



City of Richmond

Report to Committee

To: General Purposes Committee **Date:** March 1, 2023
From: Peter Russell **File:** 10-6125-07-04/2023-
 Director, Sustainability and District Energy Vol 01
Re: **Richmond Circular City Strategy**

Staff Recommendation

That the Richmond Circular City Strategy in Attachment 1 in the report titled “Richmond Circular City Strategy” from the Director, Sustainability and District Energy, dated March 1, 2023, be endorsed;

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

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Economic Development	<input checked="" type="checkbox"/>	
Development Applications	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Public Works	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Transportation	<input checked="" type="checkbox"/>	
Corporate Communication	<input checked="" type="checkbox"/>	
Building Approvals	<input checked="" type="checkbox"/>	
Purchasing	<input checked="" type="checkbox"/>	
Intergovernmental Relations	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

At the Council meeting held on October 11, 2022, City Council resolved that:

That, as described in the report titled “Richmond Circular City Strategy” from the Director, Sustainability and District Energy, dated September 1, 2022:

- a. the Richmond Circular City Strategy in Attachment 1 of the report be endorsed for the purpose of public consultation as a framework to establish a strategic approach to the transition to a circular economy in Richmond;*
- b. a funding application to the Federation of Canadian Municipalities be submitted for undertaking a Material Flow Analysis Study; and,*
- c. the Chief Administrative Officer and General Manager, Engineering and Public Works be authorized to enter into a funding agreement with the Federation of Canadian Municipalities and that it be included in the Consolidated 5 Year Financial Plan (2023-2027) accordingly.*

This report responds to items (a). Item (b) and (c) were addressed in a memorandum dated February 7, 2023.

This report supports Council’s Strategic Plan 2022-2026 Focus Area #2 Strategic and Sustainable Community Growth:

Strategic and sustainable growth that supports long-term community needs and a well-planned and prosperous city.

2.5 Work collaboratively and proactively to attract and retain businesses to support a diversified economic base.

This report supports Council’s Strategic Plan 2022-2026 Focus Area #5 A Leader in Environmental Sustainability:

Leadership in environmental sustainability through innovative, sustainable and proactive solutions that mitigate climate change and other environmental impacts.

5.1 Continue to demonstrate leadership in proactive climate action and environmental sustainability.

5.2 Support the preservation and enhancement of Richmond’s natural environment.

5.3 Encourage waste reduction and sustainable choices in the City and community.

5.4 Support agriculture and local food systems to enhance food security.

Analysis

This report seeks Council’s endorsement of the Richmond Circular City Strategy (Strategy), found in Attachment 1. After public consultation in the fall of 2022, the Strategy was updated based on public and stakeholder feedback.

Strategy Overview

The development of the Strategy was guided by a comprehensive review of current City plans, strategies, and programs to identify complementarities and opportunities for circular innovation. Furthermore, staff took advantage of every opportunity to enhance partnerships with the community and stakeholders by including their feedback while developing the Strategy. Through this work, the City has emerged as one of Canada's leading cities in advancing circularity and climate actions by demonstrating true innovation, collaboration and effective approaches. Input received from community and regional stakeholders has been carefully considered and integrated into the updated Strategy that includes 6 directions and 84 actions (see Table 1), setting Richmond on a course toward achieving 100% circularity by 2050.

Table 1 – Strategy’s Directions & Objectives

	<p>1. Maximizing ecosystem services Enhance natural ecosystem services through regenerative ecosystem management, increasing the environment's ability to provide public benefits and economic resilience.</p>	<p>1.1 Promote a comprehensive, multi-level regulatory and support framework to facilitate a shift towards sustainability and circularity in ecosystem management 1.2 Advance the value of Richmond's natural capital assets 1.3 Promote nature-based solutions 1.4 Build capacity and raise awareness about the value of ecosystem services to the city</p>
	<p>2. Regenerative food system Foster an agricultural and food production system that rehabilitates and enhances soil productivity, water management and fertilizer use.</p>	<p>2.1 Establish a nutrient and resource flow inventory for Richmond's food system 2.2 Shorten the food chain from the farm to the fork 2.3 Increase local food production 2.4 Reduce food waste in all the food chain 2.5 Reduce the need of chemical fertilizers and pest control while increasing the land productivity 2.6 Build capacity and raise awareness among the food system industry and stakeholders</p>
	<p>3. Resilient and innovative economy Empower cross-sector businesses in the adoption of circular strategies in their business practices.</p>	<p>3.1 Strengthen Richmond's business sector by fostering sustainable growth through circular practices 3.2 Increase businesses' resilience and innovation with circular strategies 3.3 Develop a framework for promoting circular economic transition in alignment with sustainable development goals 3.4 Encourage synergies and collaboration in the local market 3.5 Build capacity and awareness among businesses and stakeholders</p>
	<p>4. Shared mobility Explore and support a shared transportation and mobility system.</p>	<p>4.1 Calculate the mobility material intensity and resource efficiency 4.2 Reduce the use of virgin materials and material footprint in the mobility system 4.3 Facilitate the implementation of an integrated mobility sharing vehicles infrastructure and "mobility as a services" solutions 4.4 Reduce distances by increasing access to co-working spaces, digital solutions and virtual services 4.5 Support continuous improvement in the local logistic system</p>
	<p>5. Adaptive built environment Maximize the optimal use of construction materials and buildings, infrastructure, and land.</p>	<p>5.1 Assess the material usage in the built environment 5.2 Regenerate materials flow by promoting salvage and secondary use materials 5.3 Develop sectoral capacity and skills 5.4 Promote the use of new materials and develop research and pilot projects 5.5 Promote circular standards for constructions</p>

		5.6 Collaborate to create joint value
<hr/>		
	<p>6. Consumer materials management Promote efficiency in consumer products materials and end-of-life management.</p>	<p>6.1 Understand the urban metabolism of Richmond</p> <p>6.2 Promote new circular consumption behaviors and material use</p> <p>6.3 Support the urban industry symbiosis by fostering collaborative relationship</p> <p>6.4 Enhance upcycle infrastructure for consumer goods' materials</p>

The City's Strategy acknowledges that communities are facing a pivotal moment of change, as the global economy rapidly transitions towards a future characterized by sustainable resource flows in a low-carbon economy. In order to foster long-term sustainable social and economic opportunities, the Strategy will align closely with the current efforts of other local and senior governments to implement circular economy practices. Because of implementing the Strategy's actions, the City can expedite its progress towards a resilient economy, and establish a comprehensive approach to create a solid foundation for future prosperity.

Community and Stakeholder Engagement

In the fall of 2022, Council directed staff to carry out a public consultation program to solicit feedback on the proposed actions within the Strategy. Feedback from previous stakeholder workshops for related initiatives also created valuable content for developing the draft. Numerous engagement activities were carried out during the consultation process, including:

- **Stakeholder Engagement Workshops:** In-person and online workshops that guided participants through the proposed Strategy's directions and actions allowing stakeholders to share their ideas and feedback. A total of 65 stakeholders attended the November 23, 2022, in-person workshop. Additional online focus groups were engaged.
- **Let's Talk Richmond:** The project ran from November 15 to January 8. It received 814 visitors, of which 170 completed and submitted the online survey.
- **Social Media Campaign:** A social media outreach effort was undertaken to engage with stakeholders through the City's Twitter, Facebook, and Instagram channels. The campaign reached over 10,000 individuals.
- **Advisory Committees:** Staff presented to the Advisory Committee on the Environment, Economic Advisory Committee and Food Security and Agricultural Advisory Committee. Committee members were invited to provide feedback via Let's Talk Richmond, by email (circulareconomy@richmond.ca) and/or in the meetings.
- **Virtual Engagement:** The Strategy was emailed to 150 stakeholders with a PDF form to provide feedback. This allowed staff to collect a wide variety of input from stakeholders and to identify the most effective strategies for moving forward with the proposed Strategy.
- **Visual Communications in City's Facilities and Infrastructure:** The use of visual communications, such as posters and brochures, in community facilities and ads in transit shelters helped to create awareness about the Strategy and increase public participation in the process of providing feedback.

Overall, the feedback revealed that participating residents and stakeholders strongly supported the Strategy. Comments helped narrow down the most effective and efficient actions and targets

in the Strategy, including noting various technical and non-technical activities such as developing new pilot projects and supporting educational initiatives. Detailed input from the community and stakeholders is included in Attachment 2. Overall, the following themes emerged:

- Focusing on climate mitigation and adaptation outcomes in the pursuit of circularity;
- A shift towards circularity is an opportunity for businesses to manage costs, create employment opportunities and retain economic vitality;
- Working with builders and developers to reduce embodied carbon, construction waste and to build skills in the workforce. Increasing salvageable materials from demolition was noted often;
- Emphasis was placed on the importance of ongoing collaboration with businesses and community stakeholders, including with indigenous communities;
- Educating future leaders is crucial, including regenerative approaches to resource use;
- Increase convenience and accessibility for repurposing, recycling and collecting recyclable materials;
- City leadership will be key, as will coordination with all levels of government. Comments were received regarding the responsible use of City funding to support the initiative; and,
- Development and reporting of key performance metrics to guide implementation.

Residents and stakeholders also noted where they would like to see more action, including: increasing the protection of natural resources within urban development; building community awareness; developing tools for businesses; and, providing opportunities for leaders and innovators to network and collaborate. Stakeholders suggested creating a community circular economy group to exchange ideas and act as ambassadors.

Beyond using feedback to refine actions in the Strategy, the feedback will also be used to guide the City's work when bringing forward detailed actions, prior to further community and stakeholder input, as needed. The Strategy in the report includes iterative refinements of proposed implementation actions and targets based on public and stakeholder feedback.

Strategy Implementation

The Strategy outlines an approach to implementation that is both opportunistic and strategic in nature. This approach intends to take advantage of new opportunities that may arise in the coming years, including the implementation of upcoming federal and provincial programs, the expansion of regulatory mandates, and the dynamic evolution of technologies. Methods to implement the Strategy will include:

- The Strategy will be implemented in conjunction with other plans to address opportunities involving materials and resource flows impacting the community.
- The completion of the material flow analysis will identify resource flow mapping in specific areas, more below. The results will enable the identification of opportunities to reduce environmental and community impacts, as well as areas where resources are wasted, offering the opportunity to reduce overall costs.
- Some actions may require pilot projects, stakeholder collaboration, and public consultation or changes/updates to City policies and regulations. Appropriate levels of

research and technical analysis will be required for many actions before being considered for implementation. Any proposed updates to City policies and regulations would be brought forward in future reports for Council consideration, including new funding as needed.

- There may be some actions in the strategy that the City is not in a position to implement, especially in the short term, since they are dependent on measures taken by senior levels of government. As a result, cooperation between senior levels of government is essential to the long-term success of the strategy, as it ensures that the City will have the capability to implement actions collaboratively with different levels of government.

Staff will report back to Council every two years to outline progress towards achieving the goals and targets outlined in the Richmond Circular City Strategy. Updates on the implementation of identified actions and any necessary adjustments will be provided during this time period on an as-needed basis.

Next steps

The following activities will support progress toward the City's vision for a circular city:

- **Material Flow Analysis Study:** The study is a critical step in establishing an assessment of current circularity in Richmond. It is proposed to focus primarily on the resources used within Richmond to produce goods and services and to identify relationships between resource flows, social activities, economic development, and environmental changes but regional data will also be used where local data gaps exist. A funding application was submitted to the Federation of Canadian Municipalities, as approved by Council in October 2022 when the draft Richmond Circular City Strategy was presented. Additional operating budget funding was also approved at this time to complete the study.
- **Embodied Carbon Analysis:** The material use intensity of the built environment contributes to approximately 26% of Metro Vancouver's GHG emissions. Metro Vancouver and the City of Vancouver are taking steps to reduce embodied carbon emissions and promote resilient buildings in order to achieve the long-term goal of carbon-neutral building stock by 2050. Staff will be working with other interested cities and jurisdictions in analyzing the embodied carbon in new buildings and retrofit activities in Richmond. This work is expected to support the establishment of local targets in conjunction with regional partners. Other considerations include the implementation of monitoring and reporting procedures, industry adoption of circular construction practices to improve sustainable design, material selection, and supply chain optimization and product innovation. The embodied carbon analysis will be exploratory initially, focused on understanding potential policy or incentive implications. Should additional resources be required for furthering the work, there is adequate operating budget available. If a policy is considered, staff will bring forward a report that may include a request for implementation resources.
- **Showcases and pilot projects:** Develop showcases and pilot projects, such as the City's innovative reclaimed asphalt pavement project, focused on materials such as textiles, concrete, and mass timber. These projects will provide opportunities for collaboration across the value chain. Pilot projects will document lessons learned and best practices for future projects that can be shared broadly, in an effort to support industry and regulation

changes where possible. The City can also provide better access to information, data, and metrics to influence consumer behaviour and help track economic and environmental metrics. Operating budgets and/or capital projects will cover the planning and development of showcases and pilot projects at this stage. If additional project resources are required, a separate report will be brought forward for Council consideration.

- **Continuous collaboration:** To foster partnerships, the City will seek opportunities to establish regular meetings with key stakeholders to review progress on the implementation of the Strategy, identify potential areas of improvement, and ensure that all stakeholders are aware of new developments and opportunities related to the circular economy. Additionally, the City can explore opportunities to participate in cross-jurisdictional initiatives and partnerships to leverage collective expertise and resources to support a local transition to a circular economy. Stakeholder engagement would be undertaken using existing resources.

Staff will report back to Council every two years to outline progress towards achieving the goals and targets outlined in the Richmond Circular City Strategy. Updates on the implementation of identified actions and any necessary adjustments will be provided during this time period on an as-needed basis. Finally, when new information comes forward related to aspects of the Strategy, such as GHG inventories, staff may update content in the Strategy document and inform Council via memorandum, making the Strategy a living plan.

Financial Impact

There are no financial implications stemming from this report. As noted, a funding application has been submitted to the Federation of Canadian Municipalities in October 2022 when the draft Richmond Circular City Strategy was presented; additional operating budget funding was also approved at this time.

Conclusion

The City has demonstrated a commitment to advancing the circular economy by engaging the community and stakeholders, delivering tangible projects and developing a living proposed Strategy that can be refined and updated over time. The development of the proposed Strategy benefited from an inclusive engagement process, which involved public consultation and stakeholder engagement workshops. The feedback from the community and stakeholders highlighted the importance of building awareness, developing business tools, and providing opportunities for leaders and innovators to network and collaborate. The City is committed to continually collaborating with key stakeholders to implement the actions outlined in the Strategy, monitor progress towards achieving its goals, and create a circular economy that benefits all and leads the way in Canada for circular innovation and sustainability.



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- Att. 1: Richmond Circular City Strategy
2: Public Consultation Report

RICHMOND CIRCULAR CITY STRATEGY



Cities and regions are where people, knowledge and ideas come together, where innovation is cultivated, and where most natural resources are consumed and waste generated. These dynamics position local governments at the heart of the circular economy transition.

In 2021, the City of Richmond joined the Circular Cities and Regions Initiative (CCRI), to be part of a one-year pilot to advance circular economy knowledge sharing and capacity in the Canadian local government sector. The Initiative was developed and delivered jointly by the National Zero Waste Council, the Federation of Canadian Municipalities, the Recycling Council of Alberta, and RECYC-QUÉBEC. Over the course of one year, the CCRI provided direct support, guidance and a peer-to-peer exchange for a group of 15 cities and regions as they take steps to become more circular.

By working with cities and regions of different sizes, different local contexts and at different stages of readiness, the CCRI tested and prototyped training, tools, and guidance that will be most helpful in scaling innovative place-based circular economy policies, programs and services.

The circular economy is a systems-focused approach encompassing materials and energy flows, products and services value chains and actors across different sectors, offering a new model for innovation and integration between natural ecosystems, businesses, our daily lives, and waste management. This circular way of doing business decouples materials use from social and economic growth to generate prosperity, jobs, and resilience while reducing biodiversity loss, greenhouse gas emissions, waste, and pollution.

No one actor is responsible for the circular economy, and therefore is everyone's responsibility. This Strategy identifies directions and actions that the City will work in partnership with institutions, governments, businesses, non-profit organizations to move toward the local circular economy.

This Strategy places the City at the forefront of enabling a transition to a circular economy by integrating new and existing policies, building capacities, collaborating and engaging stakeholders, and stimulating innovation and participation across the food system, business, mobility, built environment and materials management sectors.

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STRATEGY-AT-A-GLANCE



This Strategy outlines a framework that will guide Richmond's transition to a circular economy.

The Richmond Circular City Strategy is an ambitious plan that is guided by a 25-year long-term vision. The Strategy has no precedent in North America, placing the City in a leadership position – a position that comes with the burden of navigating the unknown in the short term, developing best practices and processes, and seeking willing partners to support the transition to a circular city.

By following the Strategy's principles, directions, goals, and actions, the City and its partners will be able to achieve progress and results towards Richmond's vision of a circular city that maximizes the value of resources, by design, through responsible consumption, minimizing waste and reimagining how resources flow in a sustainable, equitable, low-carbon economy.



THE RICHMOND CIRCULAR CITY STRATEGY IS ALIGNED WITH CITY PLANS

The action-based approach of this Strategy is aligned with the goals as specified in the plans, strategies, programs and policies below, but is not redundant. Circular economy is about the flow of resources, materials, nutrients, products and energy. The actions in the Strategy augment the City work through an expanded focus on these flows.



- 5-Year Tourism Plan
- Agricultural Viability Strategy
- Barn Owls Nest Box Program
- Bat Friendly Community Recognition
- Biweekly Garbage Cart Program
- Blue Box/Blue Cart Programs
- City Centre Transportation Vision
- Community Energy & Emissions Plan 2050
- Cultural Harmony Plan
- Farming First Strategy
- Flood Protection Management Strategy
- Ecological Network Management Strategy
- Enhanced Pesticide Management Program
- Green Cart Program
- House Moving and Salvage Program
- Industrial Land Intensification Initiative
- Integrated Rainwater Resources Strategy
- Invasive Species Action Plan
- Litter Collection Program
- Large Item Pick Up Program
- Resilient Economy Strategy
- Official Community Plan
- Park and Open Spaces Strategy
- Partners for Beautification
- Poverty Reduction Plan
- Public Spaces Recycling Program, Event Recycling, Facilities Recycling
- Procurement Policy
- Reclaimed Asphalt Pavement Pilot Project
- Richmond Business Development Program
- Richmond Food System Action Team
- Richmond Food System Assessment 2006
- Richmond Foodland Report 2013
- Richmond Garden Club
- Richmond Local Food Map
- Richmond Nectar Trail
- Richmond Pesticide Management
- Riparian Areas Regulation Response Strategy
- Single-Use Plastic and Other Items Bylaw No. 10000
- Tree Management Strategy
- Wellness Strategy

MOVING FROM A LINEAR TO A CIRCULAR ECONOMY

BEYOND PLANETARY BOUNDARIES

We need natural resources to sustain our economy, prosperity and well-being.

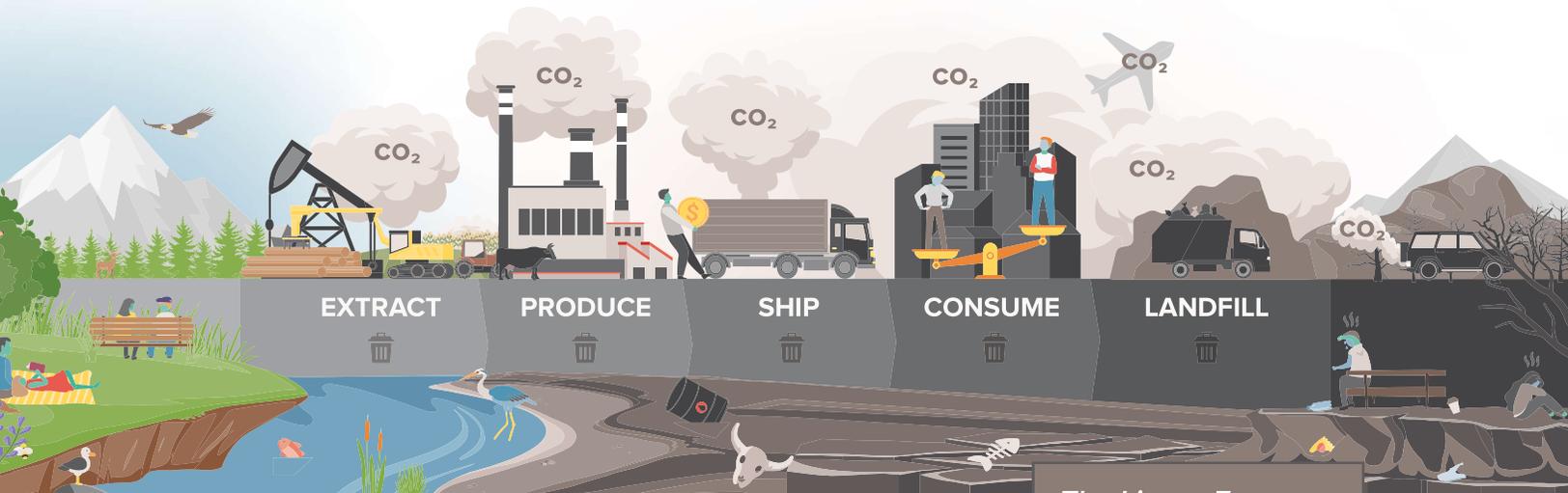
The current economy of “take-make-use-dispose” is called the linear economy, meaning things are made from virgin raw materials, used for a short period of time, and then disposed.

The biological capacity available per person on Earth is 1.6 global hectare (gha per capita). An ecological deficit occurs when the demand for natural resources exceeds the biocapacity of the planet. Our current footprint in Canada -demand for natural resources- is 8.1 gha which indicates that we need 5.1 planets to satisfy our needs. Coupled with existing waste disposal models, the over-exploitation of natural resources has led to environmental problems such as soil contamination, lost natural capital, human health problems and climate change.



Canada’s current ecological footprint (8.1 gha) would require 5.1 planet earths.

To narrow virgin raw material needs by 2050 and achieve 2030 climate commitments requires at least doubling the current portion of resources that re-enter the circular economy.



LIVING WITHIN PLANETARY BOUNDARIES

The implementation of the circular economy emerges as a counterpoint to the linear economy by closing resource loops. This model combines economic growth with a development cycle that preserves and enhances natural capital, optimizes resource production and minimizes risk through the management of limited resources and renewable loops. A circular economy, in essence, uses as few new resources as possible.

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

Additionally, it has the potential to enable companies to reduce production costs and losses, generate new sources of revenue and reduce their dependence on natural raw materials. A circular economy strategy maintains the highest value of products and materials as long as possible to conserve critical resources, prevent waste generation, and reduce the emissions from the production of goods and services.



Wild native Yarrow

Richmond offers a diversified land use with 409 ha (1,011 acres) of industrial space, comprising 21% of Metro Vancouver’s regional inventory, and 4,993 ha (12,338 acres) of Agricultural Land Reserve with 189 farms, representing 39% of the city’s total land base. The park system consists of more than 200 acres of recreational trails and over 145 parks spread across over 1950 acres.

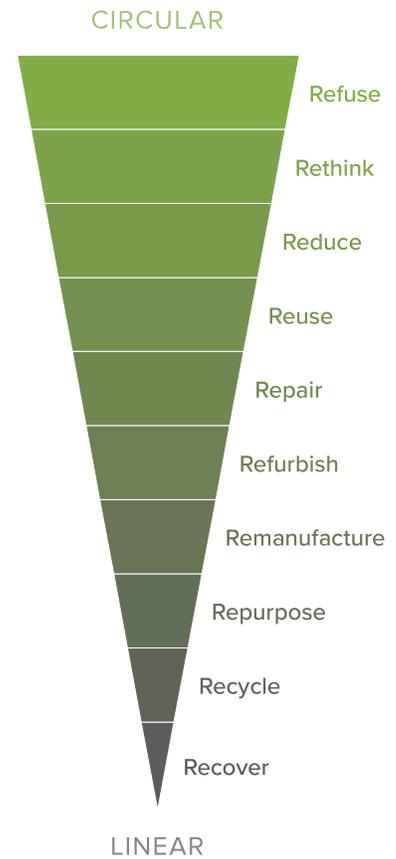


Figure 1: Circularity Ladder. We propose a circularity ladder, so called R-ladder. A variety of R-models are used to extend circular strategies, ranked in priority order. The R-ladder can be seen as a hierarchy where the highest possible step would be more ideal for a circular strategy.



Richmond North-Arm Dike

Circular cities create opportunities for a new urban future - one connected with our planet, communities, and our wealth in service of prosperity and equity in a world of finite resources. Cities and governments are moving away from a linear economy.

Moving to a circular economy will bring with it exciting opportunities to address systematic changes. The City has demonstrated leadership in sustainable development through innovative policies, programs, and services shaped

by community and stakeholder participation. Adding a circular economy focus to the City's work will contribute to achieving sustainable development, mitigating climate change, conserving natural resources, and improving the state of the environment, all while generating economic growth and jobs.

It is time to pivot to a new model of economic prosperity and adopt a holistic approach to the systemic transformation of communities.



Richmond South Dike

Regenerative production provides food and materials in ways that support positive outcomes for nature, including but not limited to healthy and stable soils, improved local biodiversity, and improved air and water quality. A regenerative building system uses low-carbon materials, reclaimed resources and nature-based solutions to provide better insulation, absorb rainwater, reduce air pollutants, and create habitats for wildlife.

PRACTICAL PRINCIPLES TO DRIVE CHANGE

The Strategy is built on the circular economy principles supported by the City to strengthen the systemic transformation from a linear to a circular economy.

The City has started using circular economy criteria in various ways, guided by the following principles:

- Design clean
- Keep using
- Collaborate to co-create
- Regenerate
- Maximize value



GROWTH WITHIN PLANETARY BOUNDARIES FOR SOCIAL EQUITY

Canada is extracting natural resources 5.1 times faster than our planet’s regenerative biocapacity, placing citizens and communities at risk.

While a transition towards a circular economy does not guarantee a more equitable society, it provides an opportunity to achieve societal benefits such as poverty reduction, meaningful employment, and human well-being. An equitable transition can help ensure that the benefits (and risks) of the circular economy are equally distributed through society. The Richmond Circular City Strategy incorporates equity considerations to identify possible pathways for sustainability and outlines directions that are resource-efficient and people-centred.

BENEFITS OF A CIRCULAR ECONOMY

Richmond's circular transition will be achieved through active collaboration among different sectors and stakeholders, as well as national and international cooperation with all level of governments.

The benefits of moving to a circular economy include:

CAPACITY-BUILDING

Strengthening knowledge about the value of moving to the circular economy is crucial for the growth of businesses and entrepreneurs throughout the value chain, especially for specific key sectors such as tourism, food production and construction. Businesses and jobs related to the circular economy can gain new skills through development opportunities.

PROSPEROUS AND RESILIENT ECONOMY

Sustainable consumption models, closing (waste) material cycles, establishing collaborative partnerships among business sectors and regional stakeholders, and piloting innovative ideas are all critical to invigorate new and existing local business products and services.

COLLABORATION BETWEEN MULTIPLE STAKEHOLDERS

Multi-stakeholder cooperation is essential to encourage and support residents, businesses, non-profit organizations and institutions to participate actively in the circular economy as part of the transformation. The creation of a circular framework of collaboration tools and networking platforms will provide a common ground so that Richmond's small and large businesses can work together to implement circular economy practices.

FOSTERING INNOVATION

Circular business models can be used to accelerate innovation and benefit small and medium-sized businesses to engage in value-retention activities like repair, refurbishment, and re-manufacturing.

