison at all elementary and high schools to facilitate comprehensive recycling programs and zero waste initiatives*
- *Collaborate with big corporations (with incentives) [on] how we can re-use*
  - *Non-profits (sponsor events and [give] grants)*
  - *Homeless*
  - *Food programs in school*



# STAKEHOLDER WORKSHOPS

OCTOBER 9, 2019



## **COMPLETE COMMUNITIES**

### **Group Consensus Ranking:**

- 1. Policy & Regulation (with advocacy)**
- 2. Infrastructure**
- 3. Incentives b) Collaboration and Partnerships**

### **Sticky Note Comments on Complete Communities:**

- *Density (modest increases)*
  - *Supports local businesses (drives the economy)*
  - *Look at circle route of bus service linking several amenities*
  - *Look at city centre [and] how can we attract the range of services we need*
  - *Chicken and egg*
- *Transit should be more affordable (fares for family)*
- *OCP zoning areas:*
  - *More services locally*
  - *Easy access to first responders*
  - *Green spaces*
  - *Schools, K-12, childcare*
  - *5 minute walk sheds*
- *Adaptation: multi-purpose community facilities for refuge*
- *Re-allocation of transit funding*
  - *Look at driving levy*
  - *Peak period pricing*
  - *Road pricing*
- *Businesses*
  - *Challenges for attracting a full range of services*
  - *Coffee shops, restaurants, attractive services*
- *Transit friendly neighbourhoods*
- *Important to link up complete neighbourhoods throughout Richmond*
- *Think holistically in terms of city wide land use planning*

## **EXISTING BUILDINGS**

### **Group Consensus Ranking:**

- 1. Incentives**
- 2. Outreach & Capacity Building**
- 3. Collaboration & Partnerships**

### **Sticky Note Comments on Existing Buildings:**

- *Retrofit requirements with major building upgrade*
- *Connect existing buildings to district energy*

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- Existing buildings could sell wasted heat into grid
- Lots of Richmond residences still use wood for heating (older residents)
- Outreach & capacity building to homeowners will be crucial
- Program to convert parking to bike storage/other
- Outreach to owners retrofitting existing buildings
- Help Fortis BC identify a large source of renewable natural gas
  - Get disaggregated data on net gas use

## **NEW BUILDINGS**

### **Group Consensus Ranking:**

- 1. Incentives**
- 2. Policy & Regulations**
- 3. Outreach & Capacity Building**

### **Sticky Note Comments on New Buildings:**

- [Use incentives to] *make people more willing to change*
- *Education*
- *Collaboration with large industries to improve [policy and regulations]*
- *Mandate to include energy efficient and low greenhouse gas construction*
- *Set out clear requirements [for policy and regulations]*

## **TRANSPORTATION – WALK/ROLL/BIKE**

### **Group Consensus Ranking:**

- 1. Infrastructure**
- 2. Outreach & Partnerships**
- 3. Policy & Regulations**

### **Sticky Note Comments on Transportation – Walk/Roll/Bike:**

- *Multi-use active transportation: e-bike, e-scooter, shared transport*
- *Invest more in AAA bike network*
- *Advantage [travelling] with bikes because Richmond is relatively flat*
- *City infrastructure needs to be maintained/completed*
  - *Complete the [bike] network*
  - *Connect to transit*
- *Parents are driving [their] kids to school [because the roads] are not safe [due to] open culverts and missing sidewalks*
- *Difference between bike lane and protected lane*
- *Ensure bike storage in multi-family are constructed and used*
- *Bike storage at transit stations encourage Walking Bus Program to school Board*
- *Promote and market cycle tourism*

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- *Work with HUB/other immigration centres to provide programs to teach how to ride a bike (for kids and adults) and simple bike repairs*
- *How to include those who are not able bodied? Seek partnerships and engage advocacy groups*
- *Support new technologies for transportation*

## **TRANSPORTATION – TRANSIT**

### **Group Consensus Ranking:**

- 1. Infrastructure**
- 2. Advocacy**
- 3. Policy & Regulations**

### **Sticky Note Comments on Transportation – Transit:**

- *Make it easier to transit out of Richmond*
- *Education*
  - *Parents*
  - *School aged children*
  - *Work in collaboration with settlement services to provide workshops in many languages*
- *Policy and Regulation*
  - *Carbon tax for vehicles*
  - *Transit incentives*
  - *Park and rides*

## **TRANSPORTATION – ELECTRIC VEHICLES AND CHARGING INFRASTRUCTURE**

### **Group Consensus Ranking:**

**(N/A)**

### **Sticky Note Comments on Transportation – Electric Vehicles and Charging Infrastructure:**

- *BC Hydro [should be] force[d] to take on these cost*
- *Technology exist to monitor consumption*
- *Update bylaws*
- *Transit period: how to make it smoother*
- *Invest more into charging station [by] adding more level 3 charging stations*
- *Electrify buildings and transit. Being able to draw from electric vehicle charging sources*
- *Increasing awareness (massive outreach). Provide electric vehicle information at car dealerships*

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## **GREEN INFRASTRUCTURE AND NATURAL ENVIRONMENT**

### **Group Consensus Ranking:**

- 1. Outreach & Capacity-Building** (community residents, landowners, builders/developers, architects, Local Governments for Sustainability (ICLEI))
- 2. Infrastructure** (integrate with City's asset management plan)
- 3. Collaborate & Partnerships** (scientists, innovators, agricultural land commission, universities and NGO's)

### **Sticky Note Comments on Green Infrastructure and Natural Environment:**

- *Reach out and integrate ideas from other jurisdictions that have developed solutions on green infrastructures*
- *Each neighbourhood should have a space allotment for community agriculture (garden)*
- *Integrate accounting for green infrastructures within the City's asset management framework*
- *[Use] Biomass combustion to offset natural gas peaking for district energy*
- *New development in Richmond seems to be missing new trees as part of development requirements*
- *Need long term monitoring data to gauge "effectiveness" or adaptive capacity of our peat lands/sea grass beds*
- *Size of homes in ALR lands should be limited (now done)*
- *Better agricultural viability is key*
- *Local food and farmer's markets (scale up these initiatives [and] make provision for one day a week markets*
- *Would be good to know what other plants (beside trees) would be preferable on site (for drought tolerance)*
- *Need to establish active Green Infrastructure Engineering team in Richmond, much like Vancouver*
- *Groundwater recharge is important for peat land, so engineering solutions need to be integrated to define these solutions*
- *EGBC members have knowledge on land on these topics/ideas*

## **WASTE MANAGEMENT AND CIRCULAR ECONOMY**

### **Group Consensus Ranking:**

- 1. Collaboration & Partnerships**
- 2. Outreach & Capacity Building**
- 3. Policy & Regulations** (leading by example)

### **Sticky Note Comments on Waste Management and Circular Economy:**

- *[Outreach and collaborate] with strata/condo division*
- *Advocate with provincial government [and] BC Hydro*
- *Recycling of demolition materials*



Climate Action Stakeholder Workshop  
Richmond Cultural Centre, Performance Hall, October 9, 2019

- *Increase use of thermal heating and cooling*
- *Policy regarding garbage/waste disposal*
  - *Pickups ignoring waste if sorted differently*
- *Recycling infrastructure*
- *Incentives for businesses (construction, restaurants, individuals)*
- *Convert waste to RNG*
- *Focus on materials that generate greenhouse gas at waste site*

**Other Sticky Note Comments:**

- *“Blow up” ugly ALR “gangster” mansions*
- *My house is all electric [it is] the greenest energy available to me. I am being penalized by Hydro and their system. [They] give incentives to use more electricity*
- *Too much waste of energy from apartments. People should pay for all utilities personally*
- *Solar energy (x6)*
- *Solar power*
- *[Event organizers] did not plan how many people would turn out. Let people listen before putting coins in box. More boxes.*
- *How does in home humidity reduction come into play energy-wise?*
- *Ban plastics*
- *New homes should not be allowed to be able to pave whole property and tear down all trees. And be able to park 20 cars. And be used as Airbnb.*
- *Laws to use recycled material for building new buildings*
- *This [event] was good*
- *Lighting: safe, bike greenway (railway)*
- *Solar panels*
- *Public awareness and action for waste management*
- *Safe to bike*
- *City of Richmond vehicles all while – [cars will] appear dirty sooner than darker colour [cars]; therefore, need washing more often and more waste of water etc.*
- *Use City’s app to communicate with the public [about the event] (I only heard about this event from word of mouth)*
- *Good to have a plan re: 2050 reduction pollution, but don’t discount/forget about the fact that most non-green solutions (i.e. natural gas heating, gasoline automobiles, etc.) efficiency is improving also. So don’t set it into policies to force down to resident’s throat re: 100% electric heating as opposed to natural gas heating; full electric vehicles (without inclusion of battery replacement cost, etc.) as opposed to smaller engine, low pollution gasoline vehicles. Education and incentives are encouraged.*
  - *Could you give long-term (long-time) same homeowner a break in property tax? i.e. incentive for residence to be able to live in their old same house. e.g. put a maximum cap for property tax if some homeowner for over 5 or 10 years at same house*

Climate Action Stakeholder Workshop  
Richmond Cultural Centre, Performance Hall, October 9, 2019

- *Could you expand HandyDRAT service? Make it available at greater time range and also make it shorter for people who need to go from Richmond to Surrey.*
- *Could you make wheelchair buses (regular businesses) have room for wheelchair passengers during rush hour? Especially 403 buses. I need to wait for 4 buses, but they are still full and no room for wheelchair passengers.*
- *Water management and water retention*
- *Residential electricity usage education*
- *Increase advocacy for car-free living*
- *More community centre and secondary school facilities to maximize [the] use of gyms*
- *City needs to reclaim water through shifting to grey water systems to reduce impact of summer water restrictions and to keep green spaces green [and] to preserve drinking water*
- *More car sharing access*
- *I feel very unsafe as a pedestrian*
- *Renewable energy sources*
- *Residential house torn down to create more farmland. [Do] not [build] more single homes*
- *Build a bike [storage for approximately] 500 bikes at City Hall*
- *More bike lanes (x2)*
- *School awareness*
- *Safer to bike/skate/rollerblade/scooter on the streets*
- *School engagement/awareness*
- *Multilingual language education session to promote to minority group*
- *Emphasize the idea of using bikes/rolls than using cars*
- *Collaborate with ICBC to offer limited insurance (i.e. weekends only to reduce care use*
- *[Build] bike lane on Dinsmore Bridge*
- *Road should be widened before putting bike lanes*
- *Schools need to have plastic-free packaging utensils and dishes and also education about the environment*
- *Where is Wheel Watch?*
- *More support/incentives for small/medium size businesses to implement improvements*
- *Reusable packaging*
- *Telework from home*
- *Bikes lane – add separately to George Massey Tunnel*
- *Agricultural waste/water run-off*
- *I feel unsafe biking*
- *Remove sales tax on bikes*
- *Electric vehicle incentives should be higher*
- *Tree planting*
- *Encourage cargo bike deliveries*
- *Waste diversion rates need to be higher*

Climate Action Stakeholder Workshop  
Richmond Cultural Centre, Performance Hall, October 9, 2019

