

METRO VANCOUVER REGIONAL DISTRICT (MVRD) BOARD OF DIRECTORS

BOARD MEETING Friday, February 24, 2023 9:00 am

28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia Webstream available at http://www.metrovancouver.org

Membership and Votes

AGENDA1

A. ADOPTION OF THE AGENDA

1. February 24, 2023 Meeting Agenda

That the MVRD Board adopt the agenda for its meeting scheduled for February 24, 2023 as circulated.

B. ADOPTION OF THE MINUTES

1. January 27, 2023 Meeting Minutes

pg. 5

That the MVRD Board adopt the minutes for its meeting held January 27, 2023 as circulated.

2. February 3, 2023 Special Joint Meeting Minutes

pg. 9

That the MVRD Board adopt the minutes for its special joint meeting held February 3, 2023 as circulated.

C. DELEGATIONS

D. INVITED PRESENTATIONS

E. CONSENT AGENDA

Note: Directors may adopt in one motion all recommendations appearing on the Consent Agenda or, prior to the vote, request an item be removed from the Consent Agenda for debate or discussion, voting in opposition to a recommendation, or declaring a conflict of interest with an item.

¹ Note: Recommendation is shown under each item, where applicable. All Directors vote unless otherwise noted.

1. REGIONAL PLANNING COMMITTEE REPORTS

1.1	Impacts of E-Commerce on Industrial Lands and Transportation Systems Study That the MVRD Board receive for information the report dated January 23, 2023, titled "Impacts of E-Commerce on Industrial Lands and Transportation Systems Study".	pg. 13
1.2	Metro Vancouver Industrial Lands Portfolio Update That the MVRD Board receive for information the report dated January 23, 2023, titled "Metro Vancouver Industrial Lands Portfolio Update".	pg. 101
1.3	Metro Vancouver 2040: Shaping our Future – 2021 Annual Performance Monitoring Report That the MVRD Board receive for information the report dated January 23, 2023, titled "Metro Vancouver 2040: Shaping our Future - 2021 Annual Performance Monitoring Report", and direct staff to forward a copy to the Province of BC's Ministry of Municipal Affairs, Local Government Division.	pg. 106
1.4	Metro Vancouver 2040: Shaping our Future – 2021 Procedural Report That the MVRD Board receive for information the report dated January 23, 2023, titled "Metro Vancouver 2040: Shaping our Future - 2021 Procedural Report".	pg. 114
2. IN\	VEST VANCOUVER MANAGEMENT BOARD REPORTS	
2.1	2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and Invest Vancouver 2023 Annual Plan That the MVRD Board endorse the Invest Vancouver 2023 Annual Plan as attached to the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan".	pg. 128
2.2	Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub That the MVRD Board receive for information the report dated January 27, 2023 titled "Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub".	pg. 151
2.3	2023 CanExport Community Investment Contribution Award That the MVRD Board receive for information the report dated January 17, 2023	pg. 218

titled "2023 CanExport Community Investment Contribution Award".

3. CHIEF ADMINISTRATIVE OFFICER REPORTS

3.1 TransLink's Application for Federal Gas Tax Funding for 2023 Fleet Replacement –
Part B for 84 Conventional Renewable Natural Gas Buses

pg. 220

That the MVRD Board approve \$75.24 million in funding from the Greater Vancouver Regional Fund for TransLink's purchase of 84 conventional Renewable Natural Gas buses proposed in its 2023 application for Federal Gas Tax Funding as attached to the report dated January 30, 2023, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement – Part B".

- F. ITEMS REMOVED FROM THE CONSENT AGENDA
- G. REPORTS NOT INCLUDED IN CONSENT AGENDA
 - 1. CHIEF ADMINISTRATIVE OFFICER
 - 1.1 Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 pg. 275
 Third Reading and Final Adoption

That the MVRD Board:

- a) give third reading to *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022* as presented in the report dated February 13, 2023, titled "Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 Third Reading and Final Adoption";
- b) pass, and finally adopt *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*;
- c) direct staff to notify the Minister of Municipal Affairs that the MVRD Board has adopted *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*; and
- d) direct staff to notify all affected local governments, local First Nations, and other organizations and government agencies that participated in the development of *Metro 2050* that the MVRD Board has adopted the *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*.
- H. MOTIONS FOR WHICH NOTICE HAS BEEN GIVEN
- I. OTHER BUSINESS
 - 1. MVRD Board Committee Information Items and Delegation Summaries

pg. 417

- J. BUSINESS ARISING FROM DELEGATIONS
- K. RESOLUTION TO CLOSE MEETING

Note: The Board must state by resolution the basis under section 90 of the Community Charter on which the meeting is being closed. If a member wishes to add an item, the basis must be included below.

That the MVRD Board close its meeting scheduled for February 24, 2023 pursuant to section 226 (1) (a) of the *Local Government Act* and the *Community Charter* provisions as follows:

- 90 (1) A part of a council meeting may be closed to the public if the subject matter being considered relates to or is one or more of the following:
 - the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;
 - (m) a matter that, under another enactment, is such that the public may be excluded from the meeting; and
- (2) A part of a council meeting must be closed to the public if the subject matter being considered relates to one or more of the following:
 - (b) the consideration of information received and held in confidence relating to negotiations between the municipality and a provincial government or the federal government or both, or between a provincial government or the federal government or both and a third party.
- L. RISE AND REPORT (Items Released from Closed Meeting)

M. ADJOURNMENT/CONCLUSION

That the MVRD Board adjourn/conclude its meeting of February 24, 2023.

METRO VANCOUVER REGIONAL DISTRICT BOARD OF DIRECTORS

Minutes of the Regular Meeting of the Metro Vancouver Regional District (MVRD) Board of Directors held at 9:03 am on Friday, January 27, 2023, in the 28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:

Delta, Chair, Director George V. Harvie* Anmore, Vice Chair, Director John McEwen

Belcarra, Director Jamie Ross

Bowen Island, Director Andrew Leonard

Burnaby, Director Pietro Calendino

Burnaby, Director Sav Dhaliwal

Burnaby, Director Mike Hurley (arrived at 9:05

am)

Coquitlam, Director Craig Hodge Coquitlam, Director Teri Towner Delta, Director Dylan Kruger

Electoral Area A, Director Jen McCutcheon

Langley City, Director Paul Albrecht

Langley Township, Director Eric Woodward

Langley Township, Director Steve Ferguson*
Lions Bay, Director Ken Berry

Maple Ridge, Director Dan Ruimy

New Westminster, Director Patrick Johnstone

North Vancouver City, Director Linda Buchanan North Vancouver District, Director Lisa Muri

Pitt Meadows, Director Nicole MacDonald

Port Coquitlam, Director Brad West (arrived at 9:05 am)

Port Moody, Director Meghan Lahti Richmond, Director Malcolm Brodie

Richmond, Director Bill McNulty

Richmond, Director Chak Au

Surrey, Director Linda Annis

Surrey, Director Harry Bains

Surrey, Director Gordon Hepner

Surrey, Director Brenda Locke

Surrey, Director Rob Stutt

Vancouver, Director Rebecca Bligh (arrived at

9:07 am)

Vancouver, Director Adriane Carr

Vancouver, Director Lisa Dominato

Vancouver, Director Sarah Kirby-Yung

Vancouver, Director Mike Klassen

Vancouver, Director Ken Sim

Vancouver, Director Lenny Zhou

West Vancouver, Director Mark Sager White Rock, Director Megan Knight

MEMBERS ABSENT:

Surrey, Director Pardeep Kooner Tsawwassen, Chief Laura Cassidy

STAFF PRESENT:

Jerry W. Dobrovolny, Chief Administrative Officer Dorothy Shermer, Deputy Corporate Officer

Morgan Mackenzie, Legislative Services Coordinator, Board and Information Services

^{*} denotes electronic meeting participation as authorized by Section 3.6.2 of the *Procedure Bylaw*

A. ADOPTION OF THE AGENDA

1. January 27, 2023 Meeting Agenda

It was MOVED and SECONDED

That the MVRD Board adopt the agenda for its meeting scheduled for January 27, 2023 as circulated.

CARRIED

9:05 am Director Hurley and Director West arrive at the meeting.

B. ADOPTION OF THE MINUTES

1. October 28, 2022 Meeting Minutes

It was MOVED and SECONDED

That the MVRD Board adopt the minutes for its meeting held October 28, 2022 as circulated.

CARRIED

2. November 25, 2022 Meeting Minutes

It was MOVED and SECONDED

That the MVRD Board adopt the minutes for its meeting held November 25, 2022 as circulated.

CARRIED

C. DELEGATIONS

No items presented.

D. INVITED PRESENTATIONS

No items presented.

E. CONSENT AGENDA

It was MOVED and SECONDED

That the MVRD Board adopt the recommendations presented in the following items as presented in the January 27, 2023 MVRD Board Consent Agenda:

1.1 Township of Langley (1361 – 200 Street) – Request for Sanitary Service Extension and Covenant Discharge

CARRIED

The items and recommendations referred to above are as follows:

1.1 Township of Langley (1361 – 200 Street) – Request for Sanitary Service Extension and Covenant Discharge

Report dated January 3, 2023, from Jessica Jiang, Planner, Planning and Housing Services, seeking the MVRD Board's approval that the Township of Langley's request for a sanitary service extension to the entirety of the property at 1361 – 200 Street and for a discharge of Covenant BB647806 is consistent with *Metro 2040*.

Recommendation:

That the MVRD Board:

- a) resolve that the extension of GVS&DD sewerage services for the property at 1361 200 Street in the Township of Langley is generally consistent with the provisions of *Metro Vancouver 2040: Shaping our Future*;
- support the discharging of Covenant BB647806 for 1361 200 Street, and the discharging of corresponding covenants for 2 additional affected properties in the Township of Langley (1053 and 1403 200 Street);
- forward the requested Fraser Sewerage Area extension application for the property at 1361 – 200 Street in the Township of Langley to the GVS&DD Board for consideration; and
- d) forward the recommendation to support discharging of covenants for 1361, 1053 and 1403 200 Street in the Township of Langley to the GVS&DD Board for their information.

Adopted on Consent

F. ITEMS REMOVED FROM THE CONSENT AGENDA

No items presented.

G. REPORTS NOT INCLUDED IN CONSENT AGENDA

No items presented.

H. MOTIONS FOR WHICH NOTICE HAS BEEN GIVEN

No items presented.

I. OTHER BUSINESS

1. MVRD Board Committee Information Items and Delegation Summaries

J. BUSINESS ARISING FROM DELEGATIONS

No items presented.

9:07 am Councillor Bligh arrived at the meeting.

K. RESOLUTION TO CLOSE MEETING

It was MOVED and SECONDED

That the MVRD Board close its meeting scheduled for January 27, 2023 pursuant to section 226 (1) (a) of the *Local Government Act* and the *Community Charter* provisions as follows:

- 90 (1) A part of a council meeting may be closed to the public if the subject matter being considered relates to or is one or more of the following:
 - (a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the municipality or another position appointed by the municipality;
 - (g) litigation or potential litigation affecting the municipality; and
 - (i) the receipt of advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

CARRIED

- L. RISE AND REPORT (Items Released from Closed Meeting)
 No items presented.
- M. ADJOURNMENT/CONCLUSION

It was MOVED and SECONDED

That the MVRD Board adjourn its meeting of January 27, 2023.

CARRIED

(Time: 9:08 am)

CERTIFIED CORRECT	
Dorothy Shermer, Deputy Corporate Officer	George V. Harvie, Chair

57773195 FINAL

2

METRO VANCOUVER JOINT BOARDS SPECIAL MEETING

Minutes of the Special Joint Meeting of the Metro Vancouver Regional District (MVRD), the Greater Vancouver Water District (GVWD), the Greater Vancouver Sewerage and Drainage District (GVS&DD), and the Metro Vancouver Housing Corporation (MVHC) Board of Directors held at 9:04 am on Friday, February 3, 2023, in the 28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:

Delta, Chair, Director George V. Harvie Anmore, Vice Chair, Director John McEwen (departed at 12:03 pm) Belcarra, Director Jamie Ross Bowen Island, Director Andrew Leonard Burnaby, Director Pietro Calendino Burnaby, Director Sav Dhaliwal (departed at 10:58 am)

Burnaby, Director Mike Hurley (arrived at 9:08 am; departed at 10:56 am)

Coquitlam, Director Craig Hodge (departed at

11:52 am)

Coquitlam, Director Teri Towner Delta, Director Dylan Kruger

Electoral Area A, Director Jen McCutcheon

Langley Township, Director Eric Woodward

Langley City, Director Paul Albrecht

Langley Township, Director Steve Ferguson* North Vancouver City, Director Linda Buchanan North Vancouver District, Director Lisa Muri Pitt Meadows, Director Nicole MacDonald

Port Coquitlam, Director Brad West (arrived at

9:25 am; departed at 11:30 am)

Port Moody, Director Meghan Lahti Richmond, Director Malcolm Brodie Richmond, Director Bill McNulty Richmond, Director Chak Au Surrey, Director Linda Annis Surrey, Director Harry Bains Surrey, Director Gordon Hepner Surrey, Director Pardeep Kooner

Surrey, Director Brenda Locke Surrey, Director Rob Stutt

Tsawwassen, Chief Laura Cassidy*

Vancouver, Director Rebecca Bligh* (arrived at

10:17 am)

Vancouver, Director Adriane Carr (arrived at

9:11 am)

Vancouver, Director Lisa Dominato

Vancouver, Director Sarah Kirby-Yung (arrived at

9:25 am)

Vancouver, Director Mike Klassen Vancouver, Director Lenny Zhou West Vancouver, Director Mark Sager

White Rock, Director Megan Knight (departed at

12:06 pm)

MEMBERS ABSENT:

Lions Bay, Director Ken Berry Maple Ridge, Director Dan Ruimy New Westminster, Director Patrick Johnstone Vancouver, Director Ken Sim

STAFF PRESENT:

Jerry W. Dobrovolny, Chief Administrative Officer Dorothy Shermer, Deputy Corporate Officer Rapinder Khaira, Legislative Services Coordinator, Board and Information Services

^{*} denotes electronic meeting participation as authorized by Section 3.6.2 of the Procedure Bylaw

A. ADOPTION OF THE AGENDA

1. February 3, 2023 Special Joint Board Meeting Agenda

It was MOVED and SECONDED

That the MVRD, MVHC, GVWD, and GVS&DD Board adopt the agenda for its special joint meeting scheduled for February 3, 2023 as circulated.

CARRIED

B. PRESENTATION AND DISCUSSION

1. Board Orientation to Service Areas

Jerry W. Dobrovolny, Chief Administrative Officer, provided members with an overview of Metro Vancouver Regional District's role as a regional federation, its history, mission, management plans, previous strategic plan themes, and reflections on the last board term.

Project Delivery Services

Cheryl Nelms, General Manager, Project Delivery provided an overview of the Project Delivery department, its project and portfolio management, project estimating framework, integrated asset management, and quality management.

9:08 am Director Hurley arrived at the meeting.9:11 am Director Carr arrived at the meeting.

Water Services

Marilyn Towill, General Manager, Water Services, provided an overview of Metro Vancouver's Water System, roles and responsibilities of Metro Vancouver's Water Services, its regulatory environment, guiding strategic plans and initiatives, the Drinking Water Management Plan, climate action, future planning, growth expectations, and reconciliation initiatives.

9:25 am Director Kirby-Yung and Director West arrived at the meeting.

Liquid Waste Services

Peter Navratil, General Manager, Liquid Waste Services, provided a presentation on Metro Vancouver's Liquid Waste System, its historical evolution, environmental regulations, direction of plans and policies, inflow and infiltration, innovation and continuous improvement, sewer heat opportunities, major projects and service objectives.

Solid Waste Services

Paul Henderson, General Manager, Solid Waste Services, provided a presentation on Metro Vancouver's role in advancing Zero Waste and the circular economy, its Solid Waste Facilities, guiding policy and targets, integrated Solid Waste and Resource Management Plan, Solid Waste Management Plan update process, National Zero Waste Council, Zero Waste Conference, United Boulevard and Central Surrey Recycling and Waste Centers, recycling depot development, residuals management, Waste-to-Energy facility projects, and Waste-to-Energy Facility district energy.

Metro Vancouver Housing

Heather McNell, Deputy Chief Administrative Officer, provided a presentation on an overview of Metro Vancouver's Housing Portfolio, Housing opportunities, vision and guiding principles, the Metro Vancouver Housing 10-Year Plan, redevelopment priorities, expanding services through member partnerships, service areas and partners, continuous improvement, and maximizing impact.

10:17 am Director Bligh arrived at the meeting.

Regional Parks

Neal Carley, General Manager, Parks and Environment, provided an overview of Metro Vancouver's Regional Parks, priorities, mission, Regional Parks annual visit statistics, guiding plan, Regional Greenway Network, planning and resource management, asset management, and visitor services.

10:56 am Director Hurley departed the meeting.10:58 am Director Dhaliwal departed the meeting.

Regional Planning

Heather McNell, Deputy Chief Administrative Officer, provided an overview on the core services of Regional Planning, regional growth, long-term planning to build resilience, regional planning principles, and Metro 2050.

Air Quality

Neal Carley, General Manager, Parks and Environment, provided an overview on Metro Vancouver's air quality monitoring stations, core guiding plans, regional emissions, Climate 2050 Roadmaps, GHG reduction projections, the Clean Air Plan, regulatory approach, regulation development, air quality advisories, and Sustainability Innovation Fund approvals.

Invest Vancouver

Jacquie Griffiths, President, Invest Vancouver, provided a presentation on Metro Vancouver's regional economy, its challenges, foreign direct investment opportunities, the benefits of approaching economic development as a region, integrated functions of the Invest Vancouver department, 2022 highlights, and 2023 annual plan.

11:30 am Director West departed the meeting.

Electoral Area A

Marcin Pachcinski, Division Manager, Electoral Area A, provided an overview of Electoral Area A, Metro Vancouver's responsibilities for local land use planning, building inspection, and emergency management planning.

Financial Services

Dean Rear, Chief Financial Officer, provided an overview of the Financial Plan, financial planning processes, Board direction from the April 2021 workshop for the 2022 Budget Year, budget cycles, current goals and objectives, 2023 budget outcomes, breakdown of 2023 budget impacts, household impact forecasts, Metro Vancouver's financial structure, operating budget expenditures, capital program funding, debt operations, 2023 – 2027 Capital Plan Project counts and rankings, long-term financial plan, affordability, and next steps for the Finance Committee and Financial Plan Task Force.

- 11:52 am Director Hodge departed the meeting.
- 12:03 pm Vice Chair McEwen departed the meeting.
- 12:06 pm Director Knight departed the meeting.

C. ADJOURNMENT/CONCLUSION

It was MOVED and SECONDED

That the MVRD/MVHC/GVWD/GVS&DD Board conclude its special joint meeting of February 3, 2023.

CARRIED (Time: 12:15 pm)

CERTIFIED CORRECT	
Dorothy Shermer, Deputy Corporate Officer	George V. Harvie, Chair

57833587 FINAL



To: Regional Planning Committee

From: Eric Aderneck, Senior Planner, Regional Planning and Housing Services

Date: January 23, 2023 Meeting Date: February 10, 2023

Subject: Impacts of E-Commerce on Industrial Lands and Transportation Systems Study

RECOMMENDATION

That the MVRD Board receive for information the report dated January 23, 2023, titled "Impacts of E-Commerce on Industrial Lands and Transportation Systems Study".

EXECUTIVE SUMMARY

In support of the implementation of the Regional Industrial Lands Strategy, Metro Vancouver retained Colliers Strategy & Consulting Group to undertake an Impacts of E-Commerce on Industrial Lands and Transportation Systems Study. Completed in late 2022, the results further the understanding of the implications of the rapid growth in e-commerce, accelerated in part by the COVID-19 pandemic, on industrial lands for the distribution of goods as well as associated transportation and employment considerations in the region. The key recommendations from the study are as follows:

- Create up-to-date, citywide inventories of loading zones, curbs, and congestion points to inform local strategies to address the increase in demand for curbside space;
- Designate curbside delivery areas adjacent to apartment buildings to mitigate parking flow interruptions and double parking;
- Rethink zoning flexibility for a more resilient city that can absorb emerging trends, while still retaining the primary intended use of lands;
- Align housing densification and opportunities for emerging sustainable distribution methods to ensure that policies are current with business needs; and
- Explore opportunities to introduce some industrial uses to commercial areas, such as urban logistics, with shops housing multiple stages of the e-commerce supply chain in addition to retail.

PURPOSE

To convey to the Regional Planning Committee and the MVRD Board the completed Impacts of E-Commerce on Industrial Lands and Transportation Systems Study (Attachment).

BACKGROUND

The Regional Industrial Lands Strategy was approved by the MVRD Board in mid-2020 (Reference 1). Since then, Metro Vancouver has:

- completed the 2020 Regional Industrial Lands Inventory;
- completed an Industrial Intensification Analysis Study;
- completed the Regional Land Use Assessment project;

- incorporated new tools and polices into *Metro 2050*, to better protect industrial lands, which includes a new trade-oriented lands overlay tool; and
- completed the Impacts of E-Commerce on Industrial Lands and Transportation Systems Study.

Metro Vancouver continues to work with member jurisdictions and agencies to advance the recommended actions of RILS. Implementation will require continued collaboration with stakeholders and a long-term commitment by Metro Vancouver, member jurisdictions, and other regional agencies.

E-COMMERCE AND IMPACTS ON INDUSTRIAL LANDS AND TRANSPORTATION SYSTEMS

Based on a review of the recommendations and priority actions of RILS, and in response to the accelerated growth in e-commerce due in part to the COVID-19 pandemic, Metro Vancouver commissioned Colliers Strategy & Consulting Group to explore the impacts of e-commerce on industrial lands and transportation systems in the region.

The Study conducted by Colliers Strategy & Consulting Group reviewed available publications and literature to document / summarize the latest trends and forecasts associated with the impacts of the accelerated rise in e-commerce, and identified the findings that are most relevant to the Metro Vancouver region. Specifically, it considered the associated 'first mile' (to the warehouse), 'middle mile' (to the distribution hub), and 'last mile' (to the customer) impacts on the region's industrial lands and transportation systems, as well as the implications on space needs and job densities. Along with description and analysis sections which includes current trends, the Study includes twelve case studies to profile initiatives that have come about because of or in response to these trends in other jurisdictions.

Stakeholder Engagement

To inform the study, Colliers Consulting completed a number of group engagement sessions. In addition to formal stakeholder meetings, there were informal conversations with industrial developers, brokers, logistics operators and various organizations, and other means to identify the emerging opportunities and challenges with regards to e-commerce, transportation, and industrial land use matters.

Key Themes and Findings

From the research and the stakeholder informational interviews, the key issues identified by the Study are as follows:

- From a retailer perspective, curbside-management strategies help to improve efficiency of deliveries. Municipalities should consider this when developing curb-management and onstreet parking policies.
- E-commerce delivery places significantly more demand on curb space than other new services such as ride hailing.
- Current traffic data can be inaccurate and unreliable for future predictions, given the difficulty
 in distinguishing between background traffic and 'invisible freight' gig-delivery workers in
 private automobiles.
- The logistics industry is trending toward larger vehicles to reduce labour requirements, which may reduce the amount of traffic but means larger trucks on the streets, utilizing more space.

- Mass transit stations are excellent locations for micro-fulfillment hubs and parcel pick-up boxes.
- Parcel boxes in both apartment and commercial buildings reduce the time required to complete a delivery. In addition to reducing curb demand, these boxes have the added benefit of reducing parcel theft.
- Greater adoption of cargo bikes will require modifications to current transportation infrastructure. Wider bike lanes, additional buffers, and better parking options are needed to facilitate cargo bike delivery.
- As a result of consumer expectations of rapid delivery, significantly more middle-mile shipping is occurring with partially filled trucks.
- The consolidation of goods, or group shipping, is one of the most effective methods of reducing trips and greenhouse gas emissions.
- E-commerce warehouses typically use three times more labour than traditional warehouses. Automation could reduce labour requirements by up to five times, but it remains a significant investment, which is mainly only possible for large operators.
- In many cases, zoning provisions are inflexible and not keeping up with new uses coming to market.

Recommendations

While the long-term impacts of the COVID-19 pandemic on the uptake in e-commerce are difficult to accurately project, the trends noted in the Study are expected to continue. As a result, the following are recommendations that municipalities, agencies, and operators could consider to address and take greater advantages of this ongoing trend:

- **Curb-management policies:** An important first step is to create up-to-date, citywide inventories of loading zones, curbs and congestion points. Improved data and monitoring will better inform strategies for curbside space usage.
- Designated delivery areas: Introducing curbside delivery areas adjacent to apartment buildings would help mitigate parking flow interruptions and double parking. These areas should be location-specific and context appropriate, rather than applied as a blanket solution.
- Micro-distribution hubs: The integration of small local hubs should be incorporated into a variety of developments, including high-density commercial, residential, and transit-oriented communities.
- **Flexible zoning:** Implementing more flexible zoning would allow cites to respond better to emerging trends, while still retaining the primary intended use of the lands.
- **Population proximity:** Aligning anticipated population growth and opportunities for sustainable distribution methods are crucial considerations to better support changing business needs.
- Alternative land uses: Opportunities that introduce industrial uses, such as urban logistics, into commercial areas, especially where these uses can offer dense employment opportunities connected with transit, should be explored. In some cases, traditional brick-and-mortar retail shops that have closed could house multiple stages of the e-commerce supply chain, including processing in-store pick-ups and online returns, without compromising neighbourhood vibrancy.

Next Steps

The project was initiated in early 2022, and a scope of work report was provided to the Regional Planning Committee in February 2022 (Reference 2) and an interim status report was provided in September 2022 (Reference 3). The final Study was presented to the Regional Planning Advisory Committee at its meeting on November 4, 2022, for information. After receipt by the MVRD Board, the Study will be posted on the Metro Vancouver website for public access and broadly shared.

Staff will be considering how best to support member jurisdictions and others in implementing the recommendations from the Study.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The Board-approved 2022 Regional Planning budget included \$30,000 for the continued implementation of the Regional Industrial Lands Strategy. The funding for this Study by Colliers Consulting was provided by the approved Regional Planning budget with staff time used to project manage the work.

This Study advances the implementation of RILS, and is relevant given the rapidly changing industrial and distribution landscape regionally, nationally, and globally. It also supports ongoing collaboration and knowledge sharing with member jurisdictions and other agencies and stakeholders.

CONCLUSION

As part of the continued program to implement the Regional Industrial Lands Strategy, Metro Vancouver commissioned a study of the evolving impacts of e-commerce, accelerated in part by the COVID-19 pandemic, on industrial lands and transportation systems in the region. This report conveys the final study to the Regional Planning Committee and MVRD Board for information.

Attachment

Impacts of E-Commerce on Industrial Lands and Transportation Systems Study

References

- 1. Regional Industrial Lands Strategy Webpage
- 2. Report dated January 21, 2022, titled "Regional Industrial Lands Strategy Implementation Impacts of E-Commerce on Industrial Land and Transportation Systems Scope of Work", to the Regional Planning Committee on February 10, 2022
- 3. Report dated September 2, 2022, titled "Impacts of E-Commerce on Industrial Lands and Transportation Systems Project Status and Preliminary Findings", to the Regional Planning Committee on September 8, 2022

56484429



October 14th, 2022

Prepared for: Metro Vancouver

Colliers Strategy and Consulting Group

Introduction

Study Objectives

Colliers Strategy and Consulting Group was retained by Metro Vancouver Regional District to provide a refined, deep understanding of how the rise of e-commerce is impacting industrial lands, the distribution of goods, and associated transportation networks, within the region.

Methodology

The literature review was completed on an ongoing basis throughout the duration of the study. A range of resources were used including academic articles, government studies, and findings reports, market reports, industry reports, news articles, and other relevant media (e.g. podcasts and webinars). Summaries of key themes found from this research are found below and on subsequent pages.

Stakeholder engagement included conducting a series of interviews with post-secondary academics, public transportation authorities, regional municipalities, postal service providers, delivery couriers, and other consultants. Participants and their exact responses are kept anonymous for their privacy. A list of the guiding questions used for the interviews can be found in the appendix of this study.

Limitations

This study relies on data from multiple sources including but not limited to Colliers Strategy and Consulting Group, and Statistics Canada. The quality of the assumptions made in the background data, therefore, places limitations on the study's findings, but Colliers has tried to ensure that assumptions are based on up-to-date policies and procedures.

However, should market conditions, policies, and/or procedures change significantly, the study's data and conclusions should be re-examined, particularly due to the economic uncertainties resulting from COVID-19. The data used in the study was generated during the COVID-19 pandemic. Colliers sees COVID-19 as a generation-defining crisis, limiting the full ability to make accurate predictions.

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Executive Summary Background & Context

Understanding E-Commerce

E-commerce, the buying and selling of goods and services online, is a sector that has grown rapidly over the past twenty years. Since spring 2020, the sector has experienced extraordinary growth as a result of pandemic protocols that changed consumer habits and pushed retailers to quickly adopt an online presence. Increasingly, the requirements for brick-and-mortar space, warehousing space, fulfilment space, and distribution space are shifting. This is resulting in changes that are putting pressure on both the commercial and industrial markets.

Additionally, e-commerce most often requires products to be delivered directly to consumers rather than the traditional method of delivering to retail spaces. This has led to increased, sporadic traffic in areas that had previously not been designated for frequent loading and unloading, such as residential areas.

The delivery methods used often employ 'gig workers' who commonly make deliveries in their own automobiles, or by alternate methods including bikes and scooters. This is increasing demand for curbside and street parking space in an unprecedented way.

Metro Vancouver Analysis

The industrial market in the Metro Vancouver region is strained with very low vacancy rates and high rental rates. E-commerce has introduced additional users seeking to occupy what little available industrial space is found in Metro Vancouver. These users are often able to pay a higher rate than other industrial uses, and are, to an extent, contributing to the increase in rental rates. Specifically, the increased need for distribution centres to be located in urban locations near residential concentrations is pushing other uses out of the urban core, to more suburban locations where rental rates are lower.

The transportation network in the region could experience issues when traffic patterns for private automobile use return to prepandemic levels and delivery vehicle numbers continue to rise. Related to the congestion increase, concerns of additional curb demand are developing and are anticipated to become greater concerns going forward.

Executive Summary Key Findings

Impacts of Delivery

From a retailer perspective, curbsidemanagement strategies help to improve the efficiency of deliveries. Time spent finding parking is time lost. As a result, many drivers are illegally or double parking.

E-commerce delivery places significantly more demand on curb space than other new services such as ride-hailing. This is due to the additional time required for delivery personnel to access the building, and in some cases travel to an upper floor.

Current traffic data can be inaccurate and unreliable for future predictions. This is caused by the difficulty in distinguishing between background traffic and 'invisible freight' gig-delivery workers in private automobiles.

Parcel boxes in both apartment and commercial buildings reduce the time required to complete a delivery. In addition to reducing curb demand, these boxes have the added benefit of reducing parcel theft.

Greater adoption of cargo bikes requires specific modifications to current transportation infrastructure. Standard bike lanes are generally not wide enough to accommodate cargo bikes. Wider lanes and additional buffers are needed to facilitate cargo bike delivery. Furthermore, there is often a lack of parking options.

Impacts of Logistics

As a result of consumer expectations of rapid delivery, significantly more middle-mile shipping is occurring with partially filled trucks. This results in lower overall utilization of truck cargo space, more deliveries per truck, more traffic and more pollution.

E-commerce warehouses typically use three times more labour than traditional warehouses. Automation could reduce labour requirements by up to five times but remains a significant investment mainly possible for large operators.

One of the most frequent comments made by developers, agents and logistics managers is that the process for rezoning and development needs to be accelerated. In many cases, zoning provisions are inflexible and not keeping up with new uses coming to market, requiring a rezoning process that is often lengthy, expensive and resource intensive.

Executive Summary Recommendations

Rethink Curb Space

Curb Management Policies: The first step is to create up-to-date, citywide inventories of loading zones, curbs and congestion points. Expanded data can inform city strategies and local plans to address the increase in demand for curbside space.

Designated Delivery Areas: Curbside delivery areas adjacent to apartment buildings help mitigate parking flow interruptions and double parking. These areas need to be location-specific rather than applied as a blanket solution.

Rethink Zoning

Flexible Zoning: The more flexible the zoning, the more resilient a city can be when mitigating and absorbing emerging trends, while still retaining the primary intended use of the lands. Data collection can provide ongoing monitoring of the success of new pilot programs.

Population Proximity: Aligning densification of the anticipated population growth and opportunities for sustainable distribution methods are a crucial consideration for updating land use plans and policies. Municipalities should be proactively reviewing policies, especially for emerging trends such as e-commerce and ridesharing, to ensure that they are current with business needs.

Alternative Land Uses: Municipalities should explore opportunities to introduce industrial uses, such as urban logistics, to commercial areas, especially where these uses can offer dense employment opportunities connected with transit. In some cases, traditional brickand-mortar shops could house multiple stages of the e-commerce supply chain in addition to retail. This includes processing instore pick-ups and online returns, without compromising neighbourhood vibrancy.



Understanding E-commerce What is E-commerce?

E-commerce, for the purpose of this study, is the buying and selling of goods over the internet, that are then shipped and delivered, most often directly to the consumer, reducing the need to access a brick-and-mortar store.

The Facets of E-commerce

There is no delineated supply chain for e-commerce. Instead, there are many different ways that goods can be produced, shipped, and delivered to the end consumers. This diversity has enabled sales and business expansion into market segments that would not be accessible without online access to a wider market.

A significant component of e-commerce is the ordering of both take-out food delivery as well as the delivery of groceries. Both have had significant impacts on the management of brick-and-mortar food and beverage operations and grocery retail space allotment. While this contributes to road congestion and curb demand, it has a limited impact on industrial land due to the minimal reliance on food warehouse space. As such, the role of food delivery has been less explored in this study to allow a more comprehensive review of aspects impacting the industrial realm, a vital concern for the Metro Vancouver region.

- B2C (business-toconsumer) is the business model of selling products or services directly to consumers. This is what is most associated with ecommerce.
- B2B (business-to-business)
 is the exchange of
 products, services or
 information between
 businesses. The majority of
 these transactions are
 serviced based.
- C2C (consumer to consumer) is the e-commerce model that allows your couch or baseball cards to be sold via sites like eBay or Craigslist to other consumers around the world, rather than limited to a local garage sale.
- C2B (consumer to business) this model includes product placement in content making, contract/gig service work, and other services predominantly.

Understanding E-commerce What is E-commerce?

Readily available products online have changed the way brick-and-mortar stores and industrial lands are involved in the delivery and consumption of goods.

E-commerce vs. Traditional Retail

E-commerce is a relatively new form of retail that is quickly changing how supply chains are managed and how goods shipping is conducted, drastically changing the way consumers receive or collect goods.

Additional delivery requirements and increasing needs for rapid delivery to stay competitive have meant that some e-commerce models have not always been profitable. As a result, hybrid or omnichannel retail models have become increasingly popular.

Businesses that do tend to be most profitable are distributors that implement delivery subscription services (such as Amazon prime) and offer a wide range of products, resulting in consistent use by virtually every type of consumer.

- **Wholesale** is the selling of goods in large quantities to be retailed by others.
- Brick-and-Mortar refers to a physical presence of an organization or business in a building or other structure.
- Logistics is the management of the flow of products between the point of origin and the point of consumption to meet the requirements of customers or corporations.
- Omnichannel Retail is an approach to e-commerce that attempts to reach and accommodate customers shopping online or in brickand-mortar stores.
- Click-And-Collect, curbside pick-up, or in store pick-up are methods of goods purchasing where the initial purchase is done online, then the collection is completed by the customer at the physical store or just outside it.

Understanding E-commerce Why study E-commerce?

Monthly paid subscriptions for rapid-delivery services of various products have helped facilitate the adoption of e-commerce as a new form of retail.

Rapid Growth

The global pandemic forced many retailers to quickly adopt an online platform to maintain their business, resulting in more options available online for consumers and more transactions occurring online as a result.

In addition, the pandemic acted as a catalyst for the increase in e-commerce activity. Other elements, including parcel delivery subscriptions such as Amazon Prime, have also driven the increase. Easier and cheaper delivery fulfilment through automation and alternative delivery/pick-up solutions have also resulted in retailers quickly adopting this method of sale, and more consumers in turn opt for e-commerce as a way to shop.

Certain retail sectors have seen more drastic increases in e-commerce uptake, most significantly 'clothing & accessories', as well as 'sporting, hobby, books & music'. The least impacted sectors are those that provide an inherent experience for consumers, such as services, and restaurant dining and entertainment. Operators that can provide subscription services (e.g. Amazon, Wal-Mart, DoorDash) subsidize their delivery costs with these fees. This enables their delivery services to cover a broader area, as well as offer a more competitive, faster delivery service.