NEW GREEN JOBS

Studies have indicated that circularity has the potential to create jobs when businesses focus on low-carbon targets and circular sectors.

PROTECT AND RESTORE LOCAL ECOSYSTEMS

Solutions that utilize functioning ecosystems as natural infrastructure to provide ecological services for residents and the environment are expected to emerge.

REDUCE CARBON EMISSIONS

The circular economy can contribute to a 50% reduction in greenhouse gas emissions.



Recycling generates an estimated **36 JOBS** every 10,000 tonnes of "waste"



Reuse and refurbishment can create more than **250 JOBS** for every 10,000 tonnes of "waste"

A study assessing Canada's circular economy potential found the total gross domestic product (GDP) of industries assumed to have the capability to integrate secondary materials into circular practices such as refurbished or re-manufactured products in Canada was



CAD 277 BILLION which represented 14.7% of national GDP in 2016.

CHALLENGES OF A CIRCULAR ECONOMY

The global economy extracts roughly 84 billion tonnes of materials worldwide every year. This overwhelming demand for raw materials continues to increase due to growing prosperity and an equally growing world population. Richmond's critical challenges to move towards the circular economy include:

A KNOWLEDGE GAP

There is a general lack of local knowledge and data which is required for strategic planning and decision-making. Additionally, Richmond's case studies about circular business models and the results of their implementation are lacking.

SILOED SECTORS

Specialized suppliers often operate in silos that prevent industry cooperation. Cross-sectoral collaboration and taking a systems approach are required to achieve circularity.

LACK OF ECONOMIC INCENTIVES

Due to linear supply chains, low incentives, and a lack of practical information, businesses find it complex to adopt circular approaches and strategies.

SHORT-TERM FOCUS

Sectors are focused on short-term, fast, bottom-line results without considering long-term costs and benefits.

GROWING POPULATION

The demand for better infrastructure and energy is increasing as more people move to Richmond in search of better jobs, services, and culture.

CULTURE AND LIFESTYLE

In Canada, consumerism is the dominant culture, promoting overconsumption, discouraging the use of refurbished products and recycled materials, and preventing individuals from adopting circular practices.

LOW COST OF VIRGIN MATERIALS AND DISPOSAL

The Lower Mainland has low landfill and virgin material costs, limiting waste reduction and by-product materials.

SMALL BUSINESSES FACE HIGH INVESTMENT COSTS

Because the investment cost is high in some circular business models, small businesses with limited access to capital have difficulty funding long-term investments and uncertainty on adequate returns.

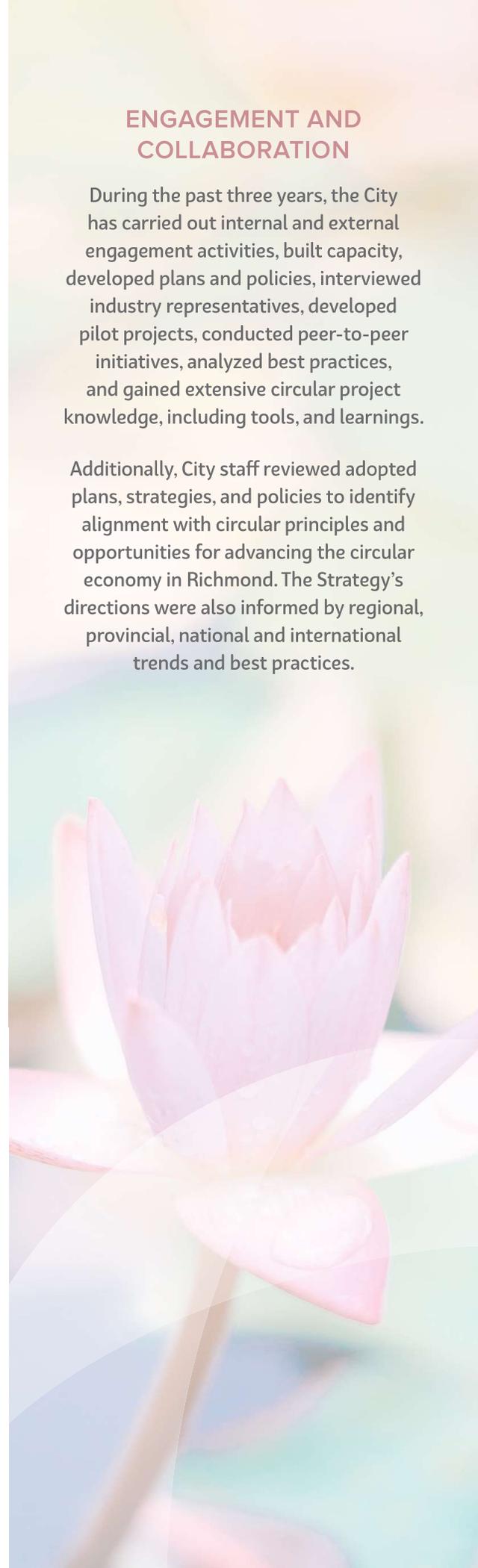
FINANCIL RISK AND FEASIBILITY

The financial risk associated with new and innovative projects and their feasibility and a lack of clear economic incentives can hinder the adoption of circular approaches. Applying circular practices may pose short-term budgetary challenges, including the initial cost of implementing cutting-edge technology, the disruption of existing business models and material flows, and the need to secure funding and investment. Businesses may encounter challenges in selling or purchasing specific waste streams as by-products or obtaining pre-used materials for their processes due to the lack of suitable markets, users, suppliers, or sellers.

ENGAGEMENT AND COLLABORATION

During the past three years, the City has carried out internal and external engagement activities, built capacity, developed plans and policies, interviewed industry representatives, developed pilot projects, conducted peer-to-peer initiatives, analyzed best practices, and gained extensive circular project knowledge, including tools, and learnings.

Additionally, City staff reviewed adopted plans, strategies, and policies to identify alignment with circular principles and opportunities for advancing the circular economy in Richmond. The Strategy's directions were also informed by regional, provincial, national and international trends and best practices.





IMPLEMENTATION APPROACH

The following six key attributes guide our approach to strategy implementation.

OPPORTUNISTIC AND STRATEGIC

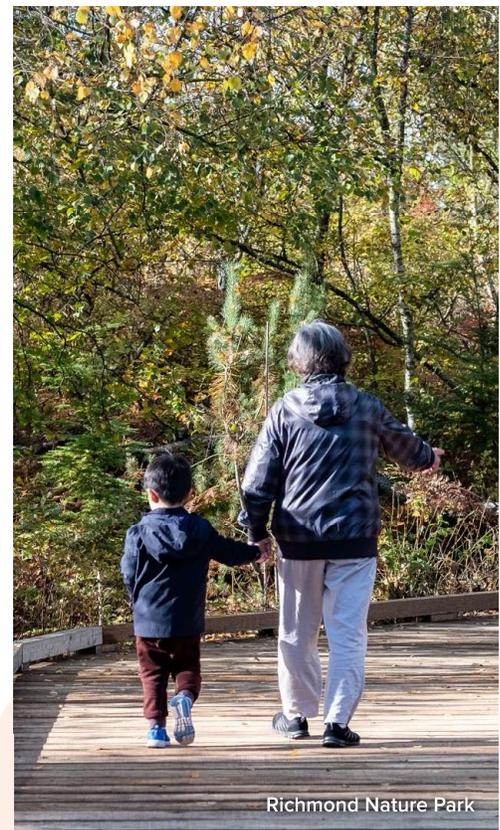
Becoming fully circular by 2050 will require a scale-up of activity. The City will take advantage of new opportunities that may arise over the years, with respect to new Federal and Provincial programs, expanded regulatory mandates, and emergence of ‘break-through’ technologies and approaches. Some actions will require comprehensive research and technical assessments before they can be considered for implementation.

A SET OF GUIDELINES, NOT A WORK PLAN

This document is not a detailed, phased work plan. Rather it is a blueprint that empowers the City and other actors to pursue opportunities when they are presented. This Strategy provides a sufficient level of guidance and definition so that implementation can be in the short, medium and long-term, while allowing flexibility to further refine or modify plan actions as needs arise, and developing detailed work plans as needed.

RESOURCES TO MATCH AMBITION

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



DRIVING MARKET TRANSFORMATION THROUGH COLLABORATION

Advancing the Strategy towards a circular economy will require taking advantage of collaboration and engagement opportunities between various sectors, actors, and stakeholders, as well as national and international cooperation with local governments. Collaboration has emerged as both an enabler and a necessity. To build trust and establish a foundation for collaboration, the strategy brings a comprehensive approach that allows an analysis of the current system, and enables stakeholders to work together to develop solutions to their specific needs. This approach allows stakeholders to come together to discuss data, identify areas of common need, develop capacity-building, benchmark opportunities and design pilot projects that are scaled and replicated, establishing a long-term framework for new policies and regulations.

EQUITABLE TRANSITION TOWARDS THE CIRCULAR ECONOMY

The Strategy acknowledges the opportunity to address not only environmental challenges but also social ones. With planet and people in mind, the Strategy can help us create an equitable space for all people in Richmond, including Indigenous people and First Nations, visible minorities, low-income households, women, seniors, new Canadians and persons with disabilities. To bring about true change, environmental goals need to be matched with social objectives.

DATA FOR DECISION-MAKING OR CIRCULAR ECONOMY THINKING

Monitoring the flow of materials and how they are used in society is essential to measuring Richmond's circularity throughout its metabolism. Material flow analysis produces visual maps which provide a holistic view of the input, throughput and output of resources, nutrients and energy within, or by sectors, and how these materials subsequently flow out of the sectors in the form of wastes and emissions. Since material flows are accounted for in mass, it is possible to identify the origins, stocks and leakages, as well as calculate embodied carbon. Based on the current trends of the resources use, the analysis is able to anticipate what material consumption and waste generation patterns could look like in 10 years if left unchanged. This can provide a useful baseline to compare the impact of circular scenarios, reveal economic opportunities directly linked to environmental impacts and provide technical data for decision making and planning, which would be helpful for prospective policy intervention.



STRATEGIC DIRECTIONS

SIX STRATEGIC DIRECTIONS TO ACCELERATE THE CIRCULAR ECONOMY IN RICHMOND



Richmond's six directions for achieving a circular city focuses on different resource flows by engaging a productive 'making' approach that empowers citizens, industry leaders and City's staff.

Each direction and its guiding actions focus on its own local topic, dynamic, cultural, social, economic, and technical challenges. The directions are a result of three-year comprehensive engagement activities, capacity-building actions, plan and policy development, industry interviews, pilot project development, peer-to-peer initiatives, best practices analysis and extensive project knowledge, tools, and learnings. They will guide many Richmond actors to co-create, test and implement circular practices within their local and regional context, fostering the transition towards a regenerative and circular city, providing valuable examples for other cities to engage in this necessary transition.

Six priority directions are defined to achieve the ambitions in the sectors in which the City has the most substantial impact. Progress in these areas will remove barriers that stand in the way of the transition to a circular economy.

The Strategy does not concern a particular industry, but instead proposes holistic actions to systemically change and benefit the entire community.

The progress in these six priority areas will be assessed qualitatively and quantitatively. Learning and findings will be used to improve this Strategy and design new initiatives. In this way, we will take concrete steps to accelerate Richmond's journey towards a fully circular city by 2050.

Businesses, academic institutions and research organizations, consumers, residents, and vibrant communities are all needed to achieve change. At the same time, there is still much to learn. The City's approach is a "learn-by-doing" that builds on the values of collaboration, innovation, resiliency, and adaptability. By following this approach, we can strike the right balance between being concise and remaining flexible to embrace circularity in the coming years.

The adoption of these directions can reduce the overall level of materials flowing into Richmond's economy by increasing material efficiency—in other words, getting more (or the same) from fewer resources.

SIX DIRECTIONS TO ACCELERATE THE CIRCULAR ECONOMY IN RICHMOND





1

MAXIMIZING ECOSYSTEM SERVICES

Enhance natural ecosystem services through regenerative ecosystem management, increasing the environment's ability to provide public benefits and economic resilience.



1. MAXIMIZING ECOSYSTEM SERVICES

Enhance natural ecosystem services through regenerative ecosystem management, increasing the environment’s ability to provide public benefits and economic resilience.

Natural ecosystems are essential to support human health, wealth, culture, identity, happiness and well-being. Richmond’s residents enjoy a high quality of lifethanks to the abundance of open spaces in and around the City. Residents also benefit from ecosystem services, including pollination for our food production, water and air purification, climate regulation, nutrient cycling, habitat, recreation, health, protection from natural disasters, recreation, and cultural and spiritual well-being. Richmond’s economic activities have an impact on its natural ecosystem services. Natural ecosystem services benefit from active management to ensure their functions are maintained for us now and into the future.

Wetlands, forests, shorelines, and old fields act as the foundation of Richmond’s Ecological Network (EN) -a long-term ecological blueprint for the collaborative management and enhancement of the natural and built environments throughout the city. Consistent with the draft Metro Vancouver Regional Green Infrastructure Network, the EN was first introduced with the adoption of the Richmond 2041 Official Community Plan to achieve ecologically connected, livable and healthy places in which residents thrive. The EN vision and goals provide a framework for managing and guiding decisions regarding the city-wide system of natural areas and the ecosystem services they provide.

The City’s **Environmentally Sensitive Area (ESA)** extends over approximately **8,015m²** compensated for by adding over

7,000

NATIVE TREES AND SHRUBS.

The City has also improved civil improvements (culverts) and ecological enhancements (native plantings) to about

1,800m

OF CHANNELIZED WATERCOURSE along Sidaway Road and Steveston Highway.

Over **200 VOLUNTEERS** planted more than

3,000

NATIVE TREES AND SHRUBS

along Richmond’s greenways and parks.

The **Partners for Beautification Program** allowed community members to **ADOPT STREETS, GARDENS, PARKS, TRAILS PROACTIVELY, AND OPEN SPACES** to remove litter and invasive plants from these areas.

WHY CIRCULARITY IS IMPORTANT?

Human prosperity arises from using a combination of social capital, human capital and built capital, but these are all based on natural ecosystems. Conservation and restoration efforts alone are crucial, but they will not be enough, making opportunities for regenerative ecosystem goods and services that only nature can provide. By including the value of natural ecosystem resources and services into innovative business models and financial decision-making, circular economy approaches offer the opportunity reconciling Richmond’s economic and environmental interests leveraging and accelerating the City’s efforts to manage and enhance our ecological assets, strengthen city infrastructure, create, connect and protect diverse and healthy spaces and engage through stewardship and collaboration. A circular approach

can be used, to integrate Richmond’s natural capital assets into the corporate financial accounts, providing economic value for ecosystems services as a means of supporting future growth and identifying innovative solutions, exploring their synergies, and highlighting how they fit into the current financial accounting. Consequently, Richmond’s natural ecosystems and green infrastructure can be increased by implementing innovative nature-based solutions to enhance economic activities and ecosystem services to the community. Additionally, Richmond’s green infrastructure and community and household yards can increase regenerated natural areas that can be integrated into Richmond’s Ecology Network.



EQUITY FOCUS

Ensure that natural ecosystems and ecological services benefit all Richmond residents by promoting resource use without compromising their availability for future generations.

1. MAXIMIZING ECOSYSTEM SERVICES

ACTIONS		TOOLKIT	RESOURCES
1.1.	Promote a comprehensive, multi-level regulatory and support framework to facilitate a shift towards sustainability and circularity in ecosystem management		
1.1.1.	Integrate assessment opportunities as a means to identify cultural, market and technological barriers that limit the development of a circular economy.		•
1.1.2.	Advocate for system-level policy measures based on outcomes of the assessments.		••
1.2.	Advance the value of Richmond’s natural capital assets		
1.2.1.	Conduct a natural capital assessment to identify Richmond’s natural ecosystem inventory and services.		•••
1.2.2.	Integrate natural capital assets and the ecosystem services they provide into the City’s decision making and the corporate financial accounts, providing economic value for ecosystems services as a means of supporting future growth and identifying innovative solutions, exploring their synergies, and highlighting how they fit into the current financial accounting in a standardized way.		••



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

• LOW

•• MEDIUM

••• HIGH

1. MAXIMIZING ECOSYSTEM SERVICES

ACTIONS		TOOLKIT	RESOURCES
1.2.3.	Maintain a soil management procedure(s) that identify opportunities for sustainable urban development, while enhancing soil health and fertility.	 	•
1.3. Promote nature-based solutions			
1.3.1.	Explore opportunities to foster the development of contemporary landscapes and architecture that incorporates natural and living materials while optimizing the use of land through policies, measures, and actions that promote their use.	   	••
1.3.2.	Collaborate on the promotion of climate-regulating solutions associated with local micro-climates and soil water retention through the use of vegetated landscapes.	  	•••
1.4. Build capacity and raise awareness about the value of ecosystem services to the City			
1.4.1.	Collaborate with educational institutions and community partners to launch projects aimed at discovering community-based solutions and opportunities for re-wilding Richmond's green spaces and landscapes.	  	••
1.4.2.	Develop tools to encourage households and businesses to adopt practices that support the preservation and improvement of natural ecosystems.	  	••
1.4.3.	Promote revitalization of Richmond's green spaces by establishing projects in collaboration with other senior governments and nonprofit organizations.	   	••
1.4.4.	Maintain an environmental improvement grant program to provide resources to community members and organizations to facilitate ecological improvements.	  	•••



Terra Nova Rural Park

 POLICY + REGULATION	 INNOVATION, PILOTS + INITIATIVES	 INCENTIVES	RESOURCES
 COLLABORATION + PARTNERSHIPS	 ADVOCACY	 OUTREACH + CAPACITY BUILDING	• LOW •• MEDIUM ••• HIGH



2

REGENERATIVE FOOD SYSTEM

Foster an agricultural and food production system that rehabilitates and enhances soil productivity, water management and fertilizer use.



2. REGENERATIVE FOOD SYSTEM

Foster an agricultural and food production system that rehabilitates and enhances soil productivity, water management and fertilizer use.

Richmond holds a central position in regional food production, from agriculture to extensive community gardens to post-secondary education to the food processing industry. Although Richmond has become a diverse city, agriculture remains a crucial part of the economy and a significant land use. The Richmond Local Food Map 2022 shows the wide variety of local produce and seafood directly available from producers and merchants, as well as Farmers' Markets to showcase food and local artisans. Approximately 4,993 ha of Richmond's land base, or 39% of the City, is within the Agricultural Land Reserve (ALR). The amount of land in the ALR has remained relatively stable in the last 30 years. The 184 farms reported in the 2021 Census of Agricultural recorded gross farm receipts of \$66.1 million, with an average of \$305,820 per farm. This is an increase from \$57.8 millions by 189 farms in 2016, \$48.6 million of gross farm receipts reported by 211 farms in 2011, \$40.5 million of gross farm receipts reported by 172 farms in 2006, and \$37.6 million of gross farm receipts reported by 182 farms in 2001.

In April 2021, Council adopted the Farming First Strategy, a long-range strategy that includes policies to guide decisions on land use management of agricultural land, enhance public awareness of agriculture and food security issues, and strengthen agricultural viability in Richmond. The themes, objectives and policies contained in the Farming First Strategy are a result of a multi-phase process, which included a review of existing policies and practices in Richmond, best practice research from other jurisdictions, and input from the

City's Food Security and Agricultural Advisory Committee (FSAAC) and Richmond residents. Richmond's food system is essential to the well-being of communities, and a robust and resilient food system supports community health, environmental sustainability, and economic development. It is imperative to keep the food system's transition to resource-efficient strategies.

The Garden City Lands is a remarkable open space in Richmond's Agricultural Land Reserve. It is situated in a transition zone between a rapidly growing urban area on three sides and a large natural and agricultural area to the east. The Park Development Plan includes 16 hectares of agricultural land. In most of the farming zone, the public will have access to trails that can also be used for farm service. The Lands can play a significant role in supporting key outcomes, such as showcasing the City's unique landscape, food, arts, and culture.

To support research, the city provides Kwantlen Polytechnic University (KPU) with access to two parks. There is an 8ha farm on the Garden City Lands operated by KPU's Department of Sustainable Agriculture. Around 2.6ha of this farm is actively farmed by students enrolled in the four-year degree program. On the South Dike Agricultural Lands, KPU's Richmond Farm School operates intensive agriculture activities on incubator farms for new farmers. On both sites, cover crops are planted in large portions of the fields to nourish the soil and to promote the population of beneficial insects.

WHY CIRCULARITY IS IMPORTANT?

Even though the current food system has supported a rapidly growing population and fueled economic growth, productivity gains have been environmentally costly. The Future of Our Food System by the Province of British Columbia predicts that the current agricultural and food system will reduce food self-reliance in the region from 48% to 36%. Given the production technology available today, over half a hectare of farmland (0.524 ha) is needed to produce the food for one person for one year. Considering existing production technology based on the linear economy, to maintain the current level of food self-reliance through to the year 2025, the farmland with access to irrigation will be required to increase by 92,000 hectares or 49% over 2005 levels, and farmers will need to increase production by 30% over 2001 levels. Richmond's food system also faces many challenges, including pressure to urbanize the ALR, rural/urban conflicts, high land values, the economics of farming servicing and infrastructure limitations. Often the potential impacts of urban-based decisions on the industry are not studied.

Circular solutions positively enable the entire food system to benefit both local communities and the economy by increasing productivity, creating added value and improving profitability while responding to the many unique

regional contexts. The adoption of sustainable and circular practices that mimic natural functions can increase the crop production per unit area of soil while regenerating soil health, and increasing biodiversity, including the use of agroforestry and multi-cropping within the city limits. The circular economy approach also provides a broad range of actions for supporting a Richmond closed nutrient cycles to reduce the dependency and consumption of chemical fertilizers and reduced food waste. Combining the principles of circular economy with inclusion, collaboration, innovation and sustainability, is possible to improve the farm-to-fork resource-efficient food chain with shorter value chains and a lower ecological footprint. We can rethink how and where we grow food and support the local food production in household and community gardens throughout Richmond, increasing the local self-reliance of the organic food consumed in Richmond. Enhancing collaboration based on circular principles between all actors in the food systems, the City can support existing and new community partners and non-profit organizations to provide programming and educate Richmond residents on the importance of local food systems and local food hubs.



EQUITY FOCUS

Promote access to food for all residents and make Richmond's food systems more resilient. A circular food system can be made sustainable by rethinking investments and innovations to avoid increasing food production costs. As an essential contributor to the local economy, the circular approach increases collective capacity and effectiveness, fosters community involvement in food-sharing platforms and initiatives, and monitors access to organic, healthy food options.



2. REGENERATIVE FOOD SYSTEM

ACTIONS		TOOLKIT	RESOURCES
2.1	Establish a nutrient and resource flow inventory for Richmond's food system		
2.1.1	Conduct a comprehensive assessment of Richmond's food system to determine nutrient and resource flows, prioritize opportunities for improving food production and soil productivity, and establish interconnections between different growing practices to ensure a consistent flow of healthy nutrients for all residents.		••
2.1.2	Collect and analyze data to identify the potential and challenges in enhancing sustainable food production in urban areas to meet local demand for nutritious and healthy food, utilizing different plant cultivation methods in compact spaces.		••
2.2	Shorten the food chain from the farm to the fork		
2.2.1	Promote the direct relationship between farmers, food producers, residents and stakeholders.		•
2.2.2	Encourage a preference for locally sourced food in food service establishments.		•
2.2.3	Encourage the implementation of vertical farming in industrial lands and other urban areas.		••
2.2.4	Provide residents with information about local food suppliers with circular menus and organic farming practices.		•
2.2.5	Monitor the affordability of circular food options for consumers and track access to healthy food products for low-income households.		•
2.3	Increase local food production		
2.3.1	Establish a comprehensive urban agriculture program that incorporates community gardens, green spaces, backyard gardens, and cultivation on City-owned lands. Assess opportunities for the use of rooftops for urban agriculture.		••
2.3.2	Collaborate with residents and key stakeholders to enhance food production in community and household gardens.		••
2.3.3	Innovate practices that support the creation and engagement of a community-based food-sharing platform and initiative.		••
2.3.4	Promote education initiatives to increase understanding and awareness among residents about the benefits of using local and seasonal produce to prepare nutritious meals.		•



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

• LOW

•• MEDIUM

••• HIGH

2. REGENERATIVE FOOD SYSTEM

ACTIONS		TOOLKIT	RESOURCES
2.3.5	Collaborate with local businesses to provide residents with information on local food production and Richmond community benefits.		•
2.4	Reduce food waste in all the food chain		
2.4.1	Minimize food waste throughout the entire food chain by supporting the establishment of circular food marketplaces using both physical spaces and digital platforms.		•
2.5	Reduce the need of chemical fertilizers and pest control while increasing land productivity		
2.5.1	Inspire farmers to adopt regenerative agriculture practices and utilize nature-based solutions to increase agricultural productivity per unit area of soil, enhance biodiversity, and improve cost-benefits.		••
2.5.2	Advocate for the adoption of regenerative agriculture regulations and practices using nature-based solutions in agricultural activities in the Province, including the use of agroforestry and multi-cropping within the city limits.		••
2.5.3	Advocate for access to funding for regenerative farming programs for local farmers.		••
2.5.4	Promote the implementation of nature-based solutions to increase circularity in the food system, and closing nutrient cycles which have reduced the consumption of chemical fertilizers and reduced food waste in all supply chains.		••
2.6	Build capacity and raise awareness among the food system industry and stakeholders		
2.6.1	Support existing and new community partners and non-profit organizations to provide programming to educate Richmond residents on the importance of local food systems and regional food hubs.		••
2.6.2	Develop a toolkit for an educational program in the K-12 curriculum on Richmond's agricultural and food system to raise community knowledge to identify community-based solutions to increase food security, prepare nutritional meals using local food production, reduce waste along the food chain and increase household nutrient recovery.		••
2.6.3	Support training opportunities for local food producers on circular economy practices for farming and businesses.		•
2.6.4	Support local academic institutions to increase professional training in sustainable farming and circular solutions for the agricultural and food system.		•

 POLICY + REGULATION	 INNOVATION, PILOTS + INITIATIVES	 INCENTIVES	RESOURCES
 COLLABORATION + PARTNERSHIPS	 ADVOCACY	 OUTREACH + CAPACITY BUILDING	• LOW •• MEDIUM ••• HIGH



3

RESILIENT AND INNOVATIVE ECONOMY

Empower cross-sector businesses in the adoption of circular strategies in their business practices.



3. RESILIENT AND INNOVATIVE ECONOMY

Empower cross-sector businesses in the adoption of circular strategies in their business practices.

Richmond has a strong and diversified local economy with a stable base of employment and economic opportunities. In 2022, more than 13,000 businesses employ 130,000 people in various sectors, including aviation, manufacturing, agrifood production, clean technology, tourism and logistics. There are 1.35 jobs for every resident worker in Richmond, making it a major employment center for the region. Employment lands in Richmond include 4.9 million square feet of office space and over 45 million square feet of industrial space.

Guided by the Resilient Economy Strategy, the City and stakeholders support local businesses and foster the conditions that enable key sectors to grow and become more resilient to economic and environmental change.

Approximately 37% of all jobs in Richmond are located on industrial land, but vacancy in the region is at an all-time low with limited options for new development. This lack of industrial space poses a challenge for the retention and expansion of key industries; however, this is also driving efforts to optimize the use of existing land by the private and public sector. This includes the City of Richmond's Industrial Land Intensification Initiative. A series of bylaw and policy changes were adopted by Council in 2021 to encourage more intensive utilization of existing industrial land and reduce barriers to multi-level and other innovative forms of industrial developments.