- *Enough electric vehicle infrastructure so we can use it anywhere*
- *Protect trees, plant trees, public tours of trees*
- *Bike routes that connect*
- *More Fix-It days*
- *No Wi-Fi safe zones*
- *More about trees and parks*
- *Pass law for economy-only flights at the airport and plan to build electric trains across Canada*

## **NOW, HOW, WOW – May 2019 Workshop (Youths)**

### **Sticky Note Comments**

#### **NOW:**

- *Government installed recycling [service] for every house*
- *Flexible plastic recycling*
- *Electric cars*
- *Making green policies for buildings*
- *Good transportation system, more green job opportunities, many plans to improve the community*
- *We declare climate emergency*
- *More green spaces*
- *Renewable bags*
- *Less plastic*
- *We have a plan to reduce emissions and we are taking action!*
- *What's good now is that we are trying to come up [with] a solution about improving Richmond and [becoming a] more sustainable city*
- *Transit is fuel efficient*
- *Mild climate so we don't have to use that much energy to stay warm*
- *Having Mr. Wolfe on city council*
- *Weather is moderate enough to walk/bike*
- *Transit is very modern and easy to use*
- *We use clean electricity*
- *Using more efficient heating and cooling sources*
- *We declare climate action/emergency*
- *More LED lights*
- *High access to world issues and ways for every citizen to participate in organizations that are environmentally friendly*
- *People use bikes more*
- *Newer buildings made of recyclable materials*
- *Some stores offer paper bags*
- *Most stores sell reusable bags*
- *Many sustainable options: paper bags, recycling, bikes*
- *That our government puts attention to climate change and implement ways to reduce it*
- *People are starting to take recycling more seriously now*
- *Declare a climate emergency*
- *City bikes*
- *People are more aware of the problems [and] are taking action now*
- *There's a group that help [with] recycling*
- *There are people who are willing to take action about climate change*
- *People contribute to climate change*

#### **HOW:**

- *Sustainable architecture*

- *More EV infrastructure and charging stations*
- *[Reduce emissions] by people getting more EV so that we can have less fossil fuel*
- *Cleaner air, low energy cost, more animals survives, stable climate*
- *Implement clean energy products (cars)*
- *Make vegan products cheaper*
- *Green roofs*
- *More advanced technology that can replace fossil fuel and nuclear energy permanently*
- *Be aware of our surroundings and speak up if we have suggestions about making our place better. Eat less meat and more vegetables and eat locally [sourced] food*
- *Constant change for the better*
- *Planting trees*
- *More EVs*
- *Stop destroying the farm lands – make municipal law*
- *Give incentives for people who are achieving the sustainability goals*
- *Plant more trees*
- *Educate youths more*
- *Strict policies – eg. water restrictions, zero-emission new buildings, green roofs/spaces*
- *Make haters into believers*
- *Ban meat*
- *Go through major changes: recycle more, use less plastic, introduce harder laws/fines, and more EVs*
- *Make abortion more viable for people so the population goes down*
- *Less deforestation, less use of CO2, less pollution*
- *Buying electric buildings*
- *Eliminate plastics*
- *Use reusable products*
- *Eliminate unsustainable energy usage (no fossil fuel)*
- *Environmentally friendly technology*
- *Maintaining/expanding [wild]life reserves*
- *More public transportation*
- *Make less waste products that are causing climate change*

**WOW:**

- *All recycled thrift clothes*
- *Hydro bill not expensive*
- *Zero waste*
- *EVs and hybrids*
- *Zero to no natural disasters*
- *Plenty of animals*
- *Carbon tax is gone*
- *Affordable housing*
- *Locally grown food*
- *Clean water*
- *Electric buses*

- *Animals in danger from climate change will stabilize*
- *Having clean air in homes because of a reliable and clean atmosphere*
- *Lower car insurance*
- *Richmond would have clean air*
- *Fix the housing problem*
- *More Richmond grown food*
- *More outdoor activities*
- *Holographic zoos!*
- *We don't have to worry about air pollution anymore and freely walk about without worrying about our health*
- *Pay less for my energy bill*
- *The cost of living is lower now!*
- *Fraser River is not as dirty [in the future]*
- *Lower emissions*
- *No wildfire, no air pollution*
- *Less use of fossil fuel in 2050*
- *More pure and natural resources – more plants, less deforestation*

## NOW, HOW, WOW – November 2019 Workshop

### Sticky Note Comments

#### NOW:

- *Integration of mixed use/commercial [zones] to residential [zones]*
- *Uptake on gentle density increases*
- *We are achieving a mix of housing types – more choices*
- *Height in city centre limited by airport zones*
- *Resistance to density, even in city centre or near transit*
- *New Capstan Station and trains to better support TOD*
- *No programs or incentives for alternative energy for low density housing*
- *Limited use of green roofs voluntarily*
- *TOD principal of CCAP being implemented*
- *No current programs for retrofits*
- *LIEC in Alexandra*
- *LIEC in Oval Village*
- *LIEC in city centre*
- *EV charging stations in new buildings*
- *New construction rebates by BC Hydro and Fortis*
- *Good pedestrian/bike system for recreational uses (policy)*
- *1000 EVs in December 2018*
- *Strategic regional location*
- *Canada Line at capacity [during] rush hour*
- *Auto-oriented development*
- *New bus loop to be built at Brighthouse*
- *Canada Line*
- *Limited bus systems – peak vs non-peak*
- *Limited bike lanes – residential neighbourhoods lack connectivity*
- *Bike share launch – infant program*
- *City supports auto expansion in moderation – wants alternative modes/choices*
- *10 EV charging stations*
- *Poor connectivity for work/shopping trips except by car*

#### Top 3 How Actions – dot stickers

1. *Encourage redevelopment – commercial shopping hubs*
2. *Update OCD policy to [increase] density outside city centre*
3. *Discourage low density through policy – up zone everything*

#### HOW:

- *Incent public for retrofits by giving them grants*
- *Aggressively follow the current plan of increasing steps*
- *Strong policy, incentives, population growth, education*
- *All city centre, transit nodes and corridors, neighbourhood service areas are densified*

- *Encourage creative integration of green spaces, such as [developing] green roofs into urban development*
- *Minimum FAR and max parking for all uses*
- *Policy, incentives, and education to encourage retrofits*
- *Policy, incentives and education to encourage low carbon energy for low density housing*
- *Use OCP policy to support wider implementation of TOD*
- *OCP update that points to greater density outside of the city centre*
- *Continued support for district energy initiatives from council*
- *Developers contribution to district energy infrastructures (similar to water, sewer, drainage)*
- *Incent/fast track EV reserve [parking] – changing reserve [parking for] existing buildings*
- *Light rail to Steveston and B-line to Ironwood etc.*
- *Intensify use of industrial land*
- *New commercial areas*
- *Advocacy for “Right to Charge” at Provincial Legislation*
- *Promote city centre for businesses*
- *Increase budget for bike lane construction*
- *Flexible work hours scheduling – spread out rush hour*
- *Policy, incentive, educate*
- *Increase number of trains and support bus [to] train [transfer] efficiency*
- *Parking stalls electrified*
- *Incentives for one car per household*

**WOW:**

- *All LIEC district energy systems provide 80% of thermal energy to customers*
- *All new constructions are net-zero carbon*
- *All houses are within 800m to service – more shopping centres locations*
- *Low carbon energy sources in use for all housing types – eg. 50% for new [houses]*
- *Greater use of heat pumps on existing buildings – eg. 50%*
- *Green roofs are used on all large building roofs – multi-family, commercial, and industrial*
- *TOD is implemented beyond city centre –Hamilton and all shopping centres*
- *Envelope retrofits for multi-family to single family – 50% by 2020*
- *50% of vehicles are EV*
- *Short wait at Canada Line*
- *More car share*
- *Soft bike storage at destinations*
- *50% reduction in GHG from trucking*
- *Walk/bike [for] 80% of daily needs*
- *Good transportation link to Richmond*
- *Easy to bike/transit to work (bike facilities at Canada Line [stations])*
- *Room on Canada Line*
- *One vehicle per household*
- *Emission are down*



# CITY OF RICHMOND CLIMATE ACTION TOOLKIT

## DEFINITIONS

Local governments have a range of tools that can be leveraged in order to secure, or encourage, greenhouse gas (GHG) emissions reductions:



### Policy & 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 would use when evaluating and implementing plans and projects.



### Infrastructure

Local governments design, build and maintain a wide range of physical infrastructure that benefit 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.



### Incentives

City Council can provide incentives to encourage climate action by adjusting the allocation of City revenues. Council can adjust the criteria by which the City charges municipal taxes or fees, and/or prioritizes service delivery.

Incentives cannot prevent (or require that) some actions to be taken, but well-designed incentives can influence decision-makers to choose low-carbon options more often than they would otherwise.



### Collaboration & Partnerships

Local governments may need to partner with the provincial and/or federal governments, or with other agencies to have 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.

It may be more cost-effective for multiple governments to implement specific climate actions together.



### 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.



### Outreach & Capacity Building

Local residents and businesses have sole responsibility for many decisions that affect the amount of GHGs being emitted within the City of Richmond.

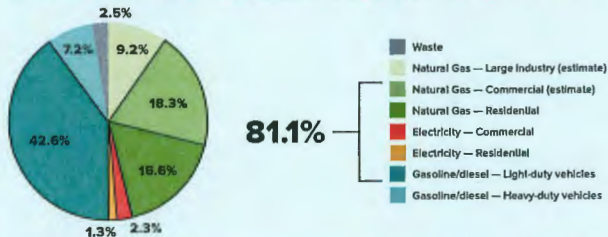
Local governments can allocate resources to increase awareness of the climate impacts of building design and operations, energy use and transportation choices, and provide information and resources to assist local residents make low-GHG decisions.

# COMPLETE COMMUNITIES

More compact housing forms that share walls (such as apartments and townhouses) generally emit less greenhouse gas (GHG) emissions from space heating than detached houses. Having homes, jobs, shopping and services closer together reduces travel distance and makes it easy and convenient to walk/roll, bike or use transit.

Building compact, complete communities is potentially the best single mechanism we have for reducing GHG emissions over the medium- to long-term, while making our communities healthier and less vehicle dependent.

## HOW MUCH GREENHOUSE GAS IS EMITTED?



In 2015, light-duty transportation (cars, SUVs, smaller trucks) accounted for 42.6% of Richmond's GHG emissions – the largest single category. Residential and commercial natural gas use (for heating and hot water) accounted for a combined 34.9% of emissions. Together, these categories constitute the majority (81.1% in 2015) of annual GHG emissions in Richmond. Creating compact and complete communities is an essential strategy to reduce emissions from buildings, and light-duty transportation in particular.

## WHAT THE CITY HAS DONE SO FAR

Richmond's 2009 City Centre Area Plan and 2012 Official Community Plan (OCP) encourages the development of complete communities in which residents can "live, work, and play" within Richmond itself, and allocates much of the City's new housing to be energy efficient townhouses and apartments in more compact neighbourhoods.

## WHAT WE'VE HEARD FROM YOU SO FAR

There were 386 surveys completed in July to August 2019.