- "Just-In-Time" Delivery is an inventory management strategy that is intended to sync orders to suppliers with production or delivery schedules, limiting the need for warehousing.
- Dark Stores are retail facilities that resemble a conventional supermarket or another standard store. These are not open to the public, but instead, house goods used to fulfill online orders.
- Invisible Freight refers to urban delivery services that are gig-based and operate out of unmarked passenger vehicles, scooters, or ebikes that are often unregulated and do not require business licences (e.g. UberEATS)
- Distribution Centre is a warehouse or other specialized building which is stocked with products to be redistributed to retailers, wholesalers, or directly to consumers.
- Fulfilment Centre is a third-party warehouse where incoming orders are received, processed and filled.

Understanding E-commerce Why study E-commerce?

E-commerce has been increasingly representing a larger portion of the broader Canadian retail market, with 7% of all retail activity occurring online in 2021 compared to 2% in 2016, surging to a peak of 11% in April of 2020.

State of E-commerce in Canada

Statistics Canada estimates that 75% of the Canadian population purchased goods online in the first half of 2022.

While e-commerce sales have dropped off slightly since the easing of pandemic restrictions for in-person shopping, total e-commerce sales are still far greater than they were in 2019 and expected to stay at elevated levels.



- An estimated 55% of Canadians made online retail purchases with their mobile devices in January 2022.
- Approximately half of all online Canadian purchases are made on non-Canadian websites.
- Canadian online buying patterns generally hit an annual peak following American Thanksgiving through to Christmas.

Understanding E-commerce E-commerce in Urban Areas

The rise of e-commerce has added demand to the industrial real estate market, urban freight corridors, and curb-side delivery space. Understanding this demand within a city-specific context will help prepare necessary policy changes.

State of E-commerce in Cities

Dynamic urban areas are a complex network of corridors and land uses, which are both currently experiencing challenges due to the rise of e-commerce.

Supply chains and urban logistics are being strained by the number of e-commerce goods flowing through cities. Recent supply chain gaps and delays have brought urban logistics to the mainstream.

Urban residents are seeing the impacts of e-commerce daily. Consumer expectations of fast delivery are at odds with increasing delivery vehicle congestion, causing increased demand for space.

Expensive land rates and higher densities associated with cities limit the availability of industrial land and especially limit the land that can be used for warehousing, which frequently requires large footprints. Cities are facing the challenge of balancing new locational and built-form options to ensure that warehousing and other industrial uses are not pushed out.

- Urban areas only have a finite amount of space available. Different ecommerce activities are all competing for a limited amount of space and resources, often going to the highest bidder.
- The delicate network for urban movement can be significantly disrupted by the smallest change. Ecommerce delivery is almost exclusively done by municipally owned roads and sidewalks.

Understanding E-commerce Impacts on Employment

E-commerce is generally believed to create additional employment for warehousing and delivery roles, while both reducing and changing the role of retail staffing needs.

Labour Changes Tied to E-commerce

Retail

To a certain extent, it is understood that e-commerce has reduced the need for retail staff. Studies have indicated reduced incomes related to employment in retail in the United States since 2018, primarily suspected to be due to reduced hours worked. Yet, an in-person shopping experience is still proven to be preferred for certain products. Retailers are frequently downsizing their spaces to offer fewer selections in stores, but more display opportunities.

Warehousing

It is somewhat anticipated that automation will over time reduce employment needs for warehousing positions in fulfilment and distribution centres. Currently, the rise in demand is creating more jobs in this sector as hiring additional staff is more cost-effective than implementing automated solutions. This will likely change as the cost of robotics reduces with increased adoption.

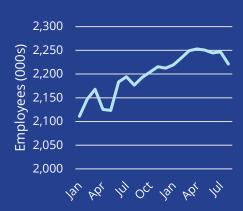
Delivery

Fluctuating demand for delivery personnel has opened up opportunities for what is technically considered to be 'self-employment' for delivery drivers within the 'gig economy'. This allows deliveries to be made at a reduced cost for retailers, however, also presents concerns regarding the lack of employment benefits, including safety for drivers and the public.

BC Employment Trends

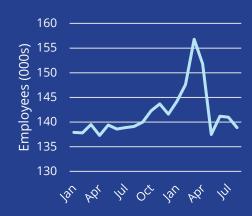


2021- 2022



Retail and Wholesale Trade

2021 - 2022



Understanding E-commerce Literature Review

Literature surrounding e-commerce and its impacts on cities has focused mostly on physical innovations, updated planning policies, and emerging delivery techniques. The wide-ranging impacts of e-commerce can be felt throughout cities, from large municipal infrastructure down to personal shopping. In general, the e-commerce and industrial industry is advancing quickly, and government has been slow to make changes. Policy changes and municipal programs that have occurred have virtually all been reactionary rather than proactive.

Brick-and-Mortar Evolution

Stores are increasing services & space to facilitate the changing support role brick-and-mortar plays in e-commerce retail.

Retail is not divided into a mutually exclusive manner between traditional brick-and-mortar and online transactions. Click-and-collect models of shopping (where the product selection and initial transactions occur online, then the pick-up of the item purchased is done in-store) are becoming increasingly in demand. As a result, stores are dedicating teller counter space specifically for package pick-ups, introducing parcel lockers, and devoting more floor space for order fulfilment.

"Hybrid retail" models, where staff split their time between in-person customer service and online order picking was a quick solution to pandemic issues, but it is largely expected to continue going forward. Despite figures that estimate half of all retailers offer free return shipping for online orders, roughly 60% of online shoppers prefer to return items in a brick-and-mortar store. As a result, this is a significant change linked to the fact that about 30% of all online purchases are returned, compared to 9% of in-person purchases.

Partnerships

Combining the efforts of industry and public sector policy making, rather than exclusively one or the other, is key.

Successful projects have been implemented most often through the combined efforts of a range of partners including municipalities, port authorities, advanced technology companies, retailers, and distributors, amongst others. The case studies in this study review this further. In general, the literature showed that government efforts alone were slow to address real issues that were arising with the increase in e-commerce. As logistics and technology companies are at the forefront of the e-commerce sector, these actors hold a greater power to assess trends than the municipalities in which they are located.

Collaborative pilot projects were often able to combine different sets of data collected by private and public sectors, revealing detailed information that hadn't been available or clear without collaboration. Access to additional tools or technologies across multiple organizations has also been an important implementation mode, allowing for the crosspollination of ideas and increased collaboration.

Understanding E-commerce Literature Review

Curb Management

Frequent and speedy deliveries have pushed the demand for curbside loading space to unprecedented levels.

Curbs and sidewalks have emerged as a major congestion points that are being impacted by the rise of e-commerce deliveries. Delivery companies need ample and immediate access to the curb to unload as quickly as possible to meet the consumer demands of increasingly fast delivery. These companies are also highly interested and invested in streamlining the curbside delivery process for efficiency and cost savings. The e-commerce demand for the curb conflicts with existing uses such as parking, cycling, transit, and garbage collection. Much like the congestion and conflicts that have arisen from ride-hailing curb demand, e-commerce delivery is creating a much greater need for a comprehensive loading and unloading zone strategy.

But before the curb can be managed, an inventory of the amount and type of curb space in a city must be collected. This is a significant barrier for most cities that have not been keeping an accurate inventory, or even examined the current uses of their curb space and sidewalks. While some cities like Vancouver have prescribed loading zones, many of these zones are not monitored on an ongoing basis. The first step in a curb management policy is to create an up-to-date inventory of the loading zones, curbs, and congestion points before making any decisions. From this study, various possible next steps will be examined that may be implemented after the data collection is complete.

Last Mile Distribution by Cargo Bike

The desire for energy-efficient delivery has produced a wave of cargo bike delivery experiments with a mixed reception.

Cargo bikes and e-cargo bikes are last mile delivery and distribution services increasingly explored by municipalities and parcel companies. The proposed benefits of switching from traditional delivery vehicles to cargo bikes include lower GHG emissions per delivery, less vehicle congestion, and better delivery access to dense urban areas.

While cargo bikes take up a smaller footprint than traditional delivery vans, they have a substantially lighter load capacity. With fewer parcels being delivered on each delivery route, the cost per delivery is driven up significantly. The fuel savings that come with utilizing bicycles do not seem to outweigh the labour cost of an inefficient trip. Additionally, this inefficiency increases the required number of trips, which can conflict with consumer demands for fast delivery and can cancel out the decreased vehicle congestion and replace it with cargo bike congestion.

Higher frequency cargo bike trips require a higher amount of staffing per delivery, further decreasing the feasibility of this green delivery method. Industries like e-commerce that rely heavily on the availability of the workforce, especially gig workers, have been struggling to meet staffing needs.

Understanding E-commerce Literature Review

Alternative Delivery Methods

Drones, automated vehicles, and e-cargo bikes are some of the many solutions that are being implemented for deliveries.

Drones and self-driving vehicles are delivery solutions that are not immediately, broadly feasible in the Metro Vancouver market and context. This is due to several reasons ranging from population density, current distribution hub locations, and transportation regulations, amongst others.

As population density increases in more parts of the region, and as safety measures improve for these delivery modes, more implementation of automated delivery solutions will be employed. These are very real and effective solutions to many of the labour and congestion issues facing cities, and as such businesses will continue to pursue them.

Ensuring long-term planning efforts consider the impacts on safety, labour dynamics, and curb demand for these delivery methods will be crucial. In the current and immediate future context, other alternative delivery methods such as e-cargo bike fleets are more easily and quickly implemented as an alternative, or supplement to traditional delivery vans and trucks, when distances and other factors permit.

Port Activity

Port cities are complex networks of goods movement infrastructure and are very important to e-commerce trade.

Shipping container ports along the West Coast of North America are where a significant amount of consumer goods enter. In Vancouver, the Port is responsible for the import of approximately \$240 billion of goods annually. These ports are not only the gateway for consumer goods, but they are also enormous drivers of economic activity. The Port of Los Angeles and Long Beach employs 1 in 9 residents of Southern California, about 992,000 jobs, with an additional 600,000 indirect jobs. Just like the Port of Vancouver, these ports have immense downstream economic benefits that can be felt across the region. The flow of goods into ports has increased with the rise of ecommerce, showing the importance of efficient port operations on wider economic outcomes.

The efficiency of port operations at the Port of Vancouver relies heavily on the ability to cross dock, which refers to unloading ready-for-consumers goods directly onto the next mode of transportation without requiring warehouse use. As more finished goods are entering Vancouver via the ports, and with shorter lead times, this quick and intense practice is necessary to keep port delays to a minimum. Instead of traditional warehouse forms located away from the port, cross-docking is most efficient when the warehouse is located directly adjacent to the port and requires the least amount of material transportation.

Understanding E-commerce Emerging Trends

Private companies are instigators of change, and municipalities are reacting to the changes. There is an apparent gap in the literature on how cities can innovate to absorb the impacts of e-commerce, rather than be in conflict.

Conflict Over Space

There is a conflict over space occurring on public curbside infrastructure. Deliveries need this space to get from the vehicle to consumers, but cities still need streets for parking, sidewalks, and bike lanes. The usage of this space is hotly contested, and this conflict is causing congestion and negative outcomes for all.

Forms of Retail

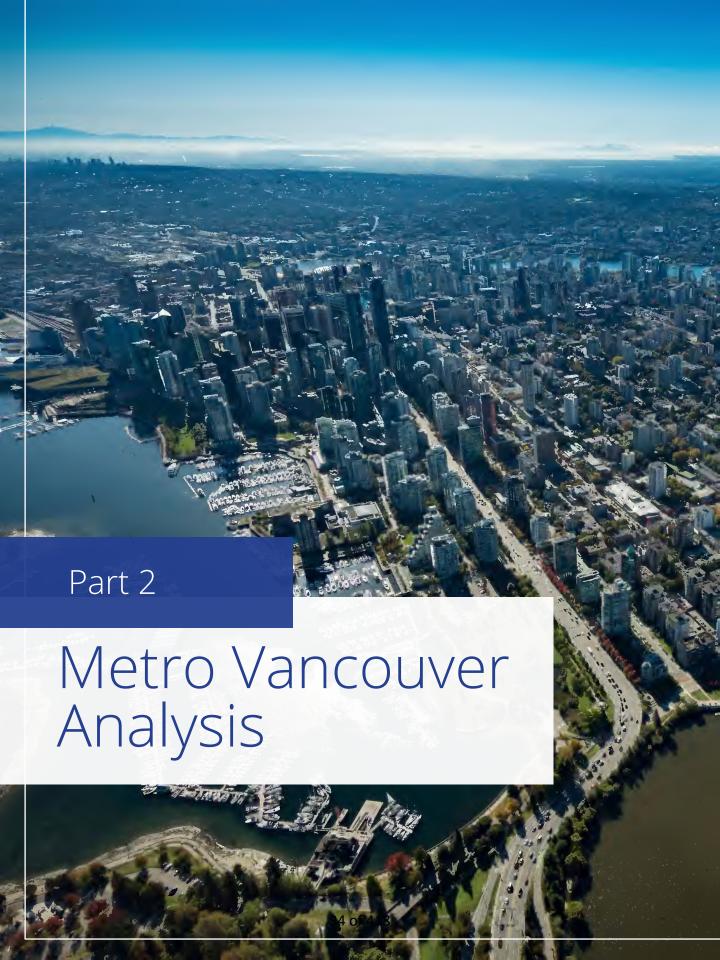
Personal shopping has shifted to a hybrid model split between in-person and online shopping. Less reliance is placed on brick-and-mortar stores for traditional shopping, and these retail outlets are being converted to facilitate order pick-up and returns. There is still a need for the brick-and-mortar retail experience, but more stages of the supply chain may be housed within one structure.

Faster and Cheaper

Deliveries are expected to be quick and cheap, with intense competition for who can provide the quickest and cheapest. Large stakeholders that set consumer trends like Amazon can increase the reliability of their supply chain, while smaller actors must find new innovative ways of meeting consumer expectations. This includes e-cargo bikes, more reliance on gig workers, and urban mobility and distribution hubs.

Industrial Strain

These changes in consumer expectations have driven industrial land to be in the shortest supply and highest demand ever experienced. E-commerce distribution is reliant on warehouse space as close as possible to the consumer, and this simply isn't available in many major cities. This has led to the innovative use of non-traditional spaces and is driving new built forms, including multi-level, and new location considerations for logistics activities.



Metro Vancouver Analysis Introduction

Metro Vancouver's geographic position as a port and related infrastructure have created a prominent logistics hub, however the stressed industrial market has created barriers.

Metro Vancouver is the closest major North American region to Asia, positioning it as the first stop for incoming consumer goods. Additionally, the region also serves as an export hub for goods and resources from western Canada, including produce from interior BC and the Fraser Valley. As a result, Vancouver is home to the largest shipping port in Canada, with easy connections to air, train, and truck cargo transfers.

The industrial space vacancy rate dipped to 0.1% in Q2 2022, which is the result of a steady decline in available space that occurred during the pandemic. As comparison, the 2019 vacancy rate for the region was approximately 1%. This has compressed and stressed the distribution and warehousing market which is already seeing a higher demand due to increasing e-commerce purchasing.

Newly developed industrial land is located far into the eastern periphery of Metro Vancouver, increasingly within the Fraser Valley. Logistics and warehousing tenants prefer more central locations, but these are increasingly unavailable. Instead, tenants are locating anywhere they can find available space that meets their square footage space needs.

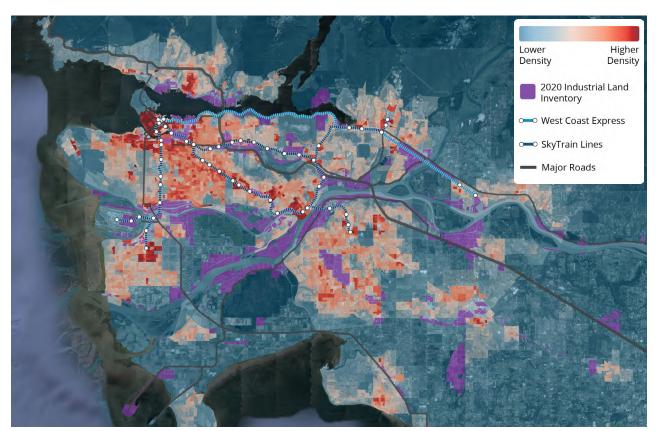


Metro Vancouver Analysis Geographic Context

In 2020, there were 21,000 acres of industrial land, excluding retail, commercial, others uses, and vacant sites, throughout Metro Vancouver.

These industrial lands are primarily concentrated along the Fraser River between Vancouver, Richmond, and southeast Surrey. Existing legacy industrial nodes around the Port of Vancouver and Mount Pleasant support urban industrial uses but are experiencing demand that far exceeds the supply. As a response, new industrial development has been occurring in more peripheral areas like Campbell Heights, in Southeast Surrey.

Throughout Metro Vancouver, industrial land is in areas that have lower population density and consequently also have minimal access to rapid transit. This is creating more reliance on workforce vehicle use, contributing to a higher level of road congestion throughout industrial areas.



Industrial Lands Inventory and Population Density in Metro Vancouver

Metro Vancouver Analysis Planning Context

Metro 2050 Metro Vancouver Jurisdiction

To accomplish the goal of supporting a sustainable economy, the Metro Vancouver Regional District included a strategy to protect the supply and enhance the efficient use of industrial land. Beyond protecting the current supply, Metro Vancouver aims to ensure ongoing monitoring of industrial land to make sure the supply meets capacity, and opportunities for industrial land innovation and intensification are assessed across the region.

Member jurisdictions within Metro Vancouver are tasked with aligning Industrial and Employment lands, zoning and allowable uses with the land use designations set out within the regional growth strategy. Member jurisdictions are also encouraged to increase the intensification and densification of industrial land by refining or removing any restrictive municipal policies that may be a barrier to development.

Transport 2050 Metro Vancouver Jurisdiction and TransLink

Strategies within this plan pertaining to e-commerce and industrial land include making goods movement more reliable by easing trucking congestion and coordinating industrial land uses with goods movement corridors. The impacts of last mile delivery are noted as a cause of congestion. Urban industrial lands near last mile destinations are identified as sites that could facilitate the consolidation of goods for more efficient delivery.

Vancouver Plan Vancouver Member Jurisdiction

Taking guidance from Metro Vancouver's regional growth strategy, the newly adopted Vancouver Plan's main goal for industrial land is to protect the current supply. The secondary focus is to expand the supply by modernizing and increasing the flexibility of permitted uses to relieve pressure from the current industrial land market, which is also well-aligned with regional policy.

Industrial Land Intensification Initiative Richmond Member Jurisdiction

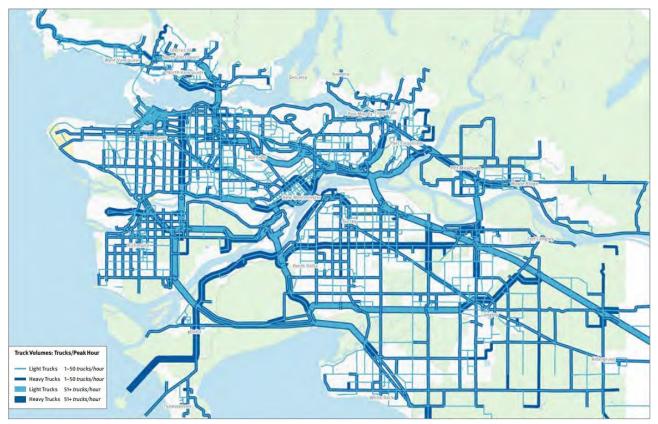
As a response to the limited availability of industrial land in Richmond and the broader Metro Vancouver market, a study and plan was proposed to investigate different policy levers to intensify existing industrial land. More flexible zoning emerged as the main proposed change.

Metro Vancouver Analysis Planning Context

Moving the Economy Regional Goods Movement Strategy for Metro Vancouver

The Goods Movement Strategy for Metro Vancouver was published in 2017 and is based on data collected in 2012. As the rise of e-commerce has taken place and disrupted the existing flow of goods, the data underpinning this report may be severely out of date. The report describes how different types of goods move within and through Metro Vancouver. It identifies the patterns of movement on the road, rail, pipeline, marine, and air networks.

Challenges that were identified in 2017 and still exist today include travel time reliability, a lack of coordinated planning and inconsistencies between member jurisdictions, limited availability of accessible land, lack of public awareness of the value of goods movement, and the struggle to balance community livability with goods movement needs. These challenges have either stayed consistent or become even more challenging with the increased demand for urban goods movement.



First Mile Overview

When consumer goods produced abroad arrive in Canada via ports in Metro Vancouver for eventual ecommerce sale, their first stage of transportation is known as the 'first mile'. Only 30% of incoming consumer and manufacturing goods stay within the Metro Vancouver area, and the remaining 70% continue their journey further into Canada. Goods are arriving by sea or by air, and traditionally these goods would be transported to warehouses. Ecommerce has decreased the need for intermediate warehousing by utilizing crossdocking, described below.

By Air Vancouver International Airport

YVR has the closest cargo connection to Asia than any other airport along the west coast. This deep connection has developed over 1 million square feet of supportive warehousing on-site (i.e. Cargo Village, Sea Island), meaning that the distance from the airport to the warehouse is minimal.

By Sea Port of Vancouver

To meet consumer expectations of a quick delivery, a low idle time of each package while moving from the port to the warehouse is increasingly important. Sea cargo is increasingly being unloaded and repackaged – a process known as crossdocking. This limits the idle time that goods spend within their original shipping containers. This crossdocking takes place on port lands, or sometimes directly onboard the largest of cargo ships. New ships are built with the capacity to house these crossdocking logistics on board, which is driving the demand for larger and deeper ports, and associated infrastructure and facilities.



Middle Mile Overview

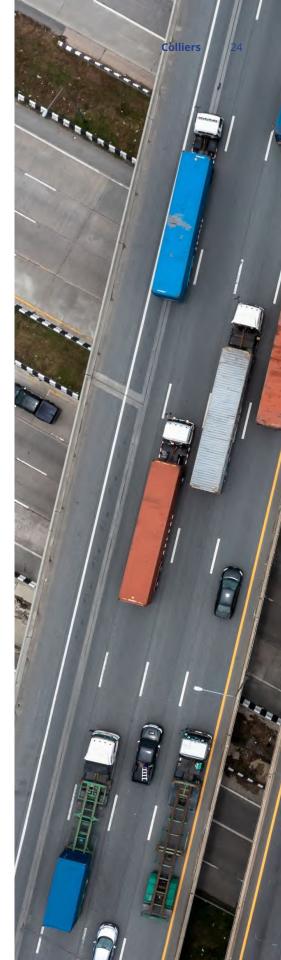
This stage of the transport system generally and traditionally has entailed the movement of goods from a warehouse to a fulfilment centre, distribution centre, or retail store. This leg of the transport system moves the product closer to the end consumer, without directly delivering it to the end customer.

Different Types of Middle Mile

The definition of the middle mile is expanding with the rise of e-commerce and expectations of rapid delivery. The middle mile has evolved in recent years to be more urbanized, with new route options such as from warehouse to micro-hub fulfilment (e.g., dark store) or distribution centre, as well as from one store to another to fulfill "click-and-collect" orders.

Middle Mile Optimization

Methods of optimizing this stage are one of the primary points of distinction between large retailers/distributors (e.g. Amazon, Wal-Mart), and smaller retailers. Larger distributors can efficiently introduce economies of scale at this stage, such as company-owned truck fleets, and reduced cost, resulting in a competitive advantage that is expected to endure.



Last Mile Overview

The last mile of logistics is the delivery to the consumer. When ordered online via e-commerce, delivery is typically completed by private, public, or invisible companies. Across the board, goods are being delivered directly to consumers by using public infrastructure like roads and sidewalks.

Private Delivery Amazon, FedEx, etc.

The single stream of deliveries that Amazon has provided to consumers is fueling demand for almost immediate delivery. When delivery routes for private delivery companies will not be profitable, these companies still rely on Canada Post to complete the delivery.

Public Delivery Canada Post

Canada Post is mandated to ensure delivery to all Canadian addresses, which protects the profits of private delivery agencies. The shift from letter mail to parcel delivery driven by e-commerce has forced Canada Post to deliver packages in higher quantities and more frequently.

Invisible Freight Gig Workers

Invisible freight is single-parcel delivery completed in private vehicles or on foot. Gig workers are more precariously employed and insured than their private and public counterparts.



First Mile Implications

Municipal infrastructure that is supportive of port and first mile activities is needed to ensure the smooth transition of goods from these terminals to the warehouses.

Middle Mile Implications

As a result of consumer expectations for rapid delivery, significantly more middle mile shipping is occurring with partially filled containers or "less-than-truckload" shipments. This, in turn, is resulting in more trucks not being used to their full potential, and also increasing congestion and GHG emissions.

Last Mile Implications

There are notably increasing congestion issues arising due to deliveries occurring in residential areas. Curbside access is in demand by more and more users. The last mile of delivery is occurring on municipal infrastructure (curbs and sidewalks) and competing for this space against several delivery providers, in addition to ride-hailing, and new forms of urban mobility.

The following page illustrates the different pathways that various goods take through Metro Vancouver. These items each have different supply chains and various levels and timing of e-commerce involvement.



Electronics



Grocery Click and Collect



Clothing



First Mile

Middle Mile 43 of 418 **Last Mile**

Metro Vancouver Analysis Transport Systems

Fulfilment Centres

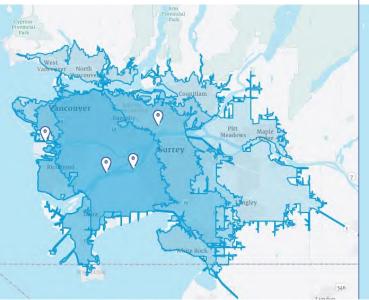
The map below illustrates the area of Metro Vancouver that can be reached within a 60-minute drive of the four-shown fulfilment centres. This timeframe was chosen due to the middle mile of logistics having a longer lead time than the 'just-in-time' delivery required of the final mile.

The majority of Metro Vancouver is covered within a 60-minute drive, meaning that these fulfilment centres can receive goods from the sea and air terminals within 60 minutes, and redistribute the goods to all delivery centres within 60 minutes.

Delivery Centres

Delivery centres ideally operate as close to consumers as possible to minimize delivery times. The map below shows the coverage from major delivery centres to consumers within 30 minutes, as this is the benchmark for on-demand delivery.

Unlike the coverage for fulfilment centres, Metro Vancouver's delivery centres are unable to reach heavily populated areas like Downtown Vancouver or Surrey within a reasonable amount of time.



60-minute Drive Time Radius from Current Select Fulfilment Centres



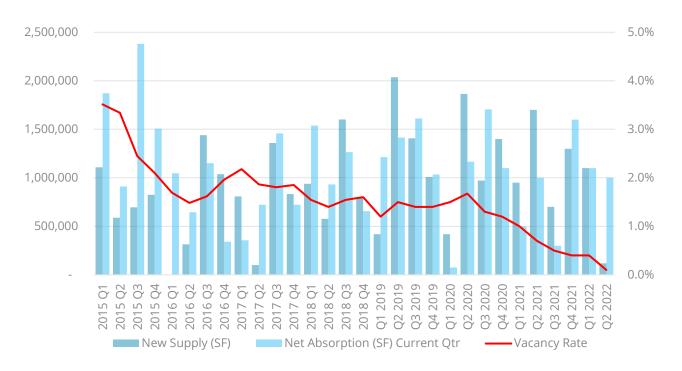
30-minute Drive Time Radius from Current Select Delivery Centres

Metro Vancouver Analysis Industrial Market

The Metro Vancouver industrial market is enduring increasingly low vacancy rates. Supply that has recently become available is often smaller than 25,000 square feet, making it unsuitable for warehousing or distribution needs.

The Metro Vancouver industrial market is one of the most highly sought-after industrial markets in North America, with very limited existing supply, resulting in some of the nation's lowest vacancy rates. Limited available space for new construction to occur is driving the lease and sale rates for existing land up, while also driving the intensification of industrial lands. In certain municipalities, such as Vancouver, Richmond, and Burnaby where there is limited industrial space and high population density, the market conditions are starting to allow for multi-storey industrial buildings to be financially feasible.

Metro Vancouver Industrial Completions, Absorption, and Vacancy Q1 2015 – Q2 2022



Metro Vancouver Analysis Industrial Market

The recent rise of e-commerce is significantly impacting the industrial market. This type of product consumption requires much more warehousing space than traditional retail, especially when quick delivery times are promised. This applies pressure to an already strained industrial market in the Metro Vancouver region.

For years retail was a sector that could schedule fulfilment seasonally or monthly depending on the exact type of retail. Orders with manufacturers would be placed months in advance, goods would be shipped in bulk, then sorted and distributed to brick-and-mortar stores. This process generally was two businesses coordinating, or business to business (B2B).

Today, much of the inventory ordering is done directly by consumers (business-to-consumer or B2C), resulting in more sporadic, unpredictable ordering patterns. This complicates the fulfilment step compared to the traditional retail model. Where previously, hypothetically, each shop of a certain brand in a city might receive an identical monthly order to the brick-and-mortar store, with e-commerce, each day different residents are instead ordering a unique shipment request. This requires both more staff and more space to complete fulfilment on industrial lands. Some estimates indicate this requires three to four times more industrial space. In certain cases, the space required for brick-and-mortar retail is reduced.

To mitigate delivery delays, distributors have adapted by storing more products ready-to-ship in distribution and warehouse space, resulting in decreasing vacancies in industrial buildings. When the additional layer of rapid delivery (delivery within a week) is applied, it then becomes additionally crucial to have items available in distribution centres, and to be located within dense urban populations where the consumer demand is located. For suppliers and retailers to remain competitive, they must have a larger selection of products readily available, resulting in additional space requirements. This requires not only more capital costs for the additional inventory, but also for the additional space, something larger, established companies are more capable of than smaller companies. These larger companies are generally seeking spaces over 500,000 square feet to accommodate their fulfilment requirements. When these spaces in urban areas cannot be found, companies are increasingly seeking spaces that offer vertical space (40 to 54 feet ceiling heights) to stack products vertically. This is a trend largely seen in European and Asian markets where industrial space is scarce. Vertical stacking often requires additional automation or mechanical access solutions for fulfilment work, which increases the cost. It is possible that this could increasingly be sought by the market in Metro Vancouver. Currently, there is still a strong preference for fulfilment and distribution operations on the ground floor, at grade.

The recent pandemic and supply chain issues further exasperated the vacancy and space requirement issues in the Metro Vancouver market. While it is somewhat anticipated that supply chain concerns will increasingly be mitigated and managed going forward, the trend to purchase goods online is here to stay, meaning the pressure on industrial land will not let up.

Metro Vancouver Analysis Industrial Lands

Implications on Space Needs

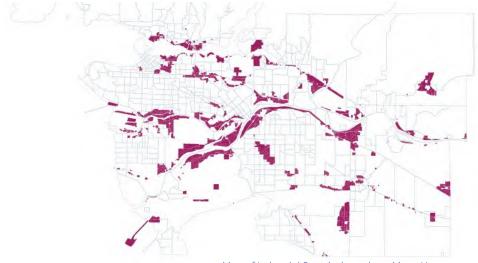
The limited available supply of industrial land in the Metro Vancouver region, record-low vacancy rates for industrial land and warehousing space, and increased rates for both strata sales and leasable space are squeezing the market. As the demand for space in urban areas close to users, customers, and the workforce drive prices up, smaller industrial users who are unable to compete with larger companies are forced to peripheral markets.

Implications on Employment

Employment in industrial jobs is generally higher paying than regional averages and supports vital sectors of a diversified and healthy economy. As some traditional industrial uses are driven further away from the urban core, there is a resulting impact on the labour force as employees are forced to travel further distances to places of employment. Conversely, if there is insufficient industrial land to meet employment demand, jobs may relocate to other markets where there is a more suitable supply of both land and facilities.

Implications on Location

There are industrial nodes spread across Metro Vancouver, however, the limited supply of urban industrial land means there is significant competition for suitable space. For other users that have additional location requirements such as water access, direct rail access, or proximity to complementary industries, there are significant constraints to operating in Metro Vancouver.



Map of Industrial Parcels throughout Metro Vancouver

Metro Vancouver Analysis Built Forms

In the Vancouver region, the location of industrial parcels determines the final built form. In dense urban areas of Metro Vancouver, smaller building footprints and multi-storey development are occurring as a response to the demand for direct-to-consumer small-scale warehousing. In suburban areas like Richmond or Campbell Heights, the availability of large industrial parcels is driving the development of single-storey warehousing and distribution centres, some with a mezzanine for storage or additional office space.

The building height requirements for large format e-commerce warehousing and distribution centres are increasing due to the taller racking often required to store consumer goods. The higher the racking, the more items that one building can hold, and deliver 'just-in-time' to consumers. Newer industrial buildings in suburban locations are being constructed with ceiling heights upward of 36 ft, whereas older industrial buildings in urban locations can have an existing ceiling height of as low as 12 ft. The redevelopment of older industrial structures can increase the interior capacity and become more marketable to a wider variety of tenants.

Industrial built forms are increasingly including other uses (e.g. office), but this still depends on the location of the site. In urban areas, where the lightest industrial uses are likely to be located, offices and some commercial can be integrated into the development more easily. Separation between land uses are still common in suburban locations where intensification is less sought after by the market.

Parking requirements also differ between urban and suburban locations. In Mount Pleasant, 1 parking space is required per 145m² of floor area, while in Campbell Heights, the ratio is 1 parking space per 100m². Meeting these parking minimums can be costly in urban locations, while at the same time industrial tenants often require parking for staff, as well as delivery vehicles. The combination of these factors, plus the accessibility to major road networks, often results in a preference for more suburban locations.



Metro Vancouver Analysis Built Form Trends

One of the biggest changes to occur in warehousing is the evolution of access needs, including more loading bays and ramping options. These changes have emerged with the increase in e-commerce trends. Warehouse, fulfilment, and distribution centres are accessed much more frequently, with trucks picking up and delivering more often, including throughout the night. This facilitates just-in-time delivery as well as reduces warehouse storing needs during times of limited available space. This has traffic and road impacts as well as on loading space needs.

At grade loading is still the preferred method to quickly navigate trucks and vans on site, load or unload them, then allow them to easily continue to their next destination. Increasingly more space is needed to be dedicated to these loading needs, and to accommodate the increase in vehicles completing deliveries. This is most easily done by creating large parking areas, expanding loading bay access points, and facilitating as many vehicles as possible to avoid queues.

When land availability is not able to accommodate the demand for loading by spreading out horizontally, then vertical solutions are increasingly being seen in land constraints regions, such as Hong Kong (e.g. Goodman Interlink Warehouse, bottom left image) and New York City. The ramping requirements to accommodate the loading and truck/van access are costly and are not likely to be realized soon for Metro Vancouver.

Without loading access, upper floor uses that are directly tied to e-commerce are limited to office and administrative uses. It is generally still preferred by distribution and fulfilment businesses in the Lower Mainland to obtain a site more horizontally spacious than vertically spacious, with limited column supports. There are opportunities to stack other commercial, and/or suburban office uses above warehouse uses connected to e-commerce. The warehouse activities tend to have relatively lowimpacts on surrounding uses in terms of noise and pollution, allowing opportunities for integration.



Metro Vancouver Analysis Overall Trends

Metro Vancouver is experiencing the negative effects of a strained industrial market and is beginning to encounter urban logistic barriers. Below are some key factors that are contributing to the early various impacts of e-commerce within the market:

- The number of consumer goods entering Metro Vancouver is increasing. This increase is due to the prevalence and ease of e-commerce purchasing, as well as increasing amounts of disposable income.
- The incoming consumer goods are being stored in peripherally located warehouses before being delivered to the final consumer by smaller-scale trucking.
- The challenging market for warehousing space is favouring large distributors that have more capital power to pay higher rents for desirable locations.
- Most congestion and conflict over space occurs on Metro Vancouver streets, especially the curbside that facilitates the last mile delivery.
- Metro Vancouver is a dynamic and diverse region with municipalities that each require unique solutions to mitigate the range of impacts of e-commerce.





Stakeholder Engagement Methodology

E-commerce in Metro Vancouver has many different participants and stakeholders. Broadly, this includes property developers, retailers, delivery companies, and municipal planners, amongst others.

Colliers conducted 15 stakeholder engagement sessions ranging from one-on-one conversations to group discussions, to gain an understanding of both broad and region-specific impacts of e-commerce. Interviews were set up between Colliers and the stakeholder(s). Participation by Metro Vancouver Staff was retained for key meetings.