The Supply Chain Resiliency Program was undertaken in partnership with the City of Surrey, Township of Langley and the BC Tech Association to gain a more in-depth understanding of regional manufacturing activities which can lead to further industrial efficiencies across jurisdictions and sectors. This program also encourages technology adoption by manufacturing businesses to help them become more resilient to challenges such as the shortage of space and workers, and supply chain disruptions.

The City continues to seek ways to help businesses maximize the use of resources and adopt circular economy practices into their operations. For example the City partnered with FoodMesh, a Vancouver-based company that facilitates food redistribution, to develop the Richmond Food Recovery Network. This platform enables local food businesses to divert their unsold surplus food from waste streams to higher value uses. Fifty-nine organizations participated in the first year of the program, which resulted in the diversion of 414,555 kg of food from waste stream and the creation of 644,800 meals for those in need. For this initiative, the City won the 2021 Community Project Award from the British Columbia Economic Development Association.

WHY CIRCULARITY IS IMPORTANT?

It is possible to implement circular strategies from multiple perspectives and increase business collaboration to achieve common goals through joint solutions. By optimizing resource consumption, businesses can access cheaper resources, reduce waste handling costs, and increase competitiveness. The circular economy brings opportunities to localize supply chains and build local economic growth, employment and labour forces. An Ontario study estimates that increasing the province's waste diversion rate to 60% would create nearly 13,000 new direct and indirect full-time jobs. Since this

estimate is based on a waste-diversion strategy only, the full employment potential of a comprehensive circular economy strategy could be much more significant.

Richmond's businesses can benefit from circular economy strategies by creating a collaborative Circular Innovation Hub, which will foster innovation to develop sustainable products as a service and enable better business solutions to close the material loop.

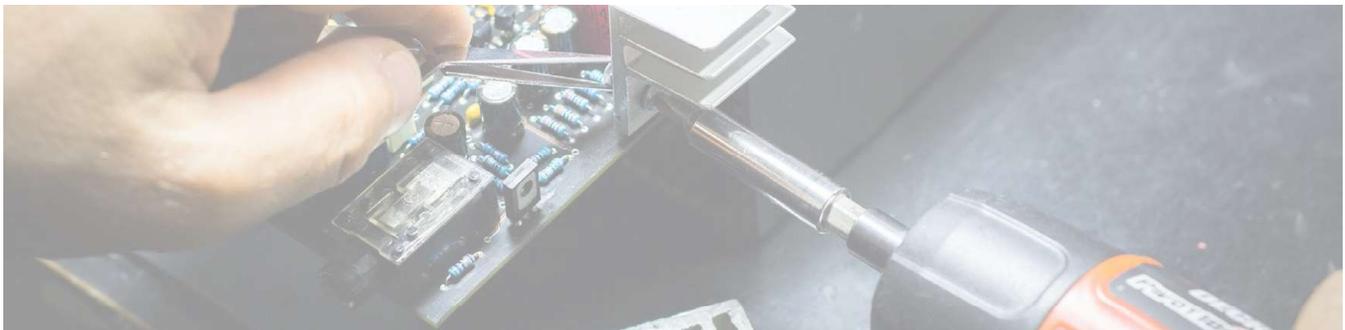


EQUITY FOCUS

The circular economy for sharing, repairing and offering second-hand products needs to diversify consumers' opportunities and make consumer goods more accessible to residents, especially those who have less to spend.

3. RESILIENT AND INNOVATIVE ECONOMY

	ACTIONS	TOOLKIT	RESOURCES
3.1.	Strengthen Richmond's business sector by fostering sustainable growth through circular practices		
3.1.1.	Conduct a technical review of regional legislation to identify opportunities, barriers and gaps to successfully implement circular practices in Richmond's commercial and industrial sectors.		••
3.1.2.	Analyze business material metabolism to identify opportunities to maximize efficiency and symbiotic resource use.		••



POLICY + REGULATION	INNOVATION, PILOTS + INITIATIVES	INCENTIVES	RESOURCES
COLLABORATION + PARTNERSHIPS	ADVOCACY	OUTREACH + CAPACITY BUILDING	• LOW •• MEDIUM ••• HIGH

3. RESILIENT AND INNOVATIVE ECONOMY

ACTIONS	TOOLKIT	RESOURCES
3.2. Increase businesses' resilience and innovation with circular strategies		
<p>3.2.1. Create a Richmond Circular Hub for innovation to support entrepreneurs, ventures and businesses as they develop circular strategies and business applications, including initiatives such as:</p> <ul style="list-style-type: none"> • Support local businesses to integrate new circular strategies in all their supply chain by developing innovative solutions and local pilot projects; • Promote the development of circular business models in business sectors by advocating for changes to regional regulations and policies; • Develop guidelines to help SMEs implement circular business models in strategic areas; • Facilitate the sharing of workspaces, accommodations, equipment, tools, transportation, and materials between businesses; • Build industry synergy and develop more resource-efficient loops. 		
3.3. Develop a circular framework which aligns with the sustainable development goals		
<p>3.3.1. Explore the opportunity to work with local and senior governments to enhance legislation to accelerate the transition of regional markets to a circular economy.</p>		
<p>3.3.2. Work with interested municipalities to promote circular sharing over ownership and minimize the risks related to the business.</p>		
3.4. Encourage synergies and collaboration in the local market		
<p>3.4.1. Collaborate in the development of a virtual B2B marketplace that links waste streams with product inputs as by-products, facilitating material flow throughout the city and region.</p>		
<p>3.4.2. Encourage businesses to assess opportunities for regenerative, nature-based products and to promote sharing, reusing models to utilize materials at their optimum levels for as long as possible.</p>		
<p>3.4.3. Engage and collaborate in regional projects, case studies, and initiatives to support co-creation of innovative solutions in a pre-competitive environment.</p>		
3.5. Build capacity and awareness among businesses and stakeholders		
<p>3.5.1. Collaborate with industry, academic institutions and interested municipalities to support capacity building in businesses and stakeholders adopting circular strategies.</p>		
<p>3.5.2. Develop a communication strategy to raise awareness and educate residents about using materials and products in a circular way and improving relationships with local businesses that do the same.</p>		
<p>3.5.3. Participate in regional and international events to identify new opportunities for circular products, technologies and approaches.</p>		



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

● LOW ●● MEDIUM ●●● HIGH



4

SHARED MOBILITY

Explore and support a shared transportation and mobility system.



4. SHARED MOBILITY

Explore and support a shared transportation and mobility system.

A city's life depends on mobility and access. Everyone needs to get to work, live, play, and access health care, recreation, shopping, and cultural activities. Greenhouse gases (GHGs) emitted by cars, light and heavy-duty trucks accounted for 57% of Richmond's total emissions in 2017. Cars account for about 54% of all trips in Richmond. Approximately 69% of all trips take place within Richmond. The average trip length in Richmond is 14.2 km by transit, 8.8 km by car, 4.5 km by bicycle, and 0.9 km by foot. Council endorsed the Community Energy and Emissions Plan 2050 in 2022, aiming to ensure 90% of Richmond residents live within 400 metres (5-minute walk/roll) of transit and no more than 1,600 metres from a neighbourhood mobility hub. Additionally, the Plan aims to facilitate electrical mobility for all residents and businesses in Richmond, with expanded options for charging at home,

work, and on the go for personal electric vehicles, electric car-share, e-bicycles and e-scooters. To contribute to a future where transportation is shared, affordable, and carbon-free, the City introduced its app-based pilot program in Richmond in May 2022. The Richmond Green Ambassadors worked with the City to develop a new outreach program to promote electric vehicle awareness among youth. The outreach program, known as the Richmond EVie Lesson Toolkit includes lesson plans for both kindergarten to grade seven students and one for grades eight to 12. In 2020, the Richmond Active Transportation Network provides nearly 80 km of bicycle and walking routes, including on-street routes, off-street greenways, and multi-use paths (excluding unpaved dyke trails). Up from 65 km at end of 2014.



Bike Lane on No3 Road and Saba Road

WHY CIRCULARITY IS IMPORTANT?

There are many improvement opportunities for a circular mobility system. The dream of owning a personal vehicle is no longer an attractive one. People can access the things they need - space, products or transport - in new ways. Our experience during the COVID-19 pandemic taught us that a practical way to reduce travel is to provide hubs at regional and local levels, shared and virtual offices, workplace flexibility, e-learning options, and telecommuting. This can be through sharing rather than owning, connecting people to their neighbours and communities, or through product-as-a-service contracts.

Mobility planning can employ circular economy strategies in several ways of sharing models that optimize material use to minimize waste, reduce miles traveled, and cut costs. Shared mobility services, carpooling, ride-sharing, and public transportation can be used to reduce energy consumption and the number of vehicles on the city's roads. The adoption of a circular strategy can also contribute to a new form of urban social infrastructure enabling collaborations between people, ideas and connecting places.



EQUITY FOCUS

Circular interventions in the mobility strategy can reduce Richmond's carbon emissions while expanding access to jobs and enabling participation in the community. The adoption of enablers and addressing risks will ensure social equity and prevent people from being left behind. Moreover, vulnerable communities may be targeted for provision of an accessible, affordable, and effective multi-modal mobility structure.

4. SHARED MOBILITY

ACTIONS		TOOLKIT	RESOURCES
4.1	Calculate the mobility material intensity and resource efficiency		
4.1.1	Conduct an extended input-output analysis to assess the environmental footprint of Richmond's mobility sector, understanding the sector demands of resource flows and the generated environmental impacts.		••
4.2	Reduce the use of virgin materials and material footprint in the mobility system		
4.2.1	Reduce the generation of e-waste from infrastructure and low carbon vehicles by supporting to implement batteries and electric vehicles within the region.		•••
4.2.2	Collaborate with industry partners and other local governments to increase the amount of recycled materials that are utilized in the construction of roadways, sidewalks, and pathways as well as other mobility infrastructures in Richmond.		•
4.2.3	Investigate energy harvesting technologies in Richmond areas with high transit.		•



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

• LOW

•• MEDIUM

••• HIGH

4. SHARED MOBILITY

ACTIONS		TOOLKIT	RESOURCES
4.3	Facilitate the implementation of an integrated mobility sharing vehicles infrastructure and “mobility as a services” solutions		
4.3.1	Develop a communication strategy to raise awareness and educate residents about using vehicles, transit and sharing infrastructure.		•
4.3.2	Collaborate with TransLink and other mobility providers to connect Mitchell Island and other island areas to be fully integrated by transit, shared vehicles and mobility-as-a-service options to reduce the need of use personal cars.		•
4.3.3	Plan and implement mobility-as-a-service pilots as part of Mobility Hubs throughout the city.		••
4.3.4	Support educational opportunities to assist residents in choosing circular options of vehicles.		•
4.3.5	Advocate for the Province to introduce new options of low carbon mobility beyond pilot projects.		•
4.4	Reduce distances by increasing access to co-working spaces, digital solutions and virtual services		
4.4.1	Assess the provision of affordable co-working spaces in Richmond where residents, entrepreneurs and students can access remote work services and e-learning programs through land use policy tools.		••
4.4.2	Assess the opportunity to increase shared spaces in the City’s community centres and library branches, as well as other strategic facilities in Richmond, where residents can access online for digital meetings, remote work, and e-learning opportunities.		••
4.4.3	Advocate for low cost, high-speed internet access for all neighborhoods and communities in Richmond.		•
4.5	Support continuous improvement in the local logistic system		
4.5.1	Incorporate innovations and digital business solutions to address urban logistics challenges as part of transportation planning.		••
4.5.2	Advocate for the creation of a regional logistic reverse strategy that enhances the movement of goods and reduces costs and environmental footprint.		•



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

• LOW

•• MEDIUM

••• HIGH



5

ADAPTIVE BUILT ENVIRONMENT

Maximize the optimal use of construction materials and buildings, infrastructure, and land.



5. ADAPTIVE BUILT ENVIRONMENT

Maximize the optimal use of construction materials and buildings, infrastructure, and land.

Richmond is the fourth most populated municipality in the Greater Vancouver area. Between 2016 and 2021, the City's population grew by approximately 11,628 people (5.9%), the fifth-highest overall growth after Surrey, Vancouver, Burnaby, and Langley Township. There is a significant need for infrastructure development and creates opportunities for transformation. In Canada, the built environment is one of the most extensive user of raw materials and energy consumers and the most critical contributor to waste streams by weight. A total of 3.4 million tonnes of construction material is disposed of in landfills annually in Canada, resulting in an estimated 1.8 million tonnes of embodied carbon. The construction sector is an essential part of Canada's economy. It generates nearly 7% of the country's GDP and employs approximately 7.5% of the workforce. It is estimated that Canada will need to invest over C\$1.6 trillion in infrastructure between 2016 and 2040. An anticipated 230 billion square meters of new construction will be built within the next 40 years—doubling the current global floor area.

While the City's Demolition Bylaw for single-family units is a step in the right direction to divert 70% of waste from landfills, more emphasis needs to be placed on shifting focus from downstream waste management to upstream resource flow management to ensure sustainable growth and prosperity for the expanding population without relying on virgin resources.

Richmond's growth functions within a larger regional ecosystem, transforming from a source of carbon emissions into a carbon sink through the development of new buildings,

as planned in the Community Energy and Emission Plan 2050. Refurbishing buildings and reusing the materials they were built will be a new normal. We can use circular economy to rethink how Richmond can sustain its growth by using materials more efficiently. That is a massive change for big industry strategies. The next and most challenging step is for economic structures and institutional behaviour to move away from the traditional construction industry and toward a circular low carbon industry. In June 2018, Council adopted into Richmond's Building Regulation Bylaw the BC Energy Step Code requirements to reduce greenhouse gas (GHG) emissions from the buildings sector. The BC Energy Step Code is a provincial standard that provides an incremental and consistent approach to achieving more energy-efficient buildings, intending to construct net-zero energy-ready buildings by 2032.

The City wholly-owned Lulu Island Energy Company implements and operates district energy systems throughout Richmond to provide space heating, cooling, and domestic hot water heating services to connected developments. Through the use of locally-sourced renewable energy sources such as geo-exchange and sewer heat recovery technology, these district energy initiatives are projected to reduce greenhouse gas emissions by over one million tonnes by 2050. Richmond's city centre is a planned growth area, where 70% of new residential development is occurring, resulting in several thousand new housing units a year in the area. These new homes are connected to the Lulu Island Energy Company low carbon energy services.

WHY CIRCULARITY IS IMPORTANT?

Buildings have improved in energy efficiency and liveability over the last few decades. Still, today’s built environment continues to rely on linear ‘take-make-dispose’ models. Over the last several decades, efforts have focused mainly on waste diversion and, to some degree, resource recovery. Despite advances in downstream strategies, little has been achieved in upstream circular strategies, such as using circular inputs and a product-as-a-service approach. A variety of opportunities are emerging throughout the life cycle of buildings and infrastructure that drive the adoption of circular business practices. Several industries and critical stakeholders in Richmond are becoming more aware and interested in circular economy solutions.

When applied to a sector of high growth, such as the built environment, circular economy approaches represent an enormous opportunity for boosting secondary materials markets by offering high-quality products for new construction and renovation projects in Richmond and its

region. By using circular business models and collaborative partnerships, buildings in Richmond can be more sustainable by implementing innovative products and technologies to enable maximum material re-use and longer building life and keep materials at their highest intrinsic value. Implementing appropriate instruments to monitor the City’s material flow, embodied carbon and the resource footprint of buildings and infrastructure can ensure resource efficiency throughout the construction lifecycle. The transition to a circular economy will involve innovative strategies that enable both current and new buildings to be used flexibly and perform more efficiently. Using circular principles in the design, operation, and maintenance of built assets can allow for higher adaptability, use of renewable, recycled materials, and thorough deconstruction at the end of its useful life. Such thinking can be seen as a natural extension of the holistic approaches already applied by architects, engineers and planners.



EQUITY FOCUS

Circularity in the built environment can support affordability of living and working spaces, as well as strengthen support for all residents and workers.

5. ADAPTIVE BUILT ENVIRONMENT

ACTIONS		TOOLKIT	RESOURCES
5.1	Assess the material usage in the built environment		
5.1.1	Conduct a material flows analysis and an urban metabolism assessment to identify opportunities and priorities for improving the overall circularity of Richmond’s built environment into a circular economy.		••
5.1.2	Collect data that create a database that contains information about the flow of construction materials available in Richmond’s region, including embodied carbon-related data, to support the development of Richmond’s Construction Material Strategy.		••
5.1.3	Collaborate with other local governments to develop a detailed map of Richmond’s social and ecological boundaries, outlining its strengths and weaknesses.		••



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

• LOW •• MEDIUM ••• HIGH

5. ADAPTIVE BUILT ENVIRONMENT

ACTIONS		TOOLKIT	RESOURCES
5.2	Regenerate materials flow by promoting salvage and secondary-use materials		
5.2.1	Promote the use of secondary and recycled materials in the construction of new buildings and infrastructure.		••
5.2.2	Develop strategies to retain resource value in the region and develop Richmond's salvaged and reclaimed material market.		••
5.2.3	Promote refurbish options to extend lifetime of buildings and infrastructure.		••
5.2.4	Advocate for strengthening the construction industry's ability to use reclaimed components and materials.		•
5.2.5	Advocate for the development of a local and regional hub for reclaimed material from deconstruction.		••
5.3	Develop sectoral capacity and skills		
5.3.1	Assess local needed circular skillsets and knowledge to support new green employment opportunities in the building retrofit sector.		••
5.3.2	Work with local partners and municipalities to identify circular best practices in the built environment.		•
5.3.3	Develop suitable instruments to monitor the City's material flow, embodied carbon and resource footprint of buildings and infrastructure to ensure resource efficiency throughout the construction sector's life-cycle.		••
5.4	Promote the use of new materials and develop research and pilot projects		
5.4.1	Advocate for a regional Circular Construction Hub to develop new techniques for circular constructions and pilot the use of recycled materials in the renovation and construction of new buildings and infrastructure.		••
5.4.2	Promote the use of low-emission concrete and asphalt pavement or alternatives to concrete and asphalt pavement in City and development projects.		•
5.4.3	Support the circular design for adaptability, and modular housing and buildings to implement circular strategies, such as replacing aging components more easily.		•
5.5	Promote circular standards for constructions		
5.5.1	Advocate for the adoption of the extension of buildings and infrastructure lifetime supported by Total Cost of Ownership or Life Cycle Assessment methodologies.		•



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

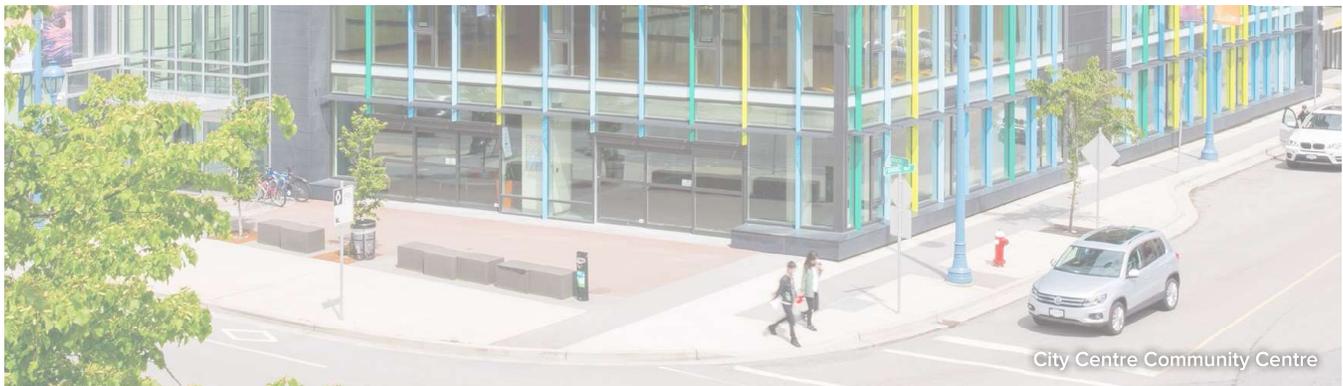
• LOW

•• MEDIUM

••• HIGH

5. ADAPTIVE BUILT ENVIRONMENT

ACTIONS		TOOLKIT	RESOURCES
5.5.2	Undertake technical studies to assess the feasibility of implementing policies and regulations that promote the use of innovative, renewable, and low-carbon materials where opportunities exist.		•••
5.5.3	Collaborate with regional and national organizations to improve construction material data accuracy and quantity to support material flow analysis and circular strategies.		•
5.5.4	Advocate for regional and provincial standards (i.e. building code) to include circular economy requirements.		•
5.5.5	Support the integration of buildings and infrastructure with green infrastructure and natural ecosystems to reduce maintenance and material use throughout the lifecycle.		••
5.6	Collaborate to create joint value		
5.6.1	Partner with other organizations to develop a hub database of sustainable, renewable and recyclable construction materials that can be used in successive life-cycles and have low embodied carbon content.		••
5.6.2	Create a collaboration network of building managers who implement circular economy principles in building operations to share their experiences.		•
5.6.3	Collaborate with regional municipalities to identify common circular approaches, common goals, and procurement templates that can be used in the built environment.		•
5.7	Integrate zero carbon energy solution in the built environment		
5.7.1	Promote on-site heat recovery in new developments. City centre, such consideration will occur in partnership with the City's wholly-owned district energy Lulu Island Energy Company.		
5.7.2	Promote the on-site use of renewable energy in new and existing buildings and infrastructure, such as solar energy, wind energy, heat recovery and other innovative zero-carbon solutions.		



	POLICY + REGULATION		INNOVATION, PILOTS + INITIATIVES		INCENTIVES	RESOURCES
	COLLABORATION + PARTNERSHIPS		ADVOCACY		OUTREACH + CAPACITY BUILDING	• LOW •• MEDIUM ••• HIGH



6

CONSUMER MATERIALS MANAGEMENT

Promote the efficiency of consumer product development,
manufacturing, and end-of-life.



6. CONSUMER MATERIALS MANAGEMENT

Promote the efficiency of consumer product development, manufacturing, and end-of-life.

Richmond is well-positioned to support the transition to a circular economy thanks to its comprehensive recycling programs and residents' commitment to diverting waste from landfills. As a result of the City's sustainable waste management programs, household items can be reused, repurposed, and recycled multiple times into new products. In 2021, residents diverted 79.3% of their waste from landfills through various programs, including curbside and centralized collection programs and convenient, one-stop recycling services at the Richmond Recycling Depot, which is open seven days a week and continues to accept a variety of items.

The Recycling Depot collected 7,581.56 tonnes of recyclable materials in 2021. In its Rethink Waste campaign, the City also encourages community members to reduce waste overall by reassessing buying decisions and extending product lifespans. Adopting the Single-Use Plastic and Other Items Bylaw No. 10000 was a key achievement. In order to introduce Bylaw 10000, a comprehensive community engagement campaign was conducted, which included working directly with businesses, and educating the public and promoting the use of reusable items. The City expanded its use of online outreach to host its first virtual Repair Fair focused on repairing and maintaining gas lawnmowers.



WHY CIRCULARITY IS IMPORTANT?

Between 1990 and 2017, the world population grew from 5 to 7.5 billion people, and global gross domestic product (GDP) per capita increased by 50%. Richmond’s population growth between 2016-2021 was 5.9%. The global annual material consumption per capita grew from 22 kg in 1990 to 33 kg in 2017 (OECD, 2019). A person’s “ecological footprint” is a measure of how much biologically productive land they require to provide them with resources and absorb their waste. In the last 20 years, the ecological footprint of each Canadian has grown by 15% (from 7 to 8.1 hectares). To support Richmond’s current population using this figure, an area 373 times larger than the city itself would be required. Based on what we know today, recycling is a necessary component of a circular economy, but it should only be

used when there are no other options, such as reusing, refurbishing, remanufacturing, or repairing.

Transitioning to a circular economy involves smarter economic solutions, regulation and practices, and greater behaviour change. Awareness campaigns and initiatives are continually developed as a part of the City’s ongoing efforts to encourage residents to share, repair and reuse items such as textiles, electronics, furniture and other products and materials. In order to decouple economic growth from resource use, increase competitiveness, and boost innovation, the City can stimulate innovation and collaboration among knowledge institutions, businesses, and consumers.



EQUITY FOCUS

In a circular economy, we prevent waste by preserving the value of products, components and raw materials in closed loops for as long as possible, resulting in a decrease in waste. This way we can reduce our impact on the environment without compromising quality. By sharing more, reusing more and repairing more, we will also contribute to a cleaner and more inclusive city.

6. CONSUMER MATERIALS MANAGEMENT

ACTIONS		TOOLKIT	RESOURCES
6.1	Understand the urban metabolism of Richmond		
6.1.1	Assess the city's material flows of consumer goods to help prioritize Richmond's circular economy opportunities.		••
6.2	Promote new circular consumption behaviors and material use		
6.2.1	Use community-based social marketing and educational community programs to inspire behaviour change within the community to encourage the adoption of reusable materials, demonstrate how residents may benefit from the circular economy and how they can support local businesses.		••



POLICY + REGULATION



INNOVATION, PILOTS + INITIATIVES



INCENTIVES

RESOURCES



COLLABORATION + PARTNERSHIPS



ADVOCACY



OUTREACH + CAPACITY BUILDING

• LOW •• MEDIUM ••• HIGH

6. CONSUMER MATERIALS MANAGEMENT

ACTIONS		TOOLKIT	RESOURCES
6.2.2	Collaborate with schools to implement circular volunteer programs to encourage circular economy principles among youth in the community.		••
6.2.3	Develop circular certification programs to create community pride.		••
6.3 Support the urban industry symbiosis by fostering collaborative relationships			
6.3.1	Promote and advocate the creation of a regional co-operation network that develops circular economy-based business models for the textile-recycling ecosystem.		••
6.3.2	Promote tracking material assets and flows by Richmond businesses and stakeholders to maximize the use of existing resources and reduce waste generation.		••
6.3.3	Identify opportunities for synergies with businesses to share data on material flow and waste streams to create closed loop waste and material flows in the city.		•
6.4 Enhance upcycling infrastructure for consumer goods' materials			
6.4.1	Advocate incorporating technical information about recycled materials into a digital library, which would increase knowledge about materials in product design, encourage industrial symbioses and enhance the materials flow in the Richmond area.		•
6.4.2	Pilot a "Reuse Centre(s)" and "Tool Library(ies)" that offers free space for community education, repair events, and circular information dissemination.		•••
6.4.3	Work with residents, commercial business and industry to identify opportunities to generate revenue from waste "by-products".		•••



	POLICY + REGULATION		INNOVATION, PILOTS + INITIATIVES		INCENTIVES	RESOURCES
	COLLABORATION + PARTNERSHIPS		ADVOCACY		OUTREACH + CAPACITY BUILDING	• LOW •• MEDIUM ••• HIGH



IMPLEMENTATION TOOLKIT

The City of Richmond has six tools to facilitate the transition to a circular economy. Each of these tools can be used separately or together when developing and implementing the Strategy's directions and actions. Different elements of the local government "toolkit" can be used, depending on specific toolkit leveraged to advance action, relative jurisdiction or level of control by the City, and resources or investment required.



POLICY + REGULATION

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



INNOVATION, PILOTS + INITIATIVES

Local governments can undertake the development and implementation of research and development projects, pilot projects, studies, measurement frameworks and solution testing that benefit the residents and economy of the City. These enable local governments assess the performance and progress of the circular initiatives and identify what can be improved in the future.



INCENTIVES

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



COLLABORATION + PARTNERSHIPS

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



ADVOCACY

In some areas, local governments have little or no legal mandate to implement policies or programs to accelerate the transition towards a circular economy. In these cases, City Council can make formal requests to the provincial and/or federal governments and their agencies on behalf of Richmond residents for policy changes and/or new regulations to be implemented. The City regularly calls on senior levels of government to take more significant action on sustainability and circular economy issues.