Top 3 elements of a complete community that survey respondents would like to see:



Walking and biking infrastructure



Access to public transit



Parks

Top 3 elements missing from survey respondents' neighbourhood:



Apartments



Access to locally-grown food



Walking and biking infrastructure

## RESIDENT PRIORITIES (1 TO 10):

"Compact Development" = **Ranked #10**

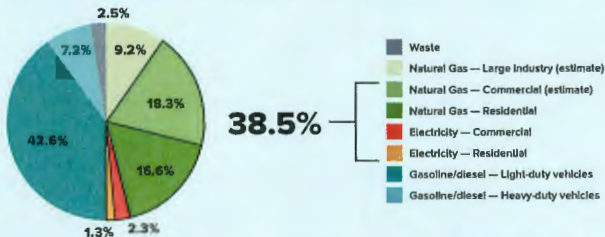
"Educate Citizens" = **Ranked #2**

# EXISTING BUILDINGS

Space heating and hot water systems within existing buildings need to be switched to low greenhouse gas (GHG) energy sources.

## HOW MUCH GREENHOUSE GAS IS EMITTED?

Richmond's **28,000** existing buildings were responsible for an estimated **38.5%** of Richmond's total GHG emissions in 2017 (i.e. 376,931 tonnes of GHGs annually).



Space heating is the largest use of energy in Richmond's buildings, and is responsible for more than a third of total greenhouse gas (GHG) emissions from the city. Almost **60%** of the total energy used in buildings—and over **90%** of GHG emissions—comes from the combustion of natural gas. The remaining **40%** of the energy consumed by buildings is low-GHG BC grid electricity, but this produces only a tenth of the building sector's total emissions.

Greater use of low-emission grid electricity for building heating and cooling would greatly reduce overall GHG emissions.

## WHAT THE CITY HAS DONE SO FAR

- The Richmond Building Energy Challenge encouraged property managers of large commercial buildings to implement energy efficiency upgrades (2016-2017).
- The City implemented a pilot program to test the effectiveness of a smart thermostat rebate.
- Richmond's spray valve retrofit project targeted restaurants with high hot water use.
- Richmond has called on the Province to implement benchmarking and reporting requirements—an effective energy efficiency and GHG-reduction measure for existing buildings.

## WHAT WE'VE HEARD FROM YOU SO FAR

There were 386 surveys completed in July to August 2019.



Top reason why survey respondents would plan to, or encourage their strata council to, improve the energy efficiency of their home or building:

- "to reduce energy costs": **37%** of survey respondents
- "to reduce GHG emissions": **36%**
- "to improve home comfort": **23%**



- **30%** of survey respondents have already installed energy efficiency improvements.
- **26%** of survey respondents do not plan, and/or would not support plans to improve the energy efficiency of their home for the foreseeable future.



Top three motivations for installing a heat pump:

- Government should provide incentives to reduce the cost of heat pumps: **39%**
- Having less GHG emissions is sufficient reason to install heat pumps: **35%**
- The benefit of adding summertime cooling is sufficient reason to install heat pumps: **21%**

## RESIDENT PRIORITIES (1 TO 10):

"Finance low-carbon energy in existing homes" = **Ranked #4**

# NEW BUILDINGS

New buildings are an important source of greenhouse gas (GHG) emissions in Richmond (primarily from space heating and hot water supply). As a fast-growing city, all new buildings in Richmond will need to be very energy efficient, and use low-GHG emission heating and cooling systems to meet our target of 50% reduction by 2030.

## HOW MUCH GREENHOUSE GAS IS EMITTED?

- In recent years, the City has issued building permits for 1,200 new apartment units annually. Most apartment buildings are located within the City Centre Area, close to transit, shopping and services, and many will be connected to the City's expanding low-emission district energy network.
- About 550 new detached houses and townhouses are also built each year at locations throughout the city, most of which are replacing old houses.
- Prior to the adoption of the Energy Step Code in 2018, an average new home of 3,250 ft<sup>2</sup> was expected to emit about 3 tonnes of GHGs per year, half the current emissions of a same-sized house built 50 years ago. Under the Energy Step Code, the energy efficiency of buildings is scheduled to improve by half again by 2025.
- To meet the City's deep GHG reduction targets, all new buildings will need to have low- or zero-emission by 2025, by being as energy efficient as possible, and by using low-GHG mechanical systems and/or Renewable Natural Gas (RNG).
- Electricity supply in BC is 97% emission-free; so it is possible for a new home with an electrified HVAC (heating, ventilation, and air conditioning) system to have very low GHG emissions.

## WHAT THE CITY HAS DONE SO FAR

- The 2009 City Centre Area Plan required new developments greater than 2,000 m<sup>2</sup> to achieve a level of performance equivalent to LEED Silver as a consideration of rezoning.
- In 2014, a new Council policy resulted in townhouses using approximately 13% less energy.
- In 2018, Richmond adopted the Energy Step Code, a set of graduated efficiency standards for new residential and commercial development. City Council also adopted a timeline to increase standards so that new buildings are designed to a "net-zero energy ready" performance level starting 2025.
- Richmond offers developers of concrete residential projects the choice of building to lower Energy Step Code requirements if they include (or connect to) a low-carbon energy system. This option could be expanded to other building types to encourage low-GHG energy systems

## WHAT WE'VE HEARD FROM YOU SO FAR

There were 386 surveys completed in July to August 2019.



I prefer the following compliance path [for new buildings in Richmond]:

- **66%** of survey respondents prefer a compliance path for new buildings in Richmond to have a **10%** improvement in energy efficiency and greatly reduced GHG emissions, rather than a **20%** energy efficiency gain without any GHG emission reduction requirements.

## RESIDENT PRIORITIES (1 TO 10)

"Require low-carbon energy in new construction" = **Ranked #5**

"Finance low-carbon new buildings" = **Ranked #8**

# ACTIVE TRANSPORTATION— WALK/ROLL/CYCLE

Active transportation prioritizes walking/rolling and cycling as the preferred ways of getting around. These modes of travel are simple, cheap and highly effective for shorter-distance trips, and can make up the majority of trips in compact, complete communities where most destinations are close by.

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

## HOW MUCH GREENHOUSE GAS IS EMITTED?

- Active mobility is zero emission; no fossil fuels are required to power walking, cycling or wheelchair transport.
- In 2016 weekday trips to get to work, to and within Richmond, only 4% were done on foot and 1% by bicycle. According to TransLink trip diary information, average walking and cycling trip lengths were 1 km, and 4.8 km respectively in 2011.
- Walking fifteen minutes regularly, or biking five minutes daily in place of driving a conventional vehicle reduces GHG emissions by 100 kg a year.

## WHAT THE CITY HAS DONE SO FAR

- Richmond has dedicated bicycle lanes installed on sections of Granville and Railway avenues, Westminster Highway, Shell Avenue, Garden City and northern sections of No. 3 Road.
- There is a continuous bike path along the Richmond dike, from Cambie Road to Steveston, and a continuous bike route along back streets from Terra Nova Park to Chatham Street in Steveston.
- A bike-share service (U-bicycle) has been operating in Richmond since autumn 2018; up to 50 stations and 200 bikes will be installed by 2020 in City Centre, West Richmond and Steveston.

## WHAT WE'VE HEARD FROM YOU SO FAR

There were 386 surveys completed in July to August 2019.



Top 3 reasons that will allow survey respondents to walk/roll to their destination within Richmond more frequently:

- Destination(s) were closer: **55%**
- Safer and more convenient: **32%**
- More time to walk/roll: **25%**

**30%** of survey respondents already walk/roll 5-7 times a week



Top 3 reasons that will allow survey respondents to cycle to their destination within Richmond more frequently:

- Safer and/or more convenient (bicycle paths, bike racks, etc.): **52%**
- Destination(s) were closer: **25%**
- More time to cycle: **19%**

**18%** of survey respondents said nothing would convince them to consider cycling.

## RESIDENT PRIORITIES (1 TO 10)

Increase spending on alternate transportation = **Ranked #3**

# TRANSPORTATION— TRANSIT

Public transit includes all local and regional transportation services administered within Metro Vancouver by TransLink. For medium to longer distance trips, public transit is an essential strategy to reduce community greenhouse gas emissions from transportation.

The Canada Line provides frequent rapid transit service from Richmond City Centre area, to Vancouver and Vancouver Airport. Local bus routes run in East Richmond, with high frequency services on Cambie Road, No. 3 Road, between the City Centre and Steveston, along Westminster Hwy in Hamilton, and along Highway 99.

Regional buses connect Richmond with UBC, Burnaby, New Westminster, Surrey, Delta and White Rock. TransLink also provides HandyDART services for passengers with limited mobility.

## HOW MUCH GREENHOUSE GAS IS EMITTED?

- Overall greenhouse gas (GHG) emissions from all TransLink operations across Metro Vancouver increased 5% between 2014 and 2018, but with increased ridership, TransLink's GHG "emissions per boarded passenger" declined 14% over the same period.
- Travelling on a diesel bus, rather than driving a conventional vehicle, reduces GHG emissions per kilometre by 50%, while taking Canada Line or SkyTrain reduces transportation emissions by 99%!

## WHAT THE CITY HAS DONE SO FAR

- Richmond is expanding the number of bus stops with shelters. Currently, nearly 100 bus stops (typically those with the highest daily passenger boardings) have shelters. Over 80% of bus stops are accessible.
- As an outcome of rezoning approval processes, developers are fully funding the construction of a new Canada Line station at Capstan Way; design work is now underway.
- A new central off-street transit exchange will be constructed by TransLink adjacent to Richmond-Brighouse Station, with construction set to begin this year.

## WHAT WE'VE HEARD FROM YOU SO FAR

There were 386 surveys completed in July to August 2019.



Top 3 reasons that will allow survey respondents to take transit to their destination within Richmond more frequently:

- Less time to travel by transit: **48%**
- Safer and more convenient: **41%**
- Public transit was cheaper: **29%**

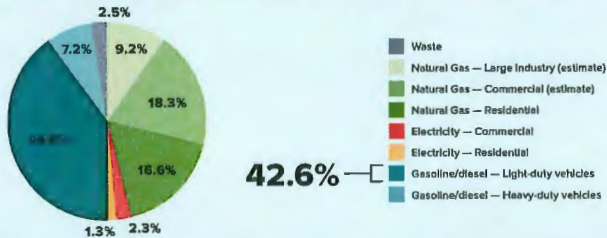
7% of respondents said nothing would convince them to take transit.

# TRANSPORTATION— ELECTRIC VEHICLES

An electric vehicle (EV) uses one or more electric motors for propulsion, rather than using an internal combustion engine (ICE) fuelled by gasoline or diesel. Electric mobility is a very effective strategy for reducing GHG emissions in BC because almost all of our electricity comes from low-emission renewable sources, such as hydroelectric power.

EVs are three times more energy efficient than ICE vehicles, and can offer rapid acceleration and regenerative braking, where braking helps charge the car batteries!

## HOW MUCH GREENHOUSE GAS IS EMITTED?



The combustion of gasoline by passenger cars is the City's single biggest source of GHG emissions, responsible for 42.6% of estimated GHGs emitted within Richmond in 2015. Diesel combustion by heavy-duty trucks within Richmond adds a further 7.2% to the City's total GHG emissions. Given the huge amount of emissions from these sources, Richmond has the potential to cut vehicle emissions to near zero if we fully transition light-duty vehicles and heavy-duty trucks to be zero emission by 2050.

