



General Purposes Committee

Anderson Room, City Hall
6911 No. 3 Road

Monday, January 20, 2020
4:00 p.m.

Pg. # ITEM

MINUTES

- GP-5** *Motion to adopt the **minutes** of the meeting of the General Purposes Committee held on January 7, 2020.*



ENGINEERING AND PUBLIC WORKS DIVISION

1. **COMMUNITY ENERGY AND EMISSIONS PLAN 2020-2050 DIRECTIONS**
(File Ref. No. 10-6125-07-02) (REDMS No. 6336128 v.17)

GP-11

See Page GP-11 for full report

Designated Speaker: Norm Connolly

STAFF RECOMMENDATION

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

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



2. **AGEING FACILITY INFRASTRUCTURE – UPDATE**

(File Ref. No. 06-2050-01) (REDMS No. 6129404 v.30)

GP-118

[See Page GP-118 for full report](#)

Designated Speaker: Martin Younis

STAFF RECOMMENDATION

That the report titled “Ageing Facility Infrastructure – Update” dated December 20, 2019 from the Director, Facilities and Project Development, be received for information.



COMMUNITY SAFETY DIVISION

3. **APPLICATION TO AMEND LIQUOR PRIMARY LIQUOR LICENCE #308295 FOR AN INCREASE IN OCCUPANT LOAD - MONSTER L KARAOKE LTD. DOING BUSINESS AS: MONSTER L KARAOKE - 8400 ALEXANDRA ROAD UNIT 130**

(File Ref. No. 12-8275-30-001) (REDMS No. 6361442)

GP-125

[See Page GP-125 for full report](#)

Designated Speaker: Carli Williams

STAFF RECOMMENDATION

- (1) *That the application from Monster L Karaoke Ltd., doing business as, Monster L Karaoke, for an amendment to Liquor Primary Liquor Licence #308295 to increase total person capacity from 50 occupants to 110 occupants, from premises located at 8400 Alexandra Road Unit 130, with no change to hours of liquor service, be supported; and*

- (2) *That a letter be sent to Liquor and Cannabis Regulation Branch, which includes the information attached as Appendix A, advising that Council recommends the approval of the licence application for the reasons that this amendment application for an increase in person capacity to the Liquor Primary Licence has been determined, following public consultation, to be acceptable in the area and community.*



4. **APPLICATION FOR A NEW LIQUOR PRIMARY LIQUOR LICENCE - 1148209 BC LTD. DOING BUSINESS AS: 17 KARAOKE, 4351 NO. 3 ROAD UNIT 230**

(File Ref. No. 12-8275-30-001) (REDMS No. 6360936)

GP-132

See Page GP-132 for full report

Designated Speaker: Carli Williams

STAFF RECOMMENDATION

1. *That the application from 1148209 BC Ltd., doing business as, 17 Karaoke, for a new Liquor Primary Liquor Licence to operate a new Karaoke Box Room, at premises located at 4351 No. 3 Road Unit 230, with liquor service, be supported for:*
 - (a) *A new Liquor Primary Liquor Licence with total person capacity of 60 persons; and*
 - (b) *Proposed hours of liquor sales from Monday to Sunday, from 4:00 PM to 2:00 AM.*
2. *That a letter be sent to Liquor and Cannabis Regulation Branch, which includes the information attached as Appendix A, advising that Council recommends the approval of the licence application for the reasons that this new application for a Liquor Primary Licence has been determined, following public consultation, to be acceptable in the area and community.*



5. **NON-FARM USE FILL APPLICATION FOR THE PROPERTY LOCATED AT 21700 RIVER ROAD (GOSAL)**

(File Ref. No. 12-8080-12-01) (REDMS No. 6213188 v. 12)

GP-142A

See Page GP-142A for staff memorandum

GP-143

See Page GP-143 for full report

Designated Speaker: Carli Williams

STAFF RECOMMENDATION

That the Non-Farm Use Fill Application submitted by Inderjit Gosal for the property located at 21700 River Road proposing to deposit soil for the purpose of improving the land for crop production be endorsed and referred to the Agricultural Land Commission (ALC) for their review and approval.



PLANNING AND DEVELOPMENT DIVISION

6. **UBCM 2020 COMMUNITY CHILD CARE PLANNING PROGRAM GRANT SUBMISSION**

(File Ref. No. 07-3070-01) (REDMS No. 6360711 v.4)

GP-216

[See Page GP-216 for full report](#)

Designated Speaker: Chris Duggan

STAFF RECOMMENDATION

- (1) *That the application to the Union of British Columbia Municipalities (UBCM) 2020 Community Child Care Planning Program Grant for \$25,000 be endorsed; and*
- (2) *That should the funding application be successful, that the Chief Administrative Officer and the General Manager, Planning and Development be authorized on behalf of the City to enter into an agreement with UBCM for the above mentioned project and that the Consolidated 5-Year Financial Plan (2020–2024) be amended accordingly.*



ENGINEERING AND PUBLIC WORKS DIVISION

ADDED

7. **COMMENTS ON THE BC ZERO EMISSION VEHICLES (ZEV) ACT REGULATIONS INTENTIONS PAPER**

(File Ref. No. 10-6125-07-02) (REDMS No. 6388366 v. 5)

GP-233

[See Page GP-233 for full report](#)

Designated Speaker: Peter Russell

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ITEM

STAFF RECOMMENDATION

That a letter be sent to the BC Minister of Energy, Mines and Petroleum Resources stating the City's concerns and suggested improvements to support achievement of zero emission vehicle targets, as identified in Attachment 2 within the report titled "Comments on the BC Zero Emission Vehicles (ZEV) Act Regulations Intentions Paper", dated January 10, 2020, from Director, Sustainability and District Energy.

☐

ADJOURNMENT

☐



General Purposes Committee

Date: Tuesday, January 7, 2020

Place: Anderson Room
Richmond City Hall

Present: Mayor Malcolm D. Brodie, Chair
Councillor Chak Au
Councillor Carol Day
Councillor Kelly Greene
Councillor Alexa Loo
Councillor Bill McNulty
Councillor Harold Steves
Councillor Michael Wolfe

Absent: Councillor Linda McPhail

Call to Order: The Chair called the meeting to order at 4:00 p.m.

MINUTES

It was moved and seconded

That the minutes of the meeting of the General Purposes Committee held on December 16, 2019, be adopted as circulated.

CARRIED

COUNCILLOR KELLY GREENE

1. **BIKE LANE INFRASTRUCTURE**
(File Ref. No.)

In reply to queries from Committee, staff noted that on arterial roads the Official Community Plan (OCP) requires examination of separated bike lanes and that protected bikes lanes are not a universal solution as it depends on the context and cost.

Discussion took place on options for protected bike lanes such as colour of bike lanes, markings, and synchronized lights.

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As a result of the discussion, the following **referral motion** was introduced:

It was moved and seconded

That staff provide an analysis and implementation for protected bike lanes, and report back.

The question on the referral motion was not called as in response to queries from Committee, staff noted that (i) connecting bike lanes is the goal, (ii) cycling routes were implemented based on recommendations from the cycling community and as the network continues to grow they will all connect together, (iii) priority is to connect to different city centres and transit, (iv) cycling maps are provided to the community to highlight the different cycling routes through the City, (v) various bike lane treatments have been implemented and monitored throughout the City, (vi) traffic lights for bicycles were examined; however, an application has not been developed for it in Richmond, (vii) a number of stakeholder groups are consulted regarding installation of bike lanes, and (viii) the City is waiting on guidance from the Ministry of Transportation and Infrastructure regarding regulations on electric bicycles.

Discussion took place on ensuring that all bike lanes need to be protected and a comprehensive analysis and implementation on protected bike lanes, as a result the following **referral motion** was introduced:

It was moved and seconded

- (1) ***That staff review and analyze that all new bike lane infrastructure is protected and that when bike infrastructure is renewed, lane protection is included, and report back;***
- (2) ***That staff explore implementation of alternative lane configurations, including Dutch intersections, bike lane pairing, and Vision Zero principles, including the following:***
 - (a) ***new technologies that could be implemented;***
 - (b) ***colour of lanes and markings;***
 - (c) ***synchronization options;***
 - (d) ***connecting lanes;***
 - (e) ***various types of lane protection; and***
 - (f) ***challenges of parking in bike lanes;******and report back; and***
- (3) ***That consultation on bike lanes include various stakeholders including Advisory Committee on the Environment and HUB Cycling.***

The question on the motion was not called, as there was agreement to deal with Parts (1) and (2) (3) separately.

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The question on Part (1) was then called and it was **CARRIED** with Cllr. Greene opposed.

The question on Parts (2) and (3) was then called and it was **CARRIED**.

2. **SCHOOL USE AS A RESTRICTED USE IN THE NO. 5 ROAD BACKLANDS PLAN**

(File Ref. No.)

Discussion took place on restricting school use on the No. 5 Road Backlands and only allowing church use.

As a result of the discussion, the following **referral motion** was introduced:

It was moved and seconded

That staff examine removing school use as a permitted use in the No. 5 Road backlands plan and when reporting back include consideration of the December 3, 2019 Planning Committee related referral.

The question on the referral motion was not called as in reply to queries from Committee, staff noted that (i) only religious institutions will be permitted on the No. 5 Road Backlands, (ii) all daycare and kindergarten to grade 12 education uses will be removed, (iii) the report being brought forward for Council's consideration will include options, and (iv) the Richmond School Board is permitted to buy land and would be subject to the same rezoning process.

The question on the referral motion was then called and it was **CARRIED**.

COMMUNITY SAFETY DIVISION

3. **NON-FARM USE FILL APPLICATION FOR THE PROPERTY LOCATED AT 21700 RIVER ROAD (GOSAL)**

(File Ref. No. 12-8080-12-01) (REDMS No. 6213188 v. 12)

In reply to queries from Committee, staff advised that (i) extensive procedures have been developed and will be the standard, (ii) previous activity on the property was undertaken in 2011, (iii) soil capability was improved to class 2, (iv) an inspection for invasive species is required as part of the City requirements for every source site, (v) operations will involve an organic spray, (vi) ditches need to be reinstated, (vii) the checklist will be included in future reports, and (viii) a monitor will be present at the site to ensure every load is inspected.

Harinder and Inderjit Gosal, applicants, 21700 River Road, provided the following information:

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- they come from a family of farmers;
- the crop that was on the property at the time of purchase was not viable;
- issues raised around drainage and ditches were addressed;
- due to misunderstandings the works undertaken were stopped;
- the application for a fill permit was submitted in 2013; and
- professionals were brought in to assess the land and provide a comprehensive report.

In reply to queries from Committee, the applicants noted that (i) blueberries were previously grown on the property; however, they could not successfully maintain them, (ii) the organic spray is for fungus, (iii) the neighbouring properties are higher which brings the water down into the property, (iv) the soil currently on the property will be used, (v) blueberries was suggested by the agrologist, and (vi) east and west side ditches need to be reinstated.

In reply to further queries from Committee, staff noted that (i) soil excavated from around the City is transported to landfill sites as it is difficult to sort through, (ii) it is optimal to retain excavated soil on the site, and (iii) soil for agricultural land has strict Provincial requirements; therefore, making it difficult to limit the soil source from Richmond.

It was moved and seconded

That the Non-Farm Use Fill Application submitted by Inderjit Gosal for the property located at 21700 River Road proposing to deposit soil, with a preference from Richmond and/or Delta low lands soil if possible for the purpose of improving the land for crop production be endorsed and referred to the Agricultural Land Commission (ALC) for their review and approval.

The question on the motion was not called as discussion took place on the ditches on the property and the soil source.

As a result of the discussion, the following **referral motion** was introduced:

It was moved and seconded

That the Non-Farm Use Fill Application submitted by Inderjit Gosal for the property located at 21700 River Road be referred back to staff to:

- (1) examine the soil source, specifically from Richmond and Delta low lands, and drainage issues; and***
- (2) obtain comments from the Advisory Committee on the Environment.***

The question on the referral motion was not called as further discussion ensued regarding the soil source and it was noted that while it is possible to use soils from Richmond, it would impact the length of the project in order to wait for the soil.

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The question on the referral motion was then called and it was **CARRIED** with Cllr. Loo opposed.

Staff was directed to report back to the January 20, 2020, General Purposes Committee.

ENGINEERING AND PUBLIC WORKS DIVISION

4. **METRO VANCOUVER'S PROPOSED AIR EMISSION REGULATION FOR CANNABIS PRODUCTION AND PROCESSING OPERATIONS**

(File Ref. No. 10-6175-02-01) (REDMS No. 6249713 v. 3)

Discussion took place on light pollution from cannabis production and processing operations and it was suggested that comments regarding light pollution be included in the staff report.

It was requested that staff inquire about Metro Vancouver's regulations and best practices with regard to light pollution.

In reply to a query from Committee, staff advised that should a business not comply with regulations, the Board of Directors can suspend the permit; however, should they continue to operate they would incur further punitive damages.

It was moved and seconded

That the comments regarding Metro Vancouver's regulation to manage emissions from cannabis production and processing operations outlined in the report titled "Metro Vancouver's Proposed Air Emission Regulation for Cannabis Production and Processing Operations", dated November 26, 2019 from the Director, Sustainability and District Energy, be endorsed and forwarded to Metro Vancouver.

CARRIED

It was moved and seconded

That staff review the question of light pollution on cannabis operations, and report back.

CARRIED

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ADJOURNMENT

It was moved and seconded

That the meeting adjourn (5:39 p.m.).

CARRIED

Certified a true and correct copy of the
Minutes of the meeting of the General
Purposes Committee of the Council of the
City of Richmond held on Tuesday,
January 7, 2020.

Mayor Malcolm D. Brodie
Chair

Sarah Goddard
Legislative Services Coordinator



City of Richmond

Report to Committee

To: General Purposes Committee

Date: November 29, 2019

From: Peter Russell
Director, Sustainability and District Energy

File: 10-6125-07-02/2019



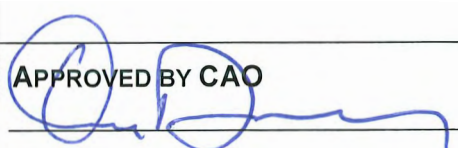
Re: Community Energy and Emissions Plan 2020-2050 Directions

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"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

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 CO₂ equivalent emissions were emitted in 2007 (Figure 1). By 2017, total emissions dropped 4% to 1,006,000 tonnes CO₂e.

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

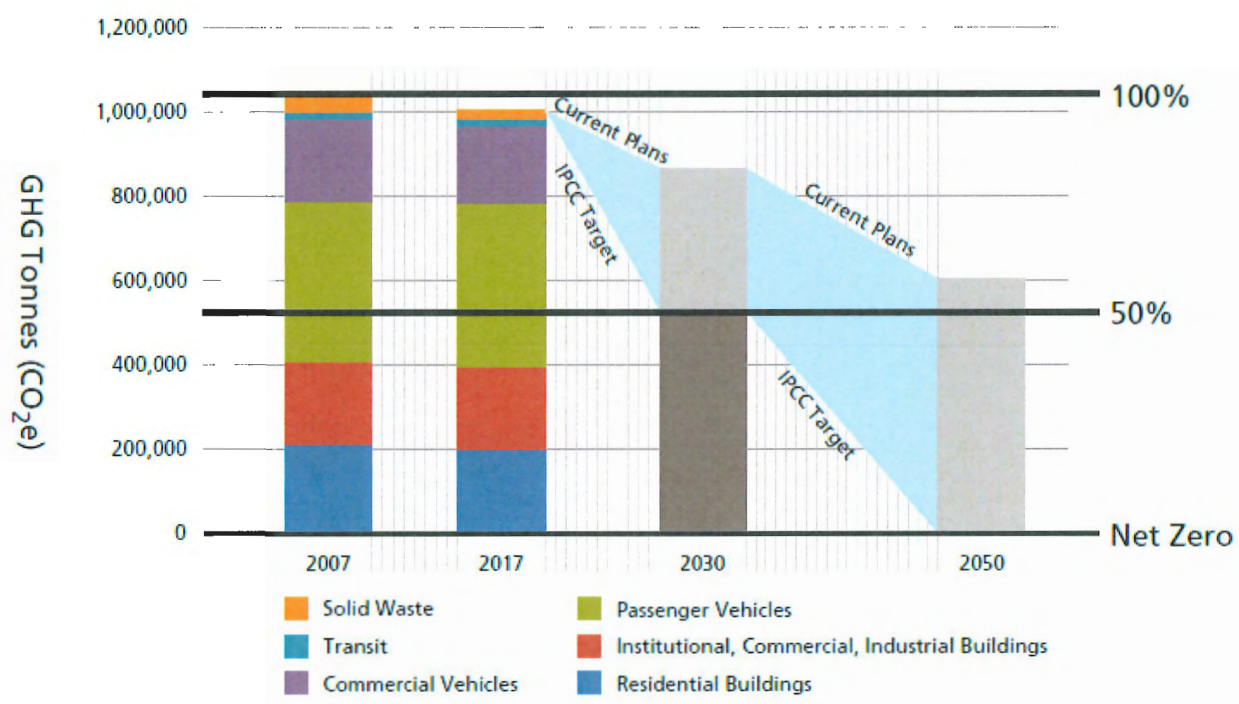


Figure 1 projects total GHG emissions in Richmond in 2030 and 2050 under a scenario, where current approved energy and climate-related policies and plans at the local, provincial and federal government level are fully implemented. This includes local adoption of the BC Energy Step Code, a 70% emissions-free 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 CO₂e between 2020 and 2030, and 13,100 tonnes CO₂e 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 ₂ e	2017 tonnes CO ₂ e	2030 tonnes CO ₂ e	2050 tonnes CO ₂ e
Current Plans Forecast				
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)
IPCC 1.5° C Target				
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.

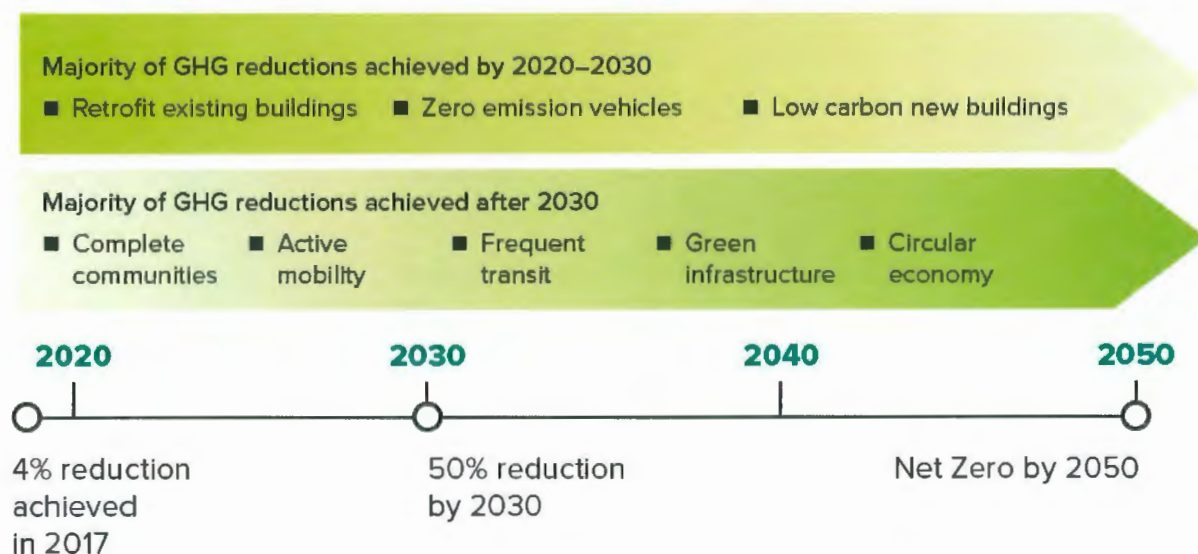
In the coming decade (2020-2030), Richmond will need to achieve significant emission reductions in new and existing buildings, and major progress on the transition to zero emission vehicles (Figure 3). Three directions are identified as 'major moves' and are key to meeting the 2030 GHG emission reduction 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.



50% ADVANCING
CLIMATE LEADERSHIP

Richmond

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 CO₂e 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:

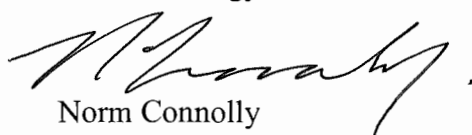
1. Integrate the Directions into a revised Community Energy and Emission Plan 2020-2050;
2. Identify specific initiatives and policies that improve the resiliency of Richmond to the effects of climate change for each Direction;
3. Further define community wellness, inclusion, equity and fairness objectives 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

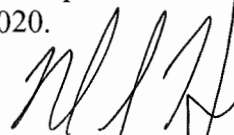
None.

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 heating¹ and hot water services). The City’s DEU systems already provide more than 3.6 million ft² 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 2000m² 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

¹Cooling 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) 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 Fleet² “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.

² 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



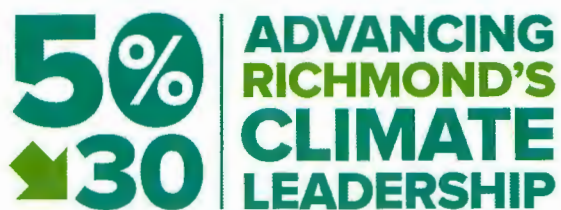
Volunteers



Solutions



Feedback



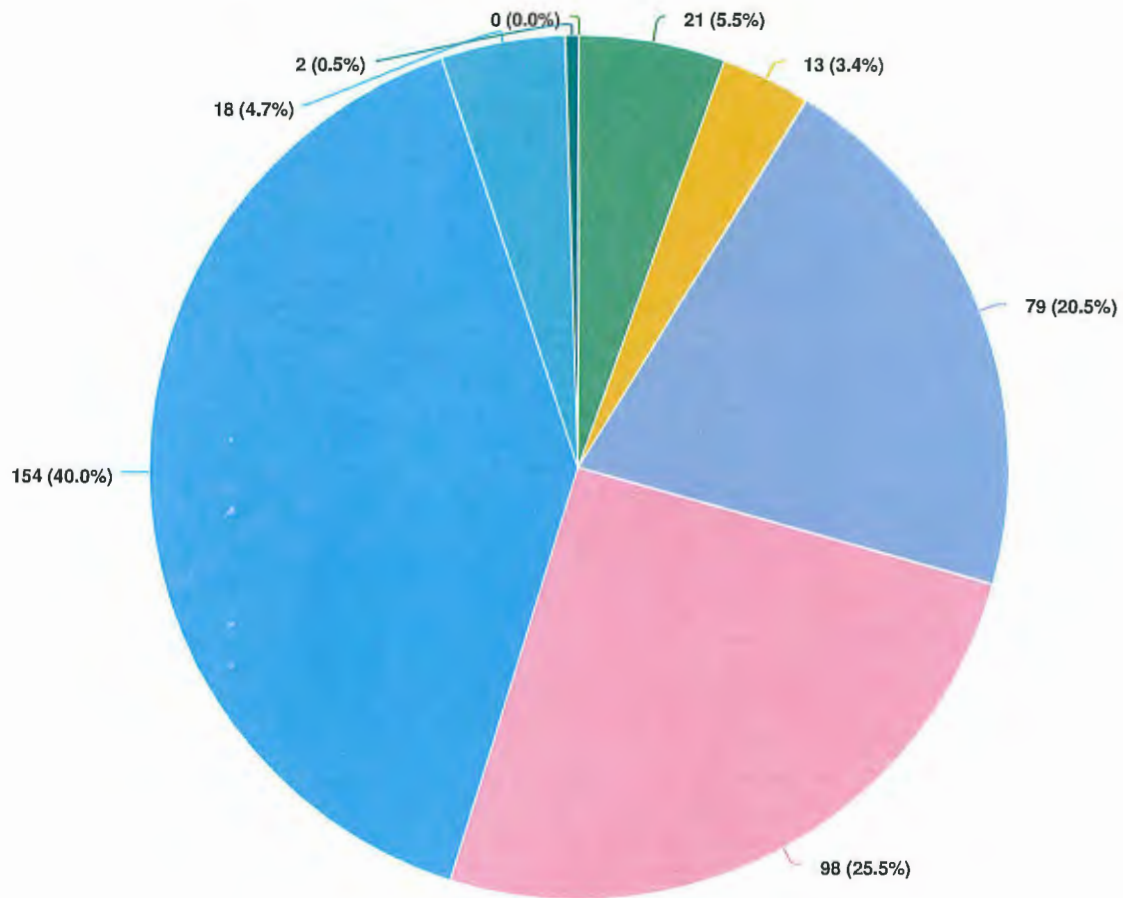
SURVEY REPORT

PHASE I:
JULY 17 TO AUGUST 18, 2019



LET'S TALK RICHMOND

Q1 I belong to the following age group:



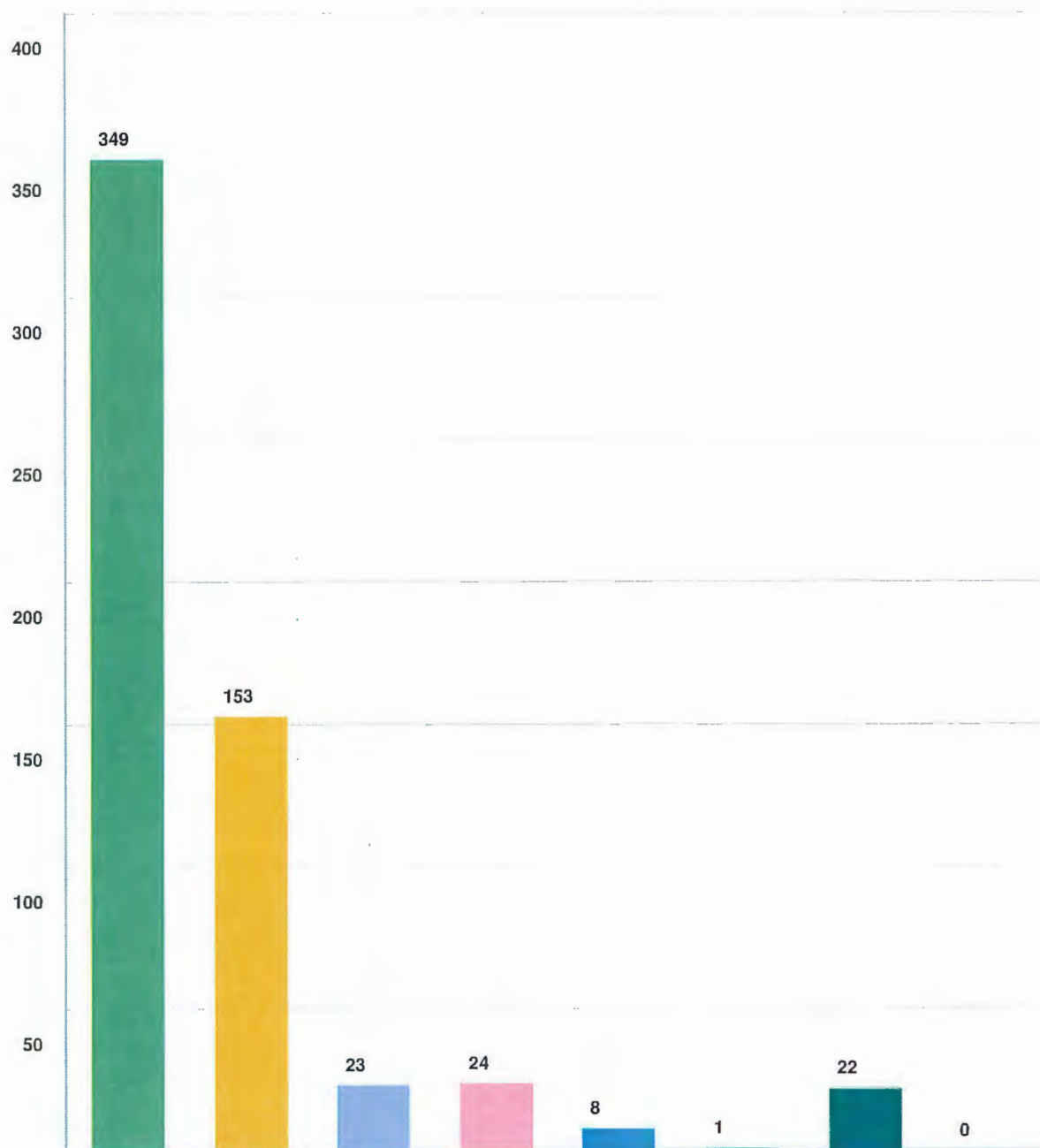
Question options

- 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:

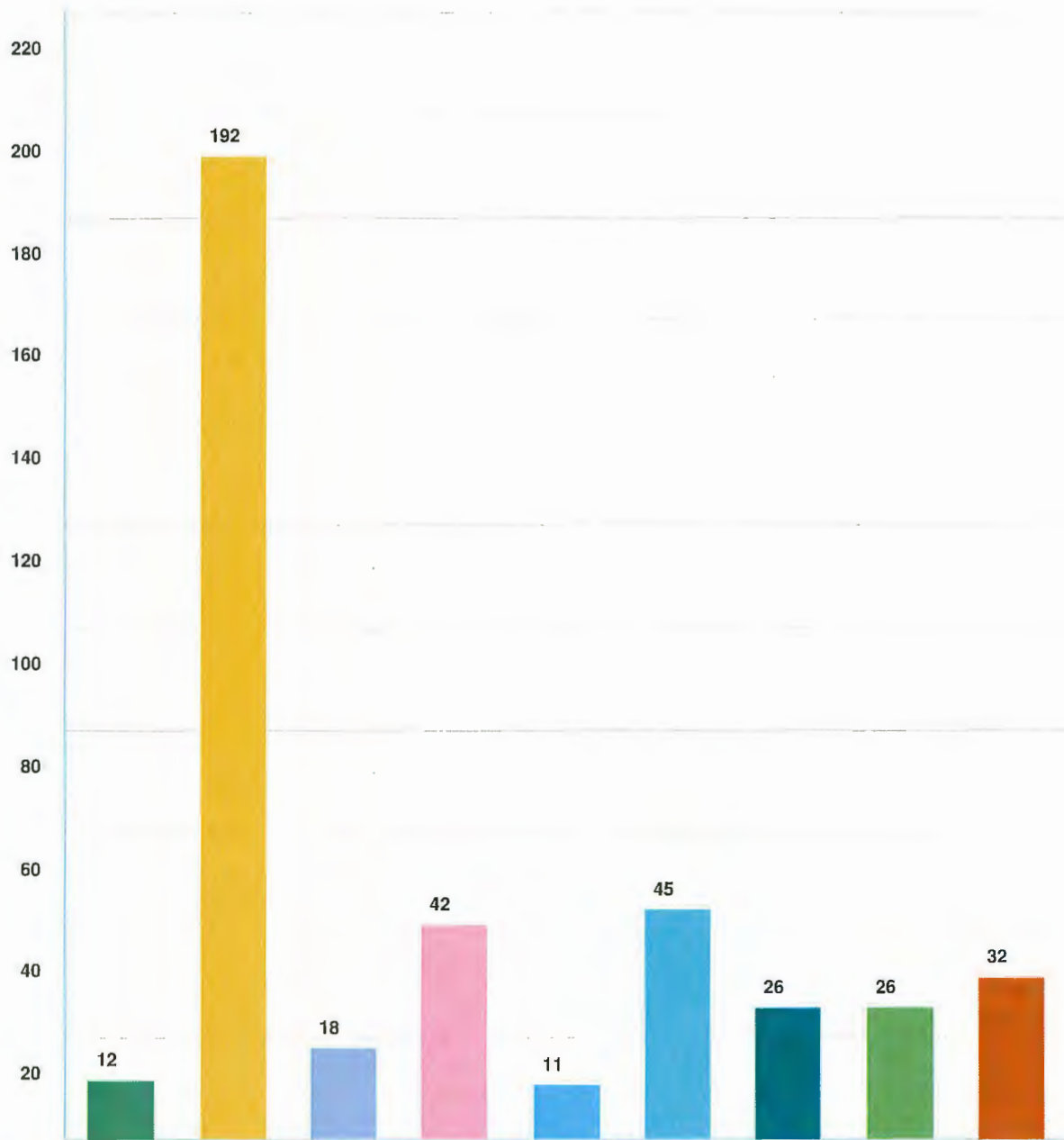


Question options

- 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.)



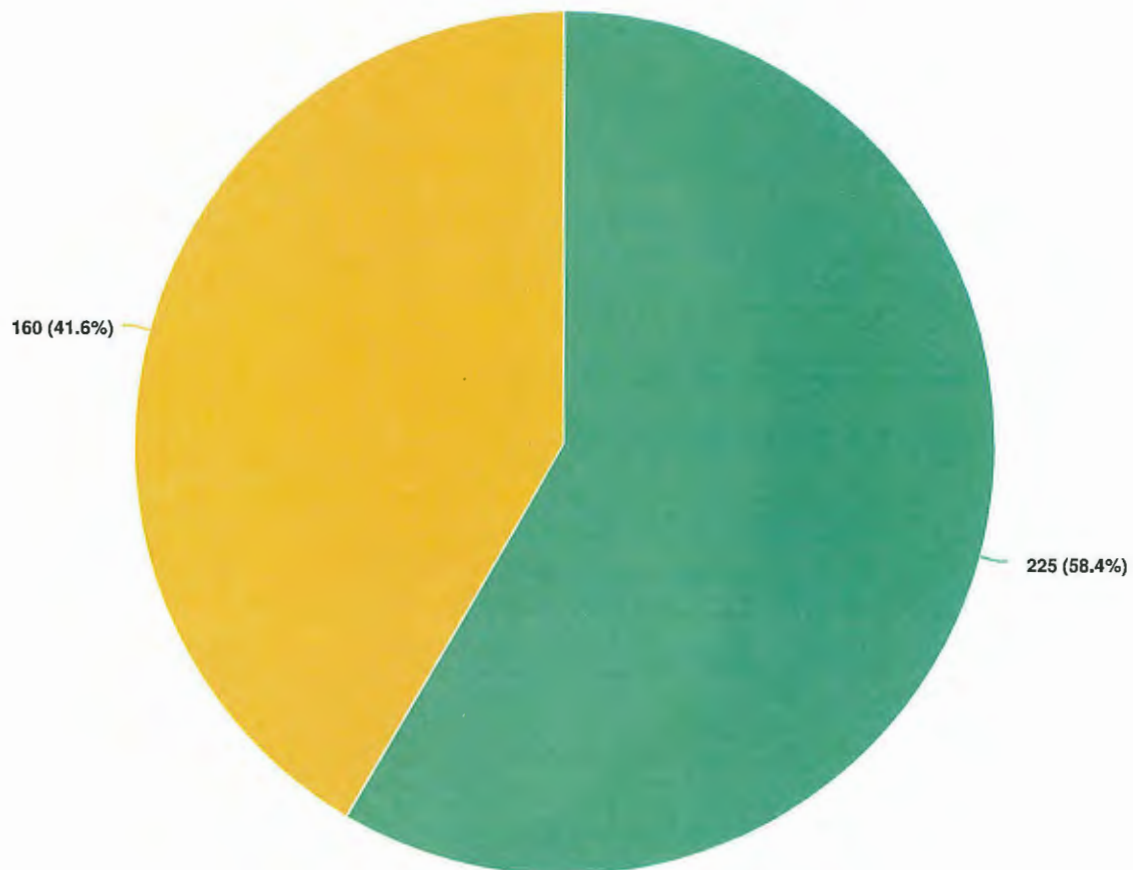
Question options

- 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.):



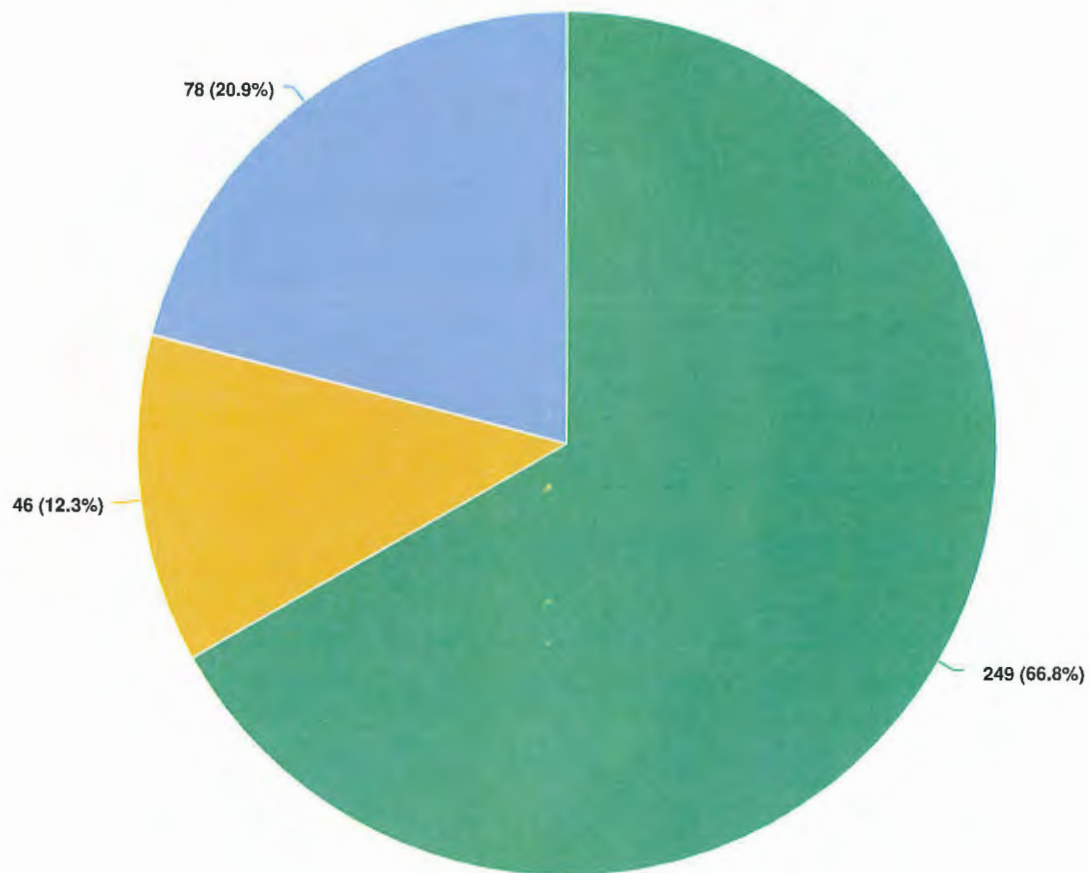
Question options

● Yes ● No

(385 responses, 1 skipped)

Q7: There were email addresses provided.

Q9 I prefer the following compliance path:

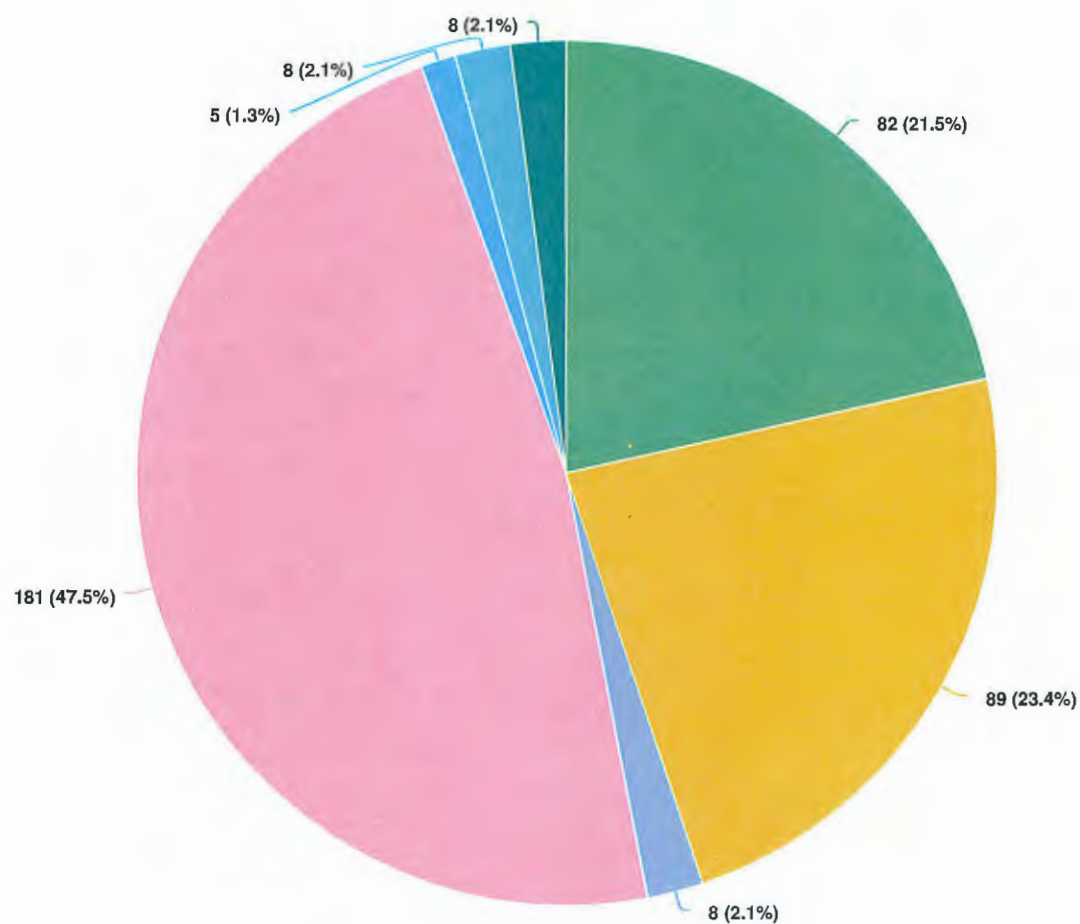


Question options

- 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:

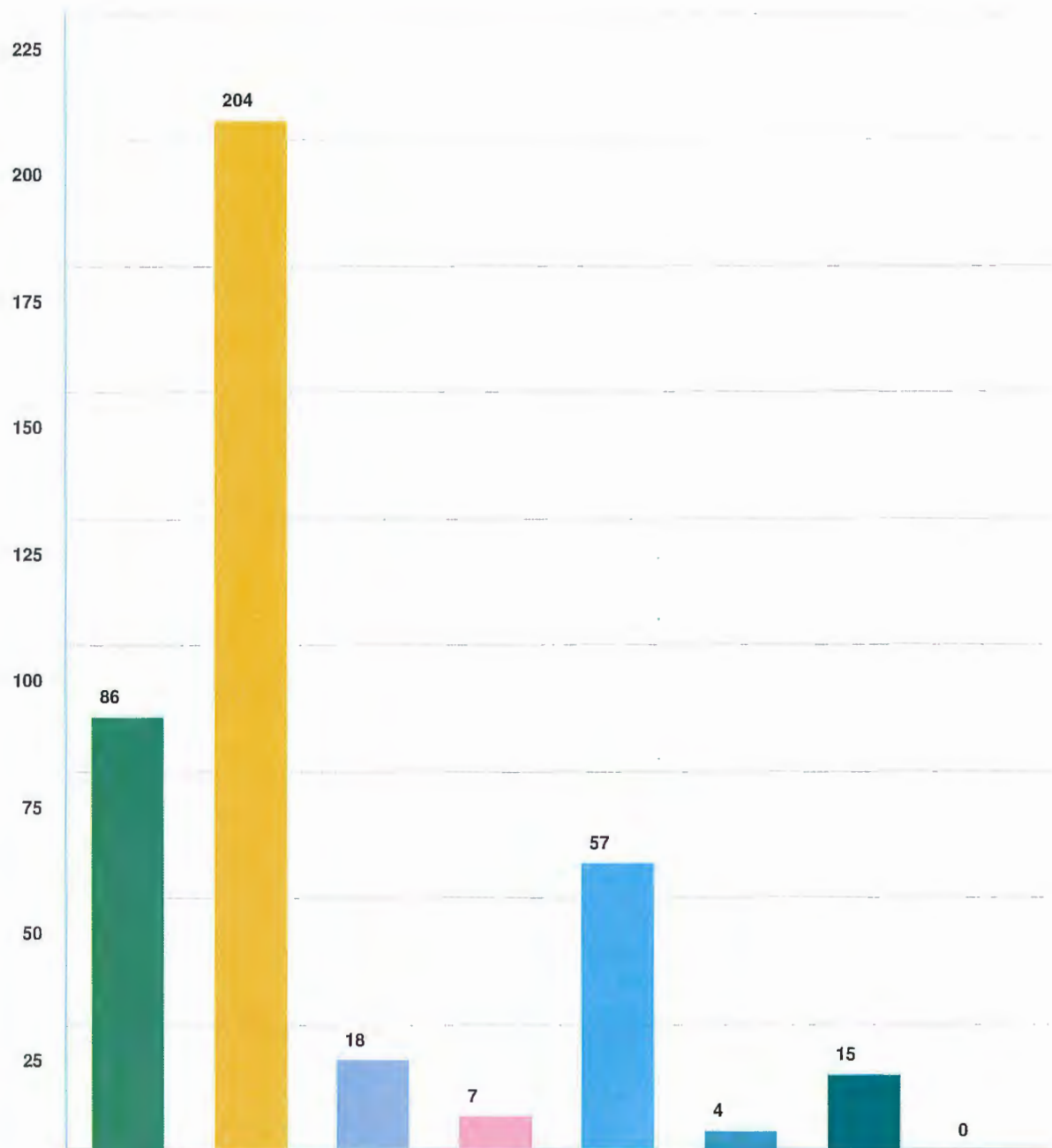


Question options

- ☐ 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.)

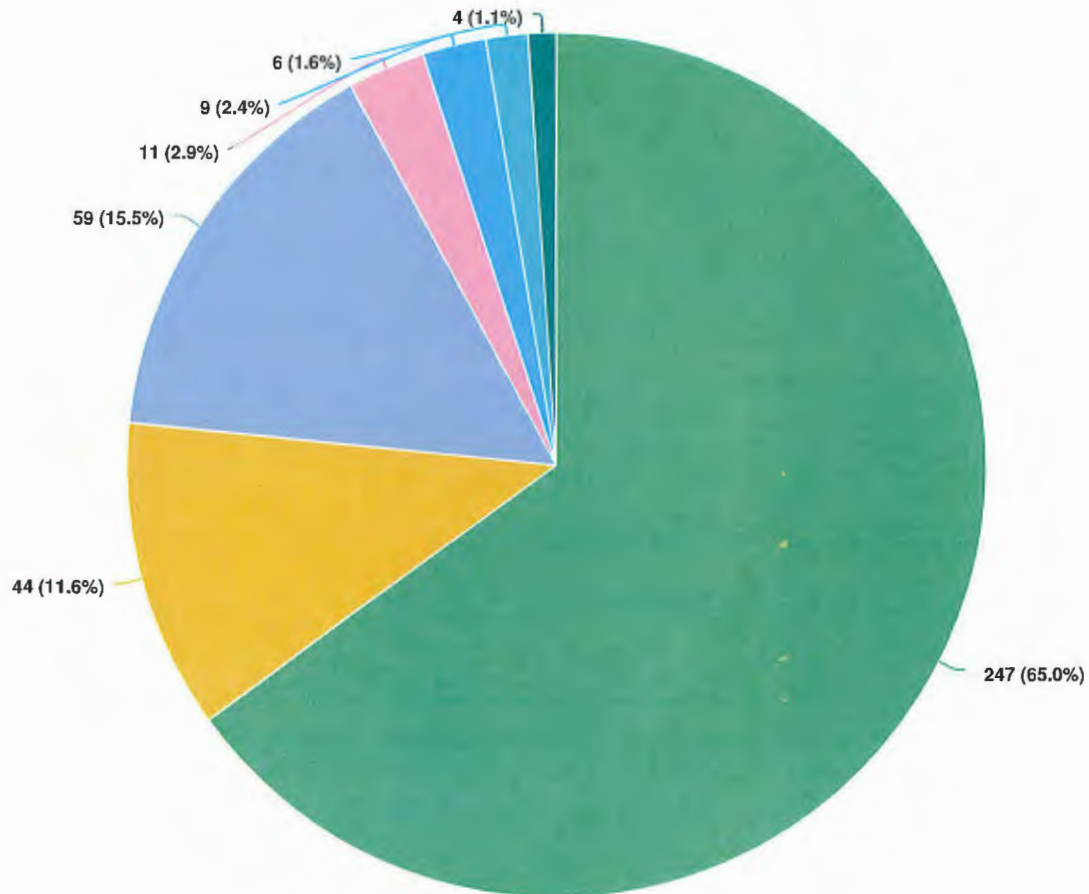


Question options

- 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:

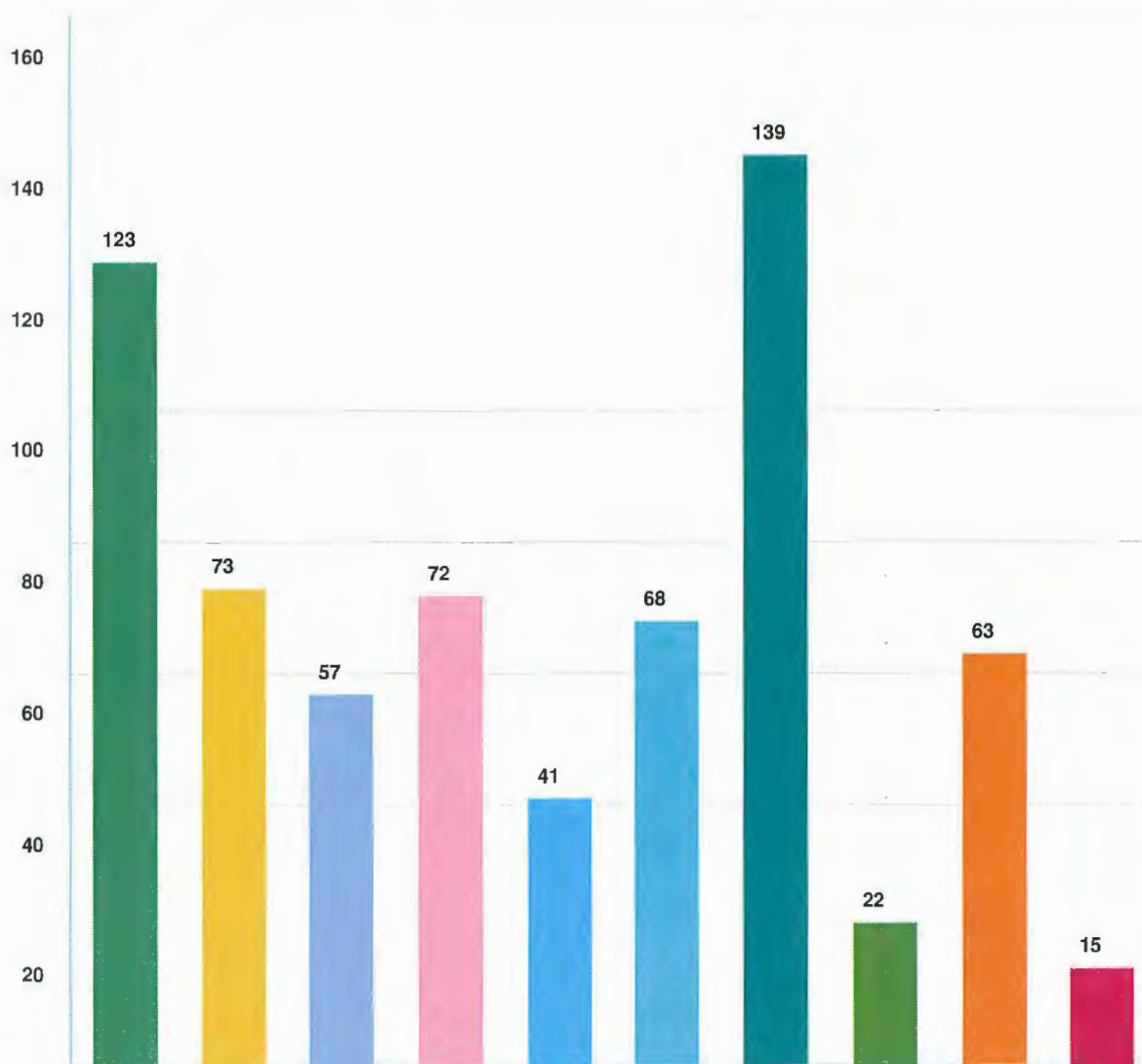


Question options

- 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.)