OUTREACH + CAPACITY BUILDING

Local residents and businesses have a crucial role in many decisions that affect the use of resources within Richmond. Local governments can allocate resources to increase awareness and empower economic actors to grow the circular economy and facilitate collaboration.



GLOSSARY

Biodiversity: The diversity of living organisms in an area helps maintain balance in ecosystems by supporting various species, providing resources for humans, and making ecosystems more resistant to natural disasters and climate change.

Biological Capacity: The capacity of an ecosystem to support life, as determined by its ability to absorb waste and provide water, determining how much the ecosystem can support, and when overloaded with waste or overgrazing, it may lead to collapse.

Built environment: The man-made spaces and structures in cities and towns that shape our lives, from the quality of the air we breathe to mental and physical health, economy, and social relationships.

Business material metabolism: It is the process of extracting, using and discarding materials within a business or economy to create new products, including sourcing raw materials for manufacturing processes; distribution routes, use-and-disposal of items; and energy and water consumption throughout this procedure.

Capacity Building: It is the advancement of individuals' skillsets and knowledge to enable them to meet their objectives more successfully.

Circular Economy: An economic system designed to be regenerative by design, which strives to keep products, components and materials at their highest utility and value with minimal raw material extraction, reintroduction of materials already present in circulation, and no waste production.

Circular Economy-based Business: A company operating according to the principles of a circular economy, emphasizing products designed for reuse, repurposing and recycling; emphasizing resource efficiency and reducing waste to lessen production and consumption's environmental impact.

Closed-loop recycling: Reusing and manufacturing a product again into the same item increases resource efficiency by reusing materials in their original form, decreasing landfill waste and conserving natural resources.

Co-creation: The collective creation of something with input from multiple stakeholders, drawing upon collective expertise to generate innovative and resource-efficient solutions that reduce waste and conserve natural resources.

Collaborate to Co-Create: Working collaboratively with multiple stakeholders to develop solutions that benefit everyone and identify new and better ways of using resources, leading to more efficient and sustainable use.

Consumer Materials Management: This field examines the management of materials used by consumers, from their source to use and disposal, creating systems to promote resource efficiency and identifying ways to reduce waste, reuse, and recycle materials.

Consumption Behaviors: Investigate the consumption patterns used by individuals and groups, such as what products and services people choose to purchase and their environmental impact; also, understand how different cultures have different consumption habits and their connection to sustainability.

Co-working spaces: Co-working spaces offer shared workspaces that enable individuals and organizations to work together, offering amenities like high-speed internet, printers, and conference rooms.

Decoupling Materials: It separates economic growth from natural resource consumption, minimizing waste generation and improving efficiency.

Decoupling Materials Use: Reduce the amount of materials used in production while maintaining or increasing productivity, using materials more efficiently, reusing and recycling materials, and decreasing the amount needed to produce goods and services while improving efficiency.

Design for Disassembly: Constructing products, components, and materials so they can be easily disassembled at the end of their usefulness, maximize reuse, repurposing, and recycling potential by creating products whose individual parts and materials can be repurposed again.

Design for Durability: Extending a product's useful life by making it more durable and disassemblable, increasing environmental footprint by using fewer resources to manufacture new items, and reducing waste disposal and recycling costs.

Design with Flexibility in Mind: Use design principles that enable easy space reconfiguration, accommodating changing needs and workflow patterns over time, thus saving on demolition and reconstruction costs when more significant alterations are necessary.

Design for Recycling: Designing products with end-of-life recycling in mind helps minimize materials used, minimizes waste generated during production, and conserves resources. This approach encourages designers to consider end-of-life recycling when creating new items so that components can be disassembled and reused elsewhere or repurposed within one product. Additionally, this reduces the need for new materials while conserving resources during manufacturing.

Design for Repairability: Encourage manufacturers to utilize fasteners, materials and processes that enable products to be quickly repaired or replaced, thus cutting waste and conserving resources using standardized components and replaceable parts to fix broken items promptly.

Design for Sustainability: An approach to product or service design that maximizes environmental and social benefits throughout its life cycle, considering the environmental and social impacts of production, use, and disposal, entangling using fewer resources, conserving energy consumption, and minimizing negative environmental effects.

Design for the environment: Designing products or services to minimize negative environmental impacts throughout their life cycle, considering sourcing, manufacturing, use and disposal; this helps create energy-saving and resource-saving items.

Downstream (downcycling) resource flow: Utilizing secondary materials that have lower economic value and cannot be reclaimed, recycling them into lower-grade products with a lower market value which is not necessarily suitable for reuse or further recycling.

Durability: The duration of time in which a product remains valued or functional. Maximizing the lifespan of a product helps reduce its environmental impact from production.

Ecosystem management: Maintaining ecosystem health and productivity while safeguarding essential ecosystem services for human well-being.

Ecosystem Services: Humans derive many benefits from ecosystems, such as clean air and water, pollination, soil fertility, flood and disease control, and recreation - which are preserved and maintained through ecosystem management.

Embodied carbon: The emissions caused by the production and transportation of a product, including those related to material extraction, manufacturing, and transport; additionally, emissions are caused by energy used during these steps.

End-of-Life: The stage in a product's life cycle when its original owner no longer values it and is disposed of, creating end-of-life emissions such as methane and other greenhouse gases and air and water pollution when not reused, recycled or composted.

Food system: All processes that bring food from farm to table, from production and processing to packaging and distribution - work together to guarantee food availability and safety for consumers.

Footprint: Measure the total environmental impact of human activities on a product or service across its life cycle by evaluating its carbon, water, energy, and material footprints to gauge its ecological effect.

From Farm to Fork: This process involves transporting food from its point of production to consumption, including harvesting, processing, packaging, storage, transportation, marketing and distribution - all to protect and improve consumer health by providing safe and quality ingredients.

Industry Symbiosis: When businesses collaborate to reduce waste and boost efficiency, sharing resources, lowering costs, and increasing profit margins - they create a more sustainable and productive economy.

Innovative Economy: An economic system that emphasizes creativity, collaboration and new ideas to spur innovation in product and service design and develop business models that remain competitive and profitable in the long term.

Learning-by-doing: This approach to education involves engaging in active problem-solving and experimentation to gain a comprehensive grasp of concepts.

Life Cycle Assessment: Examines the environmental effects of a product throughout its entire life cycle, from raw material extraction through manufacturing, transportation, use and disposal - to identify potential environmental harms and ways to reduce them.

Linear Economy: An economic system based on the take-make-dispose model, which prioritizes traditional production and consumption of goods without considering any environmental costs associated with their life cycle, leading to resource depletion, pollution, and waste production.

Low-carbon Economy: An economic system that produces low levels of carbon emissions by minimizing resources used in production, encouraging the reuse of materials and products, and using renewable energy sources and energy-efficient technologies to reduce emissions.

Material Flows Analysis: Examining the material and resource flows within a system to identify potential opportunities for conserving resources, increasing efficiency, and lessening environmental impacts.

Mobility as a Service: it is an integrated platform offering transportation services to reduce unnecessary trips and maximize the efficiency of these processes, thus cutting emissions, traffic congestion, and air pollution while providing convenient and budget-friendly options for consumers.

Mobility System: The interconnected systems that facilitate people and goods movement.

Narrow Material Needs: Minimizing materials needed for a product or process can result in cost savings, increased efficiency, and reduced waste generation.

Natural capital assets: They are the natural resources and ecosystems that provide economic advantages like clean water, fertile soils, biodiversity - essential for human well-being, recreational opportunities, job creation opportunities and local economies.

Natural Ecosystem Inventory: Compile an overview of different ecosystems and their characteristics.

Natural Resources: Naturally occurring materials that can be harnessed for economic benefit.

Nature-Based Solutions: They are solutions that utilize natural processes and ecosystems to address environmental challenges, such as restoring and protecting natural ecosystems like wetlands, and forests, mitigating climate change impacts by reducing water pollution and improving air quality; while providing benefits like biodiversity protection carbon sequestration, flood protection and supporting local economies through sustainable tourism/recreation activities.

Nutrient and Resource Flow Inventory: An inventory of the nutrients and resources flowing through an ecosystem to monitor their sources, sinks, and environmental impacts.

Planetary Boundaries: Scientists have identified physical, chemical and biological limits beyond which human activity may significantly affect Earth's environment. By understanding how Earth works and humans' interaction with it, they can make more informed decisions about using resources responsibly and sustainably.

Recover: Recovering materials from waste as raw materials helps reduce landfill accumulation and conserve natural resources. Recovered materials may be repurposed in their original form or processed for different products.

Recycle: Recycling is an effective way to reduce waste and conserve natural resources. It involves collecting, sorting, processing, and remanufacturing materials into new products. Recycling also saves energy, reduces greenhouse gas emissions, and creates jobs.

Reduce: Reducing waste and pollution can help safeguard the environment while saving resources. Strategies such as minimizing product packaging, using energy-saving appliances and transportation, and opting for products made with sustainable materials and production methods all play a role.

Refurbish: Refurbishing products are an economical way to conserve resources and money by restoring them back to their original condition or improving their appearance or functionality. Refurbishing typically involves fixing or replacing parts without significant alterations, unlike remanufacturing or rebuilding.

Refuse: Refusing unsustainable or unnecessary materials and products helps reduce waste and conserve resources, including using reusable bags and containers, selecting products with less packaging, and avoiding single-use items.

Regenerate: Regeneration is the practice of replenishing natural resources and ecosystems, such as soil, water, and biodiversity. Regenerative practices promote sustainable agriculture, forestry and land use, and help mitigate climate change's effects.

Regenerative by design: it is an engineering strategy designed to create self-sustaining and regenerative systems. This strategy considers a product or system's long-term environmental and social effects, striving to minimize negative impacts while amplifying positive advantages.

Regenerative Systems: Regenerative systems work to restore natural resources and ecosystems while providing economic advantages. They promote sustainable land use, agriculture, biodiversity preservation, and ecosystem health.

Remanufacturing: Remanufacturing involves disassembling, cleaning and rebuilding products back to like-new condition. This process helps conserve resources and money by extending the usefulness of items.

Renewable Loops: Closed loop systems that use renewable resources for production and consumption, thus decreasing reliance on nonrenewable resources.

Repair: Repairing products and materials can extend their usefulness, reduce waste, and conserve resources. Repair may involve correcting minor or significant problems and replacing damaged parts if necessary.

Repurpose: Repurposing products and materials for a new purpose can reduce waste and conserve resources, including using items for different purposes or creatively incorporating them into new things.

Resilient Economy: A resilient economy can withstand and rebound from shocks and stresses. Resilient economies prioritize sustainable practices that benefit communities as well as natural resources.

Resource Loops: Closed loop systems in which resources are reused or recycled, reducing waste and conserving natural resources like energy and raw materials.

Rethink: Reexamining how we consume and utilize resources can reduce and conserve waste, considering both our actions' environmental and social impacts and making sustainable choices.

Reuse: Reusing products and materials can reduce waste and conserve resources, using items multiple times or finding creative ways to incorporate them into new products.

Secondary-use materials: Repurposed or recycled materials that can be put to another use, involving utilizing components from one product in another or finding creative services for them in nontraditional settings.

Social and Economic Growth: Social and economic growth is the increase of goods and services produced over time. Sustainable social and economic development occurs through responsible practices prioritizing people's well-being and the planet.

Symbiotic Resource Use: Symbiotic resource use involves making decisions that benefit multiple parties, including the environment, businesses and communities, and promotes sustainable practices and long-term viability for everyone involved.

Systems Thinking: Systems thinking is an approach to problem-solving that recognizes the interconnected nature of all elements within a system. This requires taking into account interactions and feedback loops between different parts and understanding how changes in one area can have ripple effects throughout the whole thing.

Systems-focused Approach: A systems-focused approach emphasizes the significance of considering the entire system when making decisions or taking action, considering connections and relationships among different parts of the system and considering how decisions affect it as a whole.

Total Cost of Ownership: The total cost of ownership accounts for all costs associated with owning and using a product, such as maintenance, repair, and disposal. By considering this comprehensive picture, consumers can make more informed purchasing decisions that promote sustainability and cost efficiency in the long run.

Upstream (upcycling) resource flow: Upcycling involves using waste materials as inputs for creating higher-value products, helping reduce waste, conserving natural resources, and creating economic value from materials that would otherwise go unused.

Urban Metabolism Assessment: An urban metabolism assessment involves examining an urban area's material and resource flows. This helps identify patterns and trends in resource use as well as waste generation, which can inform strategies for more sustainable and efficient resource usage.

Vertical Farming: Vertical farming is an agricultural practice in which crops are grown vertically stacked layers, often in a controlled environment. This technique permits the year-round production of crops while conserving water and other resources through hydroponic or aeroponic systems.

Virgin Raw Material: Virgin raw materials refer to materials that have never been used or processed before. These often come from nature and can have significant environmental consequences, such as habitat destruction and pollution. We can reduce these impacts while conserving natural resources by using recycled or repurposed materials instead of virgin raw materials.



The Strategy is a guiding approach for the City and Richmond stakeholders to update and strengthen policies, strategies and plans that support the regional innovation ecosystem. This Strategy will contribute to implementing circular principles in alignment with City policies, strategies and plans. It will also encourage stakeholders to adopt or update their circular economy strategies, plans, and measures.

The transition to the circular economy in Richmond will be systemic, deep, and transformative. It will sometimes be disruptive, but it will always be fair. It will require alignment and collaboration of all stakeholders at all levels - local, regional, national, and international.

The Strategy is guided by six directions and 84 actions to set Richmond on a path to becoming 100% circular. The Strategy will facilitate Richmond to move toward a circular economy, improving economic and environmental outcomes by continuously pausing, rethinking and acting to reuse, remanufacture, and recycle resources, materials, and nutrients.

RICHMOND CIRCULAR CITY STRATEGY

APRIL 2023



Public Consultation

As part of the consultation process in the fall of 2022, as endorsed by Council in October 11, 2022, various engagement activities were conducted to gather the community and stakeholders' input on the proposed Richmond Circular City Strategy (the Strategy). Engaging activities included:

- **Stakeholder Engagement Workshops:** In-person and online workshops that guided participants through the proposed Strategy's directions and actions allowing stakeholders to share their ideas and feedback. A total of 65 stakeholders attended the November 23, 2022, in-person workshop. Additional online focus groups were engaged.
- **Let's Talk Richmond:** The project ran from November 15 to January 8. It received 814 visitors, of which 170 completed and submitted the online survey.
- **Social Media Campaign:** A social media outreach effort was undertaken to engage with stakeholders through the City's Twitter, Facebook, and Instagram channels. The campaign reached over 10,000 individuals.
- **Advisory Committees:** Staff carried out presentations on the Strategy to the Advisory Committee on the Environment, Economic Advisory Committee and Food Security and Agricultural Advisory Committee. The Committees' members were invited to provide feedback on the Strategy by the Let's Talk Richmond or by email (circulareconomy@richmond.ca).
- **Virtual Engagement:** The Strategy was emailed to 150 stakeholders with a PDF form to provide feedback. This allowed staff to collect a wide variety of input from stakeholders and to identify the most effective strategies for moving forward with the proposed Strategy.
- **Visual Communications in City's Facilities and Infrastructure:** The use of visual communications, such as posters and brochures, in community facilities and ads in transit shelters helped to create awareness about the Strategy and increase public participation in the process of providing feedback.

The community learned about the Strategy during the engagement activities and provided feedback on specific issues. A review of the content of the directions and actions was conducted to assess the relevance of the content and to identify any actions or considerations that could be included in the Strategy to support individual and organizational priorities better. Bringing the community into the process of developing the Strategy provided staff with insight into the community's opinion of the content and the importance of the actions and considerations tailored to the community's needs and priorities. The feedback obtained from the stakeholders was used to refine further the draft Strategy directions and actions and performance framework and ensure the Richmond Circular City Strategy is aligned with the goals and priorities of the City and its stakeholders.

Stakeholder Engagement Workshops

In the workshops, stakeholders were provided a platform for expressing their views, sharing their experiences, and giving feedback. It was imperative to ensure that all stakeholders thoroughly understood the Strategy and its components before making decisions. Participants were also encouraged to share their perspectives and feedback.

Table 1- Workshops

Modality	Number of stakeholders	Date	Focus groups
In-person	65	November 23, 2022	See list below
online	20	November 9, 2022	UBC community
online	4	December 2, 2022	Tourism Richmond
online	8	December 6, 2022	Urban Development Institute
online	15	December 14, 2022	Circular Cities and Regions Initiative

In the workshops, stakeholders were provided a platform for expressing their views, sharing their experiences, and giving feedback. It was imperative to ensure that all stakeholders thoroughly understood the Strategy and its components before making decisions. Participants were also encouraged to share their perspectives and feedback.

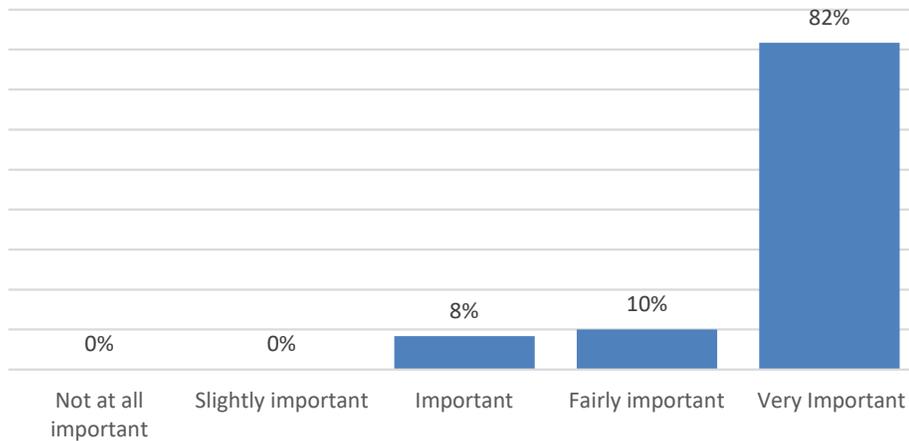
A presentation of the Strategy was given to all participants three weeks before the workshop who had been sent the digital copy by email. An overview of the Strategy, including six directions and 84 actions, was provided in the presentation, followed by questions and answers. During the in-person workshop, participants were divided into six smaller groups, facilitated by City staff, and supported by visual materials. All participants provided feedback using Mural's digital canvas during the online workshop in one unique group.

As part of the visual materials in all the workshops, key questions were included to guide the discussion and encourage participants to provide feedback on the six directions and 84 actions in the Strategy. A variety of open-ended questions were designed to encourage participants to provide detailed responses. To ensure that all participants had an equal opportunity to participate, the questions were intended neutrally and impartially, avoiding leading or biased ones. Moreover, the questions were designed to be accessible, avoiding technical language and ensuring that all participants could provide meaningful answers regardless of their background or expertise. Participants were asked to determine if the Strategy was relevant to their interests, identify any gaps or opportunities they perceived, point out barriers, and suggest additional actions and solutions in implementing the Strategy.

All participants felt heard and valued due to the transparent and participatory workshop activities. The facilitators encouraged each participant to share their perspectives to ensure active participation. The feedback gathered during the table discussions was documented.

Visual materials were created to support the table discussions, making it easier for participants to understand and respond to the questions. A visual presentation helped keep the conversation focused and on track, ensuring all participants could offer feedback. Below is the summary of the stakeholders answers.

Q1. How important is the RCCS to you? Why?

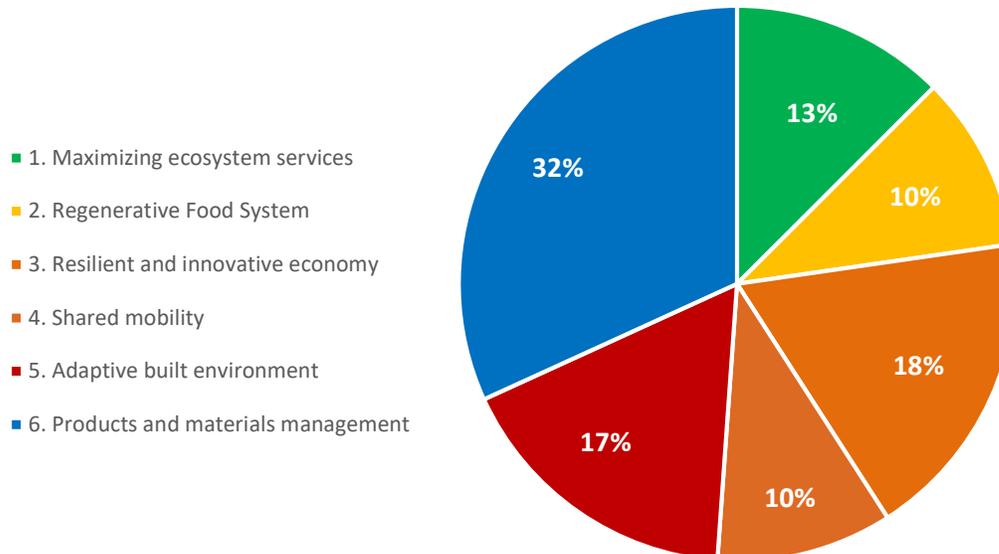


The answers to Question 1 show that the vast majority of workshop participants (82%) consider the circular economy Strategy very important, with an additional 10% considering it fairly important and 8% important. The main reason for this strong support is that participants recognize the following advantages:

- **Sustainability and Climate Resistance:** Participants expressed the importance of obligation for sustainable development, focusing on climate resistance. The Strategy supports the goals of the CEEP 2050, which aims to reduce greenhouse gas emissions and adapt to climate change. By taking action, the City sets an excellent example for other local governments and supports the transition to a sustainable future.
- **Economic and Business Considerations:** Participants noted that the current linear model is unsustainable and that shifting towards a circular economy is necessary to adapt to the climate challenge. They emphasized that this shift is critical for businesses to stay in operation and that moving to a circular model could lower costs and enhance economic vitality.
- **Educational and Community Benefits:** The workshop participants believe that educating and influencing future world leaders is crucial to becoming proper stewards of the Earth's resources. The Strategy can enhance the community's knowledge and resources and promote better practices for the environment. Additionally, the Strategy teaches regenerative approaches to resource use, moving from a mindset of scarcity to abundance. It can promote a sustainable future by working with the environment instead of against it.
- **Collaboration and Stakeholder Engagement:** Participants emphasized the importance of collaboration and stakeholder engagement in achieving a circular economy. The Strategy provides a guiding framework that aligns goals across the City and with other organizations. All stakeholders must work together towards a common goal that benefits everyone.
- **Infrastructure and Accessibility:** The Strategy can increase convenience and accessibility for recycling and collecting recyclable materials. By normalizing repurposed materials, and making recycled materials more accepted in new developments and constructions, the Strategy can promote reuse and reduce dependency on non-renewables.
- **Intergenerational Relationship and Future-Proofing:** Participants recognized the importance of considering all stakeholders in the process, including future generations. They stressed the need for future-proofing strategies to ensure resources are available for future generations to experience the richness of our current environment. Better educating kids about limited natural resources can promote a livable future for all.

- **Financial Benefits:** The Strategy can save the City money by reducing waste and promoting the more efficient use of resources. By creating a hub for materials where C&D waste can be reused, the City can reduce the cost of landfill waste. Furthermore, the strategy can inform consumer behavior and help members conduct their operations more sustainably, including packaging and EPR.

Q2. Which of the 6 directions are most relevant to you?



Participants in the workshop identified "Products and materials management" as the most relevant direction. However, it is crucial to note that this does not mean the other five directions are unimportant. As a result, stakeholders realized that they needed a better understanding of the opportunities and options for implementing circular approaches in the other strategic directions. While the identified priorities provide a starting point for action, Richmond will need ongoing engagement and exploration in all directions to advance the circular economy. To achieve meaningful progress, stakeholders recognized that they must continue to explore and collaborate on strategies that promote circularity in all six directions, ensuring an effective and equitable outcome of all actions requires ongoing engagement and dialogue between stakeholders.

Q3. Can you explain why those directions are relevant to you or your organization?

As part of this process, stakeholders were asked to explain why the six directions of the strategy (Maximizing Ecosystem Services, Regenerative Food System, Resilient and Innovative Economy, Shared Mobility, Adaptive Built Environment, and Products and Materials Management) are relevant to them or their organization. This information was collected and analyzed to understand stakeholders' perspectives and help refine the proposed implementation actions and targets. The following are stakeholders' answers:

1. Maximizing Ecosystem Services:

- Supports the growth and expansion of businesses that implement strategies to optimize ecosystem services
- Addresses issues such as climate change, water management, wildlife management, and pesticide education

2. Regenerative Food System:

- Focuses on improving food security and quality
- Supports sustainable agriculture practices
- Creates value chains for responsible food consumption and production

3. Resilient and Innovative Economy:

- Promotes innovation and being a leader in the economy
- Provides training opportunities for business and leadership students
- Encourages the growth of social enterprises
- Offers incentives for corporations to prioritize environmental impact in their manufacturing
- Supports large corporations in their efforts to work within the circular economy

4. Shared Mobility:

- Aims to provide equal access to services offered in Richmond without barriers
- Supports reducing dependence on cars and promoting walking/transit
- Recognizes the impact of mobility on businesses, especially concerning parking
- Integrates city planning with the circular economy.

5. Adaptive Built Environment:

- Implements regulations, demo projects, and procurement policies to support an adaptive built environment
- Encourages the use of climate change adaptable products
- Addresses the issue of landfills, intending to reduce waste in landfills
- Supports the building of structures near distribution centers for increased efficiency
- Adapts to the changing norm of variability in the environment
- Focuses on core service areas, such as the consulting firm

6. Products and Materials Management:

- Prioritizes the efficient management of materials and products in the market
- Recognizes the limited resources available on the planet
- Supports the use of recycled materials in construction
- Encourages the use of 100% recycled steel and the use of recycled materials
- Works towards repurposing end-of-life products for continued use
- Collaborates with stakeholders on the reuse and repurposing of equipment
- Bans products that cannot be recycled
- Prioritizes convenient collection as part of city planning

Mapping circular opportunities for actions

Brainstorm – What actions / materials should we focus on?

The goal of the question "What actions/materials should we focus on?" is to identify any gaps or areas where additional focus may be necessary to advance the circular economy in Richmond. The expectation was to gather insightful and practical suggestions from stakeholders, which can be used to refine the proposed strategy and ensure its effectiveness in promoting a circular economy in the community.

1. Materials:

- Concrete
- Plastics
- Steel
- Alternative materials

- Food waste
- Shingles
- Lumber
- Recycled concrete
- Recycled asphalt pavement
- Renewed petroleum-based products
- Micro plastics

2. Actions and Regulations:

- Policies requiring use of recycled concrete
- Bylaws requiring minimum use of recycled concrete in construction
- Partnering with developers and builders to research and implement new construction methods
- Extended producer responsibility for all products
- Banning artificial fertilizers and pesticides
- Regulating that builders should not harm the environment
- Incoming material reduction (curb consumerism)
- Peat land conservation
- Green tech EU (ban pesticides)
- Waste management – create throw-away limit and communicate it
- Auditing capacity process of recycling bylaws
- Harmonization, particularly with neighboring jurisdictions
- Bylaw or regulation to promote / prioritize recycled concrete in roads/parking lots (base)
- Banning single-use items
- Banning products that cannot be recycled
- Bylaws allowing recycling depots where population density is high (residential + ICH)
- Planning departments mandated to plan for end of life material collection
- Green procurement
- House moving as preferred policy option
- Relocating houses to create affordable housing
- Designing for deconstruction
- More pilot projects to test solutions
- Future liability of sending materials to be recycled
- Create a re-use market

3. Communication and Education:

- Stakeholder engagement and onboarding
- Public awareness for consumers
- Youth engagement in education
- Education and curriculum in the school system
- Education and advocacy
- Re-educating and re-marketing sustainability
- Financial Incentives and Collaboration:
- Funding to support innovation projects
- Financial incentives + re-use of recycled, repurposed materials
- Convention to bring businesses/organizations together with circular economy values
- Two-prong policies (1) fosters innovation (2) incentivizes repurposed/after market
- Reuse, repurpose programs with suppliers

4. Energy and Transportation:

- Moving away from fossil fuels to electricity
- Change pricing structure
- Heat pumps
- Electrification of transit
- Change City center heating system from natural gas to biomass
- Improving public transportation
- Investing in renewable energy sources

5. Nature and Environment:

- Natural asset inventory to valuation to ensure nature is considered in decision-making
- Plant perennials in roadways
- Model perennial ecosystems/pollinator habitat
- Food forest
- Withhold business license for wasters
- Increasing access to green spaces

6. Leadership and Engagement:

- Leadership by example – City of Richmond needs to enforce procurement of green/recyclable product
- Staff engagement with business leaders in circular economy related operations
- Coordination with other municipalities
- Speed up license processes
- Repaired vs repaired
- Reuse, repurpose programs with suppliers

Priorities – What are the actions / materials we should prioritize?