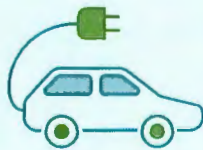
The number of electric vehicles in Richmond is rapidly increasing. Electric vehicles represented more than 11 per cent of all new passenger sales in BC in 2018. In June 2019, there were already more than 1,000 EVs in Richmond, and EVs are now estimated to exceed 1% of all passenger vehicles registered in Richmond. A thousand EVs in Richmond will emit just 60 tonnes of CO2 annually, about 99% less than a thousand equivalent ICE vehicles.

## WHAT THE CITY HAS DONE SO FAR

The City opened its first public charging stations in 2013, and now has 10 public Level 2 charging stations in Richmond, with more on the way. Since 2015, EV charging at these stations has increased by 60% each year.

In 2017, Council adopted a policy that all new residential parking spaces feature an energized outlet capable of providing Level 2 EV charging. Since then, eight other municipalities within Metro Vancouver have followed Richmond's lead by adopting similar requirements.

## WHAT WE ARE HEARING



Top 3 reasons that will allow survey respondents to consider purchasing an EV or plug-in hybrid as their next car:

- If EVs were cheaper: **57%**
- To save money on fuel and maintenance: **52%**
- To reduce GHG emissions from my commute by more than 90%: **49%**

8% of survey respondents said nothing would convince them to consider buying an EV or plug-in hybrid.

7% of survey respondents already own an EV or plug-in hybrid.

## RESIDENT PRIORITIES (1 TO 10)

Install more public EV charging stations = **Ranked #6**

Subsidize residential EV chargers = **Ranked #7**

# GREEN INFRASTRUCTURE

Green infrastructure refers to natural and built biological environments that provide functions similar to traditional civic infrastructure. Green infrastructure can enhance the resiliency and adaptability of a community to climate change by:

- Managing and filtering stormwater
- Reducing “urban heat island” effects
- Improving local air quality
- Supporting biodiversity
- Providing green space and habitat

Richmond’s green infrastructure also includes its soils, which already holds large amounts of carbon, and has some potential to host vegetation that sequesters additional CO<sub>2</sub>, thereby helping reduce the City’s net greenhouse gas (GHG) emissions.

## HOW MUCH GREENHOUSE GAS IS EMITTED?

- A large proportion of Richmond’s agricultural lands are peatland—deep deposits of non-decomposed biomass. The saltwater marshlands of Sturgeon Banks also contain very large amounts of sequestered carbon. Keeping these areas intact protects the release of CO<sub>2</sub> equivalent to more than seven years of Richmond’s total current GHG emissions.
- There is potential to increase the amount of tree cover within Richmond. Doing so could modestly reduce Richmond’s net GHG emissions, but only if the carbon stored in this biomass is not released back into the atmosphere at a later date, or is used as biomass energy to offset an equivalent amount of fossil fuel consumption.

## WHAT THE CITY HAS DONE SO FAR

In 2011, the City purchased a portion of Richmond’s Northeast Bog, protecting an area with very intensive carbon storage. The City of Richmond’s 2013 Parks and Open Space Strategy, 2014 Community Energy and Emissions Plan (CEEP), 2015 Ecological Network Management Strategy and the 2018 Integrated Rainwater Resource Management Strategy all promote Richmond’s green infrastructure, help reduce reliance on motorized transportation, and support the capacity for Richmond’s natural landscapes to store GHGs as organic carbon.

## WHAT WE ARE HEARING



Survey respondents would prefer for the City of Richmond to protect and/or invest in the following types of green infrastructure:  
(1 = most preferred; 5 = least preferred)

1. Natural landscapes (e.g. forest, grasslands, shrublands, saltwater marsh)
2. Agricultural land (tied)
2. Urban parks (tied)
3. City streetscapes (e.g. street trees, bioswales, rain gardens, structural soil cells)
4. Landscaping on private property (e.g. trees, plant beds, green roofs)



# WASTE MANAGEMENT AND CIRCULAR ECONOMY

The circular economy is a new way to define growth by focusing on positive environmental outcomes and society-wide benefits. Traditional product development uses a linear 'take-make-waste' approach. In contrast, the circular economy seeks to maximize value and reduce or eliminate waste by transforming how products and services are designed, manufactured and used. It uses innovation to extend the lifespan of existing products, thereby reducing emissions and conserving natural resources, while growing a sustainable economy.

## HOW MUCH GREENHOUSE GAS IS EMITTED?

Canada's National Inventory Report reveals the waste sector as being responsible for 3% of Canada's overall greenhouse gas (GHG) emissions. In Richmond, GHG emission from waste constituted 2.5% of community-wide emissions in 2015. But these statistics only incorporate direct emissions from waste management. From a circular economy perspective, the production, transportation, and retailing of products that ultimately become waste are responsible for significantly more GHG emissions, from sectors of the economy not usually associated with waste.

## WHAT THE CITY HAS DONE SO FAR

- **Recycling Depot:** The City has introduced new services and programs as part of our goal to achieve 80% waste diversion by 2020, with an expansion of materials accepted at the City's Recycling Depot in January, 2019.
- **Organic Waste Processing Service:** Enviro-Smart provides organic composting services for the City. The City receives 3,000 kg/year of finished product to be used in City parks.
- **Residential Solid Waste and Recycling Collection:** The City is a leader in the region; with 78% diversion achieved on waste from single-family homes. The City's contractor uses a mix of propane and diesel which reduces emissions by up to 45% CO<sub>2</sub>e per litre of fuel consumed.
- **Demolition Waste and Recyclable Materials Bylaw No 9516:** Has a target of 70% waste diversion from landfill to increase reuse and recycling of materials from single-family home demolition. The City encourages homeowners to post their houses on the House Moving and Salvage List prior to applying for a permit.
- **National Zero Waste Council—Pilot diversion of wood from construction, renovation and demolition:** Staff are participating in the working group to reduce the disposal of wood waste at the landfill, focusing on alternative uses such as reuse of materials and energy generation.
- **Concrete and Asphalt Recycling:** The City's annual paving program already includes 10% recycled asphalt products. Richmond is also leading, in partnership with the National Zero Waste Council, a pilot certification program for asphalt and concrete pavement products as a tool to build confidence in product quality and increase the use of these products.

## WHAT WE ARE HEARING

Some comments from the public received during summer outreach events include:

- Use less plastic; move away from single-use packaging
- Facilitate recycling by making it more convenient
- Longer warranty period on products (2–5 years)
- Find better ways to fix or recycle electric and electronic products
- Electronics should have replaceable batteries

# ADDITIONAL OPPORTUNITIES UNDER CONSIDERATION

**STRATEGIES AND ACTIONS FOR THE FOLLOWING ITEMS ARE EXPECTED TO BE INCLUDED IN THE RENEWED COMMUNITY ENERGY AND EMISSIONS PLAN:**

**On-site solar energy generation in new buildings:**

City staff already have direction from Council to bring forward an incentive program for solar photovoltaic panels (PVs). The cost of generating electricity from PV has dropped dramatically over the past decade, and it is expected that PV will be more cost-competitive in future. Staff are currently assessing appropriate incentives to address the relatively higher costs of PV technology in Richmond.

**Low-greenhouse gas (GHG) off-grid power:**

Various industries have been using diesel or gasoline-powered engines or generators to provide power for mobile equipment and at off-grid locations (e.g. parks operations and maintenance equipment, food trucks, and film location power supplies). City staff are assessing options for how these uses can be connected to renewable energy systems in partnership with users. Stored energy in batteries and/or shore-power infrastructure could be used to reduce the use of generators.

**Embodied emissions:**

"Life cycle" GHGs emitted during the production, transport, and disposal of materials and equipment are seldom captured within the scope of municipal GHG emission inventories. However, if Richmond is to achieve net-zero emissions by 2050, the City will need to identify strategies and actions to address "embodied" GHG emissions as well. This would cover both the production of new materials and the retention and reuse of already-produced items. For example, using wood products reduces the total embodied energy of new construction.

**Renewable Energy Systems for City Sanitary Pump Stations:**

In 2020, the City will be implementing a trial program to displace the use of back-up diesel generators in at least two sanitary pump stations. Batteries will be used to store grid-supplied and/or solar-PV derived energy in cases for when the pump stations lose grid power. One of the two pump stations will be on display at the City's Public Works Yard.

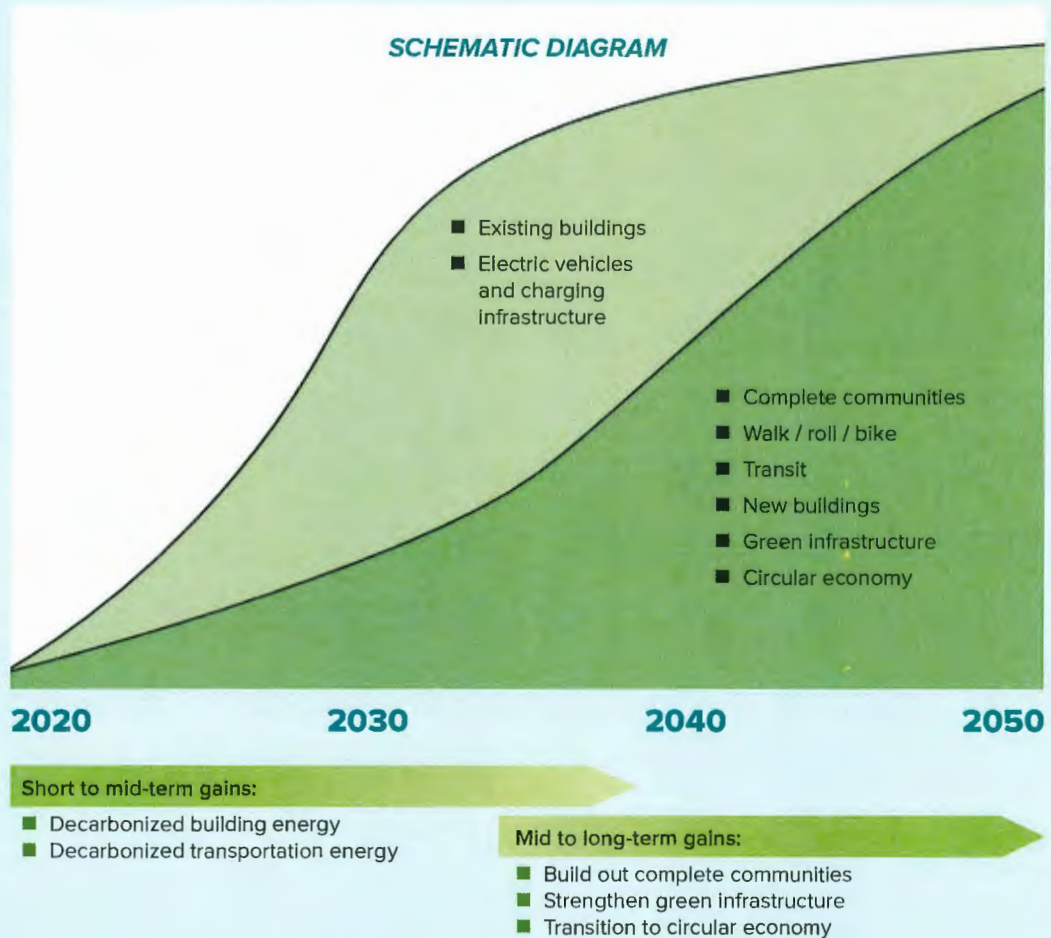
**Carbon sequestration:**

While there are viable options to greatly reduce GHG emissions from sectors covered by the City's emission inventory, complete decarbonization by 2050 will be challenging. Moreover, the world needs to achieve significant negative GHG emissions after 2050 if the rise in global average temperature is to be limited to 1.5oC above pre-industrial levels. Planting trees in Richmond will not be sufficient; additional measures will need to be identified and implemented, potentially including new carbon extraction and sequestration technologies. Given the long lead time that will likely be required for success in this area, policy development in this area needs to start now if results are to be achieved by 2050.