The stakeholders were asked questions geared to their involvement in the e-commerce sector, derived from a general list of questions (available in the appendix of this study). In each meeting, stakeholders were asked to describe how e-commerce has impacted their sector specifically, and what challenges they're currently facing.

Using this broad overview, additional questions were posed to the stakeholders, focusing on main themes including the supply chain, location & logistics, land use requirements, and labour.

The feedback received by stakeholders has been anonymized and compiled into a comprehensive summary, organized by key themes and findings, outlined on the following pages. The key themes and findings uncovered during the stakeholder interviews, in many cases were also identified and supported through other research for the study.



Curb Management

- One of the strongest recommendations from stakeholders has been to expand data on curb and parking inventory in municipalities and begin implementing curbside management strategies to address the increase in demand for sparse curb space. One stakeholder specifically mentioned that it's not necessarily that retail is moving away from brick-andmortar to online, but rather brick-and-mortar is moving to the curb.
- From a retailer perspective, curb management strategies help to improve the speed and efficiency of deliveries. Time spent finding parking results in lost time and additional costs for delivery companies. As a result, many drivers are willing to illegally or double park to save time, creating safety concerns. Municipalities need to consider this when developing curb management policies.
- If parking and loading policies are not available with easy-to-interpret signage, delivery drivers likely will not follow them.
- E-commerce delivery places significantly more demand on curb space than other newly developed services such as ride-hailing, due to the additional time required for delivery personnel to access the building, and in some cases travel to an upper-level floor of a multistorey building.
- Curb management has significant political sensitivities (e.g., removing street parking to create loading zones) that result in municipalities delaying the implementation of proactive strategies.
- Supporting better public transit is necessary for improved curb management and congestion concerns. Alleviating the need for private automobile use and ride-hailing services from residents through transit services reduces congestion and car parking needs.
- Going forward, designating loading zones adjacent to (high-density) residential land uses to mitigate parking flow interruptions and double parking should be considered.
- Curb management strategies will need to be location-specific rather than applying a blanket solution. Key areas where deliveries are most frequent should be sites that municipalities focus on initially. Consideration for both parcel delivery and food delivery should be made.
- Enthusiasm over parcel boxes was universal, as it reduces the time required to complete a delivery. This included both parcel boxes in multi-residential buildings and commercial buildings. In addition to reducing curb demand, these boxes have the added benefit of reducing parcel theft.

Data Barriers & Opportunities

- Frequently discussed, to know the accurate impact of e-commerce on Metro Vancouver, a baseline of high-quality, comprehensive data is required. Several stakeholders identified a lack of data collection regarding curb use, traffic data, and potentially sidewalk use data as a barrier to researching e-commerce impacts.
- Data is challenging to collect due to the emerging nature of e-commerce trends. This is exacerbated by the inability of conventional municipal research agencies to access private delivery data.
- With different logistics companies using different delivery tactics, the flow of e-commerce parcels is not tracked at a high level for public or governmental disclosure.
- With improvements in Artificial Intelligence (AI), the ability to collect and analyze data will likely improve, and local governments could then take advantage of the technological advancement when it's both more accessible and cost-effective.
- For the time being, large retailers and e-commerce companies are holding much more data than local governments have access to, which is generally resulting in these companies being able to react and anticipate trends in the market much faster than the local government can.
- An additional barrier to current data collection and analytics is the impact of the pandemic and the uncertainty that virtually anything in terms of patterns and habits that have been tracked over the past two years will continue. There is a lack of confidence in general in the trends that are being forecasted from recent data collection. This is especially impacting traffic patterns and vehicle use data
- Many stakeholders believe that the pandemic has changed labour trends and shopping trends substantially and as such it is not anticipated that these trends will fully revert to prepandemic patterns.
- Many stakeholders commented on the fact that the public sector has to address the impact of e-commerce and allocate funding, but their lack of data and informed staff is reducing their ability to do that effectively. As such, it was recommended that the public sector should endeavour to collect more data itself, especially where it concerns curb demand.
- Methods for collecting curb inventory and affiliated demand could likely easily be completed for the region using Al. It was noted by stakeholders experienced in data collection on this topic that much of the current Google street view catalogue for the Metro Vancouver region is up-to-date and as such data collection could be done remotely from a desktop reliably, which would reduce the cost of building the data resources.

Congestion

- Stakeholders across all sectors noted that there were no major concerns about congestion issues related to an increase in delivery vehicles. That said, much of the increase in delivery vehicles has coincided with a decrease in other traffic due to work-from-home practices (an impact of the pandemic) reducing rush-hour traffic and traffic in general.
- Traffic data that has been collected by stakeholders in recent years (during the pandemic) was generally categorized as inaccurate and unreliable to be used for future impact predictions.
- An additional hurdle to congestion data is the inability or the difficulty to distinguish between a standard private automobile and 'invisible freight' gig-delivery workers in their private automobiles.
- It was recommended by some stakeholders that ridehailing services and their impact on congestion be studied as a comparison.
- It was noted that often e-commerce deliveries, either by invisible freight or traditional delivery van, will make use of the major goods movement corridors, which also serve trucking networks and mass transit networks. As traffic increases, these corridors will see the impacts first and most drastically.
- Industry is trending towards larger vehicles to reduce labour, which may in turn help to reduce congestion as well. However, this trend could require wider roads to maneuver larger trucks and perhaps more designated municipal truck routes.



Zoning Barriers & Opportunities

- Several development stakeholders identified that the prescriptive zoning that Metro Vancouver's municipalities have for industrial land hinders new types of industrial uses. Currently, an inflexible zoning can limit the innovation in uses that can happen within an industrial area. While the regional growth strategy allows member municipalities to make refinements to prohibitive zoning policies, these changes have not been enacted quickly enough to meet demand from the industrial development sector.
- Opportunities for integration of micro-distribution hubs into a variety of developments (commercial, large multi-family residential, and transit-oriented communities) should be explored. Opportunities to run pilot projects should be facilitated with possibilities of permanent integration if proven to be successful. This would generally require temporary-use permit options, and flexible zoning to be explored by the local government.
- There were also opportunities identified for flexibility in traditional brick-and-mortar shops to house multiple stages of the e-commerce supply chain in addition to traditional commerce. This includes the ability to process online returns and simplified in-store pick-up. Municipalities should explore opportunities where certain industrial uses, such as logistics, can be introduced to otherwise commercially-zoned areas, especially where the industrial uses can offer dense employment opportunities and are connected with transit.
- Aligning densification of the future anticipated population growth and opportunities for sustainable distribution methods is a crucial consideration that future zoning policies need to consider at local levels. Several stakeholders noted that the market is interested in more intensive built forms for industrial developments, however, it was suggested that to help facilitate this, external circulation (e.g. balconies, ramping) should not be included in Floor Area Ratio (FAR) to better maximize available space.
- One of the most frequent comments made by local developers, agents, and logistics managers was that the process for rezoning and development permit approvals needs to be accelerated. In several cases it was noted that zoning is not keeping up with new uses coming to market, requiring site-specific rezoning processes to be taken on to accommodate the use, draining time, resources, and money from developers and end users.

Industrial Land Inventory

- The most significant takeaway from discussions with stakeholders in the Metro Vancouver region, is that the location of current distribution centres, logistics centres, and fulfilment centres is almost purely a function of available industrial land, rather than a function of preferred or most functional location.
- Distribution facilities require substantial space dedicated to parking to accommodate the large number of vans needed to fulfill deliveries. This is a significant and unproductive use of valuable industrial land. It was recommended by several stakeholders that methods to reduce the parking footprint should be explored to optimize the use of industrial land.
- To maximize industrial land, consider opportunities, where contextually appropriate, for additional FAR if desired by developers.
- Ceiling heights and opportunities to accommodate ramps need to be explored and methods to accommodate these designs in zoning should be considered to maximize the industrial lands utilization.
- Without compromising neighbourhood vibrancy, local governments could explore where there are opportunities to incorporate delivery-oriented services and other similar light industrial uses, commonly due to the surge in e-commerce, in areas currently and intended for commercial uses.
- In certain cases, where products can be stored long term, the warehousing operations are seeking alternate markets, in some cases Kelowna, yet in most cases to the Calgary region, where industrial land is more readily available and can be secured at much lower rates.

Transportation Infrastructure

- Building on the impact of delivery van parking on industrial lands, the significant employee
 parking requirements need to be evaluated. Introducing improved transit connections to
 industrial areas that are accommodating increasingly large employment bases, should be
 explored.
- Currently, several large companies are providing shuttle services for employees from SkyTrain stations to the warehouses where package fulfilment is occurring, and where delivery drivers are then dispersing to the rest of the region from.
- Mass transit stations were also noted by a range of stakeholders as being excellent locations to introduce micro fulfilment hubs and parcel pick-up locations.

Transportation Infrastructure (cont.)

- Cargo bike adoption also requires specific modifications to the current transportation infrastructure. The current standard bike lane width is generally not wide enough to accommodate cargo bikes (in addition to other modified bikes). Wider lanes and additional buffers are needed for cargo bike delivery to be facilitated.
- One of the primary challenges bicycle delivery and cargo bike delivery couriers face is parking. There often is either a lack of parking options in general for bikes, or a lack of dedicated courier/delivery bike parking which helps improve efficiency during summer months when bike racks fill up.

Safety and Community Vibrancy

- Safety was largely discussed during stakeholder engagement from a traffic lens and from a neighbourhood vibrancy lens.
- From stakeholders experienced in transportation planning, e-commerce delivery results in more vehicles frequently stopping, increasing the chances of rearending and other vehicular accidents.
- Risky parking behaviour and rapid driving were also anecdotally mentioned as increasing, which is possibly in turn increasing traffic incidents.
- Another safety impact resulting from the increase in ecommerce is the replacement of standard retail operations with dark stores. While the uptake of dark stores has not yet been significant in the Metro Vancouver region, there was concern regarding the potential impacts including lack of "eyes on the street" and reduced neighbourhood vibrancy.



Sustainability

- Metro Vancouver municipalities should continue to ensure that the policies put forward to address e-commerce impacts are integrated with the sustainability goals of the region.
 Without mandated sustainability considerations, consumers' desires for quick delivery will be met by the market, and likely continue to increase congestion, GHG emissions and packaging waste.
- Micro hub and small-scale local distribution present the opportunity to complete deliveries by bicycle or cargo bike. While there is enthusiasm and encouragement for these modes of transportation from stakeholders, there are limitations. These included that in many cases electric delivery vans would also have nominal GHG emissions and environmental impacts while being much more capable of higher volume deliveries across larger areas.
- Fast, efficient, cost-effective, and scalable solutions were noted as more likely to require vehicle use and stakeholders noted that, except perhaps for Vancouver's West End, there simply wasn't the population density to offer the economies of scale that make bike delivery feasible long-term.
- Changes in the e-bike and e-cargo bike market may help to improve the viability of these
 options for delivery modes. The increase in uptake and popularity of cargo bikes during the
 pandemic has improved the affordability for both acquiring these types of bikes, as well as
 maintaining them.
- Consolidation of goods, or 'group shipping' intended to be delivered geographically is one of the most effective methods to reduce the GHG emissions from last mile delivery. Rather than a van making several trips during a week to the same street for one item to be delivered each time, consolidation could result in multiple packages all delivered to the street simply on one day, perhaps weekly. This essentially eliminates "within 15 minutes" or next-day delivery promises.
- As noted under the category of transportation infrastructure, the introduction of parcel pickup hubs at mass transit (SkyTrain) stations was viewed by many stakeholders as one of the most effective in terms of sustainability, with additional benefits of cost and time efficiencies.
- Delivery providers and retailers understand that some consumers, for certain products, are
 willing to pay more or wait longer for a more sustainable delivery method. While it may be
 difficult to implement by local government, it was suggested that requiring carbon footprint
 details regarding delivery would likely influence consumer behaviour and have a positive
 environmental impact.

Labour

- The recent labour market trends have impacted e-commerce and its adjacent sectors in a range of ways. Stakeholders noted that the most impactful has been the shortage of skilled labour to complete construction and new development of warehouses and fulfilment centres. This is potentially creating a backlog that will outlast labour shortage issues in the region.
- Within the fulfilment and delivery sectors, there are also impacts from the labour shortages, however, more impactful is the high rate of turnover. Some stakeholders noted that this is especially high in the current market where so much competitive hiring is occurring.
- Alternative warehouse designs, implemented mostly internationally, help reduce the amount of walking and carrying workers need to do, helping with labour retention.
- Robotics and automation are also being increasingly introduced to mitigate labour issues. Often automation needs to be accommodated with specific building designs reducing the ability to upgrade existing spaces.
- Outside of automation, e-commerce warehouses typically use 3 times more labour than traditional warehouse uses.
- Where automation is introduced, it is estimated that labour requirements can be reduced by up to 5 times.
 Automation remains a costly investment mainly available to large distributors.
- In general, e-commerce and shipping tend to be increasingly labour-intensive as products move along the transport system, with the first mile being the least labour-intensive, and the last mile being the most labour-intensive.



Stakeholder Engagement

Engagement Summary

The need to increase data collection and industrial land intensification were key themes vocalized throughout the stakeholder engagement.

The feedback received provides insight that can influence policy, as well as indicate the areas of further research, study, and data collection for municipalities in the Metro Vancouver region.

Across all topics, stakeholders indicated that it is difficult to fully identify enduring trends since much of the recently increased uptake in e-commerce and its impacts are a direct result of the pandemic. Many of the observations are from recent years, during the pandemic, and stakeholders anticipate these to shift. The extent and manner of the shift are unknown.

One very clear takeaway was that data collection capacity, specifically with regards to curb inventory, curb demand, congestion and other traffic impacts, need to first increase to inform future policy changes.

Additionally, the industrial market conditions and the resulting scarcity of available industrial land in the Metro Vancouver region are currently significant factors influencing the location selection of new fulfilment and distribution centres. If market conditions change, or new centrally-located land supply becomes available, distribution centres will likely move closer to dense population bases.

Finally, flexible zoning and temporary uses will allow developers to intensify the industrial lands that are available, as well as allow for pilot projects to occur. This sector is ever-changing and evolving, and the needs and impacts are also changing. Flexibility and open dialogue will allow local governments to anticipate and evolve with the changes tied to e-commerce.





Case Studies Introduction

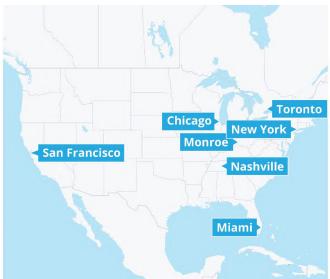
Overview

The case studies that were chosen to inform the strategic recommendations for Metro Vancouver were selected based on their variety, ability to identify emerging trends and impacts, and their applicability to issues arising within Metro Vancouver. As the impacts that e-commerce can have on industrial lands and transportation systems are quite broad, there are a wide variety of methods to mitigate negative impacts and maximize the positive impacts.

Some key statistics were analyzed to compare each case study city or region to Metro Vancouver. The daytime population and population density can help inform the number of e-commerce users and the related rate of congestion, while the per capita income can determine whether solutions that increase costs for consumers are viable. Industrial land statistics such as vacancy rates and lease rates can illustrate the condition of the industrial market. Finally, the type of goods serviced illustrates that different categories of goods require different logistics solutions.

In total, 12 case studies were chosen: 6 explore different development formats that can ease the transition into heavier e-commerce reliance, and 6 explore potential policy mechanisms that allow cities to mitigate negative e-commerce impacts.







Location of Selected Case Studies

Dark Store Freeze



Population Density 4,908 per km2

Per Capita Income \$41,000 USD (2020)

Industrial Vacancy Rate 1.90% (Q2 2022)

Average Industrial Class A Lease Rate \$6.20 USD per SF (Q2 2022)

Timeline 1 year

Type of Goods Serviced Grocery

Overview

Dark stores, a new urban logistics phenomenon, store goods that would be traditionally available at retailers. Dark stores differ from standard shops as they are not publicly accessible and rely instead on staff fulfilment of online orders, then direct-to-consumer delivery. Often delivery is completed within 15 minutes of placing the online order.

Dark store customers in the Netherlands increased by 350% within a year from 200,000 in early 2021 to 700,000 in early 2022. These consumers are drawn to ultra-quick delivery and overall convenience.

Strategy

Amsterdam had received many resident complaints that the sudden presence of dark stores. Complaints claimed the stores were disrupting the public realm with increased bike courier congestion and noise. From the city's perspective, stores with covered windows and no public access severely limit the vibrancy of typical retail streets.

To slow the rapid growth and mitigate the negative effects of dark stores, Amsterdam implemented a one-year freeze on all new dark store expansion. Existing stores were still allowed to operate.

Dark Store Freeze



Amsterdam, NL

Key Components

Amsterdam's main concern with dark stores is not with the concept of urban logistics hubs, but with the locations and the impact on the surrounding neighbourhood. Dark stores fit with the zoning constraints of retail or other commercial zones and therefore have been appearing in commercial and mixed-use areas, ideally located as close as possible to their consumers.

The pause implemented on new approvals of dark stores gives the city time to produce regulatory zoning and policies that properly address the new concerns brought up with dark stores. It also allows the City to determine where the best placement of these stores will be. The one-year freeze allows Amsterdam to collect additional data about the traffic pattern implications of dark stores. This data will be collected from the existing stores still allowed to operate. This data sharing can also facilitate collaboration and cooperation between consumers, delivery companies establishing dark stores, and the city.

Results

The public perception of this year-long freeze is positive. Residents see the city as quick responders to an emerging issue. On the other hand, delivery companies utilizing dark stores see this move as hurtful to their business activity and market reach.

Currently, no regulatory or zoning decisions have been made, but the one-year freeze is set to expire in early 2023.

Fulfilment Automation



Daytime Population	16,006
Population Density	389.46 per km2
Per Capita Income	\$38,000 USD (2020)
Industrial Vacancy Rate	2.3% (Q2 2022)
Average Industrial Class A Lease Rate	\$5.14 USD per SF (Q2 2022)
Timeline	Ongoing, 2021 start
Type of Goods Serviced	Grocery

Overview

America's largest grocery retailer, Kroger, announced it will be opening another spoke facility in Central Ohio powered by the Ocado Group. The 61,000-square-foot spoke will work with Kroger's 375,000-square-foot, Ocado-automated customer fulfilment centre (CFC) in Monroe, Ohio. This will serve as a last mile cross-dock site up to 200 miles away from the hub.

Strategy

The addition of a delivery "spoke" brings innovation and modern e-commerce to the Central Ohio area and will extend the grocer's reach and ability to provide to a far greater consumer market.

Including the new site, Kroger so far has announced nine Ocado spoke facilities with 4 being currently operational. The expansion will further accommodate orders and transportation deliveries through interconnected, automated, and last mile solutions.

Ocado is a UK-based world leader in technology and e-commerce. In 2018, the companies announced a collaboration to establish a delivery network that combines artificial intelligence, advanced robotics, and automation, creating a highly efficient systematic operation for modern-day e-commerce.

Fulfilment Automation



Key Components

The delivery network relies on highly automated fulfilment centres, at the "hub" sites. More than 1,000 automated bots navigate around a giant grid system, orchestrated by proprietary air traffic control systems.

The grid, known as "The Hive", contains bins with products and ready-to-deliver customer orders. The bots retrieve products from The Hive, which are presented at pick stations for items to be sorted for delivery.

The delivery sorting is optimized by software systems that intelligently and efficiently pack. Goods are sorted according to a range of factors. Machine learning algorithms optimize delivery routes, considering factors such as road conditions and optimal fuel efficiency for transport up to 90 miles with orders from the hub and spoke facilities to make deliveries.

Results

This case study exemplifies the merging of advanced technology along with the hub-to-customer fulfilment centre structure. This creates a highly efficient retail goods delivery system.

Urban/Suburban Strategy



Daytime Population	10,046,000
Population Density	5,701 per km2
Per Capita Income	\$64,234 USD (2020)
Industrial Vacancy Rate	0.9% (Q1 2022)
Average Industrial Class A Lease Rate	\$8.83 USD per SF (Q1 2022)
Timeline	1 year
Type of Goods Serviced	Home furnishing products

Overview

Warehousing in London, like Vancouver, is at an all-time low vacancy rate. While not experiencing all the same geographic constraints as Vancouver, planning policy in London prioritizes the intensification of industrial land over sprawl. Additionally, mobility planning trends are often at odds with existing shopping and logistics patterns.

Strategy

IKEA is traditionally a brickand-mortar store surrounded by parking, often located in suburban areas, and they have struggled in the past with expanding their e-commerce footprint.

IKEA has been interested in shifting its warehousing and retail model to smaller footprint stores to better integrate into downtown cores and densifying suburbs.

Urban/Suburban Strategy



Key Components

As a response to the rapid rise in e-commerce that the company was seeing, IKEA is piloting a two-pronged strategy for urban retail service: smaller 'micro-stores' located in downtown London, with the items purchased at those outlets shipped directly to consumers from their traditional suburban retail-warehouse stores.

The suburban stores will be adapted to dedicate more warehouse space to e-commerce order fulfilment and returns. This new warehousing format for IKEA will be highly automated and is projected to be 40% quicker, which meets the temporal expectations of e-commerce consumers.

IKEA is not unique in the challenge of maintaining its core business of brick-and-mortar retail while meeting ecommerce consumer demands, which is now 31% of total international sales.

IKEA has the financial capital to invest 1.3 billion Euros into this pilot project, an ability that most retailers do not have.

Results

This shift in IKEA's retail strategy began in 2022 and is slated to be completed in 2023. The downstream impacts of this large retailer shifting their order fulfilment strategy to meet new consumer trends will allow for smaller retailers to follow in IKEA's footsteps without requiring substantial investment.

Small Solutions



Daytime Population	250,000
Population Density	7,000 per km2
Per Capita Income	\$52,000 USD (2020)
Industrial Vacancy Rate	2.6% (Q1 2022)
Average Industrial Class A Lease Rate	\$9.94 USD per SF (Q1 2022)
Timeline	Ongoing, 2021 Start
Type of Goods Serviced	Parcels

Overview

The City of Miami partnered with mobility logistics company Reef Technology to repurpose space in downtown parking lots for "mobile operation units", or MOUs, such as dark kitchens and urban mobility hubs.

With the additional partnership of shipping company DHL Express, a small fleet of e-cargo bikes was introduced to complete DHL deliveries within a 3-mile radius of Downtown Miami.

Strategy

DHL delivery trucks bring up to nine cargo containers full of parcels to a central Downtown Miami parking lot. A handful of parking spaces have been repurposed to accommodate micro-logistics and distribution.

From here, the cargo is distributed to the cargo bikes. Couriers then set off on delivering routes across the 3-mile radius from Downtown.

In the afternoon, those same cargo containers can be reloaded from their central location in the parking lot Downtown for outbound shipments.

Small Solutions



Miami, FL

Key Components

A combination of demographics, population density, traffic patterns, and good weather made Downtown Miami an ideal pilot project location. A dense, relatively wealthy population has created a critical mass to support this type of small-scale delivery operation.

The topography in Downtown Miami is also relatively flat and easy to bike, alleviating a significant barrier to attracting a workforce. The coverage of bike lanes throughout Miami is concentrated in Downtown and South Beach, allowing preferential access to these cargo bikes instead of frequently congested vehicle lanes. E-cargo bikes in Miami have been found to make deliveries 60% faster than delivery vans, which is a favourable initial finding of the pilot project.

As the pilot was launched in 2021, the long-term effects on delivery patterns, consumer impressions, and GHG emissions have yet to be measured. DHL may expand the pilot within Miami or into other markets, creating a broader database to examine emerging trends.

Results

Within dense population centres with established bike infrastructure, e-cargo bikes can make deliveries 60% faster than yans.

Bikes can use the bike lanes where available or streets if needed, and they have more and easier door-side parking options. This aids in both facilitating delivery speed and efficiency.

Warehouse Automation



Daytime Population2,405,464Population Density8,542 per km2Per Capita Income\$33,000 USD (2020)Industrial Vacancy Rate2.8% (Q2 2022)Average Industrial Class A Lease Rate\$29.04 USD per SF (Q2 2022)TimelineOngoingType of Goods ServicedSmall Parcels

Overview

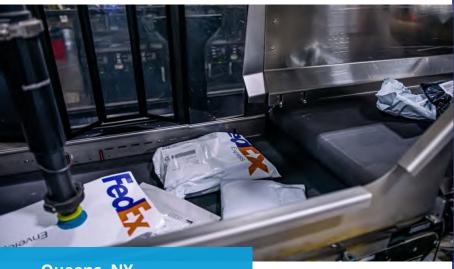
Warehouse and fulfilment automation is being increasingly implemented to increase efficiency, safety, and speed. The number of packages moving through these warehouses and fulfilment centres has been increasing due to the accessibility of e-commerce, but also the rise of one-item deliveries which will lead to less consolidated packages. Automation is the next step in managing these small but numerous parcels.

Strategy

Noticing the number of singleor few-item parcels being delivered, FedEx Ground has implemented a Robotic Product Sortation and Identification system to sort small packages only.

A key feature of the robotic technology behind this warehouse is the ability to sort multiple forms of packages, such as boxes, tubes, and plastic bags. Other automated facilities deal with singlemanufacturer parcels in uniform containers.

Warehouse Automation



Queens, NY

Key Components

FedEx handles millions of packages each day and has felt the impacts of e-commerce on this package volume. Innovating with robotic sorting at this level of the supply chain means faster consumer delivery across the board.

This automated sorting infrastructure did not require a new warehouse, but there could be downstream land use implications. As automation becomes the norm, the number of employees is likely to decrease. Warehousing is built to current workforce parking requirements and the demand could be significantly lower in the future. The future disused parking lots could be available for industrial densification in the near future.

Results

The initial time and cost savings from the Robotic Product Sorting has led to FedEx expanding its implementation to Ohio and Nevada.

Innovations like this can showcase new automation technology in real-world scenarios, creating an environment that is forward-facing and agile, while operating within an existing industrial building.

Singapore Port



Daytime Population	5,453,600	
Population Density	7,485 per km2	
Per Capita Income	\$51,000 CAD (2021)	
Industrial Vacancy Rate	9.8% (Q4 2021)	
Average Industrial Class A Lease Rate	\$209 USD per SF (30-year lease) (Q4 2021)	
Timeline	Ongoing	
Type of Goods Serviced	Large Consumer Goods	

Overview

The Port Authority of Singapore is feeling the impacts of supply chain disruption and increased consumption. A study was conducted to find methods to strengthen linkages amongst related maritime and shipping industries to find solutions to these challenges.

Strategy

The Port of Singapore has published the 2030 Strategic Review, which aims to develop more economically sustainable strategies while meeting the needs of changing global trends. The report specifically looks at cross-sector growth opportunities, mainly in the "carrier-to-marketplace".

As demand rises for shipping and specifically faster shipping, ports will have to re-evaluate their business models and work more closely with other logistics and shipping companies.

Singapore Port



Singapore

Key Components

The Port of Singapore can expand its use of new technologies through government investment and increased revenue from higher traffic due to e-commerce.

Singapore's support of the port improvements is justified due to the downstream economic benefits that an efficient port can bring to a city. A higher number and quality of jobs, as well as better manufacturer access to markets, is anticipated.

The network of industrial activities connected to Singapore's Port is also a focal point for improvement, with the goal to enhance the link between adjacent industry and the port, as well as locate maritime-related activities in clusters around the port.

New technological innovations will be included as a strategy for port efficiency. Smaller shipping merchants will be able to book their necessary space on larger vessels, increasing the efficiency of each trip. As this practice expands, data will be collected to measure the usefulness of this strategy.

Results

Once expanded, the Port of Singapore will have a capacity of 65,000 TEU (twenty-foot equivalent units) per hectare, compared to the 2,300 TEU per hectare that is currently possible at the Port of Vancouver.

Increased digitization of port activity, as well as easier shipping for smaller e-commerce companies. will absorb that additional capacity and make Singapore a shipping hub.

Logistics Hotels



Paris, FR

Daytime Population	11,155,300	
Population Density	20,515 per km2	
Per Capita Income	\$64,000 CAD (2021)	
Industrial Vacancy Rate	6.6% (Q1 2021)	
Average Industrial Class A Lease Rate	\$60 CAD per SF (Q4 2021)	
Timeline	Ongoing, 2013 start	
Type of Goods Serviced	Large and Small Parcels	

Overview

As the consumer demand for quick delivery increases, heavy vehicle traffic has increased to meet this demand. Cities are facing heightened congestion due to the rise of ecommerce and the need for innovative solutions to minimize the impacts of delivery truck traffic.

Paris has taken the lead by consolidating urban freight into "logistics hotels" that distribute goods more efficiently.

Strategy

The City of Paris has been constructing Logistics Hotels adjacent to railway lines or major highways.

These hotels are purpose-built to house multiple logistics-related uses where goods can be sorted and consolidated.

From the hotels, the goods are delivered to the consumer with smaller electric vehicles.

Logistics Hotels



Paris, FR

Key Components

The City of Paris considers logistic services as "buildings and facilities necessary for public service or collective public interest" rather than simply industrial or commercial.

The zoning of logistics as a public service allows these hubs to be located much closer to the end consumer than traditional warehousing.

Typically, Paris will build these hotels and then rent them to logistic partners at competitive rates and requires delivery firms to provide their own electric vehicles or cyclists.

The logistic partners are involved in the site development process and give the city input on efficient site configurations to meet their specific space needs.

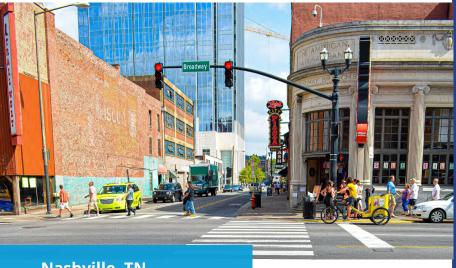
Logistics Hotels are attractive to delivery companies as they offer more efficient and cost-effective solutions. They also reflect the wider industrial need for more flexible zoning that allows for a mix of logistic and e-commerce-related uses within the same building.

Results

Since the introduction of the first hub in 2013, truck emissions related to urban freight have decreased by 50%.

Logistics Hubs are successful because they are blurring the lines between logistics, industrial, commercial, and even public uses with the support of the City.

Smart Zone Pilot



Nashville, TN

Daytime Population	823,400	
Population Density	203 per km2	
Per Capita Income	\$36,000 USD (2020)	
Industrial Vacancy Rate	2.8% (Q2 2022)	
Average Industrial Class A Lease Rate	\$7.37 USD per SF (Q2 2022)	
Timeline	Ongoing, 2021 start	
Type of Goods Serviced	Small parcels	

Overview

The curbside has emerged as one of the most important spaces for e-commerce logistics, and it is often occupied by competing stakeholders. Pedestrians, storefronts, ridehailing, and last mile delivery vehicles are all fighting to use the same space simultaneously.

Downtown Nashville is a tourism-driven area where curbside uses are heavily influenced by temporal changes in traffic and users, particularly during restaurant delivery and ride-hailing peak hours.

Strategy

Pebble, formerly Coord, a subsidiary of Sidewalk Labs, is an app-based platform for curb management that improves curbside efficiency through the ability to book loading zone time slots. Pebble has been piloting in many cities throughout the US in 2020 and 2021.

Smart Zone Pilot



Key Components

In January 2021, Metro Nashville partnered with Pebble to introduce a Smart Zone to streamline curbside loading. Within this Smart Zone, drivers can locate, hold, book, and pay for loading zones.

This Smart Zone is targeted at commercial delivery drivers and appeals to them by offering a more efficient unloading experience, and therefore cost savings. To the public, there will be more available curb space for public space animation and pedestrian access.

The Smart Zone booking system is all digital, which allows for a high level of flexibility and available information to be communicated directly to drivers. Metro Nashville has been erecting signage to help guide drivers into the Smart Zones and promote the program.

Results

As of September 2021, the pilot project was expanded to more Smart Zones due to the overwhelmingly positive feedback and driver uptake. This expansion now covers most major commercial arteries in Downtown Nashville.

Smart Truck Policy



New York City, NY

Daytime Population	8,467,513	
Population Density	10,429 per km2	
Per Capita Income	\$88,000 USD (2020)	
Industrial Vacancy Rate	3.8% (Q2 2022)	
Average Industrial Class A Lease Rate	\$23.91 USD per SF (Q2 2022)	
Timeline	Ongoing, 2021 start	
Type of Goods Serviced	Parcels	

Overview

New York City is quickly becoming the city with the highest concentration of warehouses in the US. Every day, 2.4 million e-commerce packages are delivered in the city, all within a city that was not designed to meet these same-day logistics needs.

Warehousing, and its associated truck traffic, has been putting a strain on existing logistics hubs in the area and placing additional stress on the industrial real estate market.

Strategy

The truck traffic coming from new and proposed logistics hubs must go somewhere, and New York City streets are not able to meet the current truck traffic flows that have been intensifying with the rise of ecommerce.

In 2021, 90% of all goods moving through NYC were being transported on a truck, adding to the already high levels of congestion.

Consumer expectations of quick or same-day delivery has concentrated this congestion around last mile logistics hubs.

Smart Truck Policy



New York City, NY

Key Components

In May of 2021, the New York Department of Transportation released the Smart Truck Management Policy which provides guidance to the city's boroughs on how to strengthen their street inventory to accommodate the increased truck flows.

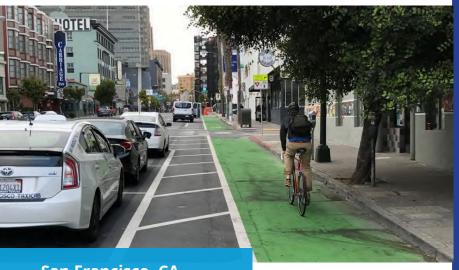
The policy aligns well with NYC's sustainability and public space planning and recognizes that the ability to build new roads to accommodate truck traffic is extremely limited. The policy also recognizes that NYC will require a slow phasing-out of single-occupancy vehicle traffic, which includes a reduction of truck traffic.

The main goal of the policy is to improve the efficiency of how urban freight delivery operates through the existing street network by improving safety, sustainability, and knowledge sharing.

Results

To improve efficiency, the following policies are proposed: promote off-hour deliveries, consolidate urban freight into fewer vehicles, employ delivery lockers for pick-up rather than direct-to-consumer deliveries, improve access to the curb, and increase investment in rail and sea to alleviate the reliance on trucking.

Curb Management



San Francisco, CA

Daytime Population	1,056,300	
Population Density	7,307 per km2	
Per Capita Income	\$72,000 USD (2020)	
Industrial Vacancy Rate	3.2% (Q2 2022)	
Average Industrial Class A Lease Rate	\$1.69 USD per SF (Q2 2022)	
Timeline	Ongoing, 2020 start	
Type of Goods Serviced	Parcels	

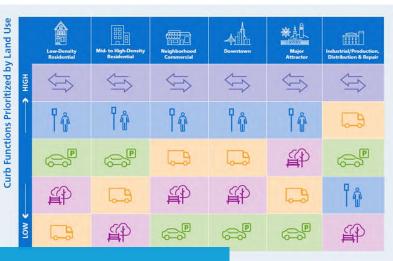
Overview

The City of San Francisco determined that 90% of curb space was allocated to parking, with only 4% for movement, 2% for public space, 2% for loading, and 1% for people loading (eg. bus stops, taxi stands). This was determined to be not only outdated within urban mobility planning but also inefficient. The 2% of space allocated to loading has been increasingly strained with the increase of e-commerce.

Strategy

San Francisco has been monitoring their curbs to determine how they are actually being used, and by whom. The Curb Management Strategy was published in early 2020 but is resilient and forward-facing enough to continue to mitigate the negative effects of ecommerce.

Curb Management



San Francisco, CA

Key Components

The objectives in the strategy respond to the impacts of increased delivery and increased curb demand. It offers methods to prioritize curb functions and space allocations based on land uses, and curb users.

Design and policy guidelines for different loading zone types (passenger only, freight only, multi-use, etc.) including time guidelines, signage, and infrastructure guidelines.

- Flexible loading zone hours and extended loading zone hours
- Loading zone times that are easier to interpret and more legible (eg. "Permitted At All Times except X-X)
- Avoid changes based on days of the week, and keep times consistent across all days
- Introduce flexible pricing mechanisms and technology to address curb space demand
- Conduct an inventory assessment of curb inventory

Results

The framework proposed in the Curb Management Strategy, while relatively new, serves as the basis for better ongoing curb data collection. Any positive impact on congestion is yet to be seen, but initial results show a promising trend.

Curbside Strategy



Toronto, ON

Daytime Population	2,794,356	
Population Density	4,427 per km2	
Per Capita Income	\$62,000 CAD (2020)	
Industrial Vacancy Rate	0.7% (Q2 2022)	
Average Industrial Class A Lease Rate	\$15.24 CAD per SF (Q2 2022)	
Timeline	5 years	
Type of Goods Serviced	Parcels	

Overview

In 2017, the City of Toronto began the process to implement a curbside management policy to ease congestion and competition for curbs, with the end goal of providing curbside spaces that promote economic activity.