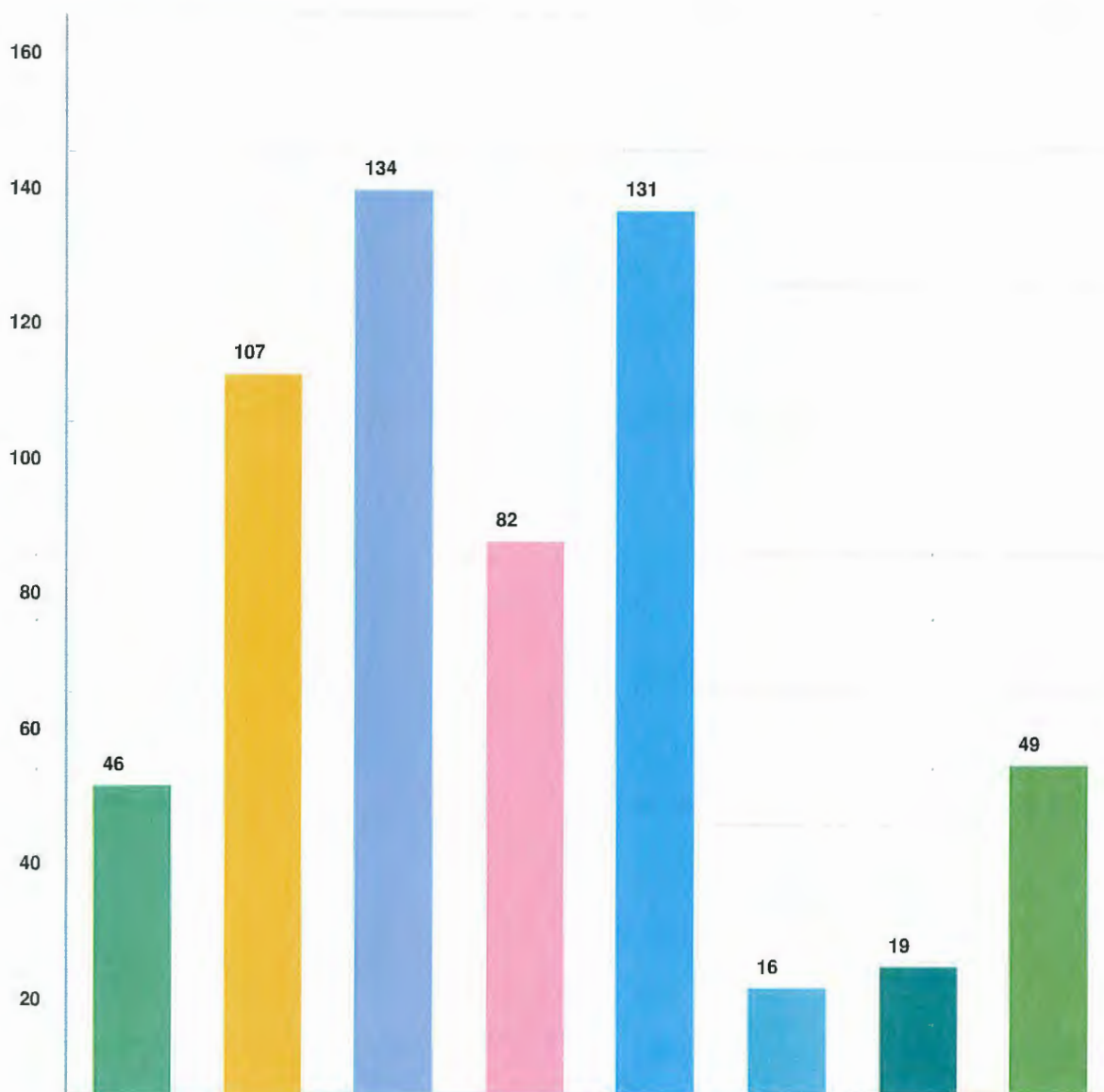


Question options

- 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.)

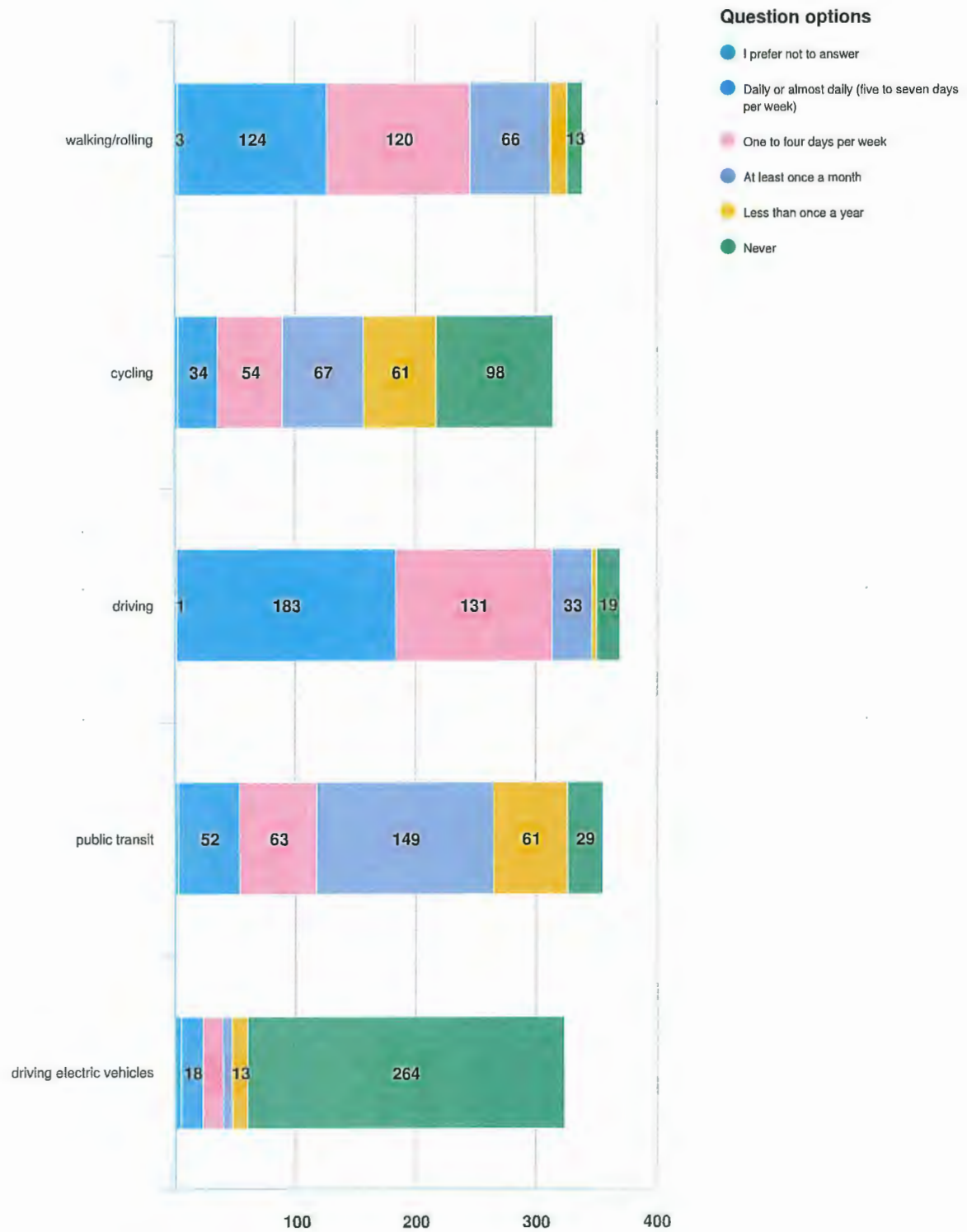


Question options

- 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

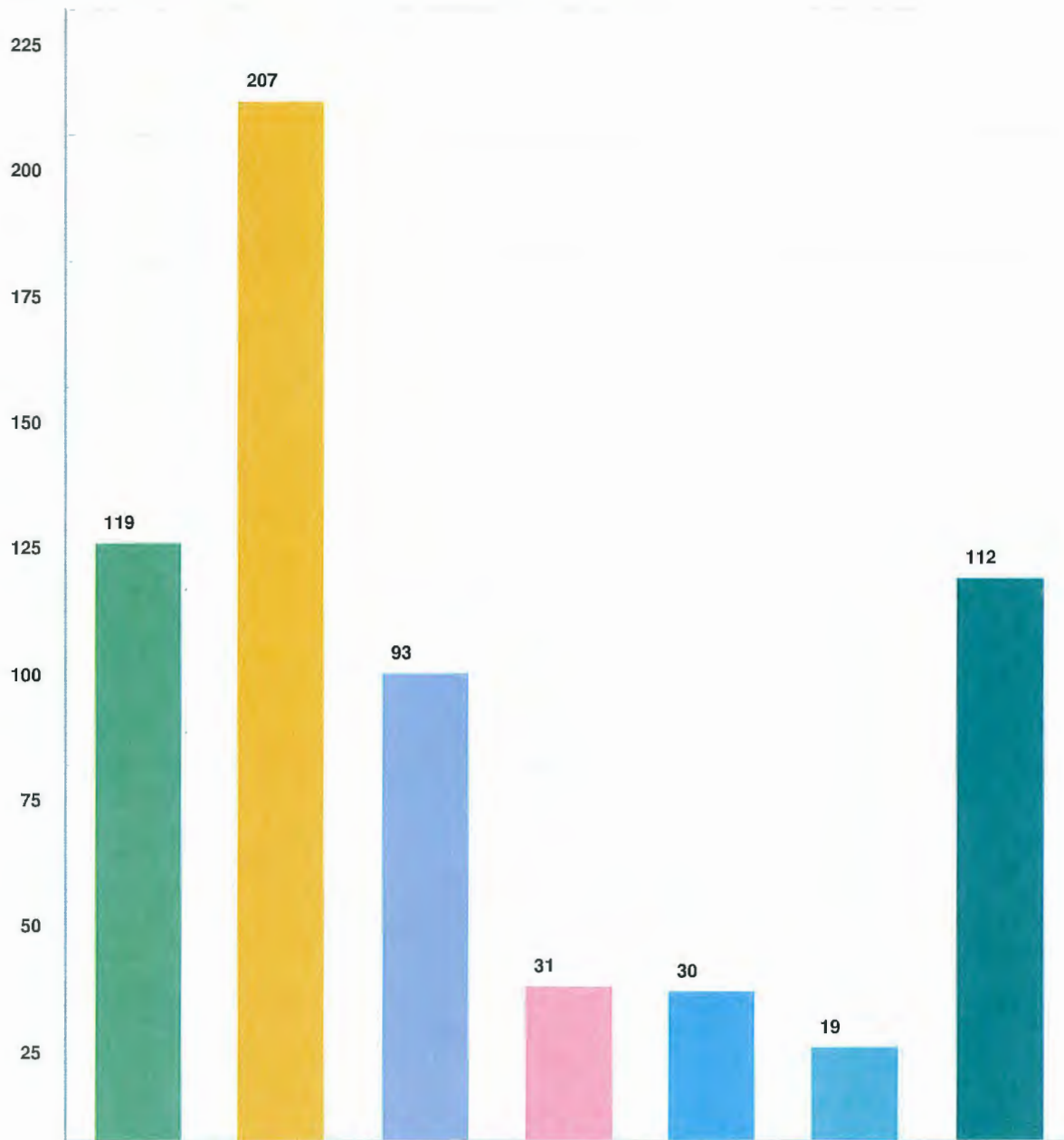
Optional question (361 responses, 25 skipped)

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



Optional question (381 responses, 5 skipped)

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



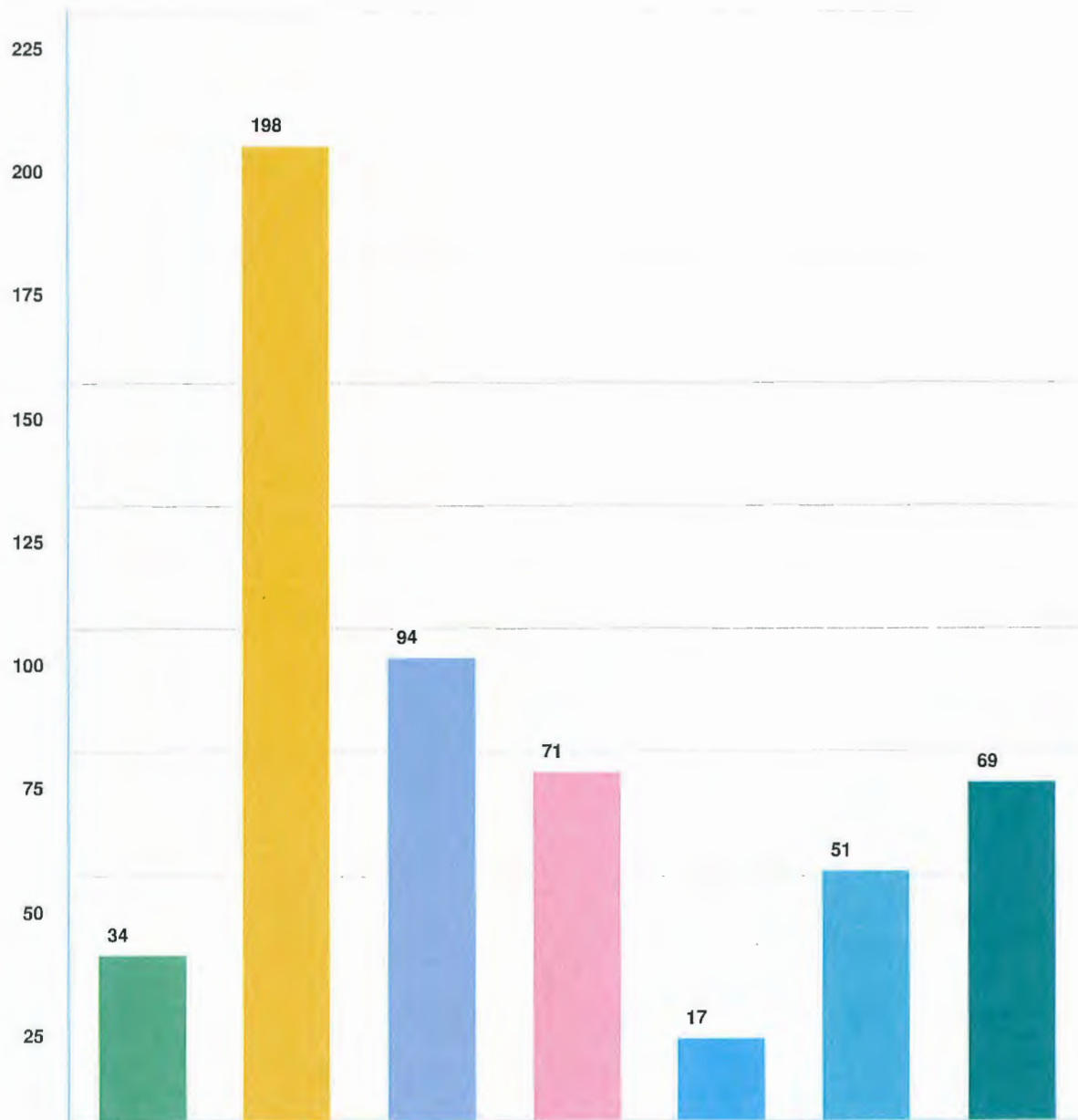
Question options

- 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.)



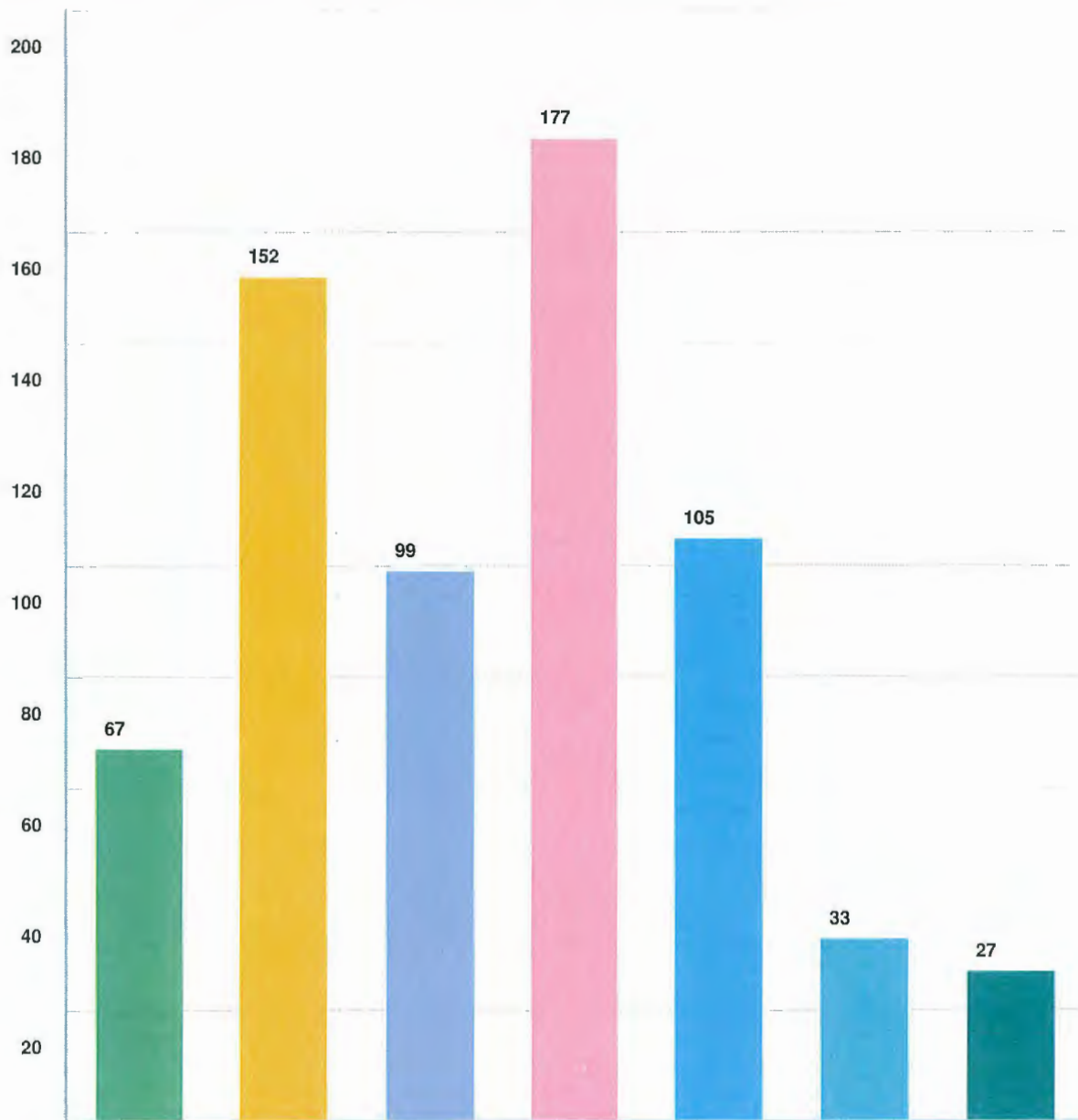
Question options

- 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.)



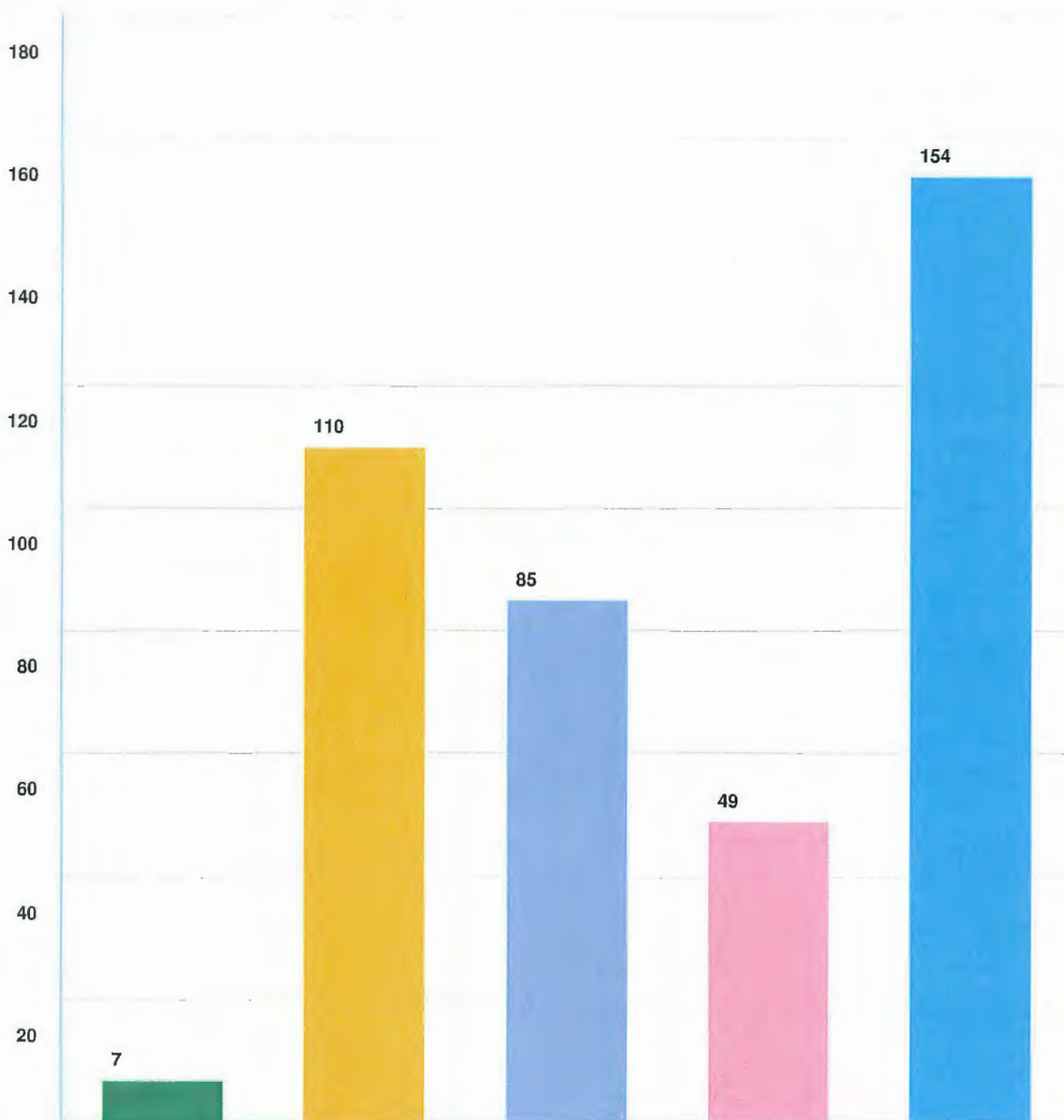
Question options

- ☐ 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.)



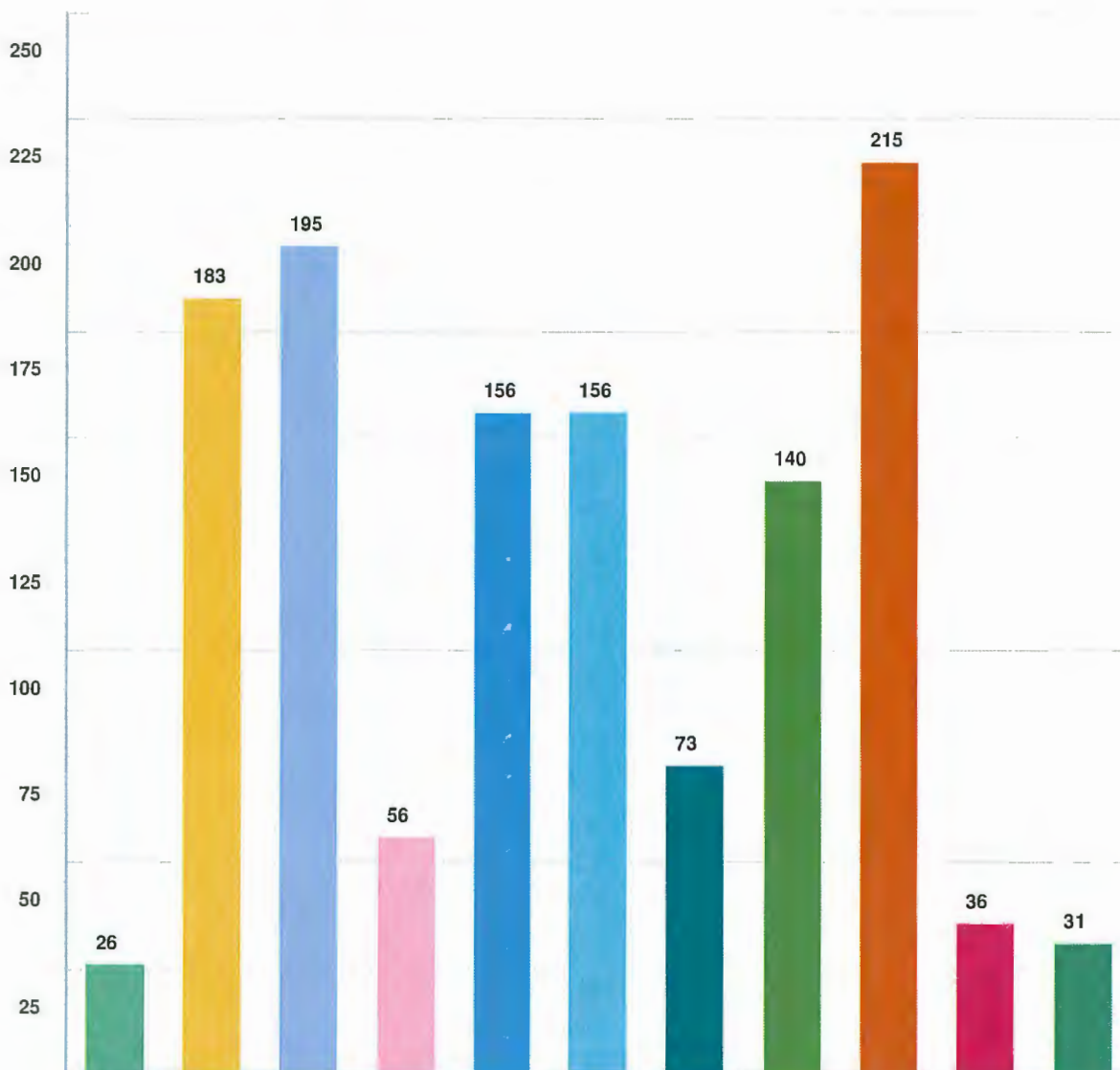
Question options

- No reason would convince me to consider using a car-share service
- 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)
- Other reasons (please specify in the next question)

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)

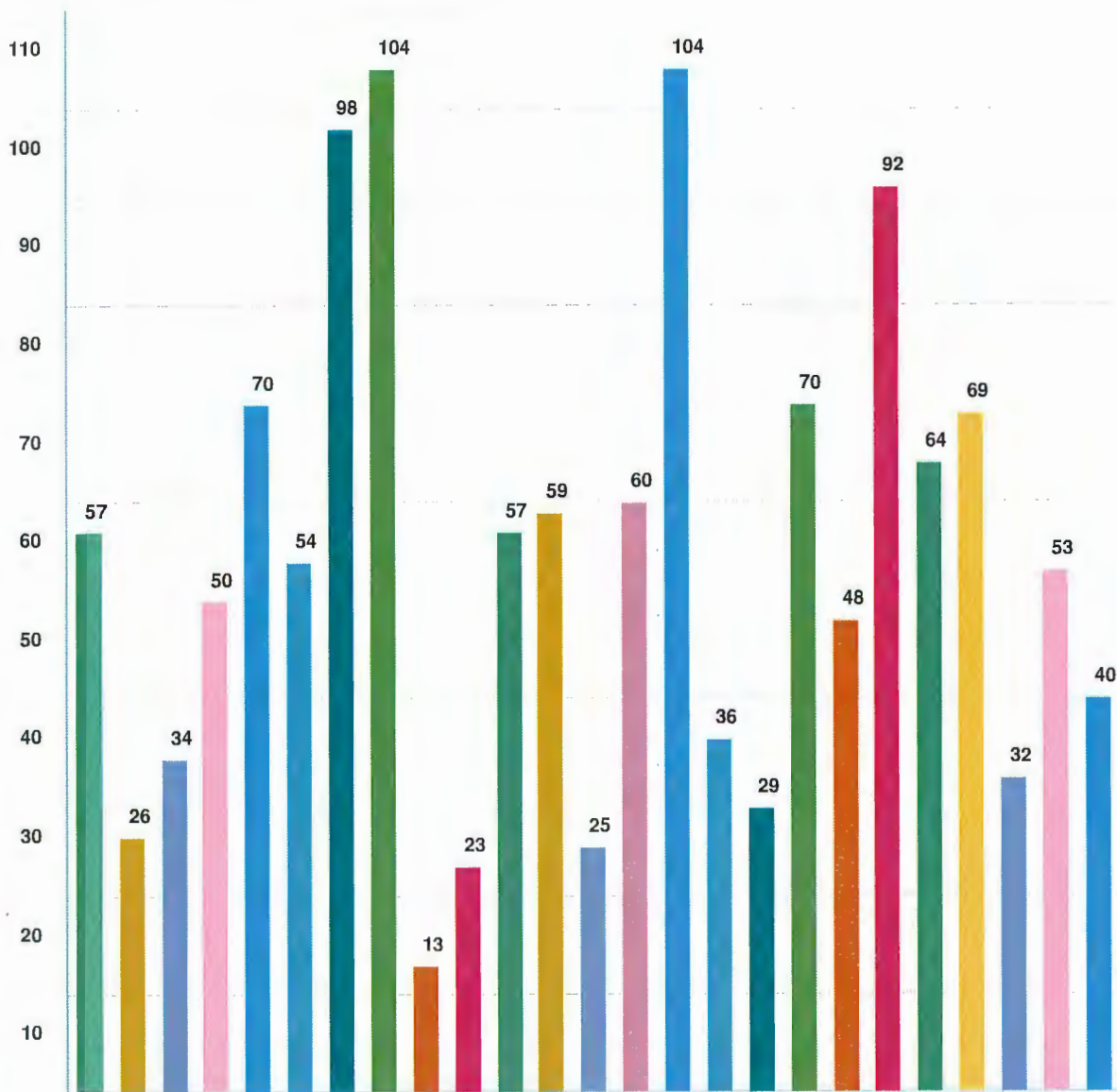
Q25: Other reasons: There were 36 comments provided in this section.

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.]

OPTIONS	AVG. RANK
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.)



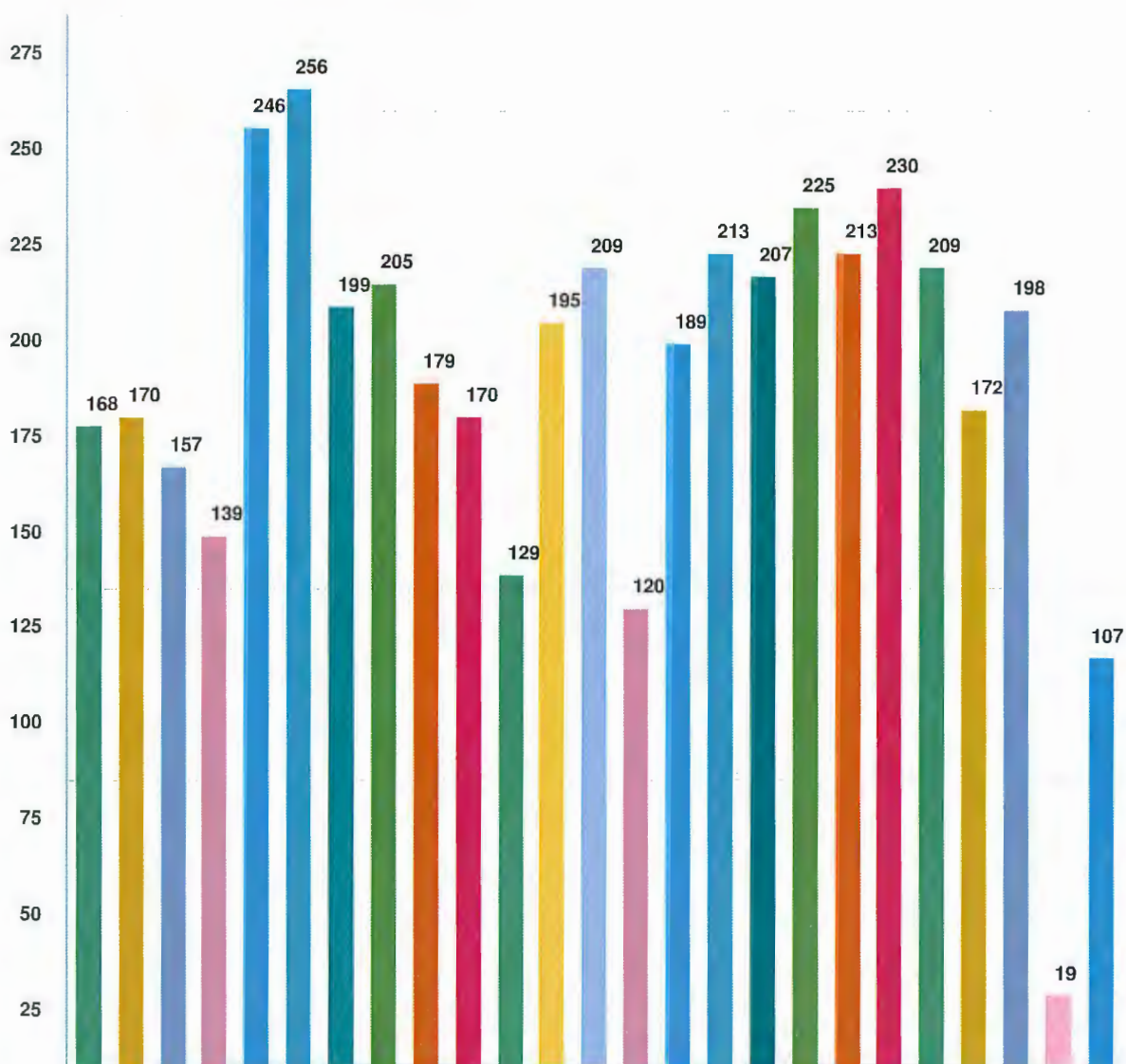
Question options

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

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.)



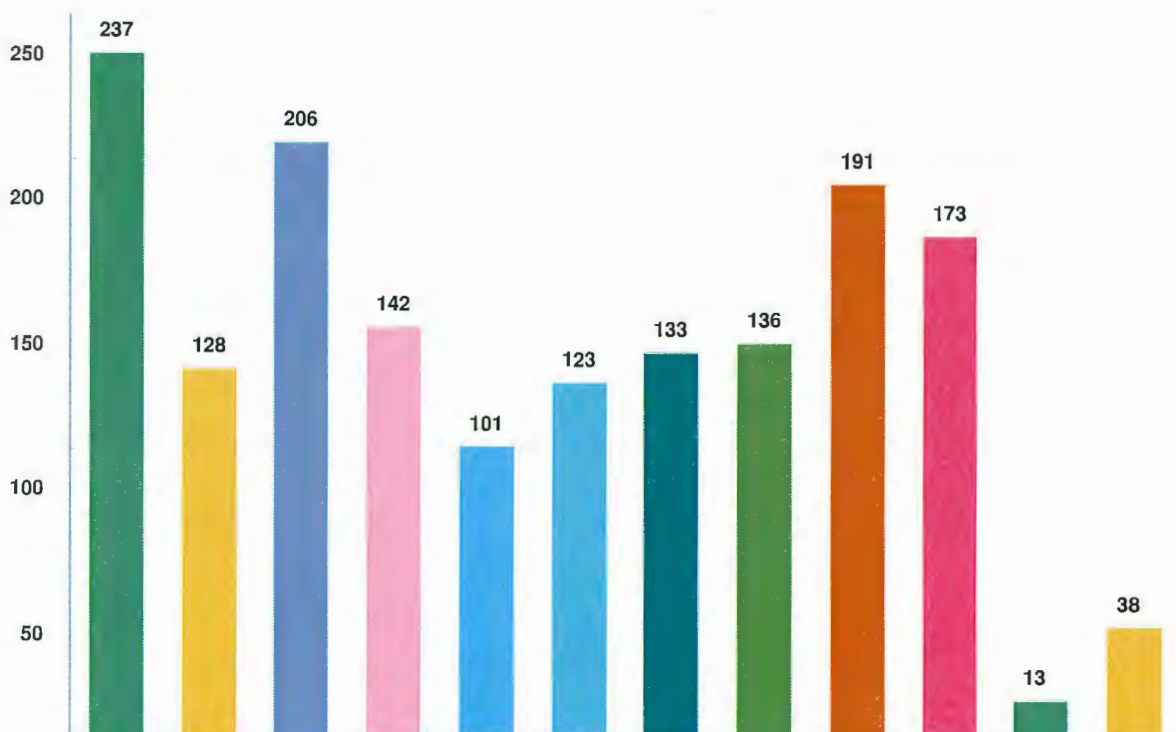
Question options

- 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
- Singe-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

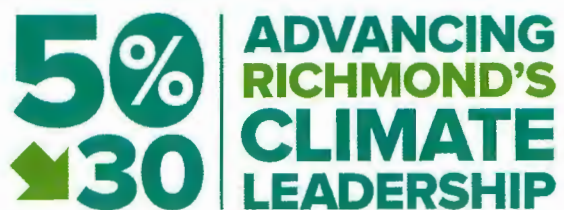
Other None of these options

- 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.



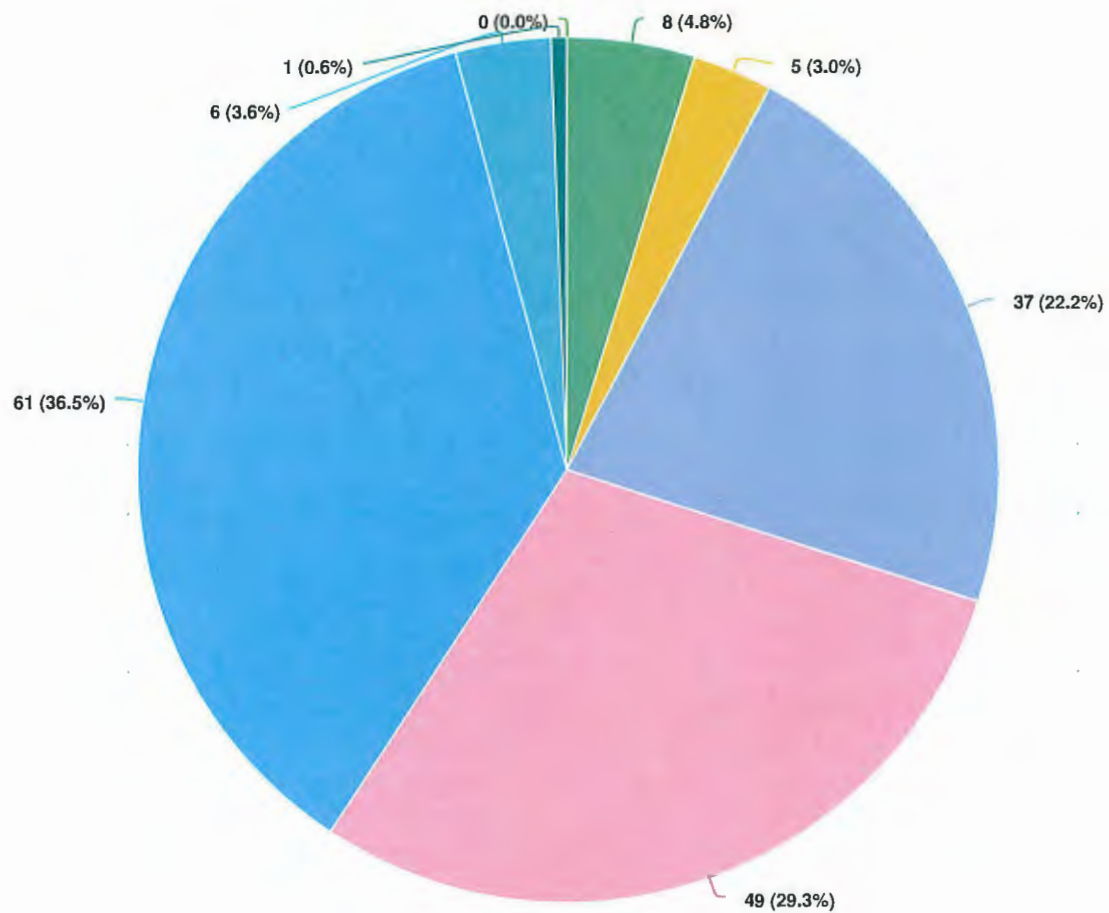
SURVEY REPORT

PHASE II:
OCTOBER 18 TO NOVEMBER 17, 2019



LET'S TALK RICHMOND

Q1 I belong to the following age group:



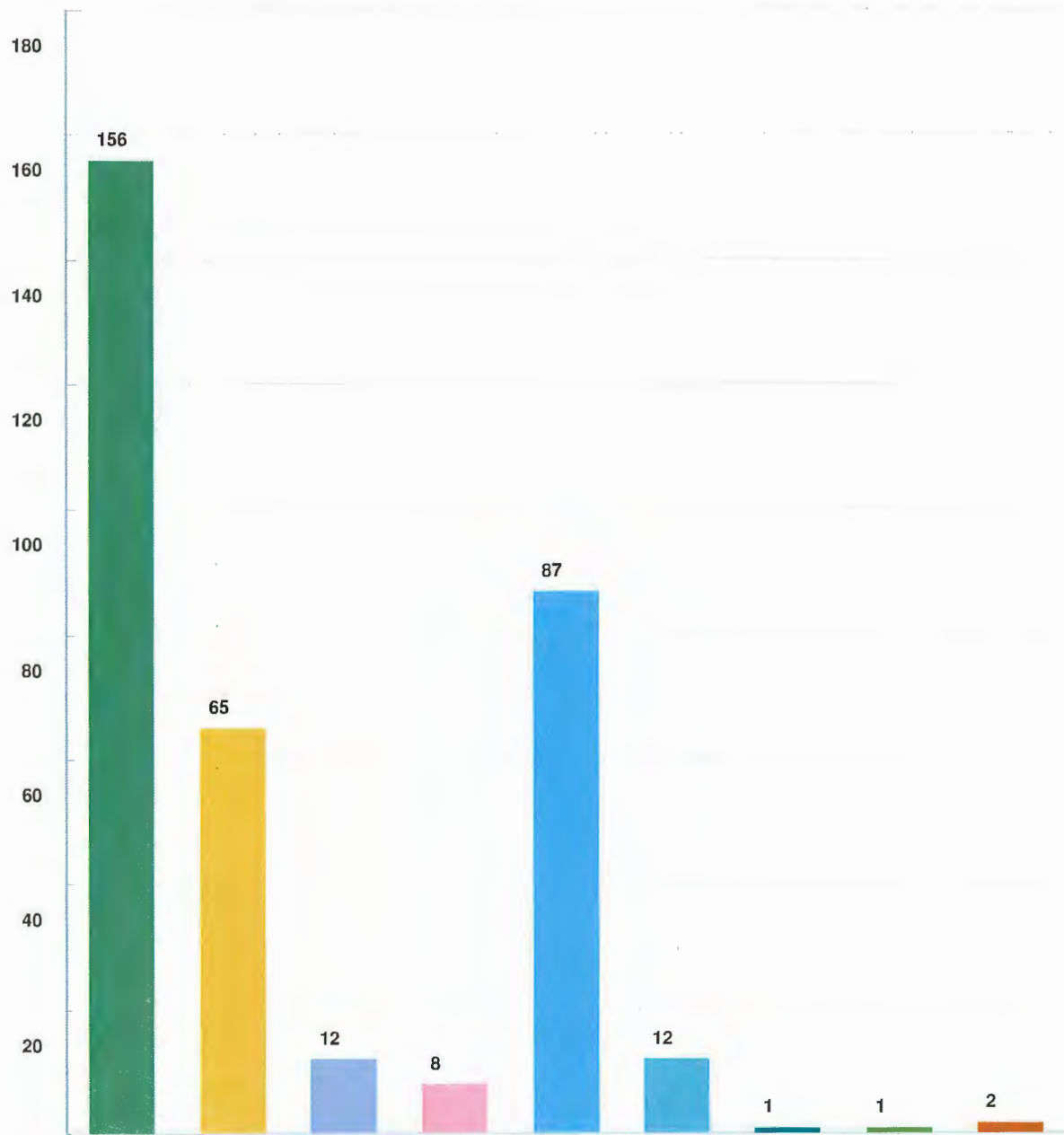
Question options

- 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)

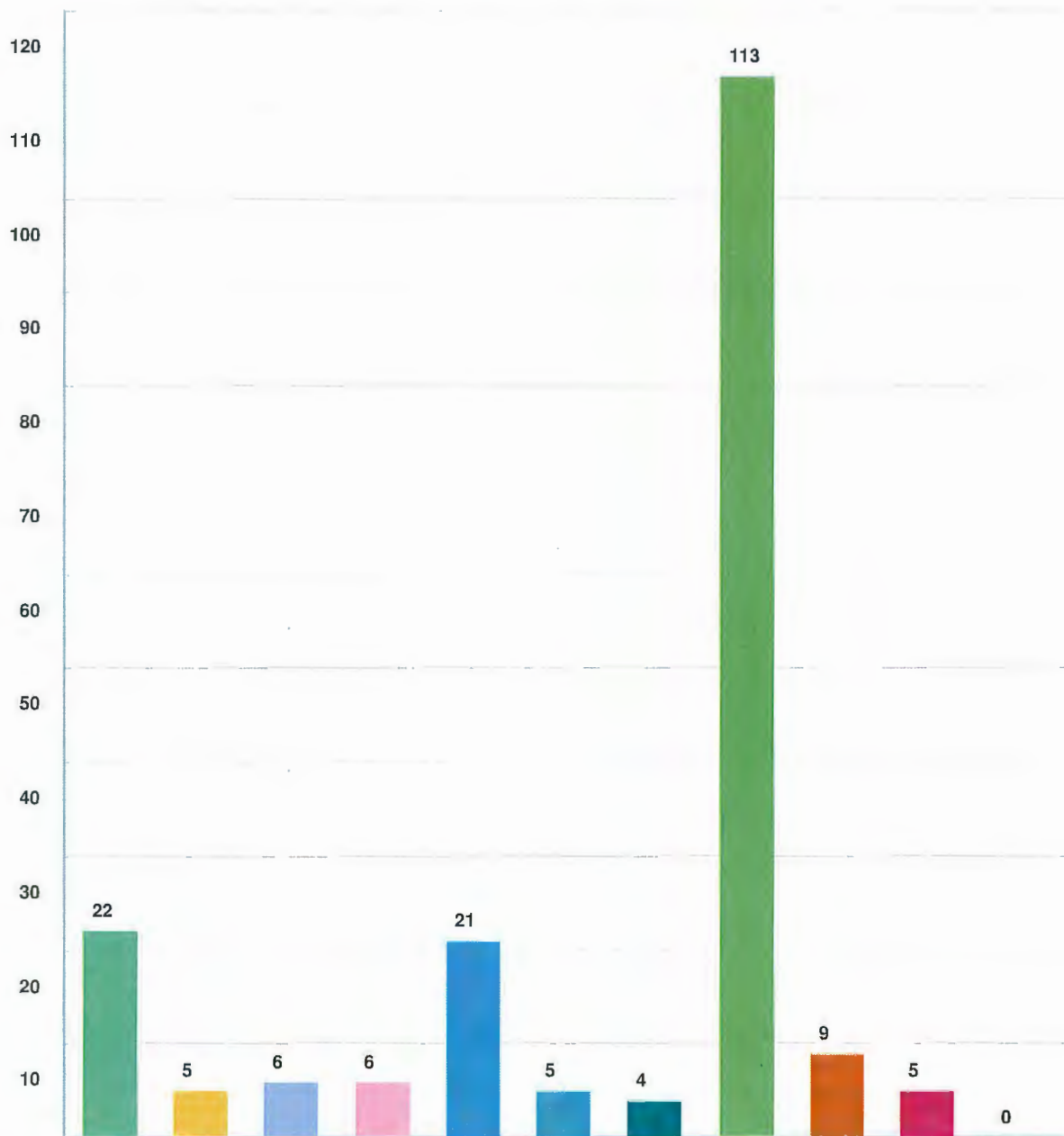


Question options

- ☒ 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)