**DID WE MISS ANYTHING?**

# GETTING TO ZERO-CARBON BY 2050: A STRATEGIC OVERVIEW

**RELATIVE PROPORTION OF SECTOR GREENHOUSE GAS (GHG) REDUCTIONS ACHIEVED OVER TIME**



## GETTING TO ZERO CARBON BY 2050 WILL COMBINE SHORT AND LONG TERM ACTIONS TO DELIVER RESULTS

In the short term, the City will need to focus on decarbonizing existing buildings by working with utility companies, and with provincial and federal governments to encourage homeowners and businesses to electrify their heating systems, rather than using fossil fuels such as natural gas. Similarly, it is anticipated that personal and heavy-duty vehicles will increasingly use electricity for power over this period.

Over the medium- to long-term future, GHG reductions will increasingly come from the results of current planning for complete communities, and from investments made in active mobility and transit infrastructure. These changes in urban form will increasingly change how people get around, live and recreate. Complete communities will also affect transit services—services that will be more frequent due to increased demand. Over this period, increased green infrastructure throughout the city, as well as waste reduction and circular economy initiatives will also result in reduced net GHGs.







**DIRECTION**

Accelerate energy retrofits to existing residential, institutional, commercial and industrial buildings to shift to low-carbon heating and cooling systems.



# EXISTING BUILDINGS

**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?

 <p><b>Policy &amp; Regulation</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Transition residential and commercial buildings to use low-carbon heating and cooling systems (such as heat pumps)</li> <li>Implement Step Code for Existing Buildings energy requirements when available in the BC Building Code (est. 2024)</li> <li>In areas where frequent transit service, consider reallocation of vehicle parking stalls in existing buildings to alternate modes (including bicycles, car share, ride hailing)</li> </ul>	 <p><b>Infrastructure</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Identify areas of the city where existing buildings could be connected to district energy, or share a future neighbourhood low carbon energy source for efficient heating and cooling</li> </ul>	 <p><b>Incentives</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Consider funding incentives for energy retrofit assessments, tailored to type of building</li> <li>Consider funding incentives for low-carbon mechanical system retrofits, such as heat pumps, tailored to the type of building</li> <li>Top up the Province's CleanBC Better Homes incentives with additional City incentive for existing homes (heat pumps and energy retrofits)</li> </ul>	 <p><b>Collaboration &amp; Partnerships</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Implement a program with partners to help drive deep energy retrofits and installation of a zero-carbon heating systems in existing apartment buildings, focused on occupant health, comfort and affordability</li> </ul>	 <p><b>Advocacy</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Work with community partners to encourage expansion production of renewable natural gas (RNG) in BC, and use of RNG for residual and peak heating needs</li> <li>Continue to promote the availability of high-performance heat pumps in BC</li> </ul>	 <p><b>Outreach &amp; Capacity Building</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li><b>Condominium Buildings</b> <ul style="list-style-type: none"> <li>Deliver a Strata Energy Advisor Program starting in 2020, building upon good results from 2018/19 Metro Vancouver pilot</li> </ul> </li> <li><b>Rental Apartment Buildings</b> <ul style="list-style-type: none"> <li>Deliver a Rental Apartment Energy Efficiency Program starting in 2020, with incentives for low-carbon heating systems and energy improvements focused on occupant health, comfort and affordability</li> </ul> </li> </ul>
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**Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)**

<p><b>STRONGS \$\$\$</b></p> <ul style="list-style-type: none"> <li>The City can regulate using the proposed "Energy Retrofit Code" once the Province implements this in 2024</li> <li>The City has authority to regulate building standards via the BC Building Code on major renovations, as well as off-street parking requirements through the Zoning Bylaw</li> <li>Changes to the Zoning Bylaw require review and approval by Council</li> </ul>	<p><b>STRONG \$\$\$</b></p> <ul style="list-style-type: none"> <li>The City approves and implements district energy projects within designated service areas, and can extend that to existing buildings where feasible</li> </ul>	<p><b>MODERATE \$</b></p> <ul style="list-style-type: none"> <li>The City can enhance existing CleanBC incentives, and allocate specific incentive funding to support low carbon retrofits for buildings not covered by CleanBC</li> </ul>	<p><b>MODERATE \$</b></p> <ul style="list-style-type: none"> <li>The City can work with senior levels of government in areas where jurisdiction is shared</li> <li>The City can jointly implement programs with other local governments or Metro Vancouver Regional District</li> <li>The City can collaborate with non-profit organizations on issues of common interest</li> </ul>	<p><b>LIMITED \$</b></p> <ul style="list-style-type: none"> <li>The City can request policy change and/or resourcing from senior governments at staff or political levels</li> <li>City staff can participate in initiatives by community partners</li> </ul>	<p><b>LIMITED \$\$</b></p> <ul style="list-style-type: none"> <li>City staff can plan and implement outreach and education campaigns for local residents, strata councils, property owners, businesses and non-profit housing providers</li> <li>The City can work with partners to co-fund and scale up efforts on regional programs that drive local projects</li> </ul>
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# TRANSPORTATION— ELECTRIC VEHICLES AND CHARGING INFRASTRUCTURE

## DIRECTION

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



**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?

 <h3>Policy &amp; Regulation</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Establish electric vehicle (EV) charging requirements for new commercial buildings</li> <li>Complete the network of public EV charging stations in all Richmond neighbourhoods</li> <li>Consider a low-carbon requirement in ride-hailing services (such as taxi cabs)</li> </ul>	 <h3>Infrastructure</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Implement mobility hubs (places where different forms of transportation come together) at transit stops in neighbourhood centres and city centre (with access to public EV charging, car-sharing, bike share)</li> <li>Expand off-street public EV charging at City facilities</li> <li>Pilot test public Level 2 EV charging from LED streetlight circuits, and that also allow electric car-share vehicles to recharge</li> </ul>	 <h3>Incentives</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Develop an EV charging retrofit advisor program for multi-unit residential buildings (strata and rental properties)</li> </ul>	 <h3>Collaboration &amp; Partnerships</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Encourage expanded car share service areas in Richmond</li> <li>Explore potential to combine EV retrofit projects for existing multi-unit residential buildings to reduce cost of transformer upgrades</li> <li>Partner with BC Hydro or private commercial properties to increase public EV charging network in Richmond</li> </ul>	 <h3>Advocacy</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Advocate for future <i>right-to-charge</i> legislation in BC that would allow residents in rental and condo apartment buildings to recharge their EV at home</li> <li>Support BC Utilities Commission approval of a distinct EV charging rate</li> </ul>	 <h3>Outreach &amp; Capacity Building</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Promote electric mobility (EVs, autonomous EVs and car-share networks)</li> <li>Create guides on installing Level 2 EV charging in existing single-family and semi-detached homes, as well as townhouses</li> </ul>
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## Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)

STRONG	STRONG	MODERATE	MODERATE	LIMITED	LIMITED
<ul style="list-style-type: none"> <li>Through the Zoning Bylaw, the City could set EV charging infrastructure requirements for parking stalls in new commercial development, with changes to the Zoning Bylaw requiring approval by Council</li> </ul>	<ul style="list-style-type: none"> <li>The City could implement mobility hubs (places where different forms of transportation come together) at key transportation nodes and neighbourhood centres</li> <li>The City could pilot test the provision of curbside Level 2 EV charging through integration of charging equipment on LED streetlights</li> </ul>	<ul style="list-style-type: none"> <li>The City could co-fund dedicated EV Advisor for existing multi-unit rental and strata buildings interested in making parking stalls EV-ready</li> <li>For existing commercial buildings, the City could provide incentives to offset the cost of retrofitting parking stalls to be EV-charging ready</li> </ul>	<ul style="list-style-type: none"> <li>City could work with car-sharing service providers to expand coverage in Richmond</li> <li>The City could work with BC Hydro on electrical transformer upgrades that are cost-shared between several buildings wanting to install EV charging capacity</li> </ul>	<ul style="list-style-type: none"> <li>Work with other interested local governments and regional district to advocate for <i>right-to-charge</i> legislation</li> </ul>	<ul style="list-style-type: none"> <li>The City could continue working with E-Motive to promote interest in EVs</li> <li>EV charging technical guides can be created for single-detached homes and townhomes</li> </ul>

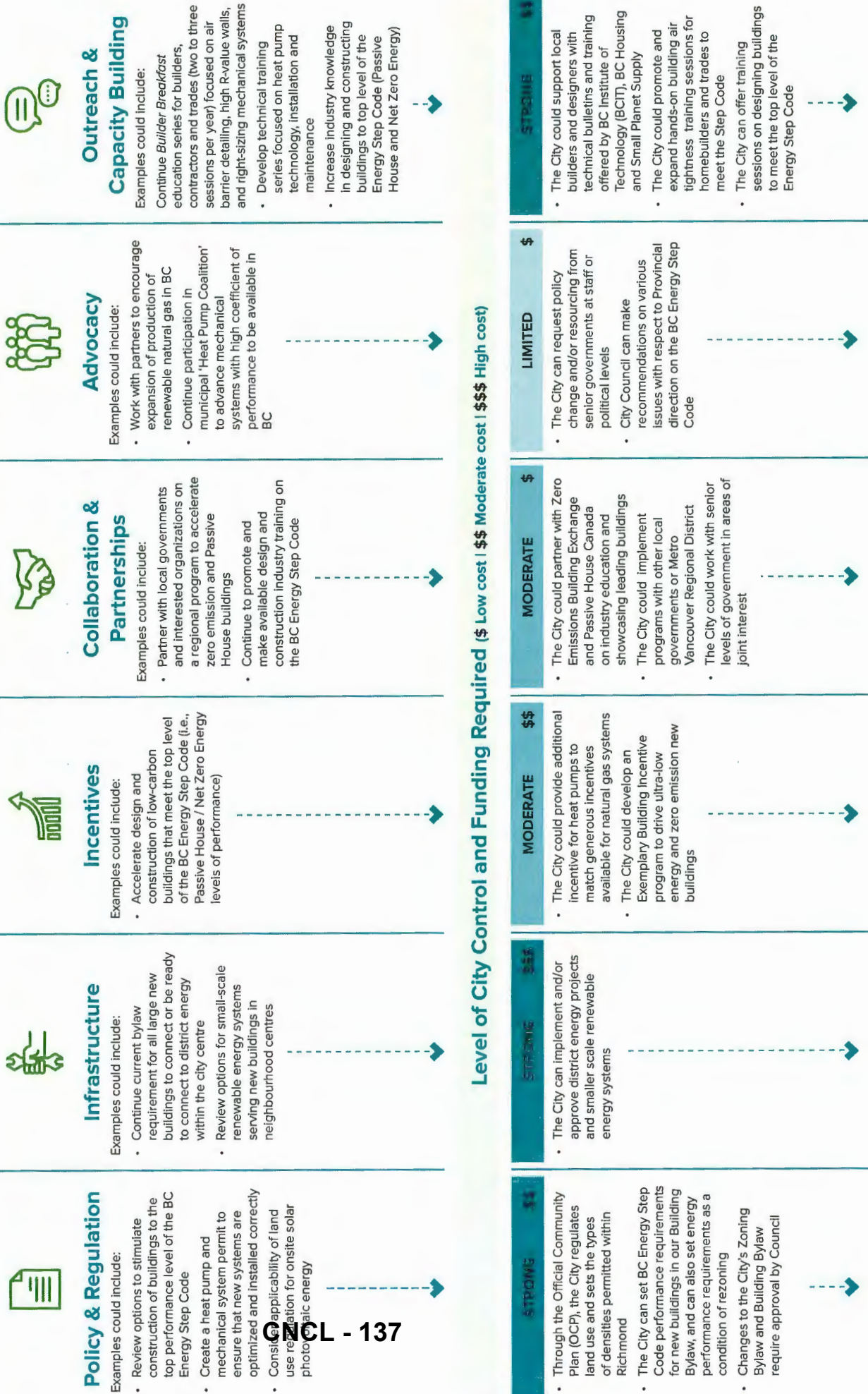
## DIRECTION

All new buildings will meet the top performance level of the BC Energy Step Code by 2025 (equivalent to Passive House or Net Zero Energy Ready), with incentives for new buildings to install low-carbon energy systems.