Street and curbside functions were prioritized for different street typologies, ranging from surface transit priority corridors with streetcars and rapid buses to mixed-use main streets with different peak and off-peak periods.

Strategy

Five different curbside functions were identified movement, access for business, access for people, parking, and activation.

Access for business was most important to the function of mixed-use streets that were not the main street, which require access all-day for residents and businesses. Like the City of Vancouver, many of these mixed-use areas have rear laneways that can be utilized for deliveries, which is a potential strategy that was identified.

Curbside Strategy



Toronto, ON

Key Components

The implementation plan for the strategy looked 5 years into the future and set out different goals and studies to start within that timeframe.

Highlighting the 'quick wins' that can come from this strategy makes the policy attractive to stakeholders and residents who experience curbside use conflicts.

The process began with a study of the downtown to assess the needs of different users. An implementation plan was set out in 2017, but no published strategy is available yet.

The ubiquity of e-commerce had not yet happened, and this has brought a need for an even more flexible and resilient curb management policy in Toronto.

Results

For Metro Vancouver, this illustrates the challenges of managing such an important piece of infrastructure while its use is in flux.

Delivery Congestion



Chicago, IL

Daytime Population	2,816,450	
Population Density	4,633 per km2	
Per Capita Income	\$39,000 USD (2020)	
Industrial Vacancy Rate	4.4% (Q2 2022)	
Average Industrial Class A Lease Rate	\$6.81 USD per SF (Q2 2022)	
Timeline	Ongoing	
Type of Goods Serviced	Parcels	

Overview

Chicago, like many cities, began experiencing a surge in e-commerce which led to faster more frequent deliveries, and unfortunately more traffic congestion. To grasp the full extent of the congestion and related impacts, City of Chicago traffic data showing general road traffic, was combined with data collected from UPS delivery vehicles. This eventually showed where and how congestion was forming, and its connection to parcel delivery.

Strategy

Analysis was conducted on a known congested area of Chicago, studying the UPS vehicle data in the area to understand routes, delivery performance, and general congestion impact. By merging traffic data and delivery activities, the pilot project demonstrated opportunities for efficient, cost-effective, and congestion-reducing roadsharing for both delivery carriers, and everyday users.

Delivery Congestion



Chicago, IL

Key Components

The study identified UPS delivery stops and assessed the impact on road congestion – which it generally found to be nominal but suggested a larger area and longer study period (versus the one-month study) would better establish a correlation between deliveries and road congestion.

The median stop duration for UPS delivery was found to be 162 seconds. The median number of packages delivered per stop was 2. This is equivalent to a median package delivery rate (number of packages delivered per minute of stop duration) to be 0.8 minutes.

Locations where there were higher rates of stopping for delivery and a greater number of packages delivered per stop were generally found to be along commercial or mixed-use corridors.

Across most routes, the longest stops to deliver occurred between 10 am and 11 am and in general drivers tended to deliver between 10 am and 3 pm.

Results

The study recommended merging specific delivery data with traffic congestion data to optimize roadsharing techniques and produce more efficient policy recommendations. It was found that commercial and mixed-use corridors and streets had conditions that resulted in longer delivery times, compared to exclusively residential areas.

Case Studies Lessons

The Importance of Data Collection

Understanding of the impacts of ecommerce cannot take place without first measuring the current pattern of urban goods movement.

The first step in many of these case studies was to create a baseline of usage data that was built upon comprehensive data collected about real-world conditions. Once this is established, then policies can be developed, and the impacts can be measured.

The most common public spaces that require a higher granularity of collected data are the roadway and the sidewalk. Congestion data in Chicago was correlated with delivery data to begin to measure the impacts of e-commerce. In San Francisco, sidewalk users were categorized by time and type to discover that curbs were not being used efficiently for people or goods movement. The initial stage of both case studies was to gain an understanding of the goods movement network through data collection.

In a case like Nashville, the pilot program can also act as the method of data collection. The Smart Zones for loading can mitigate curb congestion while also collecting demand data. Similarly, the Singapore Port will be allowing smaller shipping companies to book space on cargo ships while collecting data on the demand and type of emerging shipping companies.

The Importance of Location

The location of logistics activities was once driven by municipal policy only, but new innovations, and thus location opportunities, are now being led by ecommerce companies.

With higher consumer demand for quick delivery, final mile delivery companies are pushing to be located as close to their consumers as possible. These innovations are trying to fit into more urban locations, through shipping containers in parking lots, dark stores, or logistics hotels located closer to consumers than traditional industrial spaces.

Middle mile logistics activities like fulfilment centres and maritime-supportive warehousing perform best when clustered together. Singapore Port's strategy to achieve maximum efficiency is for warehousing to be clustered together for easier cargo transfers and less reliance on inter-warehouse trucking.

Due to the high demand for urban industrial spaces, some companies are choosing to split their supply chain operations into different locations throughout the city, like Ikea's move to smaller retail locations within cities and maintaining their suburban stores as a form of fulfilment centres.

Case Studies Lessons

Flexibility Promotes Innovation

The more flexible the zoning, the more resilient the city can be when mitigating and absorbing emerging trends.

The negative effects of e-commerce can arise when there is a disparity between the uses permitted by the city and the uses that are desired by the private market users.

Within the example of dark store expansion needing to be stopped, the public wanted to maintain the allowable uses of their neighbourhoods but the intense market demand for 15-minute delivery was driving dark stores into these neighbourhoods. By acting fast, Amsterdam can take time to formulate the best solution to either mitigate the impacts or reconsider the rigidity of the allowable uses.

There is a wide variety of activities that are affected by e-commerce, but the allowable uses of mixed-use spaces close to consumers often do not include logistics activities. In the example of the Logistics Hotels, Paris determined that urban goods movement is within the public interest and therefore a public good, allowing it to be located within many non-industrial zones.

Flexible and resilient urban spaces can be created in more ways than just zoning. Pilot programming with data collection can be utilized to create ongoing monitoring of new programs and give immediate assessments of success.

Supporting Existing Infrastructure

Cities are already a network of goods movement pathways that require more support to manage e-commerce impacts.

The majority of urban goods are transported on municipal roadways and delivered on municipal curbs. These publicly-managed assets facilitate the quick and efficient delivery that consumers have grown accustomed to. Since these spaces are public, there is growing concern regarding the conflict over space that has been arising with increased e-commerce delivery.

Roadway congestion has increased with a higher number of delivery vehicles entering urban areas to reach residents. Smart Trucking Policies like New York's have the goal of minimizing congestion caused by deliveries by encouraging off-peak deliveries and promoting the consolidation of shipments into the same truck.

Roads can be used to their maximum efficiency when combined with user-based technology, such as the booking system in Nashville's Smart Zones.

Sidewalks, where the deliveries are unloaded from trucks and delivered to consumers, are public spaces to be used by all. The fight for better delivery access to the curb to minimize congestion is included in curbside management programs in San Francisco and Toronto.

Case Studies Lessons

Changes to Employment Patterns

The rise of e-commerce has produced direct and indirect impacts on employment trends.

A significant amount of e-commerce activity is taking place at the final mile delivery stage in the supply chain, and this is where most gig worker jobs are concentrated. These gigs are precarious and are far less stable than retail jobs which are declining in number. These gig jobs are disproportionately affected by market trends, as seen in the Amsterdam dark stores example of rapid growth.

Warehouse and fulfilment centre automation is a large and growing disruptor to the current employment patterns. As these warehouse-type jobs need to be progressively faster and more accurate, the reliance on automation in new warehouses and fulfilment centres is increasing. As seen in the case studies, automation is occurring at both the origin of goods, like the fulfilment centre in Ohio, and the logistics sorting facility in New York.

Built Form Opportunities

The high demand for logistics and distribution hub space in urban sites presents opportunities for innovative built forms.

Reducing last mile delivery time is highly desirable by the e-commerce sector, as this final leg of the journey is generally the costliest. Locating near urban centres allows for costs to be reduced or reallocated. This presents opportunities for investments to be made in innovative built form design and for community amenities to be incorporated into warehouse designs.

The Parisian Logistics Hotel model is an example of integrating low-impact warehouse industrial uses with adjacent residential uses. Additionally, the incorporation of public neighbourhood amenities such as soccer fields on roofs has also been proven to be possible, facilitating a more seamless integration of warehouse uses within the mixed-use neighbourhood.

Municipalities in Metro Vancouver can learn from this and identify specific lands that could host similar built forms and creative logistics solutions. Exploring the creation of innovative industrial zoning areas where built forms meet the needs of both employment lands and public amenities.



Conclusions Approach

Why does e-commerce matter to Metro Vancouver?

E-commerce is a quickly growing sector of retail, increasingly capturing a larger portion of Canadian spending. Additionally, e-commerce is closely tied to emerging technology and is quickly evolving to become more efficient in various ways. In general, the e-commerce and industrial sectors are advancing quickly, while governments have been slower to make changes. The strategies that have been implemented have virtually all been delayed and reactionary, rather than proactive.

Going forward, municipalities in Metro Vancouver would benefit from broadly considering the impacts of e-commerce when developing zoning and traffic-related policies. Additionally, combining the efforts of businesses and public sectors to develop more comprehensive policies is crucial to ensuring the policies attempting to mitigate the negative impacts of e-commerce are effective. The world of e-commerce is eager to try new pilot projects and implement new ways of doing things, and municipalities in the region can take advantage of this.

Municipalities can possibly anticipate the demand for e-commerce and rapid delivery to remain and steadily grow. Taking steps to begin monitoring the growth and uptake of e-commerce, as well as the ever-changing impacts that e-commerce has on the region, is crucial and should be considered imminently. Recognizing and understanding the priorities for this sector allows municipalities to begin implementing adequate policies in response.

The following pages outline three distinct strategic steps that Metro Vancouver municipalities could take to ensure a proactive stance against the negative impacts of e-commerce and migrate away from the reactionary changes made (or not made) so far.

Strategic Recommendations

Expand traffic data collection efforts to better cover curb and sidewalk use.

Increased curb demand and sidewalk congestion from additional vehicles and people using these spaces are some of the most significant impacts that cities are facing as a result of e-commerce. Understanding the extent of the increase in use and changes in demand requires significant data collection efforts. Municipalities in the region, Metro Vancouver, and TransLink, need to implement improved and expanded monitoring efforts to observe changes in these areas as soon as possible.

The sooner this is done, the sooner trend changes can be identified and the exact extent of changes in both general use and demand for curb space can be known. This is currently unknown for most municipalities. There is no doubt that data collection and storage are costly; however, the data collected would also be significant in improving other aspects of urban life. This information can also go towards informing policy developments that could improve safety, reduce illegal parking, or help develop strategies to implement more sustainable transportation modes.

Once more granular data is available, it will be easier to make small adjustments to zoning and policies. Revisiting policy and zoning on a more frequent basis can create resilience toward rapidly evolving movement patterns.

Potential Outcome:

Implementing additional data collection efforts could help inform future policy making. Specifically, applying the information gathered to inform curb demand management strategies at municipal levels will be crucial to mitigating some of the most significant impacts currently occurring due to the rise of e-commerce.

Strategic Recommendations

Incorporate flexibility into industrial zoning.

The supply of industrial land within Metro Vancouver does not have the capacity to mitigate the impacts and meet the growing need for space, driven by the rise of ecommerce. The current stock of industrial land needs to be intensified or expanded to grow the resilience of the supply. The first step to improving the resilience of industrial land is to identify the most restrictive characteristics of zoning, while still maintaining the primary use of the lands. Some improvements to restrictive zoning characteristics include:

- i. Broadening the allowable uses, specifically additional uses that reflect the modern, creative, and fast-changing solutions to fulfilling distribution;
- ii. Reconsidering FAR restrictions, recognizing opportunities to intensify industrial uses and leveraging them when they arise; and
- iii. Allowing temporary uses, creating opportunities for pilot programs to operate so that local government can study and learn from a continuously evolving industry.

Revisiting applicable zoning and policies on an ongoing basis, especially regarding an emerging trend like e-commerce, increases the resilience of any planning policy.

Potential Outcome:

Flexible zoning that continues to protect the primary intent of industrial zoning, could provide the opportunity for local government to work with industry and evolve together. Large retailers and distributors have significant market influence and buying power. Finding ways to work with them to intensify industrial land uses, and/or implement alternative distribution strategies, could help.

Strategic Recommendations

Reimagine retail and commercial zoning.

Delivery fulfilment tasks are anticipated to increasingly be completed within retail stores, restaurants and other commercial spaces, changing the interaction these sites have with adjacent areas. This shift can increase curb demand on streets and in rear lanes and can reduce neighbourhood vibrancy with less foot traffic and fewer sightlines between shops/restaurants and the street. At the same time, centrally located distribution hubs that can result from partially repurposing commercial spaces for distribution uses are opportunities for low-emission last mile delivery fulfilment.

Municipalities should anticipate the possibility of these changes occurring and adjust their commercial business and land use approvals processes accordingly.

- Impact studies should be conducted during business licences and/or rezoning application reviews to evaluate the traffic impacts and specifically evaluate the evolving curb demand needs.
- ii. Consider limiting business licence approvals for businesses that operate exclusively as dark stores to mitigate negative impacts on vibrancy.

Potential Outcome:

There will be potential GHG emission reductions and improved facilitation of urban delivery by bikes or low-emission vehicles from distribution operations on sites zoned for commercial or retail use. The shift from prioritization of longer trip and vehicle-based delivery can maintain and ensure vibrant main streets and urban centres.



Appendix Stakeholder Engagement Questions

The following questions were shared with participants ahead of stakeholder meetings and were used to guide the conversation with stakeholders. Additional questions were posed to address specific topics as appropriate during the conversations.

Colliers would like to extend a thank-you to the many stakeholders that took the time to meet and discuss their perspectives, share their knowledge, and provide insight as well as potential solutions to rising concerns.

- Acuere Consulting
- Amazon
- Canada Post
- City of Richmond
- City of Vancouver
- Colliers Brokerage
- Exotec

- GWL Realty Advisors
- HUB Cycling
- Port of Vancouver
- Simon Fraser University
- Translink
- UDI
- University of British Columbia

Appendix Stakeholder Engagement Questions

- How has the growth of e-commerce impacted your sector?
- What are the challenges your sector is facing as a result of this growth?
- What policy changes could Metro Vancouver or municipalities make to help address these challenges?
- Where do you see the future of the sector going?
- How are the goods coming into the region? (Air, sea, truck, rail)? Any noticeable trends in proportions?
- What proportion of the goods that you handle are destined for Metro Vancouver sale / consumption vs elsewhere?
- Where are they going in Metro Vancouver? Final destination -- retail store, e-commerce home delivery, or warehousing?
- How are the goods being transported, for the different parts of the trip? Any emerging trends?
- Any indication of how long goods are being stored before reaching their final destination?

- What factors do you consider in selecting a location (for distribution/warehouse/pick-up hub)?
- What road utilization changes have you seen? How does road congestion impact your operations?
- Typical timeline for goods to be delivered or warehoused? Increasing, decreasing, stable?
- Any anticipated changes in requirements for storing, handling, and transporting goods?
 Ex. drone deliveries, autonomous deliveries?
- What are the challenges your group faces with regards to last mile delivery?
- What are the challenges around parking/curb access, for both pick-ups and deliveries?
- What aspects of your business' transportation needs can be completed on a smaller vehicle or bike?
- Are there specific changes to parking or transportation networks to facilitate smaller vehicle, scooter or cargo bike use?
- What is the ideal accommodations / facilities for your business, in terms of location, size, access, design, etc? What are the greatest challenges in terms of acquiring these accommodations?

Appendix Stakeholder Engagement Questions

- Could your facility be accommodated on the second floor of an urban industrial building, accessed by a freight elevator or ramp?
- Have you observed any buildings being converted to better suit e-commerce trends?
- Are there land-use restrictions that are limiting your operations from locating in more suitable locations?
- What are some prevailing trends in the design of warehousing / distribution facilities? Is conversion of retail units to distribution units a consideration? If so, what aspects of e-commerce distribution are best suited to or can be accommodated by such conversion?
- What are some prevailing trends in the location of warehousing / distribution facilities? How have employment patterns been impacted?
- What type of labour are you seeking that you are unable to attain?
- What is the biggest challenge associated with finding suitable labour to meet demand? Cost? Location? Skillset?
- Has the number of employees working in your facilities changed?

- Are you able to estimate approximately how many employees there are per 1000 sq ft of building floor space?
- What impacts are real estate market trends (low vacancy, high construction costs, high lease rates) having on your sector? Recent trends or changes?
- What policy municipal changes or measures have been taken in response to the growth of e-commerce? What are the anticipated responses? How is e-commerce shaping municipality's planning decisions?
- In your opinion, how can government policies better accommodate the e-commerce sector?



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To: Regional Planning Committee

From: Eric Aderneck, Senior Planner, Regional Planning and Housing Services

Date: January 23, 2023 Meeting Date: February 10, 2023

Subject: Metro Vancouver Industrial Lands Portfolio Update

RECOMMENDATION

That the MVRD Board receive for information the report dated January 23, 2023, titled "Metro Vancouver Industrial Lands Portfolio Update".

EXECUTIVE SUMMARY

The Metro Vancouver Regional Industrial Lands Strategy (RILS) was approved by the MVRD Board on July 3, 2020, after over two years of research and engagement. RILS identified 10 priority actions and 34 recommendations which Metro Vancouver continues to implement (Reference 1 and 2). Since then, Metro Vancouver has been working on a number projects to implement RILS, and is now providing a status update on the industrial lands portfolio by way of this report.

PURPOSE

To provide the Regional Planning Committee and MVRD Board with an update on the Metro Vancouver industrial lands portfolio, including market context, policy response, completed projects, and ongoing implementation.

BACKGROUND

Industrial lands are an important part of the region's land base and economy. Much of the industrial lands in the region are associated with trade (import, export) that travels through the port, rail, airport, and highway networks which serve the regional, provincial, and national economies, with many associated employment and taxation benefits.

Market Conditions

As has been well-documented and widely-reported for many years, the Metro Vancouver region has a limited supply of industrial lands, a low vacancy rate, and a strong demand for industrial space. This situation worsened during the COVID-19 pandemic, with accelerated demand for industrial space associated with e-commerce facilities.

The result is that Metro Vancouver has one of the tightest industrial markets in the continent, with extremely low vacancy rates, rent rates that have risen significantly in the past years, and very high land prices. According to the latest market report (Colliers Vancouver Industrial Market Report Q4 2022):

- The Metro Vancouver Area has the highest average asking net rental rates in Canada at \$21 per square foot of floor area;
- The average asking net rental rate climbed by 18.7% over the past year; and

• The vacancy rate continues to be very low at 0.2%, which does not provide many options for tenants seeking space.

The limited supply and high prices challenges the ability for economic growth in the region, and has associated employment and taxation implications.

To provide a sense of scale, as documented in a study about the contribution of industrial lands and activities to the regional economy (InterVISTAS, Metro Vancouver Industrial Lands: Economic Impact and Future Importance, 2019):

- Industrial lands represent 4% of the region's land base;
- These industrial lands accommodate 27% of jobs in the region (direct employment = 364,100);
- These jobs pay about 10% higher wages than the regional average; and
- Annual business activity contributes \$9 billion in taxes to various levels of government.

Policy Response

In early 2018, recognizing both the shortage and importance of industrial lands to the economy, Metro Vancouver's Board Chair struck the Industrial Lands Strategy Task Force to guide the development of a Regional Industrial Lands Strategy. After over two years of research and engagement, the Metro Vancouver Regional Industrial Lands Strategy was completed and approved by the MVRD Board in July 2020.

RILS identifies 34 recommendations to respond to the 4 principal challenges facing the region's industrial lands, with 10 priority actions for early implementation. RILS attempts to balance diverse interests while striving to achieve its vision: to ensure sufficient industrial lands to meet the needs of a growing and evolving regional economy to the year 2050. The priority actions identified each require a level of support from relevant stakeholders to advance as part of the Strategy's implementation program. The main focus is to protect industrial lands for industrial uses and support their intensification and densification.

RILS responds to the challenges facing the region's industrial land base and interests, identified as:

- A constrained land supply and critical industrial land shortage;
- Pressures on industrial lands to convert to non-industrial purposes;
- Site and adjacency issues with challenges bringing industrial lands to market; and
- A complex jurisdictional environment requiring collective and concerted efforts.

The RILS 10 priority actions are:

- 1. **Define 'Trade-Oriented' Lands** These large sites associated with the transportation of goods to and through the region serve a national function and are crucial to the economy. A clear, consistent and collaboratively-developed definition will support their protection.
- 2. **Undertake a Regional Land Use Assessment** Proactively, in collaboration with municipalities, identify the 'best' locations for different types of land uses based on a set of criteria.

- 3. **Strengthen Regional Policy** In the regional growth strategy update, explore stronger policy measures such as higher voting thresholds to amend the regional Industrial land use designation.
- 4. Seek Greater Consistency in Local Government Zoning Definitions and Permitted Uses Collectively develop consistent definitions for permitted industrial uses on industrial lands and seek implementation through municipal plans and bylaws.
- 5. Facilitate the Intensification / Densification of Industrial Forms Where Possible Promote multi-level industrial buildings or other development forms, by removing regulatory barriers like zoning height and density limits to encourage a more efficient use of the limited land supply.
- 6. Prepare Bring-to-Market Strategies for Vacant or Under-Developed Industrial Lands Proactively address issues preventing the development of vacant or under-utilized industrial lands, which may have unique site challenges, such as servicing limitations, soil qualities, and ownership assembly.
- 7. **Ensure Transportation Connectivity** Critical for industrial businesses, work together to coordinate investment in the transportation network, implement the Regional Goods Movement Strategy, enhance the regional truck route network, and promote efficient container drayage and transit for industrial workers.
- 8. **Coordinate Strategies for Economic Growth and Investment** Profile the importance of industrial lands for the economy, and link with municipal economic development objectives and the Metro Vancouver's Invest Vancouver function, to attract investment to the region.
- Improve Data and Monitoring Update the Regional Industrial Lands Inventory to have a better shared understanding of the current land uses and supply, and conduct a Regional Employment Survey.
- 10. **Develop a Framework for Coordination** For cross-boundary economic and land use planning matters, work with the adjacent regional districts and the Province to advance coordinated infrastructure investments, land use planning, and economic development.

Successfully achieving the vision of RILS requires a collaborative approach and sustained effort on the part of various governing bodies and stakeholders with overlapping, yet distinct areas of business and jurisdictions. Implementation will require the continued close collaboration with stakeholders, and a long-term commitment by Metro Vancouver and its member jurisdictions.

RILS Endorsements

Subsequent to approving RILS in mid-2020, the MVRD Board circulated it to member jurisdictions and other agencies / organizations asking for their endorsement and implementation of actions relevant within each of their organizational mandates. To date, formal endorsements have been received from the following organizations:

- City of North Vancouver
- City of Port Moody

- Squamish-Lillooet Regional District
- Agricultural Land Commission
- City of Delta
- City of Maple Ridge
- District of North Vancouver

Metro Vancouver continues to encourage member jurisdictions and other agencies to support and implement the actions of RILS, as appropriate to their context and jurisdiction. The preparation of updated Regional Context Statements associated with the updated regional growth strategy, due within two years of adoption of *Metro 2050*, will be an additional opportunity for municipalities to incorporate enhanced industrial land policies into their Official Community Plans (or equivalent) to protect and enhance the limited supply of industrial lands in the region.

Regional Growth Strategy – Industrial and Employment Lands Policies

During the process of updating the regional growth strategy from *Metro 2040* to *Metro 2050*, the recommended actions of RILS were used to inform the industrial and employment lands policy reviews.

The strategies and policy actions of the draft *Metro 2050* that reference industrial lands are found within Goal 2: Support a Sustainable Economy. The Industrial and Employment regional land uses are described in *Metro 2050* as follows, each with associated specific policies:

- Industrial lands are intended for heavy and light industrial activities, including: distribution, warehousing, repair, construction yards, infrastructure, outdoor storage, wholesale, manufacturing, trade, e-commerce, emerging technology-driven forms of industry, and appropriately related and scaled accessory uses.
- **Employment** lands are intended for light industrial, commercial, and other employmentrelated uses to help meet the needs of local and regional economic activities, and complement the planned functions of Urban Centres and Frequent Transit Development Areas

Implementation of Industrial Initiatives

Over the past three years, to support the implementation of RILS, Metro Vancouver has:

- completed the 2020 Regional Industrial Lands Inventory;
- completed an Industrial Intensification Analysis Study;
- incorporated new tools and policies into *Metro 2050*, the updated regional growth strategy, to better protect industrial lands, which includes a new trade-oriented lands overlay provision, and allowing residential on select employment lands provision;
- completed a Regional Land Use Assessment project;
- completed the Impacts of E-Commerce on Industrial Lands and Transportation Systems Study;
- continues to engage and present to industry groups and stakeholders; and
- continues to profile and promote industrial intensification / densification opportunities as appropriate.

Metro Vancouver continues to work with member jurisdictions and agencies to advance the recommended actions of RILS. Successful implementation requires the continued collaboration with industry stakeholders and a long-term commitment by Metro Vancouver and member jurisdictions.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

CONCLUSION

The Metro Vancouver Regional Industrial Lands Strategy was approved by the MVRD Board in July 2020, and was shared with member jurisdictions and agencies / organizations seeking their endorsement and implementation. To date, seven organizations have formally responded.

Since mid-2020, Metro Vancouver has completed a number of projects to advance and implement the industrial lands portfolio. Metro Vancouver will continue to work with member jurisdictions and agencies to advance the recommendations of RILS, as implementation will require the continued close collaboration with stakeholders and a long-term commitment by Metro Vancouver and member jurisdictions.

References

- 1. Metro Vancouver Regional Industrial Lands Strategy Report
- 2. Metro Vancouver Regional Industrial Lands Strategy Executive Summary

56918162



To: Regional Planning Committee

From: Diana Jeliazkova, Senior Policy and Planning Analyst, Regional Planning and Housing

Services

Date: January 23, 2023 Meeting Date: February 10, 2023

Subject: Metro Vancouver 2040: Shaping our Future – 2021 Annual Performance Monitoring

Report

RECOMMENDATION

That the MVRD Board receive for information the report dated January 23, 2023, titled "Metro Vancouver 2040: Shaping our Future - 2021 Annual Performance Monitoring Report", and direct staff to forward a copy to the Province of BC's Ministry of Municipal Affairs, Local Government Division.

EXECUTIVE SUMMARY

The Local Government Act and Metro Vancouver 2040: Shaping our Future (Metro 2040) require the preparation of an annual report on the regional growth strategy's progress. The 2021 Annual Performance Monitoring Report provides a summary update on the performance measures with relevant annual change and available data. A complete profile of Metro 2040's performance measures with a detailed data breakdown is available in the Metro 2040 Performance Monitoring Dashboard on the Metro Vancouver website (Reference 1).

PURPOSE

To provide the Regional Planning Committee and MVRD Board the 2021 annual performance monitoring report of the region's performance toward the goals of *Metro 2040*. This is based on the key summary and context measures in Section G of the regional growth strategy, from plan adoption in 2011 to 2021, and the policy and land use designation amendments to date.

BACKGROUND

Metro 2040 is the regional federation's shared vision to guide urban growth among the 23 member jurisdictions comprising the Metro Vancouver Regional District. Annual reporting on the regional growth strategy's progress is required by both Subsection 452(1)(b) of the Local Government Act and Section 6.13.3 of Metro 2040. The preparation of an annual report is also essential to ensure that the regional growth strategy, its indicators and policies, are actively monitored and assessed as the region continues to grow and change.

METRO 2040 PERFORMANCE MONITORING

Metro Vancouver recognizes the important role that performance monitoring plays in the implementation of *Metro 2040* and collective decision-making. The *Progress Toward Shaping Our Future* monitoring program provides a framework for discussing *Metro 2040* implementation among Metro Vancouver Board members, member jurisdictions, TransLink, other regional agencies, and the general public. With this process, the MVRD Board is able to review and evaluate the state of growth management in the region, progress being made, and any issues that may need further attention.

Performance Monitoring Dashboard

To better convey the status of *Metro 2040*'s performance measures and associated information in a clear and easy to understand way, the *Metro 2040* Performance Monitoring Dashboard on the Metro Vancouver website was created and launched in May 2017 (Reference 1). The webpage replaces the previous large, static *Metro 2040 Progress Toward Shaping Our Future* hard copy annual report, and provides a complete profile of *Metro 2040* performance measures that are updated regularly as data becomes available.

To date, 42,512 unique users have accessed the Dashboard locally and internationally. Over the past year, 10,779 users have accessed the Dashboard, which is up by 9% compared to the same period in the previous year (see Table 1). The overall utilization of the Dashboard continues to remain strong and consistent.

Table 1. Web Analytics of the Metro 2040 Dashboard

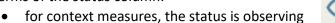
	Launch date to Sep 30, 2022	Oct 1, 2021 to Sep 30, 2022
Dashboard Users	42,512	10,779
National Users Percentage	71%	69%
International Users Percentage	29%	31%
Returning User Percentage	14%	15%
User Session Totals	64,554	15,584

Metro 2040 Performance Monitoring Program

The *Metro 2040* performance monitoring program consists of 38 performance measures in total. There are 15 Key Summary Measures, 11 Strategy Performance Measures and a range of context and participation measures where the role of monitoring is simply to observe, not meet targets. Detailed information on data source and methodology for each performance measure can be found in the *Metro Vancouver 2040: Shaping our Future Performance Monitoring Guideline* (Reference 2).

Tables 2 to 7 below provide a status highlight of some of the *Metro 2040* performance measures. More detailed information on each performance measure's vision, intent, performance, and data files are available for viewing and download through the Performance Monitoring Dashboard.

In terms of the status column:





• for directional measures with a target, the status will either be on track or may not be on track / area of concern



It is important to note that most of these performance measures are in response to long range objectives, and one year's information can be misleading. Many of the performance measures can only be assessed every 5 years because of the release of new Census data or because inventories are undertaken every 5 years.

Table 2. Performance Measures for Regional Land Use Designations

Measure	Performance	Status
Total and cumulative change in land by regional land use designation	 1,716 ha of land, 0.6% of the regional area changed regional land use designation since 2011. Agricultural: 54,964 ha (net loss of 186 ha) Conservation & Recreation: 137,891 ha (net gain of 917 ha) Industrial: 10,271 ha (net gain of 68 ha) Mixed Employment: 3,517 ha (net gain of 146 ha) Rural: 8,323 ha (net loss of 115 ha) General Urban: 69,342 ha (net loss of 824 ha) Note: the land totals are calculated based on available GIS data, and may differ from other previously published totals given adjustments and improvements to digital mapping. 	
Total and cumulative change in land within Urban Containment Boundary (UCB)	The land area within the UCB has slightly increased. 2011: 90,400 ha, 31.80% of regional area 2021: 90,539 ha, 31.85% of regional area There were 2 amendments to the UCB in 2021.	~
Total and cumulative change in number and hectares of Urban Centre (UC)	 There were no changes to Urban Centres in 2021. 1 Metro Core, Downtown Vancouver & Central Broadway (1,907 ha) 1 Surrey Metro Centre (473 ha) 5 Regional City Centres (2,981 ha in total) 19 Municipal Town Centres (2,199 ha in total) The 26 Urban Centres in the region have a total area of 7,560 ha, or 2.7% of the region's land area. 	
Total and cumulative change in number and hectares of Frequent Transit Development Areas (FTDA)	There were no changes to Frequent Transit Development Areas in 2021. • 16 FTDAs (967 ha in total)	

Table 3. Performance Measures for Metro 2040 Goal 1: Create a Compact Urban Area

Measure	Performance	Status
Percentage of regional dwelling units growth within UCB	98% of growth occurred within the UCB between 2011 and 2021.	~
Percentage of regional dwelling units growth in Urban Centres	From 2006 to 2016, 40% of the regional dwelling unit growth was within the region's 26 Urban Centres. New custom data from 2021 Census will be available in 2023 to update this performance measure.	~

Annual regional population growth	Metro Vancouver's population in 2021 was 2,642,825 according to the 2021 Census of Population (this figure does not include census undercounts, which will be estimated in 2023). This represented an average growth of 35,879 people per year since 2016. Detailed data on population growth by municipality is available on the <i>Metro 2040</i> Dashboard.	
Annual regional dwelling unit growth	Metro Vancouver's total dwelling unit count in 2021 was 1,104,532 according to the 2021 Census of Population (this figure does not include census undercounts, which will be estimated in 2023). This represented an average growth of 15,384 units per year since 2016. Detailed data on dwelling unit growth by municipality is available on the <i>Metro 2040</i> Dashboard.	
Annual regional employment growth	In 2021, there were 1,341,570 employed individuals in Metro Vancouver, which was lower than the employment estimate of 1,438,416 for 2021. The average growth per year was 12,934 jobs, which was also lower than the estimated annual growth of 19,247 jobs. Detailed data on employment growth by municipality is available on the <i>Metro 2040</i> Dashboard.	
Average number of dwelling units per ha within Urban Centres	In 2016, there were an average of 36.7 dwelling units per hectare within Urban Centres. New custom data from 2021 Census will be available in 2023 to update this performance measure.	
Average number of dwelling units per ha within FTDAs	In 2016, there was an average of 15.8 dwelling units per hectare within FTDAs. New custom data from 2021 Census will be available in 2023 to update this performance measure.	
Number and status of regional sewerage service connection application	In 2021, MVRD Board received two requests to extend sanitary service connection beyond the UCB in the City of Maple Ridge. Both requests were approved and deemed consistent with the provisions of <i>Metro 2040</i> .	

Table 4. Performance Measures for Metro 2040 Goal 2: Support a Sustainable Economy

Measure	Performance	Status
Percentage of regional employment growth in Urban Centres	33% of the regional employment growth was within the region's Urban Centres from 2006 to 2016. This growth trend is not on track with the regional target of 50%. New custom data from 2021 Census will be available in 2023 to update this performance measure.	

Employed labour force in retail trade sector in UCs & FTDAs	In 2016, 48% of employment in the retail trade sector is located in UCs and FTDAs. New custom data from 2021 Census will be available in 2023 to update this performance measure.	~
Average number of kilometre travelled to commute region-wide	The region-wide average trip length to work / post secondary school is 13.1km according to the 2017 TransLink Trip Diary. TransLink conducts a regional trip diary approximately every 5 years; the next survey will likely be in 2023 with results available in late 2024 or early 2025.	
Average number of mins travelled for commute region-wide	In 2021, 56% of the regional employed labour force travelled less than 30 mins for work. 36% travelled for 30 to 59 mins, and 8% travelled for an hour or longer.	
Percentage of residents living and working in the same subregion	In 2021, 46% of the regional employed labour force with a usual place of work lived and worked within the same municipality, while 52% worked at a different municipality within Metro Vancouver.	

Table 5. Performance Measures for Metro 2040 Goal 3: Protect the Environment and Respond to Climate Change Impacts

Measure	Performance	Status
Hectares of land inventoried as sensitive ecosystem or modified ecosystem	The 2018 Sensitive Ecosystem Inventory (SEI) reported a loss of 1,640 hectares of sensitive and modified ecosystems for region from 2009 to 2014. 1,190 ha of the loss was within the regional core area (mostly aligned with UCB). The SEI is updated every 6 years; the next update is underway and will be completed in early 2023.	!
Percentage of inventoried sensitive ecosystem and modified ecosystem rated high quality	The 2018 SEI found that 84.7% of the identified sensitive / modified ecosystems in the region are rated higher quality, but the percentage drops significantly when looking at just the regional core (39.1%). The SEI is updated every 6 years; the next update is underway and will be completed in early 2023.	
Track the number of pollutant exceedances of regional and national objectives and standards	Using data from the Lower Fraser Valley Air Quality Monitoring Network, Metro Vancouver continues to track air quality trends annually and report out on the number of exceedances of regional air quality objectives.	~
Tonnes and percentage of regional greenhouse gas (GHG) emissions produced by building and on-road transportation sources	Regional GHG emissions were 14.8 million tonnes in 2020, less than a 1% reduction from the 2010 baseline. 65% of the region's GHG emissions were from on-road transportation and buildings. Significant action by all levels of government is needed for Metro Vancouver to achieve	additional policies being

	its 2030 target, and become a carbon neutral region by 2050.	developed as part of Climate 2050
Regional baseline and change projections for relevant climate variables	The 2016 Climate Change Projections for Metro Vancouver study anticipates that Metro Vancouver will have warmer temperatures in all seasons, wetter winters, drier summers, and a significant decrease in snowpack year-round.	