- Ensure pilot texting and use of recycled materials.
- Food hub: bring people together to increase food literacy, security, access, advocacy and sustainability.
- Waste Management: Lifecycles and CO2, Nitrogen.
- Land conservation: Peat, soil, shoreline, waterways.
- Engaging with developers.
- Alignment within procurement City departments.
- Education, consumer awareness and youth education.
- Harmonization between cities, municipalities, regions, etc.
- Speed up permit/licencing for companies that support City of Richmond circular economy priorities.
- Specification
- Requirements
- Re-educate people/optics & language.
- Creating a reuse market.

Stakeholders – Who else should be involve?

1. Government bodies:

- City Council and Mayor
- City staff engineers, policy makers
- Federal and provincial funders (ex NRCAN)
- Province of BC

- Government of Canada
- All levels of government
- Municipal governments
- Regulators and MMCD
- Provincial Government to write new regulations
- City municipal environmentalists
- Policy makers
- Public health authorities

2. Business sector:

- Food retailers
- Food processors
- Business sector (private)
- Chamber of Business/Community
- Business associations
- Consultation with business community throughout process
- Manufacturing and rebuilders
- Supplier companies
- Buyers for raw materials

3. Community groups:

- Community members
- Indigenous people
- Community organizations
- Urban Development Institute
- Non-profits
- David Suzuki Foundation
- Public

4. Agricultural sector:

- Growers (gardeners, farmers)
- Agriculture Community (ALC, Farmers)

5. Education sector:

- Educational institutions
- Educators
- Post-secondary instructors
- Students

6. Environmental organizations:

- Environmentalists
- Engineers

7. Waste management:

- GFL (Waste management)
- Waste sector

8. Other:

- Urban planners
- Association of engineering
- United Nations SDGs
- Standards organizations
- More events like this
- Sector specific workshops
- Renewal
- Un-builders
- Rebranding producers, government retail buyers
- Optics industries language surrounding recycled products
- Re-use market – City councillors facilitate/create programs

Barriers – Why has it not be implemented yet? Which obstacles can be removed?

The answers represent the various obstacles and challenges stakeholders believe are preventing the implementation of the proposed actions. The answers provide insight into the challenges faced and can be used to identify areas for improvement and remove obstacles in implementing the Strategy.

1. Financial barriers:

- Financial risk
- Financial incentives
- Funding
- Cost
- Economic feasibility
- Cost pushed to consumers
- Low cost of dumping mixed waste
- Project budgets does not allow for significant innovation
- Funding
- Cost and legislation

2. Knowledge and Education:

- Lack of knowledge of new procedures
- Education
- Re-educating - cost and time

3. Regulations and Policies:

- Liability
- Lack of legal support
- Permit for land / space
- Policies need to be adaptive, amendable
- Vancouver demo costs penalties and not high enough
- Recycled concrete aggregate not allowed in specifications for construction aggregate
- Need policies and regulation

4. Stakeholder Involvement:

- Lack of participation
- Too many stakeholders
- Stakeholders leading, steering forward adaptation
- All done informally by organizations
- Convenience - consumer culture, hit of momentum - dopamine - TikTok
- Mindset for second hand market

5. Perceptions and Attitudes:

- Perception (public, private, government)

- Lack of understanding
- Attitudes to behavioral patterns
- Long held beliefs

6. Logistics and Capacity:

- Land access
- Capacity
- City processes + capacity
- Cost of trucking often Vancouver Island to mainland

7. Technical Challenges:

- So many materials require experts
- Existing buildings being held to current building codes
- Specifications

8. Mindset and Beliefs:

- Fear of failure
- Overwhelm
- Climate exhaustion/brief
- Cultural differences
- Acceptance
- Mindset of City staff/workers
- Perceived or real liability of the solutions
- Reuse market - time and profit
- Re use - finding channels to provide to the public

Solutions – How do we remove these barriers?

Policies and Regulations

- Policies that require the use of recycled materials
- More restrictive policies – manufacturing / production
- Banning certain products to our ecosystem
- Landfill bans
- Waste audits and fines
- Ban non reusable products and packaging
- Government requirements to change current policies and processes - Initiated at the RFP stage
- Update policy and legislation

Education and Awareness

- Educating on importance the why for consumers
- Education
- Awareness why is important
- Education + marketing

Incentives and Funds

- City of Richmond grants
- Apply to MVDR board for sustainability innovation funds
- Grants, funds- student budget
- Tax rebates
- Carbon offsets
- Slate of carbon tax credit
- Incentives to change mindset, help businesses adopt while fulfilling bottom line.

- Incentives to use refurbished products for a project, in the tender documents
- Closer credit fees or reimbursable
- Higher minimum standard

Process and Procedure Improvements

- Flexibility in permit approval process
- Identify short term, easy, high benefit projects (< 12 months) and do it!
- Establish an application process for innovative pilot projects
- Faster + better permits processing
- Agreement templates (interphase between private + private).
- Application templates
- Dedicated City resources (staff) to be involved for period of time
- Streamline move permit process
- Expedite relocation permits or conditional demo permits
- Decouple demolition / building permit when relocating

Tools and Resources

- Circular economy toolkit
- Resources to help businesses/vendor meet circular economy goals

Communication and Marketing

- Clear communication
- Visual awareness campaign or messaging
- Intentional with the language so it's accessible to youth, institutions
- Further promotion of Richmond being an environmental leader/ambassador public pride

Land Access and Space

- City land
- City allows roof areas for food production/ gardens pilot projects

Deconstruction and Relocation

- Deconstruction as a RZ / DP consideration
- Deconstruct rather than demolish
- Make deconstruction + relocation of homes the norm not the exception

Specifications and Standards

- Specifications
- Performance over prescription specification
- City municipalities + geotech need to specify recycled product

Consumer Behaviour

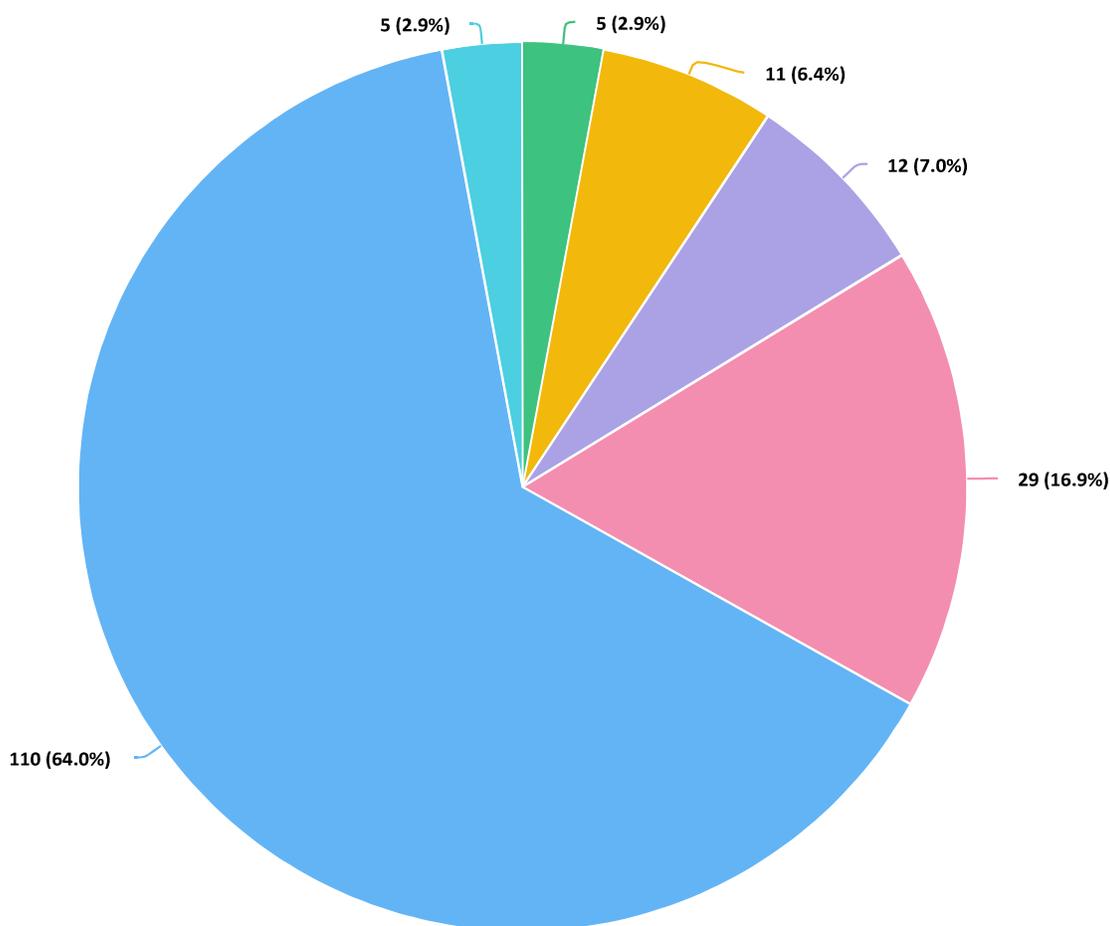
- Changing consumer behaviour
- Communicate why
- Green procurement

Let's Talk Richmond Survey Results

Let's Talk Richmond conducted an online survey to gather input from stakeholders and the general public on the Richmond Circular City Strategy (the Strategy) and to identify potential actions to include in the Strategy. The survey focused on proposed six directions and 84 actions. The survey included one closed questions and one open questions in each direction. Most respondents are committed to making lifestyle changes that positively impact the environment, although convenience is still a factor when it comes to buying behaviours and habits.

Direction 1 - Maximizing Ecosystem Services

How important is Maximizing Ecosystem Services to you?



Question option

● Not at all important ● Slightly important ● Important ● Fairly important ● Very important ● No opinion

What actions would you add with respect to Maximizing Ecosystem Services?

1. Reduction of concrete jungle on #3 Road
2. Reduce, Reuse, Recycle.
3. More protection of mature tree canopy with multi-family developments
4. Indigenous community input must be incorporated into the assessments and solutions

5. City Council needs to hire a biologist to give them good advice. Right now, their policies do not consider the environment enough. Think about the giant trees cut down in Steveston Park
6. I think the implementation time frame is too long.
7. Not sure how to answer this without knowing examples of ecosystem services.
8. More community farms
9. Integrating social values and increasing transparency.
10. This is a total waste of time and my tax dollars. Do you not have anything better to do with your time?
11. How about fixing our broken medical system, the housing shortage, feeding the needy, replacing the massy tunnel with bridge, building up our dyke system etc.
12. Collect more fruits and veggies that cannot be consumed to become the enzyme
13. Increasing biodiversity through increasing wildlife and pollinator friendly habitat (less lawn wastelands on public spaces), and cleaning up our waterways. The water around industrial areas is still horrific, particularly south of Mitchell Island.
14. Urban truck gardens and or community food gardens, perhaps as part of large scale housing projects and urban parkland example as in Japanese cities
15. The most important for me is to support local and consume local produce. The local produce is always as per the weather and provide you with best nutrition without compromising your health and reducing the carbon footsteps.
16. Get rid of ditches and stagnate water with proper modern drainage to reduce unsightly and mosquito-infested areas in Richmond.
17. Any actions taken should come out of the budget, not adding expenses to it, and not to be paid for by the taxpayer.
18. Good initiatives, however take it small steps at a time
19. From No 5 Rd east it has become a realtors dream to sell off Westminster Hwy .looks like it's working well for them.
20. No 5 Road to No 9 Road needs a cycle trail Rice mill to Dyke Road ramp; Williams reconnect the gap.
21. Rebuilding the dikes higher will accomplish this.
22. Analyze the impact of population growth in Richmond when trying to Maximize Ecosystem Services.
23. Dont raise my taxes
24. We need more access to green spaces with the intention of urban farming, urban beekeeping, etc.
25. The city should also invest in renewable energy sources. Such as solar, wind, and a wastewater treatment plant with the intention of powering the city.
26. More trees, flourishing plants, and protecting the greenery we have.
27. Build less, it is that simple
28. Plant many, many more trees.
29. These are all good overarching goals, however, do we have any realistic and concrete timelines for areas of improvement around the City?
30. Stop building massive homes on rich farmland. Make the area of building to a maximum of 3000 sq ft with a maximum 2 stories to allow for sun to reach all farmable land.
31. Ensure all high rises built have to have areas of vertical farming
32. We must build around existing trees not tear them down to accommodate building design (ie Steveston community center rebuild).

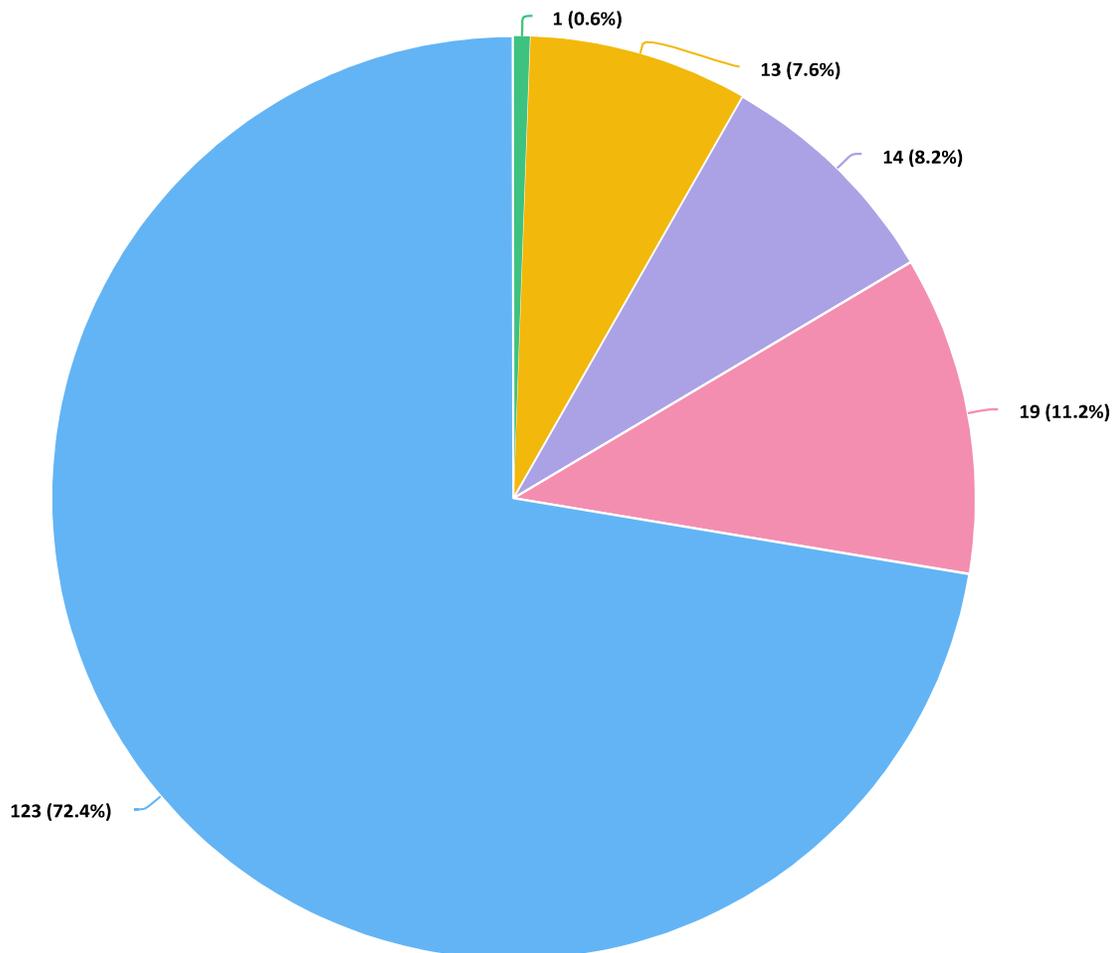
33. Go into schools and teach children, they will influence their parents.
34. I think already pretty comprehensive
35. Nothing comes to mind.
36. Revitalize covered water streams
37. Be aware that need for planning for further growth as well as developing an ecosystem for today. Townhouses, condos are being built on almost every major street in Richmond. WE NEED THE INFRASTRUCTURE TO SUPPORT THIS GROWING POPULATION.
38. A better definition of what ecosystem services is.
39. Stop building monster houses; stop allowing houses to sit empty; stop cutting down trees for lame excuses; stop tearing down houses for no reason; stop allowing people to own property that don't live here and stop allowing short term rentals (i.e. air bnb).
40. Flood protection needs to be the top priority. Raise the entire dike, mandatory superdike new developments, raise River Rd, raise min FCL, reinforce all main culverts, and establish robust and redundant pump stations.
41. Create "oasis" like environments to mitigate impact of heat waves in urban concreted centers.
42. Too much of this sounds like World Economic Forum policy that will punish citizens if they fail to meet the moving goal posts of their communist ideology.
43. Improving public transit and walkability in our city's streets. Less car traffic will cause less damage to our local trees and wildlife.
44. Educate the public. Too many are oblivious to environmental impacts of poor decisions. Need to educate people WHY this is important.
45. This is a good start. Must be careful not to run into unintended consequences though. Damaging important services by protecting ecosystems. For example, hindering existing commercial/industrial zones and the employment/economy that comes with them.
46. I just copied and pasted these: revitalization pilot projects? Design solutions? Capital assessments? Plain English please.
47. Embed ideas in curriculum; give students opportunity to learn/participate early in their school life
48. Teach horticulture in primary grades. Let the children set up farmers markets and sell their products. (Norway does this)
49. Preventing contamination and encouraging remediation of ecosystems.
50. Check the reviews from "Richmond News from the Editor" on the proposed Richmond Circular City Strategy
51. Under promoting design solutions I would add that existing areas be reviewed and a more circular approach be applied to them. Reduction in paved surfaces, more natural drainage, etc.
52. Speaking on behalf of an Arts organization, the Community Arts Council of Richmond, I think art is very intertwined with nature, compassion, empathy, and many values that hold up harmony and balance. If partnerships include some consideration of the arts, whether it is for 1.4 on promoting behavioural changes or collaboration on pilot projects, I see tangible benefits for Richmond.
53. Work with education and research institutions in creating innovative and integrative approach to building awareness.
54. Identify areas for active, ongoing removal of invasive species coupled with planting of native understory and canopy species. As well, discontinue planting trees which require supplemental watering during summer droughts, and instead plant species which are already adapted to our wet/dry cycles.
55. Add many information and education sessions for the population. I have only seen this by chance in the Richmond Sentinel

56. The city should offer-rent free a warehouse with a paid manager to accept/pick-up/store and deliver donated goods. Other charities try to do this for refugees, people who are burned out or suffer loss from flood or other catastrophes but no one has cartage or storage. If the city donated a warehouse and a paid manager (supported by volunteers) we could not only prevent tons of household furniture and goods going to the landfill, we could take care of our neighbours when they are in need, and we could support new Canadians. Multiple baby boomers are down-sizing every month and lovely furniture is being discarded by relatives, heirs, or seniors who do not have a way of recycling. I know about Richmond Cares/Richmond Shares but try and get them to pick up or deliver anything and it's been a challenge for years. Every so many years there could be a sale of goods that haven't moved to re-coup some of the city's expenses if need be but the reduction in goods going to the landfill would be enormous!
57. I strongly support considering more nature-based solutions, such as restoring parts of the pre-colonial wetlands in areas where that is possible, to protect against increasing climate-related flood hazard.
58. Expose more to the public about these projects
59. Involve stakeholders and listen to their input.
60. Add in the concept that providing greater density housing on land that is already used for housing is the most ecologically sound approach. Valuing ecologic priorities over other priorities risks amplifying the housing crisis.
61. Recycle as much as we can, especially when old things are replaced with new things.
62. In the future, proposals for resource extraction and developments in ecologically-sensitive areas should require quantification of losses in ecosystem services.
63. Support local business. We help cut carbon every day through the lack of freight.
64. Ensure we maximize sustainable use of our rich agricultural soils.
65. Establish policy to compel developers to contribute to a fund supporting this.
66. When a residential property is redeveloping, all of the top soil is removed and replaced by sand and a much smaller layer of topsoil is added. You can see the effect during the summer as the lawns on these properties are more parched than the lawns of the original homes.
67. Everything in this list is a no-brainer and should have been in the agenda decades ago. But I'm curious about the Nature-based Solutions with respect to expanding wetlands to absorb flood waters. This is obviously not in the current plan. Massive expensive diking is. I have suggested this very idea to council and managers at the city and was met with a line. Again, it's a no-brainer and an idea I've suggested is to extend the a railway street ditch deep into Richmond to make a canal, to let water out before a flood but otherwise be a pleasant bike route along a waterway full of kayaks, etc.
68. Keep in mind home owners living on property with old trees that are too big for their lot size and are potential hazards for surrounding homes. They should not be restricted or bound by the "Maximizing Ecosystem Services" from trying to manage these hazards.
69. Develop an ecosystem plan that has a stated objective for why and what is being maximized. For example, maximize wetlands - species to be improved and what the benefits are.
70. I just feel that we need a lot more green space. With all the heavy densification that has taken place in the core, there is just not enough green space, trees etc. being established. If you took away our dyke paths, the city, has become sadly lacking in parks considering all the population that has moved here. We lost all the beautiful green space where the Richmond Oval is. Now it's a huge costly ugly behemoth, surrounded by ugly buildings. All the community gardens were taken away, as well as the only R.V. park we had. Where are the replacements for all the trees taken out for this? Also where was the green roof that so many believed should have been at least done at the Oval?
71. Nothing to add. Appreciate the possibilities noted in 1.4 regarding community partnerships and promoting behavioural change.
72. Stop building on our wetlands and allowing dumping of hazardous materials on ALR.

- 73. Natural asset management is key and should be a priority. Participating in the Natural Asset Management Institute is generating standards, a community of integrated practices, and support for municipalities would support shared learning.
- 74. Emphasizing the first point- supporting ways to overcome barriers to a circular economy. Supporting local innovative solutions, whether private, non-profit, or public.
- 75. Communicate with residents so they understand the issues. Identify neighbourhoods to pilot projects.
- 76. Stop allowing developers to chop down trees. In other municipalities - West Vancouver and New Westminster, for example, this is not permitted.
- 77. Deliver on promises; deliver on proposed directions and actions; no more dithering, grandstanding, and lack of funding excuses.
- 78. The native tree program that was piloted this year was very special and in line with the values of the City's circular city strategy. Any ways to expand this and other programs that strengthen our biodiversity and stock of native flora is great.

Direction 2 - Regenerative Food Systems

How important are Regenerative Food Systems to you?



Question option

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

What actions would you add with respect to Regenerative Food Systems?

1. Promote CSA (Community Supported Agriculture)

2. This sounds great in theory, but there are huge concerns about the affordability of this pillar - this will fail unless you match other prices.
3. Reduction of fertilizers and protect ground water.
4. Immediately stop development of any kind on farm land and rescind all permits issued to date to prevent the further loss of farm land. Promote farming with lower taxes on farm land. Allow farmers to grow what is needed not what some government wants grown - not always the same plants.
5. A vegetable garden.
6. Expansion of the Terra Nova Sharing Garden to make sure these foods are available for lower income residents.
7. Do not allow any more mega houses to be built on the agricultural land reserve. Vowed to protect the agricultural land in Richmond. No more special permission to build on land that is needed for farms. Give farmers a break on taxes. Encourage mega home owners to use the land by renting it to local farmers. Educate Richmond residence about farm and wild spaces working together. That means accepting wildlife like coyotes. Education is key to all of this. That goes for the counsellors and city staff too!
8. Eliminate mega mansions on farmland and turn the lands back into actual agricultural lands instead of allowing for loopholes that give tax cuts for building mansions.
9. We need more farmers markets on a permanent basis in the neighbourhoods. And at affordable prices.
10. Increased community garden/plots.
11. Local diverse food availability
12. Protect the ALR and stop the MEGA houses built on the ALR.
13. Understanding the diversity that underpins our global food systems is crucial if we are going to change it.
14. "Another waste of time. Stay out of this and stay in your lane"
15. Ensure agricultural land is only used for agriculture.
16. Ensure more local food is available at regular grocery stores, and not just the weekend farmers market. Local food shouldn't have to be artisan only, with increased prices for artisan products.
17. An idea for shortening the food chain from farm to fork; invest in a co-packaging plant for local businesses to use/share.
18. Lts do it without sacrifice and increase in tax dollar... use only available funds without allocating more from other areas!!!!
19. As above comment. There is too much wasted opportunity for food production around rec centers, parks and housing projects ... too many large lawn space. Reduce grass lawns.
20. All the points are directly to my heart and I totally support the initiative.
21. Natural pesticides consist of heavy metals and should not be used. Famine is not an issue in North America but the dangerous roads with no turning lanes and few green arrows in Richmond is a problem.
22. Create more community gardens and organic composting facilities w/in walking distance of residents.
23. Reallocation of surplus restaurant and supermarket foods to food banks, best before dates notwithstanding.
24. Make it affordable for residents to participate. There needs to be more available land for community gardens in residential neighborhoods.
25. Not too restrictive for farmers or stores, have flexibility on timelines for implementation.
26. Use education: field trips to farms; growing crops and selling them at school fairs (which is part of Norway's curriculum).
27. Fund the farmers, not the corporate grocery sellers. (Westons, Loblaws).
28. It is about time our farmers had help to grow the foods we need instead of importing.
29. I think it is important to maintain the ability to feed ourselves and at the same time not restrict the ability to bring in food from elsewhere. Also important to reduce chemical use as long as we can maintain productivity.
30. Recycle kitchen food waste.
31. Create an incentive for local farmers to keep their own beehives.
32. Create designated greenspaces in collaboration with Indigenous peoples to grow wildflowers and native produce across the city and surrounding area.
33. Education on why this is important, opportunities for communities to eat food grown near them, more farmer's markets, more community gardens and pressure on grocery stores to use local products.
34. Make the farmers farm their land and not build monster house on it.
35. No suggestion at this time.
36. Ban chemical fertilizers entirely.