# NEW BUILDINGS

**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?



### Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)

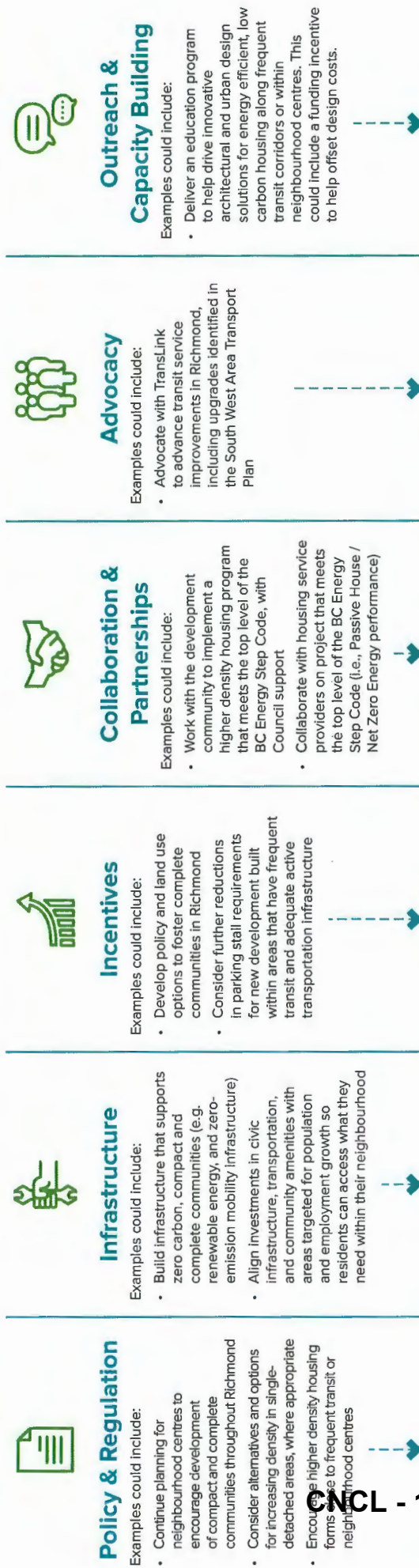
# COMPLETE COMMUNITIES

## DIRECTION

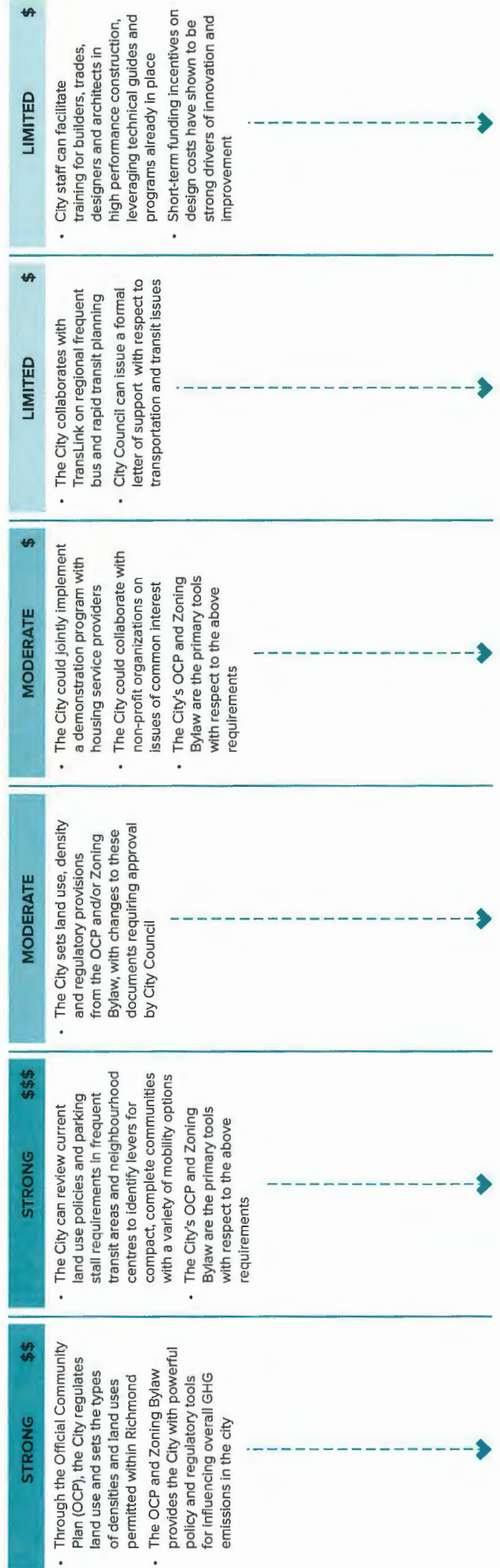
Creating compact, complete communities throughout Richmond (a range of services, amenities and housing choice, and sustainable mobility options within a five-minute walk of your home) will lead to sustained greenhouse gas reductions, reduced energy use and improved affordability.



**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?



## Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)









# TRANSPORTATION— WALK/ROLL/BIKE

## DIRECTION

Prioritize active transportation by implementing walking, rolling and biking infrastructure that is safe, easy to navigate, accessible for all, and keeps transportation expenses low.



**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?

 <h3>Policy &amp; Regulation</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Continue to develop policies that reduce reliance on cars by switching to sustainable modes of travel such as walking / rolling, bicycles, transit and car sharing</li> <li>Ensure all walk / roll infrastructure is accessible and easy to navigate for those with mobility challenges, hearing and vision needs, consistent with new design standards</li> </ul>	 <h3>Infrastructure</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Accelerate build-out of low-energy, zero-emission transportation by leveraging grants and cost-sharing opportunities</li> <li>Install more dedicated bike racks, wider sidewalks, bicycle paths, and bus shelters</li> <li>Build momentum with showcase "50 x 30" transportation infrastructure</li> <li>Improve walking and cycling connectivity within neighbourhoods (including new easements, pathways and bicycle routes)</li> </ul>	 <h3>Incentives</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Consider further reductions in parking stall requirements for new development built within areas that have frequent transit and adequate active transportation infrastructure</li> </ul>	 <h3>Collaboration &amp; Partnerships</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Continue to facilitate learn-to-bike, e-bicycle and bicycle-sharing programs</li> <li>Facilitate measures to expand local services offered by shared mobility providers (e.g., Modo, Car2Go, EVO)</li> </ul>	 <h3>Advocacy</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Request greater funding for improved cycling infrastructure (as well as access and egress points) along regional / provincial/federal controlled roads and bridges</li> </ul>	 <h3>Outreach &amp; Capacity Building</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Develop more community programs and events to engage residents in active travel modes</li> </ul>
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## Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)

<h3>STRONG</h3> <ul style="list-style-type: none"> <li>Municipalities regulate land use (Official Community Plan) and can create urban design guidelines for streets, sidewalks, lanes and bicycle paths</li> </ul>	<h3>STRONG</h3> <ul style="list-style-type: none"> <li>In tandem with development requirements, and updated street, bicycle and sidewalk standards, the City could allocate capital investment in showcase projects for walking / rolling and biking infrastructure, and can pursue cost-sharing opportunities with other types of government</li> </ul>	<h3>STRONG</h3> <ul style="list-style-type: none"> <li>The City currently reduces parking requirements for new development tied to transportation demand management measures (e.g. dedicated car share parking, secure bicycle storage, or transit subsidy) that reduce reliance on cars</li> <li>The Zoning Bylaw regulates off-street parking requirements, and any changes require review and approval by Council</li> </ul>	<h3>MODERATE</h3> <ul style="list-style-type: none"> <li>The City could increase funding for learn-to programs, and engage with residents and business owners on e-mobility and active transportation</li> </ul>	<h3>LIMITED</h3> <ul style="list-style-type: none"> <li>The City could co-sponsor learn-to programs, pilot car-sharing initiative and engage with residents and business owners on e-mobility and active transportation</li> </ul>	<h3>LIMITED</h3> <ul style="list-style-type: none"> <li>The City could co-sponsor events in tandem with local community organizers (e.g., annual Car Free Day)</li> </ul>
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# TRANSPORTATION— TRANSIT







## DIRECTION

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

5% ADVANCING  
RICHMOND'S  
LEADERSHIP



**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?

 <h3>Policy &amp; Regulation</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Increase number of residents within transit and pedestrian catchment areas (See Complete Communities)</li> <li>Identify new opportunities to install more bike commuting facilities near transit stations (including secure bike storage), secure through development</li> </ul>	 <h3>Infrastructure</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Increase citywide provision of shelters with daily boarding greater than 25 passengers</li> <li>Implement mobility hubs (places where different forms of transportation come together) at frequent transit stops and in neighbourhood centres to provide a wider range of mobility options for residents</li> </ul>	 <h3>Incentives</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Consider additional options to reduce parking stall requirements for new development within frequent transit, pedestrian-friendly and high car share zones</li> </ul>	 <h3>Collaboration &amp; Partnerships</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Work with TransLink to expand electric bus service and create electric bus charging in Richmond through TransLink's Bus Electrification Pilot</li> </ul>	 <h3>Advocacy</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Work with Mayors' Council, TransLink and Province of BC to expand high-frequency transit in Richmond</li> </ul>	 <h3>Outreach &amp; Capacity Building</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Encourage TransLink's outreach team to continue to participate in Richmond's community events</li> </ul>
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## Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)

<h3>STRONG</h3> <ul style="list-style-type: none"> <li>Richmond regulates land use and density through the Official Community Plan (OCP) to support densification along frequent transit routes</li> <li>Through the Zoning Bylaw, the City could set conditions for conversion of some parking stalls in commercial buildings into dedicated space for bicycle commuting (including secure storage)</li> <li>Changes to the OCP and Zoning Bylaw require approval by Council</li> </ul>	<h3>MODERATE \$\$\$</h3> <ul style="list-style-type: none"> <li>The City has a Street Furniture Program for bus shelters and other transit amenities</li> <li>The City also secures transit shelters through the redevelopment process, as part of transportation demand management measures</li> </ul>	<h3>MODERATE \$</h3> <ul style="list-style-type: none"> <li>Through the Official Community Plan and Zoning Bylaw, the City can examine additional options to reduce parking stall requirements for new development in areas with high transit availability or neighbourhood centres with good walk / roll and bicycle infrastructure</li> <li>Changes to the OCP and Zoning Bylaw require approval by Council</li> </ul>	<h3>LIMITED \$</h3> <ul style="list-style-type: none"> <li>The City can collaborate with TransLink on additional electric bus service and wider application of electric bus technology in Richmond</li> <li>TransLink has committed to operate its fleet with 100 percent renewable energy by 2050.</li> </ul>	<h3>LIMITED \$</h3> <ul style="list-style-type: none"> <li>While TransLink is the decision-maker on transit service levels and types of transit vehicles used, the City is a key stakeholder for regional transit planning and service provision via the South West Area Transport Plan, and can advocate for expansion of rail transit in Richmond</li> </ul>	<h3>LIMITED \$</h3> <ul style="list-style-type: none"> <li>The City could co-sponsor events in tandem with local community organizers (e.g., annual Car Free Day)</li> </ul>
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# GREEN INFRASTRUCTURE AND NATURAL ENVIRONMENT

## DIRECTION

Maximize the climate-related benefits of Richmond's green infrastructure by improving the security of existing carbon stores (urban tree canopy and peatland areas) and finding opportunities for additional carbon sequestration using natural systems.