Table 6. Performance Measures for Metro 2040 Goal 4: Develop Complete Communities

Measure	Performance	Status
Status of municipal Housing Action Plans	As of September 2022, 16 municipalities have adopted housing action plans or strategies.	~
Composition of housing stock by type, tenure and cost	New dwelling unit completion by type in 2021 Single detached: 3,298 Semi-detached (duplex): 598 Row house: 2,946 Apartment: 18,387 New dwelling unit completion by tenure in 2021 Freehold ownership: 3,144 Condominium ownership: 14,851 Co-op: 27 Rental: 7,207 Total of 25,229 new dwelling units in 2021.	
Percentage of hours with Air Quality Health Index in high and low health risk categories	In 2020, air quality was in the low health risk category over 97% of the time. While the region did experience impacts from wildfire smoke from outside the region, there were more hours in the low health risk category than in other years affected by wildfires (e.g. 2017, 2018).	
Walkability	The Walkability Index was updated in 2020 to allow for cross comparison between the three-research periods, 2006, 2011, and 2016. The five indicators that contribute to the Walkability Index are residential density, intersection density, land use mix, commercial floor area ratio, and sidewalk completeness.	

Table 7. Performance Measures for Metro 2040 Goal 5: Support Sustainable Transportation Options

Measure	Performance	Status
Percentage of total trips that are private vehicle based	In comparison to the 2011 Trip Diary, the 2017 Trip Diary shows a clear shift from motorized trips to walking. Trips	~

	by automobile driver decreased from 59% to 55%, while walking trips increased from 10% to 14%. TransLink conducts a regional trip diary approximately every 5 years; the next survey will likely be in 2023 with results available in late 2024 or early 2025.	
Percentage of population living within walking distance of the Frequent Transit Network	50.2% of the Metro Vancouver population live within a 5-minute walk to the Frequent Transit Network or a 10-minute walk to a rapid transit station, according to 2016 Census data. New custom data from 2021 Census will be available in 2023 to update this performance measure.	*
Number of actively insured vehicles	Metro Vancouver had approximately 1,323,340 actively insured passenger vehicles in 2021. The number of actively insured passenger vehicles decreased by 44,330 compared to 2020 data. The decrease in vehicle count is likely impacted by the COVID-19 pandemic.	

METRO 2040 AMENDMENTS JANUARY 2021 TO SEPTEMBER 2022

From January 2021 to September 2022, there were four approved amendments to Metro 2040:

- Bylaw No. 1310, 2020 Land use designation amendment for 60 parcels of Regional Parkland to amend 26.1 hectares of land designated General Urban and 102.2 hectares of land designated Rural, to the Conservation and Recreation land use designation
- Bylaw No. 1326, 2021 Land Use Designation Amendment (228 175A Street, Surrey): Mixed Employment to General Urban (2.5 ha)
- Bylaw No. 1327, 2021 Land Use Designation Amendment (Cloverdale Hospital Site, 5510 180 Street, Surrey): Industrial to Mixed Employment (9 ha)
- Bylaw No. 1328, 2021 Land use designation amendment for 71 parcels (South Campbell Heights, Surrey): Rural to Mixed Employment (160.7 ha), Rural to Conservation and Recreation (66.6 ha), and Rural to Agricultural (12.1 ha) outside the UCB and within the Special Study Area; Mixed Employment to Conservation and Recreation within the UCB (14 ha); extension of UCB by 223.7 ha; removal of the entire South Campbell Heights Special Study Area (247 ha).

ALTERNATIVES

This is an informational report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Data acquisition and development for performance monitoring is a regular component of the annual Regional Planning budget. As required under Metro Vancouver's *Regional Growth Strategy Procedures Bylaw No. 1148, 2011*, addressing staffing and other costs related to *Metro 2040* implementation, is being provided in a separate report.

SUMMARY / CONCLUSION

The Local Government Act and Metro 2040 require the preparation of an annual report on the regional growth strategy's progress. The 2021 Annual Performance Monitoring Report provides a

summary update on the performance measures with relevant annual change and available data for the year 2021. A complete profile of *Metro 2040* performance measures with a detailed data breakdown is available in the *Metro 2040* Performance Monitoring Dashboard on the Metro Vancouver website. Recognizing the important role that performance monitoring plays in the implementation of the regional growth strategy and collective decision-making, Metro Vancouver continues to provide regular updates on the Dashboard as data becomes available.

References

- 1. Metro 2040 Performance Monitoring Dashboard
- 2. <u>Metro Vancouver 2040: Shaping our Future Performance Monitoring Guideline</u>

55727448



To: Regional Planning Committee

From: Diana Jeliazkova, Senior Policy and Planning Analyst, Regional Planning and Housing

Services

Date: January 23, 2023 Meeting Date: February 10, 2023

Subject: Metro Vancouver 2040: Shaping our Future – 2021 Procedural Report

RECOMMENDATION

That the MVRD Board receive for information the report dated January 23, 2023, titled "Metro Vancouver 2040: Shaping our Future - 2021 Procedural Report".

EXECUTIVE SUMMARY

This report documents the staffing and resources required to implement, administer and amend the regional growth strategy, and provides an annual report on the operational performance of the Regional Planning Division.

PURPOSE

This report conveys to the Regional Planning Committee and MVRD Board the 2021 *Metro Vancouver* 2040: Shaping our Future Procedural Report for information as required by Greater Vancouver Regional Growth Strategy Procedures Bylaw No. 1148, 2011.

BACKGROUND

Metro Vancouver 2040: Shaping our Future (Metro 2040), the regional growth strategy, as well as the Greater Vancouver Regional District Regional Growth Strategy Procedures Bylaw No. 1148, 2011 (RGS Procedures Bylaw) were both adopted by the MVRD Board in July 2011. The RGS Procedures Bylaw includes requirements for reporting on operational performance measures associated with Metro 2040, including such items as the number of amendments processed and resources required for its implementation.

PROCEDURAL PERFORMANCE REPORTING

Procedural reporting requirements are in addition to, and separate from, reporting on the performance measures listed in Section G of *Metro 2040*, which Metro Vancouver is required to report on annually as per Subsection 452(1)(b) of the *Local Government Act*.

The RGS Procedures Bylaw states:

- 7. The Regional Growth Strategy Annual Report shall include a report on those measures set out in Section G of the Regional Growth Strategy.
- 8. Additionally, the Regional Growth Strategy Annual Report shall include a report on the following measures:
 - a) Metro Vancouver staff time, expressed in the number of full-time equivalent staff budgeted to administer the Regional Growth Strategy;

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- b) The total cost of implementing, managing, monitoring and amending the Strategy for the calendar year, including the cost Metro Vancouver and municipal staff, costs related to referral of requested amendments to the Technical Advisory Committee [now called: Regional Planning Advisory Committee], external consultants, external legal advisors and all other resources;
- c) The number of requested amendments and approved amendments to the Regional Growth Strategy by type;
- d) A comparison of items a), b) and c) year over year and pre- and post-adoption of the Regional Growth Strategy: and
- e) A record of the timelines to process amendments to the Regional Growth Strategy, including staff, Technical Advisory Committee [now called: Regional Planning Advisory Committee] and Board review.
- 9. If requested by an Affected Local Government, Metro Vancouver will make a presentation on the Regional Growth Strategy Annual Report to that Affected Local Government's Council or board, answer any questions that may arise and report back to the Board on information received during the presentation.

There are a number of different tasks associated with implementing *Metro 2040*, including reviewing Regional Context Statements, preparing supporting implementation documents, conducting policy research and analysis, and processing proposed amendments. Consistent with the *RGS Procedures Bylaw*, this Procedural Report provides an update on procedural performance measures for the year 2021 (Attachment).

ALTERNATIVES

This is an information report. No alternatives are provided.

FINANCIAL IMPLICATIONS

Staffing and resources to support the implementation and monitoring of *Metro 2040* are incorporated into the annual budget for Regional Planning approved by the MVRD Board on an annual basis.

CONCLUSION

This report conveys the 2021 *Metro Vancouver 2040: Shaping our Future* Procedural Report as required by *Regional Growth Strategy Procedures Bylaw No. 1148, 2011*. The report documents the resources that have been required to implement, administer and amend the regional growth strategy since its adoption to year-end 2021.

Staffing and resources required to implement *Metro 2040* include a variety of tasks, such as supporting and reviewing Regional Context Statements, preparing supporting implementation documents, conducting policy research and analysis, and processing proposed amendments. Since the adoption of *Metro 2040* in mid-2011, the number of staff directly associated with the Regional Planning Division has remained relatively consistent. Total costs / budget have also remained relatively consistent.

In keeping with the requirements of the RGS Procedures Bylaw, Metro Vancouver staff are available to make a presentation on annual regional growth strategy performance monitoring to any affected

local government's Council or Board on request, answer any questions that may arise, and report back to the MVRD Board on information received during the presentation(s) if required.

Attachment

Metro Vancouver 2040: Shaping our Future 2021 Procedural Report, dated January 3, 2023.

55727154

ATTACHMENT

Metro Vancouver 2040: Shaping our Future 2021 Procedural Report

As required by *Greater Vancouver Regional District Regional Growth Strategy Procedures Bylaw No. 1148, 2011*

January 3, 2023

Introduction

Metro Vancouver 2040: Shaping our Future (Metro 2040), the regional growth strategy, and the Greater Vancouver Regional District Regional Growth Strategy Procedures Bylaw No. 1148, 2011 (RGS Procedures Bylaw) were both adopted by the Greater Vancouver Regional District (now MVRD) Board in July 2011. The RGS Procedures Bylaw includes requirements for reporting on procedural performance measures associated with Metro 2040, such as the number of amendments processed and resources required to implement the regional growth strategy.

Supporting Work to Implement Metro 2040

To advance *Metro 2040* implementation, Metro Vancouver conducts research and undertakes supporting analysis and studies. These publications include *Metro 2040* implementation guidelines to support interpretation and procedures, and specific studies / reports providing technical information, analysis and recommendations on particular *Metro 2040* strategies and actions.

By year-end 2021, eight Implementation Guidelines had been prepared and adopted by the MVRD Board to advance the implementation of *Metro 2040*.

- Implementation Guideline #1: Regional Context Statements (2012). Guidance for municipalities on developing Regional Context Statements
- Implementation Guideline #2 Amendments to the Regional Growth Strategy (2012; updated in 2014). Detailed explanation of Metro 2040 amendment procedures (should be read with the Regional Growth Strategy Procedures Bylaw)
- Implementation Guideline #3: What Works: Affordable Housing Initiatives in Metro Vancouver Municipalities (2012). Information for municipalities on how to develop Housing Action Plans
- Implementation Guideline #4: Identifying Frequent Transit Development Areas (2013). Information for municipalities on how to Identify Frequent Transit Development Areas, a key tool for transit-oriented development
- Implementation Guideline #5: Metro Vancouver Industrial Land Protection and Intensification Policies (2014). Guidance for municipalities on how to protect and efficiently develop industrial lands
- Implementation Guideline #6: What Works: Municipal Measures for Sustaining and Expanding the Supply of Purpose-Built Rental Housing (2016). Information on municipal measures for sustaining and expanding the supply of purpose-built rental housing along with project profiles.
- Implementation Guideline #7: Extension of Regional Sewerage Services (2017). Information on Metro 2040 policies and procedures for connection to regional sewerage services in Agricultural and Rural areas of Metro Vancouver.
- Implementation Guideline #8: Metro Vancouver 2040 Performance Monitoring Guideline (2017). Information about Metro 2040 performance measures and the monitoring and reporting process.

Progress on the Completion of Regional Context Statements

Per the *Local Government Act*, within the first two years following adoption of a regional growth strategy member municipalities are required to submit an updated Regional Context Statement (RCS)

that clearly lays out how local plans and aspirations as expressed in Official Community Plans align with the regional objectives laid out in *Metro 2040*. All required RCSs have been accepted by the MVRD Board.

The Local Government Act also requires that municipalities review the Regional Context Statement at least once every 5 years after acceptance by the MVRD Board, and if no amendment is proposed, submit the statement to the Board for its continued acceptance.

Table 1: Status of Regional Context Statements to year end 2021

Municipality	Status	Year
Anmore	Accepted	2019
Belcarra	Accepted	2011
Burnaby	Accepted	2019
Coquitlam	Accepted	2013
Delta	Accepted	2013
Langley City	Accepted	2021
Langley Township	Accepted	2016
Lions Bay	Accepted	2022
Maple Ridge	Accepted	2018
New Westminster	Accepted	2017
North Vancouver City	Accepted	2015
North Vancouver District	Accepted	2014
Pitt Meadows	Accepted	2019
Port Coquitlam	Accepted	2013
Port Moody	Accepted	2018
Richmond	Accepted	2017
Surrey	Accepted	2014
Tsawwassen First Nation	Not Required	
Vancouver	Accepted	2013
West Vancouver	Accepted	2018
White Rock	Accepted	2017
University of British Columbia*	Approved by Province	2015
University Endowment Lands*	Not Required	

^{*}within Electoral Area A

Metro 2040 Amendments

In 2021, the MVRD Board processed one Type 3 Minor Amendment request to amend the regional growth strategy.

On September 28, 2020, Metro Vancouver initiated a Type 3 Minor Amendment to incorporate 60 individual regional land use designation changes to Conservation and Recreation to reflect the acquisition of these property interests by Metro Vancouver Regional Parks. The MVRD Board later approved the amendment request in early 2021.

Table 2 shows the number and type of requested *Metro 2040* amendments, and those approved for the years 2011-2021 by calendar year.

Table 2: Metro 2040 Bylaw Amendments Requested, Approved and Declined, 2011-2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Requested Amendments												
Type 1	2	-	-	-	-	-	-	-	-	-		2
Type 2	1	1	2	1	-	2	1	-		1		9
Type 3	4	-	3	4	2	2	2	2	3	1	1	24
Total	7	1	5	5	2	4	3	2	3	2	1	35
Approve	ed Amen	dments	3									
Type 1	-	1	-	-	-	-	-	-	-	-		1
Type 2	-	-	1	1	-	-	1	-	-	-		3
Type 3	4	-	2	1	3	-	3	2	2	1	1	19
Total	4	1	3	2	3	0	4	2	2	1	1	23
Decline	d Ameno	lments										
Type 1	1	-	-	-	-	-	-	-	-	-		1
Type 2	1	-	2	-	-	-	-	1	-	-		4
Type 3	-	-	1	2	-	_	-	_	-	-		3
Total	2	0	3	2	0	0	0	1	-	-		8

The average processing time for approved amendment requests between 2011 and 2021 was 29 weeks. In 2012, a Type 1 amendment requested by the City of Coquitlam which required approval from each member municipality was initiated just after the adoption of the regional growth strategy, and took 78 weeks to process. If this outlier is removed from the inventory of amendments, the average processing time drops to 27 weeks, and includes review by the Regional Planning Advisory Committee, review by the Regional Planning Committee, initiation of early readings of an associated amendment bylaw by the MVRD Board, a notification period to allow for affected local government comment, and final consideration of the amendment bylaw by the Board. The key milestones and associated timeline for *Metro 2040* amendments to year-end 2021 are provided in Appendix 1.

Metro 2040 Implementation Costs and Staffing

Between 2011 and year-end 2021, *Metro 2040* was primarily supported by Regional Planning staff and resources, which includes financial resources for planning staff as well as other resources such as consulting and data acquisition. Regional Planning staff also work on and support initiatives throughout the organization.

The Regional Planning Budget is approved annually by the MVRD Board. Information regarding the 2021 budget for staffing, consulting and data acquisition associated with the development, administration, implementation and monitoring of *Metro 2040* can be found in Report G3.1 titled "MVRD 2021 Budget and 2021 – 2025 Financial Plan and Five Year Bylaw 1313" at: http://www.metrovancouver.org/boards/GVRD/RD 2020-Oct-30 AGE.pdf#page=190

Previous year budgets can also be found on the Metro Vancouver website.

Appendix 1: Summary of Processed Amendments to Metro Vancouver 2040: Shaping our Future, 2011-2021

Amendment Type and Bylaw Number	Municipality	Amendment Request Description	Date of Amendment Request Letter from Municipality	Date Considered by Regional Planning Advisory Committee	Date Considered by Regional Planning Committee	Date Bylaw Initiated/ Referred by MVRD Board	Date Bylaw Considered by MVRD Board for Initial Readings	Date Bylaw Considered by MVRD Board for Adoption	Total Processing Time (Weeks)	
	City of Richmond	Land Use Designation Amendment: General Urban to Conservation and Recreation (3 sites totaling 149 ha)	Mar 2, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Oct 28, 2011	Oct 28, 2011	34	
	Tsawwassen First Nation	Text Amendment (Table A.1): Revise growth projections for the TFN	Mar 7, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Oct 28, 2011	Oct 28, 2011	33	
Type 3 Bylaw No.	District of	Overlay Amendment: Extend Special Study Area (1 site designated General Urban, 679 ha)	Mar 8, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Oct 28, 2011	Oct 28, 2011		
1150, 2011	West Vancouver	Text Amendment (Section 6.12.5 Special Study Areas): acknowledge inclusion of revised Special Study Area for West Vancouver	Mar 8, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Oct 28, 2011	Oct 28, 2011	33	
	City of Coquitlam	Land Use Designation Amendment: General Urban to Conservation & Recreation (numerous sites totaling 459 ha)	Mar 22, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Oct 28, 2011	Oct 28, 2011	31	
Type 1 Bylaw No. 1160, 2012	City of Coquitlam	Text Amendment (Section 6.3.4 b): Remove phrase, "Conservation and Recreation lands utilized for commercial extensive recreation facilities"	Mar 22, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Mar 30, 2012	Sept 21, 2012	78	
Type 1 Did Not Proceed	District of North Vancouver	Process Amendment: Amend the RGS to require a 2/3 majority vote for Conservation & Recreation lands to be converted to Agricultural land and then Industrial lands in two steps conversion	Mar 22, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Sept 23, 2011: Board declined amendment request; did not proceed to bylaw readings. Issue addressed in RGS Procedures Amendment Bylaw No. 1206, 2014 and Implementation Guideline # 2 – Amendments to the RGS		26	

Appendix 1: Summary of Processed Amendments to Metro Vancouver 2040: Shaping our Future, 2011-2019

Amendment Type and Bylaw Number	Municipality	Amendment Request Description	Date of Amendment Request Letter from Municipality	Date Considered by Regional Planning Advisory Committee	Date Considered by Regional Planning Committee	Date Bylaw Initiated/ Referred by MVRD Board	Date Bylaw Considered by MVRD Board for Initial Readings	Date Bylaw Considered by MVRD Board for Adoption	Total Processing Time (Weeks)
Type 2 Did Not Proceed	District of North Vancouver	Overlay Amendment: Designate Lower Lynn as a Municipal Town Centre	Mar 22, 2011	Sept 6, 2011	Sept 16, 2011	Sept 23, 2011	Sept 23, 2011: Bo amendment requ proceed to bylaw Subsequently ide Frequent Transit Area in the 2014	est; did not readings. ntified as a Development	26
Type 2 Bylaw No. 1168, 2012	Village of Anmore	Land Use Designation Amendment: Rural to General Urban and extend the Urban Containment Boundary (1 site, 2 ha)	Feb 29, 2012	Feb 24, 2012	May 4, 2012	Mar 30, 2012	May 25, 2012	Jul 27, 2012	21
Type 3	City of Port	Overlay Amendment: Create 3 Special Study Areas (2 sites designated Industrial totaling 397 ha; 1 site designated General Urban, 70 ha)	Jan 30, 2013	Mar 22, 2013	Apr 5, 2013 & Jul 5, 2013	Apr 26, 2013	Jul 26, 2013	Jul 26, 2013	25
Bylaw No. 1185, 2013	Moody	Text Amendment (Section 6.12.5 Special Study Areas): to acknowledge inclusion of revised Special Study Area for the City of Port Moody	Jan 30, 2013	Mar 22, 2013	Apr 5, 2013 & Jul 5, 2013	Apr 26, 2013	Jul 26, 2013	Jul 26, 2013	25
Type 2 Did Not Proceed	Corporation of Delta	Land Use Designation Amendment (MK Delta Lands): Conservation and Recreation to General Urban and expand the Urban Containment Boundary	Jun 12, 2013	Jun 19, 2013	Jul 5, 2013	Jul 26, 2013	On hold at the re- Corporation of De (Submitted new a request on Jan 29	elta Imendment	n/a
Type 2 Did Not Proceed	Township of Langley	Land Use Designation Amendment (North Murrayville and Hendricks): Agricultural to General Urban	Jun 24, 2013	Jun 19, 2013	Jul 5, 2013	Jul 26, 2013	Oct 11, 2013: Board declined the RGS amendment request; did not proceed with bylaw readings.		16
Type 3 Did Not Proceed	Township of Langley	Land Use Designation Amendment (Highway #1 at 200th Street): Mixed Employment to General Urban	Jun 24, 2013	Jun 19, 2013	Jul 5, 2013	Jul 26, 2013	Oct 11, 2013: Boa RGS amendment proceed with byla	request; did not	16

Appendix 1: Summary of Processed Amendments to Metro Vancouver 2040: Shaping our Future, 2011-2019

Amendment Type and Bylaw Number	Municipality	Amendment Request Description	Date of Amendment Request Letter from Municipality	Date Considered by Regional Planning Advisory Committee	Date Considered by Regional Planning Committee	Date Bylaw Initiated/ Referred by MVRD Board	Date Bylaw Considered by MVRD Board for Initial Readings	Date Bylaw Considered by MVRD Board for Adoption	Total Processing Time (Weeks)
Type 3 Did Not Proceed	Township of Langley	Land Use Designation Amendment (Highway #1 at 200th Street): Mixed Employment to General Urban	Jun 24, 2013	Jun 19, 2013	Jul 5, 2013	Jul 26, 2013	Oct 11, 2013: Boa RGS amendment proceed with byla	request; did not	16
Type 3 Bylaw No. 1207, 2014	City of Surrey	Land Use Designation Amendment (Central Newton Cultural Commercial District): Industrial to Mixed Employment (1 site, 6.5 ha)	May 2, 2014	May 22, 2014	June 6, 2014	Jun 27, 2014	Jun 27, 2014	Sept 19, 2014	20
Type 2 Bylaw No. 1203, 2014	Corporation of Delta	Land Use Designation Amendment (Southlands): Agricultural to General Urban and extend the Urban Containment Boundary (1 site, 59.7 ha); Agricultural to Conservation and Recreation (1 site, 42.4 ha)	Jan 14, 2014	Feb 21, 2014	Mar 7, 2014	Mar 28, 2014	Mar 28, 2014	Jun 27, 2014	23
Type 3 Bylaw No. 1209, 2014	City of Port Moody	Land Use Designation Amendment (Moody Centre Transit Oriented Development Area and Murray Street Boulevard Area): Mixed Employment and Industrial to General Urban (1 site, 8.3 ha)	Jun 2, 2014	June 20, 2014	July 4, 2014	Jul 11, 2014	Jul 11, 2014	May 15, 2015	49
Type 3 Did Not Proceed	City of Port Moody	Land Use Designation Amendment (Andres Wine Site): Industrial to General Urban	Jun 2, 2014	June 20, 2014	July 4, 2014	Jul 11, 2014	July 11, 2014: Book RGS amendment proceed with bylo	request; did not	6
Type 3 Did Not Proceed	City of Port Moody	Land Use Designation Amendment (Mill and Timber Site): Industrial to General Urban (1 site)	Jun 2, 2014	June 20, 2014	July 4, 2014	Jul 11, 2014	July 11, 2014: Bo RGS amendment proceed with b	request; did not	6
Type 3 Bylaw No. 1222, 2015	Township of Langley	Land Use Designation Amendment (2 adjacent sites in the Latimer area): Mixed Employment to General Urban (1 site, 1 ha), and General Urban to Mixed Emp. (1 site, 7.5 ha)	April 2, 2015	May 1, 2015	May 22, 2015	June 12, 2015	June 12, 2015	Sept 4, 2015	22

Appendix 1: Summary of Processed Amendments to Metro Vancouver 2040: Shaping our Future, 2011-2019

Amendment Type and Bylaw Number	Municipality	Amendment Request Description	Date of Amendment Request Letter from Municipality	Date Considered by Regional Planning Advisory Committee	Date Considered by Regional Planning Committee	Date Bylaw Initiated/ Referred by MVRD Board	Date Bylaw Considered by MVRD Board for Initial Readings	Date Bylaw Considered by MVRD Board for Adoption	Total Processing Time (Weeks)
Type 3 Bylaw No. 1223, 2015	Metro Vancouver (North Vancouver District, Anmore, Surrey, New Westminster , North Vancouver City, West Vancouver, and Port Moody)	Incorporate changes stemming from 7 GVRD board accepted RCS. Amendment includes revisions to regional land use designation boundaries, the addition of Frequent Transit Development Areas (FTDAs), and local centres. The proposed amendment also includes updates to the Metro 2040 Appendix A, Table A-1: Population, Dwelling Unit and Employment Projections for Metro Vancouver Sub regions and Municipalities.	n/a	Jun 5, 2015	Jul 10, 2015	Jul 31, 2015	Jul 31, 2015	Oct 30, 2015	21
Type 2 Did not Proceed	Corporation of Delta	Land Use Designation Amendment (Ladner Trunk Road): Agricultural to Rural (1 site, 0.23 ha)	May 27, 2016	n/a	Jul 15, 2016	Jul 29, 2016	Jul 29, 2016: Board determined the proposed RGS amendment request is not required		9
Type 2 Bylaw No. 1236, 2016	Metro Vancouver	Text Amendment: Update the policy provisions regarding the extension of regional sewerage services, and adopt associated implementation guidelines #7, Extension of Regional Sewerage Services.	n/a	n/a	Sept 9, 2016	Sept 23, 2016	Sept 23, 2016	Apr 28, 2017	33
Type 3 Bylaw No. 1237, 2016	Metro Vancouver	Text Amendment (Appendix A Table A.2): update figures on 10 years regional and municipal household growth projections by tenure.	n/a	Sept 8, 2016	Oct 14, 2016	Oct 28, 2016	Oct 28, 2016	Apr 28, 2017	33

Appendix 1: Summary of Processed Amendments to Metro Vancouver 2040: Shaping our Future, 2011-2019

Amendment Type and Bylaw Number	Municipality	Amendment Request Description	Date of Amendment Request Letter from Municipality	Date Considered by Regional Planning Advisory Committee	Date Considered by Regional Planning Committee	Date Bylaw Initiated/ Referred by MVRD Board	Date Bylaw Considered by MVRD Board for Initial Readings	Date Bylaw Considered by MVRD Board for Adoption	Total Processing Time (Weeks)
Type 3 Bylaw No. 1243, 2017	Metro Vancouver	Text Amendment (Schedule G): update and reduce 55 performance measures to 15 key summary measures. The reduced number of measures facilitates simpler and more useful annual reporting.	n/a	Nov 18, 2016	Mar 10, 2017	Mar 31, 2017	Mar 31, 2017	Jul 28, 2017	20
Type 3 Bylaw No. 1246, 2017	Metro Vancouver (Langley Township, Surrey, and North Vancouver City)	Incorporate land use designation and overlay map revisions stemming from 3 MVRD Board accepted RCS amendments	n/a	Jun 23, 2017	Jun 9, 2017	Jun 23, 2017	Jun 23, 2017	Oct 27, 2017	18
Type 3 Bylaw No. 1259, 2018	City of Port Moody	Land Use Designation Amendment (Flavelle Mill Site): Industrial to General Urban (12.7 ha), removal of special study area	Sep 15, 2017	Nov 17, 2017	Feb 2, 2018	Feb 23, 2018	Feb 23, 2018	May 25, 2018	36
Type 2 Did Not Proceed	City of Surrey	Land Use Designation Amendment (Hazelmere): Rural to General Urban, 23.7 ha, extension of UCB	Oct 23, 2017	Nov 17, 2017	Feb 2, 2018	Feb 23, 2018	Mar 23, 2018: Bo RGS amendment proceed with b	request; did not	22
Type 3 Did Not Proceed	City of Surrey	Land Use Designation Amendment (South Campbell Heights): Rural & Special Study Area (235 ha) to General Urban (143 ha), Mixed Emp (37 ha), Con Rec (55 ha) & extension of UCB; Mixed Emp (22.4 ha) to Con Rec (16.4 ha), General Urban (6 ha); Rural & Special Study Area (12 ha) to Agricultural & ALR	Jan 16, 2018	Apr 20, 2018	May 4, 2018	May 25, 2018	May 25, 2018: Bo amendment b Surrey to conside amend	eack to City of er an alternative	18

Appendix 1: Summary of Processed Amendments to Metro Vancouver 2040: Shaping our Future, 2011-2019

Amendment Type and Bylaw Number	Municipality	Amendment Request Description	Date of Amendment Request Letter from Municipality	Date Considered by Regional Planning Advisory Committee	Date Considered by Regional Planning Committee	Date Bylaw Initiated/ Referred by MVRD Board	Date Bylaw Considered by MVRD Board for Initial Readings	Date Bylaw Considered by MVRD Board for Adoption	Total Processing Time (Weeks)
Type 3 Bylaw No. 1266, 2018	Township of Langley	Land Use Designation Amendment (Williams Neighbourhood Plan): Mixed Employment to General Urban (4 ha), General Urban to Mixed Emp (2 ha)	May 8, 2018	May 11, 2018	Jun 8, 2018	Jun 22, 2018	Jun 22, 2018	Sep 28, 2018	20
Type 3 Bylaw No. 1285, 2019	City of Delta	Land Use Designation Amendment (MK Delta Lands): Agricultural to Industrial (62.7 ha) and extension of UCB	Jan 29, 2019	Mar 15, 2019	Apr 5, 2019	May 24, 2019	May 24, 2019	Oct 4, 2019	35
Type 3 Bylaw No. 1285, 2019	Metro Vancouver: Vancouver, Anmore, New Westminster	Incorporate land use designation amendment and addition of new FTDAs stemming from 3 MVRD Board accepted RCS amendments	n/a	Apr 12, 2019	May 3, 2019	May 24, 2019	May 24, 2019	Oct 4, 2019	25
Type 3 Bylaw No. 1295, 2019	Metro Vancouver	Text amendment: update the GHG emission reduction targets to pursue a carbon neutral region by 2050, with an interim target of 45% reduction by 2030	n/a	n/a	Oct 11, 2019	Nov 1, 2019	Nov 1, 2019	Feb 28, 2020	20
Type 2 Did Not Proceed	City of Delta	Amendment from Agriculture to Rural; 9568 Burns Drive	Mar 4, 2020	n/a	May 1, 2020	May 29, 2020	May 29, 2020: A r amendment or R is not required	RCS amendment	12
Type 3 Bylaw No. 1310, 2020	Metro Vancouver	Land Use Designation Amendment (60 parcels of Regional Parks Lands): General Urban to Con Rec (26.1ha); Rural to Con Rec (102.2ha)	n/a	Sep 18, 2020	Oct 9, 2020	Oct 30, 2020	Oct 30, 2020	Feb 26, 2021	20
Type 3 Bylaw No. 1328, 2021	City of Surrey	Land Use Designation Amendment (71 parcels at South Campbell Heights): Rural to Mixed Employment (160.7 ha), Rural to Con Rec (66.6 ha), and Rural to	Jul 30, 2021	Sep 17, 2021	Oct 8, 2021	Oct 29, 2021	Oct 29, 2021		

Appendix 1: Summary of Processed Amendments to Metro Vancouver 2040: Shaping our Future, 2011-2019

		Agricultural (12.1 ha) outside the UCB and within the Special Study Area; Mixed Employment to Con Rec within the UCB (14 ha); extension of UCB by 223.7 ha; removal of the entire South Campbell Heights Special Study Area (247 ha)						
Type 3 Bylaw No. 1326, 2021	City of Surrey	Land Use Designation Amendment (228 175A Street): Mixed Employment to General Urban (2.5 ha)	Jul 30, 2021	Sep 17, 2021	Oct 8, 2021	Oct 29, 2021	Oct 29, 2021	
Type 3 Bylaw No. 1327, 2021	City of Surrey	Land Use Designation Amendment (Cloverdale Hospital Site, 5510 180 Street): Industrial to Mixed Employment (9 ha)	Jul 30, 2021	Sep 17, 2021	Oct 8, 2021	Oct 29, 2021	Oct 29, 2021	



To: MVRD Board of Directors

From: Invest Vancouver Management Board

Date: February 13, 2023 Meeting Date: February 24, 2023

Subject: 2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and Invest

Vancouver 2023 Annual Plan

INVEST VANCOUVER MANAGEMENT BOARD RECOMMENDATION

That the MVRD Board endorse the Invest Vancouver 2023 Annual Plan as attached to the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan".

"At its February 10, 2023 meeting, the Invest Vancouver Management Board (Management Board) considered the attached report titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and Invest Vancouver 2023 Annual Plan", dated January 18, 2023. The Management Board passed the recommendation as presented in the report, including the Board recommendation as presented above, presented as part c) in the attached report.

This matter is now before the Board for its consideration."

Attachment

"2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and Invest Vancouver 2023 Annual Plan", dated January 18, 2023.

58190188

ATTACHMENT



To: Invest Vancouver Management Board

From: Jacquie Griffiths, President, Invest Vancouver

Date: January 18, 2023 Meeting Date: February 10, 2023

Subject: 2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the

Invest Vancouver 2023 Annual Plan

RECOMMENDATION

That the Invest Vancouver Management Board:

- a) receive for information the Invest Vancouver Management Board Terms of Reference and the 2023 Annual Meeting Schedule, as presented in the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan"; and
- b) endorse the 2023 Committee Work Plan, as presented in the report dated January 18, 2023, titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan".

That the MVRD Board:

c) endorse the *Invest Vancouver 2023 Annual Plan* as attached to the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan".

EXECUTIVE SUMMARY

This report contains a summary of the Committee Work Plan, the Terms of Reference, the Invest Vancouver 2023 Annual Work Plan, and the Committee meeting schedule. The Committee Work Plan has been advanced in alignment with the Invest Vancouver 2023 Annual Plan. The four priorities to guide the work as set out in the Invest Vancouver 2023 Annual Plan are:

- Attract world-class companies to the Metro Vancouver region
- Strengthen our key strategic industries
- Address regional issues to increase resilience for the regional economy
- Provide a focused, sustainable regional service

The Terms of Reference for the Invest Vancouver Management Board sets out the committee responsibilities including providing oversight and engaging leaders from government, Indigenous communities, business, academia, and the non-profit sector in dialogue on regional prosperity through regional economic development.

Pursuant to the Terms of Reference, the meeting schedule proposes four meetings. All 2023 committee meetings will be held electronically by video-conference as hybrid meetings, allowing members to attend in-person or electronically, whichever they prefer. The Committee Chair may decide to hold an in-person meeting with electronic participation only available under exceptional circumstances.

PURPOSE

To provide the Invest Vancouver Management Board with its Terms of Reference, the 2023 Committee Work Plan, the Invest Vancouver 2023 Annual Plan, and the Annual Committee Meeting Schedule.

BACKGROUND

Annually, following the Board Inaugural meeting in November, the Board Chair establishes the committee structure and the terms of reference for each committee for the new year. The Invest Vancouver Management Board is one of the committees established by the Board Chair. To support the Invest Vancouver Management Board in its work, this report brings forward the committee's Terms of Reference, Work Plan, Invest Vancouver 2023 Annual Plan and the Schedule of Meetings for 2023.

2023 COMMITTEE WORK PLAN

The Annual Committee Work Plan for the Invest Vancouver function is based on the 2023 Budget approved by the MVRD Board on October 28, 2022, which include a list of key actions that were used to develop the Invest Vancouver Management Board's Work Plan presented in this report (Attachment 1).

The committee work plan presented in this report is consistent with the Invest Vancouver Management Board's Terms of Reference (Attachment 2) and with the *Board Strategic Plan* and is being brought forward for the Committee's information, review and endorsement. Further, the Committee Work Plan has been developed in alignment with the priorities and initiatives as set out in the Invest Vancouver 2023 Annual Plan.