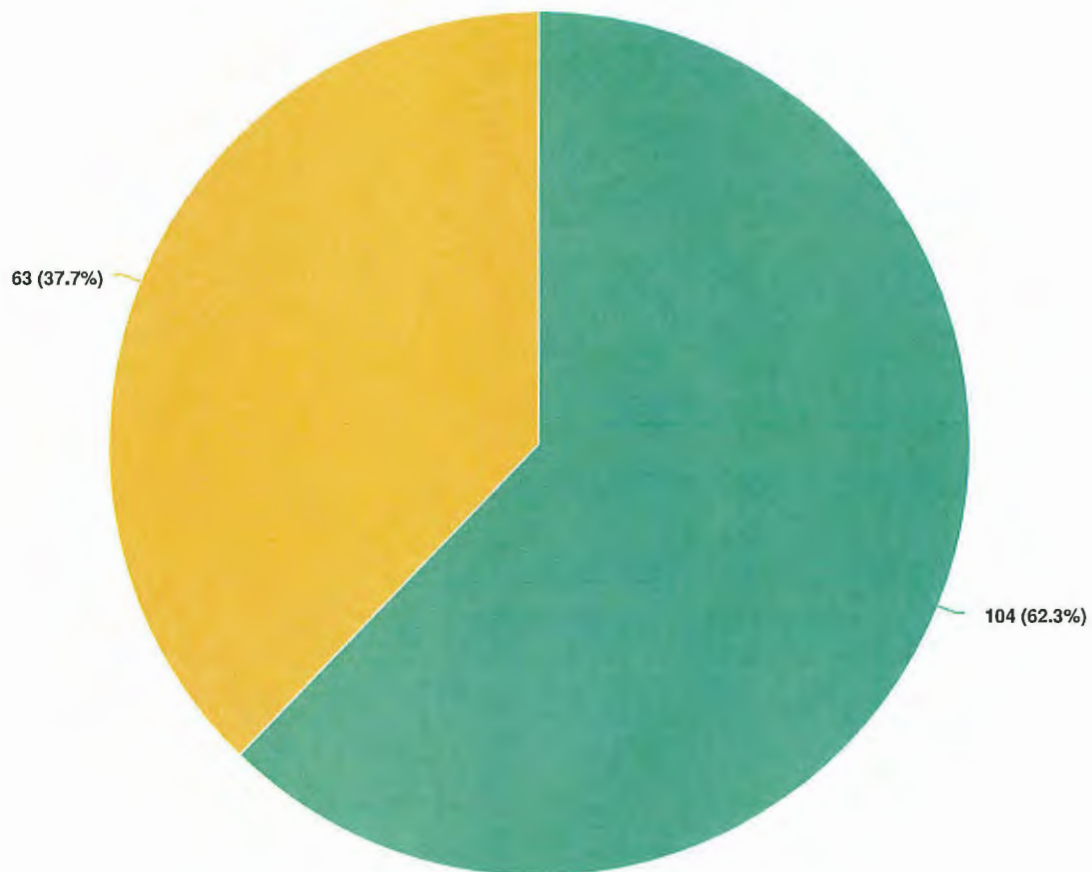


Question options

- 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

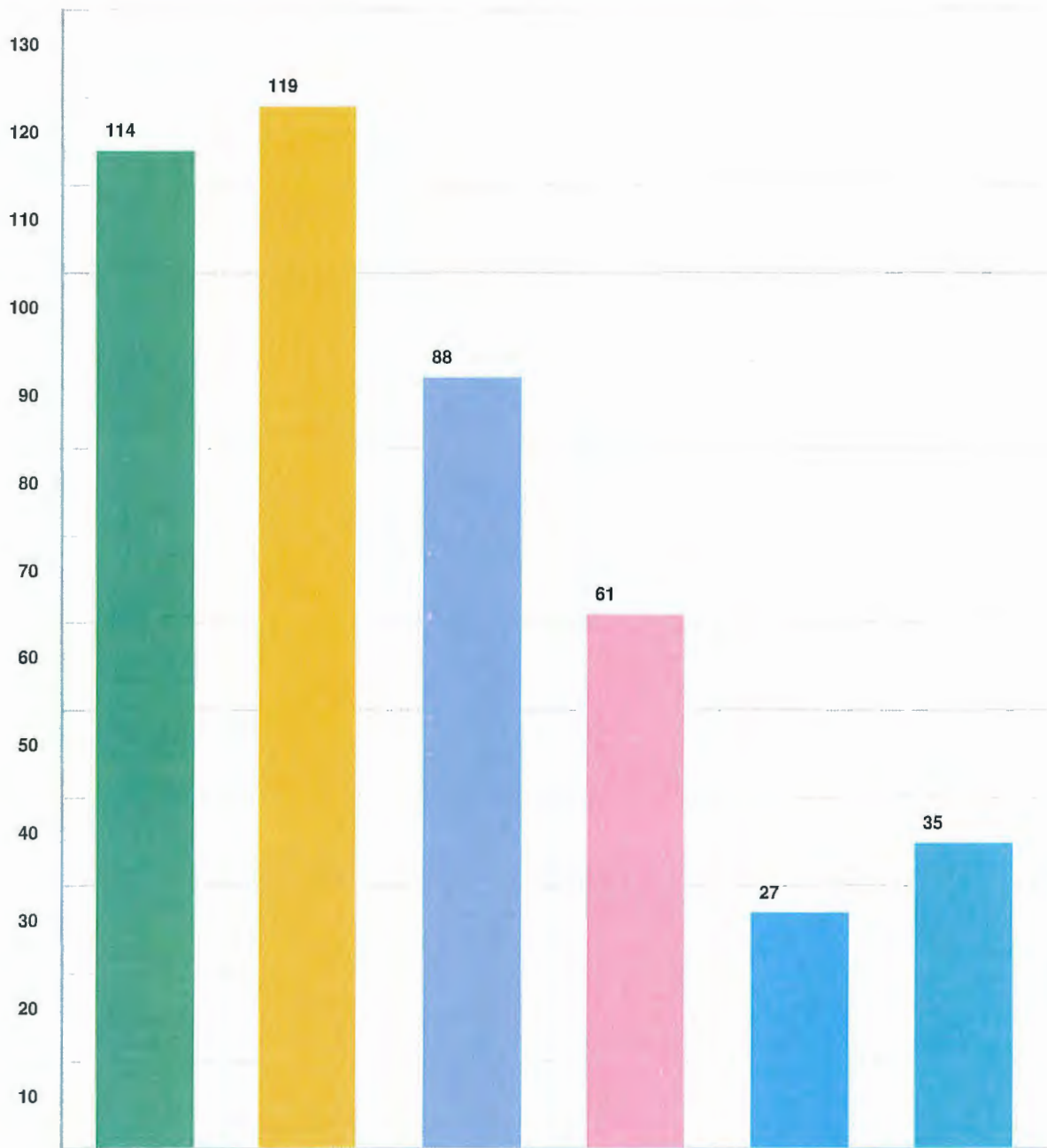
Yes No

(167 responses, 0 skipped)

Q6: There were email addresses provided.

Complete Communities

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



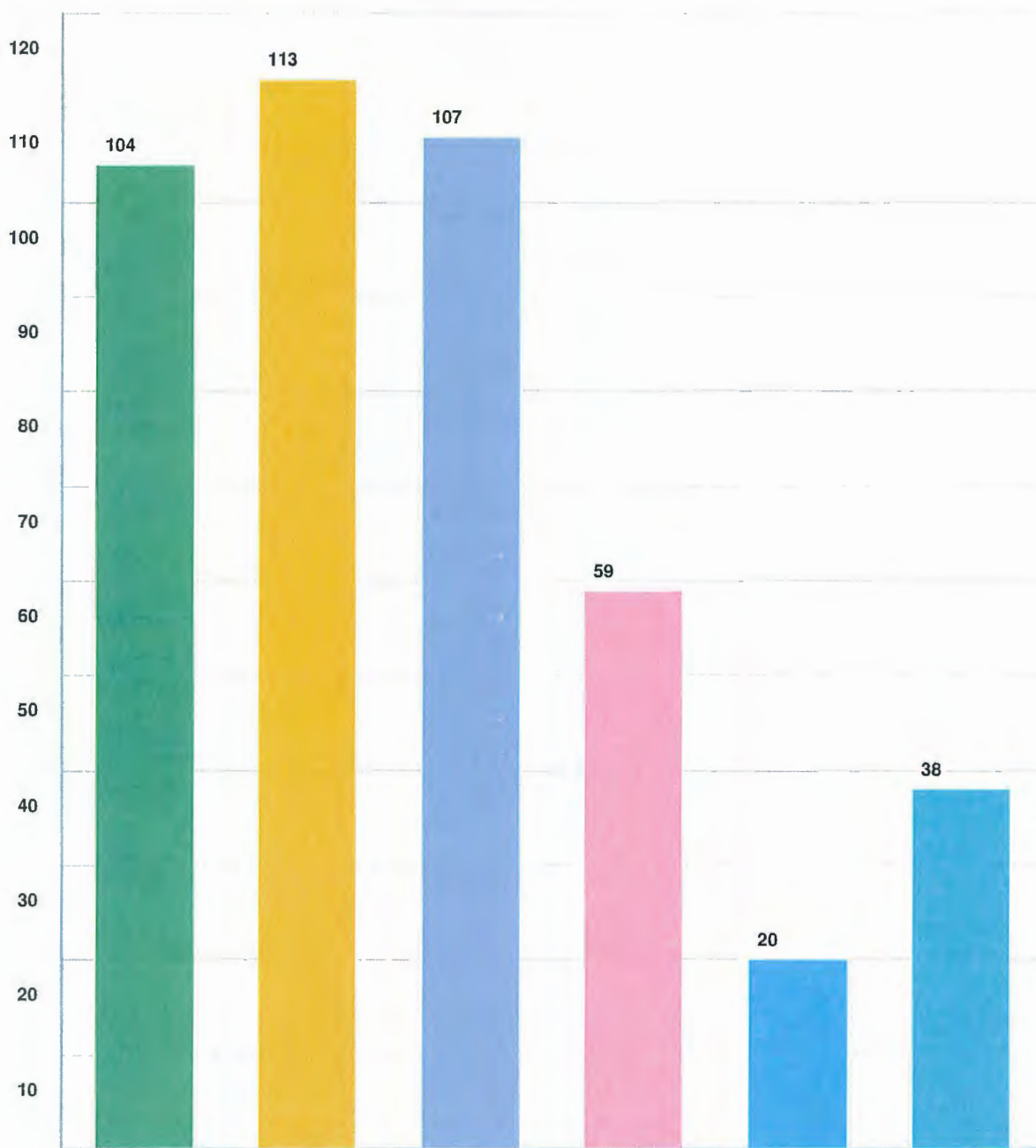
Question options

- 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.



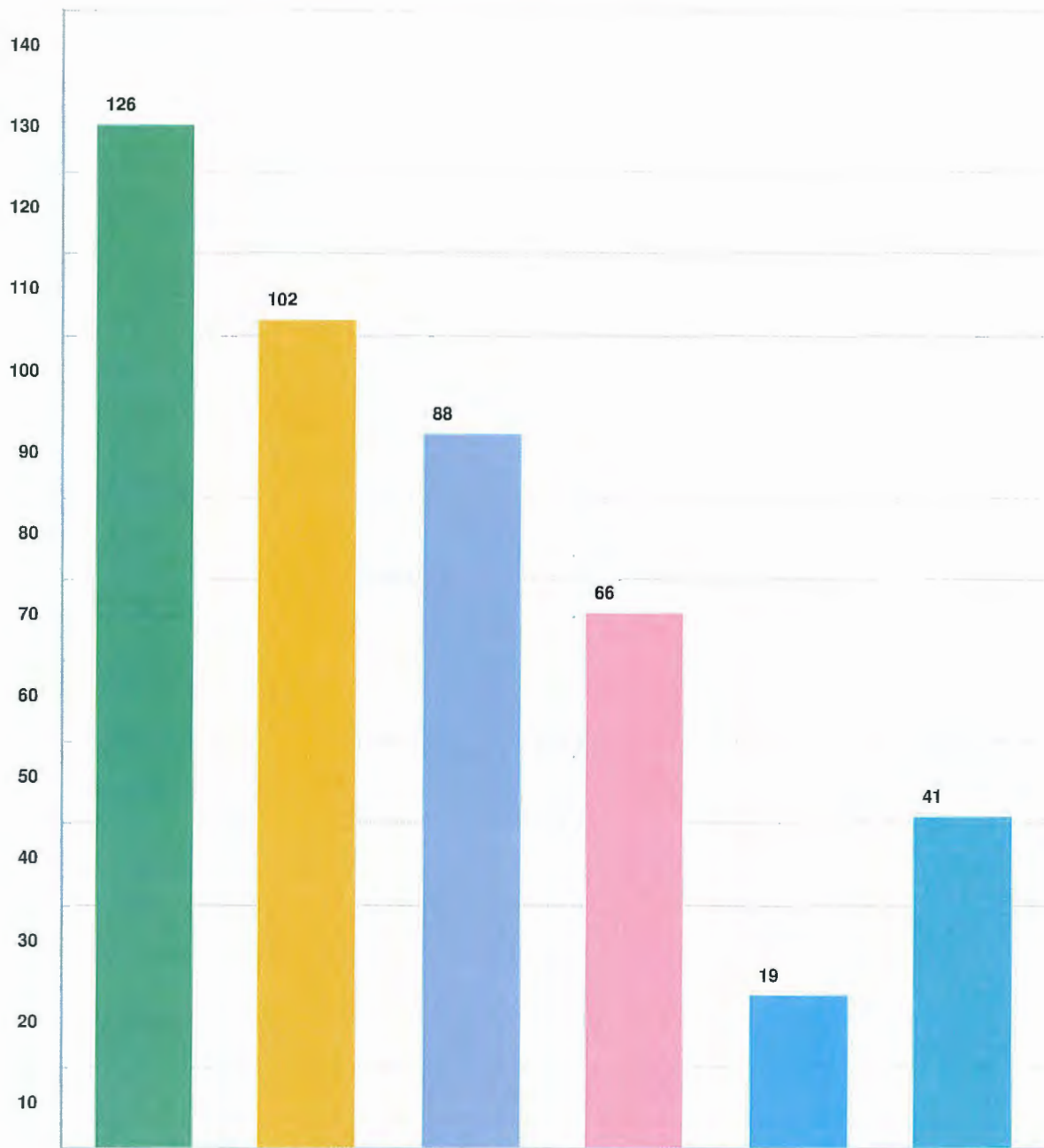
Question options

- 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.



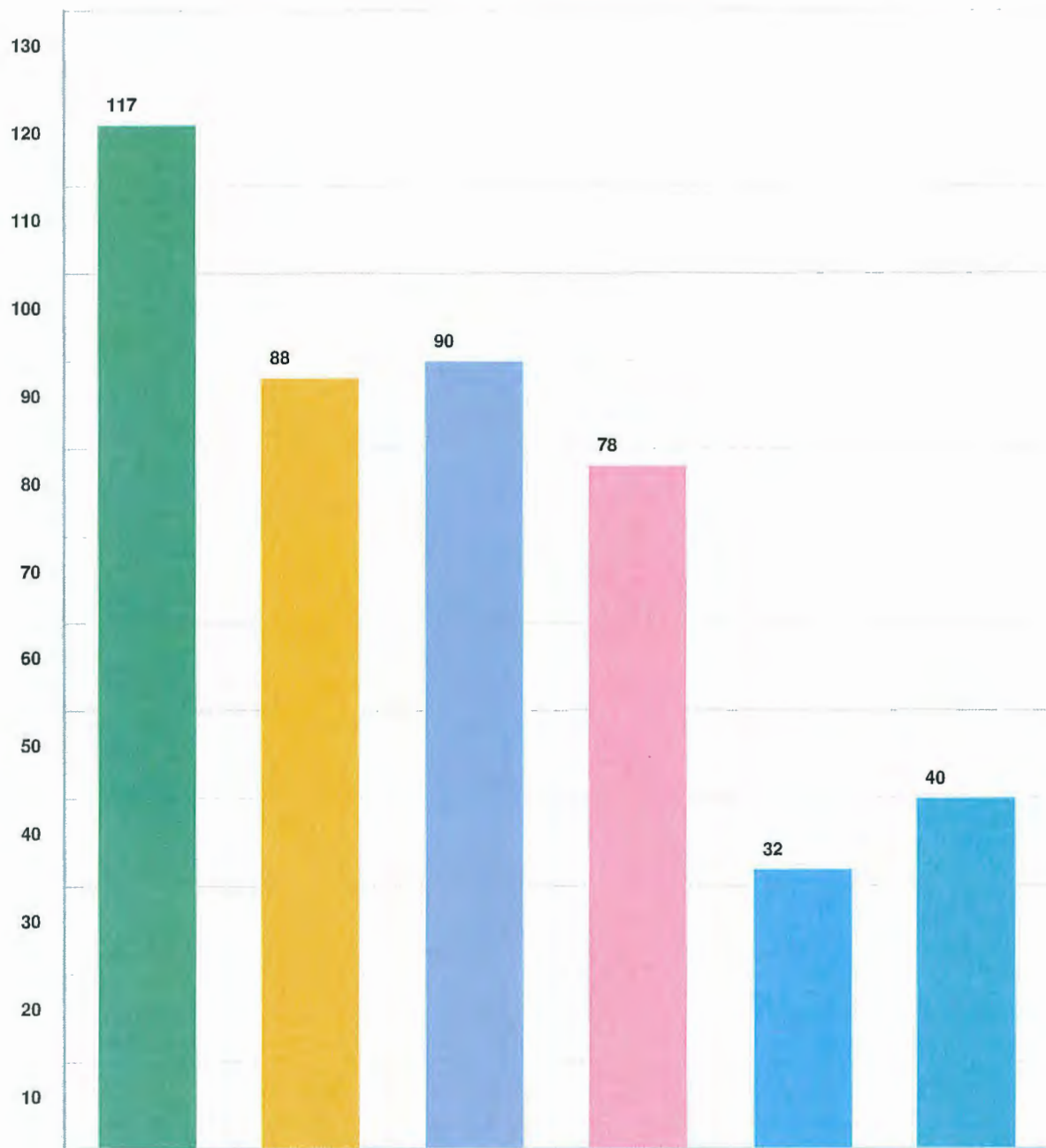
Question options

- 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.



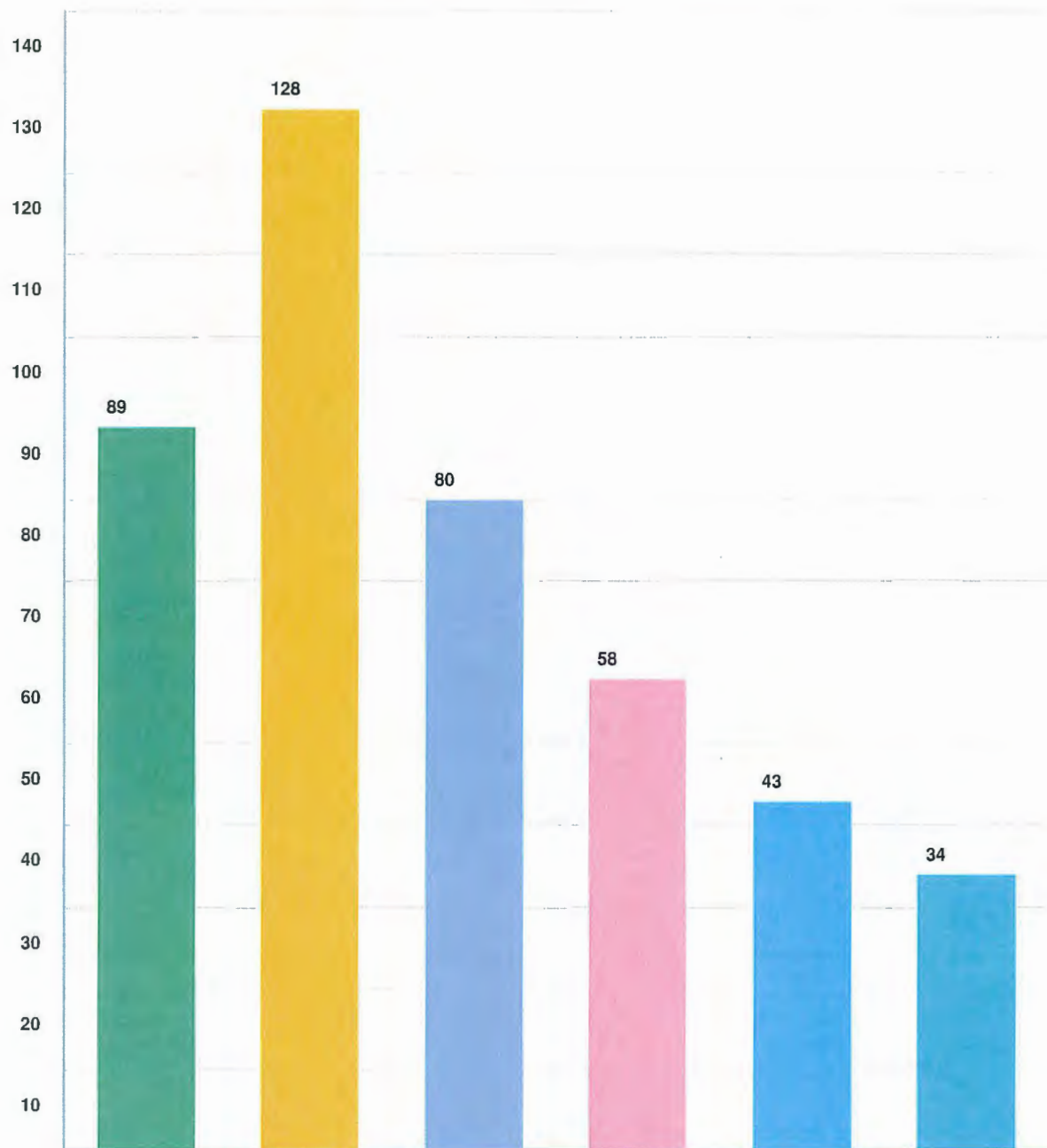
Question options

- 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.



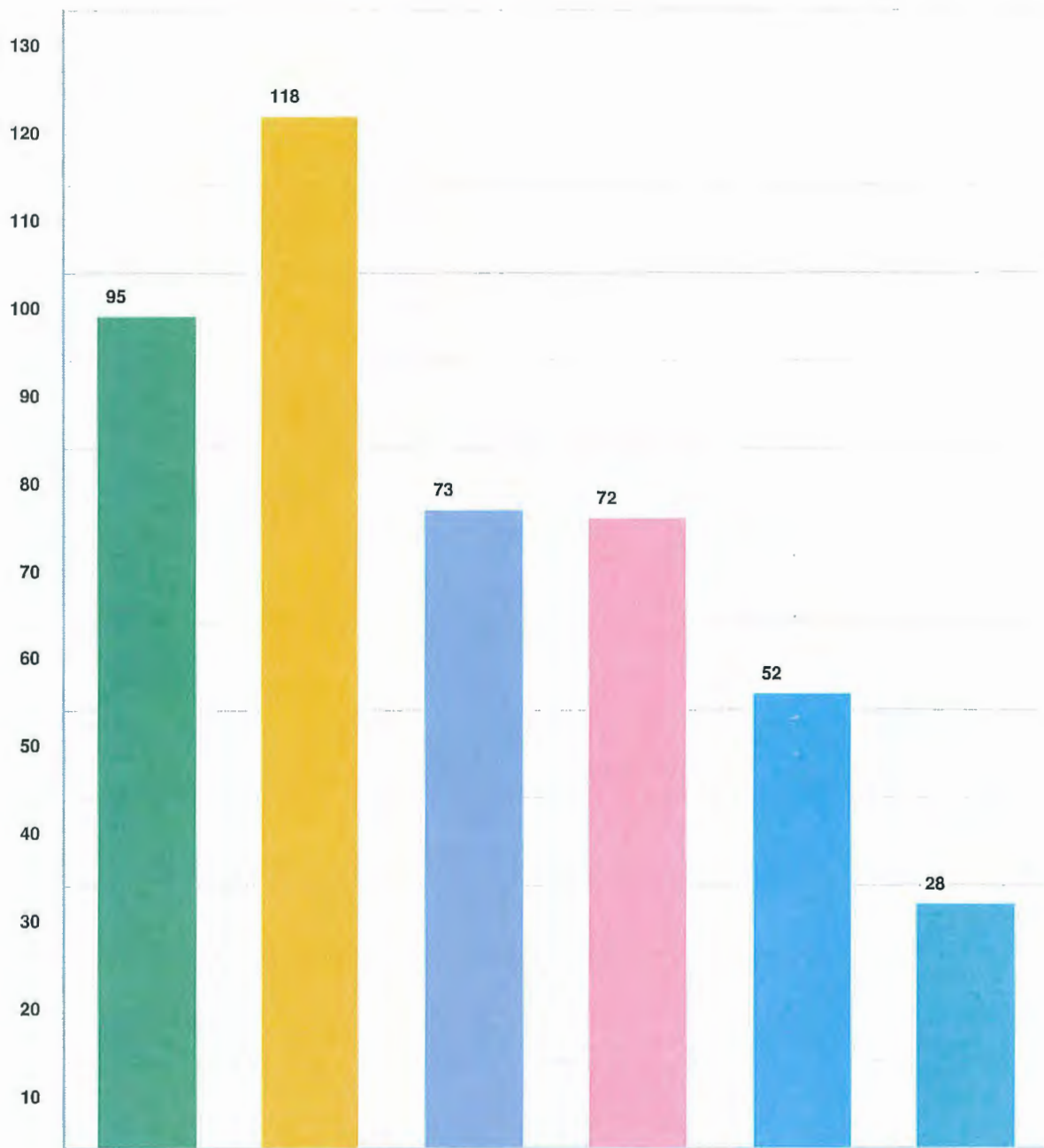
Question options

- 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.



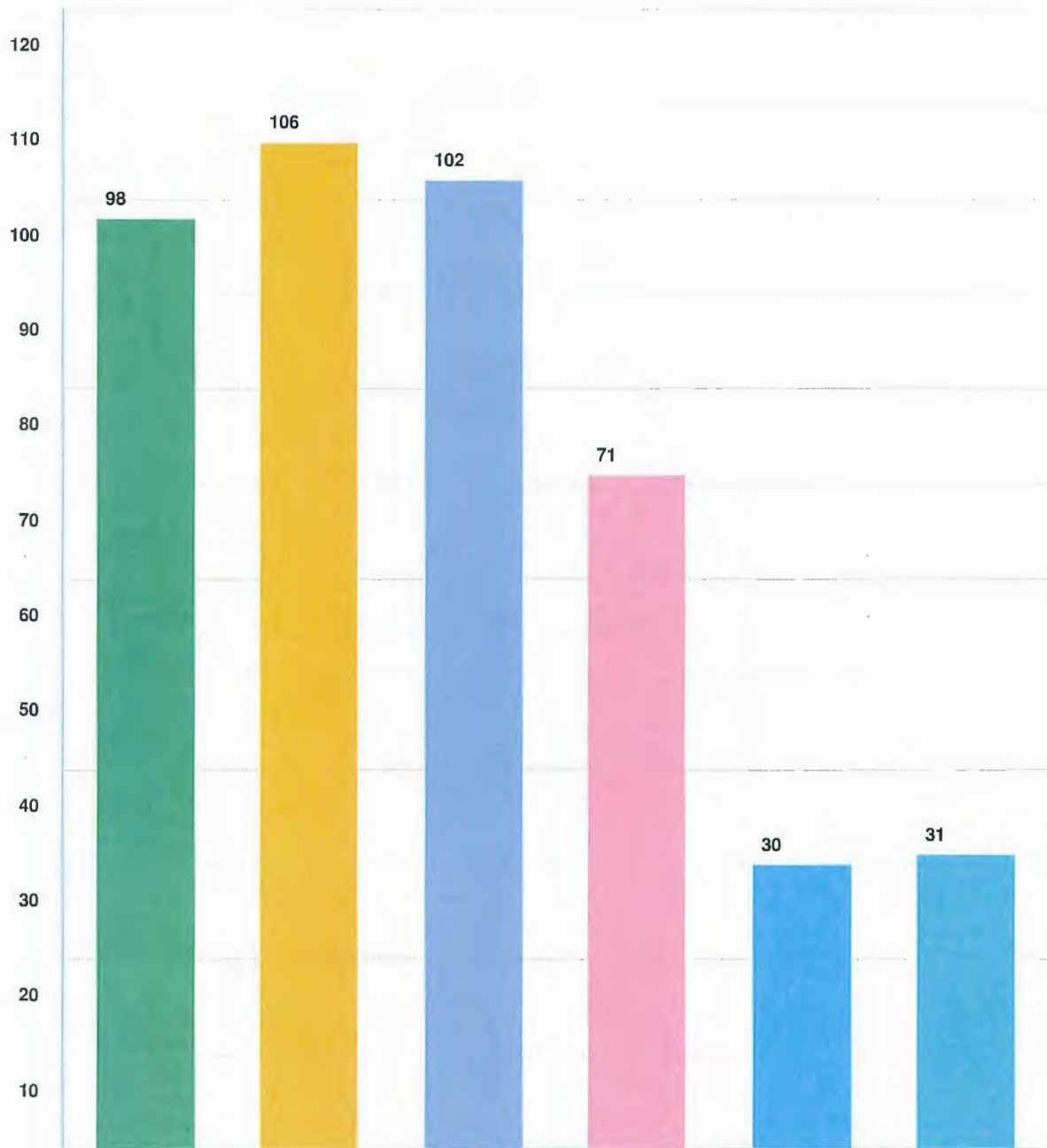
Question options

- 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.



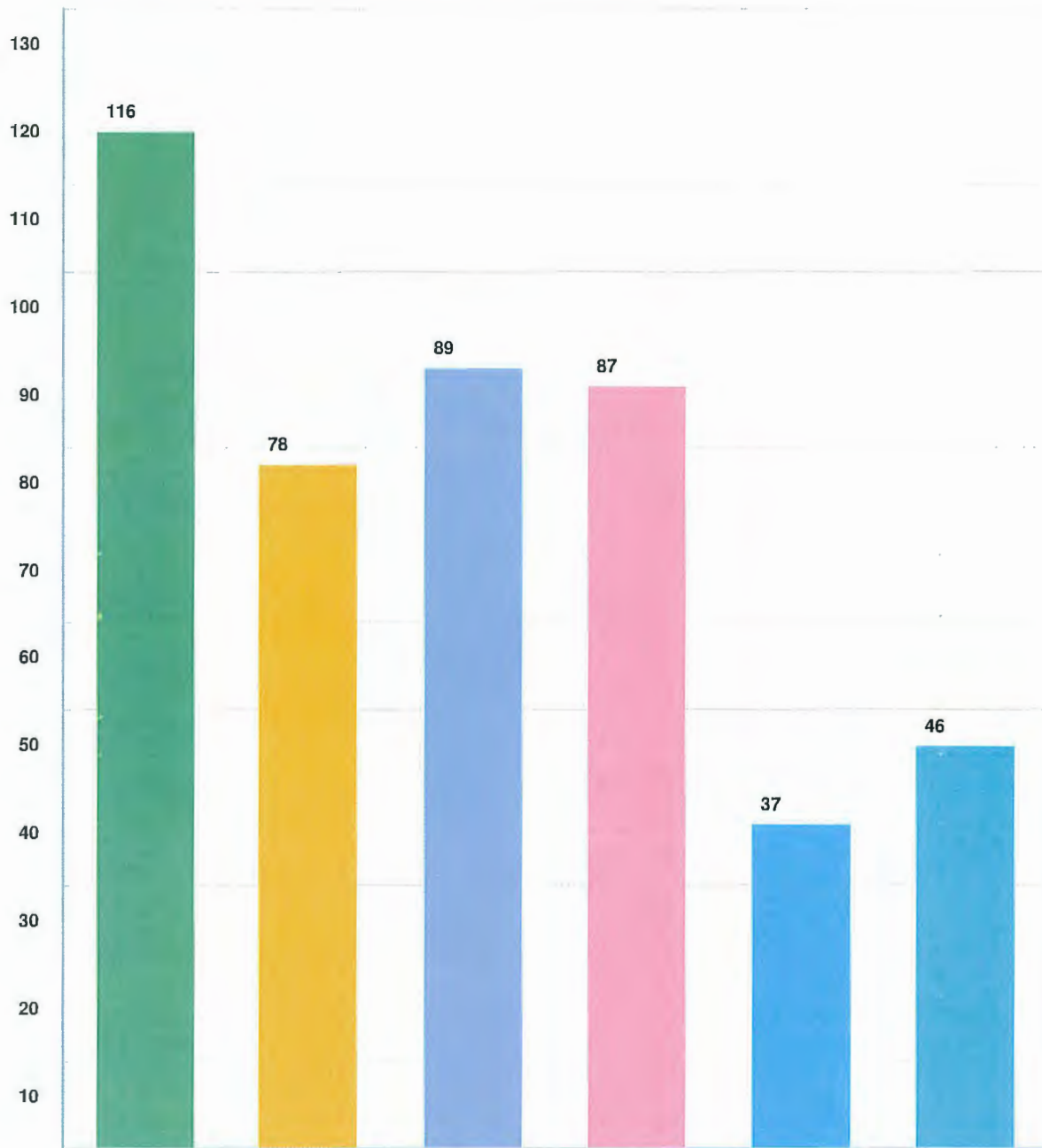
Question options

- 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.



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]*

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

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	Policy & Regulation <ul style="list-style-type: none">– <i>Percentage of recycled materials in new buildings</i>– <i>Energy efficiency targets [for new buildings]; for energy, water, electricity</i>– <i>Push for higher level of the Step Code</i>
2	Infrastructure <ul style="list-style-type: none">– <i>Increase Lulu Island Energy Company to provide energy to smaller groups of buildings / neighbourhoods</i>

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

3	Incentives – [Make incentives] <i>work better for individuals</i>
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Rank	Direction Choices and Written Comments (Participant #2)
1	Policy & Regulation – <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	Infrastructure – <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	Incentives – <i>Meaningful incentives to build to zero carbon or energy-positive buildings</i>

Rank	Direction Choices and Written Comments (Participant #3)
1	Policy & Regulation – <i>Most powerful lever</i> – <i>Require low-carbon construction materials</i> – <i>Putting caps on building emissions</i>
2	Infrastructure – <i>Expand municipal energy projects</i>
3	Incentives – <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	Policy & Regulation – <i>[Set] energy efficiency requirements</i> – <i>Potential for effectiveness</i>
2a	Collaborations & Partnerships – <i>Good potential to generate solutions with modest cost [by City]</i>
2b	Outreach & Capacity-Building – <i>Good potential to generate solutions with modest cost [by City]</i>
3	Infrastructure – <i>Potential to design effective 'neighbourhoods of structures' and supportive utilities (e.g., heat exchangers, water collection), streets, parking lots, parks</i>

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

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*

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

Individual Ranking and Comments

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

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

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

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

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

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

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)*

- *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*

Climate Action Community Workshop
Cambie Recreational Hall, October 3, 2019

- *“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*

- *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*

- *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*

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

- *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*

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*

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- *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 white – [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.

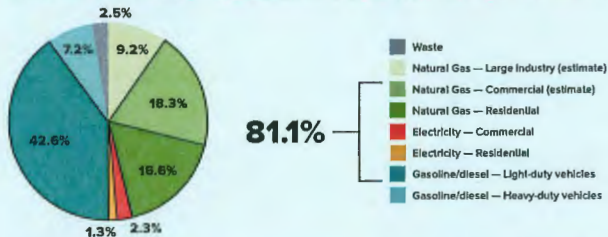
Local governments can allocate resources to increase awareness of the climate impacts of building design and operations, energy use and transportation choices, and provide information and resources to assist local residents make low-GHG decisions.

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**

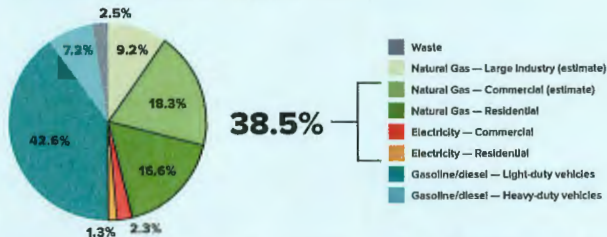
"Educate Citizens" = **Ranked #2**

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 ft² 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 m² 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-Brighthouse 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%**

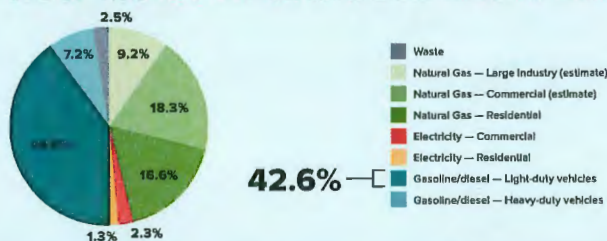
7% of respondents said nothing would convince them to take transit.

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 CO₂, 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 CO₂ 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% CO₂e 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.

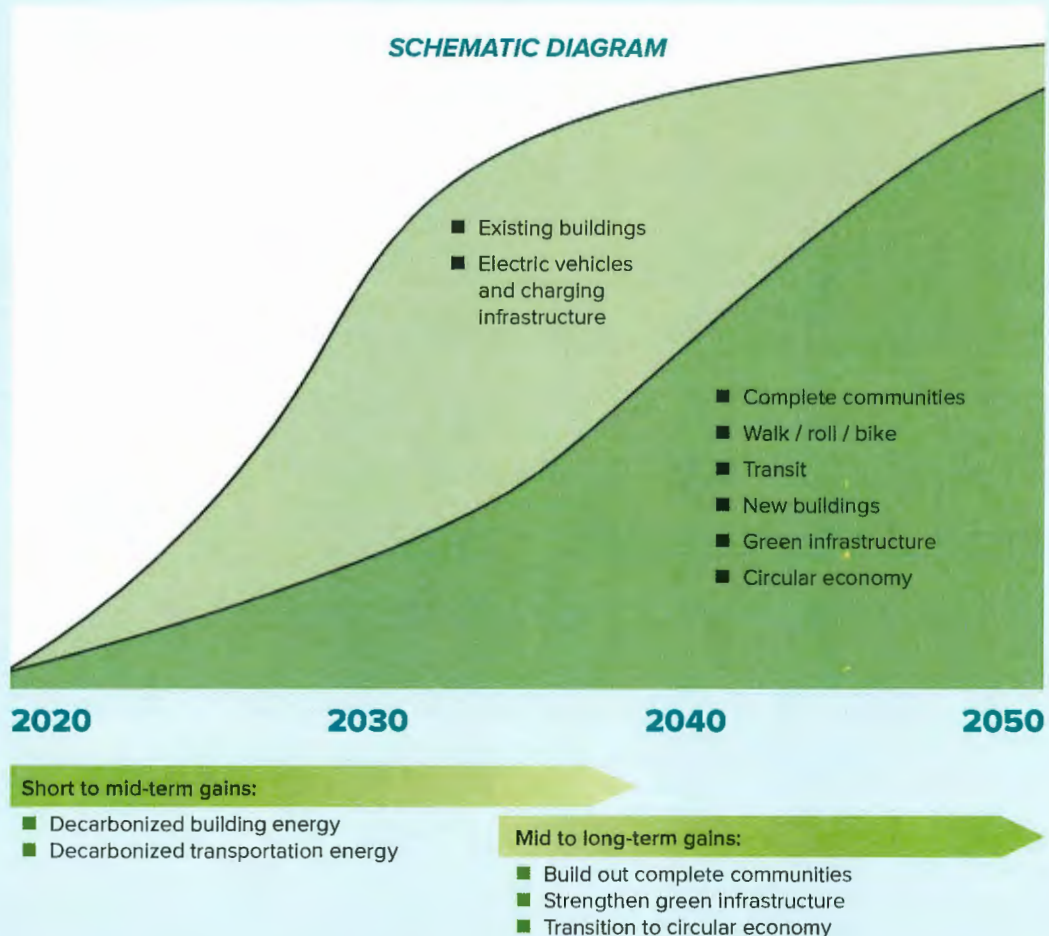
Carbon sequestration:

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 1.5°C 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?

 Policy & Regulation Examples could include:	 Infrastructure Examples could include:	 Incentives Examples could include:	 Collaboration & Partnerships Examples could include:	 Advocacy Examples could include:	 Outreach & Capacity Building Examples could include:
<ul style="list-style-type: none"> Transition residential and commercial buildings to use low-carbon heating and cooling systems (such as heat pumps) Implement Step Code for Existing Buildings energy requirements when available in the BC Building Code (est. 2024) In areas frequent transit service, consider reallocation of vehicle parking stalls in existing buildings to alternate modes (including bicycles, car share, ride sharing) 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Consider funding incentives for energy retrofit assessments, tailored to type of building Consider funding incentives for low-carbon mechanical system retrofits, such as heat pumps, tailored to the type of building Top up the Province's CleanBC Better Homes incentives with additional City incentive for existing homes (heat pumps and energy retrofits) 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 Continue to promote the availability of high-performance heat pumps in BC 	<ul style="list-style-type: none"> Condominium Buildings <ul style="list-style-type: none"> Deliver a Strata Energy Advisor Program starting in 2020, building upon good results from 2018/19 Metro Vancouver pilot Rental Apartment Buildings <ul style="list-style-type: none"> 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

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

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







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?

 Policy & Regulation Examples could include: <ul style="list-style-type: none"> Establish electric vehicle (EV) charging requirements for new commercial buildings Complete the network of public EV charging stations in all Richmond neighbourhoods Consider a low-carbon requirement in ride-hailing services (such as taxi cabs) 	 Infrastructure Examples could include: <ul style="list-style-type: none"> 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) Expand off-street public EV charging at City facilities Pilot test public Level 2 EV charging from LED streetlight circuits, and that also allow electric car-share vehicles to recharge 	 Incentives Examples could include: <ul style="list-style-type: none"> Develop an EV charging retrofit advisor program for multi-unit residential buildings (strata and rental properties) 	 Collaboration & Partnerships Examples could include: <ul style="list-style-type: none"> Encourage expanded car share service areas in Richmond Explore potential to combine EV retrofit projects for existing multi-unit residential buildings to reduce cost of transformer upgrades Partner with BC Hydro or private commercial properties to increase public EV charging network in Richmond 	 Advocacy Examples could include: <ul style="list-style-type: none"> 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 Support BC Utilities Commission approval of a distinct EV charging rate 	 Outreach & Capacity Building Examples could include: <ul style="list-style-type: none"> Promote electric mobility (EVs, autonomous EVs and car-share networks) Create guides on installing Level 2 EV charging in existing single-family and semi-detached homes, as well as townhouses
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Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)

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

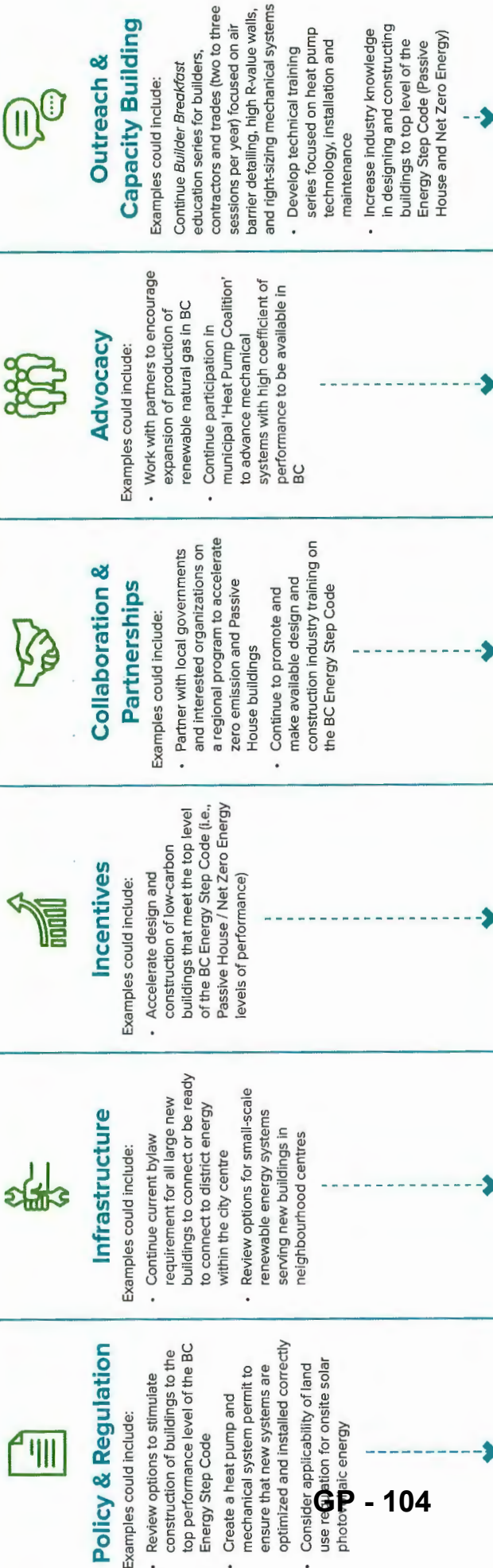
NEW BUILDINGS

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.



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)

STROVE	STROVE	STROVE	STROVE	STROVE	STROVE
STROVE	STROVE	STROVE	STROVE	STROVE	STROVE
<p>Through the Official Community Plan (OCP), the City regulates land use and sets the types of densities permitted within Richmond</p> <p>The City can set BC Energy Step Code performance requirements for new buildings in our Building Bylaw, and can also set energy performance requirements as a condition of rezoning</p> <p>Changes to the City's Zoning Bylaw and Building Bylaw require approval by Council</p>	<p>The City can implement and/or approve district energy projects and smaller scale renewable energy systems</p>	<p>The City could provide additional incentive for heat pumps to match generous incentives available for natural gas systems</p> <p>The City could develop an Exemplary Building Incentive program to drive ultra-low energy and zero emission new buildings</p>	<p>The City could partner with Zero Emissions Building Exchange and Passive House Canada on industry education and showcasing leading buildings</p> <p>The City could implement programs with other local governments or Metro Vancouver Regional District</p> <p>The City could work with senior levels of government in areas of joint interest</p>	<p>The City can request policy change and/or resourcing from senior governments at staff or political levels</p> <p>City Council can make recommendations on various issues with respect to Provincial direction on the BC Energy Step Code</p>	<p>The City could support local builders and designers with technical bulletins and training offered by BC Institute of Technology (BCIT), BC Housing and Small Planet Supply</p> <p>The City could promote and expand hands-on building air tightness training sessions for homebuilders and trades to meet the Step Code</p> <p>The City can offer training sessions on designing buildings to meet the top level of the Energy Step Code</p>

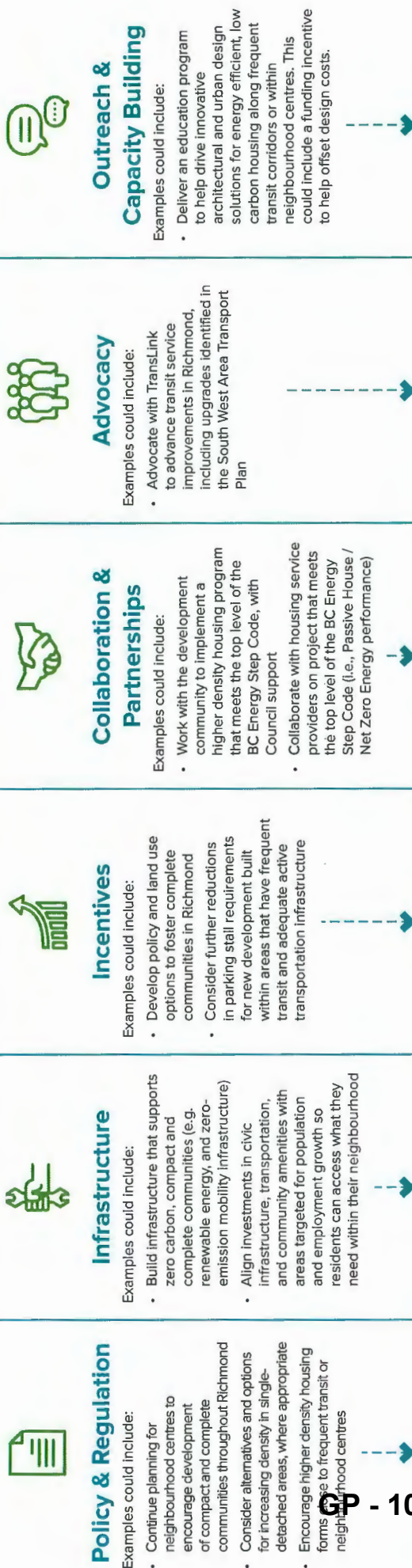
COMPLETE COMMUNITIES

DIRECTION

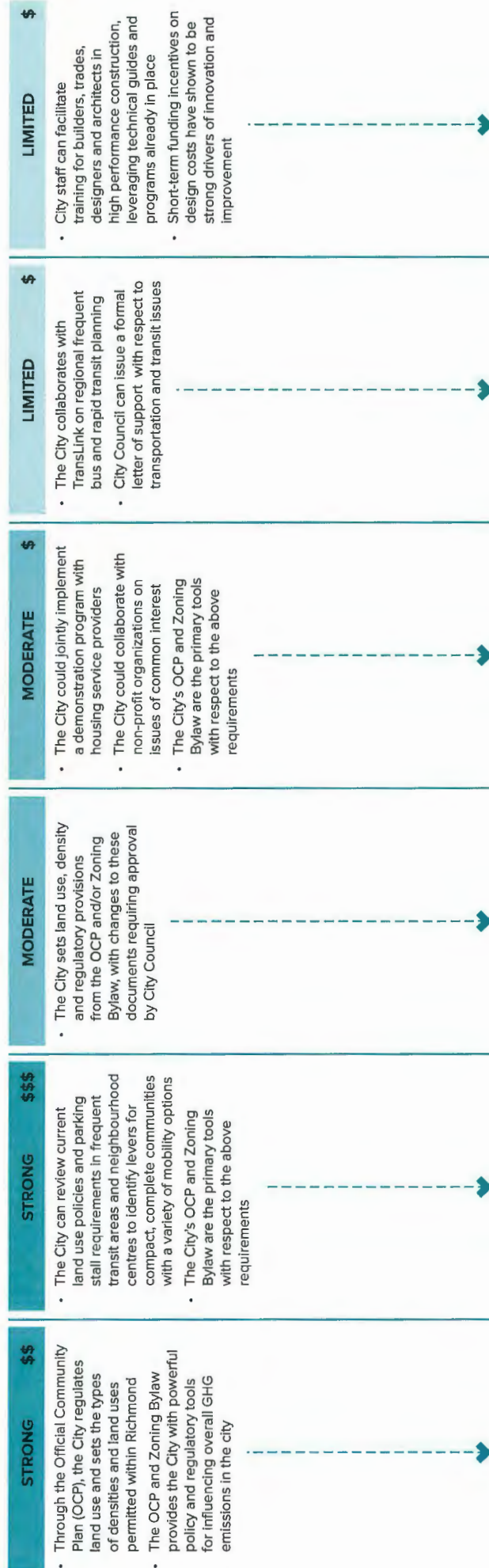
Creating compact, complete communities throughout Richmond (a range of services, amenities and housing choice, and sustainable mobility options within a five-minute walk of your home) will lead to sustained greenhouse gas reductions, reduced energy use and improved affordability.