**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?

Policy & Regulation	Infrastructure	Incentives	Collaboration & Partnerships	Advocacy	Outreach & Capacity Building
 <p><b>Policy &amp; Regulation</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Create policy to protect carbon already stored within Richmond soils, peatlands and urban tree canopy, and investigate additional sequestration opportunities</li> <li>Consider developing a city-wide urban forest management strategy for private land</li> </ul>	 <p><b>Infrastructure</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Maintain water table levels (the level below the surface of the ground at which you start to find water) within City-owned central wetlands peat areas</li> </ul>	 <p><b>Incentives</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Consider options to increase the tree canopy in urban areas of Richmond by encouraging a net gain in number of trees planted each year</li> </ul>	 <p><b>Collaboration &amp; Partnerships</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Work with Federal Government and the Province of BC to enhance water table levels within City-owned central wetlands peat areas</li> <li>Partner with Agricultural Land Reserve (ALR) Commission and Kwantlen Polytechnic University on the use of agricultural waste as biomass fuel</li> </ul>	 <p><b>Advocacy</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Advocate for provincial policy or a municipal mandate over carbon sequestration within in agricultural lands, i.e. power to designate Environmental Site Assessments on agricultural lands</li> </ul>	 <p><b>Outreach &amp; Capacity Building</b></p> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Promote best agricultural practices and resiliency by protecting carbon in soils</li> <li>Promote value of central wetlands, Sturgeon Bank, and Richmond's urban tree canopy</li> </ul>
<p><b>MODERATE</b> \$</p> <ul style="list-style-type: none"> <li>City has authority to set standards in new development regarding tree retention, planting and proportion of a lot that is green space, and has policies and bylaws in place to do so</li> </ul>	<p><b>LIMITED</b> \$\$\$</p> <ul style="list-style-type: none"> <li>The City could use its freshwater, wastewater, and road infrastructure to help protect water table levels (the level below the surface of the ground at which you start to find water)</li> </ul>	<p><b>MODERATE</b> \$\$</p> <ul style="list-style-type: none"> <li>The City could fund a subsidized tree-planting program for private land in urban areas</li> </ul>	<p><b>MODERATE</b> \$\$</p> <ul style="list-style-type: none"> <li>City could work with Agricultural Land Reserve Commission and Kwantlen Polytechnic University to develop a best practice guidance for land owners, and a new course within their agricultural program</li> </ul>	<p><b>LIMITED</b> \$</p> <ul style="list-style-type: none"> <li>City could request ALR policy change</li> <li>The Farm Practices Protection Act and ALR Legislation limits what the City can influence on agricultural land</li> </ul>	<p><b>LIMITED</b> \$</p> <ul style="list-style-type: none"> <li>City could partner with external organizations on outreach and education campaigns for agricultural land owners, businesses and general public</li> </ul>

### Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)







# WASTE MANAGEMENT AND CIRCULAR ECONOMY

## DIRECTION

Create a circular economy in Richmond by supporting an integrated waste and materials management approach that shifts the focus from waste recycling to waste reduction, where materials we use stay in circulation to be used, re-used and recycled multiple times into new products.



**Direction Options:** Which activities should the City focus on in the next five years that will reduce greenhouse gas (GHG) emissions by 50% by 2030?

 <h3>Policy &amp; Regulation</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Promote the circular economy by reducing the production of waste through City policies and programs</li> <li>Assess if the City can implement and promote circular economy principles as regulation</li> <li>Include product life-cycle analysis and assessment tools into City procurement processes</li> </ul>	 <h3>Infrastructure</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Develop a waste tracking database for local industry that includes online tools for better management of materials</li> </ul>	 <h3>Incentives</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Incentivize and support re-use, remanufacturing and repair programs for electronic waste</li> </ul>	 <h3>Collaboration &amp; Partnerships</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Support local businesses to use a low-waste, high-value approach when using plastics</li> <li>Partner with large local retailers to develop business-led supply chain Extended Product Responsibility programs to eliminate waste</li> </ul>	 <h3>Advocacy</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Promote adoption of Extended Producer Responsibility programs and initiatives by senior governments</li> <li>Advocate for longer product and services warranty periods</li> </ul>	 <h3>Outreach &amp; Capacity Building</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> <li>Improve public awareness of best practices to prevent food waste</li> <li>Provide resources to retailers to help households to reduce waste</li> <li>Cooperate with local and regional organizations and schools in order to deliver circular economy and waste reduction training and education</li> </ul>
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## Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)

MODERATE	LIMITED	MODERATE	MODERATE	LIMITED	LIMITED
<ul style="list-style-type: none"> <li>The City can learn from a recent legal decision against the City of Victoria's plans for single-use plastics, which suggested limits to local government mandates in this area</li> <li>City could require a food waste reduction plan as a condition of local business licences and permits</li> </ul>	<ul style="list-style-type: none"> <li>The City could increase the proportion of recycled and reclaimed materials used in City projects</li> </ul>	<ul style="list-style-type: none"> <li>The City could provide additional space for materials sorting at City facilities (e.g. Public Works Yard)</li> </ul>	<ul style="list-style-type: none"> <li>The City could participate in regional, national and international waste reduction/circular economy pilot initiatives, zero waste stakeholder committees and conferences</li> <li>The City could implement a business-to-business online waste resource marketplace</li> <li>The City could encourage local businesses to support the New Plastics Economy Global Commitment to increase recycled content in goods, eliminate unnecessary packaging, and utilize reuse/refill processes</li> </ul>	<ul style="list-style-type: none"> <li>The provincial government has the strongest mandate for action on Extended Producer Responsibility</li> </ul>	<ul style="list-style-type: none"> <li>Help the public further understand the importance of material recycling</li> </ul>

# RETROFIT EXISTING BUILDINGS

## DIRECTION 1

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

*Short to medium term emission reductions*

## CARBON REDUCTION IMPACT BY 2030

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

This is a 'major move' direction that is prioritized for 2020 to 2030.

Space heating is the largest energy use in Richmond's buildings, and is responsible for more than a third of total community emissions. Richmond's 33,617 existing buildings emitted 398,000 tonnes of greenhouse gas emissions in 2017 (40% of total community emissions).

Greater use of low-GHG grid electricity for building heating and cooling would greatly reduce overall emissions. Energy efficient heat pumps will play a big role in the transition to low carbon mechanical systems, and will require the City and partners to develop a comprehensive program to incentivize and accelerate building energy retrofits.

The proposed approach will target the highest



emitting buildings expected to remain in place by 2050 through building energy retrofits and low-carbon mechanical system upgrades. As the City's district energy systems mature, there may be opportunities for larger buildings to be retrofitted to receive low-carbon district heating over time.

## SHARED BENEFITS

- Buildings become more comfortable and energy efficient
- Drives technical innovation and demand for low-carbon energy systems

## ENABLING POLICIES AND PROGRAMS

### Policies and Plans

- Building Regulation Bylaw
- Building Energy Benchmarking Pilot Program
- Clean BC Plan: Provincial intent to develop building retrofit Code

### Successes to Date

- Richmond's Building Energy Challenge (2016–17) for large commercial buildings to implement energy upgrades
- Provincial and City incentives

## TOP THREE IMPLEMENTATION TOOLS

- Incentives
- Policy and Regulation
- Collaboration and Partnerships

## ENGAGEMENT HIGHLIGHTS

- Survey respondents would like to see innovative finance and/or incentive options for low-carbon energy in existing homes.

# TRANSITION TO ZERO EMISSION VEHICLES

## DIRECTION 2

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

*Short to medium term emission reductions*

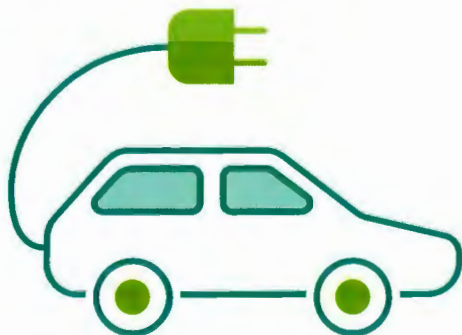
## CARBON REDUCTION IMPACT BY 2030

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

**This is a 'major move' direction that is prioritized for 2020 to 2030.**

The combustion of gasoline by passenger cars is the City's single biggest source of emissions, responsible for 38% of GHGs emitted in 2017. Diesel combustion by heavy-duty trucks within Richmond adds a further 19% to total emissions. Given significant emissions from these sources, Richmond has the potential to cut vehicle emissions to near zero if we fully transition light-duty vehicles and heavy-duty trucks to be zero emission by 2050.

Electric mobility is a very effective strategy for reducing GHG emissions in BC because almost all of our electricity comes from low-emission renewable sources. As of fall 2019, there are already more than 1,500 EVs in Richmond. These EVs will emit just 90 tonnes of CO<sub>2</sub> annually, about 98% less than a thousand equivalent internal combustion vehicles.



## SHARED BENEFITS

- Cleaner air and quieter streets
- EVs have fuel costs less than 1/3 of gasoline and diesel

## ENABLING POLICIES AND PROGRAMS

### Policies and Plans

- Community Energy & Emissions Plan
- Corporate Energy & Emissions Plan
- Official Community Plan
  - Mobility and Access section

### Successes to Date

- The City now has 10 Level 2 and two DC Fast Charging stations in place, with more on the way.
- As of March 31, 2018 all new residential parking spaces must have an energized outlet capable of providing Level 2 EV charging.

## TOP THREE IMPLEMENTATION TOOLS

- Infrastructure
- Incentives
- Outreach and Capacity Building

## ENGAGEMENT HIGHLIGHTS

- Survey respondents want more public EV charging stations installed.
- Many respondents are considering purchasing an EV in the future.