INVEST VANCOUVER 2023 ANNUAL PLAN

The *Invest Vancouver 2023 Annual Plan* was created following a comprehensive engagement process, involving working sessions with member jurisdictions (through the Invest Vancouver Advisory Committee), ecosystem partners, government partners, and industry (Attachment 3). In addition to including a transparent accounting of work completed in 2022 in alignment with the Invest Vancouver 2022 Annual Plan, the document contains priorities and initiatives to guide the work of Invest Vancouver in 2023. Key priorities and initiatives in the Invest Vancouver 2023 Annual Plan include:

- Attract world-class companies to the Metro Vancouver region
 - Global visibility and regional profile
 - Strategic investment opportunities
- Strengthen our key strategic industries
 - Evidence-based approach
 - Innovation ecosystem
- Address regional issues to increase resilience for the regional economy
 - o Informed advocacy and engagement
 - Regional vision and perspective
 - o Economic reconciliation
 - Workforce development

- Provide a focused, sustainable regional service
 - Working together
 - Transparency and accountability

Attract world-class companies to the Metro Vancouver region

As the Invest Vancouver continues to build out its infrastructure in support of scaling its investment attraction efforts, the approach to strategic investment will be highly focused. Invest Vancouver will develop evidence-based intelligence and materials promoting the region's competitive advantages supported by event-based business development and outreach. By leveraging a targeted global network including trade commissioners and other key contacts, region-to-region trade and investment corridors will also be developed.

Key performance indicators and deliverables include:

- Number of qualified leads identified
- Percentage of qualified leads identified within Invest Vancouver's seven priority industry clusters
- Value of new investment facilitated and retained in the region
- Number of jobs associated with investment facilitated and/or retained
- Social media and web properties metrics

Strengthen our key strategic industries

Invest Vancouver will continue to conduct research and outreach activities to identify opportunities to close capacity gaps and strengthen targeted industries. The seven key industry clusters were identified in early 2021 based on criteria including growth, export orientation, comparative advantages and, supporting a high-proportion of high quality jobs. The seven industries are: digital media and entertainment, green economy, agritech, apparel, life sciences high-tech and trade and transportation. Invest Vancouver's report "Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub" is an example of this work where recommendations are outlined for consideration. Invest Vancouver applies a data-driven approach to strengthen the ecosystem, reducing barriers and enhancing growth. The research and analysis will support innovation and inform the development of centres of excellence.

Key performance indicators and deliverables include:

- Publications of data-driven intelligence on key regional industries
- Number of industry value proposition summaries completed
- Creation of profiles of key regional innovation assets

Address regional issues to increase resilience for the regional economy

Invest Vancouver will begin the process of addressing key regional issues critical to strengthening the resilience of the regional economy. Whether it is outreach, convening, research, or specific strategic initiatives, Invest Vancouver will start the process of better understanding the following regional economic issues:

- Industrial land uses and shortages;
- Workforce development and talent shortages;
- Economic Reconciliation and Indigenous Prosperity; and

Climate action and the acceleration of the transition to a low-carbon economy.

Underpinning this approach will be the importance of collaboration with our member jurisdictions and developing new partnerships with senior levels of government and key regional institutions. Key performance indicators and deliverables include:

- Completion of a framework and process to action the 2024 Metro Vancouver Regional Economic Development Strategic Plan
- Number of Indigenous-related projects or partnerships
- Creation of a social media campaign to highlight and profile Indigenous business and economic opportunities
- Publication of a regional Tech Talent Guide

Provide a focused, sustainable regional service

Invest Vancouver will continue to strengthen its foundation through ongoing work with key senior government partners to identify opportunities to collaborate and partner on initiatives for the benefit of the region while also building out a world-class economic development leadership service. Transparency and accountability will be at the core of this work including reporting out on key performance indicators and deliverables.

Key performance indicators and deliverables include:

- Reporting on deliverables flowing from the Invest Vancouver 2023 Annual Plan
- Review current organizational KPIs and make recommendations for 2024

The Invest Vancouver Management Board will be engaged on, and receive updates regarding, key initiatives flowing from this year's priorities on a quarterly basis per the Management Board's schedule.

Engagement Process

Invest Vancouver convened a number of engagement sessions and meetings to receive feedback from across the ecosystem regarding future Invest Vancouver activities and priorities. To start the process, Invest Vancouver met with economic development leaders represented on the Invest Vancouver Advisory Committee (IVAC) to review the Invest Vancouver 2022 Annual Plan and receive advice on the priorities for 2023. Following this meeting, a draft outline of the Invest Vancouver 2023 Annual Plan was crafted by Invest Vancouver staff. Key elements of the Invest Vancouver 2023 Annual Plan were socialized with other ecosystem partners, such as industry, community and government partners. On January 25, a draft of the Invest Vancouver 2023 Annual Plan was reviewed and discussed with the IVAC. In addition to the strong emphasis on the need to address talent issues by Industry, IVAC provided the following feedback:

- Be deliberate and explicit on efforts to strengthen economic resiliency, including climate action; and
- Strengthen references to connections and engagements with member jurisdictions, including information sharing, opportunities for building capacity and the need to work together to advance economic development issues in the region.
- Ensure KPI's and deliverables are clearly communicated.

The Invest Vancouver 2023 Annual Plan is now being presented to the Invest Vancouver Management Board and MVRD Board for discussion, input and endorsement.

2023 COMMITTEE MEETING SCHEDULE

The MVRD *Procedure Bylaw* requires the Corporate Officer to provide the Committee with an Annual Meeting Schedule for the upcoming year, including the date, time and place of the meetings (Attachment 4).

Meeting Place

Committee meetings will be held at Metro Vancouver Boardroom, 28th Floor, 4515 Central Blvd, Burnaby, BC, at 9:00 am/1:00 pm, unless otherwise specified on the Metro Vancouver public notice board, the Metro Vancouver website, and the respective agenda.

ALTERNATIVES

- 1. That the Invest Vancouver Management Board:
 - a) receive for information the Invest Vancouver Management Board Terms of Reference and the 2023 Annual Meeting Schedule, as presented in the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan"; and
 - b) endorse the 2023 Committee Work Plan, as presented in the report dated January 18, 2023, titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan".

That the MVRD Board:

- c) endorse the *Invest Vancouver 2023 Annual Plan* as attached to the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan".
- 2. That the Invest Vancouver Management Board:
 - a) receive for information the Invest Vancouver Management Board Terms of Reference and the 2023 Annual Meeting Schedule, as presented in the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan"; and
 - b) endorse the 2023 Committee Work Plan, as presented in the report dated January 18, 2023, titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan"; incorporating the requested changes from the Invest Vancouver Management Board.

That the MVRD Board:

c) endorse the *Invest Vancouver 2023 Annual Plan* as attached to the report dated January 18, 2023 titled "2023 Invest Vancouver Management Board Meeting Schedule, Work Plan and the Invest Vancouver 2023 Annual Plan", incorporating the request changes from the Invest Vancouver Management Board.

FINANCIAL IMPLICATIONS

The priorities in the 2023 Work Plan of the Invest Vancouver Management Board are consistent with the 2023 Budget approved by the MVRD Board on October 28, 2022 and with key priorities

and initiatives included in the 2023 Invest Vancouver Annual Plan. Committee meeting expenses and remuneration associated with meeting attendance have been allocated in the annual budget.

CONCLUSION

This report contains a summary of the Committee Work Plan, the Terms of Reference, the Invest Vancouver 2023 Annual Work Plan, and the Committee meeting schedule. The Committee Work Plan presented in this report identifies the priorities for the Invest Vancouver Management Board in 2023 and is consistent with its terms of reference and the 2023 Budget approved by the MVRD Board. The Committee Work Plan has been advanced in alignment with the Invest Vancouver 2023 Annual Plan. Key priorities from the Invest Vancouver 2023 Annual Plan include: attract world-class companies to the Metro Vancouver region; strengthen our key strategic industries; address regional issues to increase resilience for the regional economy; and, provide a focused, sustainable regional service. To assist the Invest Vancouver Management Board, the 2023 Annual Meeting Schedule has been established to guide the Committee's success in completing the business of the work plan. Staff recommends that Alternative 1 be approved.

Attachments

- 1. Invest Vancouver Management Board 2023 Work Plan
- 2. Invest Vancouver Management Board Terms of Reference
- 3. Invest Vancouver 2023 Annual Plan
- 4. Invest Vancouver Management Board 2023 Annual Meeting Schedule

57435416

Invest Vancouver Management Board 2023 Work Plan

Report Date: January 18, 2023

Priorities

1 st Quarter	Status
2023 Invest Vancouver Management Board Meeting Schedule and Work Plan	In Progress
Invest Vancouver 2023 Annual Plan	In Progress
Life Sciences in Metro Vancouver	In Progress
CanExport Community Investments Grant 2023	In Progress
2 nd Quarter	
2023 Approach to Investment Attraction	Pending
Strategic Industries Analytics Update	Pending
Investment Attraction Update	Pending
3 rd Quarter	
Digital Presence Update	Pending
Economic Reconciliation Update	Pending
Water Tech Cluster Initiative Update	Pending
High Tech Key Competitor Analysis Update	Pending
Investment Attraction Update	Pending
4 th Quarter	
Invest Vancouver 2023 Budget and 5-Year Financial Plan	Pending
Invest Vancouver 2023 Deliverables and 2024 Priorities	Pending
Regional Strategic Economic Development Plan	Pending
Innovation Ecosystem Profile	Pending
Key Industries Value Proposition Summary	Pending
Investment Attraction Update	Pending



Invest Vancouver Management Board

MVRD Board Standing Committee Terms of Reference

The Invest Vancouver Management Board is the standing committee of the Metro Vancouver Regional District (MVRD) Board responsible for providing strategic oversight and guidance for the Regional Economic Prosperity Service and for providing advice and recommendations directly to the MVRD Board.

SCOPE OF THE REGIONAL ECONOMIC PROSPERITY SERVICE

The vision as articulated for the regional economic prosperity service is as follows:

Collaborating to advance shared economic prosperity, livability and sustainability in Canada's pacific gateway.

The primary focus of the regional economic prosperity service, provided to all Metro Vancouver Regional District members, is to attract strategic investment across the region that will add well-paying, high quality jobs while generating new tax revenues that support investment in infrastructure that benefits the region. The service is organized around three core functions:

- **Fostering collaboration.** Creating a strategic approach to regional prosperity through engaging stakeholders, developing protocols for handling qualified prospects with Metro Vancouver members, and communicating the work and success of the service.
- Conducting regional data collection and research. Supporting investment attraction through research and analysis, developing business cases for leads, and providing other information and analysis relevant to identifying target markets and/or sectors for this new service.
- Attracting investment. Developing a regional brand and marketing campaign, working with federal and provincial staff to identify leads, working with members to develop the pitch and packages that will be effective, and following the developed protocols, working to secure new investment in the region with appropriate aftercare.

The Committee is responsible for providing oversight and engaging leaders from government, business, academia, and the non-profit sector in dialogue on regional economic prosperity, including initiatives to promote the regions' economic strengths and livability, and produce economic analysis on the region.

MANAGEMENT BOARD RESPONSIBILITIES

The Management Board will provide advice and recommendations to the MVRD Board on issues related to the Regional Economic Prosperity Service. Key responsibilities for the Management Board include:

- Providing oversight and guidance on the work plan and resource requirements for the Regional Economic Prosperity Service;
- Engaging leaders from government, First Nations, business, academia, labour and the community sector in dialogue on regional economic prosperity, including initiatives to promote

- the regions' economic strengths and livability and identifying the information and economic analysis required to inform a collaborative approach to attracting strategic investment); and
- Providing recommendations to the MVRD Board on matters related to regional economic prosperity.

MANAGEMENT BOARD MEMBERSHIP

To ensure a cross section of sectoral representation, the Metro Vancouver Board Chair will consider representation from the following groups:

Metro Vancouver Board	6
Business	3
Industry Associations	3
Vancouver Fraser Port Authority, YVR, and	3
TransLink	
Academic Institutions	3
Boards of Trade/Chambers of Commerce	3
First Nations	2
Utilities	1
Labour	3
Community Organizations	2
Federal	1
Province	1

Metro Vancouver Board Appointments

The Chair and Vice Chair are appointed annually by the Chair of the Metro Vancouver Board. The Metro Vancouver Board Chair also appoints the additional four Metro Vancouver Board Directors from the four Metro Vancouver sub-regions:

- i. Central Vancouver, Burnaby, New Westminster, and Electoral Area A;
- ii. Northwest North Vancouver District, North Vancouver City, West Vancouver, Bowen Island, and Lions Bay;
- iii. Northeast Coquitlam, Port Coquitlam, Port Moody, Pitt Meadows, Maple Ridge, Belcarra, and Anmore; and
- iv. Fraser South Richmond, Surrey, Township of Langley, City of Langley, Delta, White Rock, and Tsawwassen First Nation.

Directors will be appointed by the Metro Vancouver Board Chair from each sub-region with appointments confirmed by the Metro Vancouver Board Chair on an annual basis.

MANAGEMENT BOARD MEETINGS

The Management Board will meet quarterly or at the call of the Chair. A quorum of 50% plus one of the Management Board membership is required to conduct Management Board business. To complement regular Management Board meetings, members may be expected to attend additional events such as site tours or meetings that include additional stakeholders.

MANAGEMENT BOARD SUPPORT

The Management Board Chair will be the chief spokesperson on matters of public interest within the Management Board's purview. For high profile issues the role of spokesperson rests with the Metro Vancouver Board Chair or Vice Chair. On technical matters, or in cases where an initiative is still at the staff proposal level, the Chief Administrative Officer or delegate is the appropriate spokesperson. Where necessary and practical, the Metro Vancouver Board Chair, Management Board Chair, and Chief Administrative Officer will confer to determine the most appropriate representative to speak.

The Chief Administrative Officer assigns a Committee Manager for the Committee. The Committee Manager is responsible for coordinating agendas and is the principal point of contact for Management Board members.



Invest Vancouver 2023 Annual Plan Draft

Draft for Invest Vancouver Management Board, February 10, 2023



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Last updated January 31, 2023



About Invest Vancouver

Invest Vancouver's mandate is to support the attraction of strategic investment, in order to facilitate the creation of high-value jobs. We have three areas to facilitate this:

- Securing strategic investment in our targeted sectors
- Advise leaders on economic policy through research and analysis
- Provide a platform for regional collaboration on issues relevant to the economy

Our Mission

We position our region for success in a rapidly evolving global economy.

Our Vision

A dynamic and resilient regional economy that delivers prosperity for all.

Regional Economic Development Strategic Priorities

The Invest Vancouver Strategic Priorities were developed following extensive consultation and collaboration with partner organizations from across the region and beyond, including industry, labour, First Nations, other levels of government, boards of trade, business councils, education, and other community representatives. The four thematic priorities for the region emerging from this work are outlined in the Technical Paper "Preparing Metro Vancouver for the Digital Economy" (May 2021)

- 1. INVEST IN OUR PEOPLE: Reinforce a regional talent development structure that is more connected, industry-responsive, "future-proof", and adaptive to the rapidly changing labour market needs of industry
- 2. CATALYZE INNOVATION: Develop the region's innovation capabilities to diversify and strengthen the productive advantages of established industries and to create entirely new ones that drive solutions to societal challenges
- 3. BUILD CAPACITY IN OUR KEY INDUSTRIES: Align and deploy assets and fill gaps along the product / service value chains within our region's export-oriented industries
- 4. INCREASE OUR GLOBAL CONNECTEDNESS: Open up new markets for the region through trade facilitation, export assistance programs to increase the number of export-ready firms, and the attraction of foreign investment into the region within key industries



2022 Year in Review

Invest Vancouver launched its first annual plan in 2022. Below is a summary of goals and key accomplishments.

Developed Actionable Intelligence, Activated Intelligence Plan & Launched Predictive Analytics Program

Invest Vancouver produced comprehensive industry-focused reports which articulated some of the region's competitive advantages as well as the challenges and opportunities facing firms in export-oriented industries. The reports included recommendations for decision-makers, and sometimes uncovered previously overlooked economic data. This intelligence informed investment attraction and partnership activities. Highlights of this work include:

- Two industry-specific gap analysis reports (Agritech and Water Tech), and completed research for a third (Life Sciences)
- Investor-oriented materials for these sectors to influence investment location decisions as well as custom research for targeted audiences
- An analysis project which enhanced the data-driven understanding of selected strategic industries
- Industry and government engagement to advocate for action related to key recommendations
- A report completed in collaboration with the UBC Sauder School of Business to increase the understanding of the downstream impact of foreign direct investment (FDI) in British Columbia

Workforce Development (Rolled Out TECH Program)

"Investing in people" is one of Invest Vancouver's four Strategic Priorities. It is critical to align talent institutions with the needs of a growing regional economy. Highlights of this work include:

- A regional tech skills initiative (the T.E.C.H. Program) in collaboration with Amazon Web Services (AWS)
- Engagement with academic institutions to grow in-demand programs linked to key industries

Hosted Industry and Business Development Events and Cultivated Meaningful Partnerships

Invest Vancouver brought together ecosystem partners in the region for business development and investment attraction, to support strategic initiatives and projects, and to speak with one voice on the global stage. Highlights of this work include:

- North America's first ever next-gen mobility investor summit, Motivate VANCOUVER, focused on promoting the region's clean tech sector to a global audience
- Regional and provincial proclamations for June 2022 as Clean Transportation month



- Metro Vancouver agritech industry event, "Agritech Today, Building for Tomorrow," bringing together industry and government to discuss report's recommendations
- Hosted a local European Union summit to connect consular representatives with local government and business leaders
- Supported other notable events such the Vancouver Frontier Summit, Greater Vancouver Board of Trade: Indigenous Opportunities Forum 2022, and the DigiBC Signals Exhibition

Increased Visibility and Profile

Invest Vancouver continued to build and promote a strong and cohesive global brand for the Metro Vancouver region. Through marketing initiatives, including social media, Invest Vancouver staff grew engagement and brand recognition and promoted the business advantages and assets of the regional economy, including the diverse strengths that each member jurisdiction brings to the region. Highlights of this work include:

- Created marketing assets, including seven videos, a foundational pitch deck, general and sectorspecific brochures, and physical assets supporting event presentations
- Strengthened digital visibility, with Invest Vancouver's social media posts being viewed more than 132,000 times on social media, and investvancouver.ca visited more than 15,000 times by almost 9.000 different users
- Ran "Discover our Region" social media campaign to spotlight and promote each jurisdiction's strengths and business benefits

Attracted and Retained Investment in the Metro Vancouver Region

Invest Vancouver identified unique prospects, pursued leads and clearly articulated the region value proposition and made presented persuasive business cases to prospective foreign investors to attract and retain investment in the Metro Vancouver region. Highlights of this work include:

- Represented the region at global events, including the BIO International Convention in San Diego,
 Web Summit in Portugal, CoMotion in Los Angeles and Miami, and the Global Affairs Canada
 "roadshow" in the United States
- Tracked KPIs, in accordance with protocols, for investment attraction in consultation with member jurisdiction staff
- Approximately 70 verified investment leads, representing the Metro Vancouver region at over 150 points of engagement
- Celebrated investments in the region by cellcentric, HCL, and Mastercard's Centre of Excellence
- A "Doing Business in the Metro Vancouver Region" guide for prospective investors
- Sector-specific investment attraction and retention strategies
- Pacific Northwest cross-border business development strategy



2023 Work Plan Priorities and Key Initiatives

This year, Invest Vancouver will continue to advance its presence as a globally recognized, world-class organization and we will:

- 1. Attract world-class companies to the Metro Vancouver region
- 2. Strengthen our key strategic industries
- 3. Address regional issues to increase resilience for the regional economy
- 4. Provide a focused, sustainable regional service

In order to develop these priorities, staff consulted with many groups, including member jurisdiction staff, representatives of other economic development and partner organizations, and leaders from throughout the region.

Below are descriptions of these priorities, along with the corresponding initiatives.

1. Attract world-class companies to the Metro Vancouver region

Global Visibility and Regional Profile

- Develop evidence-based intelligence and materials promoting our competitive advantages in industries of focus to persuade prospective investors
- Continue to build a compelling, data-driven digital presence (including web and social media) with relevant and persuasive multimedia materials for both a local and global audience

Strategic Investment Opportunities

- Provide tailored inbound investment services in alignment with partners
- Expand outbound activity with targeted event-based business development opportunities
- Develop region-to-region trade and investment corridors and maintain through initiatives, events, and programs

2. Strengthen our key strategic industries

Evidence-based Approach

- Enhance data-driven understanding of export-oriented targeted industries to guide economic development and investment attraction
- Identify barriers in targeted industries to guide policy-makers and leaders in order to unlock further growth and maximize investment attraction

Innovation Ecosystem

- Convene leaders to strengthen and develop increased innovation capacity in industries such as life sciences, clean technology and high tech in the region
- Develop guides to the regional innovation ecosystem and supporting assets



3. Address regional issues to increase resilience for the regional economy Informed Advocacy and Engagement

- Engage decision makers to inform and guide actions identified as integral to improving resilience and strengthening the regional economy
- Convene leaders to collaborate on initiatives of regional significance to address economic shifts
 including the transition to a digital economy, climate change, supply of industrial land, and other
 implications of a growing population

Regional Vision and Perspective

- Continue engaging member jurisdictions to address regional issues that have a direct impact on investment attraction and other economic development initiatives
- Develop a framework and begin engagement process to produce a regional economic development strategic plan in 2024

Economic Reconciliation

- Continue engaging Indigenous communities and business entities to advance economic reconciliation through regional economic development opportunities and partnerships
- Highlight Indigenous business success stories and economic opportunities occurring in the Metro Vancouver region

Workforce Development

- Research and provide insights regarding priority talent supply issues in the Metro Vancouver region
- Work with partners to advance strategies and tactics to address workforce development and talent supply issues
- Research and articulate strengths and advantages regarding talent pools within the Metro Vancouver region

4. Provide a focused, sustainable regional service

Working Together

- Increase synergy and align limited resources through joint efforts with a network of trusted partners including member jurisdictions, government partners, and industry
- Explore strategic partnerships to optimize access to resources for the region in economic development

Transparency and Accountability

- Provide regular updates on key performance indicators (KPIs) for strategic investment established in 2021
- Based on KPI data for 2023, set benchmarks for 2024 where appropriate
- Review current organizational KPIs and make recommendations for 2024
- Report out on important deliverables flowing from the Invest Vancouver 2023 Annual Plan priorities at year-end



Appendices

Appendix A: Invest Vancouver 2022 Annual Plan Results

Goal	Objective	Results
Develop actionable intelligence	Complete and release preliminary baseline analysis report for the 7 industry clusters	Complete
	Complete and release 3 industry specific gap analysis reports	Complete - 3 rd report to be released Q1 2023
	Develop and release "British Columbia FDI Report" in partnership with UBC Sauder School of Business	Complete
Activate intelligence plan	Complete activation plan for Clean Transportation Gap Analysis	Complete
	Develop and deliver activation plan specific to the 3 industry specific gap analysis	Complete - 3 rd report to be released Q1 2023
	Identify industry and government relationship network to further influence and deliver activation plans	Complete
	Engage with the provincial and federal government on topics important to the regional economy	Complete
Launch predictive analytics program	Complete comprehensive industry baseline analysis for each industry	Complete - Release pending
	Complete growth analysis (total factor productivity) to identify growth drivers for each industry	Complete - Release pending
	Complete predictive analytics work on capital formation and labour in each industry	Complete - Release pending
Roll out TECH	Identify and develop first T.E.C.H. workforce development program activity	Complete
Program	Identify opportunities to broaden pilot program for 2023 and beyond	Complete
	Secure addition sources of funding support to expand the T.E.C.H. program	Pending - awaiting results of applications
Cultivate	Develop and implement an industry partnership plan	Complete
Meaningful partnerships	Host Consul General/ member jurisdiction event and roundtable	Complete
	Develop four (4) "Working Together" documents with countries such as Mexico and India	Complete - EU Guide finalized in place of 4 single country guides
Host a marquee inbound business development event	Finalize program and host Motivate Vancouver 2022	Complete
	Identify and facilitate investment opportunities originating from event	Complete



Goal	Objective	Results
Increase visibility and profile	Develop international investment attraction and outreach plan	Deferred to 2023
	Identify target audiences and purpose of each audience	Complete
	Establish and activate outbound events calendar	Complete
	Develop local events calendar	Complete
	Develop international investment attraction and promotional materials, including assets supporting a social media promotion, increasing member jurisdictions visibility	Complete
	Develop and deliver promotional videos highlighting industry clusters	Complete
Develop a regional economic development strategic plan	Set parameters and project plan for strategy consultation to commence in 2023	Deferred to 2023
Attract and retain investment in the Metro Vancouver region	Generate qualified investment leads and provide member jurisdictions with end-to-end management of investment prospects	Ongoing
	Promote Invest Vancouver's unique role and strategic investment mandate to foreign direct investment promotion partners in international markets	Ongoing
	Activate targeted international investment attraction and outreach plans to identify unique prospects, cultivate account relationships, and generate leads	Complete
	Complete and release "Doing Business in Metro Vancouver Guide	Complete (<i>Design in 2023</i>)
	Develop sector-specific strategies for industry clusters of focus	Complete
	Build Pacific Northwest cross-border business development strategy	Complete



Appendix B: Invest Vancouver 2022 Key Performance Indicators Strategic Investment KPIs

The following investment attraction KPIs were determined in consultation with the Invest Vancouver Advisory Committee and the Invest Vancouver Management Board, and are in alignment with indicators tracked and reported by local, provincial, and national partners.

The FDI attraction lifecycle can take several years from initial engagement to landing a deal. Investors require time to understand the benefits of a location, make comparisons to other short-listed cities, and then receive internal budget and approval to move forward. The leads generated in 2022 will likely yield results over the next several years.

For 2022, the objective was to build qualified leads and support ongoing efforts to facilitate and retain investment in the region. Tracking processes were established during the course of 2022 and information below does not reflect a complete year of operations.

JANUARY 2022 - DECEMBER 2022

- Number of qualified leads identified: 70
- Percentage of qualified leads identified within Invest Vancouver's seven priority industry clusters: 90%

JUNE 2022 - DECEMBER 2022:

- Value of new investment facilitated and retained in the region (approximate, \$ millions): \$16+ Million, with \$50 million in the pipeline for 2023
- Number of jobs associated with investment facilitated and/or retained (approximate): 55+, with 200 in the pipeline for 2023

Marketing and Promotion KPIs

The following KPIs were routinely reported to the Invest Vancouver Advisory Committee and the Invest Vancouver Management Board, and are in alignment with indicators tracked and reported by local, provincial, and national partners.

- Number of social media post views (impressions) on Twitter: 52,177
- Number of social media post views (impressions) on LinkedIn: 79,890
- Number of website users (visitors): 8,947
- Number of website visits (sessions): 15,349
- Percentage of website users from outside of British Columbia: 46%



Organizational Performance Indicators and Targets - 2023

The following annual performance indicators were presented in the work plan for the service as a part of the Metro Vancouver budget process and were approved by the Metro Vancouver Regional District Board (October 28, 2022).

Indicator	Historical and/or Industry Benchmark	Current Performance (2022)	2023 Performance Objective
Increase in unique visits to the INVEST VANCOUVER website	N/A	6,000 unique visits*	10,000 unique visits
Number of partnerships developed and sustained to further investment attraction goals and support key industry clusters	N/A	9 partnerships	12 partnerships

^{*} Unique visits from January 1 - August 1, 2022. 9,000 unique visits projected to occur by December 31, 2022.



Attachment 4

Invest Vancouver Management Board 2023 Annual Meeting Schedule

- Friday, February 10, 2023 at 1:00 PM
- Friday, April 21, 2022 at 9:00 AM
- Friday, July 14, 2023 at 9:00 AM
- Friday, October 13, 2023 at 9:00 AM

^{*}Committee Meetings are subject to change.



To: Invest Vancouver Management Board

From: Lejla Uzicanin, Vice President, Data, Research and Policy, Invest Vancouver

Gregory Freeman, Senior Economist, Data, Research and Policy, Invest Vancouver

Date: January 27, 2023 Meeting Date: February 10, 2023

Subject: Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub

RECOMMENDATION

That the MVRD Board receive for information the report dated January 27, 2023 titled "Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub".

EXECUTIVE SUMMARY

The fourth Invest Vancouver's investigation into the region's strategic export-oriented industries focuses on life sciences industry to answer two fundamental questions: 1. why do firms in the life sciences industry invest in Metro Vancouver; and, 2. what actions would unlock additional growth and investment in the life sciences industry.

The results of this research project are two documents presented here for discussion and input. Attachment 1: the draft *Life Sciences Pitch Deck* to support Invest Vancouver's strategic investment attraction work. Attachment 2: *Life Sciences in Metro Vancouver: Shaping a globally prominent R&D hub* to provide a detailed understanding of the industry and recommendations to support its growth.

The investigation's findings revealed that:

- The Metro Vancouver region has a flourishing life sciences industry powered by a concentration of highly skilled talent and backed by an extensive innovation ecosystem.
- The industry has grown substantially since 2001, and this growth accelerated during the pandemic.
- With focused, coordinated support from public and private stakeholders, the industry could further expand, add jobs even more quickly, and rise in prominence as a global hub.
- Addressing the need for wet lab space is the most critical need for spurring growth. Long term, talent development and recruitment from outside the region is essential for the industry to reach its potential.

PURPOSE

To present to the Invest Vancouver Management Board and MVRD Board the draft pitch deck and industry gap analysis resulting from Invest Vancouver's investigation into the life sciences industry in the region for discussion and input.

BACKGROUND

Invest Vancouver provides independent, objective recommendations intended to position the region for success in a rapidly evolving global economy. Reports are intended to provide actionable

intelligence on key industry clusters that will better inform and guide the work of Invest Vancouver itself, as well as the deliberations and work of key decision makers.

In addition to creating an industry gap analysis report, similar to previous studies in Agritech, Water Tech, and Clean Transportation, staff have prepared a life sciences pitch deck to support strategic investment attraction efforts.

LIFE SCIENCES PITCH DECK

Attachment 1 presents the draft life sciences pitch deck. Incorporating best practices for investment attraction, the pitch deck includes the following information:

- Compelling data on the industry, including workers, capital investment, and growth rates
- Specific information on the region's leading areas of specialization
- An overview of the innovation ecosystem and available industry supports
- The geography of the life science hubs in the region

Key information from the report was sourced from Invest Vancouver's *Strategic Industries Analytics Project* as well as PitchBook, Lightcast, fDi Benchmark and various industry reports.

LIFE SCIENCES IN METRO VANCOUVER: OVERVIEW

The Metro Vancouver region's life sciences industry has made significant contributions in drug delivery, antibody discovery, and precision medicine. The industry is powered by a concentration of highly skilled people and backed by an extensive and expanding innovation ecosystem. Its contribution to regional Gross Domestic Product (GDP) and employment has increased substantially since 2001. The growth of the industry accelerated during the pandemic and is set to continue. Invest Vancouver's *Strategic Industry Analytics Project* revealed that in each segment of the industry contribution to regional GDP has increased at least 2.5 times, with the strongest growth occurring over the past five years.

Scope of Analysis and Methods

Invest Vancouver is focused on globally competitive, export-oriented industries and industry clusters. Therefore, the investigation of the life sciences industry is focused only on the exportable segments of the industry (population-serving segments such as medical laboratories and testing are necessarily excluded).¹

Invest Vancouver incorporated qualitative and quantitative approaches in the preparation of this report. The qualitative work, based on in-depth interviews, was conducted to gain insiders' perspectives on the state of the industry in the region, its strengths, and its challenges. The quantitative work looked at 20 years of economic data and the most recent five years of investment activity to provide context and shed light on long-term industry trends. These efforts were

¹ The specific NAICS codes used in this investigation are:

[•] Pharmaceuticals and medicine manufacturing (325410)

Measuring, medical and controlling devices (334512)

Medical equipment and supplies (339110)

Research and development in the physical, engineering and life sciences (541710)

supplemented with reviews of federal and provincial life science strategies and investments, and various reports on the industry.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Invest Vancouver's investigation into the life sciences industry seeks to answer two fundamental questions to guide the work of Invest Vancouver and key decision makers in the ecosystem.

- 1. Why do firms in the life sciences industry invest in Metro Vancouver?
- 2. What actions would unlock additional growth and investment in the life sciences industry?

The findings reveal that the Metro Vancouver region has a flourishing life sciences industry powered by a concentration of highly skilled talent and backed by an extensive and expanding innovation ecosystem. Its contribution to regional Gross Domestic Product (GDP) and employment has increased substantially since 2001. The growth of the industry accelerated during the pandemic and is set to continue. Invest Vancouver's *Strategic Industry Analytics Project* revealed that in each segment of the industry contribution to regional GDP has increased at least 2.5 times, with the strongest growth occurring over the past five years.

With focused, coordinated support from public and private stakeholders, the industry could further expand, add jobs even more quickly, and rise in prominence as a global hub.

Unlocking additional growth and investment is possible with focused, coordinated support from public and private stakeholders. Recommended actions to elevate the industry's growth trajectory are:

- develop additional wet lab space, the most urgent need for spurring growth
- matching the supply of talent to the needs of a rapidly expanding industry; and,
- keeping the cost of doing business in the region competitive.

Overcoming these challenges will elevate the region's life science industry, rising to become a specialized globally prominent hub on the world stage, bringing with it increased positive economic benefits to the region, and advancing human health the world over.

REPORT RELEASE STRATEGY

Following release of the report, Invest Vancouver will be implementing a report release strategy to communicate the findings and recommendations of the report. Activities will include a media release, meetings with key decision makers, a social media strategy, and an event to bring attention to the needed supports for the industry. Activities to support communication of the report findings and recommendations include:

- Sharing embargoed copies of the final report with stakeholders and media prior to public release;
- Meeting with key decision makers before and after the release of the report regarding key recommendations and activation;
- Promoting the release of the report in partnership with industry partners;

- Launching a social media campaign including highlights of the report and other promotion event;
- Updating the Invest Vancouver website; and,
- Seeking appropriate opportunities for additional media coverage such as op-eds.

ADVISORY COMMITTEE REVIEW

At its meeting held January 25, 2023, the Invest Vancouver Advisory Committee offered the following comments and suggestions on the material presented:

- Emphasize the surprising elements of the report, as current version not sufficiently attention-grabbing
- Look for ways to incorporate and better explain the region's unique assets and locally specific opportunities

Invest Vancouver will be incorporating these comments into presented materials. In addition, the life sciences pitch deck will be updated based on the innovation ecosystem profile that will be prepared this year.

NEXT STEPS

Invest Vancouver is inviting the Management Board members and MVRD Board members to provide comments and feedback on the life sciences report. Specifically, Invest Vancouver is looking for feedback on the following:

- the amount of data contained in the life sciences report and whether supporting economic data should be included in an appendix or a standalone report; and,
- suggested activities and strategies for the report release.

Following feedback from the Boards, staff will be incorporating comments and finalizing the two attached documents. In line with the report release strategy, staff will be working with member jurisdiction and other partners to promote the life sciences industry to an international audience and further the recommendations contained in the Life Sciences Report.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

CONCLUSION

Invest Vancouver's investigation into the life sciences industry seeks to answer two fundamental questions to guide the work of Invest Vancouver and key decision makers in the ecosystem.

- 1. Why do firms in the life sciences industry invest in Metro Vancouver?
- 2. What actions would unlock additional growth and investment in the life sciences industry?

In answering these questions, Invest Vancouver has produced two documents that are presented here for the Invest Vancouver Management Board's feedback. Firstly, the *Life Sciences Pitch Deck*

(Attachment 1) to support Invest Vancouver's strategic investment attraction work. Secondly, *Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub* (Attachment 2) to provide a detailed understanding of the industry and recommendations to support its growth. Invest Vancouver is inviting the Management Board and the MVRD Board to provide comments and feedback on the attached documents. Following feedback from the Boards, staff will be incorporating comments, finalizing the two attached documents, and implementing the report release strategy.

Attachments

- 1. Life Sciences Pitch Deck
- 2. Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub

57460578

Welcome to the Metro Vancouver region.

- (2) Economy
- 3 Life Sciences*
- (4) Talent

*This is the industry-specific component of a larger deck

THE EXPORT-ORIENTED PORTION OF THE LIFE SCIENCES INDUSTRY

• By the Numbers

\$1.08 Billion

invested in Life Science companies headquartered in the region (2021)

Source: Pitchbook, 2022

15,500 export-oriented life science workers employed in the Metro Vancouver region (78% of the provincial total)

Source: Invest Vancouver Strategic Industries Analytics Project, 2022

2.5x increase in contribution to regional GDP In all components of the industry with the strongest growth over the past five years Source: Invest Vancouver Strategic Industries Analytics Project, 2022

R&D is largest and fastest growing component contribution to GDP increased 2.6 times; employment climbed 3-fold; labour hours were up 6.5 times; and total capital stock rose 3.8-fold

Source: Invest Vancouver Strategic Industries Analytics Project, 2022

Industry Leaders

Home to Canada's largest Life Sciences companies (by employment and Market Cap), as well as global players including Amgen, Evonik and Masimo.



