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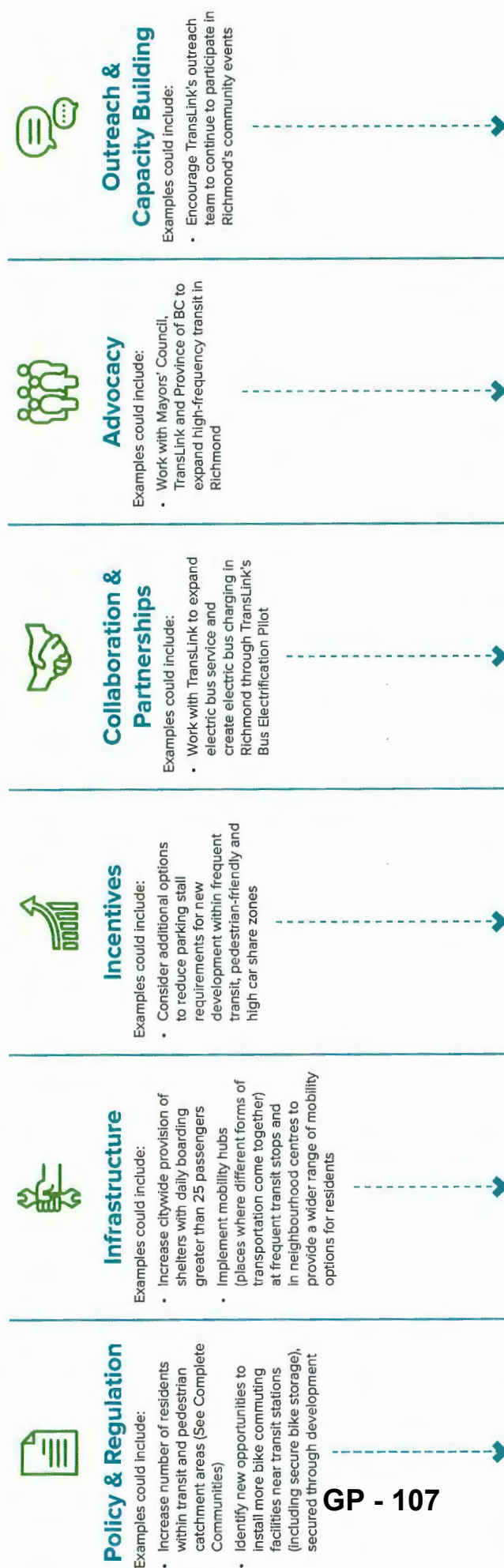
Level of City Control and Funding Required (\$ Low cost | \$\$ Moderate cost | \$\$\$ High cost)

<h3>STRONG</h3> <ul style="list-style-type: none"> Municipalities regulate land use (Official Community Plan) and can create urban design guidelines for streets, sidewalks, lanes and bicycle paths 	<h3>STRONG</h3> <ul style="list-style-type: none"> 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 	<h3>STRONG</h3> <ul style="list-style-type: none"> 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 The Zoning Bylaw regulates off-street parking requirements, and any changes require review and approval by Council 	<h3>MODERATE</h3> <ul style="list-style-type: none"> The City could increase funding for learn-to programs, and engage with residents and business owners on e-mobility and active transportation 	<h3>LIMITED</h3> <ul style="list-style-type: none"> 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 	<h3>LIMITED</h3> <ul style="list-style-type: none"> The City could co-sponsor events in tandem with local community organizers (e.g., annual Car Free Day)
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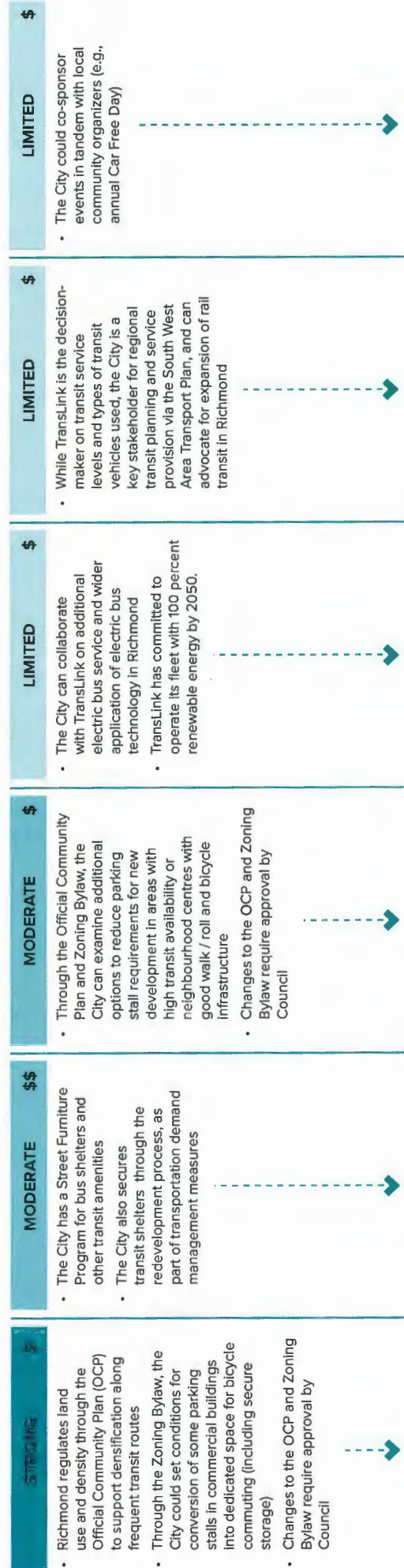
DIRECTION

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.

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)



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.

50% ADVANCING
RICHMOND'S
CLIMATE
LEADERSHIP
30



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 & Regulation</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> Create policy to protect carbon already stored within Richmond soils, peatlands and urban tree canopy, and investigate additional sequestration opportunities Consider developing a city-wide urban forest management strategy for private land 	 <h3>Infrastructure</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> 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 	 <h3>Incentives</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> Consider options to increase the tree canopy in urban areas of Richmond by encouraging a net gain in number of trees planted each year 	 <h3>Collaboration & Partnerships</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> Work with Federal Government and the Province of BC to enhance water table levels within City-owned central wetlands peat areas Partner with Agricultural Land Reserve (ALR) Commission and Kwantlen Polytechnic University on the use of agricultural waste as biomass fuel 	 <h3>Advocacy</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> 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 	 <h3>Outreach & Capacity Building</h3> <p>Examples could include:</p> <ul style="list-style-type: none"> Promote best agricultural practices and resiliency by protecting carbon in soils Promote value of central wetlands, Sturgeon Bank, and Richmond's urban tree canopy
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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"> 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 	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> The City could fund a subsidized tree-planting program for private land in urban areas 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> City could request ALR policy change The Farm Practices Protection Act and ALR Legislation limits what the City can influence on agricultural land 	<ul style="list-style-type: none"> City could partner with external organizations on outreach and education campaigns for agricultural land owners, businesses and general public

WASTE MANAGEMENT AND CIRCULAR ECONOMY

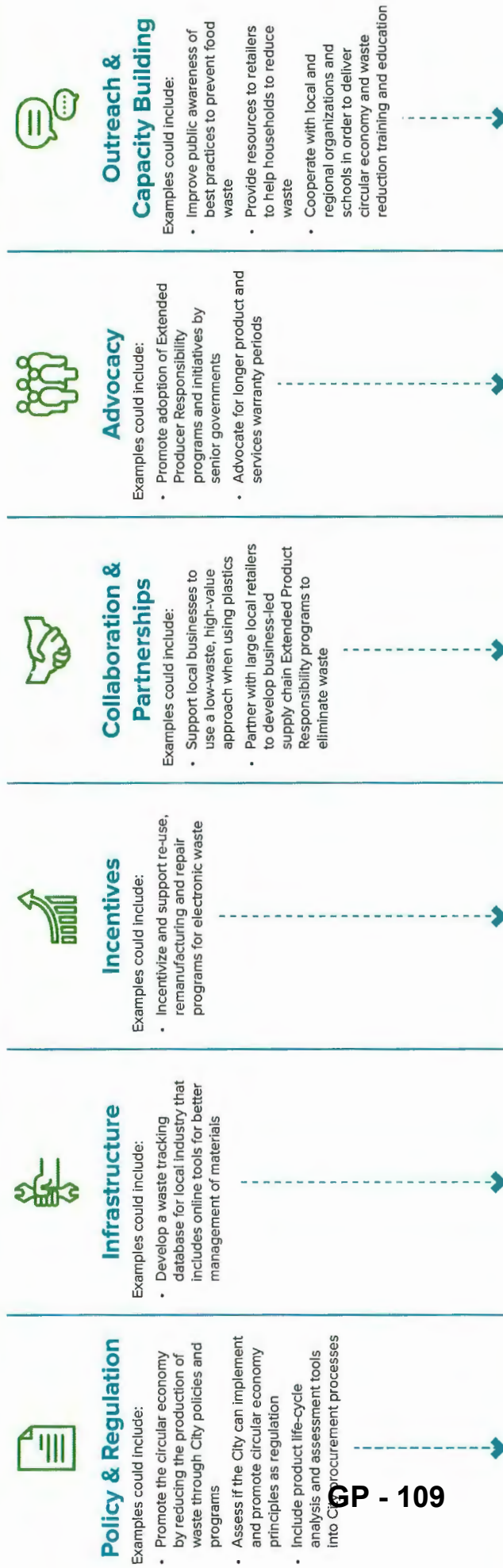
DIRECTION

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.

50% ADVANCING CLIMATE LEADERSHIP 30



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)

MODERATE	\$	LIMITED	\$	MODERATE	\$\$	MODERATE	\$\$\$	LIMITED	\$	LIMITED	\$
<ul style="list-style-type: none"> 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 City could require a food waste reduction plan as a condition of local business licences and permits 		<ul style="list-style-type: none"> The City could increase the proportion of recycled and reclaimed materials used in City projects 		<ul style="list-style-type: none"> The City could provide additional space for materials sorting at City facilities (e.g. Public Works Yard) 	<ul style="list-style-type: none"> The City could participate in regional, national and international waste reduction/circular economy pilot initiatives, zero waste stakeholder committees and conferences The City could implement a business-to-business online waste resource marketplace 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 	<ul style="list-style-type: none"> The provincial government has the strongest mandate for action on Extended Producer Responsibility 	<ul style="list-style-type: none"> Help the public further understand the importance of material recycling 				

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

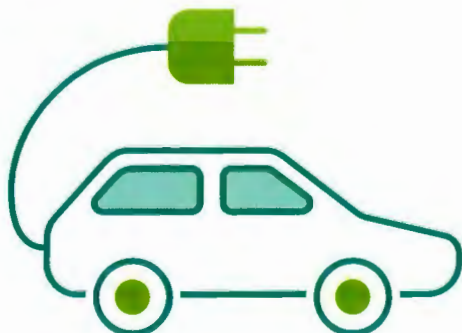
CARBON REDUCTION IMPACT BY 2030

- 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 CO₂ 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

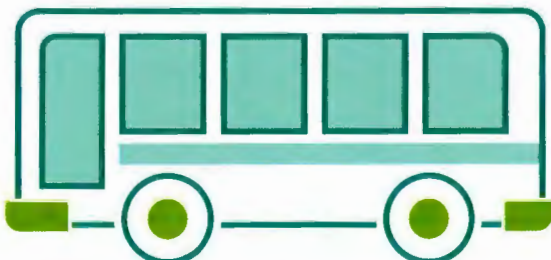
- Richmond is expanding the number of bus stops with shelters. Currently, nearly 100 bus stops have shelters. Over 80% of bus stops are accessible.
- Developers are fully funding the construction of a new Canada Line station at Capstan Way; design work is now underway.

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 CO₂e 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 CO₂, 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.



City of Richmond

Report to Committee

To: General Purposes Committee

Date: December 20, 2019

From: Jim Young
Director, Facilities and Project Development

File: 06-2050-01/2017-Vol 01

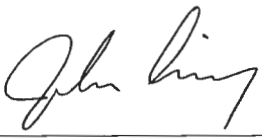

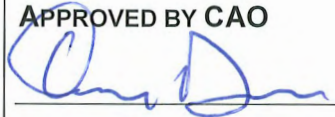
Re: Ageing Facility Infrastructure – Update

Staff Recommendation

That the report titled “Ageing Facility Infrastructure – Update” dated December 20, 2019 from the Director, Facilities and Project Development, be received for information.

Jim V. Young

Jim Young, P.Eng.
Director, Facilities and Project Development
(604-247-4610)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance Division	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

On September 23, 2002, staff submitted an Ageing Facility Infrastructure Report to Council for information as requested by the Public Works and Transportation Committee. The purpose was to provide Council with a pictorial overview of typical problems, a summary of the prioritized maintenance deficiencies and Facility Condition Index (FCI) for the selected buildings.

The report highlighted the early stage facility condition assessments done through the recently adopted Vanderwell Facility Advisors assessment program and computerized maintenance planning software (now VFA Canada Corporation) through RFP 2238P. Facility condition assessments have continued on a rotating schedule since 2002 providing valuable building information used to forecast the City's facility maintenance needs.

Staff have submitted multiple Ageing Facility Infrastructure Update Reports since the 2002 Report to Council for information. The reports are a means to periodically update Council on the overall facility condition, age, and future needs. The reports also provide Council with a comprehensive view of the City's infrastructure and funding needs which serve to support our upcoming capital submissions to better maintain the City's building inventory.

This report supports Council's Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

Enhance and protect the safety and well-being of Richmond.

1.2 Future-proof and maintain city infrastructure to keep the community safe.

This report supports Council's Strategic Plan 2018-2022 Strategy #4 An Active and Thriving Richmond:

An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.

4.2 Ensure infrastructure meets changing community needs, current trends and best practices.

This report supports Council's Strategic Plan 2018-2022 Strategy #5 Sound Financial Management:

Accountable, transparent, and responsible financial management that supports the needs of the community into the future.

5.3 Decision-making focuses on sustainability and considers circular economic principles.

Background

The City's owned and leased facilities inventory consists of 165 buildings with a total building area of approximately 2,200,000 sq. ft. These facilities are operating as intended and will continue to do so with appropriate funding levels.

City facilities are critical to the delivery of a broad range of services to the public. Several of the facilities are unique to Richmond and establish an important and positive cultural or iconic identity, such as Britannia Shipyards National Historic Site, Branscombe House, Seine Net Loft and the Richmond Olympic Oval.

Construction of City-owned facilities is accomplished through Council approved capital programs and/or agreements with developers. For capital projects, staff define a scope of work in consultation with the user groups and the public, leading to construction through the public procurement process. A similar process is followed with developer related facilities, whereby the developer often assumes the role of design/construction lead and City staff assumes a review/approval and quality assurance role.

Once constructed, it is necessary to fund and perform day-to-day operations and maintenance activities at all facilities to enable their intended uses, including janitorial services and minor repairs/replacements such as filter replacements to HVAC systems. It is also necessary to fund and complete preventative maintenance programs, which may include items such as roof replacement, boiler replacement and new paint for the building interior/exterior, to ensure continuity of service.

The practical life expectancy of a facility is generally 45 years or more; however, with regular preventive maintenance, the life of a quality building can be extended much longer. The City currently has Council approved funding in place for operations/maintenance, preventative maintenance and capital replacement programs. The Capital Building and Infrastructure Reserve has been established to fund capital related facility construction and major renovations.

On an ongoing basis, staff develop and update a comprehensive plan for capital repair and improvements. This plan considers the condition of all current infrastructure assets such as buildings and equipment, and is used to plan infrastructure replacement and repair needs in the future within available capital and operating funding levels.

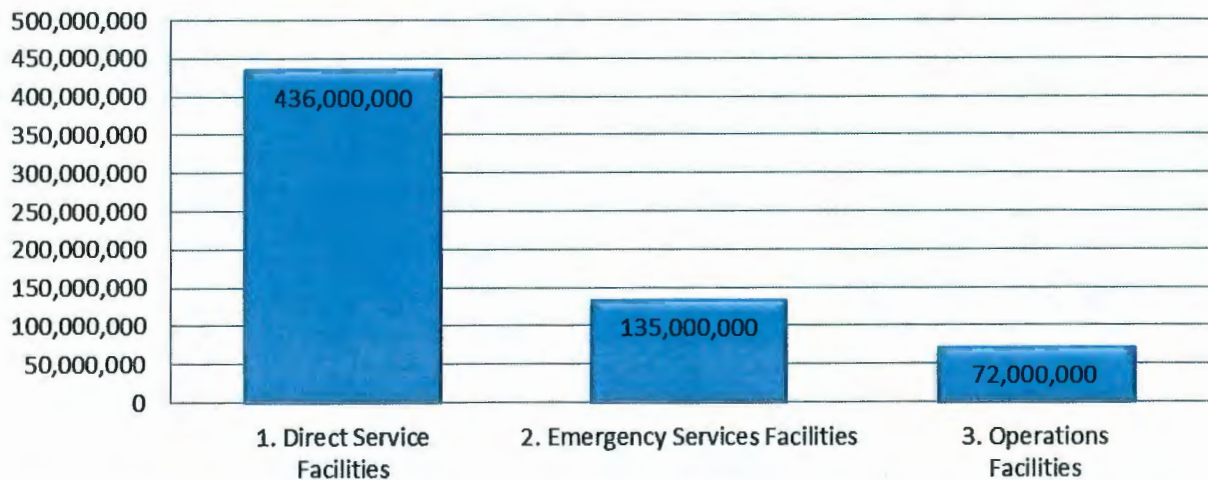
The City's building inventory is comprised of three categories, specifically facilities that serve community services, emergency services and City operations.

1. **Direct Service Facilities** – These are facilities where the public comes to access service or do business. This includes City Hall, community centres, libraries, sports/recreation, heritage, social programs and related facilities.
2. **Emergency Service Facilities** – This category includes fire, police, emergency response programs and related facilities.

3. **Operations Facilities** – These are facilities that are critical to service and infrastructure support, but do not receive the public. The key facility in this category is the Works Yard, excluding the recycling depot.

The graph below illustrates Council approved capital funding from 1989 to 2019 for the City's three building categories.

Capital Expenditure by Facility Category 1989 - 2019



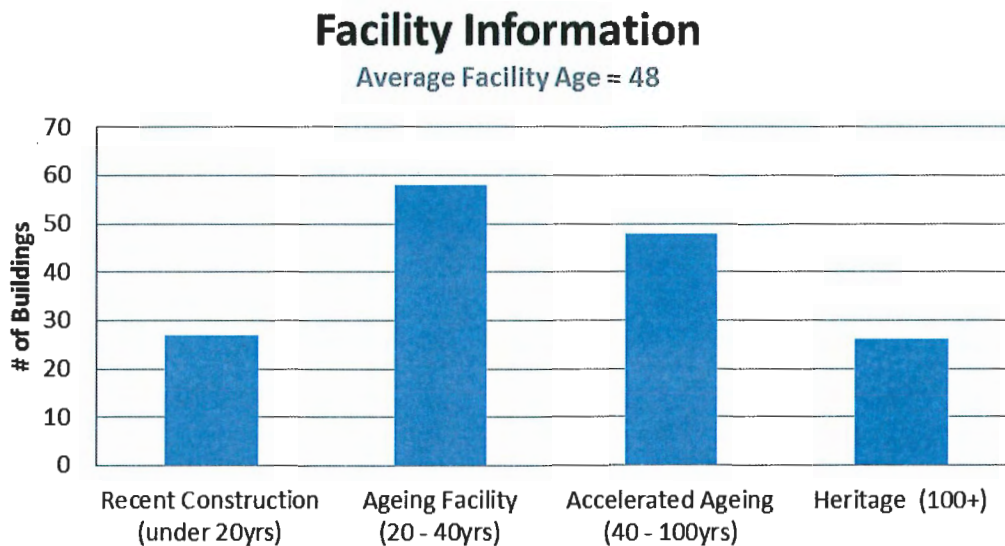
The City currently has Council approved annual funding in the operating budget of approximately \$4 million for Infrastructure Replacement and Building Improvement programs. This is for repair and preventative maintenance, but is insufficient to ensure buildings remain operable. Additional capital funding is always required to complete major repairs and replacements for critical building components, such as roofs, boilers and elevators. For 2019, facility related capital utilities funding of \$17.5 million was approved by Council to complete major repairs to buildings such as Gateway Theatre, Watermania, Minoru Arenas, the Works Yard, City Hall and City Hall Annex facilities. Additional operating budget funding is also in place to complete day-to-day facility operations related activities such as janitorial, minor repairs, etc., as well as payment for power, gas, etc.

These preventative maintenance and facility capital programs are planned in advance by staff with the aid of maintenance planning software and are based on information collected through regular building condition assessments. These assessments are critical for staff in understanding the overall health and condition of the City's building portfolio and the subsequent analysis enables staff to recognize levels of deferred maintenance and to anticipate future maintenance needs.

The City generally completes annual physical audits of 25 per cent of City facilities through detailed site visits and assessments. These assessments are conducted by a team of engineers, architects and staff through facility site walks, interviews, testing, plan review and historical maintenance reporting in order to expertly assess the overall facility condition.

Analysis

Through previous assessments and facility information, the City's general building portfolio is entering a period of decline as the average building age is 48 years, which is beyond the practical life expectancy of 45 years. While some assets are in reasonable shape and lasting longer than anticipated, other assets have deteriorated due to heavier use or less resilient design/construction and deferred maintenance levels. The graph below provides an overview of facility age and number of buildings in each age category.



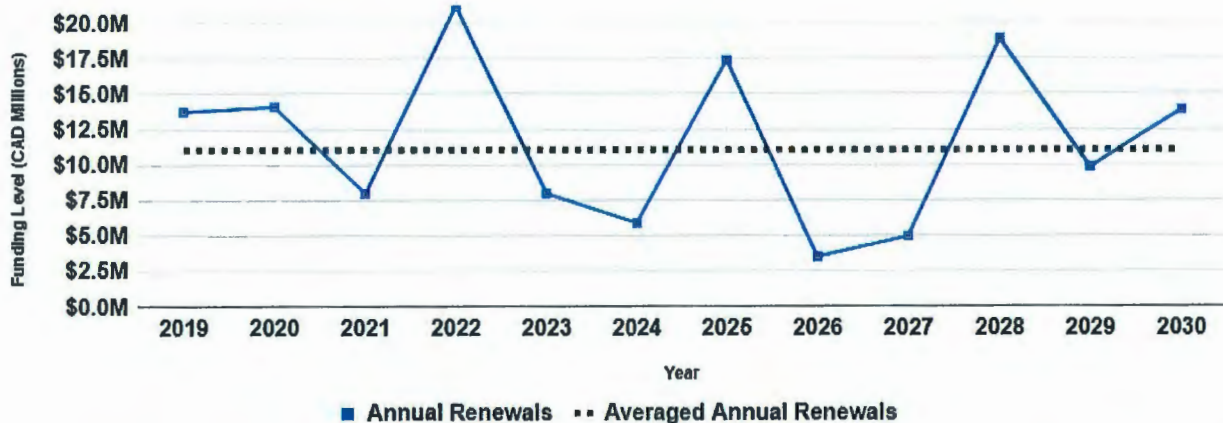
As more facilities enter into the accelerated ageing category, it is estimated that annual funding levels will need to increase for Building Improvement, Infrastructure Replacement and Capital Programs in order to ensure continued, reliable service to residents and adoption of circular economic practices. A significant example of this is the City Works Yard site which is in the accelerated ageing category and requires increased funding to accommodate major repairs and replacements to ensure the facility continues to deliver the City wide emergency response, community operations and infrastructure performance as intended. Replacement of the Works Yard has been identified by Council as a priority and will be the subject of a separate report.

Funding projections for the next 10 years are shown on the next page in the 'Facility Renewal Forecast' graph, which shows a significant rise in maintenance related costs in the near future and a required average annual funding level of \$11 million. In addition to the increase in annual funding levels, construction cost escalation is being sought annually through the budgeting process; our current escalation cost is projected to be 7 per cent as detailed in the financial impact.

Without this level of funding, our facilities would deteriorate at an accelerated rate and service levels would be negatively impacted.

Facility Renewal Forecast

Averaged Annual Funding Need - \$11M



Consequence of Facility Deterioration

A notable industry observation related to facilities is that it costs five times as much to repair a facility on an emergency or reactive basis as compared to having a preventative maintenance program.

Significant deficiencies are anticipated should City facilities be allowed to deteriorate over the next 20 years. Examples that may be typical of non-functional facility infrastructure after 20 years includes failure of roofs, boilers and HVAC systems; similar to the recent chiller failure at the RCMP building and the boiler failure at City Hall. The consequence of these items no longer functioning are significant and could lead to facility closure, service level interruption, loss of City revenue, negative public perception and elevated costs to react in emergency conditions.

While facility replacement is an excellent solution to address growth needs and implement modern systems and design, those facilities that are intended for long term use greatly benefit from the City's preventative maintenance programs.

The current service level can be maintained through increased preventative maintenance funding and continued capital funding for building rehabilitation and replacement support as follows:

- **Capital Replacement** - The Council-approved Major Facilities Phase 1 projects represent over \$124 million in capital investment for the replacement of Minoru Aquatics, Older Adults Centre, City Centre Community Centre, Fire Hall No. 1 and Fire Hall No. 3. On December 12, 2016, Council also approved Advanced Design and Planning funding to commence the Richmond Major Facilities Phase 2 program. This includes the replacement or expansion of the Richmond Animal Shelter, Richmond Lawn Bowling Club, City Centre Community Centre North, Steveston Community Centre and Branch Library. The new facilities will provide medium term relief from the increasing cost of maintaining the old facilities and introduce service level improvements. Investing in the capital replacement of buildings is a key strategy for maintaining overall facility condition and addressing growing service level demands;

- **Capital Repairs** - In 2019, Council approved \$17.5 million of capital funding to complete major repairs and rehabilitation. Staff are currently preparing the 2020 – 2024 Building Capital Program for Council consideration and it is anticipated that the capital repair funding for this five-year period will be in the \$60 - \$70 million range. Staff will continue to prepare annual and five-year capital programs with required levels of funding for Council consideration and approval; and
- **Operating Maintenance and Minor Capital** - Current facility infrastructure replacement, improvement and annual maintenance operating budget funding is approximately \$4 million. Going forward, it is estimated that this level of funding needs to be increased by at least the price index associated with building construction (estimated to be seven per cent in 2019), to maintain existing service levels.

Staff will utilize the preceding analysis and information outlined in preparation of future operating and capital budgets with the objective of maintaining the current level of overall facility condition and service level.

Financial Impact

The impact of increasing the Operating Maintenance and Minor Capital budget by 7 per cent associated with building construction cost escalation is estimated to be approximately \$280,000 which will be considered in the 2020 budget process.

Conclusion

While the City's facility infrastructure is operating as expected and being maintained in good order, it is entering a period of accelerated deterioration due to age and deferred major maintenance. In order to maintain the current facility condition and service levels, reduce levels of deferred maintenance and prevent future equipment failures and service disruptions, sustained funding will be required through the City's operating and capital budgets.

A handwritten signature in blue ink, appearing to read 'Martin Younis', is positioned above the printed name and title.

Martin Younis, B.Eng., M. Eng.
Manager, Capital Buildings Project Development
(604-204-8501)

MY:nc



City of Richmond

Report to Committee

To: General Purposes Committee **Date:** December 10, 2019
From: Cecilia Achiam **File:** 12-8275-30-001/2019-
General Manager, Community Safety Vol 01
Re: **Application To Amend Liquor Primary Liquor Licence #308295 For an
Increase in Occupant Load - Monster L Karaoke Ltd. Doing Business As:
Monster L Karaoke - 8400 Alexandra Road Unit 130**

Staff Recommendation

1. That the application from Monster L Karaoke Ltd., doing business as, Monster L Karaoke, for an amendment to Liquor Primary Liquor Licence #308295 to increase total person capacity from 50 occupants to 110 occupants, from premises located at 8400 Alexandra Road Unit 130, with no change to hours of liquor service, be supported; and
2. That a letter be sent to Liquor and Cannabis Regulation Branch, which includes the information attached as Appendix A, advising that Council recommends the approval of the licence application for the reasons that this amendment application for an increase in person capacity to the Liquor Primary Licence has been determined, following public consultation, to be acceptable in the area and community.

Cecilia Achiam
General Manager, Community Safety
(604-276-4122)

Att. 2

REPORT CONCURRENCE	
ROUTED TO:	CONCURRENCE
Building Approvals	<input checked="" type="checkbox"/>
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: CS
APPROVED BY CAO 	

Staff Report

Origin

The Provincial Liquor and Cannabis Regulation Branch (LCRB) issues licences in accordance with the *Liquor Control and Licensing Act* (the Act) and the Regulations made pursuant to the Act. This report deals with an amendment application to an existing Liquor Primary Liquor Licence 308295, to the LCRB and the City of Richmond by Monster L Karaoke Ltd., doing business as Monster L Karaoke, (hereinafter referred to as “Monster L Karaoke”) to increase person capacity from 50 occupants to 110 occupants. The City is given the opportunity to provide written comments by way of a resolution to the LCRB with respect to the proposed amendment to the Liquor Primary Liquor Licence application. Regulatory criteria a local government must consider are:

- the location of the establishment;
- the proximity of the establishment to other social or recreational facilities and public buildings;
- the person capacity and hours of liquor service of the establishment;
- the impact of noise on the community in the immediate vicinity of the establishment; and
- the impact on the community if the application is approved.

This report supports Council’s Strategic Plan 2018-2022 Strategy #7 A Supported Economic Sector:

Facilitate diversified economic growth through innovative and sustainable policies, practices and partnerships.

Analysis

Location of the Establishment

The Applicant has received approval to operate a Karaoke Box Room with a Liquor Primary Liquor Licence by Richmond City Council and LCRB with person capacity of 50 occupants at the establishment and has a valid Liquor Primary Liquor Licence, #308295, for 8400 Alexandra Road Unit 130. This applicant is now proposing to operate with an increase of a person capacity of 110 occupants. There will be no change to the hours of sales currently approved for Monday to Sunday, 9:00 AM to 2:00 AM.

The applicant has applied to the City of Richmond Building Approvals Department for a change to occupant load and has received approval for a load capacity of 110 persons. This approval is a technical determination of the facility’s capacity to safely accommodate those persons for the proposed and similar uses such as restaurants, and is independent of Council’s decision on the liquor licence.

Proximity of the Establishment to Other Social, Recreational and Public Building

There are no schools, parks or other public buildings near Monster L Karaoke. There are three liquor primary establishments within 250 meters of Monster L Karaoke.

Person capacity and Hours of Liquor Service of the Establishment

The applicant is proposing to amend person capacity to 110 persons from the current approved 50 person capacity of Monster L Karaoke's Liquor Primary Liquor Licence. The applicant's operating hours of liquor service will remain unchanged at, Monday to Sunday, 9:00 AM to next day 2:00 AM, which is consistent with the City's Policy 9400.

The Impact of noise on the Community in the Immediate Vicinity of the Establishment

The proposed establishment is located on the ground floor of a one floor building, in an area already impacted by aircraft noise. This business has been in operation since March of 2019 and no noted issues have been raised. It is staff's belief that no noticeable increase in noise would be present if the person capacity increase is supported.

The Impact on the Community if the Application is Approved

The community consultation process for reviewing applications for liquor related licences is prescribed by the Development Application Fees Bylaw 8951 which under Section 1.8.1 calls for:

1.8.1 Every **applicant** seeking approval from the **City** in connection with:

- (a) a licence to serve liquor under the *Liquor Control and Licensing Act and Regulations*;

must proceed in accordance with subsection 1.8.2.

1.8.2 Pursuant to an application under subsection 1.8.1, every **applicant** must:

- (b) post and maintain on the subject property a clearly visible sign which indicates:
 - (i) type of licence or amendment application;
 - (ii) proposed person capacity;
 - (iii) type of entertainment (if application is for patron participation entertainment); and
 - (iv) proposed hours of liquor service; and
- (c) publish a notice in at least three consecutive editions of a newspaper that is distributed at least weekly in the area affected by the application, providing the same information required in subsection 1.8.2(b) above.

The required signage was posted on October 31, 2019, and three advertisements were published in the local newspaper on October 31, 2019, November 07, 2019 and November 14, 2019.

In addition to the advertised signage and public notice requirements, staff sent letters to residents, businesses and property owners within a 50 meter radius of the new establishment. On November 01, 2019, a total of 238 letters were mailed out to residents, businesses and property owners. The letter provided information on the proposed liquor licence application and contained instructions on commenting on the application. The period for commenting for all public notifications ended December 02, 2019.

As a result of the community consultative process described, the City has not received any responses opposed to this application.

Other Agency Comments

As part of the review process, staff requested comments from other agencies and departments such as Vancouver Coastal Health, Richmond RCMP, Richmond Fire-Rescue and Building Approvals. These agencies and departments generally provide comments on the compliance history of the applicant's operations and premises.

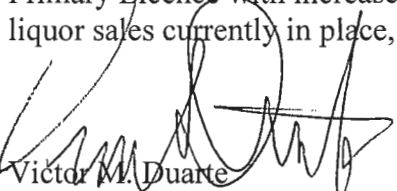
Richmond Fire Rescue noted a few minor deficiencies which the operator has addressed. No concerns were expressed from any of the other agencies or departments regarding this application.

Financial Impact


None.

Conclusion

The results of the community consultation process of Monster L Karaoke's proposed amendment application to increase the person capacity for Liquor Primary Liquor Licence was reviewed based on the LCRB criteria. The analysis concluded there should be no noticeable potential impact from noise, no significant impact to the community and no comments received from the public. There were no major concerns raised by City departments or other agencies. Staff therefore recommend approval of the application from Monster L Karaoke to operate a Liquor Primary Licence with increase in person capacity to 110 persons with no change to the hours of liquor sales currently in place, Monday to Sunday, 9:00 AM to 2:00 AM next day.



Victor M. Duarte
Supervisor, Business Licences
(604-276-4389)



Carli Williams
Manager, Business Licence and Bylaws
(604-276-4136)

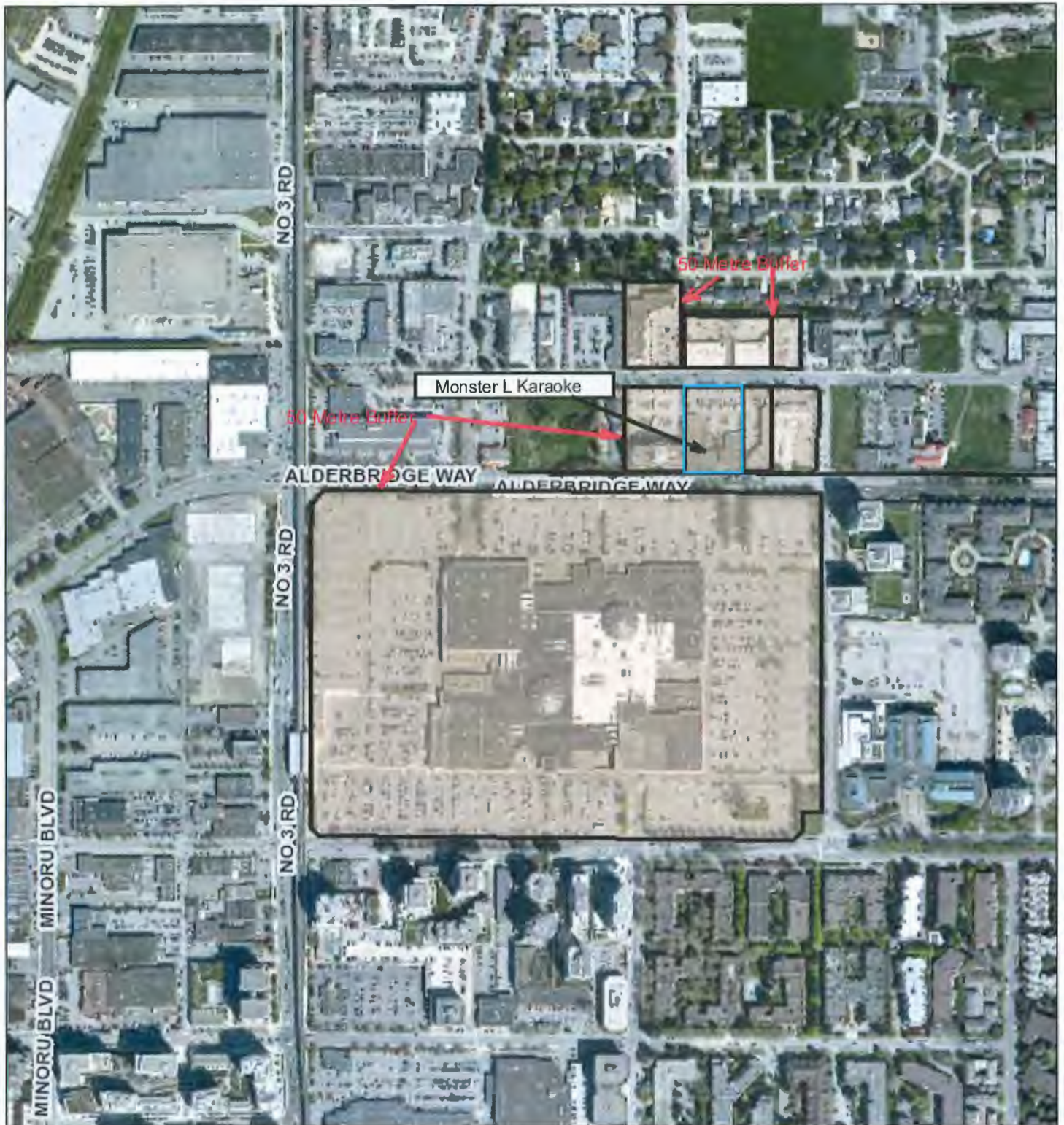
- Att. 1: Appendix A
2: Arial Map with 50 metre buffer area

Appendix A

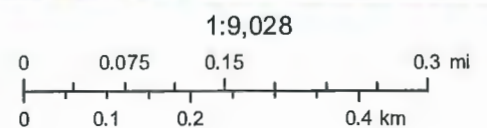
Re: Proposed Amendment to Liquor Primary Liquor Licence #308295 – Monster L Karaoke Ltd. Doing Business As: Monster L Karaoke at 8400 Alexandra Rd Unit 130

1. That the amendment application from Monster L Karaoke Ltd., doing business as, Monster L Karaoke, for an amendment to Liquor Primary Liquor Licence #308295 to increase person capacity from 50 occupants to 110 occupants, at premises located at 4351 No. 3 Road Unit 230, with no change to hours of liquor sales, currently permitted, Monday to Sunday, 9:00 AM to 2:00 AM next day, be supported, and;
2. That a letter be sent to Liquor and Cannabis Regulation Branch advising that:
 - a) Council supports the applicant's amendment to Liquor Primary Liquor Licence # 308295 to increase person capacity to 110 occupants;
 - b) Council's comments on the prescribed criteria (Section 71 of the Liquor Control and Licencing Regulations) are as follows:
 - i. The impact of additional noise and traffic in the area of the establishment was considered;
 - ii. The potential impact on the community was assessed through a community consultation process;
 - iii. Given that this is an existing business and there is no history of non-compliance with this establishment.
 - c) As the operation of a licenced establishment may affect nearby residents, businesses and property owners, the City gathered the views of the community through a community consultation process as follows:
 - i. Residents, businesses and property owners within a 50 meter radius of the establishment were notified by letter. The letter provided information on the application with instructions on how to submit comments or concerns; and
 - ii. Signage was posted at the subject property and three public notices were published in a local newspaper. The signage and public notice provided information on the application with instructions on how to submit comments and concerns.
 - d) Council's comments on the general impact of the views of residents, businesses and property owners are as follows:

- i. The community consultation process was completed within 90 days of the application process; and
 - ii. The community consultation process did not generate any comments and views of residents, businesses and property owners.
- e) Council recommends the approval of the licence amendment application for the reasons that this amendment application for an increase in person capacity to 110 persons is acceptable to the majority of the residents, businesses and property owners in the area and community.



12/16/2019, 9:22:00 AM





City of Richmond

Report to Committee

To: General Purposes Committee
From: Cecilia Achiam
General Manager, Community Safety
Date: December 10, 2019
File: 12-8275-30-001/2019-
Vol 01
Re: **Application For a New Liquor Primary Liquor Licence - 1148209 BC Ltd. Doing Business As: 17 Karaoke, 4351 No. 3 Road Unit 230**

Staff Recommendation

1. That the application from 1148209 BC Ltd., doing business as, 17 Karaoke, for a new Liquor Primary Liquor Licence to operate a new Karaoke Box Room, at premises located at 4351 No. 3 Road Unit 230, with liquor service, be supported for:
 - a) A new Liquor Primary Liquor Licence with total person capacity of 60 persons; and
 - b) Proposed hours of liquor sales from Monday to Sunday, from 4:00 PM to 2:00 AM.
2. That a letter be sent to Liquor and Cannabis Regulation Branch, which includes the information attached as Appendix A, advising that Council recommends the approval of the licence application for the reasons that this new application for a Liquor Primary Licence has been determined, following public consultation, to be acceptable in the area and community.

Cecilia Achiam
General Manager, Community Safety
(604-276-4122)

Att. 3

REPORT CONCURRENCE	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: CJ
APPROVED BY CAO 	

Staff Report

Origin

The Provincial Liquor and Cannabis Regulation Branch (LCRB) issues licences in accordance with the *Liquor Control and Licensing Act* (the Act) and the Regulations made pursuant to the Act. This report deals with an application to the LCRB and the City of Richmond by 1148209 BC Ltd., doing business as 17 Karaoke, (hereinafter referred to as “17 Karaoke”) for a new Liquor Primary Liquor Licence to:

- operate, Monday to Sunday, 4:00 PM to 2:00 AM next day;
- permit a total person capacity of 60 persons; and
- operate a new Karaoke Box Room.

The City is given the opportunity to provide written comments by way of a resolution to the LCLB with respect to the proposed Liquor Primary application. Regulatory criteria a local government must consider are:

- the location of the establishment;
- the proximity of the establishment to other social or recreational facilities and public buildings;
- the person capacity and hours of liquor service of the establishment;
- the impact of noise on the community in the immediate vicinity of the establishment; and
- the impact on the community if the application is approved.

This report supports Council’s Strategic Plan 2018-2022 Strategy #7 A Supported Economic Sector:

Facilitate diversified economic growth through innovative and sustainable policies, practices and partnerships.

Analysis

Location of the Establishment

The Liquor Primary Licence applicant is proposing to operate a new five room Karaoke Box Room establishment to be located at 4351 No. 3 Road Unit 230. This property is zoned Auto-Oriented Commercial (ZC10) – Airport and Aberdeen Village with the following permitted uses relevant to this application: liquor primary establishment, recreation, indoor and restaurant.

This business is new and has no history in the City of Richmond. The primary focus of this establishment will be to operate a Karaoke Box Room with five rooms, while providing snacks and beverage service. This venue expects to facilitate events such as birthdays and graduation parties. The target market for this venue will be college students, working adults and visitors who want to celebrate milestone events as well as an amenity for residents from the Greater Vancouver area.

Proximity of the Establishment to Other Social, Recreational and Public Building

There are no schools, parks or other public buildings within 500 meters of proposed location for 17 karaoke. There are two liquor primary establishments within 250 meters of 17 Karaoke.

Person capacity and Hours of Liquor Service of the Establishment

The applicant is proposing to operate 17 Karaoke with a total occupant load of 60 person capacity. The applicant's proposed operating hours of liquor service are Monday to Sunday, 4:00 PM to next day 2:00 AM which is consistent with the City's Policy 9400.

The Impact of noise on the Community in the Immediate Vicinity of the Establishment

The proposed establishment will be located on the second floor of a two floor building, in an area already impacted by aircraft noise. It is staff's belief that no noticeable increase in noise would be present if the liquor primary licence application is supported.

The Impact on the Community if the Application is Approved

The community consultation process for reviewing applications for liquor related licences is prescribed by the Development Application Fees Bylaw 8951 which under Section 1.8.1 calls for:

1.8.1 Every **applicant** seeking approval from the **City** in connection with:

- (a) a licence to serve liquor under the *Liquor Control and Licensing Act and Regulations*;

must proceed in accordance with subsection 1.8.2.

1.8.2 Pursuant to an application under subsection 1.8.1, every **applicant** must:

- (b) post and maintain on the subject property a clearly visible sign which indicates:
 - (i) type of licence or amendment application;
 - (ii) proposed person capacity;
 - (iii) type of entertainment (if application is for patron participation entertainment); and
 - (iv) proposed hours of liquor service; and
- (c) publish a notice in at least three consecutive editions of a newspaper that is distributed at least weekly in the area affected by the application, providing the same information required in subsection 1.8.2(b) above.

The required signage was posted on October 30, 2019, and three advertisements were published in the local newspaper on October 31, 2019, November 07, 2019 and November 14, 2019.

In addition to the advertised signage and public notice requirements, staff sent letters to residents, businesses and property owners within a 50 meter radius of the new establishment. On October 31, 2019, a total of 265 letters were mailed out to residents, businesses and property owners. The letter provided information on the proposed liquor licence application and contained instructions to comment on the application. The period for commenting for all public notifications ended November 30, 2019.

As a result of the community consultative process described, the City has not received any responses opposed to this application.

Other Agency Comments

As part of the review process, staff requested comments from other agencies and departments such as Vancouver Coastal Health, Richmond RCMP, Richmond Fire-Rescue and Building Approvals. These agencies and departments generally provide comments on the compliance history of the applicant's operations and premises. As this is a new business and development, no concerns were expressed from any of the agencies or departments regarding this application.

Financial Impact

None.

Conclusion

The results of the community consultation process of 17 Karaoke Liquor Primary Licence application was reviewed based on the LCRB criteria. The analysis concluded there should be no noticeable potential impact from noise, no significant impact to the community and there were no concerns raised by City departments or other agencies. Staff recommend approval of the application from 17 Karaoke to operate a Liquor Primary Licence with liquor service Monday to Sunday from 4:00 PM to next day 2:00 AM, with an occupant load of 60 persons.



Victor M. Duarte
Supervisor, Business Licences
(604-276-4389)



Carli Williams, P. Eng.
Manager, Business Licence and Bylaws
(604-276-4136)

VMD:vmd

- Att. 1: Letter of Intent
2: Appendix A
3: Arial Map with 50 metre buffer area

Attachment 1

May 7th 2019

Liquor and Cannabis Regulation Branch,
400-645 Tyee Road,
Victoria, B.C. V9A 6X5

RE: Letter of Intent, Liquor Primary Licence Application for Unit 230, 4351 No. 3 Road, Richmond, B.C.

Dear Sir/Madam,

Introduction:

This letter of intent is submitted in support of the application to the Liquor Control & Licensing Branch by **1051949 BC Ltd** for a new liquor primary license to be located at **17 Karaoke**. The proposed licensed establishment will be a new Karaoke Bar located at #230 – 4351 No. 3 Road, Richmond.