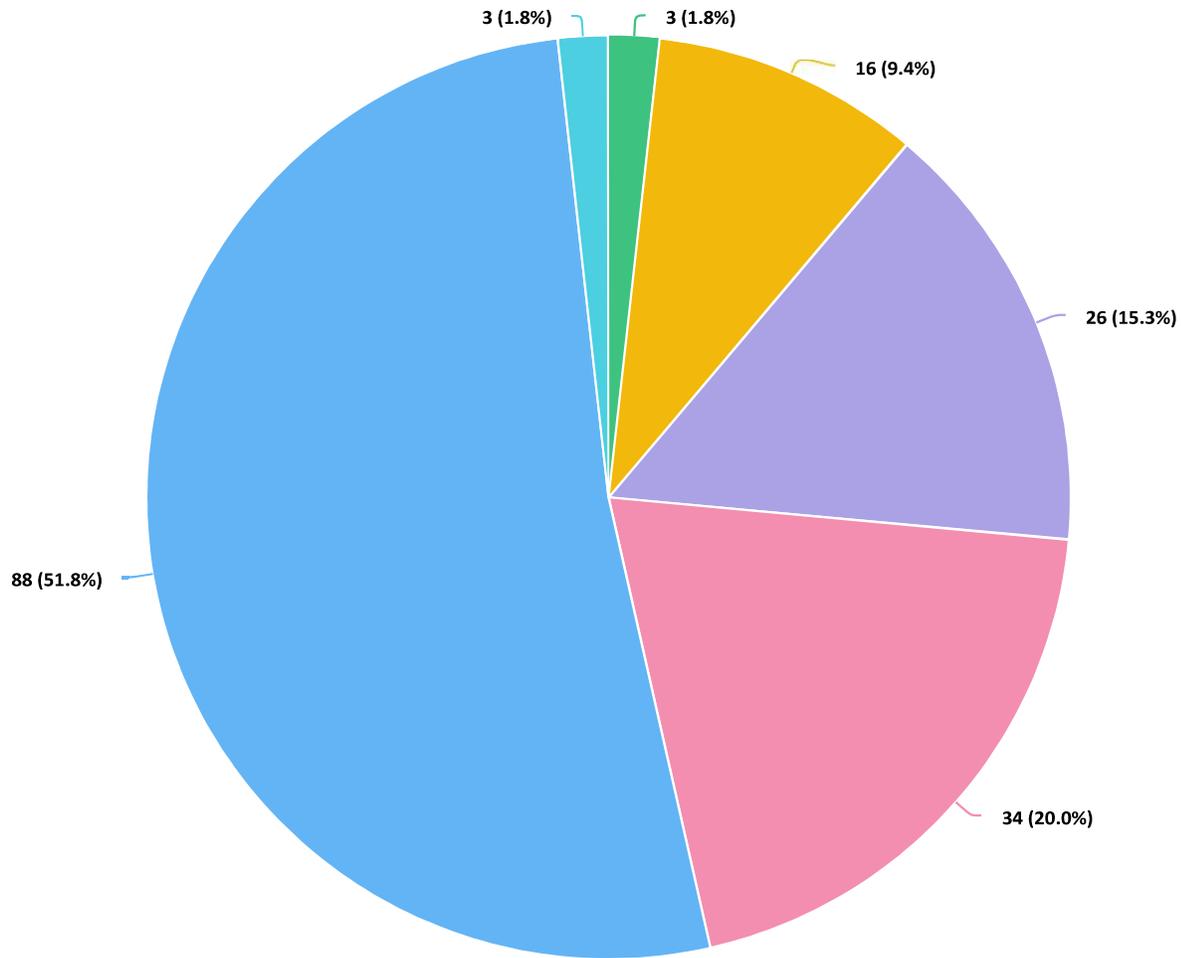
37. Again, how do we plan on "actioning" these goals?
38. Have incentives for organic growing so that organic foods are affordable to all and have farmers provide a portion of produce to foodbanks
39. Surplus food sharing. Have a platform where residents can put surplus food to share with others.
40. Educate retailers about food spoilage. For example, many smaller size supermarkets sell food outside of their stores where there is direct sunlight which can accelerate spoilage.
41. Please clarify.
42. Identify nutrient and resource flows
43. Provide resources for urban farmers such as education, a convenient source of information (similar to the Richmond Let's Recycle app) and provide free or inexpensive dirt from compost that's is currently being collected every week from households
44. A lot of these ideas are stupid. Vertical farming in industrial areas? There is no industrial land now.
45. Look for ways to get the major supermarkets involved in working with local farmers and promoting locally produced food.
46. Facilitate more "backyard food gardening" by permitting residents to strategically remove large trees (especially ornamentals and damaged trees) that cast shade and deplete moisture and nutrients from potential food growing sites.
47. Teaching people how to use their yards to grow vegetables and send volunteers around to help them to get started and maintain their plots.
48. I think the suggested actions are very ambitious already.
49. Enact and enforce much stricter controls over approval and construction of excessively large homes built on ALR land.
50. Bylaw and structure to allow and support growing food in residential (front) yard.
51. Save and retain the land presently designated as agricultural land and strictly enforce this. Have strict regulation of developers.
52. Legalise the operation of cannabis farms if at least 65% is for food and/or medicine production (good food is medicine); this will ensure more land is covered by actively growing crops and more revenue for the city to use for its programs, especially ensuring fair access to affordable & healthy food for all.
53. Reduce food waste by allowing food recycling and redistribution of unused food.
54. Protect farmland.
55. Stop building monster houses. Stop allowing houses to sit empty. Stop cutting down trees for lame excuses. Stop tearing down houses for no reason. Stop allowing people to own property that don't live here. Stop allowing short-term rentals (i.e. Airbnb).
56. Prevent property development on farmland.
57. "Chemical" fertilizers are fine, remove this from your list. Re-locate the farmers market to central Richmond, maybe somewhere on the Garden City Lands block. It is currently inaccessible on the far side of Highway 99, as well the inept plan for a lower capacity and more expensive union built tunnel will have insufficient capacity on the new partial cloverleaf there to reliably access this site. The city should support the stack interchange originally planned to a 10 lane suspension bridge.
58. Continue to promote or actively create "green corridors" for bees.
59. This agenda is completely at odds with the policies of the Liberal government, NDP, Greens, and the WEF that seeks to rid fertilizers from farming. The entire #nofarmersnofood is all about that one issue. Richmond would need to secure its own fertilizer production capability to make any of this work.
60. Make it easier for smaller businesses, such as grocery stores, to open in residential areas of the city. More mixed-use residential buildings by rezoning a lot of our single-family zones to these developments of a commercial unit in the ground level with multiple stories of residential on top. This eliminates the needs for families to always shop at big stores at Costco and Walmart where they always buy bulk goods which sometimes is more than what they actually want.
61. Keep in mind that outdoor growing is not sustainable year round in our climate. Industrial farming should be looked at in all shapes and sizes including indoors which can be power/energy intensive.
62. Do you say stuff like regenerative food systems and food system industry to your mother, grandma, kids? Plain English please
63. Increase opportunities to grow locally in all seasons, offer hands-on workshops.
64. Rotate crops that will replenish the soil, reducing the need to add more nitrogen to the soil.
65. Create systems to provide food systems with clean irrigation water.
66. Investigate water quality in areas of agriculture to ensure long-term sustainability of the industry.

67. Boost the Tuesday Food Market sales of local produce.
68. Look at the addition of incentives for builders/owners to use empty roof areas as locations where food can be cultivated.
69. I'm not knowledgeable enough to know what to do but I do want to get more information so I can do my part
70. Promote honeybee colonies in gardens, maybe.
71. I think there are already some very innovative ideas and projects out there, whether it is to look into vertical farming, urban farming, the Richmond Sharing Farm, or other initiatives.
72. On a personal level, I would love to see more opportunities in this area. Perhaps the promotion of social or youth enterprises in regenerative food systems while we shift away from old ideas about food, money, and waste. In Vancouver Foundation's Youth Policy Program 2022, one of the youth's policy topic is on food waste and food labelling, and one idea mentioned there is that society produce plenty of food, but people still go hungry for economic reasons. Thus, I am reminded that many people in Richmond still rely on the Richmond food bank. Now, I know this section is not talking about poverty and we don't want to get distracted, but perhaps it will help bring perspective to 2.1, 2.3, and 2.4.
73. For one last thought: food production is inherently tied to land and space, and land is very expensive and limited. Much of Richmond's land is designated Agricultural Land Reserve, and the Garden City Lands is dedicated to urban farming and bog conservation, so I'm sure the city takes note both the struggles and the accomplishments that comes from dealing with these issues about land and space. Even so, is this direction an opportunity to work on Reconciliation and partner with Indigenous organizations and Nations? I think Indigenous teachings share the same ideals about circular ecosystem and sustainability, though I don't know how this partnership can take shape - I leave it to the evaluators to decide.
74. Why reducing meat consumption/production is not a topic here? We should be encouraging and educating people to eat less meat, since factory farms have a tremendously detrimental impact on both our land availability and soil health!
75. Be more transparent and clear with business licence regulations and bylaws for farms of all sizes, so that farms can operate legally first, then contribute to the food system.
76. Establish a network between grocery chains, restaurants, and the Richmond food bank to enhance re-use of excess foods. Utilize more-frequent collection of food scraps and spoiled foods for recycling in Richmond's composting system.
77. Well thought out.
78. Does the City directly support farmers' markets? Maybe it would be possible to support having more farmers' markets in Steveston and other neighbourhoods.
79. Trabajar en esa línea de pensamiento con los comedores de las instituciones educativas, por ejemplo, para lograr el aprovechamiento y el no desperdicio de los alimentos allí elaborados. Huertas escolares. [please translate]
80. Have more involvement of the public
81. Preserve the quality of the food
82. The proposal to "require a preference for local food into food service licenses" is an outrageous overreach of municipal government and will further drive up the cost of food. This proposal should be changed to provide education and opportunities to food service licensees about locally available food.
83. Make sources available for people who would like to have their own gardens, look in allowing people to have their own small farm animals, i.e. chickens.
84. Have farmers' markets year-round and further subsidize the cost of produce sold there so vendors are competitive with big chains stores.
85. These are big words but what are the real plans. You keep letting the huge developments happen which have no possible green space. Where are the people supposed to grow the food, if they even wanted to?
86. Promote/require use of local produce in grocery stores.
87. Provide resident workshops that help maximize sustainable, productive food gardens using front and backyards.
88. Encourage and support open farmers markets.
89. Backyards are disappearing due to short-sited development. No longer practice to grow food.
90. Stop charging farmer for irrigation water at standard city rates. Without changing this one thong you will not make sustainable farming attractive to new farmers.
91. Establish a proper and effective rodent and urban pest control system to backup the regenerative food systems. There is no point growing food if the rats and raccoons are going to eat or damage the food.

92. Nothing mentioned about use of organic (food) waste to increase land productivity.
93. Again, more planting of trees, more composting, etc.
94. I would add a thorough examination of buildings being allowed on agricultural land - my observation is that there must be loop holes allowing "non-agricultural" buildings.
95. Ensuing the ALR is used for farming and not mansions.
96. Immediately CEASE all home building on ALR lands that are not specifically for the purpose of housing farmers and / or farm labourers. Require farming to take place on ALR, rather than other enterprises. Properly identify and inventory suitable crops for Richmond and support and promote local farming by any means necessary. Encourage less international and more local produce and products in grocery stores. Consider neighbourhood public markets that offer local dairy, meats, produce co-located with Community Centres. Promote local in smaller, but densified neighbourhoods to encourage/ require less driving to big box stores/ chain grocery stores. London Landing area, for example, has grown exponentially in recent years and yet there is NO food shopping available there and getting to transit is a long hike. Anyone living Railway to #2 Road, south of Moncton Street has to drive to get groceries. Same with Brighthouse Station area. All these thousands of condos built and there are NO grocery stores or places to buy local foodstuffs in the immediate area. Everyone has to eat, but this City has a deplorable lack of accessibility to fresh groceries / farm-to-table goods unless they drive. Imagine how much congestion you could solve, greenhouse gases eliminated, healthier citizens just by creating neighbourhoods that people can LIVE in?
97. Working closely with Urban Bounty and the cross-sectoral Food Systems organizing team to support a multi-agency/multi-sectoral approach to co-developing and activating a collaborative food systems approach that maximizes shared resources, aligns activities, identifies key priority actions, and generates shared outcome measures based on key indicators that are focused on regenerative food system advancement.
98. Is there room for farm food tourism to support the development of local food? A good hub would help local farmers and fishers produce for market.
99. After much acrimony and debate, and once the provincial government implemented a maximum size on mansions, Richmond followed with a 4,000 sq. meter maximum size. Now those same mansion owners and other ALR land owners want to build second homes at the back of farmland. First we were told the mega-mansions were for multi-generational families who would farm the land. Now we're told they need smaller houses at the back of their properties for farm workers. 1. In my neighbourhood of 20+ mega-mansions built, none house multi-generational farm families. Instead most sit empty or are flipped and re-flipped. As soon as the permits are given for the house, the owners flip the property and take the profits. 2. Farm workers do not require an expensive second home. If the City permits ALR land owners to have a smaller second home - this is just a way to develop property. The owners bought cheaper farmland with the hopes generating significant wealth by developing the property and reselling it. Do not let this continue. We need our farmland and we need it to be farmed.
100. Address the fact that substantial swathes of productive farmland have been made into "luxury estate" properties for things like mega mansions, birth hotels and questionably legal short-term rental mansions. Stop future destruction of viable farm properties and take steps to roll back abusive land-use
101. Already mentioned but multiuser infrastructure that promotes alternative means of transportation to farms and farmers markets.
102. More support for local farmers markets, community gardens, and fruit gleaning programs.

Direction 3 - Resilient and Innovative Economy

How important is a Resilient and Innovative Economy to you?



Question option

● Not at all important
 ● Slightly important
 ● Important
 ● Fairly important
 ● Very important
 ● No opinion

What actions would you add with respect to a Resilient and Innovative Economy?

1. Make national and international businesses be responsible for handling waste in their products - like packaging and single use plastics.
2. Encourage more food production locally, limit/restrict monster homes on agricultural land.
3. Buy locally.
4. Local incentives for businesses to participate in a resilient and innovative economy.
5. Explore how the city through business support, policy, regulations can promote repair shop businesses for bikes, household appliances etc. to lengthen life cycle of consumer goods and reduce waste stream.
6. In order for a circular economy to work, the vocabulary has to change. We need to decrease the use of the words "economic growth". We need to continue to use words like reduce, reuse, recycle. Those are the terms that people are familiar with. We need to encourage decreased consumption. We need to go after big box chains like Costco and stop them from using so much plastic. We need to go after chains like Safeway and mandate that they have local produce. It needs to be a hard line, otherwise businesses will not change. We need to encourage more small businesses where people shop local. We need to discourage online purchases where items are coming from international destinations covered in plastic.
7. Open the door to newer businesses. Everything in Richmond is the same. No diversity.
8. Control the rents which drive local business out of business.
9. Creating a Richmond Innovation and Investment Agency.

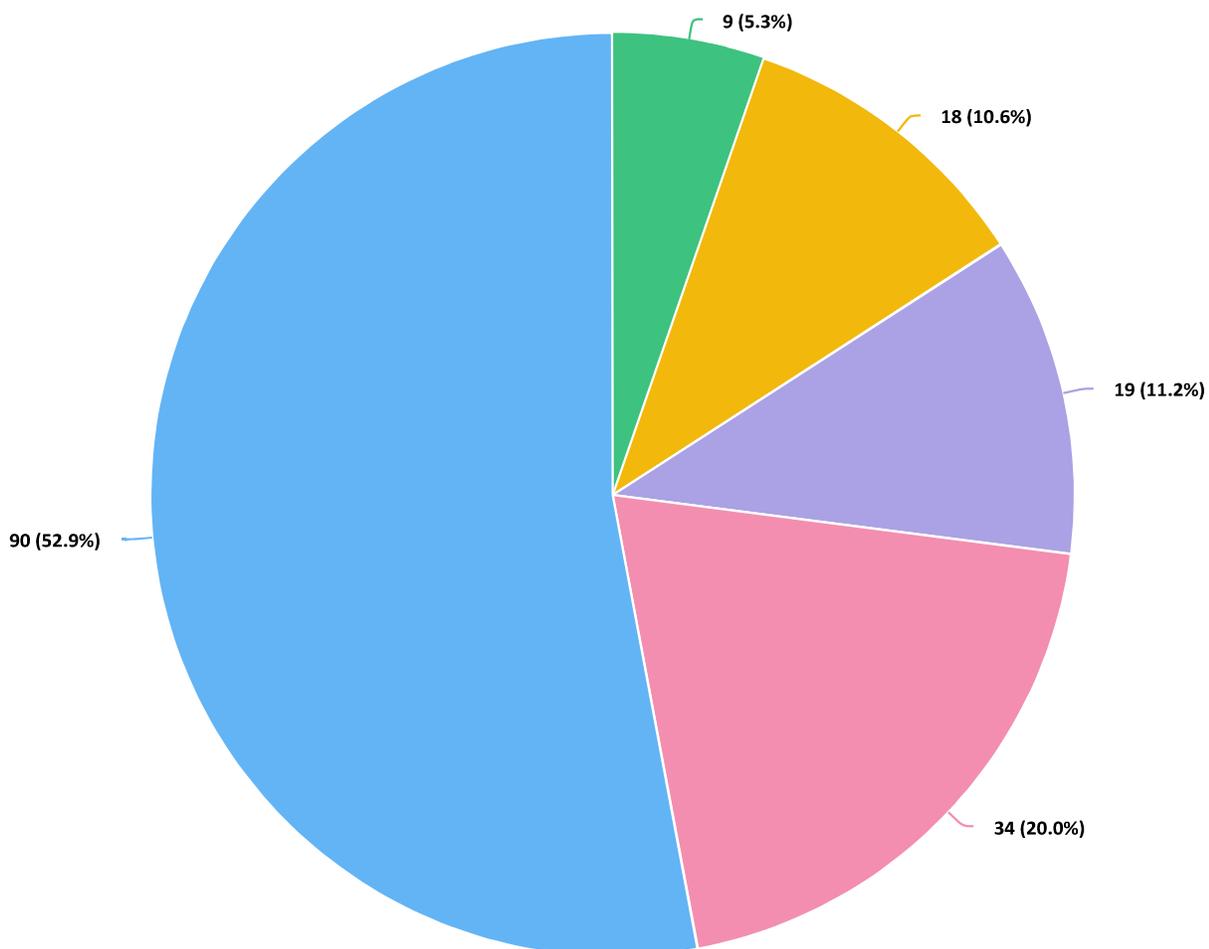
10. You want to improve the business environment? Get rid of the red tape, the ridiculous pile of paperwork/filings to get things approved. All of this is simply a make work project that forces the city to hire more pencil pushers.
11. Award the good business partners.
12. I would like to see more enforcement of the ban on single-use plastics. I've recently see black plastic take-out containers (Best Bite) and single-use plastic food court containers (Lansdowne Centre) from some of the local businesses. I believe black plastic is still not recyclable in Richmond as the infrared cameras cannot sort it.
13. Provide incentives / opportunity for smaller scale business to become part of larger industrial parks in order to consolidate land space and improve shopping experience.
14. Everywhere you see that the local businesses are suffering and huge business chains are taking over. The best way to overcome the life and health problems is solved when we make local and support local businesses. Self dependence makes it easier to be resilient and cope with natural calamities, when there is less dumping and more recycling.
15. Small businesses were wiped out due to Covid-19 government restrictions. These business owners should be compensated and encouraged to re-open. Pollution is not an issue in Richmond but the deadly roads, petty crime, random attacks, and growing homelessness is a problem in Richmond, especially around businesses. Congestion and lack of parking hurt small businesses in Richmond.
16. Incentivize work-from-home initiatives, including property tax breaks for persons working from home... particularly for innovative business ventures.
17. Needs to fit within the budget, and affordable for the cost of living to come down, not to come out of taxpayers pockets.
18. Allow for SHORT TERM Business Opportunities that do NOT have to conform to all the Richmond Circular Guidelines.
19. Be careful not to drive businesses out of Richmond,
20. Careful policies that will be embraced by business will achieve the best long term result
21. Using food as a resource. More farmer's markets.
22. Using bike routes as pollinating bee food resource areas. (Yay Railway.)
23. Any empty lot sitting idle due to (business decisions!) should be allotted as a farmers market.
24. Allow citizens to sell fruits vegetables and jams without permits.
25. Do this without raising costs to the consumer
26. Implement a price cap on rent for retail and commercial spaces. Develop new incentives, grants, and supports focused on small business. To help encourage and uplift local entrepreneurs and business owners.
27. No suggestion at this time.
28. Institute new awards honouring regenerative, nature-based products, and businesses promoting sharing and reusing models and circular strategies.
29. Again, how do we plan on "actioning" these goals?
30. Provide new businesses with lowered lease payments or grants per each carbon neutral item they create as well as items that show all products are sustainable, locally sourced and locally recyclable and regenerative
31. This part of the plan doesn't seem to show any teeth. We will need businesses to be the most active and participatory in this action.
32. Raise awareness of plastic pollution and the impact of micro plastic on human health and animals' well-being. We use plastics in our daily life and identify ways to reduce that usage.
33. Please clarify.
34. Analyze the Richmond business material metabolism (???) ~ to identify opportunities to maximize efficiency use.
35. Again. Big words big ideas not one bit of common sense.
36. I don't think I have the knowledge to speak to this initiative.
37. For profit businesses only focus on making money, I think these actions are difficult to achieve.
38. Encourage the selling of less-than-perfect-looking produce to further reduce the amount of food waste occurring in mainstream grocery supply chains.
39. A citizens' board to review and provide recommendations to any new bylaws and directions in this area, so all feel a part of things.

40. Stop building monster houses, stop allowing houses to sit empty, stop cutting down trees for lame excuses, stop tearing down houses for no reason, stop allowing people to own property that don't live here, stop allowing short term rentals (i.e. air bnb).
41. Ban Styrofoam and plastic containers; encourage the use of compostable containers.
42. The use of industry by-products as feedstock should be a national initiative, coordinate with the feds on this one.
43. All I see is more WEF policies, making the manufacturer of a product pay for part of its recycling. Then increasing the burden on the manufacturer until the product is no longer feasible to build.
44. This will lead to a collapse of business.
45. Reduce lanes on roads or replace car lanes with bus-only or cycle lanes. The taxes the residents pay for their homes is not enough to maintain the streets that the houses reside in. Either increase taxes on these subsidised suburban properties or reduce the width of these roads by eliminating side-street parking.
46. None to add.
47. Getting back to Richmond business events. I have not seen as many events connecting businesses in the city since COVID.
48. Huh? Simple English please.
49. The actions outlined start at home - if we live our daily lives with this in mind, it will support and set expectations for it to happen in business.
50. Quit selling off Westminster Hwy lots to speculators and destroying farmland.
51. Build tool exchange centres to borrow like a library.
52. The general population should be educated about this as well as they are a valuable piece of the puzzle. Providing a platform from the city to illustrate how businesses can educate their clients.
53. I think the economy is very important to most people in society. I have already mentioned the promotion of social enterprises and youth entrepreneurship, so I think the same idea will benefit here too. Creating a business is normally tough and expensive, there are many risks involved and it is competitive, that is why I do hope these proposals can help facilitate more economic growth in Richmond that is meaningful and for the long-term. I honestly think there are many youth and young adults whose potential are untapped, but they don't have an outlet to express their potential.
54. Can we somehow create a behavioural shift away from the kind of consumerism that promotes waste, I am all for it. However, many people seem to worry about cost first. Also, I think the bigger, transnational conglomerates do have a lot of power in shaping their vision of the economy, so I hope they will enthusiastically cooperate on building this vision with the city.
55. We should also be building awareness among our own community. EDUCATION is KEY!! Educated citizens will be able to demand/support business that follow these practices.
56. Have strategies that encourage diversity in our businesses including BIPOC demographic. Create space for entrepreneur innovation and collaboration.
57. Again education processes - make a sound argument so residents are aware that economic interests and that of the environment can exist and create new opportunities.
58. Make alternative packaging of products available in the marketplace.
59. One thing that comes to mind is insisting that grocery stores offer up items (particularly baked goods) in bulk and not always packaged in plastic six-packs or whatever. Also produce , etc. that could cut down a great deal on the unnecessary use of plastics.
60. Giving people a choice, allows them to be more aware of the change they could actually participate in.
61. The business community in Richmond is very diverse. How does the City plan to include and work with business owners from visible minority backgrounds?
62. Promote a broad range of industries to innovate.
63. The stated goal of conducting "a review of legislation to implement circular practice in businesses" is municipal overreach. Adding regulatory and legislative burdens to businesses adds cost, reduces affordability and punishes those at the margins of society the most.
64. Make cost of doing business in Richmond cheaper. Lower the cost of business licenses (especially for young, solopreneurs).
65. Assumption being there will be significant stakeholder input
66. What exactly does this mean in real terms most people do not know what a circular economy is. Extensive education is required.
67. Keep residents informed so that we can support those businesses that engage in these practices.
68. Hard for local growers to compete against the industrial food players.

69. Inclusiveness - having business signage in at least one of our national languages. Signage in other languages blocks people who speak French or English from partaking and divides our population.
70. Encourage business to participate, but do not offer grants to do so.
71. My one caution is that the effects on small businesses be kept in mind - mandated changes can be hard on them in terms of capacity, resources, funding. Not that they can't be included, but they do not necessarily have the same "wiggle room" that larger companies have.
72. Light industrial space with good transit access is increasingly scarce in Vancouver. Zoning which allows this could help companies grow in Richmond rather than relocating to Langley or Coquitlam.
73. You've presented only some very vague ideas here and zero substance. What are you actually talking about? Difficult to give a meaningful response.
74. I really appreciate the action item that will focus on developing a Circular Hub for innovation. I own a social-purpose, for-profit business. Gathering information, resources and support on how to become a B-Corp would be very beneficial. I appreciate how the City of Richmond is being progressive in this area.
75. ReTuna in Sweden is an excellent example of a circular economy- and would cohabitate well with the Richmond Recycling Depot.
76. Important consideration: Build less barriers to success not more.
77. Read your above paragraphs which are filled with a lot of buzzwords. For example: "Richmond business material metabolism to identify opportunities to maximize efficiency use."
78. This needs to be rewritten in plain language. Didn't anyone edit this? "
79. Have not enough expertise to add to these ideas.

Direction 4 - Shared Mobility

How important is Shared Mobility to you?



Question option

● Not at all important ● Slightly important ● Important ● Fairly important ● Very important ● No opinion

What actions would you add with respect to Shared Mobility?