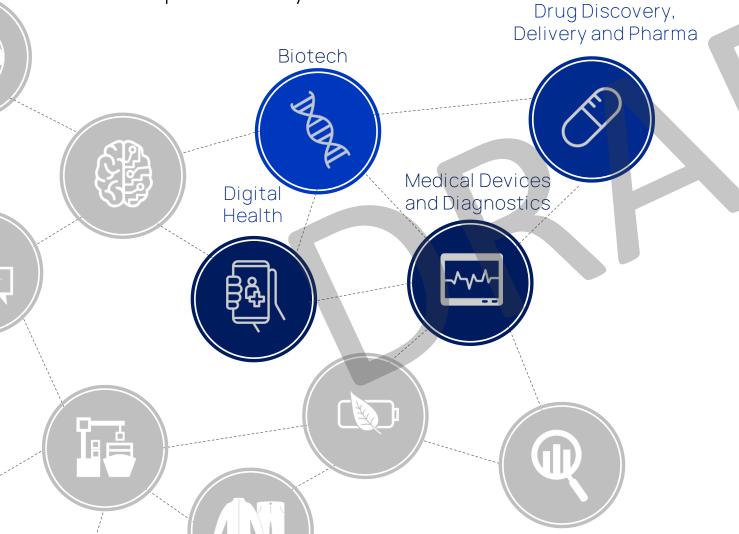




LIFE SCIENCES

The Metro Vancouver region has significant strengths across many life sciences sectors, focusing on the early stages of the

development cycle



WORLD-LEADING SCIENCE

in the Metro Vancouver region

Drug Delivery

Antibody Discovery

Precision Medicine

VANCOUVER LIFE SCIENCES SPECIALTIES:

Drug Delivery

Global leader in lipid nanoparticle technology an essential component of mRNA vaccines, revolutionizing drug delivery.

Acuitas Therapeutics is the developer of lipid nanoparticle technology. A UBC spinoff company, Acuitas licensed the use of LNP to Pfizer for use in mRNA Vaccines and Therapeutics.





VANCOUVER LIFE SCIENCES SPECIALTIES:

Antibody Discovery

Combining artificial intelligence and therapeutics, Vancouver is a world-leader in antibody discovery.

Developed in UBC's Michael Smith Laboratories, AbCellera's antibody discovery platform led to the discovery of two antibodies that neutralize viral variants of COVID-19.





BC has more than 150 companies across the province transforming traditional industries across a range of Al segments



VANCOUVER LIFE SCIENCES SPECIALTIES:

Precision Medicine

An international leader in genomics, proteomics and bioinformatics for precision medicine.

Michael Smith Genome Science Centre are creating novel strategies to prevent and diagnose cancers and other diseases, uncovering new therapeutic targets and helping the world realize the social and economic benefits of genome science.







Instrumental in the response to the 2003 SARS coronavirus outbreak, BC's scientists were the first in the world to sequence the virus in just 6 days.



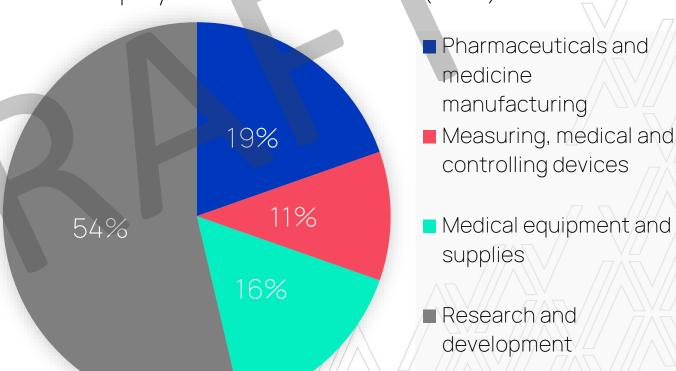


Employment in the Export-Oriented Life Sciences Industry



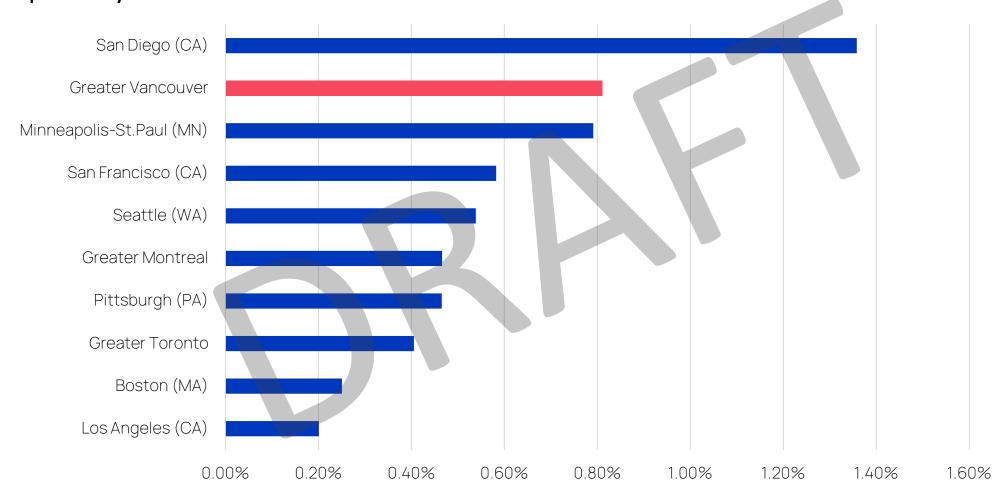


Employment in Life Sciences (2021)



Researchers as a Share of Total Employment



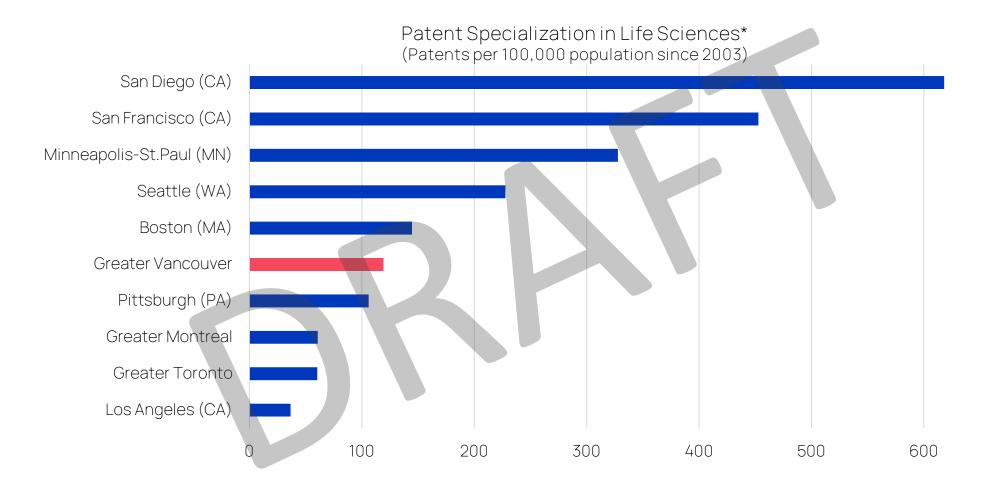


The data from fDi Benchmark is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

Source: Invest Vancouver, using data from fDi Benchmark, a service from the Financial Times of London

Specialized Talent in Life Sciences





^{*}Patents in biotechnology, bioinformatics, healthcare, and pharmaceuticals. The data from fDi Benchmark is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

Source: Invest Vancouver, using data from fDi Benchmark, a service from the Financial Times of London

LIFF SCIFNCES

BCis hometo the fastest growing sciences sectorin Canada

Biotechnology

Abattis Bioceuticals (PINX: ATTBF)

AbCellera (NAS: ABCL)

ABM (Canada) ACGT Corporation

Acuitas Therapeutics

Advectus Life Sciences

Alectos

Allon Therapeutics Alpha 9 Theranostics

Altum Pharmaceuticals

Amgen (NAS: AMGN)

Aspect Biosystems

Aurin Biotech Aurora Biomed

Avivo (Canada)

Biocure Technology (CNQ: CURE)

Biogen Sciences Biopep Solutions

Bold Therapeutics Boreal Genomics

Digital Health

Canary Medical

Claris Healthcare

Coastal Genomics

Gandeeva Therapeutics

Epiphany360

BugSeg

Flöka

GenXys

Grantek

healthQb

Bovicor

Callitas Health

Chromos Molecular Systems

Curastem Biomedical

Cytapex Bioinformatics

Cytiva

Delta-Fly Pharma (TKS: 4598) Derm-Biome Pharmaceuticals

EGF Theramed Health (CNQ: TMED)

Extem Bioscience

First Venture Technologies **Fusion Genomics**

Gemina Laboratories (CNQ: GLAB)

HAVN Life Sciences (CNQ: HAVN)

HTuO

ICO Therapeutics ImStar Therapeutics

Inception Sciences

Innovative Targeting Solutions Insception Lifebank

IRI Separation Technologies

Kairos Therapeutics

HealthTech Connex

Medical Cytometrix

MacroHealth

MetaOptima

Molecular You

NZ Technologies

PHEMI Systems

Strata Health

Vital Mechanics

myDNA

ViewsIQ

Lipont Pharmaceuticals Med Biogene (TSX: MBI.H)

Meiogenics

Methanogenesis

Naegis

Nanosphere Health Sciences (CNQ:

NervGen Pharma (TSX: NGEN) New Beta Innovation Canada

Nova Mentis Life Science (CNQ: NOVA)

Novelogics Biotechnology

Novobind Novoheart

OCION Water Sciences Group

Pebble Labs

Phyton Biotech Protiva Biotherapeutics

Renaissance BioScience RhYme Biotechnology

Sierra Oncology Canada ULC

SignalChem Lifesciences

StemCell Technologies

Stressgen Biotechnologies Synergenetics Bioscience

TerraGen Discovery

The Emmes Company

Willow Biosciences (TSE: WLLW)

Xenomics

Xenon Pharmaceuticals (NAS: XENE)

Yes Biotechnology

Zymeworks (NYS: ZYME)

Drug Discovery, Delivery and Pharmaceuticals

Abdera Therapeutics Aequus Pharmaceuticals (TSX: AQS) Amphoraxe Life Sciences

Chinook Therapeutics (NAS: KDNY)

Clairvovant Therapeutics

CLOV Biopharma

CUPROUS Pharmaceuticals

Entheon Biomedical (CNQ: ENBI)

Genix Pharmaceuticals (TSX: GENX) Genomica (Vancouver)

Incisive Genetics

Algernon Pharmaceuticals (CNQ: AGN) AnorMED

Arbutus Biopharma (NAS: ABUS)

Avricore Health (TSX: AVCR) BetterLife Pharma (CNQ: BETR) BioVaxys Technology (CNQ: BIOV) BriaCell Therapeutics (TSE: BCT) Bright Minds (CNQ: DRUG)

Clearmind Medicine (CNQ: CMND)

Curelmmune Therapeutics

Essa Pharma (NAS: EPIX)

Evonik Industries (ETR: EVK)

Evam

GeneMax Pharmaceuticals

Rakovina Therapeutics (TSX: RKV) InMed Pharmaceuticals (NAS: INM)

Kinetek Pharmaceuticals Kintara Therapeutics (NAS: KTRA) **KOP Therapeutics**

Medna Biosciences

Mesentech

Microbion MindMed (NEOE: MMED)

MSI Methylation Sciences Mydecine Innovations Group (NEOE: MYCO)

Nash Pharmaceuticals

Neoleukin Therapeutics (NAS: NLTX)

Network Immunology

Nirvana Life Sciences (CNQ: NIRV)

Notch Therapeutics

Novation Pharmaceuticals Numinus (TSE: NUMI)

N-Zyme Biomedical OncoGenex Pharmaceuticals Optigo Biotherapeutics

Pacific Pharma Technologies

Pharmagreen Biotech (PINX: PHBI)

Phoenix Molecular Designs Pike Therapeutics

Precision Nanosystems Primary Peptides

> Qing Bile Therapeutics Qu Biologics

Replicel Life Sciences (TSX: RP) SaNOtize

Santa Marta Life Sciences

Sierra Oncology

Sirona Biochem (TSX: SBM)

Sitka Biopharma Starton Therapeutics

SureNano Science (CNQ: SURE)

Sycamore Entertainment Group (PINX: SEGI) Symvivo

Synapse Technologies

Trait

Transferra Nanosciences

Trianni

Twinstrand Therapeutics

Variational Al

Veritas Pharma viDA Therapeutics Virogin Biotech

Vitaeris

Welichem Biotech WEX Pharmaceuticals

WN Pharmaceuticals Zalicus Pharmaceuticals

Zomanex Zucara

Medical Devices and

Apteryx Imaging

ARC Medical (Surgical Devices)

ARTMS

Augurex

Canexia Health

CTF Systems Evasc GenomeMe

IKOMED Technologies Imagin Medical (CNQ: IME)

Izotropic (CNQ: IZO) Kardium

Masimo (NAS: MASI)

Novelion Therapeutics (Visudyne)

Ocumetics (TSX: OTC) Ondine Biomedical (LON: OBI)

PFS Genomics

Response Biomedical Rostrum Medical Sonic Incytes Sulzer Mitroflow

Tel.-Array Diagnostics Verisante Technology (TSX: VER.H)

Vesalius Cardiovascular ZellChip Technologies Zennea Technologies

Diagnostics

ai4gi

Arbutus Medical

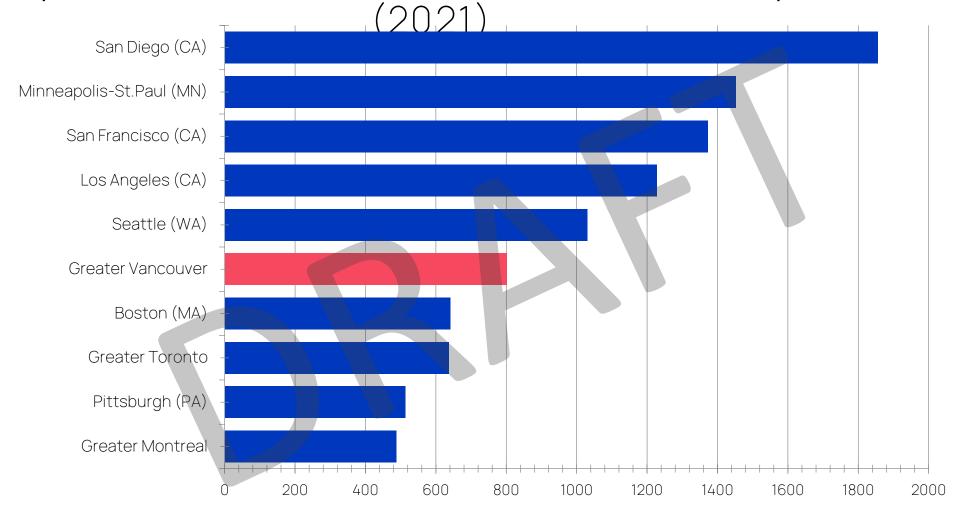
Artron Laboratories

Biomark Diagnostics (CNQ: BUX)

Bionic Power

Companies in Research & Development



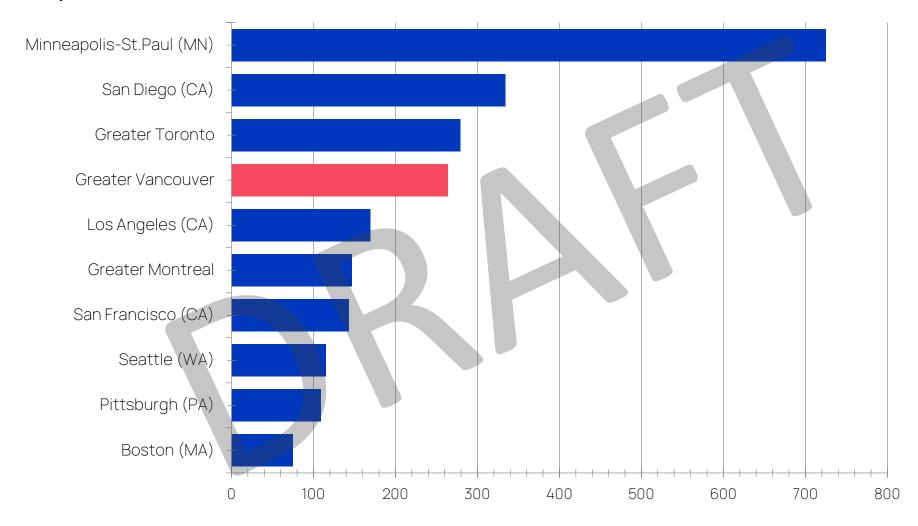


The data from fDi Intelligence is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

Source: fDi Intelligence from the Financial Times based on Dun & Bradstreet Global Reference Solution

Companies in Medical Devices (2021)



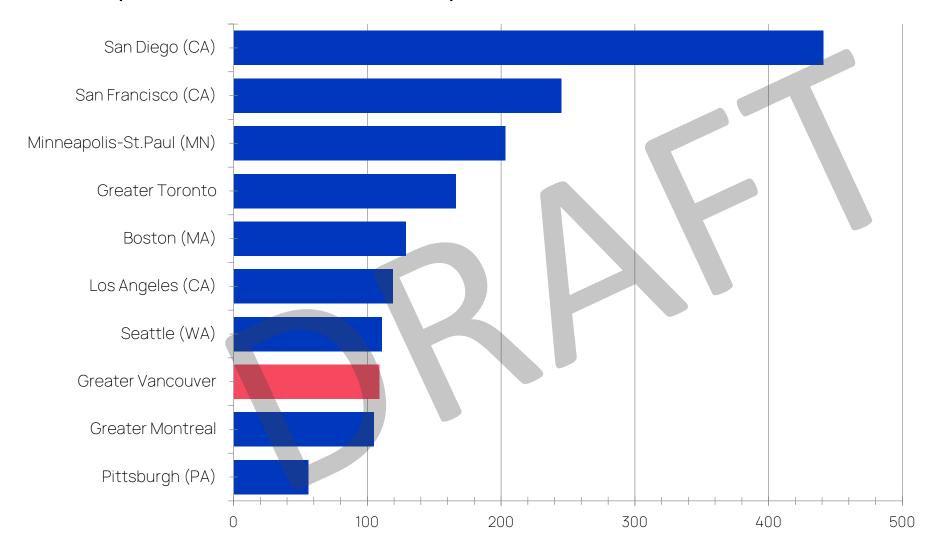


The data from fDi Intelligence is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

Source: fDi Intelligence from the Financial Times based on Dun & Bradstreet Global Reference Solution

Companies in Biopharma (2021)





The data from fDi Benchmark is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

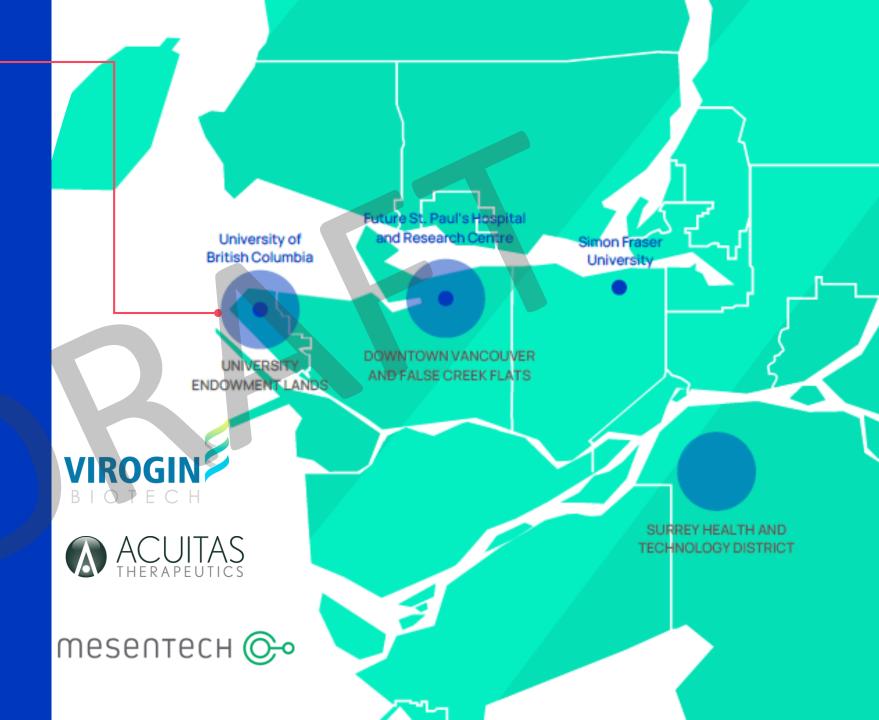
Source: fDi Intelligence from the Financial Times based on Dun & Bradstreet Global Reference Solution

Life Science Hubs in the Region



UBC Campus -

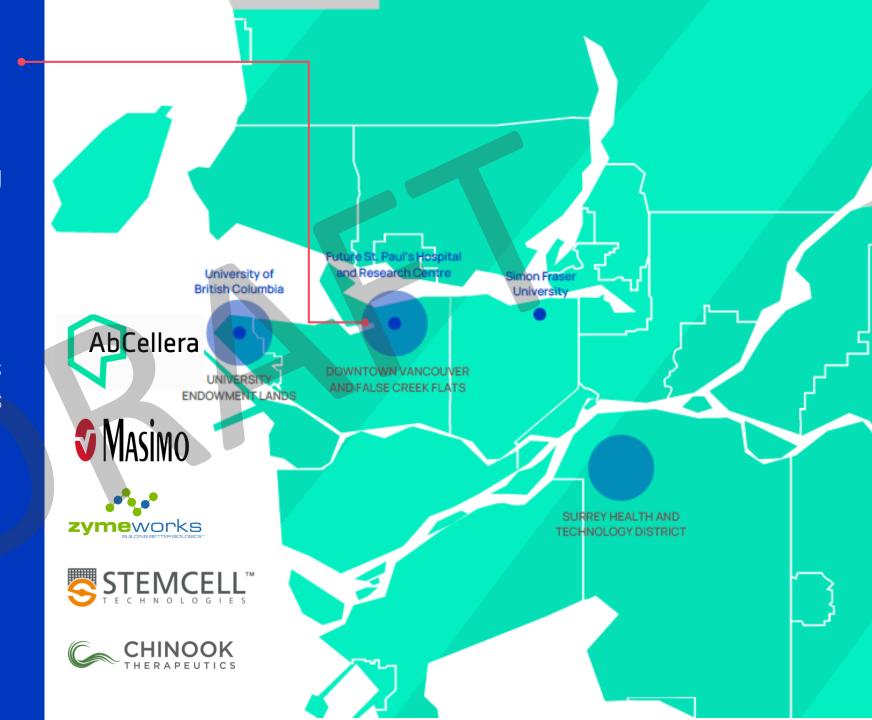
The powerhouse of the life sciences industry in Vancouver, UBC combines cutting-edge research with translational support to turn innovations into successful ventures.



Vancouver False Creek R&D Hub

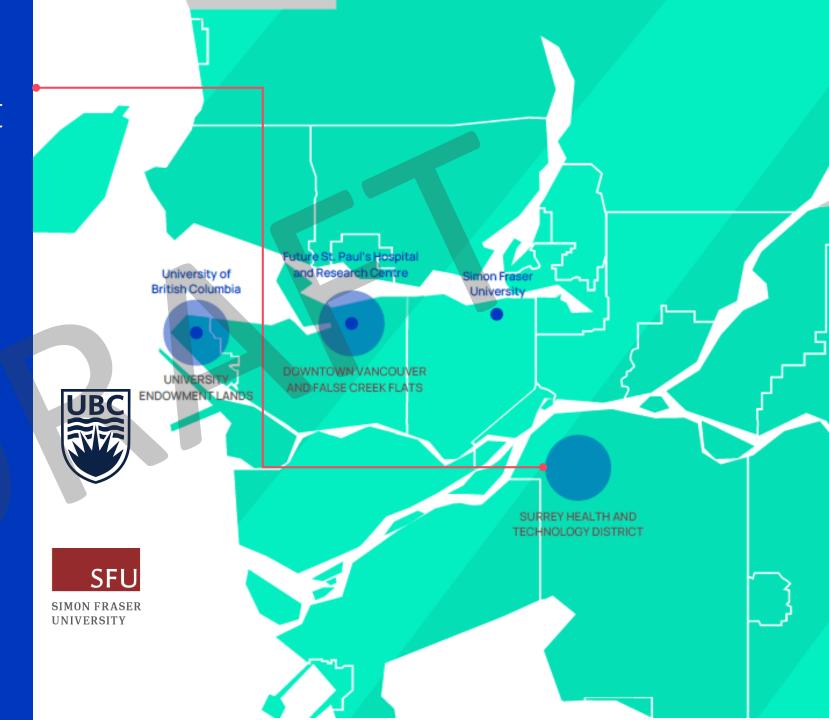
Vancouver's rapidly expanding biotech scene is anchored by AbCellera's new global headquarters and biotech campus.

Vancouver's False Creek Flats is home to the future St. Paul's Clinical Support and Research Centre.



Surrey Health & Technology District

Located in one of Canada's fastest growing municipalities, the Health & Technology District provides collaborative spaces for clinicians, researchers, and entrepreneurs to work alongside one another.



Strong Funding Support from Government



- \$1.8 Billion of investment in 32 projects across Canada (2020-2022)
 - \$314 million+ of investments in BC projects (2020-2022)



- \$195 million in grant funding to Michael Smith Health Research BC (2022)
- \$78 million to Genome BC (2022)



Robust Ecosystem Support

Industry Builders

- adMare BioInnovations
- Life Sciences BC
- BC Tech Association
- Creative Destruction Lab (CDL) West
- entrepreneurship@UBC
- SFU Venture Labs
- New Ventures BC
- TRIUMF Innovations

Research Institutes

- Providence Health Care Research Institute
- Vancouver Coastal Health Research Institute
- BC Children's Hospital Research Institute
- BC Cancer Research
- Women's Health Research Institute

Provincial and Federal Governments and Agencies

- BC Ministry of Jobs, Economic Development and Innovation
- Innovate BC
- Innovation, Sciences and Economic Development Canada
- The Canadian Trade Commissioner Service
- Pacifican
- National Research Council of Canada

Research Support and Funding

- Michael Smith Health Research BC
- Genome BC
- The BC Knowledge Development Fund
- The Canada Foundation for Innovation
- The Canadian Institutes of Health Research



Academic Research

- University of British Columbia
 - School of Biomedical Engineering
 - Faculty of Medicine
 - The Life Sciences Institute at UBC
 - Michael Smith Laboratories
 - UBC's Djavad Mowafaghian Centre for Brain Health
- Simon Fraser University
 - 4D Labs
 - ImageTech
 - eBrain Lab
 - WearBioTech Centre
- British Columbia Institute of Technology
 - Department of Biotechnology

Thriving Innovation Support System













entrepreneurship
@UBC



THOUGHT LEADERSHIP IN LIFE SCIENCES:

UNIVERSITY OF BRITISH COLUMBIA (UBC)



Ranked 2nd in Canada and 33rd in the world* for life science degrees, UBC is the

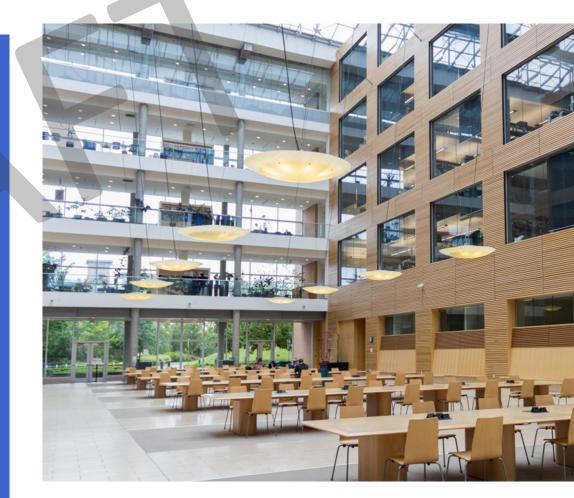
powerhouse of the life sciences industry in Vancouver

Life Sciences Institute

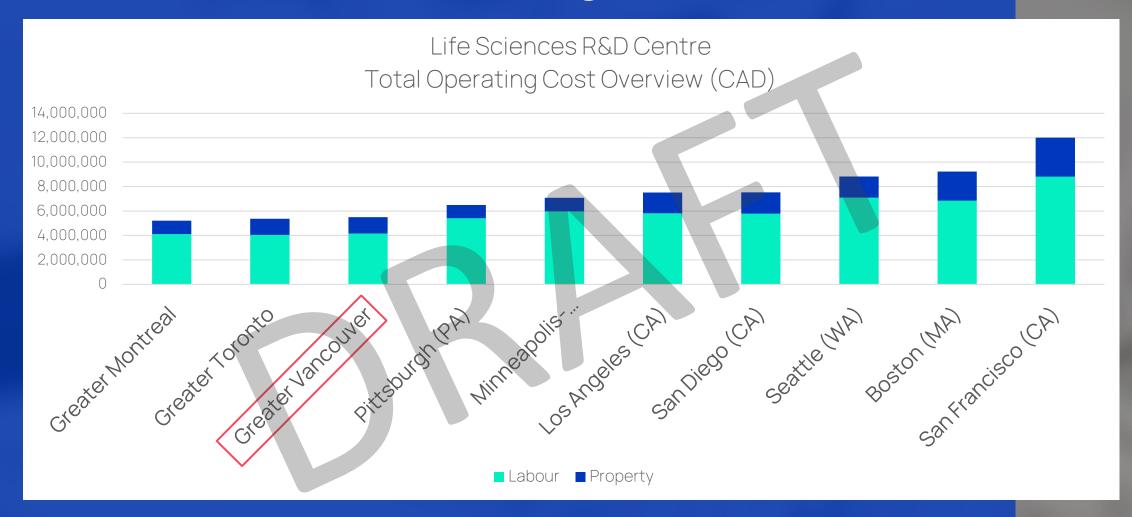
The Life Sciences Institute is the premiere fundamental biological research organization at UBC. Home to over 100 Principal Investigators and over 4,000 research trainees conducting leading-edge, basic and preclinical research and translating their research into treatments and environmentally sustainable solutions.

School of Biomedical Engineering

The School of Biomedical Engineering (SBME) is a partnership between the Faculties of Applied Science and Medicine. Unique as UBC's first inter-faculty school, SBME is Canada's living laboratory for new models of convergent research and education.



Competitive Operating Costs



Based on the Life Science R&D Centre Sector Profile (50 employees, 12,497 ft² Industrial & 19,999 ft² Office)
All costs shown in CAD - Canada Dollars (1.34 CAD = 1 USD - January 2023).

The data from fDi Benchmark is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

Source: fDi Benchmark from the Financial Times Ltd 2023

Prepared by Invest Vancouver

This Invest Vancouver report was authored by Lejla Uzicanin, Vice President, Data, Research and Policy, Gregory Freeman, Senior Economist, and Megan Gerryts, Senior Policy Advisor.

Invest Vancouver is the economic development leadership service for the Metro Vancouver region, representing 21 municipalities and one Treaty First Nation. The service was created to advance equitable opportunity and more broadly shared prosperity for all residents of the region. This report has been prepared by Invest Vancouver to advise leaders on sound economic development strategy and policy that will enhance our region's global competitiveness. Our data-driven, objective research aims to provide actionable intelligence to position the 2.7 million residents of this regional economy for success, in a rapidly evolving global landscape.

The Invest Vancouver team supports investment and job creation in key export-oriented industries, conducting research, discerning the factors driving their growth, identifying gaps along the product-service value chains, and articulating the underlying competitive advantages of the Metro Vancouver region. Through the identification of opportunities and challenges faced by firms in these industries, the team develops recommendations to inform policy and to influence decision-makers in strengthening the regional value proposition across key industries in order to increase the region's global competitiveness.

For any questions about the report contact: info@investvancouver.ca

Life Sciences in Metro Vancouver: Shaping a Globally Prominent R&D Hub [working title]

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Report Overview

The Metro Vancouver region has a flourishing life sciences industry that has made significant contributions in drug delivery, antibody discovery, and precision health. The industry is powered by a concentration of highly skilled people and backed by an extensive and expanding innovation ecosystem. Its contribution to regional Gross Domestic Product (GDP) and employment has increased substantially since 2001. The growth of the industry accelerated during the pandemic and is set to continue. With focused, coordinated support from public and private stakeholders, the industry could expand and add jobs even more quickly, and rise in prominence as a global hub. Elevating the industry's growth trajectory will require matching the supply of talent to the needs of a rapidly expanding industry; ensuring early-stage firms have access to wet labs; and keeping the cost of doing business in the region competitive.

This report focuses on the export-oriented portion of the regional life sciences industry, as shown in figure XX.¹ The industry is comprised of firms that "work with living organism and life processes, including biology, pharmaceuticals, biomedical technology, and nutraceuticals." Life sciences innovation is improving human health and creating economic value. In the Metro Vancouver region, the industry has specializations in biotechnology; medical devices and diagnostics; drug discovery, delivery, and pharmaceuticals; and digital health.

Figure XX: Focus on Export-Oriented Part of the Life Science Industry in the Metro Vancouver Region



Invest Vancouver believes the region can attract investment and create jobs in the life sciences industry based on existing regional strengths. The region has an enviable combination of research competencies, talent, supporting institutions, and emerging and established firms. The industry is growing and supports high quality jobs. Global demand for the industry's products and services is increasing due to ageing populations, innovation, and the need to relieve overburdened health systems. Spending on health care for the elderly has been rising with life expectancy, particularly in the developed world. Scientific breakthroughs such as CRISPR gene editing, which has opened up new treatment pathways, and novel applications such as the use of machine learning algorithms to scan digital images and spot tumours, are creating markets where none previously existed. Digital solutions can improve productivity in the delivery of patient care. Investment activity and government interest in the life sciences industry, already strong prior to COVID-19, were amplified by the pandemic.

¹ Invest Vancouver works with export-oriented industries because firms competing in global markets can boost regional output and employment unconstrained by the local economy. Moreover, adding new exporting firms in the region does not necessarily displace existing ones, as would be the case, for example, if a new player were to enter the already saturated local market for grocery stores.

² This is how Pitchbook, a data and research service covering global capital markets, describes the life sciences "industry vertical", i.e. a group of companies that focus on a shared niche or specialized market spanning multiple industries.

The report is organized into five sections. The first section introduces the regional industry, including its dynamic nature, specializations, and a snapshot of current firms.³ The second section emphasizes the industry's long-term growth trend based on two decades of economic data and five years of investment activity. The third section highlights the major pieces of the supporting innovation ecosystem, a vital regional asset and linchpin of the industry's success. We describe ecosystem expansions, including those currently underway, in planning, and just announced. The fourth section covers the microeconomic perspective, summarizing themes that emerged from our interview-based investigation into what is working and what could be improved in the region. The final section presents models from other jurisdictions that, if adopted here, would help make the region a more attractive place for incumbent and prospective life sciences firms. The rest of this overview explains what we hoped to learn from the research, describes our research methods, summarizes our main findings and recommendations, and explains how the results will be used.

What we hoped to learn

Invest Vancouver sought to answer two questions in this report:

- Why do firms in the life sciences industry invest in Metro Vancouver?
 We answer this question by looking beyond Metro Vancouver's spectacular location and attractive lifestyle to discover the specific advantages and assets offered by the region.
- 2. What actions would unlock additional growth and investment in the life sciences industry? We pull from models in other jurisdictions to suggest ways elected leaders, civil servants and other decision makers can leverage this regional asset.

Methods

Invest Vancouver investigated these questions using qualitative and quantitative research approaches. The qualitative work, based on in-depth interviews, was conducted to gain an insider's perspective on the state of the industry in the region, its strengths, and its challenges. The quantitative work looked at 20 years of economic data and the most recent five years of investment activity to provide context and shed light on long-term industry trends. These efforts were supplemented with reviews of federal and provincial life science strategies and investments, and various reports on the industry.

For the qualitative work, we focused on interviews with chief executives (CEOs), founders, and senior executives from the region's life sciences firms. We also held interviews and discussions with representatives from the supporting ecosystem, including government representatives, industry associations, academic institutions, accelerators, capital providers, and others providing support to the life sciences industry. Prospective interview targets were drawn from two commercial services, Lightcast and PitchBook, as well as the member directory of provincial industry association, Life Sciences BC, and referrals from interviewees.

³ Our focus is on the 21 municipalities, Treaty First Nation, and Electoral Area served by Invest Vancouver. The export-oriented portion of the BC life sciences industry is heavily concentrated within this region, which accounts for more than three-quarters of the provincial output and employment.

Each of these semi-structured interviews consisted of a number of predetermined topics to be explored, including access to funding, workforce supply and labour markets, network organizations and supporting infrastructure, business climate, and so on. Interviews were allowed to unfold naturally in order to pursue an idea, line of inquiry, or response in more depth. This approach enabled the discovery of information relevant to regional value proposition, and the uncovering of information that may not have been previously recognized as pertinent. Input from the interviews has been anonymized in the report to encourage candid discussion.