Located in the heart of Richmond CBD area along No. 3 Road, **17 Karaoke** offers guests a fun space that can host small entertaining events. The liquor primary license at 17 Karaoke will provide an amenity for liquor service at a wide variety of events such as birthdays and graduation parties. The event-driven liquor primary license will be an added amenity for the businesses along No. 3 Road as well as the residents of greater Vancouver.

The hours of license requested are 4pm to 2am Monday to Sunday, which can be adjusted as per the directions of LCLB or the City of Richmond.

Description of primary business focus:

The proposal is a karaoke bar located at Unit 230, 4351 No. 3 Road, Richmond, B.C. The primary focus of the business will be providing bookable karaoke box rooms to groups, as well as liquor service. The establishment will be a karaoke bar with a liquor primary license.

Target Market:

The target market for this venue will be college students, working adults and visitors who want to celebrate milestone events in their lives, as well as those who want to relax with friends and family.

Hospitality/Tourism Development Factors:

Richmond is recognized as an international leading tourism destination. It attracts many people from around the world on a daily basis for touring, seminars, workshops, courses and conferences. It also attracts people on a long-term basis for education and quality of life. The proposed liquor primary establishment is located in the CBD area in Richmond, with easy access to nearby city facilities.

Benefits to the Community:

17 Karaoke will benefit the community in the following ways:

- Employment opportunities for residents in the surrounding areas
- Added amenity for residents, visitors and students
- Source of additional tax revenue for the local, provincial and federal governments
- Further diversify the hospitality venues available in the area
- Involvement in community sponsorships and activities
- Support local musicians by provide a venue for performances

Other business focuses:

Liquor service will be the only business focus. There will be no other business operating in the premises.

Description of entertainment that may be offered:

Entertainment that may be offered in the establishment will comprise of:

- Karaoke box rooms

Description of the type of food service the establishment will offer:

The establishment will provide a variety of cold snacks and non-alcoholic beverages during all hours of operation.

Traffic in the Vicinity:

The proposed establishment will not negatively impact traffic in the vicinity. The location is served by a series of streets and major traffic arteries for vehicles, bus and the Canada Line. It is therefore well served by public transit.

Description of composition of the neighbourhood:

The neighbourhood is primarily composed of commercial buildings. The proposed establishment is in the ZC10 zone, which allows a variety of service and retail uses, as well as restaurants and liquor primary establishments. The surrounding buildings are mainly commercial and industrial uses. There are no residential uses in near proximity to the establishment.

Potential for noise and other types of disturbance:

The proposed karaoke bar is on the second floor of the existing building. It does not have any exterior windows. It is located on the north side of the building, next to parking stalls, while the main access road is located on the east side of the building. On the far side of the main access road (to the east of the building) there are also commercial use buildings. Industrial use buildings are located to the west of the building; the building directly to the south is commercial use. The proposed suite it is tucked away from the main road; the potential for noise disturbance is minimal. The potential for other types of disturbance is also minimal.

Measures I will implement to ensure nearby residents are not disturbed by my establishment, or patrons of my establishment:

The building is located in a primarily commercial zone that is designated for such uses; the proposed hours of operation comply with the city's Business License Bylaw. The entirety of the proposal is located indoors, with no patio or outdoor areas. Each box rooms will be noise insulated to minimize noise disturbances. The suite is located on the second floor - adjacent to a parking lot, and so this will act as an auditory and visual buffer, ensuring that nearby residents are not disturbed by the establishment, or patrons of the establishment.

Parking:

There are many parking spots on-site and near the proposed establishment. It is anticipated that most of the visitors will take public transport (bus or the Canada Line) from Richmond as well as the adjacent cities.

Requests for licensing options and/or endorsements:

The establishment will not request any licensing options or endorsements.

Information that may be relevant to my application:

The project scope is a karaoke bar. The existing space has an interior unit area of 199.97m².

The proposed is a group A2 occupancy and is a licensed bar to contain a maximum occupancy of 60 people.

A single exit is permitted as per 3.4.2.1.(2)(b) BCBC 2012:

- The building is not more than two storeys in building height
- The floor area is sprinklered throughout

- Travel distances to the exit are all less than 25m
- The floor area of a group A occupancy is less than 200m²

The proposed occupant load of the space is as follows:

Occupant load not to exceed 60 people. Posted signage on wall to indicate maximum occupancy of 60 persons.

Room Name	Room Area	Maximum No. of People
Karaoke Room 1	21.77m ² (234.34 SF)	12
Karaoke Room 2	29.90m ² (321.84 SF)	16
Karaoke Room 3	16.31m ² (175.55 SF)	9
Karaoke Room 4	21.03m ² (226.32 SF)	12
Karaoke Room 5	13.66m ² (147.01 SF)	9
Reception Lobby	22.00m ² (236.80 SF)	1
Bar/Storage Area	9.34m ² (100.57 SF)	1
Total		60

The washroom calculation, based on there being 144 people total, and therefore 72 of each sex, as per table 3.7.2.2.A BCBC 2012 is as follows:

	Male Fixtures	Female Fixtures	Universal Toilet Rooms
Required	1	2	1
Proposed	1	2	1

It is to be a liquor primary establishment. Beverages offered will be alcoholic and non-alcoholic; there will not be food involved in drink preparation and finish. The bar will contain the following sink/hygiene proposals as per Vancouver Coastal Health Requirements:

- A two compartment sink that is large enough to fit the largest piece of equipment used
- A hand washing sink in the beverage preparation area
- A janitorial sink in the Janitor's Closet

Please contact me if you require any additional information.

Sincerely,

1148209 BC LTD
 #230-4351 No. 3 Road,
 Richmond, B.C.
 V6X 2C3

PROJECT SUMMARY:
 LOT 23, EXCEPT PART ROAD ON PLAN LPA46183, SECTION 32,
 BLOCK 5 NORTH, RANGE 6 WEST, PLAN 50239 P.D. 002-570-781
 4351 NO. 3 RD, RICHMOND, B.C.
 ZONING: ZC90
 INTERIOR UNIT AREA: 7853.59 SF (199.97 m²)

PROPOSED OCCUPANT LOAD:
 OCCUPANT LOAD TO NOT EXCEED 60 PEOPLE
 POSTED SIGNAGE ON WALL TO INDICATE MAXIMUM OCCUPANCY OF 60 PERSONS (SEE PLAN CD ON SHEET 1100 FOR POSTED SIGN LOCATION)

ROOM NAME: KARAOKE ROOM 1
 ROOM AREA: 2177m² (234.34 SF)
 KARAOKE ROOM 2: 2930m² (315.55 SF)
 KARAOKE ROOM 3: 823m² (88.55 SF)
 KARAOKE ROOM 4: 1155m² (124.80 SF)
 KARAOKE ROOM 5: 1155m² (124.80 SF)
 RECEPTION LOBBY: 2200m² (236.88 SF)
 BAR/STORAGE AREA: 934m² (100.57 SF)
 TOTAL: 60

CALCULATED MAXIMUM OCCUPANCY:
 31171
 AREA REQ. PER PERSON: 0.55m²
 SPACED WITH NON-FIXED SEATS AND TABLES: 46.00m²
 STORAGE: 11.09m²
 TOTAL: 22

ROOM TYPE:
 SPACED WITH NON-FIXED SEATS AND TABLES
 STORAGE

MAXIMUM NO. OF PEOPLE:
 121
 122

PROPOSED KARAOKE BAR
 NOT TO SCALE

PROPOSED KARAOKE BAR
 NOT TO SCALE

PROPOSED KARAOKE BAR
 NOT TO SCALE

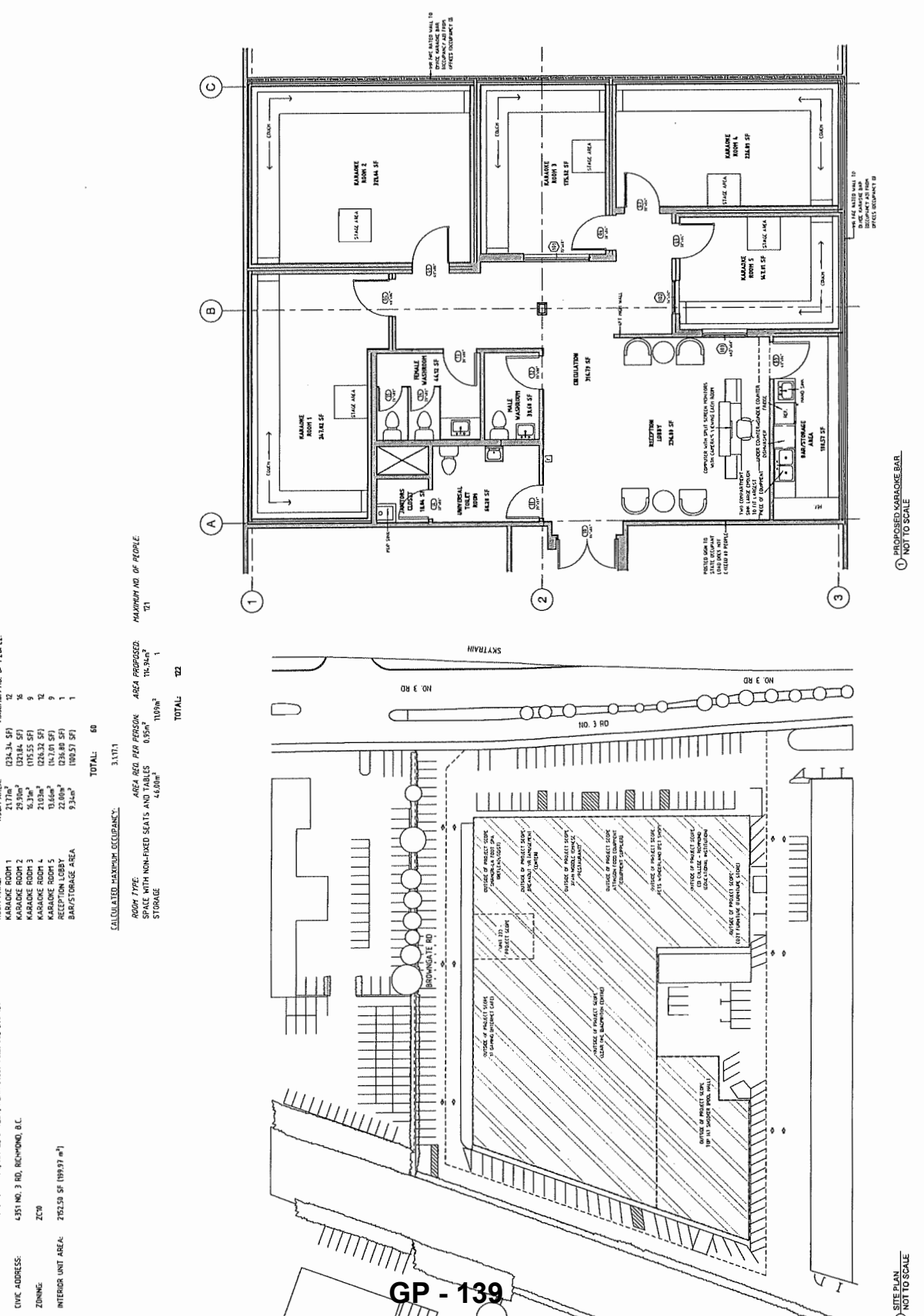
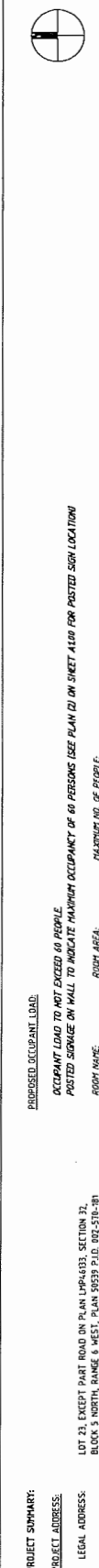
PROPOSED KARAOKE BAR
 NOT TO SCALE

PROPOSED KARAOKE BAR
 NOT TO SCALE

PROPOSED KARAOKE BAR
 NOT TO SCALE

PROPOSED KARAOKE BAR
 NOT TO SCALE

PROPOSED KARAOKE BAR
 NOT TO SCALE



PROJECT NUMBER	1011
DATE	2019-05-02
DRAWN BY	AS
CHECKED BY	RB
SCALE	A0.00

Re: Liquor Primary Licence Application – 1148209 BC Ltd. Doing Business As: 17 Karaoke at 4351 No. 3 Road Unit 230

1. That the application from 1148209 BC Ltd., doing business as, 17 Karaoke, for a new Liquor Primary Liquor Licence to operate a new Karaoke Box Room establishment, at premises located at 4351 No. 3 Road Unit 230, with liquor service, be supported for:
 - a) A new Liquor Primary Liquor Licence with primary business focus of entertainment, specifically a 5 room Karaoke Box Room with total person capacity of 60 persons;
 - b) Liquor service hours for Monday to Sunday, from 4:00 PM to 2:00AM.
2. That a letter be sent to Liquor and Cannabis Regulation Branch advising that:
 - a) Council supports the applicant's new Liquor Primary Liquor Licence application and the hours of liquor service with the conditions as listed above;
 - b) The total person capacity set at 60 persons is acknowledged;
 - c) Council's comments on the prescribed criteria (Section 71 of the Liquor Control and Licencing Regulations) are as follows:
 - i. The impact of additional noise and traffic in the area of the establishment was considered;
 - ii. The potential impact on the community was assessed through a community consultation process;
 - iii. Given that this is a new business, there is no history of non-compliance with this establishment.
 - d) As the operation of a licenced establishment may affect nearby residents, businesses and property owners, the City gathered the views of the community through a community consultation process as follows:
 - i. Residents, businesses and property owners within a 50 meter radius of the establishment were notified by letter. The letter provided information on the application with instructions on how to submit comments or concerns; and
 - ii. Signage was posted at the subject property and three public notices were published in a local newspaper. The signage and public notice provided information on the application with instructions on how to submit comments and concerns.

- e) Council's comments on the general impact of the views of residents, businesses and property owners are as follows:
 - i. The community consultation process was completed within 90 days of the application process; and
 - ii. The community consultation process did not generate any comments and views of residents, businesses and property owners.
- f) Council recommends the approval of the licence application for the reasons that this new application for a Liquor Primary Licence is acceptable to the majority of the residents, businesses and property owners in the area and community.



12/10/2019, 10:20:04 AM

1:9,028

Lines

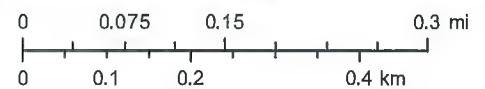
- Override 1
- Override 2
- Override 3
- Override 4

Areas

- Override 1

Select properties based on spatial relation to a layer_Query result

4351 No 3 Rd



GP - 142

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



To: General Purposes Committee
From: Carli Williams, P.Eng.
Manager, Business Licence and Bylaws
Jason Ho, P.Eng.
Manager, Engineering Planning
Date: January 13, 2020
File: 12-8080-12-01/Vol 01
Re: **Non-Farm Use Soil Deposit Proposal for the Property Located at 21700 River Road**

At the January 7, 2020 General Purposes Committee meeting, the Committee referred to staff the Non-Farm Use (NFU) Fill Application for the property located at 21700 River Road (the "Property") to:

1. Examine the soil source, specifically from Richmond and Delta low lands, and drainage issues; and
2. Obtain comments from the Advisory Committee on the Environment (ACE).

This memorandum provides additional information related to feedback received from the agrologist-of-record, John Paul, Ph. D, P. Ag (the "Agrologist") regarding soil sourcing, staff comments on drainage-related information for the Property and feedback from ACE.

Soil Sources

As per the Committee, staff were directed to review the issue of the soil source location for the project, with the focus on soil sources from Richmond and the Delta lowlands. According to the Agrologist, the type of soil required to complete the project can be sourced from Richmond and Delta. However, he has advised that the project completion date may exceed the proposal deadline of two years should the soil required for the project be restricted to Richmond and Delta only.

City staff have discussed the Agrologist's assertion that the required soil identified within his report and technical memorandum may be sourced from other municipalities within the Lower Mainland/Fraser Valley with the City's independent consultant Bruce McTavish (MSc, MBA, P. Ag, RP Bio). Mr. McTavish has confirmed that the soil can be sourced from other municipalities but it is vital that no soil be accepted that does not meet the standards as specified in the report and technical memorandum. As required in the inspection process, the Agrologist must evaluate the soil for suitability through a source site vetting process to ensure soil integrity, including confirmation that coarse fragment content meets acceptable standards.

Drainage Issues

Under current conditions, the Property experiences substantial surface ponding and flooding each winter as a result of high ground water levels, which fluctuate with the Fraser River water surface

elevation. Land elevations on the Property currently range between 1.0 meter to 1.9 meters.

The Property's drainage issues identified by the Property owner's qualified engineer are a result of their low lying land and high ground water levels and not due to lack of City drainage system capacity. As per City staff, future dike and pump station upgrades will protect the area against sea level rise and increased rainfall; however, any system upgrades to City infrastructure will not help alleviate the Property's drainage issues and will not have any positive effect on ground water levels.

Current climate change science estimates that sea levels will rise by approximately 1.0 meters and Lulu Island will subside by 0.2 meters by the year 2100. Sea level rise will increase ground water levels and, compounded with ongoing subsidence, will exacerbate any existing drainage issues.

The City's Flood Protection Management Strategy 2019 identifies raising land within all areas of the City as a key overall long-term objective, and that the City will strategically encourage land to be raised where such raising is proposed to meet City objectives, such as agricultural viability. The land raising proposed in the NFU application for the Property is consistent with this objective and is expected to significantly improve the drainage capabilities of the Property.

ACE Comments

On January 8, 2020, City staff provided information related to the soil deposit proposal to ACE to obtain comment from the Committee's members. Draft minutes for the meeting are provided in Attachment 1. As a result of their review of the project, the ACE passed the following motion:

ACE recommends information to understand the impact to the ESA as a result of the proposed scope of works on the subject site and what is gained by the proposed farm plan on the subject site.

While there is no requirement related to the Environmentally Sensitive Area located on the Property, the applicant has considered the ACE motion and has agreed to provide an assessment by a qualified professional prior to obtaining a permit should approval from the ALC be granted.

Please contact the writers if you require further information or clarification.



Carli Williams, P.Eng.
Manager, Business Licence & Bylaws
(4136)



Jason Ho, P.Eng.
Manager, Engineering Planning
(1281)

CW:mm

Att. 1: ACE meeting minutes (08 Jan 2020)

pc: SMT
Barry Konkin, Director, Policy Planning
Milton Chan, P.Eng., Acting Director, Engineering



City of Richmond

Minutes

ADVISORY COMMITTEE ON THE ENVIRONMENT

Held January 8, 2020
Room M.2.004
Richmond City Hall

In Attendance:

Carolyn Prentice; Winson Cheng; Sharon Dodd; Erzsi Institoris; Anthony Leung; Sam McCulligh; Nica Derakhshan Nia; Anika Ng; Imelda Nurwisah; Carolyn Jimenez Schneider; Angeline Singh; Jia Jie (Vincent) Yi; Cynthia Zhou; Councillor Michael Wolfe

Regrets:

Karen Tso

Staff:

Kevin Eng, Staff Liaison to ACE, Policy Planning
John Hopkins, Policy Planning
Mike Morin, Community Bylaws

Guests:

Inderjit & Harinder Gosal
Jack McKee
Christian Hall

Welcome and Introductions

Kevin Eng, staff liaison to ACE, introduced himself and welcomed all new and returning members to the inaugural ACE meeting for 2020. Staff provided any orientation briefing to all Committee members that covered the following:

- ACE committee structure and voting members, the Council liaison (non-voting) and staff liaison (non-voting).
- ACE operations including scheduled meeting dates, agenda and minute preparation and circulation, quorum requirements and importance of member attendance.
- Staff also advised that ACE should only meet when a sufficient number of members can attend to achieve Committee quorum. If quorum cannot be achieved, the meeting would be cancelled and staff will look at options to reschedule if necessary.
- Information on the roles of the Richmond citizen appointed to the YVR Environmental Advisory Committee (EAC)(who is also a full voting member of ACE), the ACE liaison to the Food Security and Agricultural Advisory Committee (FSAAC) and ACE Chair and Vice-Chair.
- Staff provided an overview of the nomination and election process for the ACE Chair, Vice-Chair and ACE liaison to the FSAAC. In response to questions from Committee, staff noted that the immediate priority would be to nominate and elect an ACE Chair.

Nomination and Election of ACE Chairperson

Staff provided an overview of the process to nominate and elect a member to serve as ACE Chairperson for 2020.

It was moved and second to nominate Carolyn Prentice as ACE Chairperson.

Carolyn Prentice accepted the nomination. No other nominations were received.

ACE voted unanimously in favour of electing Carolyn Prentice as ACE Chair for 2020

Call to Order

With the orientation and election of the ACE Chair complete, the meeting was called to order @ 7:30 pm.

1. Adoption of the Agenda

The January 8, 2020 ACE agenda was adopted.

2. Adoption of the November 13, 2019 Meeting Minutes

The November 13, 2019 ACE meeting minutes were adopted.

3. Receive the December 18, 2019 Discussion Notes (Information Only)

The December 18, 2019 discussion notes (no quorum) were received for information.

4. New Business

a) Agricultural Land Reserve Non-Farm Use Fill Application at 21700 River Road

Staff noted that this ALR non-farm use fill application at 21700 River Road was considered at the City's General Purposes (GP) Committee meeting held on January 7, 2020. GP committee requested that the proposal be referred back to staff to obtain comment from the Advisory Committee on the Environment. Applicable City staff and the applicant and members of their project team were also available to answer any questions. A summary of the project was provided for in the staff report on the proposal contained in the meeting agenda.

City staff identified that the subject site is contained in the Agricultural Land Reserve (ALR) and requires a non-farm use approval application for the proposed fill activities. This application requires consideration of the application by Richmond City Council. If endorsed, it is forwarded to the Agricultural Land Commission for a decision on the proposal. Staff commented that the subject site also has an Environmentally Sensitive Area (ESA), which are designated through the Official Community Plan. The OCP policy

allows for exemptions to requiring an ESA Development Permit for agricultural activities and identifies a number of criteria that have to be met, including submission of a farm plan. The Farm Plan prepared by the applicant's agrologist, proposes fill activities, which requires the ALR non-farm use application. Staff also noted that this proposal had been previously reviewed and supported by the Food Security and Agricultural Advisory Committee (FSAAC), with ACE being advised of the proposal through the member liaison to the FSAAC.

Upon review of the proposal, committee members had the following comments and questions on the proposal:

- A question was asked on the ESA classification for the subject site. Staff noted that the ESA is classified as "Old Fields and Shrublands".
- A member asked whether any examination or study had been conducted on the existing ESA. No examination of the ESA has been conducted to date in relation to the agricultural land use proposed in the applicant's farm plan. City staff clarified that modification of land within an ESA that is not related to agricultural activities requires an ESA Development Permit.
- In response to questions about the submitted farm plan report and accompanying materials, staff noted that the reports submitted by the applicant's are reviewed by an independent professional agrologist.
- A member had a question about the proposal involving the stockpiling of peat (from on-site) and utilizing it as a growing medium for the crop. In response, the applicant identified that they have had experience in utilizing peat as a successful growing medium for blueberries and would be appropriate for application on the subject site. The applicant also clarified that the stockpiling and application of on-site peat would be phased and coordinated with proposed fill activities.
- In response to questions about the proposed agricultural activities, the applicant identified they are looking to establish an organic farm operation.
- In response to questions about the need to fill the property, the applicant identified that the consulting agrologist is recommending this approach to address challenges and agricultural limitations of a high water table on the site.
- In response to a question about whether consideration was given to how vegetation removal would impact the hydrologic model for the site. The applicant confirmed that this was assessed and considered through the development of their proposal.
- In response to questions about additional structures or impermeable surfaces the applicant confirmed no additional structures or impermeable surfaces are proposed.
- A member asked about the timing of proposed tree removals in relation to provincial regulations. The applicant responded that tree removals are proposed to occur outside of the restricted time periods. In addition, staff identified that the proposal is required to address all applicable Federal and Provincial legislation and regulations.
- In response to a question about invasives, the applicant identified that no examination of on-site invasives has been undertaken to date. However, there were provisions in the proposal to ensure that source site's for fill are investigated and soils inspected to ensure materials are free of invasives.

- The applicant also confirmed that erosion and sediment control fencing and protection measures will be implemented on-site to protect on-site and City drainage infrastructure and that the existing vehicle access to site has been reviewed and can accommodate the vehicle traffic proposed for this activity.
- In response to questions about private on-site drainage and City drainage, the applicant confirmed that on-site perimeter drainage currently services the subject site and will be maintained as part of this proposal. In relation to the City drainage system along River Road, Engineering staff confirmed that the drainage infrastructure is functioning adequately and services the subject site.

Following the questions and comments from Committee members on this proposal, Councillor Michael Wolfe noted that when this proposal is brought forward again to the GP Committee, members of Council would be able to speak to the application in consideration of the comments provided by ACE, through the drafted meeting minutes which would be made available to Council beforehand.

As a result of ACE's review of the ALR non-farm use fill application at 21700 River Road, the following motion was moved and seconded that:

ACE recommends information to understand the impact to the ESA as a result of the proposed scope of works on the subject site and what is gained by the proposed farm plan on the subject site.

Carried Unanimously

b) 2020 Work Plan

Staff provided information on the requirement for ACE to develop and endorse their work program for 2020 so that it can be forwarded to Council for their consideration and approval in addition to receiving the ACE 2019 Annual Report. Staff recommended that ACE be in a position to endorse their work program at their next meeting in February.

It was suggested that the ACE summary of activities memo for 2019 circulated and discussed at the previous meeting in December be forwarded to all members for reference and context. Staff will email this document to all members.

Staff recommended a brief roundtable to enable all members an opportunity to communicate what environmental projects and initiatives they are interested in and what they are hoping for ACE to look at in focus on in 2020. Member comments were summarized as follows:

- Available data for Richmond in regards to sustainable buildings, electric vehicles and charging infrastructure and tree canopy.
- Continue to follow and receive updates on initiatives related to updates to the City tree bylaw or examination of the overall tree canopy across Richmond.
- Prioritize activities around climate change, carbon reduction and carbon neutral.
- Presentations from various City staff on initiatives, works and programs that have an environmental component or focus would be of great value to Committee members.

- Environmental awareness and education and how this translates to public awareness at all ages.
- Interest in waste reduction and recycling programs and initiatives in place and under development with the City.
- Information and interest about current sustainable building practices in Richmond (including application of mass timber construction).
- Interest in bird species and relationship to migratory sites.
- Interest in obtaining data on car usage and other alternative modes (i.e., cycling) of transportation in Richmond.
- Interest in water conservation initiatives and overall strategies, including data on overall water consumption to track progress.
- Strategies to achieve a balance between agricultural uses on land with an existing ESA designation.

Staff also noted that at the next meeting, a number of staff recommended items for inclusion in the 2020 ACE Work Program

5. Old Business

None.

6. Council Update – Councillor Wolfe

Councillor Wolfe provided updates on the following:

- The Minoru Centre for Active Living fitness centre is slated to open in early 2020.
- Richmond announced the recent purchase of the ice centre facility near the Watermania Aquatic Centre.
- Council appointments to various committees are expected to occur over the next month with public announcements on appointees to follow.
- In regards to the Youth Community Engagement Program, Councillor Wolfe noted he was opposed to this when this item was considered by Council as he felt it didn't deal with the issues effectively.
- An update was provided on the City's boarding and lodging regulations with additional reports to be brought forward on this matter in the future.
- Work to update the City's Community Energy and Emissions Plan was ongoing.
- Councillor Wolfe noted that on Highway 91, close to the Nelson Road interchange, soil stockpiling was observed close to the highway that was impacting an existing stand of trees. After further investigation, it was determined that the land where the trees were located were on Provincial land.
- In terms of upcoming reports and matters to be considered by various Committees of Council, reference was made to the following:
 - Information about upcoming Metro Vancouver Iona Island Treatment Facility works and upgrades.
 - Land use application (Agricultural Land Reserve non-farm use application) for a proposal at 9500 No. 5 Road.
 - Agricultural Land Reserve non-farm use application for a fill proposal.
- In relation to the recommendations of ACE regarding updates to the City's Tree Protection Bylaw, Councillor Wolfe advised that this matter was brought before

the Parks, Recreation and Cultural Services Committee resulted in the Committee passing a referral motion that reflects the position and resolution of ACE.

- In addition to the referral passed at the Parks Recreation and Cultural Services Committee at the end of October, the issue of tree retention and updating the City's Tree Protection Bylaw was raised at a Planning Committee meeting in early November 2019 resulting in an additional referral motion requesting information about tree removal, replacement and retention statistics, tree bylaw infractions/penalties and options to enhance the existing bylaw.
- It was noted that applicable staff are working to address and respond to both referrals.

7. Staff Liaison Update

No updates to provide.

8. Food Security and Agriculture Advisory Committee Update

ACE liaison to the Food Security and Agriculture Advisory Committee referenced the circulated report from the October 24, 2019 and November 7, 2019 meetings of this Committee. Information was provided on the City's Flood Protection Management Strategy, which was presented by Engineering staff. Staff also advised that public consultation was underway on the Farming First Strategy, which is proposing updates to the City's 2003 Agricultural Viability Strategy.

The ACE liaison also noted that the Committee considered and did not support an ALR exclusion application proposed for a group of properties on Burrows Road near No. 6 Road in the ALR.

9. Information Sharing

Members made note of some recent studies that examined the economics of the environment.

10. Items for the Agenda for the Next Regular Meeting scheduled on December 11, 2019

To be determined

11. Adjournment

The meeting was adjourned at 8:45 pm

Certified a true and correct copy of the minutes of the meeting of the Advisory Committee on the Environment of the Council of the City of Richmond held on November 13, 2019

Tadd Berger/Kathryn Runnalls
Chair/Co-Chair

Kevin Eng
Recording Secretary



City of Richmond

Report to Committee

To: General Purposes Committee
From: Cecilia Achiam
General Manager, Community Safety
Date: November 28, 2019
File: 12-8080-12-01/Vol 01
Re: **Non-Farm Use Fill Application for the Property Located at 21700 River Road (Gosal)**

Staff Recommendation

That the Non-Farm Use Fill Application submitted by Inderjit Gosal for the property located at 21700 River Road proposing to deposit soil for the purpose of improving the land for crop production be endorsed and referred to the Agricultural Land Commission (ALC) for their review and approval.

Cecilia Achiam
General Manager, Community Safety
(604-276-4122)

Att. 6

REPORT CONCURRENCE	
ROUTED TO:	CONCURRENCE
Engineering	<input checked="" type="checkbox"/>
Policy Planning	<input checked="" type="checkbox"/>
Sustainability	<input checked="" type="checkbox"/>
Transportation	<input checked="" type="checkbox"/>
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS:
APPROVED BY CAO 	

Staff Report

Origin

The City of Richmond is in receipt of a Non-Farm Use Fill application submitted by Inderjit Gosal (the “Applicant”) for the property located at 21700 River Road (the “Property”). The Applicant is proposing to deposit soil for the purpose of improving the agricultural capability of the Property and to develop an organic blueberry farm. The current owners have attempted to grow blueberries on the Property in the past; however, such attempts have failed as agricultural production has been negatively impacted by poor drainage and a high water table.

The Property is situated within the Agricultural Land Reserve (the “ALR”) and is subject to the provisions of the *Agricultural Land Commission (ALC) Act, ALR Use, Subdivision, and Procedure Regulation* (the “Regulation”), and the City’s *Soil Removal and Fill Deposit Regulation Bylaw No. 8094* (the “Bylaw”). The application to deposit soil is considered to be a Non-Farm Use (NFU) by the ALC.

Pursuant to applicable provincial regulations, a NFU soil deposit application requires Council authorization to be referred to the ALC for their review and approval. As such, a NFU soil deposit application must be submitted to the City for review and a decision from Council. Should the application be referred to the ALC and should it subsequently be approved by the ALC, the Applicant would be required to satisfy the requirements of the Bylaw before a soil deposit permit would be issued by the City.

The proponent has satisfied all of the City’s referral requirements for submission to the ALC.

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.

2.3 Increase emphasis on local food systems, urban agriculture and organic farming.

Analysis

The Property is zoned AG1 (Agriculture). The current zoning permits a wide range of farming and compatible uses consistent with the provisions of the *ALC Act and Regulation* and the City’s *Official Community Plan and Zoning Bylaw*. The Property is currently not in agricultural production.

The Applicant is applying to deposit 23,673 cubic metres of soil over approximately 2.3 ha of the 3.32 ha property at an average depth of 1.0 m to improve the Property’s agricultural capability.

Uses on Adjacent Lots

- To the North: ALR – Fraser River
- To the East: ALR – Land is not in agricultural production
- To the South: ALR – Land is in agricultural production
- To the West: ALR – Land is not in agricultural production

Table 1: Existing Information and Proposed Changes for the Property

Item	Existing	Proposed
Owner	Inderjit and Ranjit Gosal	No change
Lot Size (western lot)	3.32 hectares (8.2 acres)	No change
Applicant	Inderjit Gosal	No change
Authorized Consultant	John Paul (Transform Land & Soil Investigation)	No change
Land Uses	Property is currently not in agricultural production	Crop production
Official Community Plan (OCP) Designation	Agriculture	No change
ALR Designation	Property is within the ALR	No change
Zoning	AG1	No change
Riparian Management Area (RMA)	Yes	No change

Project Overview

An agrologist's report has been provided by John Paul, Ph. D, P. Ag (Transform Land & Soil Investigation). The agrologist report provides a summary of the Property's history, current site conditions, farm establishment plan and costs, project costs and project completion recommendations. The area of the Property proposed to be developed/filled is currently not in agricultural production and will be cleared prior to importation of the soil. Existing topsoil shall be stockpiled on-site and utilized following importation of soil.

The proposed scope of the project involves placing 23,673 cubic metres of soil (approximately 3,380 truckloads) to establish a farm capable of growing crops. The total project area is approximately 2.3 ha (5.7 acres). The estimated duration of the project is two years.

Soil sourcing has not commenced at this time due to the considerable period of time involved with respect to the application process and seeking approval from the City and ALC. However, if this application is referred to the ALC and approved, the City will include reporting requirements from the agrologist-of-record to ensure the quality of the soil meets the standards as outlined within the project proposal.

Staff Comments

City staff will prepare a comprehensive soil deposit permit (the "Permit") that addresses a number of key areas, including, but not limited to, reporting requirements, invasive species, public safety, drainage, eliminating impacts to neighbouring properties and City infrastructure, security deposits, and the permitted hours/days of operation.

Should the Permit be granted by the City, the Applicant will be required to take all necessary precautions to prevent sedimentation of the Riparian Management Area (RMA) located along the north property line, any stream, creek, waterway, watercourse, ditch, drain, catch basin, culvert, or manhole either on or adjacent to the Property. The City will require that erosion and sediment control measures be installed and inspected by a qualified professional prior to soil deposit operations commencing. City staff will also inspect to ensure compliance prior to the importation of any soil. There will be a separate condition within the Permit that requires that such measures be sustained throughout the duration of the project.

The Permit holder will be required to maintain an accurate daily log of trucks depositing soil on the site. The City will review the logs regularly to ensure that the conditions are adhered to. At the sole discretion of the City, alternate measures may be required (i.e. survey) in order to determine the volume of soil deposited on the Property.

Staff will require that the project be monitored by a professional Agrologist and that the Agrologist provide the City inspection reports every 3,000 cubic metres unless determined otherwise by the ALC or upon request by City staff. Regular reporting will include that the agrologist inspect the soil at the source site(s) and provide a written assessment report prior to delivery to ensure that only the appropriate soil is delivered to the site.

Permit conditions will provide staff the latitude to request a geotechnical report at any time should the Manager of Community Bylaws or designate consider it necessary. Staff will require a closure report from the geotechnical engineer following completion of the project.

In addition to the expected reporting requirements of the agrologist-of-record or other qualified professionals as per the City and ALC, City staff will maintain proactive inspection and enforcement on the Property that will include the following:

- multiple site inspections per week of the Property at the onset of the project to ensure conditions of the Permit issued by the City are being maintained;
- weekly site assessments to continue to be undertaken when soil importation is underway to ensure the City's Permit conditions are respected;
- meet on-site with the site supervisor a minimum of two times per month;
- maintain communications with the agrologist-of-record and the project coordinator on a monthly basis;
- review agrologist reports to ensure conditions of the Permit and ALC approval terms are being satisfied; and
- advise the ALC of concerns relative to the project and request that ALC staff undertake inspections to ensure compliance with the approval conditions when deemed necessary.

As per the Permit conditions, the City's security deposit will not be returned until all conditions as stated in the Permit and the ALC approval are satisfied in their entirety, to the satisfaction of the City. This will include confirmation of the project completion via final report from the owner's agrologist-of-record. City staff is to conduct a final inspection and receive confirmation from the ALC that the project has been completed as per ALC approval prior to closing the file.

The City's Flood Protection Management Strategy identifies raising land levels within all areas of the City as a key overall long-term objective, and that the City will strategically encourage land levels to be raised where such raising is proposed to meet other objectives, such as agricultural viability.

Richmond Food Security and Agricultural Advisory Committee (FSAAC) Consultation

The applicant presented the proposal to the FSAAC on September 12, 2019. The Committee unanimously supported the proposal and passed the following motion:

"That the Food Security and Agricultural Advisory Committee support the Soil Deposit Application at 21700 River Road as presented, subject to the following conditions:

- *Submission of an acceptable farm plan and execution of the farm plan;*
- *Site monitoring and inspections as per Community Bylaws requirements;*
- *Use of approved alluvial soil;*
- *Performance bond as per Agricultural Land Commission requirements; and*
- *Testing, removal and remediation if contaminated soils are found on the site."*

Agricultural Considerations

The proponent has retained a qualified agrologist and submitted an agrologist report (the "Report") (Attachment 1) outlining the historical and current land conditions and an overview of the proposal including proposed site monitoring and reporting.

The Report indicates that the current owners have attempted to grow blueberries on the Property; however, such attempts have failed. The owners indicate that the agricultural production is negatively impacted by poor drainage and a high water table which is supported as per the Land Capability Mapping, which indicates the Property is Class 4W. Class 4W is defined as follows:

"Frequent or continuous occurrence of excess water during the growing period causing moderate crop damage and occasional crop loss. Water level is near the soil surface during most of the winter and/or until late spring preventing seeding in some years, or the soil is very poorly drained." (BCMOE 1983)

The Report indicates that the agricultural capability of the Property is limited to cranberries or a "very short season" for growing vegetable crops. As per the agrologist-of-record: "Cranberries normally require larger fields than the [Property's size]. Although short season vegetable crops are one option, it is risky and does not represent the best use of this valuable agricultural land."

The Applicant intends to stockpile the existing peat layer that is to be placed over the imported soil. This is similar in practice for the Council endorsed project currently underway at 14791 Westminster Highway (Sixwest Holdings).

Subsequent to the FSAAC meeting, the applicant provided a consolidated Farm Plan (Attachment 2) specifying additional detail in regards to the proposal and a Technical Memorandum (Attachment 3) regarding the type of soil(s) suitable to complete the project, soil placement and productivity limitations due to current and future conditions as result of flooding and a high water table.

The Report and Technical Memorandum have been reviewed from an agricultural perspective on behalf of the City by an independent consultant Bruce McTavish (MSc, MBA, P. Ag, RP Bio). Mr. McTavish has no concerns regarding the information provided as it relates to the current conditions of the Property.

Should the proposal be approved, the City will require that a qualified agrologist be retained to monitor the project and provide regular reporting. Should an agrologist not be retained or cease providing regular oversight and reporting, the City would reserve the right, as per the Permit conditions, to suspend and/or void the Permit until such time as a new qualified agrologist, agreeable to the City and ALC, is retained to monitor the project and provide regular reporting.

Financial Costs and Considerations for the Applicant

Due to ongoing and approved development within the City of Richmond and the Lower Mainland, developers and contractors must find locations (the "End Site") that will accept soil and other material that needs to be excavated and removed off-site to facilitate development. Due to such demand, a market has been created in which End Site owners can generate income via tipping fees. Such fees are variable depending on the location, type and volume of soil, and season. Contractors are willing to pay a premium based on location (the "Source Site") of the soil and other material to the End Site in order to reduce considerable trucking costs.

Although End Site owners derive income due to such tipping fees, soil deposit projects are not without significant costs to the Permit holder. It is anticipated that the applicant may receive tipping fees estimated at approximately \$290,000. However, the income derived through tipping fees shall be offset by costs estimated to be in excess of \$200,000 due to upfront reporting expenditures, site preparation, project management (ie. soil monitoring), daily personnel and machine expenditures, ongoing inspection and reporting, drainage upgrades and final reporting expenses.

Please refer to Attachment 4 for the table outlining the upfront and estimated future project costs as provided by the Applicant.

Drainage & Geotechnical Considerations

City Engineering staff have reviewed the proposal and associated documents and are satisfied with the conclusions of the Applicant's qualified professionals.

A site Grading and Drainage Plan (the “Plan”) has been provided. The Plan (Attachment 5) provides an assessment of the Property’s current drainage configuration and conditions and the proposed finished grades.

The applicant has provided a Geotechnical Investigation Report (the “Investigation”). The Investigation (Attachment 6) provides a review of the Property’s current soil conditions, water table depth and assessment of future settlement post-soil deposition. In addition, the Investigation outlines the soil placement process to be undertaken by the Applicant including setback requirements in order to mitigate risk to neighbouring properties.

Environmental Considerations

The proposed soil deposition area is outside of the Riparian Management Area (RMA) located near the north property line; however, protective measures will be required to be undertaken to ensure the RMA is protected.

As per City permit conditions, all work undertaken in or around a watercourse, must be completed in compliance with the *Water Sustainability Act*, under the guidance of a Qualified Environmental Professional (QEP). The City will require that erosion and sediment control measures be installed and inspected by a QEP.

The Applicant is exempt from an Environmentally Sensitive Area Development Permit (ESA DP) as a Farm Plan was provided to the City consistent with the exemptions permitted in the Official Community Plan. Despite the ESA DP exemption, the ESA designation remains on the Property. Any future change to the proposed land use may require ESA restoration should the owner decides to stop farming.

The owner will be exempt from obtaining a Tree Removal Permit under *Tree Bylaw No. 8057* as per the “Farm Practices Protection Act”. A breeding bird survey will be required by a QEP for any land cleared between March and August pursuant to the federal *Migratory Bird Act* and the provincial *Wildlife Act*. No tree removal may take place between March and August due to bird nesting season.

Road and Traffic Considerations

The City will institute the following requirements with respect to trucks accessing the Property:

- All trucks importing soil will enter and exit River Road from the east end at Westminster Highway;
- All trucks are to obey the 30 km/h speed limit on River Road. The speed limit will be enforced;
- Traffic control measures must be in accordance with the “*Traffic Control Manual for Work on Roadways*” as published by the Highways Engineering Branch, BC Ministry of Transportation and Highways and per the City’s *Traffic Bylaw No. 5870*, Part V. s. 18.4;
- A traffic control person may be required at the driveway to control trucks entering and exiting the site and to ensure safe passage for pedestrians and cyclists; and

- A Traffic Management Plan will be required by the City's Transportation Department prior to commencement of the project.

Security Bonds

Should the proposal receive approval, the City will require that the Applicant provide the following security bonds prior to Permit issuance:

- \$5,000 pursuant to s. 8(d) of the current *Boulevard and Roadway Protection Regulation Bylaw No. 6366* to ensure that roadways and drainage systems are kept free and clear of materials, debris, dirt, or mud resulting from the soil deposit activity; and
- \$10,000 pursuant to s. 4.2.1 of the current *Soil Removal and Fill Deposit Regulation Bylaw No. 8094* to ensure full and proper compliance with the provisions of this Bylaw and all other terms and conditions of the Permit.

Staff will recommend to the ALC, as a condition of approval, that the Applicant be required to post a substantial performance bond in a form and amount deemed acceptable by the ALC. The performance bond should be of a sufficient amount to ensure that all required mitigation and monitoring measures are completed as proposed and to ensure the rehabilitation of the Property may be implemented in the event the project is not completed. The performance bond will be held by the ALC.

Alternatives to Council Approval

Should Council not authorize staff to refer the proposal to the ALC for their review and decision; the application will be considered to be rejected. Council may add additional recommendations for ALC consideration and/or conditions within a referral to the ALC, similar to conditions already provided within this report.

Financial Impact

None.

Conclusion

Staff is recommending that the Non-Farm Use Fill Application for the property located at 21700 River Road be referred to the ALC to determine the merits of the proposal from an agricultural perspective as the proponent has satisfied all of the City's current reporting requirements.



Mike Morin
Soil Bylaw Officer, Community Bylaws
(8625)

- Att. 1: Agrologist Report (23 May 2019)
 2: Farm Plan (07 Oct 2019)
 3: Technical Memorandum (12 Nov 2019)
 4: Project Cost Table (13 Nov 2019)
 5: Grading and Drainage Plan (08 Nov 2019)
 6: Geotechnical Investigation Report (20 Aug 2018)

Soil Deposit Application

21700 River Rd, Richmond, BC

Prepared for:

Inderjit and Ranjit Gosal

21700 River Road

Richmond, BC V6V 1M4

and

The City of Richmond

and

The BC Agricultural Land Commission



Soil Deposit Application

Report to: Inderjit and Ranjit Gosal
21700 River Rd
Richmond, BC V6V 1M4

City of Richmond

Agricultural Land Commission

Updated May 23, 2019

Transform Land and Soil Investigation
3911 Mt Lehman Rd
Abbotsford, BC, Canada
Phone 604-302-4367
Email: transform@telus.net

Executive Summary

The owners of the property located at 21700 River Rd is requesting to import soil to allow them to overcome the drainage issues and allow them to grow an agricultural crop.

Transform Land and Soil Investigation has been hired to provide an assessment of the existing conditions, the soil type and the agricultural capability.

The owners have stated that they have attempted to grow blueberries on this property twice, but both times the crop failed because of the poor drainage.

It appears that there may have been very little to no agricultural crop production on this property historically because of the poor drainage.

The estimated volume of soil required is 23,673 m³ to be distributed over a 2.31 ha area on the farm.

In the areas of the property where soil has already been imported, all of the organic soil above the clay layer has been removed and set aside. This material will be returned and used as the topsoil.

Potential sources of soil would be from the general surrounding area, and must be demonstrated to be clean and free of contamination.

Potential impacts of the project are related to the fill activity and include dust on the property or on the roadways, spills of soil onto the roadway, or accidents. These impacts are considered minimal with the proposed mitigation measures, including managing the soil on the wheels of the trucks, dust control, and erosion and sediment control measures.

The soil fill will occur in several stages to allow the existing organic soil to be removed, set aside, and then placed on the fill. The blueberries will be planted when the project is complete.

The timeline is estimated at two years, and depends primarily on the availability of the soil at a time when it can be appropriately received and managed.

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1. Introduction

The owners of the property located at 21700 River Rd, Richmond, BC have requested permission to import soil to improve their land for crop production.

Currently there is no crop grown on this property. Some soil has already been imported onto the northwest corner of the property. The owners had removed all of the organic soil to the clay layer and set it aside until it can be placed onto the imported soil.



Figure 1. Photo of the southern portion of the property (Jan 8, 2019)

After failed attempts to establish a berry crop, the soil is populated with grasses, shrubs and some deciduous trees common to poorly drained soils.

The owners would like to import soil so that they can raise the elevation of the property by to 0.5 m above the high water table (1 m increase in height), which would allow them to farm the property.

Transform Land and Soil Investigation (Transform) has been retained to complete a comprehensive assessment of the soil currently on the property and its agricultural capability, identify potential sources of soil, and prepare the property improvement plan to allow the property to be used for crop production.

1.1. Property Owners and Contact

The current property owners are Inderjit and Ranjit Gosal. They purchased this property in 2004, and are living in the home on the property. The contact for the property owners is:

Harinder Gosal
21700 River Road
Richmond, BC V6V 1M4

Email: harindergosal@hotmail.com
Phone:

1.2 Author Credentials

John Paul, PhD PAg is a soil scientist based in Abbotsford, British Columbia. He has extensive training and experience in all aspects of soil science, including soil chemistry, physics and classification, soil fertility and biochemistry. Dr. Paul has been working with soil deposit permits and other soils related work since 1998.

2. Methodology

2.1. Scope of the Project

The scope of the project includes the 3.32 ha property located at 21700 River Rd, within the context of the surrounding properties, land uses and features.