1. Eliminate on street parking, eliminate all traffic impediments, repave the roads, activate all left turn lights 24 hours a day now just during rush hour, increase all single lane roads to two lanes each way and install in-ground flashing lights at all crosswalks!
2. Increase bus service to encourage transit use
3. Too much emphasis on green!!! Looks like the green group is inputting more with subtle wording to spend more of our money for their gain.
4. Encourage car/affordable bike shares, improved bike infrastructure, have more express buses to SkyTrain points
5. The longer commuting time for the common man is a disaster for time management and pollution. So being local and be self reliant in our city is a major step towards community harmony and happy family.
6. Electric vehicles require lithium-ion batteries which require heavy mining abroad as well as heavy use of fossil fuels to mine for such materials. The average price of an electric vehicle is way out of reach for middle-income families. Attracting higher-paying jobs for middle-income residents instead of selling off land for upper-income Vancouverites to buy fancy houses would be a start in the right direction. As for public transport, there are no pull-offs for buses to park to take on passengers creating dangerous situations for drivers and busses alike.
7. Extended Skytrain to Steveston.
8. Electric vehicles need to be more affordable! There needs to be more choices of e-vehicles, more research needs to be done on them, there also needs to be many more accessible spots to fill up. A lot needs to be done before we can go to a fully electric society. In the meantime I think the focus should be on making it easier, more convenient and more affordable to use transit. Also, keeping less cars on the road by allowing workers to work from home if possible.
9. More EV charging stations.
10. "Shell Rd. Finish the bike route from River Rd N to River Rd. S
11. Activate the train for commuting North to South.
12. Streetcar from YVR to Queensborough.
13. Fix access to Alex Fraser bridge cycle routes. It totally sucks every way it's accessed now. North from River Rd. is like a maze.
14. Off ramp to Queensborough Bridge is dangerous. Signage is missing and needs widening.
15. I think focusing on improving EV infrastructure and making it more cost effective for homeowners to install their own RV charging stations is the only thing I can add. Transit in Richmond has always been unreliable and riding on Canada Line and other trains is getting less safe these days. Unless the government takes action to make transit more safe and comfortable, there will be more personal vehicles on the road.
16. increase incentives to buy electric vehicles, increase incentives to use transit, increase incentives for companies to let employers work from home and don't increase property taxes
17. Solar energy.
18. Make new development more densely packed and promote a walkable city.
19. Enforce rules for biking, too many are on sidewalks and have proper biking infrastructure, education on bike safety and theft prevention. We need safer traffic, lower speed limits in residential areas.
20. No suggestions at this time.
21. Advocate that the Province move fully to fossil-fuel-free electricity, meaning eschew pipelines, LNG, fracking, and the Site C dam project.
22. Need supermarkets in different areas. They tend to be in certain areas only.
23. Mandate old buildings to include electric charging vehicles with upgrade grants to encourage owners to upgrade to electric vehicles. A lot of old buildings require capital costs to upgrade electrical in order to fulfill the car charging stations and are not doing it due to cost.
24. Need more public mobility east to west to allow less vehicles travelling east and back on our highways. With more people moving to the valley for affordability we are losing important workers or increasing vehicle travel to work here.
25. Public transit should be encouraged but not electric vehicles. See "Gravitas Plus: The dark side of Electric Vehicles" at <https://www.youtube.com/watch?v=RFHvq-8np1o>

26. Please review this whole proposal and clarify many new terms, as it is coming across as both confusing and pretentious.
27. Advocate for low cost, high-speed internet access for all neighborhoods and communities in Richmond is very important.
28. Improve the infrastructure and safety for bike lanes. Provide education and enforcement of traffic rules for bikes, ebikes and scooters.
29. This strategy is extremely important to me personally. I live at Riverport, and there is NO safe cycling or pedestrian access to anything outside of this neighbourhood. There is no safe pedestrian and cycle lane on No. 6 Road, nor is it safe to walk or cycle on Steveston Hwy between No. 6 Road and Hwy 99. I'm also very disappointed in the new Steveston Hwy/Hwy 99 interchange plan. The transit infrastructure is unchanged from the current arrangement, requiring transferring passengers to still have to cross major roads to access East-West and North-South bus stops in all weathers. This is a missed opportunity to create an accessible sheltered Bus Exchange that was accommodating to all passengers, including those that are disabled and mobility-challenged.
30. Again. Who comes up with this stuff?
31. More dedicated/protected bike lanes. Advocate with TransLink to introduce B-lines to the 406 route to speed the journey for passengers and reduce conflicts between transit operators and cyclists in the cycle lane near bus stops (I've witnessed these both as a passenger and as a cyclist - terrifying).
32. I don't support shared mobility, otherwise offering volunteering services to those in desperate need.
33. Increase quality of public transit.
34. Create complete and walkable neighborhoods to reduce the need to travel in the first place
35. Build an electric train through or above the tunnel on Highway 99. We need to get all cars, gas or electric powered off the roads, more people using transit. All cars take up space.
36. A city-operated adjunct to TransLink services and routes to provide for a middle option between regular buses (that may be up to 6 blocks from a rickety senior's home, and HandyDart (expensive to operate, and has limitations); perhaps greater taxi subsidies via the Taxi-Saver program already in place, to provide better affordability to the city's low income population especially those on fixed incomes.
37. More Cycling.
38. I do not see myself using this personally but would support the initiative.
39. Skytrain and good bus service needs to run all night. Not part of the time.
40. More merchants in better places, supported by stop building monster houses. Stop allowing houses to sit empty. Stop cutting down trees for lame excuses. Stop tearing down houses for no reason., Stop allowing people to own property that don't live here and stop allowing short term rentals (i.e. air bnb).
41. Highway 91 has a chronic congestion issue. It needs to be widened, merges from Knight, 6rd need to occur before merge onto Highway 91. Work with the province to widen the 91 to 3-4 lanes. Build an overpass/diamond interchange at the Shell Rd railroad. Throughout Richmond there are many roads that are misaligned, missing bus bays, overall insufficient road capacity, intersections too close together (civil engineering failure). We are missing pedestrian overpasses. Richmond needs massive investment in enhancing road capacity.
42. WTH is harvesting energy from high transit areas? The solar roadway scheme has been busted 11 ways from Sunday by multiple people. Placing wind turbines along the roadway, generating energy from passing vehicles was busted by myth busters 15 years ago. Stop wasting my taxpayer money on unproven garbage. Bike lanes only cause congestion by robbing the motorway of vehicle space. "Reduce the e-waste generation from low carbon vehicles and infrastructure." What the hell does this mean? All electric vehicles vent hydrogen gas as part of their recharging process. You can't change that. High speed charging causes high speed venting of hydrogen.
43. Probably the most important item on plan. Richmond will not be able to meet its climate goals without increasing the share of residents using alternative forms of mobility and reducing their dependence on cars. The city needs to discourage car usage by making it slower to drive and faster for them to take public transit, walk, or cycle to their destinations.
44. Eliminating right-turns on red lights helps with safety on our intersections.
45. Bus-only lanes are a must on No.3 road.
46. Please "pedestrianize" the intersection near the bus loop at the Richmond-Brighthouse station and remove all those wasted parking lots in front of Richmond Centre.
47. More protected bicycle lanes.

48. Copy and pasted: Calculate the mobility material intensity, implementation of an integrated mobility sharing vehicles infrastructure. Seriously think people can understand this?
49. Essential for a sustainable future: reduce pavement, increase a range of transit opportunities and walking and cycle space.
50. Cover the ditch on Shell Rd. and add a bike lane from River Rd. South to River Rd North.
51. Along with North South Streetcar on shell, connecting from No.1 Rd W and Westminster Hwy. to Queensborough Bridge East.
52. Encourage bike networks in Richmond.
53. Would love the use of streetcars/trams again for easier commutes around the city. With a dedicated lane, it would help ease traffic congestion by placing more people in one space rather than multiple cars and of course reward those that choose public transit with a faster route.
54. Nothing at this time.
55. To connect to Mitchell Island, generate value, increase tourism and employment in the city, the SeaBus is a transportation system known to all that could be beneficial to the city by traveling the entire Fraser River, from Mitchell Island, through Sea Island (YVR), Steveston and ending at Dyke Rd with the No. 5 Rd. to connect with the No. 5 Rd. bus route, using solar-powered boats or other sustainable means, contributing to shared mobility.
56. To share my vehicle with others, it must be free transportation, it can not become an Uber service or door to door, it must be without tips. You must create an app where the owner of the vehicle share your route from point A to point B and if there are people that that route can serve you take that option specifying the point to pick up and the point of arrival, without affecting the route of the owner of the vehicle. Take into account the number of people allowed, packages and must share the resume and background of both parties with the administrator of the app, for peace of mind and security of all. For this to be viable, the vehicle owner must receive tax benefits, bonuses or other economic incentives.
57. We should consider extending the sky train from Brighthouse to Steveston all the way down No. 3 and it should be the subway because the train is a bit noisy.
58. Promote work from home strategies to reduce strain on infrastructure and traffic.
59. I think this area will be important as cities densify and population increase around city centres.
60. I travel to Vancouver many times to make deliveries for work, and I see that traffic can be congested easily and that we rely on a lot of big freight trucks, boats, and planes to transport things everywhere. Globalization and international markets mean my workplace is placing orders for inventory in Asia and other places around the world, and these existing practices are likely not going to be factored into the equation. Perhaps it is being considered elsewhere, perhaps it can't be helped, but I thought I should point out this part of the mobility equation in case it is relevant.
61. Create incentives to companies that support/have implemented WORK FROM HOME policies.
62. Significant improvements to cycling safety are needed on Richmond's roads. Given the flat terrain, Richmond should be a very friendly city for cyclists, but the cycling infrastructure is unsafe at best. Painted lines are not enough. People will not get out of vehicles if they are afraid of being killed by a car while cycling.
63. More accessible and safe transit options beyond No.3 Rd., need connections to the more "suburb-y" areas of Richmond where people can visit farms, parks etc., without a car. More EV infrastructure and shared bikes/scooters
64. For all public parking areas, phase in Level 3 charging stations to achieve a density of 1 charging station per 10 parking stalls by 2030.
65. Well thought out.
66. Keeping in mind that the population is aging. Mobility becomes more and more stressful and that includes "wait" times when one is uncomfortable or in pain, either too hot, too cold, or windblown.
67. To encourage more people using public transit, more collector buses are needed within neighbourhoods such as Seafair, and others where the bus line is more than a couple of blocks away. Accommodation by drivers to assist elders or challenged folks with walkers, canes, getting up stairs, etc. would also have to be included.
68. I think a lot work still needs to be done on ensuring low-cost, high-speed internet access across Richmond. What is the city planning to do to support this?
69. Fomentar el uso de vehículos de tracción a sangre para agilizar el tránsito y disminuir el carbono. Como bicicletas, monopatines, patinetas, rollers, patines, etc. Utilizando sendas seguras como ciclovías... [Please translate]

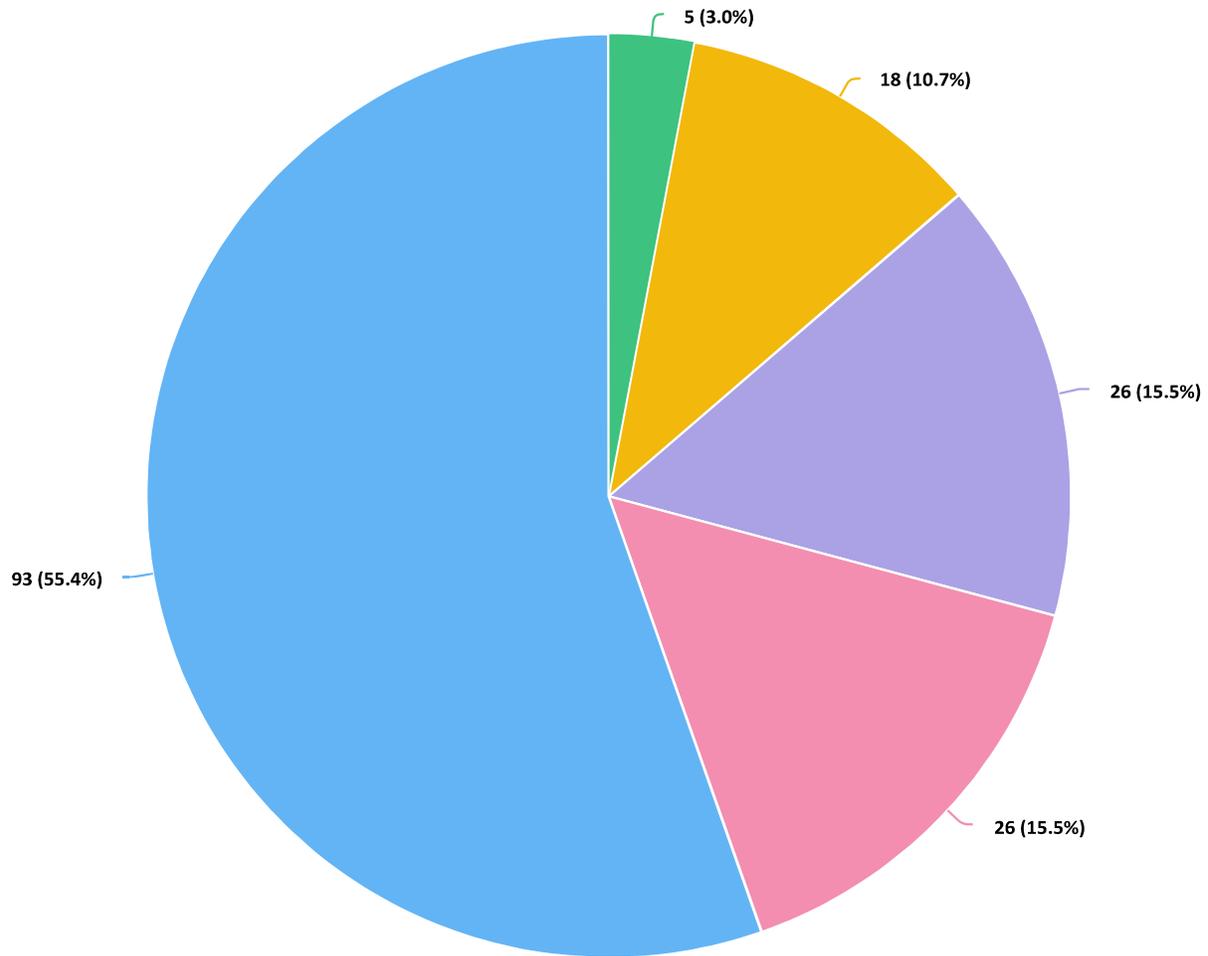
70. Have the public involved.
71. Promote efficiency and speed.
72. Everything is moving too slow and getting slower."
73. Shared mobility is a huge win for environmental sustainability: transit is far more efficient than private cars and, if it is electric, zero carbon. This entire passage does not speak to transit, does not consider local services such as street cars that could help support density while reducing cars. It does not speak to eliminating parking minimums, an easy step for the City to take. Overall, this is a complete miss of the key targets and needs to be completely re-thought.
74. Improve access to bike/scooter rentals. Prohibit stratas from limiting the number of e-bikes (my building has 160 units, but has capped the number of e-bikes for the whole building to 5).
75. Introduce more public space charging with self supporting solar panels. Introduce new builds to have solar panels on rooftops.
76. I don't see that you have addressed bicycling as a mobility mode - surely it is one of the most important.
77. Ensure information to residents about mobility options is communicated clearly and updated regularly.
78. Turn Richmond into a Mecca for alcohol as gas, since we have so much biomass here that gets lost or composted by nature every year. It's has virtually no emissions of concern and is much cheaper to produce than standard fuels. Also, why can't people with perfectly good standard fuel cars convert to battery, instead of creating more auto garbage waste? Although one must always consider that all battery cars are conflict mineral vehicles.
79. Expand the public transportation system. The TransLink Canada Line should go through to Steveston.
80. Plan for allowance and use of community vehicles. Electric golf cart sized local transport routes and areas of operation.
81. Continue to encourage folks to use transit by improving access across Richmond. Our access into and out of Richmond is very accessible, but getting around Richmond via transit is not always easy
82. Richmond councillors and planners should try to give up their cars for a month to see first hand how transit works and what bike commuting on our infrastructure is really like. For people using these systems, it is only as good as the weakest link and that is something that seems to be missed.
83. You allowed all of our direct bus service to Vancouver to be REMOVED and replaced it with a grossly under-capacity Canada Line. We spent hundreds of millions of dollars on the B-Line only to have it ripped out and replaced with an over-crowded and extremely limited Canada Line (and removing those lanes did nothing to ease congestion on 3 Road, because the City planners continued to allow unbridled housing growth along this corridor with absolutely zero transportation solutions in place first). People are funneled at considerable distance to this congested hub and it's never made an iota of common sense. The only plus to the Canada Line is the relative speed of the trip, as long as you don't mind standing or going up and down massive escalators etc. But again, who goes to Vancouver to travel down Cambie Street? It's not a destination nor a transit hub.
84. Look, to go south of the tunnel from where I live in Steveston by transit, I have to go to Richmond Centre, take a train to Bridgeport station and transfer to a 351 (or whatever) and go all the hell back across Richmond again. Where is the efficiency in this??? Another example: I want to go to Ironwood via transit 6.5km from my home, about a 10 minute drive. I have to go to Richmond Centre and transfer and come all the way back again along one of 2 or 3 routes; roughly an hour. WHY would anyone get out of a car to go shopping there? And trying to bring groceries or bulky items from Canadian Tire or Bosley's etc.? There are solutions, but you have to work much harder with TransLink to make intelligent decisions about how to move people around WITHIN Richmond. The contribution to our greenhouse gas effect can never be improved unless transit in this City starts making more sense, is more accessible, and routes easily transport people where they want to go and when. Right now, there is very little incentive for people to take transit. "
85. Shared mobility can take several forms and is multi-faceted. The need for accessible, timely, and affordable transportation is a key attribute of ensuring equity in a diverse socio-economic city like Richmond. The Intelligent Community Forum speaks to a lot of the elements that you are mentioning and is an excellent way for municipalities to learn from one another and showcase the advancements in these areas. The need to embrace different ways of working together is key. I appreciate the direction you are taking around opening co-working spaces throughout neighbourhoods and increasing virtual connectivity. It will be critical to ensure low-income community members have socio-economic access to these mobility services, that training, skills and support are offered to individuals to advance learning and confidence in using technologies, and innovative ways of supporting access, wayfinding, and ease of transportation is a

key element. The cost of living for low to moderate income households for affordable housing is a significant challenge-looking at these initiatives in isolation to what will keep households housed, supported, and thriving won't be advantageous. How is the City incorporating these threads into an integrated planning, development, economic development, food systems, community wellness, transportation, and community social development approach is critical? The housing crisis will not be solved by housing supply for middle to high income earners with a trickle down to moderate to low income earners, just as the "full cost/needs" or "market-basket costs/needs" for low to moderate income households and small businesses also need to be taken into consideration. There are several small businesses that are being pushed out because of the new development. Securing spaces for small business, social enterprise, and social businesses to remain is also important, because this keeps the social fabric, connectedness, and community relationships strong.

86. 15 minute neighbourhoods are an important part of mobility solutions. Also, the emphasis above is on vehicles but mode shift to active transportation is necessary. Support modal shift by building all-ages and abilities bike and pedestrian infrastructure.
87. Expanding our rapid transit options, south and east, should always be included. Consider where are our work force is coming from so that we have services in Richmond not having everything centralized in Metro. Critical to an aging population.
88. I like all of these. I am struck by how, with the advent of Canada Line, parts of Richmond previously accessible by (bus) transit suddenly became more remote, and Canada Line far less accessible than express buses used to be. There should be more useful and frequent transit services to parts of Richmond out of the central area
89. Work with private sector to bring in more car-share programs that help fill "final-mile" portions of transiting trips and reduce reliance on full vehicle ownership. Also helps to reduce street parking congestion and overall dependence on individual car ridership.

Direction 5 - Adaptive Built Environment

How important is an Adaptive Built Environment to you?



Question option

● Not at all important ● Slightly important ● Important ● Fairly important ● Very important ● No opinion

What actions would you add with respect to an Adaptive Built Environment?

1. Keep materials simple to source and recycle. There is too much engineered crap that cannot be recycled.
2. Canada line Brighthouse station will not accommodate foot traffic for concrete jungle at Richmond Centre. I fear all green spaces there will become a privileged area not for public use.
3. It would be great to have a place where people can bring their used furniture for other people to take. Like a recycling furniture hub. Many people would benefit from this.
4. Incentives to explore these options to encourage participation
5. Promote and require sustainable, adaptive landscaping designs for all new builds
6. Don't promote the use of new materials! Promote the use of old materials. It should be more difficult for people to knock houses down and throw things out from the demolition. Reconstruction and renovation should be encouraged. People should be encouraged to work within the envelope of the home instead of just tearing it down. That goes for the landscaping as well.
7. Reduce the time and costs for new housing
8. Continue to ensure new or redeveloped public spaces comply with specific accessibility
9. Design requirements.
10. Who makes up this stuff, how much time and money was wasted on this project when you could have been doing something constructive
11. Stop the policy of increasing housing density which is making Richmond unliveable. Tearing down perfectly good single family homes and building four poorly built disposable houses is a disaster.

12. More stringent rules on tearing down recently built homes in areas that have been rezoned to higher density.
13. Account for embodied carbon and set a price on carbon. It seems that we're much happier to build cheaply and tear down, then build quality. This generates massive amount of carbon and landfill waste.
14. Again, the green movement is apparent.
15. Reduce waste by recycling and selling second hand building materials.
16. Recycle, reuse and reduce. This motto will make our society stronger and brighten the future of generations to come.
17. A ban on flattening houses to be dumped in landfills should be implemented immediately if you actually care about the environment. Destroying perfectly sound homes to build mega mansions in small neighborhoods so they can park 10 cars on the street is dangerous as emergency vehicles cannot respond quickly, is unsightly, and creates a tax burden for homeowners in the area that did not agree to the destruction of a house for a mega-mansion to be built.
18. Incentivize homeowners for new homes (single and multi-unit) that are building with recovered/recycled building materials, through grants or property tax breaks.
19. Stop demolition permits for good family houses to be supplanted by mansions
20. In any area of the environment one of our focuses should be on recycling, and less waste. This can be done in the buildings; clothing; less waste with food, etc.
21. Consideration need to given to added costs of construction with new policies.
22. Late to the party on this issue. Carry on.
23. Make sure new development goes through intense screening processes when using low carbon materials and solutions to make sure they provide the same function as traditional methods. Building an environmentally friendly building does not make sense if home owners are buying electric heaters for every room to supplement their heat pumps.
24. Add more ways to recycle goods that presently don't have a home, for example, furniture.
25. No suggestions at this time.
26. Require the use of innovative, renewable and low-carbon materials in construction.
27. With demolitions and new builds happening, it is important to understand we are taking resources way from what's left of the Earth. Building new infrastructures in Richmond is concerning and I hope engineers are reviewing the land capacity or the city will start to see sink holes randomly (unfortunately, not random).
28. Ensure all heating and cooling systems in new construction are green energy
29. Re 9 above
30. Assess the ~ local circular skillsets (please clarify ?) to support new green employment opportunities in the building retrofit sector.
31. Find ways to educate citizens on ways that retrofitting homes, multi-family buildings and commercial property can be done using the lens of a circular economy.
32. Does the above speak to incentives/disincentive regarding recycling demolitions?
33. Re-using the footprint of existing dwellings to allow multi-family living to help alleviate young peoples' inability to keep living in Richmond. We are losing our ability to retain the young people we need to keep our city vibrant and healthy. Look at what happened in Tsawwassen when they started only attracting certain age groups.
34. Safety and reliability is more of concern to me.
35. Advocate for stricter building codes that require improved levels of weatherproofing (e.g., heavier insulation, higher quality windows and doors).
36. More housing types from the missing middle and housings of various age, to reduce the need to rebuild.
37. We have seen that condos can melt down, crash as happened in Florida. The old buildings (30 years+) should be assessed now and repairs made NOW. Government can help with cost because tenants may not be able to afford. Look at recycled material but know how well will endure over time. Data not observational analysis should be collected and thoroughly analysed.
38. Tie into the province's Return-It Depot system to place deposits on more items, especially if it'll provide for those on low income to rescue these items from being discarded, providing them an adjunct income, as well as self motivation to earn their income as Urban Recyclers, thus providing a valuable service to all, as well as promoting re-use of more materials, or proper disposal when not possible (e.g. cigarette butts disposed as toxic waste); return plastic bags to regular use, but with a 0.15c returnable deposit on each. (0.5c for bags that aren't marked as having a 0.15c deposit (i.e. pre-2023 bags))

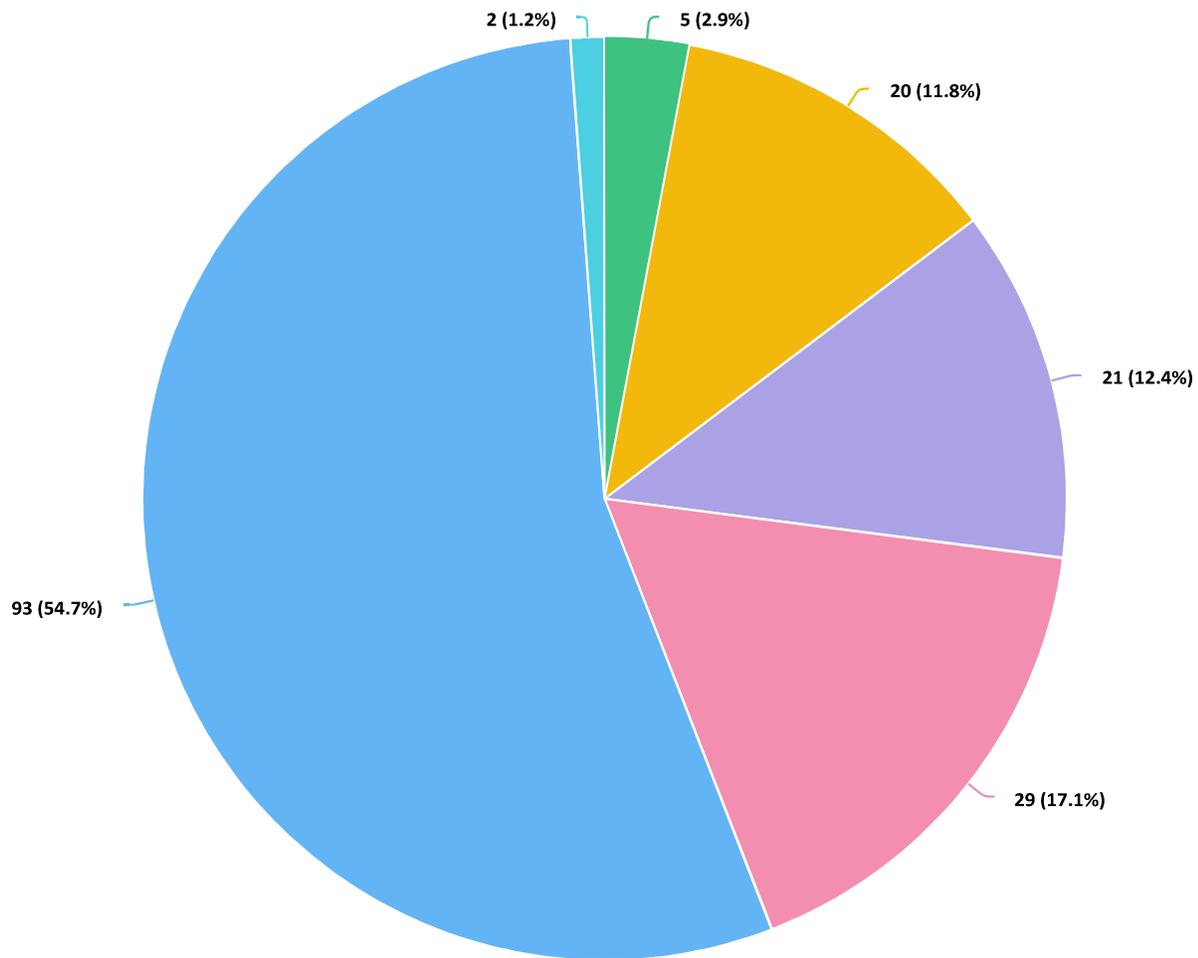
39. Revise city planning to allow higher density and more mixed use throughout the city.
40. This is a joke, right? Not achievable with the current rules.
41. Stop building monster houses. Stop allowing houses to sit empty. Stop cutting down trees for lame excuses. Stop tearing down houses for no reason. Stop allowing people to own property that don't live here and stop allowing short term rentals (i.e. Airbnb)
42. So long as recycled materials are as robust as non-recycled materials, this could work in theory. You will need to have asbestos abatement as part of this project.
43. There is nothing new here. If the city wants to create a market for post construction scrap wood collection, would require it arrange with an existing wood merchant. Offer scrap value per board feet. The return it recycling center would be a party that could also host the business.
44. Higher density building are generally more efficient than lower density ones. We don't have to build mid to high rises all over the city. But having all residential zones be mixed-use residential with up to 4 or 6 storey will greatly improve the liveability of the city. People generally like having the convenience of proximity.
45. I know that EcoWaste is working to create a big reuse centre for these kinds of materials, but that facility has not been approved by council due to ALR issues. We need to get that EcoWaste multi-recycling facility built to make a difference in points 5.2, 5.3 and 5.4. It is a shame council are holding that up.
46. I think I made my point.
47. I love these ideas - need to implement yesterday!
48. Recycle everything.
49. Work with demolition recycling contractors to build markets for undesirable waste products.
50. The city should work with all stake holders and associations with pilot projects that illustrate innovation in building technology. By working as a team, the perceived risk is less of a concern.
51. The proposal to put Richmond on the path to achieving 100% circularity by 2050, Richmond to analyze and evaluate the opportunity to update our waste and recycling collection system.
52. I kindly suggest you consider The Envac System - Automated waste collection for smart cities.
53. 1. Because it needs more control, some citizens do not recycle as they should or take out the garbage on days that are not indicated or forget to enter their containers. 2. To prevent animals (crows, raccoons, mice, etc.) from scavenging in our garbage. 3. Because the garbage and recycling collectors do not completely clean the containers, they always leave some garbage or recycling behind. 4. Because some food companies in Ironwood do not recycle glass, cans, plastic or food waste, because there are only two containers, one for garbage and one for cardboard. I have no information about other places in Richmond. 5. Because the streets of Richmond don't look nice with all the containers outside every time the waste or recycling cart goes by, making it a danger for bicyclists and people with carts or wheelchairs because they are all over the pedestrian path. 6. Because the system is manual and a bit obsolete.
54. I have less understanding and awareness in this area, but I have heard of companies that specifically deconstructs buildings and recycles those materials. I think it's great.
55. I also recall hearing that one of the provincial government's ministry was looking into using wood chips to make building materials. It can be complicated when building things like houses take such a long process, in years, and people weigh options to speed up construction against sustainable construction."
56. Emphasize incentives for recycling construction material and sourcing sustainable material from start to finish of a development projects. Bring in large developers (eg. Vanprop for Lansdowne Centre), need them to be on board.
57. Building designs should use life-cycle analyses as the basis for building decisions. All civic construction contracts should include specs requiring recycling/re-use of construction wastes such that 90%+ is diverted from landfills. All construction contracts should specify use of low-carbon materials, with embodied carbon identified for each design option at the beginning of design scoping. Provide Incentives for building designs which facilitate internal or external re-configurations at some future date without undue demolition or reconstruction wastes (e.g. modular building systems).
58. Again, well thought out.
59. In addition to my comment above re having a warehouse to house re-usable and recyclable furniture and household goods, that could also be used for building materials such as Cupboards, closets, faucets, light fixtures, appliances etc. It breaks my heart to see people renovating and just taking everything within the walls of a building or home, to the dump! There are people who would love to have access to those items. The warehouse should be run like a big box store, with fork-lifts and organization, safety requirements, etc. Also a "Hot Room" so that upholstered furniture can be accepted and cleared for any

bugs, etc. There could also be a refurbishing room, where volunteers, or apprentices could learn a trade or skill that could help them become employed. It needs funding, support from the city and a knowledgeable warehouse manager to make it run efficiently and be a success.