# CARBON NEUTRAL ENERGY FOR NEW BUILDINGS

## DIRECTION 3

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

*Short to medium term emission reductions*

## CARBON REDUCTION IMPACT BY 2030

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

**This is a 'major move' direction that is prioritized for 2020 to 2030.**

New buildings are an important opportunity for reducing greenhouse gas emissions by addressing space heating and hot water supply. All new buildings in Richmond will need to be very energy efficient, and use low-carbon heating and cooling systems by 2025 to meet a target of 50% reduction by 2030. The design and construction industry is responding to this challenge, with a growing number of small and large buildings that already meet the top level of the BC Energy Step Code.

Building upon the success of Richmond's low carbon district energy systems, there may be opportunities to expand this service to connect new buildings in other high density areas of the city.



## SHARED BENEFITS

- Buildings that are more comfortable and healthy for occupants
- Low energy buildings are more resilient to climate change

## ENABLING POLICIES AND PROGRAMS

### Policies and Plans

- Official Community Plan
- Zoning & Development Bylaw
- Building Regulation Bylaw
- Community Energy & Emissions Plan
- Lulu Island Energy Company (LIEC)

### Successes to Date

- In 2018, Richmond adopted the Step Code for new residential and commercial development.
- Council also adopted a timeline to increase standards so that new buildings are designed to a "net-zero energy ready" performance level starting 2025.

## TOP THREE IMPLEMENTATION TOOLS

- Policy and Regulation
- Incentives
- Outreach and Capacity Building

## ENGAGEMENT HIGHLIGHTS

- Respondents favoured low-carbon mechanical systems in new buildings over a focus on energy efficiency alone. mechanical systems in new buildings.

# COMPLETE COMMUNITIES

## DIRECTION 4

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

*Medium to longer term emission reductions*

## CARBON REDUCTION IMPACT BY 2030

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

In 2017, Richmond's households on average were located within a five minute walk to 60% of a defined list of nine daily needs (e.g., day care and schools, local shopping, community centres, parks and some work spaces).

Achieving the policies included within our current Official Community Plan is one the strongest mechanisms Richmond has for reducing emissions over the medium- to long-term, making our neighbourhoods less car reliant, people-focused, and healthier. Having homes, jobs, shopping and services closer together reduces travel distance and makes it easy and convenient to walk/roll, bike or take transit to a destination.

## SHARED BENEFITS

- Healthier communities
- Walking / rolling is easier within and between neighbourhoods
- Cleaner air, and quieter and safer roads

## ENABLING POLICIES AND PROGRAMS

### Policies and Plans

- Official Community Plan (OCP)
- Zoning Bylaw
- Mobility and Access section of OCP
- Community Energy & Emissions Plan

### Successes to Date

- City Centre Area Plan
- OCP Arterial Road Land Use Policy
- OCP Neighbourhood Service Centre Policy
- Broadmoor Neighbourhood Service Centre and West Cambie Neighbourhood Plan

## TOP THREE IMPLEMENTATION TOOLS

- Policy and Regulation
- Infrastructure
- Collaboration and Partnerships

## ENGAGEMENT HIGHLIGHTS

- Survey respondents would like to see more apartments within neighbourhoods, as well as better access to transit, and greatly improved walk / roll and bicycle infrastructure.
- Respondents also favour access to park space and locally grown food.



# ACTIVE MOBILITY FOR ALL

## DIRECTION 5

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

*Medium to long term emission reductions*

## CARBON REDUCTION IMPACT BY 2030

- Increase bicycle ridership and micro electric mobility to reach 10% of all trips taken by 2030, with further increases to 2050.
- Increase walk / roll trips to 18% by 2030, with further increases to 2050.

Active transportation prioritizes walking/rolling and cycling as the preferred ways of getting around. New electrically-assisted micro-mobility such as e-scooters are already available. These modes are simple, cheap and highly effective for shorter-distance trips, and can represent a significant number of trips in compact, complete communities where amenities and services are close by. According to the TransLink Trip Diary, 13% of all trips in Richmond were made by walking in 2017.

To make active transportation more attractive, the City can provide infrastructure such as wider sidewalks and benches, curb cuts, pedestrian activated crossing signals, a comprehensive and connected network of separated bike lanes, bicycle-share stations, and plenty of bicycle racks at destination points.

**NOTE:** Active mode share targets are consistent with current OCP, but have been accelerated to 2030 from 2041.



## SHARED BENEFITS

- Cleaner air, healthier and more affordable communities
- Active mobility is zero emission; no fossil fuels required

## ENABLING POLICIES AND PROGRAMS

### Policies and Plans

- Official Community Plan
  - Mobility and Access section
  - Area and Sub-Area Plans
- Zoning Bylaw

### Successes to Date

- Richmond has dedicated bicycle lanes on sections of Granville and Railway Avenues, Westminster Highway, Shell Avenue, Garden City and No. 3 Road.
- Public bike-share pilot (October 2018 to March 2020) operated by U-bicycle that features 40+ stations and 80 bicycles.
- Transit-oriented development measures in new development.

## TOP THREE IMPLEMENTATION TOOLS

- Infrastructure
- Policy and Regulation
- Collaboration & Partnerships

## ENGAGEMENT HIGHLIGHTS

- Local residents would walk / roll or bicycle more often if destinations were closer, and routes were convenient, direct and safe.
- Survey respondents favour increased investment in active mobility.



# SUPPORT FREQUENT TRANSIT

## DIRECTION 6

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

*Medium to long term emission reductions*

## CARBON REDUCTION IMPACT BY 2030

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

Public transit includes all local and regional transportation services administered within Metro Vancouver by TransLink. For medium to longer distance trips, public transit is an essential strategy to reduce community greenhouse gas emissions from transportation. According to the TransLink 2017 Trip Diary, 12.5% of all trips were made by public transit.

The Canada Line provides frequent rapid transit service between Richmond City Centre area, Vancouver and Vancouver International Airport. Beyond basic city-wide bus coverage, higher frequency bus services operate along No. 3 Road, from City Centre to Steveston and Hamilton, and along Highway 99. TransLink also provides HandyDART services for passengers with limited mobility.

**NOTE:** Transit mode share targets are consistent with current OCP, but have been accelerated to 2030 from 2041.

## SHARED BENEFITS

- Higher transit ridership reduces the number of vehicles on the road
- Frequent transit integrates well with active mobility and car sharing

## ENABLING POLICIES AND PROGRAMS

### Policies and Plans

- South West Area Transport Plan
- Official Community Plan
  - Mobility and Access section
  - OCP Arterial Road Land Use Policy
  - Area and Sub-Area Plans

### Successes to Date

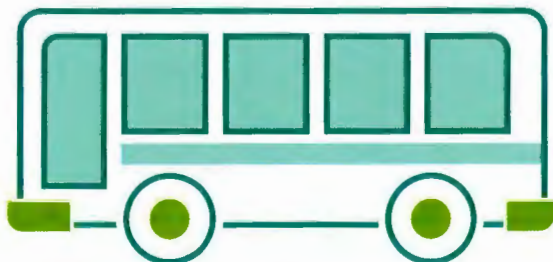
- Richmond is expanding the number of bus stops with shelters. Currently, nearly 100 bus stops have shelters. Over 80% of bus stops are accessible.
- Developers are fully funding the construction of a new Canada Line station at Capstan Way; design work is now underway.

## TOP THREE IMPLEMENTATION TOOLS

- Policy and Regulation
- Advocacy
- Collaboration and Partnerships

## ENGAGEMENT HIGHLIGHTS

- Survey respondents favour increased investment in transit, with more frequent service, and emphasis on safety and convenience.



# ENHANCE GREEN INFRASTRUCTURE

## DIRECTION 7

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

*Medium to longer term emission reductions*

### CARBON REDUCTION IMPACT BY 2030

- By 2030, measures have been identified and initiated sufficient to sequester 200,000 additional tonnes of CO<sub>2</sub>e per year by 2050.
- Achieving this target in 2050 could provide Richmond a 20% carbon reduction 'buffer' equivalent to 20% of Richmond's GHG emissions relative to the 2007 base year.

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, which already holds large amounts of carbon, and has some potential to host vegetation that sequesters additional CO<sub>2</sub>, thereby helping reduce the City's net emissions.

The target for 2030 implies that once significant emissions have been reduced from new and existing buildings, encouraging sustainable travel options, decarbonizing mobility and reducing waste, additional emissions may still need to be reduced to achieve the City's net zero emissions goal.



### SHARED BENEFITS

- Urban tree canopy buffers temperature extremes (shading and cooling)
- Natural areas provide cleaner air and water, and ecological habitat

### ENABLING POLICIES AND PROGRAMS

#### Policies and Plans

- Parks & Open Space Strategy
- Ecological Network Management Strategy
- Integrated Resource Management Strategy

#### Successes to Date

- The City purchased a portion of Richmond's Northeast Bog in 2011, protecting a large amount of peatland for the long term.
- Richmond has a tree retention bylaw in regulation.

### TOP THREE IMPLEMENTATION TOOLS

- Outreach and Capacity Building
- Collaboration and Partnerships
- Infrastructure

### ENGAGEMENT HIGHLIGHTS

- Survey respondents see great value in Richmond's natural landscapes (e.g. forest, grasslands, shrub lands, saltwater marshes), as well as agricultural land reserve.

# TRANSITION TO A CIRCULAR ECONOMY

## DIRECTION 8

Create a circular economy in Richmond that maximizes the value of resources through smart product design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, low-carbon economy.

*Medium term to longer term emission reductions*

## CARBON REDUCTION IMPACT BY 2030

- By 2030, the City of Richmond's Circular Economic Strategy will be fully implemented, driving innovation by the City and local business community in material use, waste reduction and emission reduction from the manufacture, transport and retailing of products and services.

The circular economy defines growth by focusing on positive environmental outcomes and society-wide benefits. Traditional product development uses a linear 'take-make-waste' approach. In contrast, the circular economy maximizes value, and reduces or eliminates waste by transforming how products and services are designed, manufactured and used. It utilizes innovation to extend the lifespan of products and materials, thereby reducing emissions and conserving natural resources.

From a circular economy perspective, the production, transportation, and retailing of products that ultimately become waste, in total, represents a significant level of GHG emissions.

## SHARED BENEFITS

- Drives local innovation, creativity and new employment opportunities
- Decouples economic growth from exploitation of natural resources



## ENABLING POLICIES AND PROGRAMS

### Policies and Services

- Demolition Waste and Recyclable Materials Bylaw No. 9516
- Residential Solid Waste and Recycling Collection
- Organic Waste Processing Services (Enviro-Smart)
- Procurement Policy revised to include circular economy objectives (in process)

### Successes to Date

- The City has introduced new services and programs as part of goal to achieve 80% waste diversion by 2020.
- Zero Waste Council initiative to reduce disposal of wood waste at the landfill, focusing on alternatives such as material reuse and energy generation.

## TOP THREE IMPLEMENTATION TOOLS

- Collaboration and Partnerships
- Outreach and Capacity Building
- Policy and Regulation

## ENGAGEMENT HIGHLIGHTS

- Local residents want to transition from single-use packaging, use less plastic, and purchase products with extended warranty periods.
- Survey respondents want recycling to be easy and convenient.