This report includes:

- Desktop review of the property including soil types and soil capability
- Site visits to confirm conditions
- Review of previous applicable reports
- Soil Import Plan
- Long term farming Plan

3. Property Information

3.1. Zoning

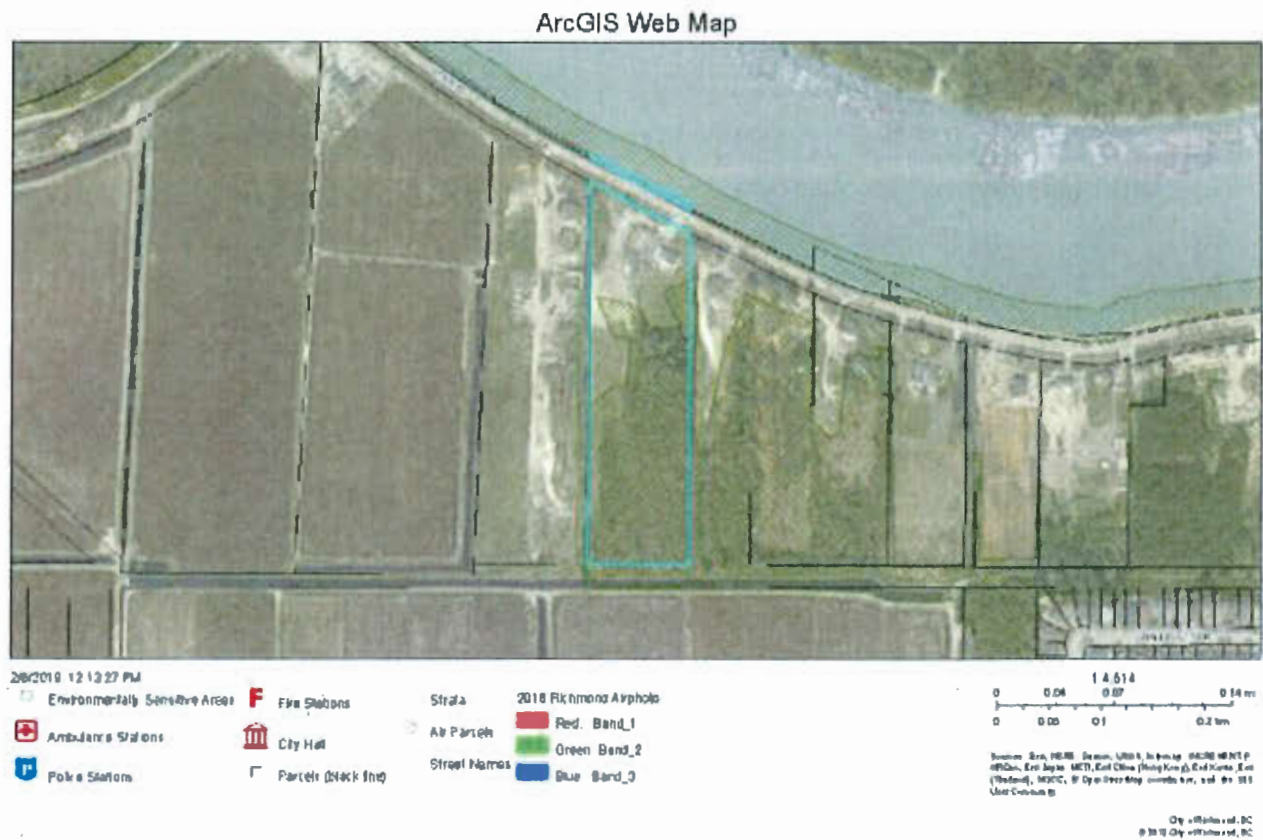


Figure 2. Property located at 21700 River Rd, Richmond, BC

According to information from the City of Richmond, the property has a civic address at 21700 River Rd, Richmond, V6V 1M4. It consists of a 3.32 ha parcel zoned AG1 in the ALR. The legal description is PID 011-994-240, LT 1C Sec 34 Blk 5N RGE 4W, NWP1108 Except Plan Bylaw 50800.

The property is located in the Agricultural Land Reserve, and is therefore governed also by the ALC Act and Regulations.

A large section of the property is designated as an Environmentally Sensitive Area (ESA). Development in an ESA is limited; however, agricultural production may occur on these areas.

3.2. History of Agricultural Use

The owners of the property located at 21700 River Rd, have owned the property since 2004. They describe two attempts to establish some blueberries on the property. These attempts have not been successful. The letter from the owners including photos of flooding is provided in Appendix B.

There is no additional information available on whether this property was farmed previously to 2002.

3.3. Surrounding Land Use

The property to the east is currently not in agricultural production. The land is being leased to the vegetable farmer who farms the property further to the east, and is currently waiting for permission to add some soil to reduce the drainage limitations on this site.

The property to the west also does not appear to have had any agricultural production on it, however the property was cleared of trees and shrubs already in 2002, suggesting that some agricultural crop production may have been attempted (Google Earth). It appears from images on Google Earth that soil was being imported onto this property as early as 2007. Agricultural activity on this property appears to be limited at this time, based on Google Maps.

The properties along the southern border are cropped to cranberries, and appear to have been for almost 20 years (Google Earth).

North of the property located at 21700 River Rd is one of the arms of the Fraser River.



Figure 3. Photo of property to the south of 21700 River Rd, showing the berm and cranberry fields (January 8, 2019 photo)

4. Soil Type

The soils on this property is classified as a combination of EM-RU b in the north part of the property, and a LU-RC a in the southern half of the property (Luttmerding 1980).

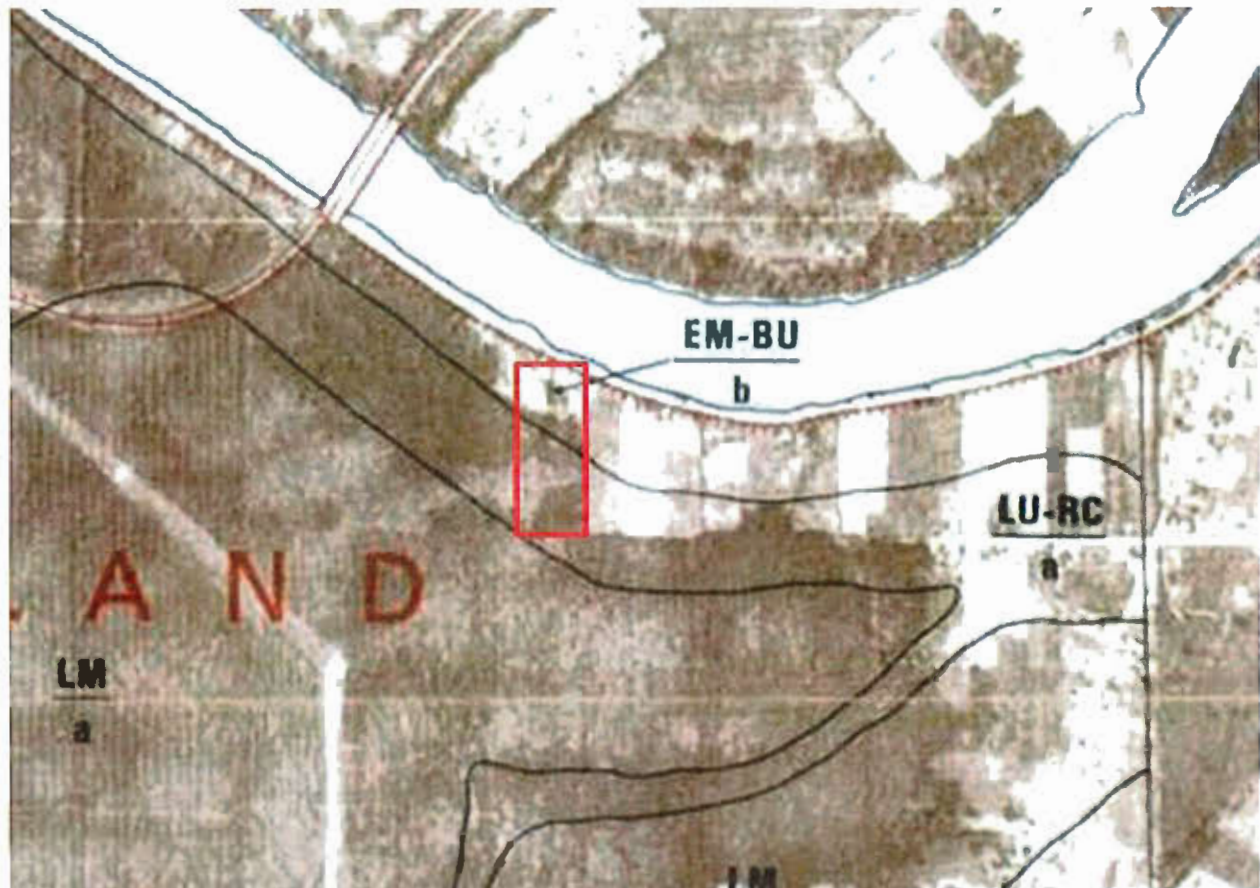


Figure 4. Soil type on and near 21700 River Rd., Richmond

EM refers to Embree soil, which is a medium textured deltaic deposit containing organic strata. BU refers to Blundell soil, which consists of 15-40 cm of organic material over medium textured deltaic sediments. The topography may be gently undulating.

Towards the south of the property, there is a combination of LU-RC. Lulu (LU) soil consists of 40-160 cm of partially decomposed organic material over moderately fine textured deltaic deposits. Richmond soil (RC) consists of 40-160 cm of well decomposed organic material over moderately fine deltaic deposits. The topography on the southern half of the property is level.

Soil Code	Soils Name	Description	Drainage
BU	Blundell	15-40 cm of organic material over medium textured deltaic deposits	Poor to very poor High groundwater table
EM	Embree	Medium textured deltaic deposits containing organic strata	Poor to very poor High groundwater table
LU	Lulu	40-160 cm of partially decomposed organic material over moderately fine textured deltaic deposits	Very poor High groundwater table
RC	Richmond	40-160 cm of well decomposed organic material over moderately fine textured deltaic deposits	Very poor High groundwater table

Figure 5. Soil types on the property at 21700 River Rd

5. Agricultural Capability

The agricultural capability of the soils on this property is depicted as being Class 4 W in the north of the property, and Class O4W in the southern half. The O4WL Class represents an organic soil, as confirmed by the soil type.

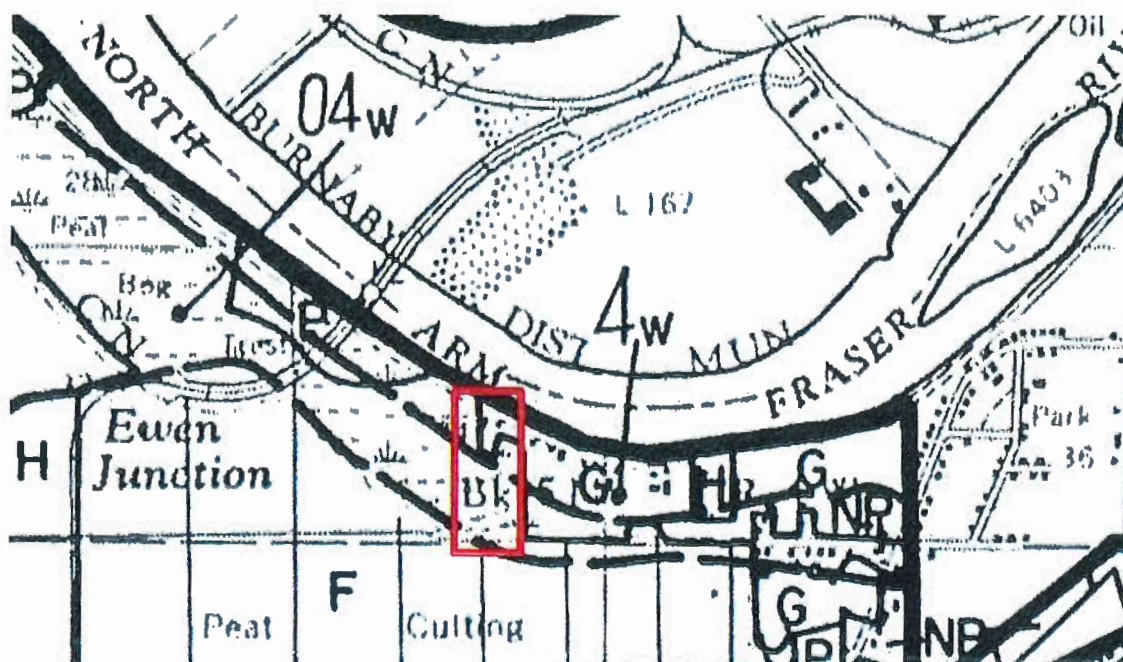


Figure 6. Agricultural Capability of the soil on the property

Class 4 land, whether it is mineral or organic is *"land in this class has limitations that require special management practices or severely restrict the range of crops, or both"* (BCMOE 1983).

The capability subclasses according to the Land Capability Mapping includes W, which depicts excess water.

"This subclass applies to soils for which excess free water, other than from flooding, limits their use for agriculture. The excess water occurs because of imperfect to very poor drainage due to high water tables, seepage, or runoff from surrounding areas." (BCMOE 1983)

Class 4W is defined as follows:

"Frequent or continuous occurrence of excess water during the growing period causing moderate crop damage and occasional crop loss. Water level is near the soil surface during most of the winter and/or until late spring preventing seeding in some years, or the soil is very poorly drained." (BCMOE 1983)

In the case of the property located at 21700 River Rd, the Agricultural Capability is limited by excess water due to a high water table extending into the growing season, and thus causing the potential for crop damage or loss.

The potential for crops on this property include cranberries, similar to what is grown on the lands to the south, or very short season vegetable crops.

Cranberries normally require larger fields than the area available at 21700 River Rd. Although short season vegetable crops are one option, it is risky and does not represent the best use of this valuable agricultural land.

The improved capability of the northern portion of the property with the Agricultural Capability of 4W is 6:2WN~4:3WN. The improved capability of the southern portion of the property with the Agricultural Capability of 04WL is 03WL.

We anticipate that the addition of fill to the property as per the plan outlined in this report will increase the Agricultural Capability to Class 2, where *"land in this class has minor limitations that require good ongoing management practices or slightly restrict the range of crops, or both"* (BCMOE 1983).

6. Site Investigations

A site investigation was conducted on January 8, 2019. A second investigation to dig soil pits was conducted on May 15, 2019.

6.1. January 8, 2019 Site Visit

The site investigation on January 8, 2019 confirmed the drainage issues contributing to the poor agricultural capability of the property. The water table was almost at the surface of the soil. As a result, it was not possible to dig test holes on the property.

The site investigation also confirmed the import of significant amount of soil onto the property already. We were also able to confirm that the organic layer was removed before the soil was imported.



Figure 7. View of front of property (northeast corner) from the road. Owners indicated regular flooding of the front yard (see photos in Appendix B).

Figure 8. View of the home towards the north, with the backyard. The owners described regular flooding of the backyard (see also Appendix B)



Figure 9. View of property looking south along the west boundary. Land surface on property to the west is 2-3 m higher than surface of the property at 21700 River Rd.

Figure 10. View of the vegetation and the water ponding in the southwest corner of the property.



Figure 11. View of property along the southern property boundary.

Figure 12. View of the vegetation in the south west portion of the property.



Figure 13. View of some taller trees in the northeast quadrant of the property.

Figure 14. Location of the soil pit used for the previous site analysis.



Figure 15. Area in the northwest quadrant where some soil had already been deposited.

6.2. May 15, 2019 Site Visit

A second site visit was conducted on May 15, 2019. This was made possible by less than average precipitation and relatively low river levels.



Figure 10. Approximate location of each of the three soil pits excavated on the property on May 15, 2019

A total of three soil pits were excavated. The primary purpose of pits # 1 and # 2 were to verify the depth of the peat, and to visually assess its quality.

The primary purpose of pit # 3 was to determine the potential for garbage or other contamination that may have to be removed from this fill.

The estimated depth to the clay layer underneath the peat as observed in Pits 1 and 2 was 8 ft (240 cm).

The fill that had already been imported as observed in Pit # 3 was clean and free of debris.

We recommend ongoing inspection of the fill that was already imported to ensure that it is all clean and free of debris.



Figure 17. Excavating soil pit # 1 at 21700

Figure 11. The clay layer was approximately 240 cm below the surface of the peat.



Figure 19. Excavating soil pit # 2. Depth to clay was



Figure 20. Inspection of the imported soil in Hole # 3 did not reveal any contamination.

7. Review of Previous Reports

The following documents were reviewed:

- Geotechnical Report dated August 20, 2018 – Horizon Engineering Inc.
- 21700 River Rd Grading/Drainage Plan October 31, 2018 – McElhanny
- Plan for Outdoor Blueberry Production, Container Blueberry Nursery Plants and Possible Alternative Orchard in the Future at 21700 River Road, Richmond, BC – Aman Agri Consult Co Nov 7 2018
- Supplementary Report on Soil Survey and Land Capability at 21700 River Road Richmond – Jiang Nov 2 2018
- P.Ag Report Review December 14, 2018

7.1. Geotechnical Report dated August 20, 2018 – Horizon Engineering Inc.

This report confirms the information in the site survey which provides the elevation of the property which ranges from 1 to 1.9 m on the eastern half, and 1.2 to 4 m on the west side of the property.

During the subsurface investigation on June 13, 2013, the ground water was reported to be at the soil surface and at one meter below grade at the two sites. The report that I received did not contain the locations of the test holes on the property, so it was not possible to make conclusions regarding the depth to groundwater.

This report also identifies the existing ditching along the east, west and south sides of the property, the depth of which ranges from minor depressions to 2 m.

Based on the two test holes, the thickness of the peat was approximately 1.5.

The flood construction level at this site is 3.5 m Geodetic.

The report provided the construction procedure consisting of the following:

- *“Step 1: Reinstate perimeter ditches to ensure that collected surface runoff would be directed to a local discharge location. It is envisaged that the local discharge location is located at the northern end of the subject property; therefore, the bottom of the ditch shall be sloped adequately towards the north to ensure that the ditch drains suitably directed towards the outlet.*
- *Step 2: Strip superficial organic material and stockpiled it for the future use. As previously noted, stripping peat materials had been carried out prior to our recent site visit at some areas.*
- *Step 3. Place imported fill material to raise the grade to the elevation near Flood-Construction-Level. Fill shall be placed in lifts. Each lift shall be compacted adequately for the agricultural use. It is recommended that the maximum slope shall be no steeper than 1V:2.5H.*
- *Step 4. Stripped surficial organic materials to be spread over the top of the raised grade as required to achieve the design grade of El. 3.5 meters.”*

7.2. 21700 River Road Grading /Drainage Plan – October 31, 2018 – McElhanney

The proposed fill thickness is approximately 2.5 meters, depending on the location within the property.

“The ditch running along the south property line drains east to the ditch running along the east property line. The east and west ditch then drain north to the River Road roadside ditch. The River Road ditch is eventually drained via a pump station to the Fraser River. The east, west, and south ditches are lined by thick vegetation, reducing the capacity of the ditch.”

This report is included in Appendix C.

7.3 Plan for Outdoor Blueberry Production, Container Blueberry Nursery Plants and Possible Alternative Orchard in the Future at 21700 River Road, Richmond, BC – Aman Agri Consult Co Nov 7 2018

Estimated volume of fill required is 41,300 cubic meters, based on adding soil to 7.5 acres to raise an elevation of 3.5 m.

The report provides some cost estimates and recommendations for the establishment of a blueberry farm as well as a blueberry nursery.

The report identifies that Ministry of Environment approval is required for a well for irrigation.

7.4 Supplementary Report on Soil Survey and Land Capability at 21700 River Road Richmond – Jiang Nov 2 2018

The soil on the property is fen peat (fibric mesisol). A pit was excavated in the center of the property, where it was identified that the depth of the peat was 5 ft from the surface. It was identified that the peat was rather uniform from the top to bottom, therefore there was no need to strip the peat in layers.

“The fen peatland was previously covered mainly by Douglas fir (Pseudotsuga menziesii va. Menziesii) with fen underneath. Most of the trees were cleared couple of years ago by the current owners. Newly generated plant species are mainly blackberries, aspen (Populus tremuloides), bog willow, birch (Betula neoalaskana), alder (Alnus spp.), fen, blueberries. There are cattail plants in small pond at south west corner of the property. Alfalfa, clover, grasses were also noticed on the mineral filling area.”

7.5 P.Ag Report Review December 14, 2018

The agricultural capability for the site is O4WL, improvable to O3LW for the southern ½ of the property and 4W improvable to 6:2WN 4:3 WN on the northern ½ of the property.

The report suggests that the Agricultural Capability of the property will be improved after the filling, but does not indicate to what Class it will be improved to.

8. Soil Import Recommendations and Details

8.1. Depth of Soil Required

Although the previous reports indicated that the proposed elevations were to be a minimum of 3.5 m along the east and west boundaries, and almost 4 m along the centerline, we determined that raising the entire elevation is not necessary. The average natural elevation of the site ranges from 1.1 to 1.5 m.

It is our opinion that the property can be adequately improved to allow agricultural production, including blueberries, by the following:

- Increasing the elevation by 1 meter on average,
- Crowning the land along the center in the north-south direction
- Establishing good site drainage by designing and maintaining the ditches along the south, east and west property boundaries.

We will utilize the topographic survey provided with the October 31, 2018 McElhanney Report – and reduce the elevations by 1 m (Appendix A). This results in an elevation of 2.5 m at the property boundary, and 2.96 m along the centerline (north-south).

8.2 Volume of Soil Required

An estimate of the soil volume required is normally provided from the topographic survey by calculating the volume between the existing elevation and the proposed elevation. Given that this was not provided, we will provide an estimate based on average elevations of the site.

The site must be separated into the two areas, one being the area where no fill had been applied, and the other area where fill had already been applied.

Based on the area measurements in Figure 15, and the elevations found in Appendix A, we obtain a volume requirement of 23, 673 cubic meters over a total fill area of 2.31 ha.



Figure 21. Area measurements at 21700 Riverside Rd delineating the area already filled, and the area requiring fill (from Google Pro)

Area	Size (m ²)	Elevation (ave meters)	Target Elevation (m)	Volume Soil Required (m ³)
Undisturbed	18300	1.3	2.73	26,169
Filled	4800	3.25	2.73	-2,496
Total Fill Area	23100			23,673

8.3. Potential Sources of Soil

Potential sources of soil includes suitable soil from the general surrounding area. It must be a mineral soil that has been demonstrated to be free of contamination by chemicals or any other visible contamination including concrete, asphalt, brick, plastic, rubber. Coarse organic material such as logs, large roots, stumps or other significant volumes of organic matter is also not allowed.

Potential sources of fill will not include topsoil or peat, as there is sufficient peat that can be used for topsoil already on this property. The soil that will be sourced may range from a heavy textured soil similar to the soil below the peat, to a medium textured soil that includes some sand.

8.3.1. Contingency

To ensure that all of the soil imported to the property at 21700 River Rd is appropriate for the purpose and free of contaminants, a contingency plan provides the minimum standards for a fill assessment.

When a potential source of soil has been identified, the following assessment process must be initiated:

- a. Review historical and present land use of the source and adjacent properties from available information including the B.C. Ministry of Environment's Contaminated Sites Registry, as well as any additional information available from property owners, neighbours or other potentially reliable sources.
- b. A visual inspection of the site where the material originates, including using an excavator on site to further inspect the potential soil.
- c. A Phase I Environmental report where applicable
- d. Certification from the owner, project manager or other party responsible for the soil at the source that they confirm that the soil is free of contamination and accept any liability resulting from contamination.

Each incoming load will be visibly inspected during delivery. Any loads of concern will be immediately identified and separated, and the driver or source location notified.

A qualified professional will be permitted to randomly access the property at any time to monitor the fill process, take photographs, as well as samples of the fill.

8.3.2. Reporting

Records of the assessment process including photographs for the approved fill sources will be kept on file. All soil being imported will be logged in a logbook containing the source location, quantity, truck license plate and the driver's signature. The driver's signature also verifies their responsibility to remove unacceptable material.

The qualified professional will provide an update report following each site visit, including photographs and sampling results if applicable.

8.3.3. Existing Fill on Property

The fill that has already been delivered to the property will be inspected by randomly excavating holes throughout the fill area along with visible assessment of the material. Any contamination found must be removed, and will trigger further investigation and review of the material that had already been imported. The investigation may also require sampling for hydrocarbons or other contaminants if suspected.

The qualified professional retains the right to order the removal of any contaminated material, or require further and additional investigation of the fill already delivered to the site.

Surplus fill already imported will be preferentially used for the farm access roadway along the western property boundary as required.

8.4. Required Construction Works

8.4.1. Access and Staging Areas

The following is required to minimize impacts to the property.

- a. All access will be limited to the driveway entrance at River Rd. Trucks will deliver soil between 7:30 AM and 6:00 PM, Monday through Saturday.
- b. Access to 21700 River Rd will be along River Rd. Cones and flags will be required along the roadway to alert traffic along River Rd. If there is more than 2 trucks per hour expected, a dedicated flag person must attend the site to assist with traffic.
- c. The staging area on the site including access and truck turn around area has already been prepared on the site.
- d. Staging areas for the excavators and other equipment, including fuels and refueling should be located as far as possible from sensitive habitats, such as the ditches or undisturbed areas.
- e. The access road to the south of the property shall be along the western boundary, where some filling has already occurred. The maximum width of this access road is 4 m.
- f. Any additional temporary staging areas nearer to the south property boundary will be a maximum radius of 15 m to allow trucks to turn around.
- g. Runoff from access roads and staging areas should be contained using interceptor ditches and silt fencing to reduce the risk of entering watercourses.

8.4.2. Site Preparation

Although some of the site preparation has already occurred in that some fill has already been imported, the following is required before additional fill is imported.

- a. all fill activity must take place during the summer and fall season when the groundwater table is most likely to be at its lowest.
- b. The drainage ditches along the south, east and west property boundaries must be cleaned and shaped according to the drainage plan
- c. the farm access road will be completed along the west property boundary, using excess fill that has already been delivered to the site.
- d. construction of the access road requires clearing and grubbing, and excavation of all of the peat to the underlying mineral soil.
- e. The fill project will be conducted in at least four Phases to minimize exposure of the soil to erosion.

- f. In each of the Phases, the works shall include: 1) clearing and grubbing to remove all existing vegetation, including trees and roots, 2) excavating the peat and setting it aside to be replaced following the fill.
- g. Erosion control measures as required to minimize the impact of silt or soil movement to watercourses.

8.4.3. Soil Placement

Following the site preparation, the soil can be imported as required for each phase. The imported fill layer will be placed on top of the existing deltaic mineral deposit, and graded to include a crown along the north/south centerline. The elevation of the imported fill will be approximately 50 cm higher along the centerline than along the edges to allow natural drainage to the watercourses on the east and west property boundaries.

During fill placement, elevations will be measured and recorded to confirm consistency with the fill plan.

Following the addition of the fill, the peat layer will be returned onto the top of the fill layer and sloped as per fill drawings and plan.

8.5. Potential Impacts and Proposed Mitigation

8.5.1. Accidents or Spills

Accidents or spills may result in a number of effects on the environment including site contamination, toxins, damage to water courses or damage to wildlife. Mitigation measures to prevent accidents or spills and appropriate responses are required.

8.5.2 Dust

Airborne dust may be a concern because the fill will be occurring during the driest months of the year when the groundwater elevation is likely to be at its lowest point.

Most areas around the fill area are agricultural and are likely to have minimal impact. The health of agricultural workers or residents of neighbouring homes must be considered.

The following mitigation measures will be implemented:

- a. keep the paved surfaces clean and free of soil by ensuring that vehicles are not tracking mud onto the roadways.
- b. having trucks or other vehicles keep to a maximum 20 km/h speed limit when travelling on access roads or anywhere in the project area.
- c. Using dust suppression methods such as applying water on unpaved roadways
- d. Temporarily covering piles of peat or soil to prevent dust.

8.5.3 Drainage and Watercourses

Because the activity will occur primarily during the summer, impacts to the water are expected to be minimal. Water drainage concerns increase during the winter months. If the project is not completed during one season, it is imperative that appropriate measures are taken for erosion control.

The ditches will be cleaned and shaped at the beginning of the project in order to allow adequate drainage but also to allow revegetation beside the ditches. Erosion control measures will be implemented as required which include:

- a. Allow and encourage revegetation along the ditches as soon as possible
- b. Use silt fencing and other control measures to minimize the risk of silt entering the ditches
- c. Ensure that equipment remains away from the edges of the ditches
- d. Construct temporary water settling areas as required in case of rainstorms during construction to reduce the risk of silt entering watercourses

The qualified professional is also responsible for erosion and sediment control. The qualified professional has the authority to stop work on the project and require a remediation plan if there are any concerns.

8.5.4. Wildlife

Clearing and grubbing will take place after the amphibian breeding season, which is normally from late February to June. Clearing and grubbing is also better completed after July 31 to minimize impacts on bird breeding locations.

8.5.5. Construction Impacts

Potential negative impacts during the fill process will be minimized by adhering to the following:

- a. Following Best Management Practices and municipal bylaws
- b. Ensuring that staging areas for machinery, maintenance and refueling remains at the northwest corner of the property and is located as far as possible from the ditch along the west property boundary.
- c. Keep an Emergency Spill Kit readily available
- d. Ensuring proper storage of fuels, oils and other chemical products
- e. Ensuring that the machinery is maintained regularly and any leaks repaired immediately
- f. Ensuring that the import of noxious weeds is avoided as much as possible
- g. Stage the fill in separate phases to minimize the amount of exposed material at any time.
- h. Use silt fencing and other erosion control measures to contain the work area and minimize the risk of silt entering the ditches
- i. Cover piles of peat to reduce the risk of wind erosion

- j. A qualified professional will conduct regular inspections

9. Site Monitoring and Reporting

The following reporting is required:

- a. Reports including observations, environmental reports, photographs, and sample results of all source sites
- b. Log sheets from each truck signed by the drivers after each load and submitted daily
- c. Weekly inspections of the project by the qualified professional
- d. Monthly reporting of fill volumes and any concerns or comments to the City of Richmond
- e. Topographic survey of the site following the addition of imported fill, as well as a final topographic survey of the site.
- f. Final report by the Qualified Professional indicating that the work has been completed satisfactorily.

10. Preliminary Schedule

The desired schedule is to have the work begin on July 1, 2019, with the construction of the farm access road along the western boundary.

The clearing and grubbing, as well as the excavation of peat may begin on August 1, 2019 and the import of soil may begin immediately following that until the end of September, 2019.

If the project has not been completed by the end of September 2019, the soil will be leveled, surveyed, and covered with peat as soon as possible thereafter in order to stabilize the site.

If the work is not complete by the end of September 2019, it will be completed during the months of July through September 2020.

11. Long Term Farm Planning

The plan for the site is for the owners to plant and grow blueberries, as well as some nursery stock. Their letter of intent and farm plan is found in Appendix B.

12. Closure

The professional agrologist will provide a final closure report that includes the volumes of soil imported, the type of soil imported, the final topographic survey of the fill material and of the site.

13. References

British Columbia Ministry of the Environment. 1983. Land Capability Classification for Agriculture in British Columbia. MOE Manual 1. Surveys and Resource Mapping Branch and Ministry of Agriculture and Food – Soils Branch.

Luttmerding, H.A. 1980. Soils of the Langley-Vancouver Map Area. Volume 1. British Columbia Soil Survey Report No. 15

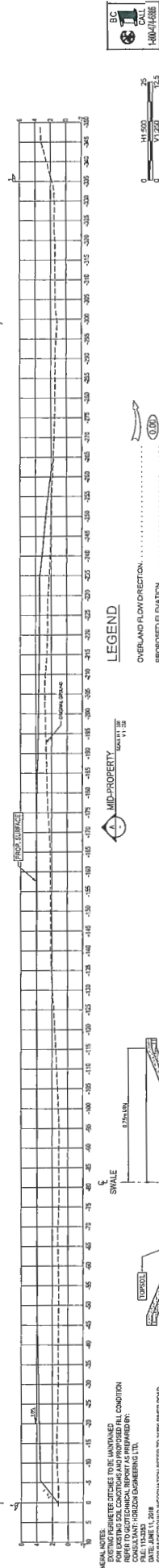
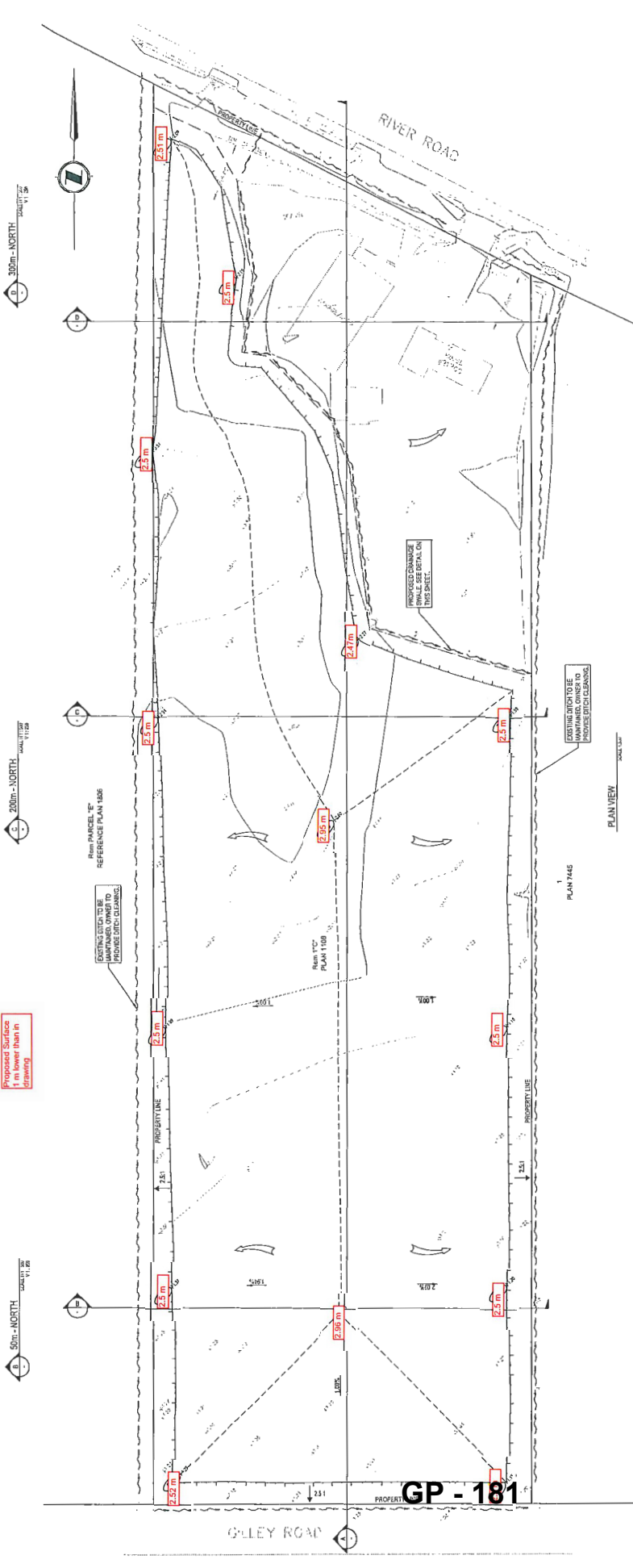
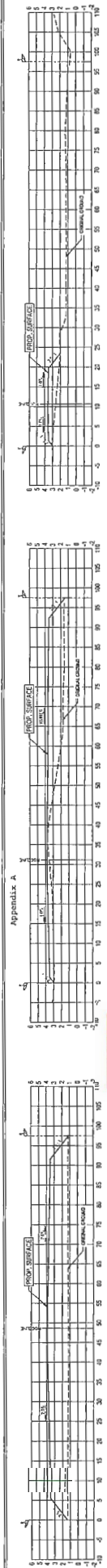
Luttmerding, H.A. 1981. Soils of the Langley-Vancouver Map Area. Volume 3. British Columbia Soil Survey Report No. 18

This report has been prepared by John Paul, Ph.D, P.Ag



I certify that I have conducted the field observations and confirmed the information provided.

This fill plan represents the best option for improving this soil for crop production, given the information available to the author. The professional agrologist accepts no liability for any present or future losses, including crop losses resulting from deviations from the fill plan without written authorization.



NOT FOR CONSTRUCTION

LEGEND

OVERLAND FLOW DIRECTION

PROPOSED ELEVATION

EXISTING ELEVATION

PROPOSED DITCH

PROPOSED SPALL

TOP OF BANK

BOTTOM OF BANK

ROCKLINE

McElhanney
McElhanney Consulting Services Ltd.
21700 River Road, Suite 100, Richmond, BC V6V 1K1
Tel: 604-273-1100, Fax: 604-273-1101, Email: info@mcclanney.com

21700 RIVER ROAD
ON-SITE GRADING AND DRAINAGE
PLAN AND SECTION VIEW

GP - 181

REVISIONS

NO.	DATE	DESCRIPTION
1	2018-03-01	ON-SITE GRADING AND DRAINAGE PLAN
2	2018-03-01	REVISIONS

APPROVED

APPROVED SIGNATURE

NOT FOR CONSTRUCTION

LEGEND

OVERLAND FLOW DIRECTION

PROPOSED ELEVATION

EXISTING ELEVATION

PROPOSED DITCH

PROPOSED SPALL

TOP OF BANK

BOTTOM OF BANK

ROCKLINE

Appendix B

Inderjit Gosal & Ranjit Gosal
21700 River road
Richmond, V6V 1M4

January 28, 2019

City of Richmond
6911 No 3 Rd
Richmond, BC

To Whom It May Concern:

We are applying to City of Richmond for fill deposition on our agricultural land to raise the needed soil surface elevation. Raising the soil surface elevation will address our ongoing water ponding and drainage issues, and it will take our property out of the flood zone which it is currently under. Unstable weather patterns mean that our agricultural land is in constant risk of major flooding. Because the water table is very high, we are unable to utilize our agricultural land to its potential under current conditions.

Before we fully invest our resources of time, money and labour efforts, we need to ensure that our land is not only able to carry out initial agricultural operations, but also that our crops and agricultural practices are sustainable in the future. In order for us to make sure that our investment is sustainable, we need to address the water table issue, and the uneven elevation surface of our field throughout. There is also a huge discrepancy of elevation between our property and our neighbor's property. Unevenness of the soil surface has a significant impact on the germination, stand, and yield of crops. To enhance the agricultural potential of our farm land, field levelling is necessary to create uniformly sloped field surfaces to eliminate the existence of any rapidly draining high or low-lying areas that are prone to ponding.

Without these necessary changes, we are confident that the resources spent on cultivating our land be in vain. Under current flood zone conditions and with changing weather patterns, we expect that year after year, cultivation will not be sustainable because of current levels of flood risks.

We are aware that part of our situation can be helped by improving the drainage on our property. We have spent time working on drainage and will continue do so, but we know that for our land to yield sustainable crops, more needs to be done than simply improving the drainage. Our drainage system will only work if we have the appropriate leveled land. Currently, maintaining effective drainage is difficult due to the difference in elevation with our neighbors' land, River Road, and the city ditch. Once we are able to raise the surface of our land to an appropriate level, we will be able to further improve and maintain our drainage system.

History and Current Conditions:

Having come from a family of farmers from other part of the world, we purchased this farm in hopes of farming one day. When we purchased the farm in 2004, it had blueberry bushes that have died. In attempt to getting started with the farming, we planted some new blueberry plants soon after. Due to poor land conditions and long months of surface water issues, the cultivated plants did not stand a chance of survival and unfortunately, our hard work went to waste.

Due to holding our respective jobs and raising a family, we had limited time and resources to fix the land and get the farming project going again. However, it has been our ongoing effort to improve the land and deal with the drainage issues. We have tried to improve drainage by installing additional pipes through one part of the property. We have dug and re-dug the ditches a few times. Our surface ditches also need constant cleaning and maintenance due to the condition and elevation of our surface. Additionally, the ditch on our west side was almost gone due to our neighbor's fill operation, which caused us to spend our time, money, and efforts to re-dig the ditch. All these attempts have been disappointing up until this point due to circumstances beyond our control.

The surface and weather conditions have gotten worse over the years. We are concerned about the changes in precipitation patterns and constant flooding again would result in further loss of crops. Because our property is lower than our neighbors', River Road and the city ditch, the higher water level is unavoidable. The property is either flooded during high precipitation times or the surface is very damp. Flooding and excess soil moisture are significant obstacles for production on our field, and we have been unsuccessful in remediating the drainage problems.

Future Plan or Purpose of Doing the Above Operation:

We would like to start with the blueberry farming and may have a small orchard on the side later on. The initial plan as shown in the attached drawing is to start with a nursery of potted blueberry plants in preparation for planting in the fields. We are hoping that this process at the beginning is cost effective and less risky since we have faced failure in the past. Our goal is to have the farming operation underway as we approach our retirement years and leave it in a solid condition for cultivation for the younger generation in our family who is eager to maintain it in the future.

We request for the City of Richmond to grant their permission for us to fix our property in hopes to start on our father's dream of farming with the intent to pass it on to our future generation in good condition. We have consulted the necessary professionals and have the necessary reports done (which are provided to the city) to make sure the required work is carried on properly to avoid any damage to our land or the neighboring, private, and city land.

We are committed to work within city's regulations after we are granted the permit to ensure that there is no negative impact on our environment. Thank you for your consideration.

Sincerely,

Inderjit Gosal & Ranjit Gosal

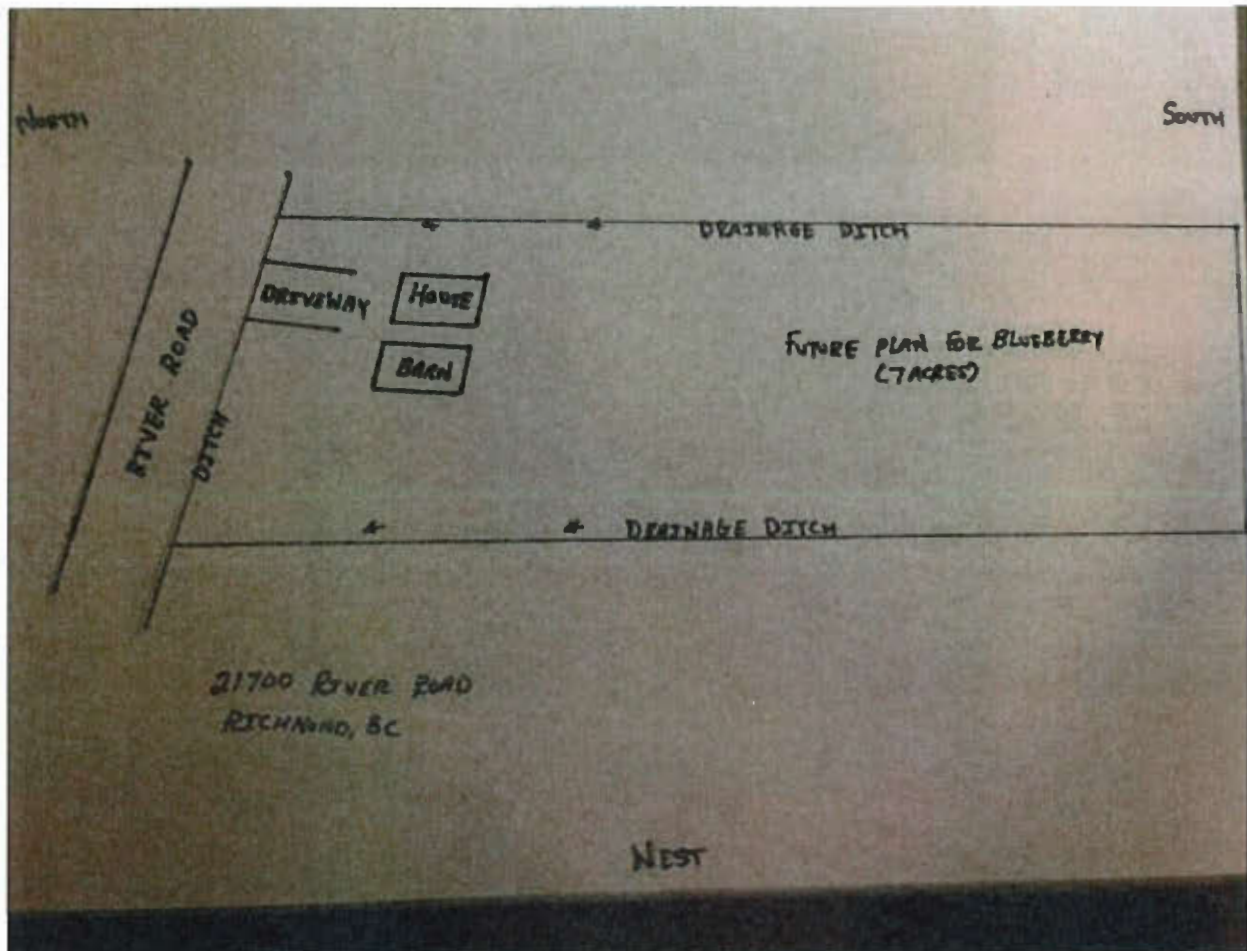


Figure 1. Sketch showing planned use of property for agriculture

Figure 2. View of
backyard
showing high
water table



Figure 3. View of
front yard and river
showing flooding



21700 River Rd
 Richmond, British Columbia
 V6V1M4

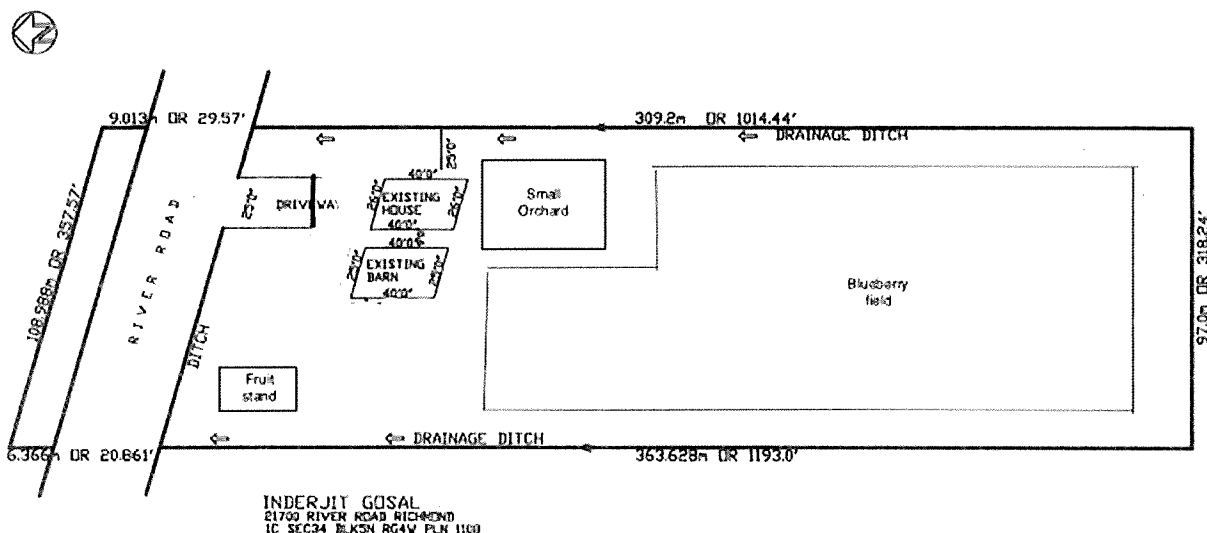
Farm Plan

Our plan is to establish a fresh picked organic blueberry farm on seven acres and a small orchard of apple and pear trees on half an acre on our 8.3-acre property. We will purchase organically grown plants to speed up the process of establishment and help us have a return on investment as soon as possible.

Agricultural Operations will be managed by both the owner and a hired manager in consultation with the appropriate professionals. They will be responsible for the management decisions of the agricultural operation pertinent to aspects of the farm.

Below is the proposed site plan.

Site Plan



Below is a list of previously incurred costs for equipment obtained.

Table 1.1-Current Investment into Farm Equipment:

Equipment Item:	Cost Incurred:
John Deer Tractor	\$5,000
Rototiller	\$2,000
Vibrating Roller	\$7,000
Rotary Cutter	\$1,000
Hitachi EX200 Excavator	\$45,000
Kamatsu PC270 Excavator	\$70,000
Toyota Tundra Pickup Truck	\$35,000
GMC 1500 Pickup Truck with Tidy Tank	\$5,000
Caterpillar Dozer D6R	\$65,000
Landscape Rake	\$1,200
Digging & Clean up Buckets	\$7000
Snow Blower	\$4,000
Water Pump & Hoses	\$1,500
Machine Rake Attachment	\$1,500
Used Oil Recycling Tanks	\$300
Diesel Fuel Tanks	\$2,500
Landscape Trailer	\$1,000
Rakes, Axes, Hoes, Chippers, Loppers, Shears, Picks, Shovels, Wheel Barrows, Manure Forks, etc.	\$1,200
Barn Equipment:	
Metal Saw, Hydraulic Jacks, Acetylene Tanks & Torches, Generator, Air Compressor, Workbenches with Vices, Engine Hoist, Lube Oil, Hydraulic Oil, Grease Guns, Fuel, Hydraulic & Water filters, Cables, Shackles, Tool Chests with Tools, Air Filters & Chains etc.	\$7,000
Barn Roof Repair and shed cost:	\$25,000

Below are Initial Capital Costs for planting blueberry fields and orchard.

Table 1.2-Expected Blueberry Plant Costs:

Row Spacing	Plant Spacing	Plants Per Acre	# Of Acres	Price Per Blueberry Plant	Total Cost of Blueberry Plants
2.35m/8'	1.20m/4'	1350	7	~ \$7	\$66,150

Table 1.3-Expected Apple and Pear Tree Costs:

Row Spacing	Tree Spacing	# of Acres and trees	Price per Tree	Total Cost of Apple and Pear Trees
6 ft.	6ft	½ Acre = 500 trees	~\$20	\$10,000

Next is a tentative list of projected equipment costs to be incurred.

Table 1.4-Expected Equipment Costs:

Machine	Size or Description	Market Value	Expected life (years)	Salvage Value
Tractor	New 4- wheel drive Unit	\$40,000	20	\$5000
Air-blast sprayer	400 Liter Unit	\$6500	15	\$600
Mower	Flail, 5'unit	\$4000	15	\$600
Weed Sprayer	200 Liter Unit	\$2000	15	\$400
Cultivator	Disk/Ripper	\$3000	15	\$200
Fertilizer spreader	Tote Fertilizer Spreader	\$3000	15	\$200
Pickup	½ ton 4x4, gas, new	\$30,000	10	\$10000
ATV	4- wheeler new	\$5000	5	\$2000
Portable Toilets	Rental units and Servicing	\$1,000	N/A	0
Irrigation system	Pump, filter, injector etc.	\$176,749.00	15	0
Trellis system, per acre	1500/acre	\$10,500	20	0
Tripod ladder	1-2	\$200	10	0
Fruit bins	20	\$1000	10	0
Saw dust	\$1500/acre	\$10,500	7-10	
Fruit Stand	12ft x 20ft	\$10,000	20	

Below are average operating costs expected to be incurred yearly.