60. Recognize that buildings have limited life and should have an end of life date predetermined.
61. Why is there such a love of adding bureaucracy? The passage about "Enact policy and regulations for the use of innovative, renewable and low-carbon materials where opportunities exist" is municipal overreach. Recycling building materials is already happening and there are sufficient regulations in place now. Until new technology emerges to allow more components from demolition to be recycled, we are already doing what is economically practical.
62. Introduce modular moving wall system for all new build amenities space, where the main floor's walls can easily be adjusted for expansion/reduction. The upfront cost will break even with the cost of renovation, disposals and cost of materials, and labour.
63. Be realistic!
64. Stand strong with each of these actions even if it takes longer than anticipated. Keep us residents informed so we can support staff and vote for candidates that stand behind these actions - so important!
65. The city should not be allowing perfectly good houses to be demolished and replaced by a energy intense larger home. Is the wasted material recycled?
66. The city can find a "startup" business that salvages building materials, like they have in little old Squamish, subsidized by the city. In Vancouver a program is people's by street –involved marginalized people- if it still exists.
67. Public Safety trumps all. Being able to obtain building insurance will be a challenge.
68. Our street has gone thru major changes in the last few years, and I don't believe any of the houses torn down were recycled in any way. Incentives for builders to reclaim building materials (i.e. windows, sinks, tubs, etc.) would be a good thing and reduce building waste going to landfills.
69. Recognize that high salt content is a fact of soils in Richmond. This does not make them contaminated for reuse, it makes them part of the ecosystem.
70. Very important to keep in mind the need for affordable housing - if we are to keep our city attractive and affordable to a variety of demographics, which in turn is essential for "selling the public" on the value of an adaptive built environment.
71. All these 1960s houses you so freely allow to be demolished for over-crowded, over dense townhouse developments and they are loaded with quality materials. Require developers to reclaim the hardwood floors, glass, bricks and other re-usable materials for resale. Why is all this perfectly good material allowed to go to landfills? It's criminal.
72. Ensuring there are high performance building, circular, and adaptive built environment standards in all forms of construction, renovation, and maintenance would be beneficial. Also, ensuring that all affordable housing developments have benefit from the materials that are recycled could have the potential of supporting financial project viability. Also, offering work and training opportunities to low to moderate income households and individuals, who may be experiencing homelessness that often actively participate in the recycling economy, would support a circular approach to contribution and participation. Maximizing the opportunities to connect social, built, natural, and economic assets in a way that will foster community health, accessibility, well-being, equity and security, socio-economic advancement, and environmental stewardship is a valuable and critical direction for the city to activate. I also feel that ensuring that education and awareness about the importance and value of these activities is critical and should be accessible, integrated throughout City programming and community partner plans and activities (e.g., RSD, VCH), and a critical way to foster pro-active and meaningful civic engagement.
73. Quit permitting mega-houses. For example, the Seafair neighbourhood - used to be a neighbourhood of mature trees and gardens and kids on bicycles. Now it's gated mega-mansions with completely paved yards and no-one around. Instead have smaller houses and more missing middle housing.
74. Be very restrictive and create great disincentives for demolition of currently useful structures, which has been a notable part of the proliferation of mega-mansions. Fees for dumping whole houses in the landfill should be extremely high. I would suggest a million dollars per liveable house that is bulldozed
75. Introduce a Light Pollution Abatement Bylaw. Excessive light emitted from improper lighting devices is harmful to the environment and uses more energy than necessary. Light should not encroach onto neighbouring properties. It would be a win-win situation.

Direction 6 - Products and Materials Management

How important is Products and Materials Management to you?



Question option

● Not at all important ● Slightly important ● Important ● Fairly important ● Very important ● No opinion

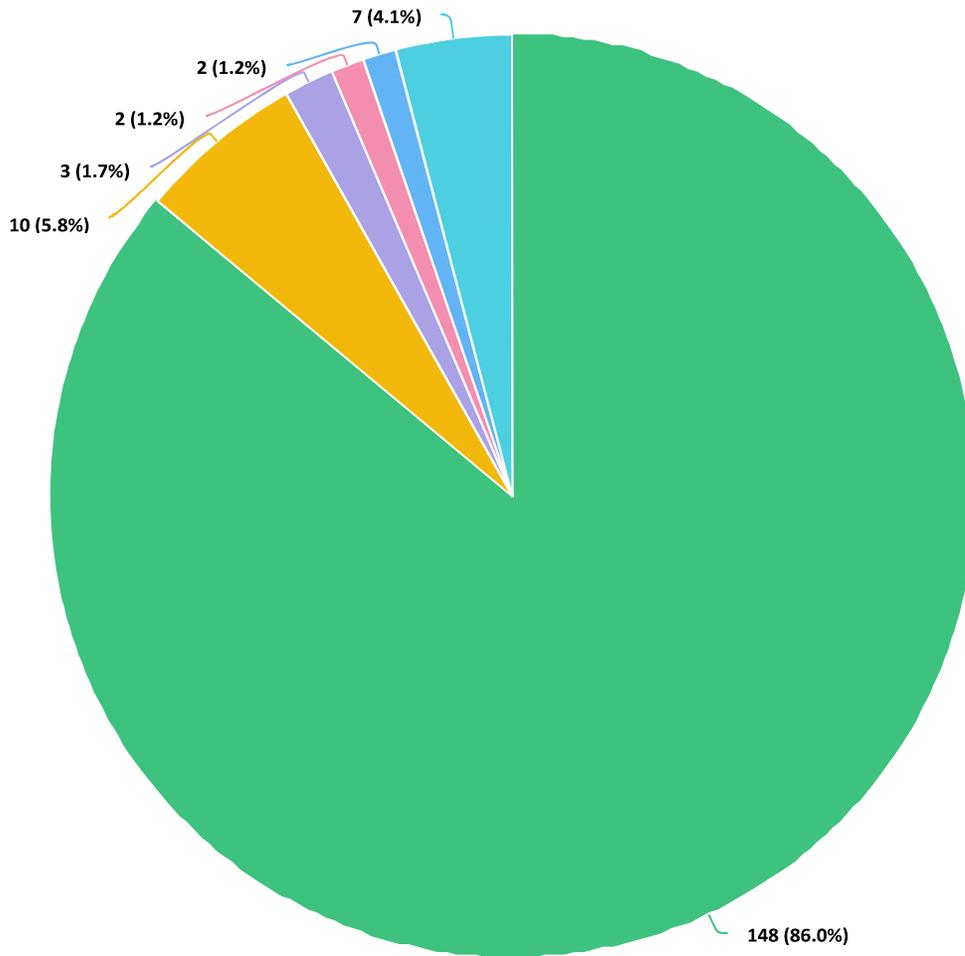
What actions would you add with respect to Products and Materials Management?

1. Reduce the use of plastic for packaging, Styrofoam included.
2. Having a place and qualified repair people for small appliance, furniture and other items would reduce these items from being thrown away.
3. We have to stress the Reuse R of recycling that was forgotten about in my generation and encourage younger generations not to assume newer is better from fashion to technology
4. Need some tangible and measurable goals for all these strategies
5. Decreasing consumption is what is necessary for a sustainable world. Upcycling workshops would be beneficial. Education about waste, education about where products go, education about the consumption of too much technology all need to happen on a large scale.
6. We need more recycling points. People have to drive to recycle, this doesn't make sense.
7. Develop industry-driven solutions to use data to make our supply chains more efficient
8. Another waste.
9. Place a total ban on selling public property (including schools) for residential development.
10. I'm for anything that promotes climate action.
11. Only if impact is not on tax payers.
12. As above comment.

13. Forcing residents to organize and transport recyclable materials simply encourages residents to dump waste in alleys and commercial areas. Washington State 20 years ago went to a recycling bin that is the same size as the garbage bin and green bin with a truck designed to use an arm to dump the recyclable material. Then it is transported and sorted at the site. Making citizens do all of the leg work simply hinders participation.
14. There is too much waste in our society, something needs to drastically change in this area. People need to be informed as to what is available out there in the community. The idea of a "reuse centre" and "tool library" are excellent ideas, but resources that are being recycled need to be more affordable (I'll use "Value Village" as an example, their prices are almost double of the same items in a "thrift store", and something needs to be changed with that.)
15. None because this is relatively unimportant to ME!
16. We used to go to the dump for recycling parts. Realizing the crowds that would be there now, I get it.
17. Courses in school on managing \$\$\$... give shops classes on every subject, that students may be inclined to follow and get their hands dirty in that stream of learning.
18. Ending the disposable act, that makes people throw out useful products when parts should be available to repair them.
19. Textile-recycling is currently not available in recycle depot, hope there will be.
20. No suggestions at this time
21. Place further bans on plastics.
22. Excited and encouraged to see that you will be using community-based social marketing!
23. It's very important to promote reuse and eliminate most single use products. Currently, a lot of paper take out bags, mesh bags, paper boxes, etc. are being used in place of the plastic ban, however, that does not solve the issue of more trees are being cut down by the amount of paper products being consumed right now. It will soon become a deforestation problem. We need to create reverse logistics for reusables to be returned back to businesses such as produce bags with a deposit fee, similar to the module of beverage cans, so people have the incentive to return them at their proper place.
24. Ensure educational technology can be supported in a way that we are not at the mercy of ever changing "upgrades" by the two mega corporations or work with them to recycle together for the needs in the whole community.
25. Very glad to see that recycling textiles is included here.
26. Get real.
27. What about encouraging the formation of citizen groups to take on things like small appliance repairs to extend the life of the many small appliances used in most homes?
28. No idea.
29. I have many members of a former Yahoo group I operated for free recycling of consumer goods to follow the motto "Don't feed the landfills"; replace the facility of this service on a city based database/site; I have a copy of my most recent user list with emails. I'd be happy to inform them that Richmond Freecycle is back and on a stable hosting platform. Have your current recycling manager contact me at cxxxxxxxxxxxx@shaw.ca (Gxxxxxxx Pxxxxxxx) to go into this more.
30. Embed bike repair maintenance skill workshops into the reuse centre to continually build community members skills and further that culture of repair.
31. Conquer single use economy by enacting policy that promotes quality, repairable products use and re-use and discourages 'built to fail' devices (e.g. washing machines or bicycles).
32. Impossible until you stop building monster houses. Stop allowing houses to sit empty. Stop cutting down trees for lame excuses. Stop tearing down houses for no reason. Stop allowing people to own property that don't live here and, stop allowing short term rentals (i.e. air bnb).
33. We already have Craigslist and Value Village, you can scrap this one.
34. Don't follow Vancouver's model, which appears non transparent, broken and corrupt.
35. Reducing waste in packaging/delivery is very important in the waste value-chain.
36. Seriously: Understand the urban metabolism.
37. Education about how to live gently on this earth by the City being a strong model for homes and businesses.
38. It's amazing how little recycling goes on. I see some sites with labelled recycling, while others just dump paper steel w wood and plastics in one bin. It's better than it was, but, needs more.
39. "Identify opportunities for synergy with companies to share data on material flow and waste streams".

40. Richmond should have a software where it communicates with the companies' software where information is sent to the city, lot number, expiration date, quantity, with the purpose of: prevent food companies and restaurants, not to sell expired products to the user; Prevent companies from repackaging and modifying expiration dates; to have information on the products that are going to be discarded and how the disposal process was carried out; and control and supervision of food companies and restaurants because they are disposing of food waste in the garbage and some are not recycling in the Ironwood sector.
41. Really like the idea of repair events
42. Maybe some of my answers for the previous sections fit better here, but I think the proposed actions here are great.
43. I think textile recycling is going to be very important for my workplace, because my workplace does produce waste from shoes that were mismatched, worn, missing its pair, etc. Sometimes the materials are still new-looking, but it just can't be sold and we can't donate it.
44. Tool library is a great idea!!
45. Outreach and awareness if important, but have the City be the lead. City should show the lead with their actions for example, award bids to businesses with sustainable values, reduce plastic garbage at events, reduce waste on unnecessary "merch" etc.
46. Add repair stations and encourage repair of appliances and other articles - sewing skill sets etc. - central places on bus routes?
47. See above comments
48. I support all the policy directions listed in this section. I am particularly impressed by the focus on education.
49. "En el caso que allí hubiera escuelas técnicas, se podría trabajar con ellas para la reparación de maquinarias. También se podría trabajar con universidades para "diseñar" productos que mejoren los ya existentes... o desarrollando partes (repuestos) que se rompen." [please translate]
50. Use recycled materials first.
51. Used bicycles destined for landfill can be repurposed for donation to those in need.
52. Have events where people can bring large household and electronic items to recycle or be repaired.
53. Support locally made and owned businesses. Push us to the forefront to consumers and mass retailers; and support programs that highlight our local manufacturing capabilities.
54. Keep residents informed of these important actions as they are being planned and implemented.
55. Involve seniors as well.
56. Lynas Lane is a perfect place to create a plastics recycling facility, melting and turning plastics into all kinds of benches, institutional walls, public toilet separators.
57. Make these things more inclusive, using at least one of our national languages -unite us as a population.
58. Public education is very important in this area. However, there will also be a requirement for bylaws to give this some teeth, and also bylaw enforcement.
59. The "rescue reuse" and "tool library" pilots sound interesting - could provide some employment opportunities as well as volunteer options.
60. Again your concept is far too vague. Provide examples of what you are talking about if you want clear and meaningful feedback.
61. These are all great actions and would ensure that there are opportunities for access, education, awareness, and social change.
62. Education for businesses about packaging and selling consumer goods, to make changes upstream of the consumer. Recycling mandates for businesses, just like there is for residential.
63. Lots of baby boomers have lots of stuff, it's a shame that most goes into the garbage because there is no clear and easy way to get it to those in need.
64. All of these are good, but impose deposit fees on all packaging, especially food packaging. At one time it was unthinkable to impose deposit fees on pop bottles and cans. Then it was unthinkable to impose deposit fees on milk containers -- until last year. Now I suggest imposing deposit fees on wax-paper burger wraps, french-fry cartons, Slurpee cups, and all such polluting material. We know from experience that if the deposit is rich enough (let's go for 40 cents per wrapper) then low-income people are happy to collect it and funnel it back to recycling centres.
65. Yes to a tool library and shared community space that allows for "makers" and DIY/refurbishing/crafting hobbies and skill sharing.

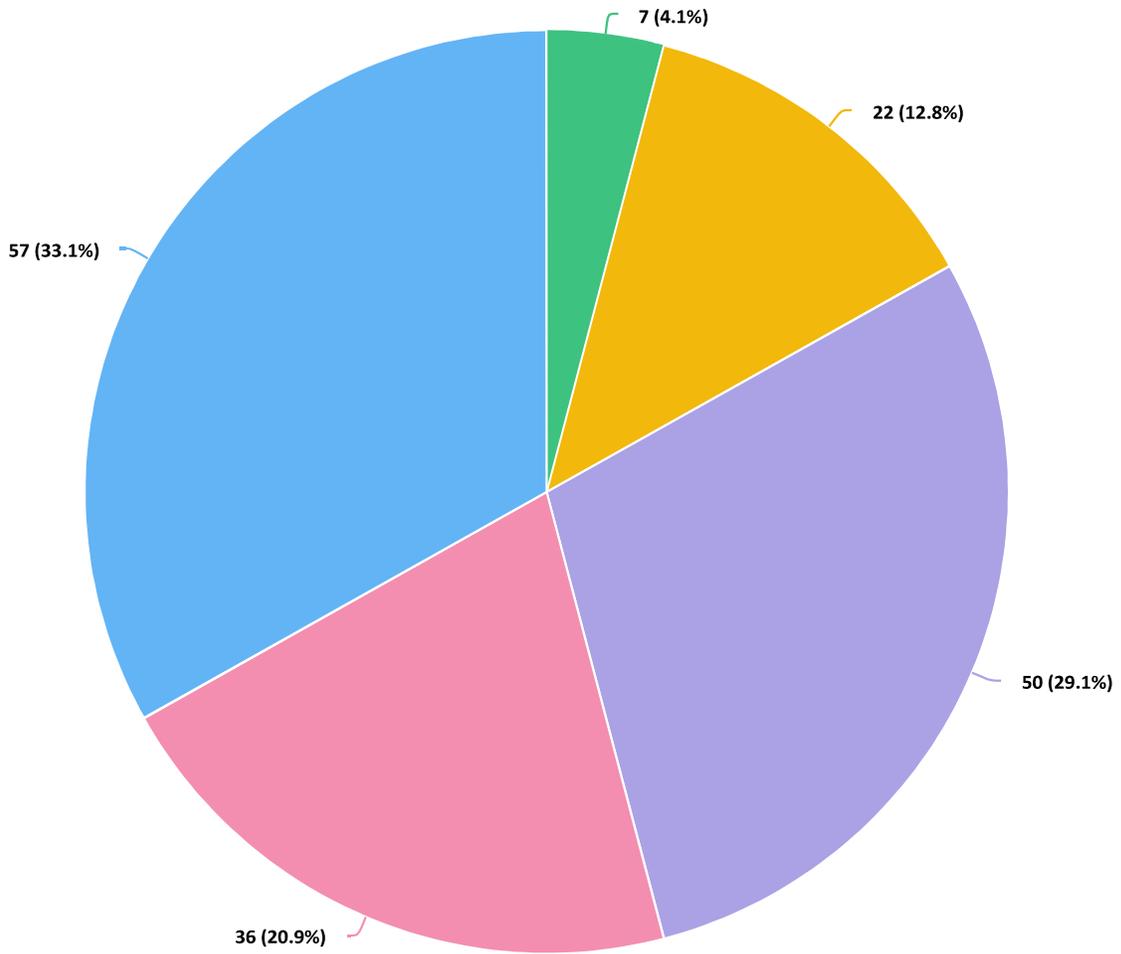
I represent the following:



Question options

- Resident
- Business
- Farming
- Organization (NGO)
- Academia
- Other (please specify)

My age is:



Question options

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

Letters from stakeholders



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7 Dec 2022

Sustainability and District Energy
Engineering and Public Works Department at the City of Richmond
6911 No. 3 Rd
Richmond, BC V6Y 2C1
via email: circulareconomy@richmond.ca

Re: City of Richmond's Circular City Strategy

Thank you for the opportunity to provide input on the City of Richmond's Circular City Strategy. The Strategy was reviewed by members of VCH's Healthy Environments & Climate Change, Healthy Public Policy, and Health Promotion & Nutrition teams. VCH supports the City of Richmond's vision of a circular economy and its alignment with other city plans.

Switching to circular models of practice can provide numerous health benefits, such as reduced environmental impacts of production/consumption and increased household cost savings¹. These cost savings leave more money for items and services necessary to maintain good health, such as nutritious and culturally appropriate food, childcare, and essential medications. We are also pleased to see the Strategy's focus on shared mobility, food, ecosystem services, and the built environment - all of which are important in not only mitigating climate change but also promoting the health of communities by allowing people to live active and healthy lifestyles.

Reducing greenhouse gas (GHG) emissions through better active transportation, food, and sustainable energy systems can result in positive health outcomes, such as reduced respiratory and cardiovascular conditions due to reduced air pollution¹.² The implementation of a circular economic model can also promote the production and consumption of healthier foods¹⁴.

While VCH supports the overall direction of the Strategy, we offer the following comments for consideration:

Indigenous Inclusion

VCH appreciates the City's focus on equity in each topic area, but notes that Indigenous inclusion remains an opportunity. We recommend that this be addressed as much as possible in consultation with local Indigenous leaders and organizations. We encourage the City to incorporate Indigenous values into future actions, including promoting Indigenous food sovereignty and security. These considerations can positively impact health³ by empowering communities and improving social wellbeing⁴. To further promote equity, we recommend using language that supports cultural diversity, safety and accessibility.

Public Health Alignment

In addition to the City's collaboration with other local municipalities, regional governments, and the Province, a few initiatives would benefit from the inclusion of a public health perspective. Longitudinal, clear and consistent communication with VCH's Health Protection team can help ensure that circularity does not increase health risk in our communities. For example, creating healthy food boxes for lower-income populations and supporting circular food marketplaces should be done in a way that does not violate the [Food Premises Regulation](#) and eliminates the risk of foodborne illness and cross-contamination. VCH's Health Protection team can assist by working with food stores, restaurants, culinary professionals, schools, and organizations to recover food and reduce food waste in a safe and sustainable way.

There are often minimal food options in certain neighbourhoods, some of which experience various inequities; we suggest increasing the availability of local, healthy, and culturally appropriate foods for community residents and working with residents to reduce food waste in community gardens. We also suggest collaborating with post-secondary institutions, such as KPU and UBC, to further inform Richmond residents on the importance of local food systems and hubs.

Baseline Indicators

VCH encourages the development of concrete targets within the Strategy, especially around resource consumption, GHG emissions, waste minimization, and food security. While we understand that the Circular City Strategy is not a work plan, we feel that developing and identifying key baseline indicators to measure progress would support implementation of this Strategy.

Funding Supports

Income is a key social determinant of health and promoting living wages is an important strategy for creating healthier communities. We suggest that the City explore potential tax incentives or other municipal policy tools that incentivize living wage jobs in the circular economy. We also recognize that changing operational practices can be costly; therefore, appropriate subsidies or program supports for individuals and organizations undertaking change be considered. An example of a prohibitive cost is that involved with salvaging produce from grocers to donate to food organisations, so funding supports will be important for their sustainability. Incentivizing sustainability is more likely to result in adoption of low-waste circular practices.

VCH is excited to see how the Circular City Strategy will evolve, and we appreciate all the work undertaken by the City of Richmond. We look forward to future collaboration and engagement with the City.

Sincerely,



Dr. Meena Dawar
Medical Health Officer, Richmond

References

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From: Eric Balke <e_balke@ducks.ca>
Sent: November 24, 2022 10:27 AM
To: Circular Economy
Cc: Badra, Marcos Alejandro
Subject: RE: Richmond Circular City Strategy - in-person Stakeholder Engagement Workshop

Hello,

Unfortunately I was unable to attend the Circular City Strategy engagement workshop on Tuesday, however I just wanted to follow up with a couple ideas:

- Removal and re-use of anthropogenically-modified woody debris accumulating in tidal marshes
 - In tidal marshes throughout Richmond there are many locations in the Fraser River where logs and woody debris from log storage tenures have escaped, form large & dense accumulations, and smother tidal marsh, thus altering, damaging, and/or destroying ecologically important tidal marshes.
 - There is an opportunity to remove this log debris and re-purpose the log debris (i) as mulch in blueberry farms, (ii) as biofuel/biochar, and/or (iii) as habitat features in ecological restoration projects, and/or (iv) for use in artwork & wood carving.
 - Removal of large accumulations of anthropogenically-modified woody debris will restore tidal marshes to support coastal flood protection and carbon sequestration, and for the benefit of juvenile salmon, other native BC fishes, and waterfowl.
 - Ducks Unlimited Canada is currently planning a project to remove woody debris from the Boundary Bay salt marsh. DUC has funding in the 2023-2024 fiscal year to continue these works in the Fraser delta (location TBD). Musqueam has indicated great interest in the removal of woody debris to restore tidal marshes throughout the Fraser Estuary.
- Beneficial re-use of dredged and excavated sediments
 - At present the majority of sediment excavated from the Fraser Delta or dredged from the Fraser River are disposed at sea.
 - There is no regulatory requirement to offset for dredging activities in the Fraser River, even though there are direct impacts to benthic invertebrates and indirect contributions to cumulative effects throughout the estuary (e.g., sediment deficit, redirection of sediment away from ecosystems that use the sediment).
 - These materials are “life giving” for the estuary, particularly tidal marshes that require sediment input to remain resilient with sea-level rise.
 - There are ways in which to re-use dredged and excavated sediments to support ecological resilience and coastal flood protection in the City of Richmond
 - For example, the City of Richmond supports the DUC-led Sturgeon Bank Sediment Enhancement Pilot Project, that seeks to re-use dredged sediment to begin restoring tidal marsh at the western Lulu Island foreshore tidal marsh. These works are also anticipated to support coastal flood protection of the City.
 - There is an opportunity to identify additional opportunities to beneficially re-use dredge and excavated sediments to support ecological resilience throughout the City of Richmond, and establish incentives to facilitate such projects.

Please let me know if you have any questions.

Cheers,

Eric

Eric Balke, MSc, RPBio (he/him/his)
Senior Restoration Biologist & Fraser River Estuary Program Manager
Ducks Unlimited Canada
Phone: 778-874-4368



*Conserving
Canada's
Wetlands*

I am grateful to live and work in the territory of many Coast Salish peoples, who continue to steward this land as they have since time immemorial.