Costs will fluctuate as the agricultural operation requirements will vary year to year.

Table 1.5-Expected Operation Costs:

Variable costs	Per unit	Estimated total cost
Land preparation/Soil testing costs		\$3000
Fuel (10 Litres per hour	Gasoline: \$1.40/Liter - Diesel: \$1.30/Liter (10L/hr)	\$5000
Fertilizers	\$100/acre	\$700
Fruit Tree Spray	\$200	\$200
Utilities (water/electricity)	400/acre	\$2800
Machinery related-repair, lube etc.	\$2000	\$2000
Farm Labor	\$15/hr	\$4000
Misc.	\$2000	\$2000

Table 1.6-Expected Income

Year	Projected Blueberry Crop Production (Per Acre)	Bulk Price (6 Acres)	Income from Bulk (6 Acres)	U-Pick Price (1 Acre)	Income from U-Pick (1 Acres)	Apple and Pear Crop
1	0	n/a	\$0	n/a	\$0	\$0
2	0	n/a	\$0	n/a	\$0	\$0
3	2000 lbs.	\$2.50	\$30,000	\$1.50	\$3,000	\$1,500
4	4000 lbs.	\$2.50	\$60,000	\$1.50	\$6,000	\$1,500
5	6000 lbs.	\$2.50	\$90,000	\$1.50	\$9,000	\$2,000
6	8000 lbs.	\$2.50	\$120,000	\$1.50	\$12,000	\$2,000
7	8000 lbs.	\$2.50	\$120,000	\$1.50	\$12,000	\$2,500
8	8000 lbs.	\$2.50	\$120,000	\$1.50	\$12,000	\$2,500
9	8000 lbs.	\$2.50	\$120,000	\$1.50	\$12,000	\$3,000
10	8000 lbs.	\$2.50	\$120,000	\$1.50	\$12,000	\$3,000

Summary of farm Plan.

Table 1.7-Summary of estimated cost vs. expected Income:

Years	Income	Previously invested in farming and farming related operation	Additional required Investment	Farm Operation Maintenance
0	0	\$287,200.00	\$379,599.00	19,700.00
1	0			cost will vary from year 1 to year 10
2	0			
3	\$34,500			
4	\$67,500			
5	\$101,000			
6	\$134,000			
7	\$134,500			
8	\$134,500			
9	\$135,000			
10	\$135,000			



TECHNICAL MEMORANDUM

November 12, 2019

Soil Deposits on Agricultural Land in Richmond

Prepared by: John Paul, Professional Agrologist, PhD in Soil Science

Summary

Addition of soil to raise the elevation of some of the low lying agricultural land in Richmond is a prudent approach to increase its viability and an adaption strategy to reduce the impacts of climate change. For the organic soils, wherever possible, the imported soil should be placed under the organic layer and directly on top of the underlying silt layer. The soil must be clean and may range in texture from silt to sand. The fertile organic layer is then replaced on top of the imported soil.

Background

Raising the elevation of some of the agricultural land in Richmond is important for a number of reasons:

1. The soil in Richmond is a provincially significant agricultural area and includes some of the most productive soils in the province^{1,2}.
2. Some of the low lying land has a history of flooding due to high rainfall events, and the Fraser River freshet, which limits the agricultural potential of the land^{1,2}.
3. Flooding in these productive soils may result in a number of subsequent years of lost production, particularly with crops such as blueberries¹.
4. Climate change is likely to increase the risk of flooding due to rising sea levels, increasing frequency and intensity of extreme precipitation events and changing timing and intensity of the Fraser River freshet^{1,3,4}.
5. Repeated flooding may affect blueberries or other high value perennial crops to such a degree that their production is no longer viable¹.
6. The City of Richmond's Official Community Plan established policies to enhance the viability of farmland and farming, including removing constraints to farming and increasing the amount of farmed land¹.
7. The City of Richmond's Flood Protection Management Strategy includes raising land levels strategically and economically, including raising the land to meet agricultural viability objectives⁴.
8. Adaptation to the increased potential for flooding is not only an investment in the future economic viability of agriculture, but also in the future food security of the province^{1,5}.

The soil in Richmond originated from sand and silts deposited by the Fraser River, otherwise known as fluvial deposits. They are also sometimes called alluvial soils. In many areas of Richmond, deposits of

organic soil developed in peat bogs resulting from the high water table and the low permeability of the soil².

Much of the organic soils are highly productive for a wide variety of crops as indicated by the wide variety of vegetable crops that have been grown in Richmond², as well as other similar soils in Canada such as the Holland Marsh in Ontario⁶.

Some of the organic soil within the City of Richmond has either never been farmed or had limited success with farming because of the high water table and flooding risk. Adding soil to increase the elevation of the land is a prudent approach to enhancing agriculture in these situations.

Important questions include what type of soil should be added, and where should it be placed.

Where Should the Imported Soil Be Placed?

The depth of the organic soils in Richmond varies with location, with some areas having a very shallow organic layer (15-30 cm), and other areas having a much deeper organic layer (> 2 m). The organic soil is highly productive, but is also prone to subsidence.

Subsidence occurs when organic soils are converted to agricultural production, which includes increasing the depth to groundwater to allow crops to grow. Increasing the depth to groundwater allows enhanced oxidation of the organic soil, resulting in decreased elevation of the land⁶.

It has been noted that subsidence in organic soils can be reduced through good management practices that include maintaining groundwater as a level that will minimize subsidence while at the same time allow for optimum crop yields, and reduced tillage to minimize susceptibility to wind and water erosion⁶.

While it can be stated that increasing the elevation of the land may potentially increase the loss of the organic material through subsidence, adding soil on top of the organic soil results in a loss of the agricultural value of the organic soil.

Placing the soil underneath the peat and directly over the underlying mineral soil allows the agricultural value of the organic soil to be realized, as well as increasing the elevation to reduce the risk of flooding.

The concern regarding subsidence can be addressed by managing the groundwater level as much as possible⁶.

What Types of Soil Can Be Placed Under the Organic Soils?

A wide variety of mineral soils can be placed under the organic soil layer. The mineral layer preexisting underneath the organic layer consists of fine textured silts resulting from fluvial deposits at the mouth of the Fraser River. This soil often has drainage limitations because of its fine texture.

The imported soil may range from fine textured silts to sands, and may be sourced from alluvial deposits throughout the Fraser Valley.

Imported soil should not include soils containing gravel, as this is not native to this area. The imported soil is not required to be top soil, as this soil will be placed below the rooting depth.

Some imported soils originating from areas near salt water may contain significant concentration of

salts. These soils should be avoided.

As with any soil imported onto agricultural land, the soil must be free of non-soil material including concrete, asphalt, plastic or wood.

It is advisable, particularly with the import of fine textured soils, to place the soil in such a way to enhance the drainage capability. This can be done by creating a slight slope that allows water to move laterally towards drainage ditches.

Replacing the Organic Soil

The organic layer must be replaced on top of the imported soil. When removing the organic layer to allow placement of the fill, it is important to remove the top 30-50 cm layer separately, set this soil aside, and place it on the surface again following replacement of the organic soil.

Conclusions

Some of the low lying organic soils have never been farmed successfully because of flooding risk. This flooding risk is predicted to increase as a result of climate change. Considering the City of Richmond's goal to improve the viability of agriculture, and the Agricultural Land Commission's goal to encourage farming, raising the elevation of some of the low lying organic soils in Richmond is a prudent approach to increase its value for agriculture.

To protect the high value of the existing organic soils, the imported soil must be placed below the organic layer as much as possible. The imported soil must consist of clean soil ranging from sands to fine textured silt which may originate from fluvial deposits throughout the Fraser Valley. The organic layer must be placed on top of the imported soil to allow a wide range of crops to be grown on this valuable organic soil.

References

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5. Office of the Auditor General of British Columbia. 2018. Managing Climate Risks: An Independent Audit.
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6. Wilton Consulting Group. 2018. Holland March 2028.
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Non-Farm Use Fill Application for the Property Located at 21700 River Road (Gosal)

Cost Estimates	
Erosion Sediment Control Installation	\$3,500 ⁱ
Drainage improvement (ie. ditches, irrigation, etc)	\$10,000
Ongoing Project Reporting by Agrologist (per 3,000m ³)	\$350 per report (\$2,800)
Earthworks costs (Project management, load inspector, machine/labour, fuel, etc.)	\$125,000
Source site investigation (ie. per source site)	\$300 per investigation (\$2,400 estimated)
Interim survey work	\$3,000
Final topographic survey	\$3,000
Final Agrologist Report	\$1,000
Final Geotechnical Report	\$5,000
Project Cost Estimate (Note: does not include upfront costs)	\$155,700
Upfront Cost to Date	\$50,580.48*
Potential Tipping Fee Income (\$85-\$95 per load)	\$287,000 – \$321,000 (estimate)

ⁱ Installation costs depends on the materials, supplier and the labour used (buying the silt fencing, having labourers install it, repairing it as needed, trucking costs, cost of grass seed, straw bales, etc.)

*Upfront costs include Agrologist reports, grading and drainage plan, geotechnical report, topographic survey, supplementary reports, and application fee.



November 8, 2019
Our File: 2111-05267-00

Inderjit Gosal,
21700 River Road
Richmond, BC V3M 0A6

Attention: Inderjit Gosal

RE: 21700 RIVER ROAD GRADING / DRAINAGE PLAN

McElhanney Ltd. (McElhanney) was retained by Inderjit Gosal (the client) to complete a high-level grading and drainage plan in order to obtain a permit for the placement of fill material at 21700 River Road, Richmond BC. This document provides a summary of the methodology employed to develop the grading plan and to complete the drainage assessment.

Scope of Work

Based on the information provided and our understanding the project involved the following services:

- 1) Preparation of a grading plan for the subject property for submission to the City of Richmond. The grading plan will display the increase in grade to 2.5 m. The grading plan will be based on the topographic survey provided.
- 2) Develop a drainage plan for the subject property. The drainage plan will be displayed in the grading plan drawing.
- 3) Prepare a summary letter for submission to the City.

Background

The proposed agriculture plan is blueberries, potted nursery of blueberry plants and possibility of orchards in the future. The northeast corner of the property is occupied by a two-story at grade residential single-family house and a detached garage and shed. For geotechnical information regarding the effect of the placement of fill on neighbouring properties refer to the Proposed Fill Placement 21700 River Road, Richmond, BC Geotechnical Investigation Report (Horizon Engineering Inc, 2018).

McElhanney completed a preliminary investigation of two options for improving drainage conditions on the site:

1. Import fill into the site to raise the existing grade of the site and reduce the frequency of flooding; and
2. Provide a berm surrounding the property and introduce a pumping system to convey water over the proposed berm.

Option 1 involves raising the existing elevation of the subject property to 2.5 m to reduce the frequency of flooding. Based on a target elevation of 2.5 m, the proposed fill thickness is approximately 1.5 metres (depending on location within the property, please see the grading plan drawing).



Option 2 involved the construction of a berm surrounding the property. The berm would be built up to the Flood Construction Level of 3.5 metres. A pumping system would be introduced to convey water from the proposed site to the surrounding municipal ditches.

Option Selection

The subject property is in close proximity to the Fraser River and groundwater levels are influenced by the water levels in the Fraser River. The subject property also currently sits on a thick layer of peat, which allows water to freely permeate to the surface. Based on a discussion with the property owners, the property floods on a yearly basis and is subject to frequent surface flooding from groundwater during high water levels in the Fraser River (all winter season). As a result, if a berm is constructed around the property, continual pumping would be required to dewater the property from a constant flow of groundwater entering the property. The pumping system would also be continuously discharging the groundwater into the surrounding municipal ditches. Therefore, this approach is not considered feasible and as a result, Option 1 was selected and carried forward through design.

Existing Drainage

The subject property is 3.32 ha and is currently zoned for agricultural use. Under the Official Community Plan (OCP) the property will remain zoned for agricultural use. The current land cover consists of blackberry bushes, grasses and thick brush. The property is bounded by agricultural properties on the east, west and south and by River Road to the North, which runs parallel to the Fraser River. Based on discussion with the client, under current conditions the property experiences substantial surface ponding and flooding each winter as a result of high ground water levels which fluctuate with the Fraser River water surface elevation. Elevations on the property currently vary from 1.0 m to 1.9 m.

The property is bounded by ditches on all four sides. Runoff currently sheetflows off of the land to one of the bounding ditches. The ditch running along the south property line drains east to the ditch running along the east property line. The east and west ditch then drain north to the River Road roadside ditch. The River Road ditch is eventually drained via a pump station to the Fraser River. The east, west and south ditches are lined by thick vegetation, reducing the capacity of the ditch.

Proposed Grading and Drainage

To bring the property to an elevation of approximately 2.5 m fill will be brought in and placed. The existing peat layer will be removed and stockpiled prior to the placement of the permanent fill material. The peat will be placed on top of the fill and will be used for agricultural purposes. As per the Proposed Fill Placement 21700 River Road, Richmond, BC Geotechnical Investigation Report (Horizon Engineering Inc, 2018) the property will be backfilled with permanent fill material at slopes of 2.5H:1V from the current ditch bottom to an elevation of approximately 2.5 m. The surrounding east, west and south ditches will be cleared to re-establish storage volumes and capacity. The grading will only be completed for a portion of the property. The northeast corner of the property is occupied by a two-story at grade residential single-family house and a detached garage and shed, this area will not be graded as part of the project.

Under proposed conditions the land use will be orchard with fruit trees and blueberry bushes. Therefore, the land cover under proposed conditions will be unchanged from existing conditions. Under current conditions, the soil is approximately 1.5 – 2.9 m of peat underlain by silty clay (Horizon, 2018), under the proposed conditions the topsoil will be the same peat material underlain by granular fill. As a result, the only anticipated change in runoff volumes or rates as a result of the placement of fill will be due to a potential change in depression storage as a result of grading. Therefore, the additional runoff volume from the property will be negligible.



During the grading works, appropriate erosion and sediment control measure are recommended to mitigate against risk of erosion of temporally exposed soils and wash off of sediment laden water into the receiving downstream systems.

CLOSING

This report is prepared for the sole use of Inderjit Gosal. No representation of any kind, are made by McElhanney Ltd. or its employees to any party not affiliated with Inderjit Gosal. The information provided in this report represents McElhanney's best professional judgement in light of the knowledge available to McElhanney during the time of preparation.

We trust the above provides the necessary information for your review. Please contact the undersigned should you have any questions.

Yours truly,

McELHANNEY LTD.

Prepared by:

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Nov 8, 2019

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August 20, 2018

Our File: 113-3353

GOLDEN EAGLE ENT.
21700 River Road,
Richmond, BC, V3M 0A6

Re: Proposed Fill Placement
21700 River Road, Richmond, BC
Geotechnical Investigation Report

1.0 INTRODUCTION

This document is prepared to update the original geotechnical investigation report for 21700 River Road Richmond, BC, dated July 31, 2013, in order to reflect the proposed land use and current site conditions. Prior to preparing this document, we have received the additional documents as follows;

- Email including a list of outstanding requirements from the City of Richmond, dated April 19, 2018 and,
- Topographic survey drawing, dated May 15, 2018, prepared by Matson, Peck and Topliss Surveyors & Engineers.

We also attended the subject site on 20th of June, 2018 to review the current site condition of the subject site.

The recommendations presented herein are based on the geotechnical investigation carried out on June 13, 2013 and information available to us with regards to the proposed development at the time of preparing this report.

2.0 SITE DESCRIPTION

The subject property is located on the south side of River Road in Richmond with a civic address of 21700 River Road. Currently, the subject property is bounded by agricultural properties on the east, west and south sides, and by River Road, in turn bounded by Fraser River to the north. The northern part of the subject site is currently occupied by a two-storey, at-grade, residential single family house and a one-storey, detached garage/shed to the west of the aforementioned house. As indicated on the aforementioned topographic survey drawing, the topography within the eastern half is relatively flat with elevations varying from El.1.0 metre to 1.9 metres, whereas there is a mound (fill) at the middle section of the western half property with elevation varying from El. 1.2 metres to 4.0 metres. The topography in the general vicinity of the site is essentially flat.

Based on our observations during our recent site visit, vegetation along the east, west and south property lines was cleared. We confirmed that there are ditches along the west, south and the



southern half of the east property lines. The depths of the ditches vary from approximately minor depression to 2 metres. It should be noted that some ditches do not have clear indentation and are required to be reinstated.

The approximate location of the subject site is shown in Figure 1, attached to this document.

3.0 BACKGROUND INFORMATION

3.1 Surficial Geology

Based on published information from the Geological Survey of Canada, the expected subgrade material at the subject site is Bog, swamp and shallow lake deposits which can be described as a lowland peat up to 1 metres thick underlying Fraser River Sediments.

3.2 Land Use and Flood Construction Level (FCL)

Based on Geographic Information System provided by the City of Richmond (Richmond Interactive Map: RIM), the land use of the subject site is categorized as an agricultural and FCL is 3.5 metres Geodetic at the subject property.

3.3 Past Geotechnical Investigation in Neighbouring Property

Geotechnical investigation was carried out at 21660 River Road, Richmond which is the immediate neighbouring property to the west, by Horizon Engineering Inc on April 25, 2008. This investigation consisted of five auger holes with depths ranging from 12 to 15 metres. The subsurface materials encountered during this investigation was imported granular fill material, underlain by organic silt and peat, which was followed by a grey, plastic, wet silt. Organic silt, peat and silt were considered to be soft and blow counts measured within these materials ranged from 2 to 10 blows per 30 centimetres. The local groundwater table was measured to be ranging from 1.2 to 2.7 metres below the grade at the time of the investigation.

4.0 PROPOSED DEVELOPMENT

Based on the information forwarded to us, the existing grade will be raised to Flood Construction Level at the area and property will be allocated to outdoor nursery, orchard (fruit trees) with a consideration of the future plans for a nursery and blueberry plants. Based on the Flood Construction Level of El. 3.5 metres, we estimate that the fill thickness would be in a range of null to 2.5 metres to achieve the FCL.

5.0 FIELD INVESTIGATION

The subsurface investigation was carried out on June 13, 2013. The investigation program consisted of two, continuous flight, solid stem, auger test holes, (AH13-1 and -2) advanced to depths of 12 metres. Two dynamic cone penetration tests (DCPT, hereafter) were advanced to depths of 13.7 metres at AH13-1 location and 6.1 metres at AH13-2 location. In addition, two piezometric cone penetration test (CPT, hereafter) soundings were advanced at both test hole



locations. At AH13-2 location, the top 3 metres of the subsurface material was drilled out prior to advance CPT soundings in order to minimize a risk of damaging the CPT equipment due to potential presence of large size aggregates such as cobbles and boulders. CPT soundings were advanced to a depth of 32 metres at AH13-1 location and 26 metres at AH13-2 locations.

Select soil samples were retrieved from the auger flights for further soil characterization. This subsurface investigation was directed by an engineer from our office who also documented the soil data and stratigraphy encountered at the test holes. The investigation was carried out using a truck mounted drill rig supplied and operated by Uniwide Drilling Co. Ltd, of Burnaby.

As per the British Columbia Groundwater Protection regulations, test holes were backfilled with drill cuttings and sealed with bentonite chips where the hole was greater than 4.5 metres deep. Where test holes were advanced through a paved surface, cold asphalt patch was used to restore the pavement.

6.0 SOIL and GROUNDWATER CONDITIONS

A summary of the soil and groundwater conditions encountered at the test hole locations is provided in the following sections. Detailed descriptions of the subsurface materials encountered at the test hole locations are provided in the test hole logs attached to this report.

6.1 Subsurface Soil Conditions

The soil stratigraphy encountered at both test holes is briefly described as follows (from top to bottom);

Auger Holes to a depth of 12.2 metres

- FILL (AH13-2 only) - grey, fine to medium grained silty sand to non-plastic silt, dry to moist, 1.6 metres thick;
- PEAT - dark brown, fibrous to mixture of fibrous and amorphous, 1.5 to 2.9 metres thick, and
- SILT - grey, highly plastic, trace to some clay to the bottom of the auger holes.

CPT to a depth of 32 and 26 metres

- Silty Clay to Clay - to a depth of 15 metres, estimated average undrained shear strength of 37kPa, blow count average to be 3 per 0.3 metre;
- SAND - to a depth of 18 metres, estimated average blow counts to be 15 per 0.3 metre;
- Clay to Silty Sand and Sandy Silt - interbedded thin layers of various soil types to 26 metres, DCPT varied from 5 to 8 blows per 0.3 metre;
- SAND to Sandy SILT - to a depth of 29 metres, estimated blow counts to be 15 per 0.3 metre; and
- SAND - to a bottom of the CPT soundings, estimated blow counts to be 20 per 0.3 metre.

Both auger test holes were terminated at a depth of 12.2 metres within grey silt material. CPT1 and CPT2 soundings were terminated at depths of 32 metres and 24 metres, respectively.



6.2 Groundwater Condition

A local groundwater table was encountered at ground surface at AH13-1 location and approximately 1 metre below grade at AH13-2 location. CPT soundings indicated that the depths of local groundwater tables are consistent with the depths encountered within both auger hole locations. We envisage that the groundwater level will be affected by the water table in Fraser River and fluctuates seasonally.

7.0 CPT/DCPT INTERPRETATIONS AND ANALYSES

Two piezometric cone penetration tests (CPT) were carried out adjacent to both auger test hole locations during the investigation. The CPT soundings were advanced to a depth of approximately 32 metres and 24 metres at CPT13-1 and CPT13-2 locations, respectively.

7.1 General

7.1.1 CPT

A "standard" piezometric cone system was used to carry out the cone penetration testing. The electronic cone system used employs a 35.7 mm diameter cone which records tip resistance, sleeve friction, dynamic pore pressure and inclination at 0.05 metre intervals. Each reading is automatically recorded by a computer acquisition system wired to the cone. The results are plotted on the CPT series of figures attached to this document.

7.1.2 DCPT

Dynamic Cone Penetration Test (DCPT) provides subgrade soils' characteristic by measuring the resistance in an in-situ state, similar to the Standard Penetration Test (SPT). Resistance is measured by the number of blows required to advance a metal cone tip 0.3 metre into the ground. The metal cone tip is driven by striking it with a 63.4kgf weight hammer dropped from a distance of 762 millimetres. Unlike the SPT, the DCPT provides continuous data throughout the investigation depth of interest. The DCPT blow count results can be correlated to various soil properties using available methods.

7.2 Water Levels

CPT soundings provide a hydrostatic pressure reading while the piezometric cone probe is passing through layers of relatively coarse grained materials such as sand or sandy silt, allowing an estimation of the local water table elevation (or depth). As the CPT equipment passes through granular soils, its temperature increases and the readings used to estimate groundwater level can become distorted. The deviation in pore pressure baseline between when the probe is inserted and when it is withdrawn gives an indication of the potential error in estimated water table depth. The DCPT is not considered capable of providing information with regards to a local groundwater table.

For the purpose of this report, the depth of water at the subject site has been taken to be at-grade and 1.0 metre at the CPT13-1 and CPT13-2 locations, respectively.

7.3 Soil Behaviour Type

The Soil Behaviour Type has been interpreted and plotted on the CPT series figures. The method of determining Soil Behaviour Type is in accordance with the recommendations by Robertson et al, 1985 and involves inferring Soil Behaviour Type, depending upon the ratio of tip resistance to sleeve friction. For example, the resistance at the tip of the cone is very large when compared to the friction on the side of the cone in coarse-grained (sand) materials, and the tip resistance is low when compared to the sleeve friction in fine-grained (clay) materials.

A chart plotting the sleeve friction ratio versus tip resistance has been derived and assigns Soil Behaviour Types to particular zones within the chart. The zone numbers are plotted versus depth on the CPT series of figures attached to this report and the Soil Behaviour Type associated with each zone number is indicated on the right side of the figures.

It should be noted that "Soil Behaviour Type" may not exactly correspond to the descriptions by the Unified Soil Classification system. Soil Behaviour Type implies that the subsurface soils encountered by a piezometric cone may have similar inherent sounding values, and may behave similarly to the corresponding soil types.

Based on the CPT soundings, the subsurface stratigraphy generally consists of compressive organic material such as peat and fine grained material to a depth of 10 metres underlain by 2 to 4 metres thick sand layer. Beneath the sand layer, series of thin interbedded silty clay, clayey silt, silt, sandy silt and silty sand layers were encountered. This interbedded zone is underlain by a sand layer to a bottom of the CPT sounding. The Soil Behaviour Types encountered at test hole locations are plotted on Figure CPT-01 attached to this document.

7.4 Undrained Shear Strength

This parameter indicates the material's inherent strength for a fine-grained material in the short term, which represents the condition of "undrained". This parameter is usually applied for an estimation of bearing capacity, provided that the material is not likely to be weathered. The undrained shear strengths of the fine-grained materials have also been estimated using the CPT data.

A zone of compressible material was encountered at the CPT locations to a depth of 26 metres. As described in Section 6.0, the compressible zone consisted of three different layers (organic material, clay and sensitive fine-grained material based on Soil Behaviour Type). The CPT sounding indicates that the undrained shear strength of these materials ranged from 10 to 100 kPa with an average of 30 kPa and Over Consolidation Ratio ranging from 1.0 to 15.0.

The undrained shear strength (S_u) values have been plotted versus depth on Figure 3353-SU1 and 3353-SU2 following the text of this report. For presentation purposes, any shear strengths over 100 kPa have not been shown.

The ratio of undrained shear strength, S_u , to effective vertical pressure can be used to estimate the compressibility of soil. We have also presented the ratio of undrained shear strength to existing vertical pressure on the aforementioned figures.



7.5 Settlement Estimate

Due to the presence of compressible subgrade material encountered at all test hole locations, we carried out settlement analyses. To estimate the magnitude of the settlement, Schmertmann's equations were applied. In addition, we considered Over Consolidation ratio by applying the re-compression index (C_r). The re-compression index used for the analysis was set as 7.5% of its compression index (C_c). Based on "Correlations of Soil Property" by Michael Carter and Stephen P. Bentley, typical values of C_r range from 0.015 to 0.35 (Roscoe et al, 1958) and are often assumed to be 5% to 10%.

As described in the Section 3, the existing grade will be raised in order to provide proposed nursery or blueberry planting area. At the time of preparing this document, the thickness of the proposed fill is unknown. Thus, we carried out settlement estimates with some conditions for both CPT1 and 2 locations. For preliminary design, we have applied "area pressure" placed at the current grade, which may represent a thickness of fill be placed in the future.

Settlement Estimate at each CPT location

Thickness of Fill Placement (m)	CPT 1 Location (centimetres)	CPT 2 Location (centimetres)
1	3.0 - 5.5	2.0 - 8.0
2	6.0 - 16.0	4.5 - 17.0
3	10.5 - 28.0	7.5 - 25.5
4	15.5 - 38.0	11.5 - 33.5

It should be noted that this settlement was estimated based on only the primary consolidation and does not include an amount which may be caused by the secondary consolidation nor decomposition of peat.

8.0 DISCUSSIONS and RECOMMENDATIONS

Based on a discussion with the owner and available information provided to us, we understand that this report is to provide our geotechnical comments and recommendations for the proposed development with includes future agricultural operations; therefore, no geotechnical comments and recommendations would be provided for the settlement sensitive structures such as, dwellings, garages, sheds, indoor nurseries or inner road in this report. In the event that geotechnical comments and recommendations are required for the settlement sensitive structures, they will be provided under a separate cover.

8.1 General

Our geotechnical investigation results indicate that a layer of fibrous and amorphous peat underlain by compressible fine grained material was encountered at all test hole locations. The thickness of the peat was approximately 1.5 metres with underlying soft compressible material to a depth of 15 metres. We envisage that the thickness of the peat used to be greater at the northern part of the subject site. We understand that imported fill material had been placed to provide an access road

to the centre and southern parts of the property and the thickness of peat appeared to be consolidated due to this fill placement. We were also informed by the owner during our recent site visit that the peat material had been subexcavated from some areas in the western half of the subject site prior to placing fill materials.

In addition to above, the settlement due to decomposition within the peat layer would be expected to continue throughout the design life of the proposed development. The magnitude of the settlement by decomposition is dependent on the thickness and type of peat and the location of the local groundwater table. To accurately estimate the magnitude of settlement and the risk of differential settlement are considered difficult.

If required, in order to minimize the risk of settlement due to decomposition of the underlying peat, any organic materials within the footprint of the proposed fill placement could be removed and grade could be restored using suitable selected mineral granular fill to the design grade. This removed topsoil could be placed over the fill materials for agricultural growing medium.

The sections below present geotechnical recommendations for the proposed development. All recommendations presented herein are provided based on the survey drawing and information gathered during the geotechnical investigation.

8.2 Proposed Construction Procedure

Based on our site observations and subsurface materials encountered at the subject site, it is recommended that the following procedures (steps) be implemented on the proposed fill placement.

- Step 1: Reinstate perimeter ditches to ensure that collected surface runoff would be directed to a local discharge location. It is envisaged that the local discharge location is located at the northern end of the subject property; therefore, the bottom of the ditch shall be sloped adequately towards the north to ensure that the ditch drains suitably directed towards the outlet.
- Step 2: Strip surficial organic materials and stockpiled it for the future use. As previously noted, stripping peat materials had been carried out prior to our recent site visit at some areas.
- Step 3: Place imported fill material to raise the grade to the elevation near Flood-Construction-Level. Fill shall be placed in lifts. Each lift shall be compacted adequately for the agricultural use. It is recommended that the maximum slope shall be no steeper than 1V:2.5H.
- Step 4: Stripped surficial organic materials to be spread over the top of the raised grade as required to achieve the design grade of El.3.5 metres

It is envisaged that this procedure will be performed in sections. However, it is recommended that Step 1 shall be carried out the entire site such that potential surficial run-off from the fill slope could be contained within the subject property.



8.3 Site Preparation

8.3.1 *Stripping*

Based on our geotechnical investigation, a peat material was encountered at a shallow depth at the CPT 1 location and approximately 1.5 metres below grade at the location of CPT-2. As previously stated, this underlying peat material may be removed prior to placing a permanent fill material. The benefit of this peat removal operation would include;

- minimizing a risk of post construction settlement due to a decomposition of organic materials, and
- utilizing excavated peat material for the proposed nursery and agricultural planting area.

However, for developing the agricultural land, the stripping operation may not be required from the geotechnical viewpoint.

8.3.2 *Grade Increase*

Based on the information provided to us, FCL at the subject property is 3.5 metres Geodetic. In order to achieve the FCL, it is required that the existing grade be increased. It is recommended that the grade increase should be carried out by placing select, inorganic granular fill at the area of interest.

Side slopes for grade increase must be kept no steeper than 2.5 horizontal : 1 vertical slope (21.8 degrees). This requirement is based on use of the aforementioned granular materials. This corresponds to the slope length (in plan view) of ranging up to 6.25 metres.

8.3.3 *Impact on Neighbouring Properties.*

The proposed ground level increase may generate settlement in the neighbouring properties along the east and west property lines. Based on the site condition at the time of our site investigation, and our recent site visit on 20th of June, 2018, it is confirmed that there is no settlement sensitive structures located along the east and west property lines, except at the northern portions of both properties where single family residential houses are located. The proposed grade increase will be carried out at central and southern parts of the subject property; therefore, we envisage that there would be no adverse impact to the structures in the neighbouring properties due to the potential settlement. However, in the event that the footprint of the fill placement is considered to be close to the settlement sensitive structures such as dwellings, garage and shed, the following setback distance to the implemented to the fill placement.

- When settlement sensitive structures are nearby, it is recommended that the minimum setback would be 5 metres from the existing perimeters to the toe of the grade increase.
- When neighbouring grade is the same as the proposed fill elevation, no setback distance is required, provided no settlement sensitive structure is present nearby the fill placement.
- When the grade elevation at the neighbouring property is less than the proposed grade, the minimum setback distance of 3 metres between the property line and toe of the grade increase should be implemented.

We envisage that the settlement monitoring program is not considered necessary for the subject site except for the areas where the fill placement is closed to the existing settlement sensitive structures. Results of the settlement monitoring program should be forwarded to the Horizon

Engineering Inc for further review. It is recommended that no settlement sensitive structures be constructed along the property lines in the neighbouring properties unless the ground settlement due to this fill placement is considered to be complete.

8.3.4 Surficial Run-off Management

We expect that surficial run-off will be altered subsequent to the proposed fill placement at the subject site. In order to address this consideration, we understand that a surficial run-off management design and grading plan were prepared by McElhanney Consulting Services Ltd..

The documents prepared by McElhanney Consulting Services Ltd were forwarded to us on August 5th, 2018 and included:

- On-Site Grading and Drainage Plan drawing dated August 14th, 2018, and
- 2170 River Road Grading / Drainage Plan, dated August 7, 2018.

The drawing indicated that the elevation at the majority of the proposed fill area was increased to El. 3.5 metres. All sides of the fill area was sloped down to the existing grade with a 1V:2.5H slope with a perimeter drainage ditch at the toe of the slope. We understand that all surficial water captured by the newly placed fill area will be captured by the perimeter slope-toe ditches and directed to the ditch along River Road which is eventually discharged to Fraser River through a pump station.

8.3.5 Groundwater Condition

As previously stated, the local groundwater was located approximately 1 metre below the current grade at the time of our geotechnical investigation. Based on our experience with various projects, seasonal fluctuation of groundwater table is generally in the order of 1 metre and the highest groundwater level are often take place during November through March. Our geotechnical investigation was carried out in the month of June thus, it is envisaged that the groundwater table depth measured during the investigation was considered to be a seasonal low elevation; thus the local groundwater table may raise at the current grade during the fall-winter months. When the fill material is placed over the current site, the local groundwater may potentially be raised due to change in in-situ soil stress condition and capillary effect. Potential groundwater table raise due to the change in soil stress condition will likely to dissipate in time and may not take place when the rate of material placement is slow. However, the groundwater table raise due to capillary effect will likely to be there and fluctuates with the level of the local groundwater elevation. Based on available literatures, the height of capillary effect is function of the particle size and material hydraulic conductivity and height would be greater when the material has a finer particle and low hydraulic conductivity. It is also indicated that the height of capillary effect would be 0.5 to 1 metre for fine to medium grained sand. We envisage that the minor increase in groundwater table would be expected (1 metre or less) after fill is placed. Therefor, it is recommended that the proposed ditches for surficial run-off management should be located approximately 1 metre above the local groundwater table after the completion of the proposed fill placement in order to minimize a risk of groundwater migration into the surficial drainage system to address environmental concerns.

8.3.6 Fill Material

Provided not settlement sensitive structures be constructed within the area of the grade increase, the suitable fill material would consist of select, clean, well-graded granular material. Fill material shall be placed in suitable lifts and compacted with heavy machinery traffic to reduce inconsistency



in material density. We envisage that field density tests are not considered to be required for the fill material placement for agricultural use. However, we should be given an opportunity to observe a procedure of fill placement and perform proof-roll during its placement to confirm that the fill materials are adequately compacted.

8.4 Special Design Considerations

It is envisaged that a continuous long term settlement (Secondary Compression) will take place after the primary consolidation is complete. The magnitude of this 'long term' settlement would be expected to be less than the settlement experienced during the initial fill placement and primary consolidation. However, some future settlement of the site grades should be expected and this may require continuous maintenance on the proposed surficial drainage plan so that no deficiency in drainage is anticipated in the future. Site preparation, such as increasing grade above the FCL to mitigate this settlement can be considered; however, it must be recognized that ongoing settlement of the site cannot be avoided.

9.0 CLOSURE

This report has been prepared for the sole use of our client and other consultants for this project, as described. Any use or reproduction of this report for other than the stated intended purpose is prohibited without the written permission of Horizon Engineering Inc.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or require clarification of the above, please do not hesitate to call.

For:
HORIZON ENGINEERING INC

For:
HORIZON ENGINEERING INC

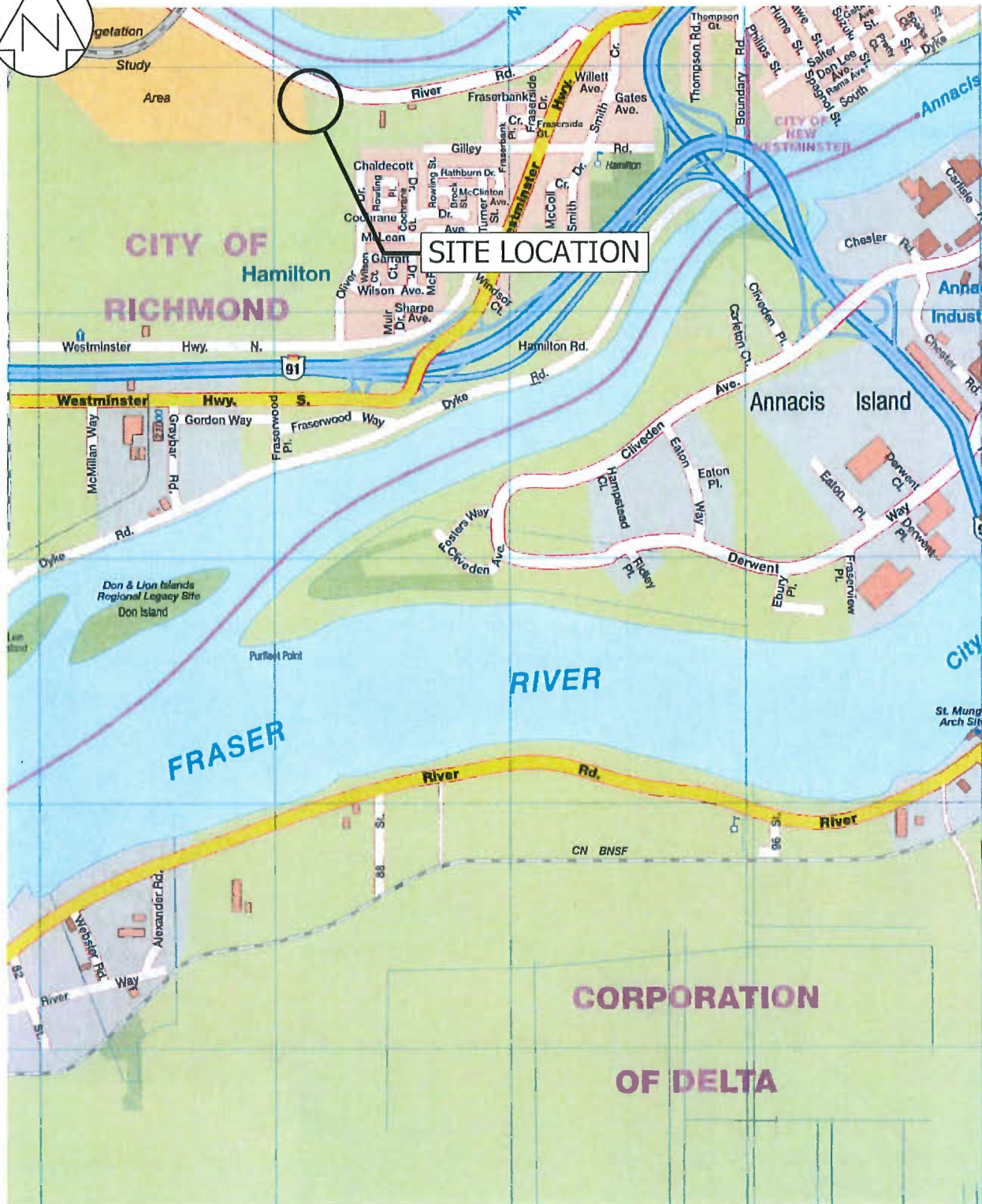
Karim Karimzadegan M.A.Sc., P.Eng.
President

Hiro Shozen, M.A.Sc, P.Eng
Geotechnical Engineer

Attachments

Site Location Plan	Figure 1
Test Hole Location Plan	Figure 2
Soil Log	AH13-1 and 2
CPT Plots	3353CPT-1, 3353CPT-2, 3353-SU1, 3353-SU2

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GOLDEN EAGLE ENT.
21700 River Road, Richmond, BC

PROPOSED DEVELOPMENT
21700 River Road, Richmond, BC

SITE LOCATION PLAN

GP - 208



HORIZON
ENGINEERING INC

Scale:	NTS	Job No:	113-3353	Date:	JUL/2013	FIGURE:	1
Des:	HS	Dwn:	BB	Chk:	KK	Rev:	

3-Jul-13, 4:23:12 PM, Bronson, N:\2013 Projects\113-3353 RMD 21700 River Road\Drawings\113-3353 Site & Test Hole Location Plans.dwg



Reference: City of Richmond Aerial Photography

LEGEND:

- Approximate location of Auger Hole
& Dynamic Cone Penetration Test
- Approximate location of Cone
Penetration Test

GOLDEN EAGLE ENT.
21700 River Road, Richmond, BC

PROPOSED DEVELOPMENT
21700 River Road, Richmond, BC

**TEST HOLE
LOCATION PLAN
GP - 209**



**HORIZON
ENGINEERING INC**

Scale:	NTS	Job No:	113-3353	Date:	JUL/2013	FIGURE:	2
Des:	HS	Dwn:	BB	Chk:	KK	Rev:	

Auger Hole No.: AH13-1

LOGGED BY: AM ON:14 / 06 / 2013 REVIEWED BY: HS COLLAR ELEVATION: METHOD:

- | Type of Test | TYPE -- Type of sample | Notes: |
|--|------------------------|--------|
| <input type="radio"/> Dynamic Cone Penetrometer Test (DCPT) | SPT -- Split spoon | |
| <input checked="" type="radio"/> Becker Denseness Test (BDT) | S -- Shelby tube | |
| <input type="radio"/> Number of blows - Standard Penetration (SPT) | G -- Grab | |
| <input type="checkbox"/> Moisture Content (% of dry weight) | O -- Other (specify) | |
| > Plastic limit | | |
| < Liquid limit | ▽ Ground water level | |

Depth		DESCRIPTION	Symbol	Depth	SAMPLE						Piezometer / Comments / Additional Testing		
m	ft				DCPT	TYPE	20	40	60	80			
0	0	PEAT (brown) 50% amorphous, 50% fibrous, wet			1								
					1								
					1								
1					1								
					1								
5		SILT (grey) highly plastic, CLAYEY to some clay, wet - at 25.8' - light grey silt nodule		5	1								
					1								
2					1								
					1								
					1								
3	10				1								
					1								
					1								
4					1								
					1								
	15				1								
5					1								
					1								
					1								
6	20				4								
					3								
					4								
7					4								
					4								
	25				5								
8					5								
					5								
					6								
					7								
9	30				7								
		6											
		7											
10		6											
		8											
	35	8											
11		7											
		9											
		9											
12		9											
40		Auger hole terminated at a depth of 40 feet		40	12								
					13								
					14								
13					13								
					15								

TESTHOLE LOG 21700 RIVER ROAD.GPJ HORIZON.GDT 3/7/13



PROJECT:	
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21700 River Road, Richmond BC

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JOB NO.:

113-3353

SHEET 1 of 1

Auger Hole LOG

Auger Hole No.: AH13-2

LOGGED BY: AM ON: 14 / 06 / 2013 REVIEWED BY: HS COLLAR ELEVATION: METHOD:

Type of Test
☐ Dynamic Cone Penetrometer Test (DCPT)
☒ Becker Denseness Test (BDT)
☒ Number of blows - Standard Penetration (SPT)
☒ Moisture Content (% of dry weight)
 > Plastic limit
 < Liquid limit

TYPE -- Type of sample
 SPT -- Split spoon
 S -- Shelby tube
 G -- Grab
 O -- Other (specify)

Notes: _____

▽ Ground water level

Depth m ft	DESCRIPTION	Symbol	Depth	SAMPLE						Piezometer / Comments / Additional Testing
				DCPT	TYPE	20	40	60	80	
0	FILL - SILTY SAND (grey) fine to medium grained, moist			9						▽
				7						
				5						
1	FILL - SILT (brown) non plastic, trace sand, trace gravel, dry to moist		2.9	9						
				3						
				8						
2	PEAT (dark brown) fibrous, dry to moist		5.4	6						
				2						
	PEAT (dark brown) 70% fibrous, 30% amorphous, wet to moist		7	1						
				2						
				2						
				2						
3	CLAYEY SILT (grey) highly plastic, trace organics (wood pieces), wet to moist		11.6	3						
				3						
4	PEAT (dark brown) 70% fibrous, 30% amorphous, wet to moist		13	5						
				4						
			15	4						
				4						
				4						
				5						
6	SILT (grey) highly plastic, some clay to CLAYEY, moist		20							
	- at 25.8' light grey nodule									
7										
8										
9										
10										
11										
12	Auger hole terminated at a depth of 40 feet		40							

TESTHOLE LOG 21700 RIVER ROAD GPJ HORIZON GDT 3/7/13



PROJECT:

21700 River Road, Richmond BC
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JOB NO.:

113-3353

SHEET 1 of 1



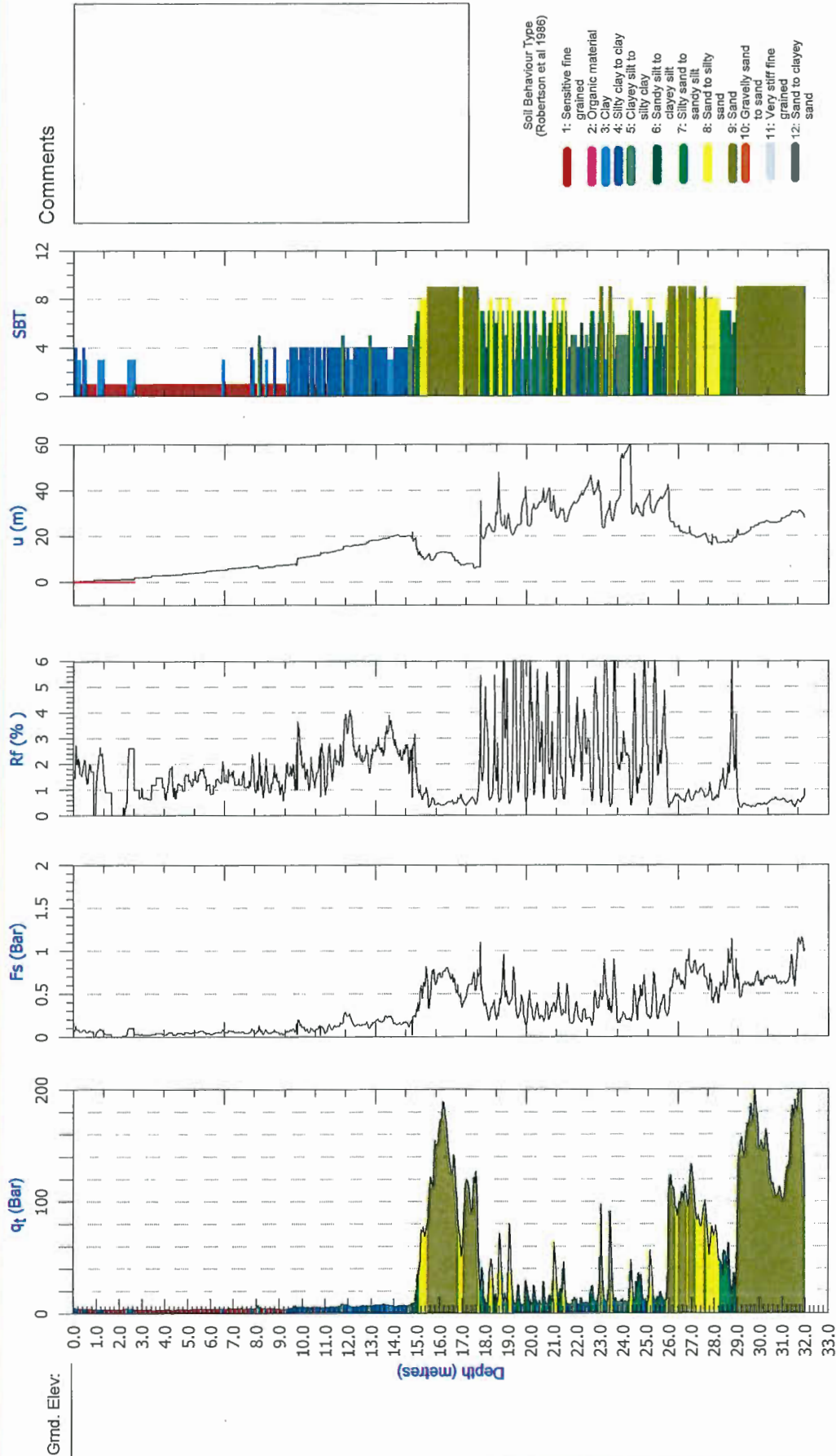
Cone Penetration Test

Data & Results

Job No: 113-3353
Date: 13-June-2013
Site: 21700 River Road, Richmond
File: 113-3353 - 21700 River Rd - CPT 1

Soundings: 1
Test Hole: 001
Coords: N49°10.705'W122°59.057'
Cone: I-CFXYP20-10 120317

Max Depth: 31.94 m
Depth Inc: .020 m
Ave Int:



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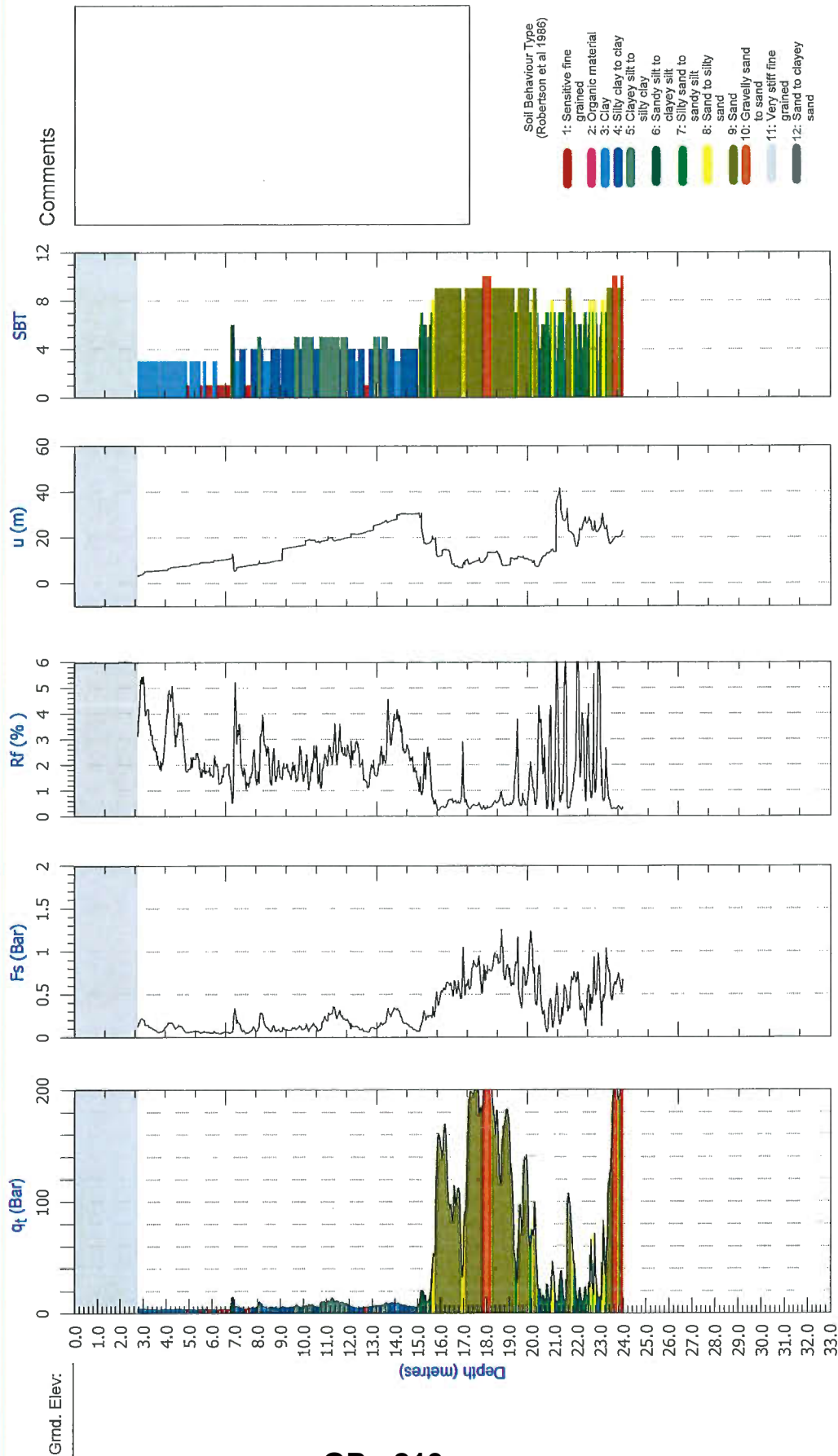
Cone Penetration Test

Data & Results

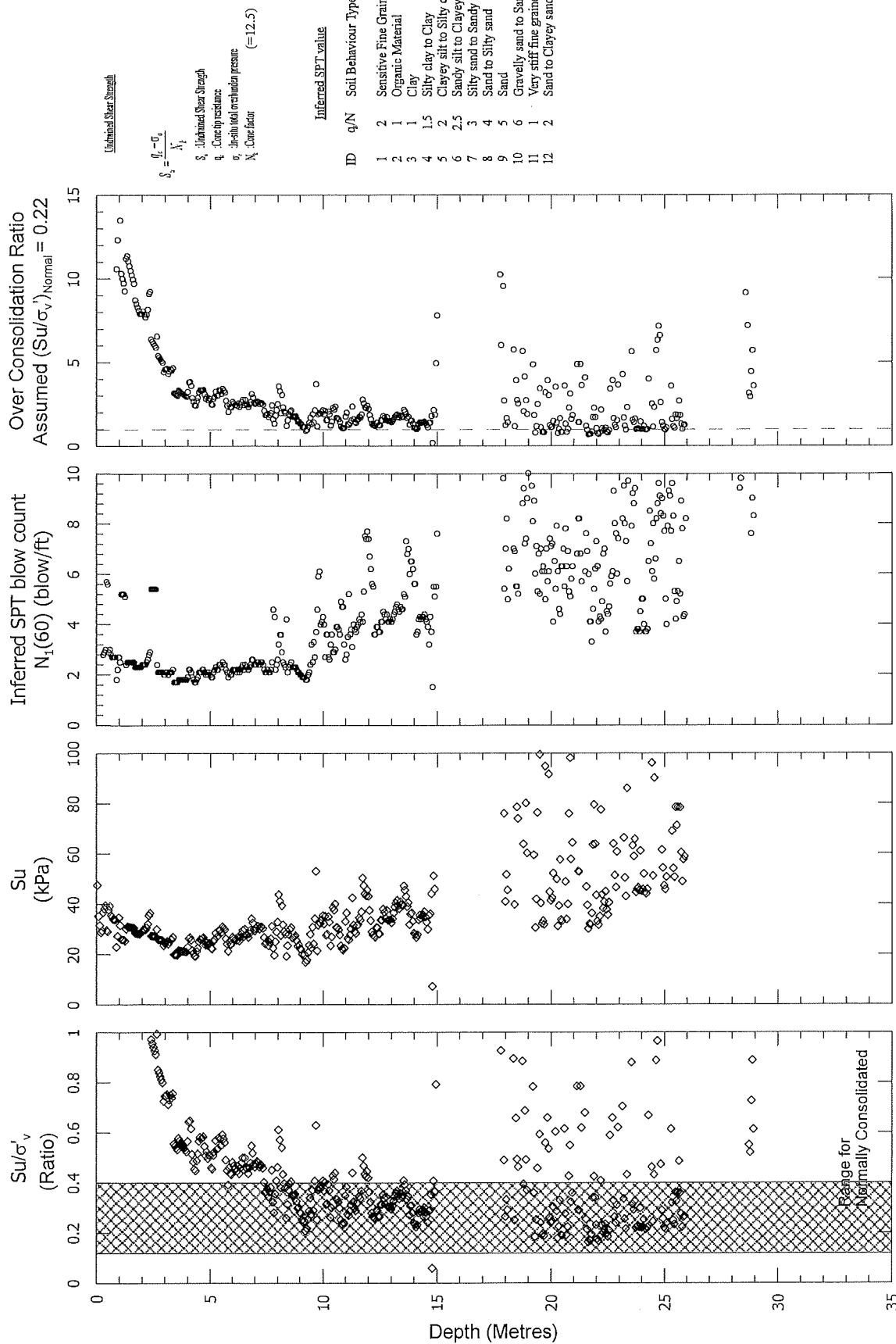
Job No: 113-3353
Date: 13-June-2013
Site: 21700 River Road, Richmond
File: 113-3353 - 21700 River Rd - CPT2

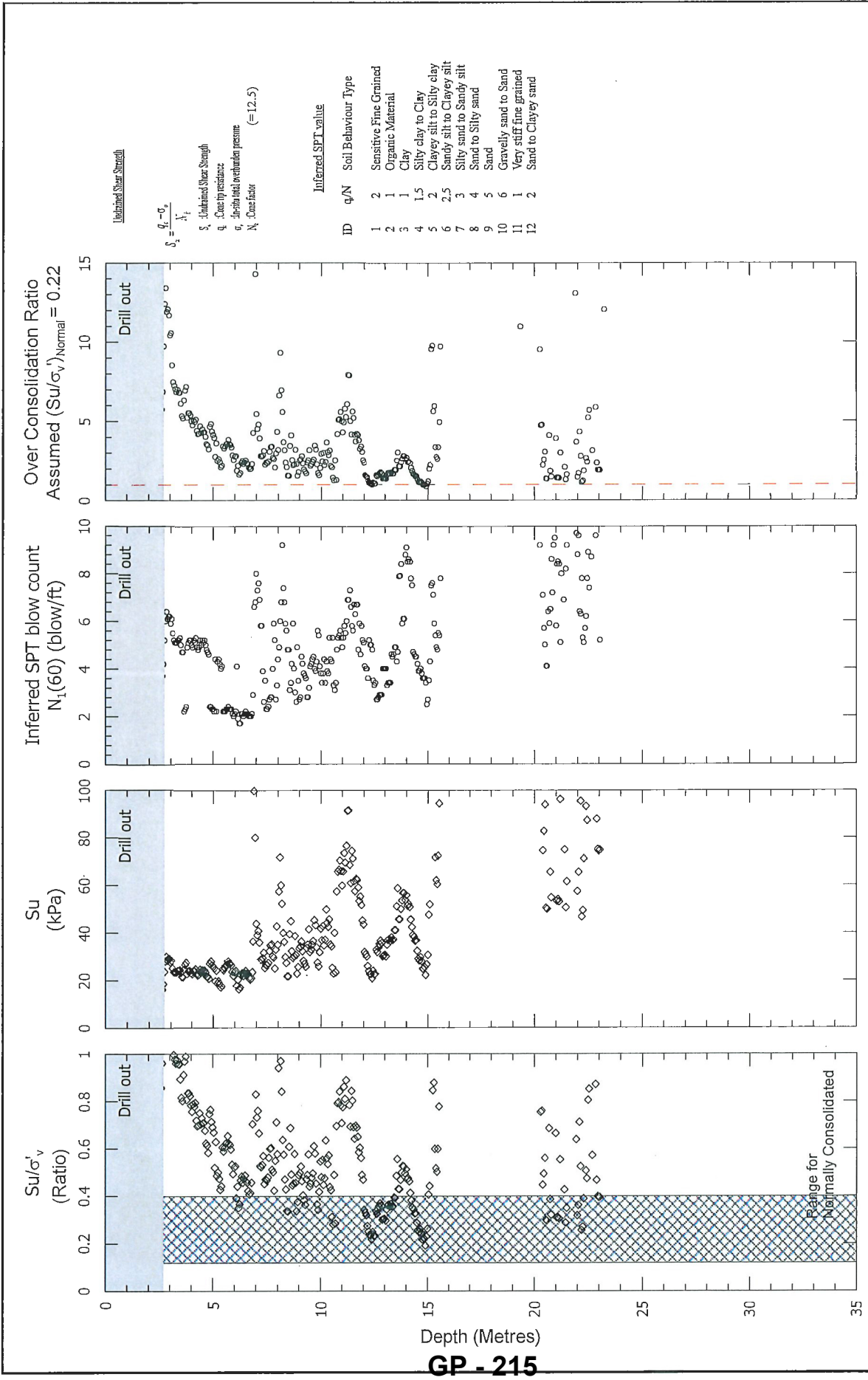
Soundings: 2
Test Hole: 002
Coords: N49°10.809', W122°59.043'
Cone: LCFXYP20-10 120317

Max Depth: 31.8 m
Depth Inc: .020 m
Ave Int:



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Sounding: CPT13-2
Cone Used: DDG1175 5Ton
CPT Date: 13-Jun-13
Location: Richmond

Strength Analysis
Using CPT-2 Data

Mr. Ingrijit Gosal (Golden Eagle Ent.)
21700 River Road, Richmond, BC

PROPOSED DEVELOPMENT
21700 River Road, Richmond, BC

DWN: HS CHK: KK DATE: July 2013 FIGURE: 3353-SU2



City of Richmond

Report to Committee

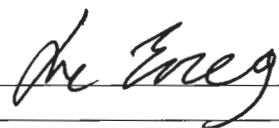

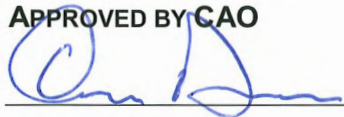
To: General Purposes Committee
From: Kim Somerville
Director, Community Social Development
Date: December 13, 2019
File: 07-3070-01/2019-Vol 01
Re: UBCM 2020 Community Child Care Planning Program Grant Submission

Staff Recommendation

1. That the application to the Union of British Columbia Municipalities (UBCM) 2020 Community Child Care Planning Program Grant for \$25,000 be endorsed; and
2. That should the funding application be successful, that the Chief Administrative Officer and the General Manager, Planning and Development be authorized on behalf of the City to enter into an agreement with UBCM for the above mentioned project and that the Consolidated 5-Year Financial Plan (2020–2024) be amended accordingly.


Kim Somerville
Director, Community Social Development
(604-247-4671)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Intergovernmental Relations & Protocol Unit	<input checked="" type="checkbox"/>	
Finance Department	<input checked="" type="checkbox"/>	
Recreation & Sport Services	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

The UBCM Community Child Care Planning Program provides funding for local governments to engage in child care planning activities in order to develop a community child care space creation action plan. Through partnerships and engagement, funded projects will collect information regarding the child care needs of the community; create an inventory of existing child care spaces; identify space creation targets over the next 10 years; and identify actions that can be taken to meet those space creation targets.

The grant application requires a Council resolution indicating support for the proposed project as well as a willingness to provide overall grant management.

This report supports Council's Strategic Plan 2018–2022 Strategic Focus Area #4 An Active and Thriving Richmond:

An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.

This report supports Council's Strategic Plan 2018–2022 Strategic Focus Area #6 Strategic and Well-Planned Growth:

Leadership in effective and sustainable growth that supports Richmond's physical and social needs.

This report supports the City's Social Development Strategy's Strategic Direction 4:

Help Richmond's Children, Youth and Families Thrive.

This report also supports the 2017–2022 Richmond Child Care Needs Assessment and Strategy:

Strategic Direction 2 – Creating and supporting child care spaces.

Analysis

The City of Richmond 2017-2022 Child Care Needs Assessment and Strategy, which was adopted by City Council on July 24, 2017, outlines long and short term actions to support the development of a comprehensive child care system in Richmond. The City continues to implement actions outlined in the Strategy; however, additional planning and engagement is required to support the creation of additional child care spaces. Currently in Richmond, the demand for child care significantly exceeds the supply with child care spaces available for only 27.5 % of children.

The City currently owns nine child care facilities with an additional four facilities in planning and development. These facilities are leased to not-for-profit operators and, once the four in development are complete, will provide a total of 569 spaces of licensed child care. Staff are currently exploring other options to expand the current inventory of City-owned child care

facilities. The Child Care BC New Spaces Fund is another opportunity that could advance the planning and development of additional child care.

Staff have prepared a grant application to submit for the UBCM 2020 Community Child Care Planning Program Grant for \$25,000. The application deadline is January 31, 2020. A Council resolution supporting the grant application is required for this submission. If the grant is awarded, this project will further the actions in the 2017-2022 Child Care Needs Assessment and Strategy.

The main goals of the proposed project are to update the inventory of child care spaces in Richmond, to identify areas of greatest community need and to develop an action plan to facilitate development of additional child care spaces. The project will involve a Stakeholder Committee including representatives from the Richmond Child Care Development Advisory Committee and Community Partner organizations including Richmond School District; Vancouver Coastal Health; the operators of City-owned Child Care facilities; Richmond Cares, Richmond Gives and representatives of Community Recreation Associations and Societies. It is anticipated that the project findings will help to inform the future development of additional licensed child care spaces in Richmond.

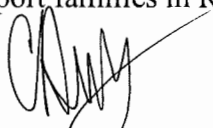
Should the grant application be successful, the City would be required to enter into a funding agreement with UBCM. As with any grant submission to senior governments, there is no guarantee that this application will be successful.

Financial Impact

The \$25,000 grant will be included in the Consolidated 5 Year Financial Plan (2020–2024) should the application be successful.

Conclusion

Staff recommend the submission of an application to the UBCM Community Child Care Planning Program. The UBCM Community Child Care Planning Grant would provide an appropriate source of funding for the City of Richmond to understand the child care needs of key stakeholders; to explore opportunities to address these needs through shared community engagement activities; and to develop a collaborative action plan to respond to those needs to support families in Richmond.



Chris Duggan
Program Manager, Child Care
(604-204-8621)

Att. 1: UBCM Child Care Planning Grant 2020 Program & Application Guide

Community Child Care Planning Program

2020 Program & Application Guide

1. Introduction

In order to better meet the child care needs of families, under *Budget 2018*, the Province of British Columbia announced expanded investment in the child care sector totalling \$1 billion over three years. This includes \$237 million to improve access to child care, including funding the creation of 22,000 new licensed child care spaces. Strong planning at the community level will ensure that this investment creates child care spaces in areas with the greatest need.

The BC Ministry of Children and Family Development has provided \$2.85 million for the Community Child Care Planning Program. Under this program, eligible projects can receive up to \$25,000. The program is administered by the Union of BC Municipalities (UBCM). To date, 74 local governments, including regional applications, have received funding through this program.

Community Child Care Planning Program

The Community Child Care Planning Program provides funding for local governments to engage in child care planning activities in order to develop a community child care space creation action plan.

Through partnerships and engagement, all funded projects will collect information regarding the child care needs of the community; create an inventory of existing child care spaces; identify space creation targets over the next 10 years; and identify actions that can be taken to meet those space creation targets.

The information gathered through these plans will be shared with the BC Ministry of Children and Family Development, and may inform future investments in child care space creation that the Government of British Columbia may provide your community through funding programs such as the Child Care BC New Spaces Fund. Please note that completion of a community child care space creation action plan does not guarantee future space creation funding.

2. Eligible Applicants

Local governments, including municipalities and regional districts, in BC are eligible to apply. Eligible applicants can submit one application per intake, including collaborative projects and participation as a partnering applicant in a collaborative application.

3. Collaborative Projects Including Multiple Local Governments

Funding requests from two or more eligible applicants for collaborative projects may be submitted as a single application for eligible projects. In this case, the maximum funding

available would be based on the number of eligible applicants included in the application. It is expected that collaborative projects will demonstrate cost-efficiencies in the total grant request.

The primary applicant submitting the application for a collaborative project is required to submit a resolution as outlined in Section 8 of this guide. All partnering applicants are required to submit a Council or Board resolution that clearly states their approval for the primary applicant to apply for, receive, and manage the grant funding on their behalf.

4. Eligible Projects & Guiding Principles

Eligible projects include the completion of a community child care space inventory (using the required Excel template) and the development of a community child care space creation action plan. These planning activities should result in local governments collecting information regarding the child care needs of the community and identifying short-term, medium-term, and long-term actions that can be taken to improve access to child care in the community through the creation of new child care spaces.

Eligible projects will demonstrate a commitment to the following guiding principles:

- **Community Driven** — Community solutions are based on local priorities and plans, and address the unique needs of the community;
- **Catalysts for Action** — Funded activities enable local governments and community partners to create new child care spaces and improve access to affordable, quality child care in their community;
- **Coordinated** — Activities of different levels of government (including local governments, school districts, Métis Nation BC, and neighbouring First Nations) and community partners (including organizations providing child care to underserved communities) encourage collaboration, avoid duplication among programs and projects, and facilitate the co-location of child care services with other child and family services;
- **Sustainable Results** — Will result in an actionable plan, supported with sufficient resources, that will improve access to affordable, quality child care over time.

In addition, to qualify for funding, projects must be:

- A new project or new project component (applications for retroactive projects are not eligible to receive funding under this program);
- Capable of completion by the applicant within one year from the date of grant approval.

5. Requirements for Funding

As part of the approval agreement, all approved applicants are required to adhere to the following requirements:

- Comply with all applicable privacy legislation, in that recipients of the Community Child Care Planning Program are not authorized under the *Freedom of Information and Protection of Privacy Act* (FOIPPA) to collect, use, or disclose personal information while conducting funded activities. Personal information is any recorded information about an identifiable individual other than their business contact information. This includes information that can be used to identify an individual through association or inference. To ensure that personal information is not inadvertently collected, funding recipients must

ensure any information collected cannot be used to identify individuals. For instance, when collecting information from stakeholders, any information that is collected and distributed should be composed of aggregate/summative data collected from a sufficiently large sample to ensure no individual(s) can be identified. In these cases, the information should be collected and presented in a manner such that a person should not be able to extrapolate or guess who the information is concerning.

Refer to Appendix 1 for important information on all requirements for funding.
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6. Eligible & Ineligible Costs & Activities

Eligible Costs & Activities

Eligible costs are direct costs that are approved by the Evaluation Committee, properly and reasonably incurred, and paid by the applicant to carry out eligible activities. Eligible costs can only be incurred from the date of application submission until the final report is submitted.

Under the Community Child Care Planning Grant program, eligible activities must be cost-effective and may include:

- Completion of a community child care space inventory (using the required Excel template);
- Development/update of a community child care space creation action plan, including the required content outlined in Appendix 2;
- Data collection (e.g. research, community consultations, workshops) and analysis;
- Community engagement activities.

The following expenditures are also eligible provided they relate directly to the eligible activities identified above:

- Consultant costs;
- Incremental applicant staff and administration costs;
- Public information costs (e.g. meetings related to the project, translation costs).

Ineligible Costs & Activities

Any activity that is not outlined above or is not directly connected to activities approved in the application by the Evaluation Committee is not eligible for grant funding. This includes:

- Capital projects, including renovations or upgrades to buildings;
- Development of architectural, engineering, or other design drawings for the construction or renovation of facilities providing child care;
- Ongoing or regular planning activities;
- Regular maintenance, operational, or administrative expenses, as well as overhead costs such as rent, office supplies, and communications services such as telephone and the internet;
- Fundraising, lobbying, or sponsorship campaigns;
- Legal, audit, or interest fees;

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- Purchase of software, software licences, or service subscriptions;
- Project components already completed.

7. Grant Maximum

The Community Child Care Planning Program can contribute a maximum of 100% of the cost of eligible activities – to a maximum of \$25,000.

In order to ensure transparency and accountability in the expenditure of public funds, all other grant contributions for eligible portions of the project must be declared and, depending on the total value, may decrease the value of the grant.

8. Application Requirements & Process

Application Deadline

The application deadline is January 31, 2020.

Applicants will be advised of the status of their application within 90 days of the application deadline.

Required Application Contents

- Completed Application Form;
- Local government Council or Board resolution, indicating support for the current proposed activities and willingness to provide overall grant management;
- Detailed budget that indicates the proposed expenditures and aligns with the proposed activities outlined in the application form. Although additional funding or support is not required, any other grant funding or in-kind contributions must be identified;
- *For collaborative projects only*: Each partnering local government must submit a Council or Board resolution indicating support for the primary applicant to apply for, receive, and manage the grant funding on their behalf.

<p>Resolutions from partnering applicants must include the language above.</p>

Submission of Applications

Applications should be submitted as Word or PDF files. If you choose to submit your application by e-mail, hard copies do not need to follow.

All applications should be submitted to:

Local Government Program Services, Union of BC Municipalities

E-mail: lgps@ubcm.ca

Mail: 525 Government Street, Victoria, BC, V8V 0A8

Review of Applications

UBCM will perform a preliminary review of applications to ensure that the required application elements have been submitted and eligibility criteria have been met. Only complete application packages will be considered for funding.

Following this, all eligible applications will be reviewed and scored by the Evaluation Committee, which will include representatives from the Ministry of Children and Family Development. Scoring considerations and criteria include the following:

- Alignment with the objectives and guiding principles of the Community Child Care Planning Program;
- Organizational capacity;
- Anticipated results;
- Partnerships and demonstrated community support;
- Engagement and inclusivity;
- Cost-effectiveness of the project, including in-kind or cash contributions to the project from the eligible applicant, community partners or other grant funding.

Point values and weighting have been established within each of these scoring criteria. Only those applications that meet a minimum threshold point value will be considered for funding.

The Evaluation Committee will also consider the location of each application in order to ensure a balanced representation of projects across the province and funding decisions will be made on a provincial priority basis.

All application materials will be shared with the Province of BC
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9. Grant Management & Applicant Responsibilities

Please note that grants are awarded to eligible applicants only and, as such, the applicant is responsible for completion of the project as approved and meeting reporting requirements.

Applicants are also responsible for proper fiscal management, including maintaining acceptable accounting records for the project. UBCM reserves the right to audit these records.

Notice of Funding Decision & Payments

All applicants will receive written notice of funding decisions. Approved applicants will receive an Approval Agreement, which will include the terms and conditions of any grant that is awarded, and that is required to be signed and returned to UBCM.

Please note that in cases where revisions are required to an application, or an application has been approved in principle only, the applicant has 30 days from the date of the written notice of the status of the application to complete the application requirements. Applications that are not completed within 30 days may be closed.

Grants are awarded in two payments: 75% at the approval of the project and when the signed Approval Agreement has been returned to UBCM and 25% when the project is complete and UBCM has received the required final report and a financial summary.

Changes to Approved Projects

Approved grants are specific to the project identified in the application, and grant funds are not transferable to other projects. Approval from the Evaluation Committee will be required for any significant variation from the approved project.

To propose changes to an approved project, approved applicants are required to submit:

- A revised application package, including an updated, signed application form, and an updated Council or Board resolution; and
- Written rationale for the proposed changes to activities and/or expenditures.

The revised application package will then be reviewed by the Evaluation Committee.

Applicants are responsible for any costs above the approved grant unless a revised application is submitted and approved prior to work being undertaken.

Extensions to Project End Date

All approved activities are required to be completed within one year of approval and all extensions beyond this date must be requested in writing and be approved by UBCM. Extensions will not exceed six months.

10. Final Report Requirements & Process

Applicants are required to submit an electronic copy of the complete final report package, including the following:

- Completed Final Report Form;
- Completed community child care space inventory (using the required Excel template);
- Completed community child care space creation action plan, including the required content outlined in Appendix 2;
- Financial summary;
- Optional: photos of the project, media clippings and or any reports or documents developed or amended with grant funding.

Submission of Final Reports

All final reports should be submitted to:

Local Government Program Services, Union of BC Municipalities

E-mail: lgps@ubcm.ca

Mail: 525 Government Street, Victoria, BC, V8V 0A8

Review of Final Reports

UBCM will review final reports to ensure that all of the required report elements (identified above) have been submitted.

Following this, all complete final reports and deliverables will be submitted to the Ministry of Children and Family Development for review before final payment of the grant is issued.

All final report materials will be shared with the Province of BC

The Community Child Care Planning Program is funded by the Province of BC. Under Section 85 of the *Financial Administration Act*, all information collected by UBCM on behalf of the Province in relation to disbursement of the funding is provided to the Province. All information will be stored and retained in accordance with Ministry of Children and Family Development records management policies and procedures. This information could be subject to Freedom of Information requests.

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11. Additional Information

For enquiries about the application process or general enquiries about the program, please contact:

Union of BC Municipalities
525 Government Street
Victoria, BC, V8V 0A8

E-mail: lgps@ubcm.ca

Phone: (250) 952-9177

In addition, the following resources are available:

- Regional Health Authorities are responsible for child care licensing in BC, and for the health and safety inspection of licensed facilities. For more information, please contact your regional Health Authority.
- For information on the child care spaces licensed by your regional health authority, you may consult the following resources:
 - Fraser Health Authority
 - Vancouver Island Health Authority
 - Vancouver Coastal Health Authority
 - Interior Health Authority
 - Northern Health Authority
- BC School Districts are responsible for K-12 capital planning in their districts.
- BC Child Care Resource and Referral Centres (CCRRs): CCRRs offer quality child care and community referrals, resources and support to child care providers and families in every community across the Province of British Columbia.

Appendix 1: Requirements of Funding

As outlined in Section 5, approved applicants are required to develop, undertake, and complete their approved project in accordance with the following requirements:

1. The funding is to be used solely for the purpose of the approved project and for the expenses itemized in the project budget.
2. Any unused funds or funds expended on ineligible costs and activities must be returned to UBCM within 30 days following the project end date.
3. All expenditures must meet eligibility requirements as defined in the Community Child Care Planning Program & Application Guide.
4. All project activities may commence on the date that the application was submitted and must be completed within one year of project approval.
5. The final report is required to be submitted to UBCM within 30 days of project completion.
6. The approved applicants are required to comply with all applicable privacy legislation. Without limiting the foregoing, the approved applicant and their child care operator(s) must ensure that any personal information they collect, use or disclose about an identifiable individual as part of the approved project is disclosed only in Canada and only in accordance with the following legislation, as applicable: *Freedom of Information and Protection of Privacy Act*, the *Child Family and Community Service Act*, the *Community Care and Assisted Living Act*, the *Personal Information Protection Act* or other applicable legislation.

Appendix 2: Required Content for Community Child Care Space Creation Action Plans

In order to be eligible for funding, community child care space creation action plans **must** include the required process elements and required content outlined below.

The information gathered through these plans will be shared with the BC Ministry of Children and Family Development, and may inform future investments in child care space creation that the Government of British Columbia may provide your community through programs such as the Child Care BC New Spaces Fund. Please note that completion of a community child care space creation action plan does not guarantee future space creation funding.

Recipients of the Community Child Care Planning Program are not authorized under the *Freedom of Information and Protection of Privacy Act* (FOIPPA) to collect, use, or disclose personal information while conducting funded activities. Personal information is any recorded information about an identifiable individual other than their business contact information. This includes information that can be used to identify an individual through association or inference. To ensure that personal information is not inadvertently collected, funding recipients must ensure any information collected cannot be used to identify individuals. For instance, when collecting information from stakeholders, any information that is collected and distributed should be composed of aggregate/summative data collected from a sufficiently large sample to ensure no individual(s) can be identified. In these cases, the information should be collected and presented in a manner such that a person should not be able to extrapolate or guess who the information is concerning.

Required Process

The completion of the action plan requires (but is not limited to) the following:

- Completing the required community child care space inventory (using the required Excel template) to record details regarding the child care facilities and spaces in your plan area. Recommended resources include:
 - The following resources from BC Stats:
 - Sub-provincial Population Estimates: Population estimates sorted by region, year, sex, and age.
 - Population Estimates for Municipalities, Regional Districts, and Development Regions, 2011-2017
 - P.E.O.P.L.E. household projections: Each year BC Stats prepares an updated set of sub-provincial household projections after the population projection for the current year has been created using P.E.O.P.L.E. (Population Extrapolation for Organization Planning with Less Error).
 - Custom detailed regional population projections by age are available for purchase. For details, please contact the demographic analysis section at 250-216-2291.
 - Statistics Canada Age (in Single Years) data tables
 - Regional Health Authorities are responsible for child care licensing in BC. For information on licensed child care facilities in your area, please consult your Health Authority.

- The Ministry of Children and Family Development collects data on the licensed child care facilities that receive ministry operating funding. To review this data, you may:
 - Refer to the [BC Child Care Map](#); or,
 - Download child care facility location data from the [BC Data Catalogue](#) (search “Child Care Map”).
 - Note that “Multi-Age Child Care Programs” may be separated as “Family Multi-Age” and “Group Multi-Age” in these sources of data; simply combine these two categories for a full list of Multi-Age Child Care Programs.
 - Note that the Child Care Map and child care facility location data do not provide complete lists of licensed child care facilities in BC, as they only detail licensed child care facilities in receipt of government operating funding. Cross-reference any information with information from your Health Authority to gather a complete list of all child care facilities
- Engaging with local child care stakeholders, particularly parents and child care providers (including Indigenous providers).
 - Recipients are also encouraged to engage with their local school district(s), other local governments, local First Nations, Métis Nation BC, and local Indigenous organizations.
 - Community engagement activities must include at least one of the following:
 - A survey targeting child care providers in the community;
 - A survey targeting parents in the community and/or parents from a neighbouring community accessing child care in the plan area;
 - A community town hall or open house on child care issues;
 - Visits to local child care centres.
 - Community engagement activities must gather information regarding the needs of under-served populations in child care—including children with extra support needs, Indigenous children and families, low-income children and families, young parents under the age of 25, children and families from minority culture and language groups, immigrant and refugee children and families, and francophone children and families.
- Developing (or updating) an action plan, including the required content outlined below.

Required Content for the Action Plan

Using the results of the inventory and community engagement process, the completion of the action plan requires (but is not necessarily limited to) the following content:

Current State of Child Care in Community

- The child care space utilization rate in your [Service Delivery Area](#)¹. Information on utilization rates is available from the [Ministry of Children and Family Development](#).

¹ Utilization rates are an indicator of the degree to which families may be able to access a child care space. Generally, higher utilization rates correlate with lower accessibility. Utilization rates above 80 percent indicate

- Child care utilization patterns and concerns that stakeholders indicate regarding:
 - How many families use child care in your community, and how many use licensed versus license-not-required care;
 - Whether there is a sufficient number of spaces to meet demand;
 - Whether spaces are in convenient locations for families, including whether these spaces are located close to parents' home, work, or school;
 - Whether enough spaces are co-located with organizations offering other services benefiting children and families (such as those offered through schools, post-secondary institutions, libraries, recreation facilities, and family support programs) and/or facilitating a seamless transition for children between such programs, and what kinds of services families would like child care to be co-located with; and
 - Whether child care is offered at convenient times for families, including whether there is a sufficient number of "flexible" child care spaces offered outside of regular business hours.
- Information on the programs and services that currently exist in your community to meet the child care needs of underserved populations and/or provide additional support services as required.
 - Underserved populations include, but may not be limited to, children who have extra support needs, Indigenous (First Nations, Métis, or Inuit) children and families, low-income families, young parents under the age of 25, children and families from minority cultures and language groups, immigrant and refugee children and families, and francophone families.
 - In completing this required content, you may wish to consider whether there are any of the following organizations, programs, or services in your community:
 - Supported Child Development Programs;
 - Aboriginal Supported Child Development Programs;
 - Cultural safety training for child care staff;
 - Child care offered by Indigenous providers;
 - Child care offering minority language and/or culture programming;
 - Child care offering Francophone programming;
 - Programs to assist low-income families with child care fees;
 - Young Parent Programs; and/or
 - Social "wrap-around" supports for children and families offered in conjunction with child care (such as meal assistance, health supports, housing supports, counselling, transportation supports, and referrals).

difficulty finding a child care space and utilization rates of approximately 90 percent would indicate that a region has poor accessibility where provider waitlists are likely commonplace.

While lower utilization rates indicate improved accessibility, local conditions may differ to that in the region overall; families may still encounter challenges finding care to meet their individual preferences and needs. It is important to engage with community stakeholders to learn more about some of the factors influencing the utilization rate in your area.

- Description of the programs and services that are most needed in your community to meet the child care needs of underserved populations and/or provide additional support services as required.

Interpreting Trends

- Identification and interpretation of trends related to the number, location, and care types of licensed child care facilities and spaces in your community, including:
 - Whether the number and type of licensed spaces in your community is sufficient to meet the needs of your ages 0-12 population, and what age groups are in most need of more child care spaces;
 - Whether licensed facilities are located in areas of high need, including high density areas and areas where parents attend work and school;
 - What locations in your community present the highest unmet demand for licensed child care spaces;
 - Whether there are a sufficient number of “flexible” licensed child care spaces offered outside of regular business hours;
 - Whether there are a sufficient number of licensed child care spaces and services providing child care for underserved populations; and
 - Whether there are a sufficient number of care facilities that are co-located with other organizations offering services benefiting children and families to meet the community’s needs.

Plan, Bylaw, and Policy Review

- Review of local plans, policies, and bylaws. This review may include only your local government’s documents, but it is recommended that it extend to other local governments as well (e.g. a review of policies in a municipality’s regional district and/or in adjacent municipalities).
- Analysis of local plans, policies, and bylaws to identify any aspects that may create barriers to the creation of licensed child care spaces in your community, and what actions can be taken to eliminate these barriers and encourage the creation of child care spaces and growth of services.

Action Plan Targets and Goals

- Identify short-term (one to two years), medium-term (two to five years), and long-term (five to ten years) space creation targets that will meet the licensed child care space needs identified above. Considerations must include, but are not limited to:
 - The number of licensed child care spaces that are required to meet the identified need.
 - The child care age groups and license types that are most in demand, and how many licensed spaces in each age group and license type are needed to meet this demand.
 - Where new spaces need to be located to best meet families’ needs. Consider any opportunities for co-locating child care facilities with organizations offering other

services and programs benefiting children and their families, such as schools, post-secondary institutions, libraries, recreation facilities, and family support programs. If possible, include an estimate of the number of spaces that can be co-located with each type of facility.

- The number of new spaces that need to be flexible (i.e. offered outside of regular business hours).
- The number of spaces that can be created using public assets.
- Identify short-term (one to two years), medium-term (two to five years), and long-term (five to ten years) actions that the local government and community will take to meet licensed space creation targets and improve access to child care services within the community. Considerations must include, but are not limited to:
 - What actions your local government will take to meet the targets identified above. Please be specific; you may wish to categorize what actions will be taken in each neighbourhood.
 - Specifically, how your local government will meet the targets identified for flexible child care.
 - Specifically, how your local government will ensure that the new child care spaces in your community meet the needs of underserved populations in child care, including children who have extra support needs, Indigenous (First Nations, Métis, or Inuit) children and families, low-income families, young parents under the age of 25, children and families from minority cultures and language groups, immigrant and refugee children and families, and francophone families.
 - Which organization(s) will be responsible for leading the creation of which child care spaces in which years.
 - Which public assets can be leveraged to expand publicly-owned child care in your community.
 - What community partners your local government will work with to meet the identified targets.
 - How your local government will increase the number of child care spaces co-located with organizations offering other services benefiting children and their families, and which community partners will you work with to increase the number of co-located spaces.
 - What plans, policies, and bylaws your local government will amend or create to reduce barriers to child care space creation.
 - What internal resources and capacity your local government will require in order to implement this plan (e.g. staff resources, funding, time, etc.).
 - What supports your local government will require from external organizations, including the BC Government, to achieve your space creation targets.
 - How your local government will continue to engage with stakeholders, including parents and child care providers, in meeting your space creation targets.

Optional Considerations for Further Planning

Please note that recipients of the Community Child Care Planning Grant are encouraged but not required to identify the following in their child care planning:

- Child care human resources available in the community (i.e. number of early childhood educators and other child care facility staff);
- How your community may help to increase the number of early childhood educators and child care facility staff serving the community in coming years;
- Trends related to the affordability of child care in your community;
- Trends related to the quality of child care in your community;
- Existing children and family services in your community, in addition to child care and how these services can be expanded in the coming years.



City of Richmond

Report to Committee

To: General Purposes Committee

Date: January 10, 2020

From: Peter Russell
Director, Sustainability and District Energy

File: 10-6125-07-02/2019-Vol 01

Re: **Comments on the BC Zero Emission Vehicles (ZEV) Act Regulations Intentions Paper**

Staff Recommendation

That a letter be sent to the BC Minister of Energy, Mines and Petroleum Resources stating the City's concerns and suggested improvements to support achievement of zero emission vehicle targets, as identified in Attachment 2 within the report titled "Comments on the BC Zero Emission Vehicles (ZEV) Act Regulations Intentions Paper", dated January 10, 2020, from Director, Sustainability and District Energy.

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

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Fleet Transportation	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

On October 23, 2019, the Province of BC posted the *ZEV Act Regulations Intentions Paper* with a four-week consultation period. Subsequent review of details within the Intentions Paper by stakeholders, including staff from City of Richmond, has raised key concerns with current targets and categorization of new light duty zero emission vehicles within the draft Act. Local governments have also raised concerns about the short notification period, and the Province has agreed to receive written and verbal feedback on the *ZEV Act Regulations Intentions Paper* until the end of January, 2020.

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.

2.2 Policies and practices support Richmond's sustainability goals.

In the report titled "UBCM Resolutions – Provincial Action on Zero Emission Vehicles and Low Carbon Fuels", dated April 11, 2018, Council endorsed two resolutions that were subsequently forwarded to Union of BC Municipalities, calling for the Province to establish requirements for zero emission vehicles to comprise at least 30% of passenger vehicle sales by 2030 (Resolution B131, endorsed by UBCM), and to increase the Low Carbon Fuel Standard to 30% by 2030 (Resolution B129, not endorsed by UBCM).

Analysis

Province of British Columbia CleanBC Plan

The CleanBC Plan released on December 5, 2018, communicated the Province's intention to address tailpipe emissions from passenger vehicles, given the priority to achieve Provincial greenhouse gas (GHG) emission reduction targets. The Plan stated that all new light-duty cars and trucks sold in British Columbia will run on clean electricity from batteries or hydrogen fuel cells by 2040.

The Plan further detailed how zero emission vehicle (ZEV) requirements would be phased in through vehicle performance and quotas that would require automakers to meet escalating annual percentages of new light-duty ZEV sales in BC, reaching:

- 10 per cent in 2025;
- 30 per cent in 2030; and
- 100 per cent by 2040.

CleanBC describes what British Columbia “could look like in 2030” as a result of this policy, stating that: “15% of the passenger vehicles could be all-electric, 4% plug-in hybrid, and 33% hybrids. That means less than half (48%) would be conventional gas powered vehicles.”

The provincial transition to zero emission vehicles by 2040 (defined in CleanBC), particularly in the light-duty vehicle sector, is a ‘breakthrough’ strategy referred to in Richmond’s Community Energy and Emission Plan (2014) to achieve significant transportation-related greenhouse gas emission reductions.

BC ZEV Act and ZEV Act Regulations Intentions Paper

The Province of British Columbia passed the *Zero-Emission Vehicles Act* (ZEV Act) on May 30, 2019, with the intent to accelerate uptake of battery electric and fuel cell vehicles (i.e. vehicles without fossil-fuel combustion engines) in BC. The ZEV Act defines a zero-emission vehicle as: “...a motor vehicle that ... emits no greenhouse gases at least some of the time while the motor vehicle is being operated.”

As proposed, the ZEV Act and accompanying regulation makes little distinction between a 100% battery electric propelled vehicle and a plug-in hybrid electric vehicle, where a gas motor recharges the electric battery when needed. The implication is that the actual impact of the ZEV Act in reducing GHG emissions from BC’s light-duty vehicle sector will be below that suggested by the CleanBC Plan, and the provincial government’s messaging to date.

If the recommendations from the Intentions Paper are implemented:

- Total annual sales of conventional internal combustion engine vehicles may not decline below current levels until the 2030s;
- Only 70% of new vehicle sales in 2040 would need to come from “Class A” ZEVs; the remaining 30% could be limited-range “neighbourhood zero-emission vehicles” (legal for use on neighbourhood streets), as well as plug-in hybrid electric vehicles (where most kilometres travelled would be powered by an ‘extended range’ internal combustion engine);
- A large amount of ZEV excess credits would be generated between 2020 and 2025. These credits could then be used by automakers and retailers to “offset” the sale of large numbers of conventional internal combustion engine (ICE) vehicles through to 2040.
- The definition of “Class A” vehicles would include “extended range electric vehicles” (EREVs) i.e. cars with gas-fuelled electric generators. (See Attachment 1)

Detailed comments on the Intentions Paper have been submitted by staff from the cities of Vancouver and Surrey, and the Metro Vancouver Regional District. These letters have identified concerns with specific elements in the Intentions Paper, and are consistent with the following high-level recommended improvements that are also supported by staff from City of Richmond:

1. Increase the minimum performance requirements for Zero Emission Vehicles (in both 2020-2025 and 2026-2040 periods).

2. Increase “Class A” ZEV sales targets to reflect market adoption of electric vehicles.
3. Reduce the value of ZEV credits issued during 2020-2025 period, relative to the 2026-2040 period.
4. Ensure that after 2025, the definition of “Class A” ZEVs excludes vehicles with internal combustion engines or fossil-fuel electric generators.
5. Provide regular review and improvement to the ZEV Act Regulations.

Further detail on the above recommendations is included in Attachment 2. If endorsed, the content in Attachment 2 would be sent to the BC Minister of Energy, Mines and Petroleum Resources.

Impact on Richmond Climate Action efforts

It is estimated that if the overall electric vehicle (EV) sales targets as stated in CleanBC were achieved, the increase in EVs as a percentage of private light duty vehicles in Richmond would, by itself, reduce Richmond’s overall GHG emissions 12% below 2007 levels by 2030 and by 35% below 2007 levels by 2050, greatly assisting Richmond in achieving deep GHG emission reductions over the next decade. However, given the ZEV definitions, range standards and allowable credits within the current draft Intentions Paper, the above-noted emission reductions from light duty vehicles would not be achieved.

Financial Impact

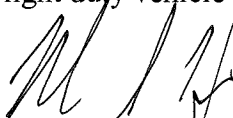
None.

Conclusion

Given the limited jurisdiction that local governments have in terms of province-wide electric vehicle sales targets and performance ranges, efforts by the City to achieve deep GHG emission reduction targets are greatly enhanced by an EV-supportive policy regime at the Provincial level, as detailed in CleanBC. To the extent that the current *ZEV Act Regulations Intentions Paper* could undermine achievement of CleanBC’s stated target, there is concern that this would also undermine the City’s efforts to achieve significant emission reduction from passenger vehicles within Richmond. With the recommended improvements to the ZEV Act regulations outlined above, the policy objective to decarbonize the light duty vehicle sector in BC could be realized.



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Att. 1: Table of A, B, and C class ZEVs, from the ZEV Act Regulations Intentions Paper

Att. 2: Summary of City of Richmond comments on the ZEV Act Regulations Intentions Paper

Attachment 1: Table showing vehicle classifications from the Regulations Intentions Paper

Class	Type	Description	2020-2025	2026-2040
ZEV Class A	EV	BEV (Battery electric vehicle):	over 80 km	over 80 km
		EREV (Extended range electric vehicle with gas-fuelled generator)	over 121 km	over 80 km
	H₂	FCEV (Fuel cell electric vehicle):	over 80 km	over 80 km
ZEV Class B	EV	PHEV (Plug-in hybrid electric vehicle)	over 16 km	over 80 km
		EREV (Extended range electric vehicle with gas-fuelled generator)	16 km to 121 km	does not apply
		NZEV (Neighbourhood Zero Emission vehicle [legal on roads up to 40 km/hour speed limit])	No minimum range	No minimum range
	H₂	HICE (Hydrogen Internal Combustion Engine Vehicles)	over 16 km	over 80 km
ZEV Class C *	EV	BEV (Battery electric vehicle):	up to 80 km	up to 80 km
		PHEV (Plug-in hybrid electric vehicle):	up to 16 km	up to 80 km
		EREV (Extended range electric vehicle with gas-fuelled generator)	up to 16 km	up to 80 km
	H₂	FCEV (Fuel cell electric vehicle):	up to 80 km	up to 80 km
		HICE (Hydrogen Internal Combustion Engine Vehicles)	up to 16 km	up to 80 km

* NOTE: No ZEV credits are awarded for Class C vehicles (verbal clarification from BC Ministry of Energy, Mines and Petroleum Resources).

Attachment 2: Summary of proposed City of Richmond comments on ZEV Act Regulations Intentions Paper

1. Increase the minimum performance requirements for Zero Emission Vehicles

Performance requirements for some ZEV categories during the 2020-2025 period are very low when compared against the performance of light-duty electric vehicles already available in 2019. These requirements do not ramp up sufficiently to meet the intent of CleanBC targets for the 2025 to 2040 compliance period. As late as 2040, the minimum zero-emission range requirement for almost every category of vehicle is still only 80 km (50 miles).¹ This problem is reinforced by the lack of a mechanism for periodic review of eligible zero emission vehicle technologies, or minimum zero-emission range requirements for light duty electric vehicles.

2. Increase Class A, ZEV sales targets to reflect market adoption of electric vehicles

The Intentions Paper sets out “Compliance Ratios” of ZEVs sold, relative to total automobile sales for each year between 2020 and 2040. These targets start low and increase slowly until 2030. Notably, actual sales of battery electric vehicles (BEVs) in 2019 already exceed the 2023 target for all “Class A” ZEVs. Moreover, the current regulatory targets will allow sales of conventional automobiles to continue to grow until 2030.²

3. Realign the value of ZEV credits issued during the 2020-2025 period relative to the 2026-2040 period

Actual sales of EVs alone are likely to greatly exceed the total ZEV sales compliance ratio set out in the regulation for the 2020 to 2025 period. Moreover, four credits are to be granted for every Class A battery electric vehicle sold during this period. The resulting ‘surplus’ sales of BEVs will generate excess credits for automakers and retailers. Because these credits do not expire, they could be used to offset the continued sale of conventional internal combustion engine vehicles in later years, potentially undermining the market supply and models of ZEVs post 2025.

4. Ensure that the definition of “Class A” ZEVs is limited to vehicles that do not have internal combustion engines or fossil-fuel electric generators after 2025

The definition of ZEVs within the draft regulation covers 19 separate categories of motor/engine configurations and zero-emission vehicle ranges, in two time periods. These categories are grouped into three classes of zero-emission vehicles (Class “A”, “B”, “C”). Class A comprises the highest performing categories, in terms of 100% battery range. However, the draft regulation currently includes several categories of vehicle with limited zero emission ranges, such as:

- Limited-range and lower-speed “neighbourhood zero-emission vehicles” qualify as Class B ZEVs up until 2040.

¹ The draft regulation proposes that the minimum zero-emission range requirement for Class A EREVs actually declines from 121 km to 80 km after 2025.

² Renewable Cities, in press, 2020 (personal communication)

- Extended range electric vehicles (i.e., electric vehicle with a gas-fuelled electric generator) qualify as a Class A ZEV from 2025 to 2040, provided they have a zero-emission range of 80 km or better. The inclusion of EREVs within the Class A category means that every category of “zero emission vehicles” includes some vehicle types designed to burn fossil fuels.

5. Provide regular review and improvement to the ZEV Act Regulations

The City of Richmond supports the concept of creating different vehicle credit classes and compliance pathways under the Regulation, with the recommendation that the Province of BC conduct periodic reviews of ZEV classifications, minimum fuel range, allowable credits as well as time limits on credit banking by auto suppliers. The City recommends that the Province conduct this review every 2-3 years to ensure that the ZEV Act continues to send critical market transformation signals to vehicle manufacturers and suppliers in BC, thus supporting the transition to zero emission light duty vehicles by the 2040 target date.