For the quantitative work, we drew for the first time on the Invest Vancouver *Strategic Industries Analytics* project results. The *Strategic Industries Analytics* project is a separate effort undertaken to meet the critical need for data and data-driven understanding of key export-oriented industries, including life sciences. Conducting a data-driven analysis of the life sciences industry is particularly challenging because it is not included as a distinct category at any level of the North American Industry Classification System (NAICS) that the government uses to collect and organize firm-level statistical data.

The export-oriented parts of the life sciences industry are scattered across the manufacturing; professional, scientific, and technical services; and information (software) sectors. We used government data on output, employment, labour hours, and capital stock for the "national industries" (i.e. the most-specific, 6-digit NAICS codes) that most closely align with the life sciences industry. While an imperfect match, there is no better alternative. For ease of exposition and because we are treating the life sciences as a single industry even though the NAICS codes do not, these national industries are described throughout the report as "industry components" or "components of the life sciences industry". We rounded out the quantitative analysis with investment information from PitchBook, job posting and skills data from Lightcast, and comparative information from fDi Benchmark, a service from the Financial Times of London.

In the final phase of the study, we investigated how other jurisdictions, particularly those elsewhere in Canada, have dealt with issues similar to the challenges faced by life sciences firms in our region. Where appropriate, we conducted further interviews to better understand how these different approaches have fared, and whether they might be applicable here.

Summary of Findings and Recommendations

The Metro Vancouver region has a growing, export-oriented life sciences industry supported by a robust life sciences ecosystem and a pool of highly specialized talent. With a history of innovation that includes significant contributions to the development of the COVID-19 vaccine, the region is increasingly attracting global attention. Current economic uncertainty notwithstanding, the long-term outlook for the industry is bright. There are significant investments and commitments from the federal and provincial governments, universities, health authorities, and the private sector currently being developed or already underway.

The dynamic nature of the life sciences industry reflects multiple forms of risk. Early-stage firms deal with considerably more scientific risk than business risk, with the balance between the two shifting as the firms scale up. The entire industry deals with fluctuations in the relative availability of financial

⁴ See the appendix for more information NAICS codes and the life sciences industry.

capital and there have been long stretches where capital has been extremely scarce. The recent past has been characterized by a surge in investment, with almost \$3.5 billion flowing into the life sciences industry in Metro Vancouver since the start of 2018. (AbCellera, the Vancouver-based developer of an antibody discovery platform, accounted for more than one-quarter of the 2018-2022 total.) Investment activity peaked in 2021, with 57 deals worth a total of \$1.02 billion, but declined sharply to \$137 million in 2022 as investors turned cautious. As in many other industries and regions, the implications of global macroeconomic uncertainties are top of mind.

While the life sciences industry is often described as "cyclical", particularly with respect to the ease of access to financial capital, the industry's output in the region is rising over the long term, and employment growth has been particularly strong in research and development, and pharmaceuticals and medicine manufacturing. In each of the four life sciences industry components we examined (i.e. the NAICS national industries), contribution to regional GDP increased by least 2.5 times since 2001, with the strongest growth occurring over the past five years. Employment gains over the same timeframe were greatest in pharmaceuticals and medicine manufacturing (measured as percentage change in number of workers) and in research and development (when comparing percentage change in total labour hours). Research and development, a core regional strength and the largest of the four components, was the real standout: contribution to GDP increased 2.6 times; employment climbed 3-fold; labour hours were up 6.5 times; and total capital stock rose 3.8-fold.

To grow more rapidly and build on existing strengths, the region needs to address three challenges. First, the backbone of the industry is skilled talent, and as the industry expands it will require more (and more specialized) talent. Second, the relative cost of doing business is a concern in any globally competitive industry, especially for early-stage, pre-revenue firms facing an environment in which financial capital is more difficult to access. Helping firms with cost control is essential for existing firms and future investment attraction efforts. Third, with the local industry concentrated at the front end of the life sciences value chain, the region needs additional wet lab space, particularly for the earliest stage firms. The lack of wet lab space is a severe bottleneck constricting growth.

Recommendations

- Actively promote talent attraction for the life sciences industry. The industry relies on a pool of
 highly trained, specialized workers. Increasing the size of the talent pool will be critical as the
 overall industry grows, and additional skill sets will be needed as more firms scale up. The region
 needs a two-pronged effort to add people to the talent pool through local training (the subject
 of a forthcoming study from the industry association Life Sciences BC) and recruitment from
 outside the region. Talent attraction efforts could incorporate elements of the Montreal
 International strategy.
- Look for opportunities to help firms control costs through economies of scale. Cost containment is always an issue, particularly for start-ups, and looms larger when the economy (and access to investment dollars) slows. BIOQuébec offers an example of how to help firms contain costs and maintain the region's cost-competitiveness.
- Build public sector-supported wet lab space for fledging firms. There is an acute shortage of wet lab space, especially for young firms emerging from the region's universities and accelerators. The market will not provide a solution since developers can make more money

with less risk with alternative projects. A lower (and still positive) return may be acceptable to the government, because unlike private developers, it benefits from the long-term gains from greater employment and tax revenue generation. The government could copy models from Montreal, Toronto, and Halifax to unlock growth in the life sciences industry.

Invest Vancouver will promote the region's life science industry to potential investors based on the specific strengths identified in this report, with the goal of influencing their location decisions. We will prepare investor-oriented materials and a regional "pitch deck" our investment attraction team will use at industry events and in their day-to-day efforts. We hope that public and private sector stakeholders will use the intelligence gathered through this research to focus their attention on addressing the obstacles to growth identified by people in the industry. Doing so will foster conditions that will help firms succeed here, reinforce investment attraction efforts, and potentially elevate the entire industry, increasing its global prominence.



Life Sciences Industry in Metro Vancouver

The regional strength in early-stage research is reflected in the frequent emergence of new firms. The successful ones attract investment as they scale, adding employment as they advance the frontiers of medical treatment. Even the firms that fail contribute to the ongoing vitality of the industry as their talent is redeployed in other ventures. This section describes the pattern of constant renewal in the life sciences industry, defines the regional specializations (in biotechnology; drug discovery, delivery and pharmaceuticals; medical devices and diagnostics; and digital health) and presents a snapshot of firms in the industry.

A Pattern of Constant Renewal Producing Overall Growth

The life sciences industry in Metro Vancouver has seen the rapid rise of many companies, yet has relatively few enduring regional champions. In part, this is a natural consequence of the region's strengths being concentrated closer to the initial discovery end of the industry value chain. The life sciences value chain stretches from an idea or discovery through development and testing to regulatory approval, manufacturing, and distribution to medical practitioners and patients. The initial commercialization stage is difficult and risky, and many firms built on cutting-edge science fail. Even when everything goes right, successful firms are often acquired by larger firms from outside the region. The fate of individual firms disguises the long-term increases in overall employment and output that have been produced by this dynamic (and sometimes tumultuous) industry.

The acquisition of local firms by outsiders is often a net positive for the region, either by increasing resources and providing a path to large-scale distribution or recycling people and profit in the local ecosystem. NOVADAQ Technologies Inc. (NOVADAQ) and ImmGenics Pharmaceuticals (ImmGenics) are examples of the former; Quadra Logic Technologies (QLT) is an example of the latter.

NOVADAQ was a Missassauga-based medical technology company with an R&D centre in Burnaby that developed fluorescence imaging solutions for minimally invasive and open surgeries. It was acquired by the Michigan-based Stryker Corporation in 2017 for US\$654 million. Stryker kept the R&D office in Burnaby, where it continues to employ more than 100 people. Similarly, Vancouver-based ImmGenics was founded in 1993 to commercialize a technology that sped up the discovery process by increasing the number of antibodies that could be screened for a given target. In 2000 it was acquired by California-based Abgenix, which itself was acquired in 2006 by Amgen, one of the world's largest biotechnology companies. The original ImmGenics research centre has expanded under the ownership of successively larger companies, each seeking to tap into the innovation, research and talent in the region.

QLT was a pharmaceutical company founded in 1981 by a group of scientists from the University of British Columbia (UBC) who developed a drug to treat macular degeneration. In the early 2000s, QLT peaked with 500 employees before entering a long decline. By 2016, the firm employed just 24 people and had merged with the Boston-based pharmaceutical company Aegerion Pharmaceuticals to become Novelion Therapeutics. Today, it no longer has a corporate presence in the region. The hundreds of people who worked at QLT did not disappear. Their skills and experience were redeployed when they found new jobs, started new firms, or joined one of the many entities that comprise the industry's supporting ecosystem (described later in this report).

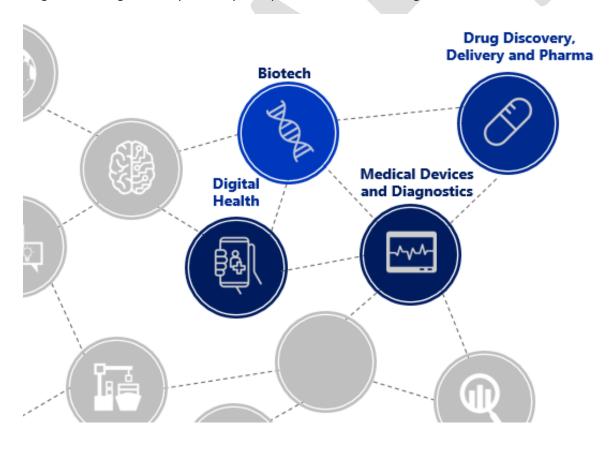
⁵ https://vancouversun.com/business/local-business/qlt-points-to-mutual-needs-in-pending-merger-with-aegerion

Acquisitions can also provide the seed capital for new firms. (Many of the people we interviewed for this report had started more than one firm.) Despite the disappearance of QLT and many of its contemporaries, the industry today employs considerably more people than it did in the early 2000s.

Industry growth is fueled by the groundbreaking research carried out at the region's universities and research institutes. For example, the BC Centre for Excellence in HIV/AIDS led pioneering research into the prevention and treatment of the human immunodeficiency virus (HIV) and related diseases. Research at the Terry Fox Laboratory preceded the creation of STEMCELL Technologies Inc., a firm that develops media and processes to grow stem cells in lab environments. It is now the largest Canadian biotechnology firm by employment.⁶ More recently, Acuitas, a local firm based on decades of research into lipid nanoparticles by Dr. Pieter Cullis, licensed its technology to BioNTech for use as the delivery vehicle for the latter's mRNA vaccine for COVID-19. Acuitas also signed an agreement giving Pfizer the option to license its technology for further vaccine or therapeutic development. Going forward, the industry will continue to be powered by groundbreaking research being carried out in the region.

Current Firms and Regional Specializations

The life sciences industry in Metro Vancouver has specialization in biotechnology; medical devices and diagnostics; drug discovery, delivery, and pharmaceuticals; and digital health.



⁶ https://www.canada.ca/en/innovation-science-economic-development/news/2018/04/federal-and-provincial-governments-support-creation-of-biotech-manufacturing-facility-in-the-lower-mainland.html

Biotechnology companies use biology to develop new products, methods and organisms intended to improve human health and society.

Medical Devices and Diagnostics companies develop and manufacture devices for a range of medical purposes including assessing and diagnosing medical conditions, collecting and monitoring vital signs, and patient rehabilitation or therapy.

Drug Discovery, Delivery, and Pharmaceuticals companies are involved in the research and development of new drugs, novel medication delivery methods, and established pharmaceuticals.

Digital Health companies build hardware and software solutions that improve healthcare efficiency and productivity in the areas of patient communications, monitoring, and treatment. They also let patients track and manage their own health.

Figure XX is a snapshot of the firms in Metro Vancouver's life sciences industry, organized by area of specialization.

[This list is incomplete. It will be replaced with a two-page, designed version.]

Figure XX: Snapshot of Firms in the Metro Vancouver Region

Biotechnology		Drug Discovery, Delivery a Pharmaceuticals		and	Medical Devices and Diagnostics	
Abattis Bioceurticals (CNQ:TMED) Biotechnology (PINX: ATTBF) Extern Bioscience Movebard AbCellera (NAS:ABCL) First Venture Movebard Novebard ACGT Corporation Technologies Group Fusion Genomics Group Acuitas Therapeutics Genina Laboratories Phyton Biotech Alectos HAVNLIF Sciences (CNC:GLAS) Phyton Biotech Allon Therapeutics Alpha 9 Theranostics HTVO Remaissance Altum Pharmaceuticals/CO Therapeutics Angen (NAS: AMGN) Instar Therapeutics Appet Biotech Inception Sciences Solutions Solutions SignalChem Insception Lifebank Lifesciences Glocure Technology (CNG: CURE) Sciences Stressgen (CNG: CURE) Sciences Sciences Stressgen Biogen Sciences Kairos Therapeutics Stressgen Biogen Sciences Kairos Therapeutics Stressgen Biogen Sciences Sciences Propendics	Abdora Therapeutics Acquus Pharmaceuticals (TSX: ACS) Algernon Pharmaceuticals (CNQ: AGN) Amphorase Life Sciences AnorMEO Arbutus Biopharma (NAS: ABUS) Avrisore Health (TSX: AVCR) BetterLife Pharma (CNQ: BETR) BioVaxys Technology (CNG: BIOV) BriaCell Therapeutics (TSE: BCT) Bright Minds (CNQ: DRUG) Chinook Therapeutics (NAS: KDNY)	Kinetok Pharmacouticals Kintara Therapoutics (NAS KTRA) KOP Therapoutics Medna Biosciences Mesentach Microbion MindMed (NEOE:MMED) MSI Methylation Sciences Mydecine linnovations Group (NEOE: MYCO) Nash Pharmacouticals Neoleukin Therapoutics Neoleukin Therapoutics	Rakovina Therapeutics (TSX:RXV) AS Replical Life Sciences (TSX:RP) SanOtice Santa Marta Life Sciences Sierra Oncology Sirona Biochem (TSX: SBM)) Sirika Biopharma s Starton Therapeutics SureNano Science (CNQ: SURE) Sycamore Entertainment Group (PINX: SEGI) Symayor Technologies	ai4gi Apteryx Imaging Arbutus Medical ARC Medical (Surgical Devices) ARTMS Artron Laboratories Augurex Biomark Diagnostics (CNC BUX) Biomic Power Canexia Health CTF Systems Evasc GenomaMe IKOMED Technologies Imagin Medical (CNC): IME Izotropic (CNQ: IME Izotropic (CNQ: IME	Masimo (NAS: MASI) Novelion Therapeutics (Visudyne) Coumetics (TSX: OTC) Ondine Biomedical (LOC OBI) PFS Genomics Response Biomedical Sonicincytas Sulzar Mitroflow TelArray Diagnostics Verisante Technology (T VER.H) Vesalius Cardiovascular ZullChip Technologies	
Bold Therapeutics Med Biogene (TSX): Boveal Genomics MBLH) Bovicor Melopenics Calilitas Health Melopenics Methanogenesis Systems Molecular Systems Nanosphere Health Cytapex Bioinformatics/Nerv Gen Pharma (TSX) Cytiva NGEN) Delta-Fly Pharma (TKS: New Beta linnovation 4598) Canada Derm-Blome Nova Mentis Life Pharmaceuticals Science (CNG: NOVA) EGF Theramed Health Novelogics	: Pharmaceuticals (NAS: XENE)	Clairwoyant Therapeutics Clearmind Medicine (CNQ. CMND) CLOV Biopharma CUPROUS Pharmaceutical Curelinemune Therapeutics Entheon Biomedical (CNQ. ENBI) Essa Pharma (NAS-EPIX) Evonik Industries (ETR: EVX) Eyem GeneMax Pharmaceuticals (TSX: GENX)	: Notch Therapeutics Novation Pharmaceuticals Numinus (TSE: NUMI) s N-Zyme Biomedical : OncoGenex	Variational AI Varitas Pharma viiba Tharapautics Virogin Biotech Vitaer's Wellichem Biotech WEX Pharmaceuticals WN Pharmaceuticals Zalicus Pharmaceuticals	Canary Medical Claris Healthcare Coastal Genomics Epiphany360 Floke Gandeeva Therapeutics Gentlys Grantek	Health HealthTech Connex MacrosHealth Medical Cytometrix MetaOptima Molecular You myDNA NZ Technologies HEMI Systems Strata Health //ewsiQ

The Metro Vancouver Life Sciences Industry – North American Comparisons

To get a sense of the scale, we compared the number of life sciences companies in Metro Vancouver⁷, Toronto, Montreal, and six American cities with vibrant life science industries. These rankings, based on firm counts in 2021, are the type of comparisons considered by firms in the initial stages of a location search. Metro Vancouver is sixth among these metropolitan regions (and first in Canada) based on the number of companies engaged in research and development, as shown in Figure XX. The firm counts are not a perfect match with the life sciences, as they also include research and development in the physical sciences, but do provide a consistent basis for comparison.

San Diego (CA)
Minneapolis-St.Paul (MN)
San Francisco (CA)
Los Angeles (CA)
Seattle (WA)
Greater Vancouver
Boston (MA)

Figure XX: Research and Development Companies

Sources: fDi Intelligence from the Financial Times based on Dun & Bradstreet Global Reference Solution

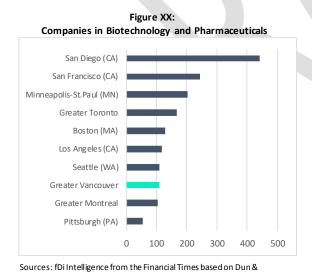
Greater Toronto

Pittsburgh (PA)

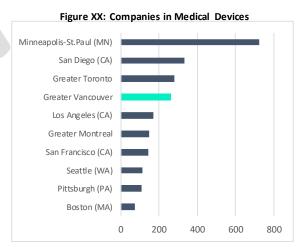
Greater Montreal

Figure XX provides the same comparison for the number of companies engaged in biotechnology and pharmaceuticals. Metro Vancouver ranks 8th by this measure, with 109 companies in 2021. This compares favourably with the number of firms in Los Angeles (119), Seattle (111), and Montreal (105). Toronto (166) is the leading Canadian city.

Metro Vancouver has 264 companies in medical devices, and ranks fourth, just behind Toronto (279).



Bradstreet Global Reference Solution



Sources: fDi Intelligence from the Financial Times based on Dun & Bradstreet Global Reference Solution

⁷ The data from fDi Benchmark is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

Data Reveals a Growing Life Sciences Industry

The fortunes of an individual firm are not necessarily representative of an industry, and even when looking at an entire industry, it can be easy to overlook a long-term pattern of growth after a few quarters of contraction. Here we look at trends in contribution to GDP, employment, labour hours, and total capital stock in the Metro Vancouver life sciences industry, from 2001 to 2020/2021. As described previously, this data was collected as part of the Invest Vancouver *Strategic Industries Analytics* project. It is an imperfect match with the life science industry due to the way firm-level data is aggregated using NAICS codes, but is the best available.

The four NAICS *national industries* included here, which we are calling 'components of the life sciences industry', are pharmaceuticals and medicine manufacturing; measuring, medical and controlling devices; medical equipment and supplies; and research and development in the physical, engineering and life sciences.⁸ The data reveals:

- In each of the four components, contribution to regional GDP has increased by least 2.5 times, with the strongest growth occurring over the past five years.
- In the Metro Vancouver region, approximately 15,500 people (78% of the BC total) were employed in these four export-oriented industry components in the fourth quarter of 2021.
- Employment gains since 2001 have been greatest in pharmaceuticals and medicine
 manufacturing (measured as percentage change in number of workers) and in research and
 development (when comparing percentage change in total labour hours).
- Total capital stock has been essentially flat in pharmaceuticals and medicine manufacturing; fell slightly in measuring, medical and controlling devices; roughly doubled in medical equipment & supplies; and almost quadrupled in research and development.
- Research and development, a core regional strength and the largest of the four components, is the real standout: contribution to GDP increased 2.6 times; employment climbed 3-fold; labour hours were up 6.5 times; and total capital stock rose 3.8-fold.⁹
- While the life sciences industry is often described it as "cyclical", particularly with respect to the
 ease of access to capital, long-term contribution to GDP is rising, and employment growth has
 been particularly strong in research and development, and pharmaceuticals and medicine
 manufacturing.

The data below on investment activity in the life sciences industry, covering the years 2018-2022, is from PitchBook and is reported by area of specialization: biotechnology; medical devices and diagnostics; drug discovery, delivery, and pharmaceuticals; and digital health.

- There has a been a wave of recent investment in life sciences firms headquartered in the Metro Vancouver region, with almost \$3.5 billion in activity since the start of 2018. AbCellera accounts for 27.6% (\$963 million) of the activity.
- Activity peaked in 2021, with 57 deals worth a total of \$1.02 billion, but declined sharply in 2022 to \$137 million as investors turned cautious ahead of the next recession.

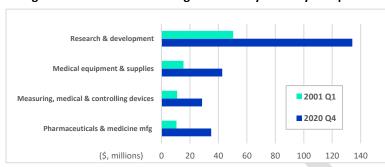
⁸ Because we focus on firms producing exportable goods and services, population-serving components, such as medical laboratories, are not included in the analysis.

⁹ As described in the appendix, research and development in the physical, engineering and life sciences includes non-life sciences activity.

Economic Data Series: Trends in Contribution to Regional GDP

GDP measures total industry output, i.e. the expenditures or "value added" during the production of goods and services over a specific time period within an economy. The change in GDP over time is a widely used indicator of the general health of the economy: growing GDP suggests the economy is doing well; two consecutive quarters of contraction indicates a recession. Figure XX shows the inflation-

Figure XX: Contribution to Regional GDP by Industry Component



Source: Invest Vancouver Strategic Industries Analytics Project

adjusted values for contribution to GDP in the Metro Vancouver region from each of the four exportoriented components of the life sciences industry starting in 2001 Q1 and ending 2020 Q4.

The contribution to regional GDP rose in all four components: from \$10.5 million to \$34.9 million in pharmaceuticals and medicine manufacturing; from \$11.0 million to

\$28.5 million in measuring, medical and controlling devices; from \$15.5 million to \$42.7 million in medical equipment and supplies; and from \$50.4 to \$134.1 million in research and development. The rising output indicates a growing life sciences industry.

The next chart, figure xx, presents the quarterly data for contribution to GDP with the starting value for each data series set to 100. This normalization of the data makes it easy to compare the relative (percentage) change over time.

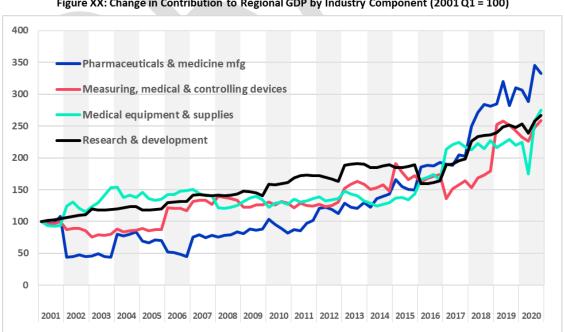


Figure XX: Change in Contribution to Regional GDP by Industry Component (2001 Q1 = 100)

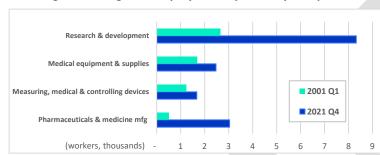
Source: Invest Vancouver Strategic Industries Analytics Project

The contribution to regional GDP increased by at least 2.5 times in all four industry components. Pharmaceuticals and medicine manufacturing shows the greatest increase (almost 3.5 times), but also exhibits the most volatility. Its contribution to GDP drops 50 percent starting late in 2001, stays flat for three years before rising more than 50 percent, only to revisit the earlier lows in 2007 before finally recovering and surpassing previous highs ten years after the initial drop. The industry is often described as cyclical, but the long-term trend is rising output.

Economic Data Series: Employment Trends

Rising output suggests the industry is growing. For the region to prosper, that growth needs to translate into jobs. The employment data series tracks the number of individuals currently employed in each

Figure XX: Regional Employment by Industry Component



Source: Invest Vancouver Strategic Industries Analytics Project

industry component. It is a count of people working in the sector, without distinguishing among parttime and full-time workers, or compensation type, i.e. hourly versus salaried workers. Figure xx shows the actual employment in each industry component in the first quarter of 2001 and the fourth quarter of 2021.

Employment increased in all four industry components between 2001 and 2021: from 514 to 3,044 in pharmaceuticals and medicine manufacturing; from 1,237 to 1,670 in measuring, medical and controlling devices; from 1,692 to 2,475 in medical equipment and supplies; and from 2,661 to 8,330 in research and development. The rising employment suggests the life sciences industry is contributing to regional prosperity.

The next chart, figure xx, presents the quarterly employment data with the starting value for each industry component set to 100. This normalization of the data makes it easy to compare the relative (percentage) change over time.

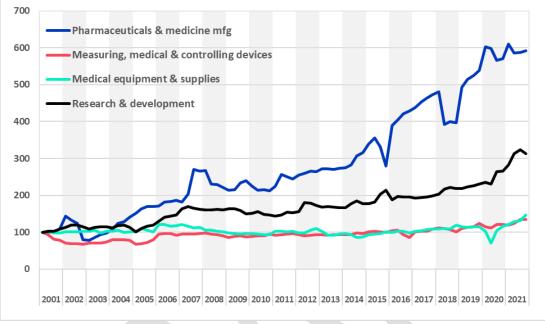


Figure XX: Change in Regional Employment by Industry Component (2001 Q1 = 100)

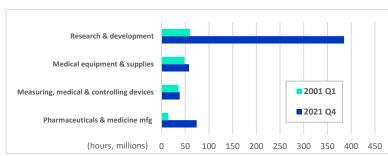
Source: Invest Vancouver Strategic Industries Analytics Project

Measuring, medical and controlling devices and medical equipment and supplies were relatively flat during the 20-year period, but an uptick that started in 2020 increased employment by 35% and 46%, respectively, compared to 2001. Research and development, which employed the most people at the start of the period, more than tripled, with half of the gains occurring from 2018 through 2021. From a much smaller starting point, pharmaceuticals and medicine manufacturing employment increased almost 6-fold. (During the 10 years from 2001-2011, when output dropped by half before eventually recovering, employment doubled.)

Economic Data Series: Trends in Total Labour Hours

The number of workers doesn't always tell the whole employment story in an industry. The next two figures present total labour hours, which is a measure of labour input using the weighted average of the weekly hours worked by both hourly and salaried employees, multiplied by 52 weeks in a year.

Figure XX: Regional Labour Hours by Industry Component



Source: Invest Vancouver Strategic Industries Analytics Project

Figure XX shows that total labour hours (in millions) increased, 2001-2021, from 14.2 to 74.3 in pharmaceuticals and medicine manufacturing; from 35.8 to 38.5 in measuring, medical and controlling devices; from 48.7 to 58.2 in medical equipment and supplies; and from 60.1 to 385.0 in research and development. Figure xx, presents the quarterly data with the starting value

for each industry component set to 100. This normalization of the data makes it easy to compare the relative (percentage) change over time.

Pharmaceuticals & medicine mfg

Measuring, medical & controlling devices

Medical equipment & supplies

Research & development

200

200

2001

2002

2003

2004

2005

2006

2007

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017

2018

2019

2020

2021

Figure XX: Change in Regional Labour Hours by Industry (2001 Q1 = 100)

Source: Invest Vancouver Strategic Industries Analytics Project

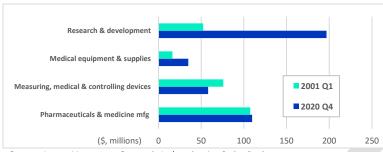
Medical equipment and supplies, and measuring, medical and controlling devices, which were relatively flat in employment, show long stretches with lower total labour hours. They recover by the end of the period, but the 20-year change in total hours is less than the employment, suggesting a greater reliance on part-time workers. Pharmaceuticals and medicine manufacturing, which had the greatest increase in employment, also saw a huge increase in total labour hours. The most striking employment case is research and development, which saw employment more than triple and labour hours increase more than six-fold.

Economic Data Series: Trends in Total Capital Stock

The next two figures show total capital stock, a measure of total real and intellectual assets possessed by a firm that are used during the production of goods and services. Total capital stock includes non-residential buildings, engineering construction, and machinery and equipment, as well as intellectual

 $property. ^{10}\ Capital\ is\ important\ because\ of\ its\ link\ to\ productivity.\ In\ general,\ adding\ capital\ is\ expected$

Figure XX: Regional Capital Stock by Industry Component



Source: Invest Vancouver Strategic Industries Analytics Project

to translate into increased output; if the amount of capital per worker increases then it should make the labour more productive.

Capital stock in pharmaceuticals and medicine manufacturing was largely unchanged, 2001-2020, increasing slightly from \$107.4 million to \$109.7 million. In measuring, medical and controlling devices, total capital stock fell from \$76.0 million to \$58.1

million. Total capital stock in medical equipment and supplies roughly doubled, from \$16.3 million to \$34.9 million. In research and development, total capital stock nearly quadrupled from \$52.3 million to \$196.9 million.

Figure xx, presents the quarterly data, again, with the starting value for each industry component set to 100 to allow for the comparison of the relative (percentage) change over time.

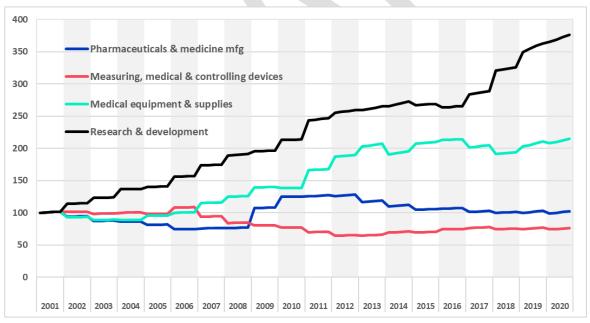


Figure XX: Change in Total Capital Stock in the Region by Industry (2001 Q1 = 100)

 $Source: {\it Invest \, Vancouver \, Strategic \, Industries \, Analytics \, Project}$

¹⁰ Capital is one of the major factors of production, i.e. the building blocks used to produce goods and services. (The others are land, labour, and entrepreneurship.) In this context money does not count as capital, though money can be used to acquire capital, which depreciates over time.

Total capital stock in pharmaceutical and medicine manufacturing did not change much throughout the 20-year period and finished approximately where it started. This suggests the large gains in output were more closely related to the large increases in employment and labour hours. In medical equipment and supplies, total capital stock increased in tandem with output, while employment and total labour hours were essentially flat. In measuring, medical and controlling devices, output increased, employment and total labour hours increased slightly, and total capital stock declined. In research and development, all indicators – output, employment, total labour hours, and total capital stock, showed large gains during the period.

Tracking Investments in Life Sciences Firms: A Surge of Activity in 2020 and 2021

From capital stock, i.e. the real and intellectual assets used in production, we turn to financial capital, i.e. the flow of investment dollars into life sciences firms. Financial capital matters because it can be expensive to take a firm from one milestone to the next, such as the move from a working prototype to small-scale production, the completion of a clinical trial, or an increase in production volume.

Sometimes macroeconomic conditions can make it hard for everyone to raise financial capital, and shifting investment trends can leave particular industries out of favour. While the life sciences industry is not immune to shifting investment winds (industry participants used apocalyptic terms such as "nuclear winter" to describe particularly trying periods), the industry has recently benefitted from heightened investor interest. Figure xx shows the wave of investment in life sciences firms headquartered in the Metro Vancouver region during the past five years.

(\$ millions) \$1,800 \$1,600 \$1,400 \$1,200 950.1 \$1,000 \$800 \$600 1018.0 13.0 \$400 665.5 420.6 \$200 295.9 136.6 \$0 2018 2020 2021 2022 2019 ■ All Others ■ AbCellera

Figure XX:
Investment in Life Science Firms Headquartered in Metro Vancouver, 2018-2022

Source: PitchBook 2023

There were almost \$3.5 billion in investments in firms headquartered in the region, 2018 through 2022, with total activity exceeding \$1 billion in both 2020 and 2021. AbCellera accounts for 58.8% of total

investment in 2020 (see box) and 27.6% of the five-year total. There was a steep drop in completed investments in 2022, as the region and industry were affected by global macroeconomic conditions. Investors curtailed their activities amid heighted worries about a recession due to persistent high inflation, rising interest rates, and supply chain disruptions.¹¹

AbCellera in 2020

AbCellera Biologics Inc. is a Vancouver-based biotechnology company that develops antibodies to treat infectious and various other diseases. The company's Al-powered technology sources, searches, decodes and analyzes antibody responses to engineer new antibody drug candidates for its partners. AbCellera, in partnership with Eli Lilly, developed the first monoclonal antibody (Bamlanivimab) to receive emergency use authorization from the US Food and Drug Administration (in November 2020) for treatment of COVID-19.

The company raised almost \$1 billion CAD in grants and investments in 2020. On May 3rd, 2020, AbCellera received **CAD 175.6 million** in grant funding from Innovation, Science and Economic Development Canada for use in the discovery of antibodies to treat COVID-19, and to build technology and manufacturing infrastructure for antibody therapies against future pandemic threats.

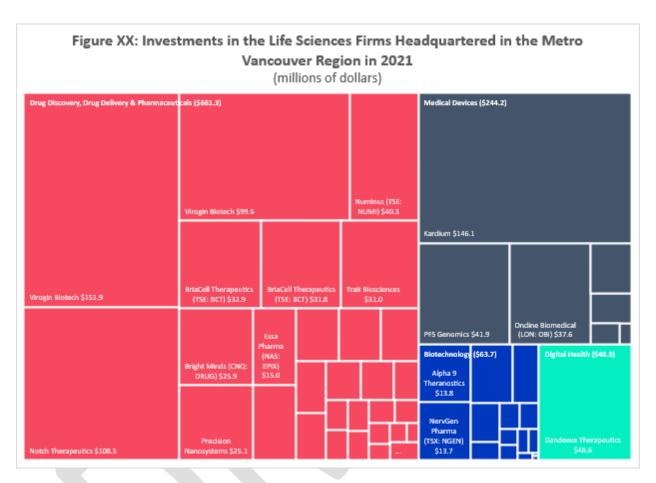
On May 27th, AbCellera raised **\$105 million USD** of Series B venture funding for use in "creating and aggregating novel tools to propel the development of new biological modalities, from monoclonal, multi-specific, and single-domain antibodies, to bioconjugates, gene-encoded biologics, and cell therapies".

In December, AbCellera_raised a further \$483 million USD by selling 24,150,000 shares for \$20 each in an initial public offering on the Nasdaq stock exchange that valued the firm at more than \$5 billion USD.

Source: PitchBook 2022

¹¹ The curtailment in investment extended far beyond life sciences and the region. For example, the *Logic* reports the number of initial public offerings (debut stock market listings) for firms in tech, clean tech and life sciences companies on the Toronto Stock Exchange plummeted in 2022 after a blockbuster year in 2021. (Aleksandra Sagan, "IPO Outlook 2023: Will more Canadian tech companies brave the markets in the year ahead?" December 29, 2022)

While investment activity in 2020 was dominated by biotechnology and AbCellera, 2021 was notable for the scale and diversity of investment activity: there were 57 separate deals which are presented by area of industry specialization in figure xx.



PitchBook 2022

In 2021, drug discovery, drug delivery & pharmaceuticals moved to the forefront, with 33 deals worth a combined \$661.3 million (representing 65% of the total annual activity by value). Virogin Biotech, with 2 deals totaling \$251.5 million, Notch Therapeutics (\$108.5), BriaCell (\$64.7 million in 2 deals), and Numinus (\$40.3) accounted for the largest deals in this area of specialization. Medical devices had seven deals worth a total of \$244.2 million, representing 24% of the life sciences industry activity by value. Kardium (\$146.1 million), PFS Genomics (\$41.9 million) and Ondine Biomedical (\$37.6 million) attracted the largest investments in this specialty. Biotechnology (15 deals worth a combined \$63.7 million) and digital health (2 deals totaling \$48.8 million) together accounted for 11% of the total investment activity by value.

A Dynamic and Nurturing Ecosystem

Metro Vancouver's life sciences industry benefits from a robust supporting ecosystem. Significant investments from the federal and provincial governments, universities, health authorities, and the private sector mean that the life sciences industry outlook remains bright. This section provides an overview of the region's life sciences ecosystem, and briefly describes the geographic clustering of life science firms and upcoming projects and initiatives.

The Supporting Life Sciences Ecosystem

Figure XX lists the organizations that make up the dynamic and nurturing enabling environment in the Metro Vancouver region. We have included two research categories: academic research, which covers research at post-secondary institutions, and research institutes, which are affiliated with academic institutions or health authorities that advance scientific discoveries. In some cases, such as the Djavad Mowafaghian Centre for Brain Health at UBC, the research is combined with patient care. The industry builders are organizations that help grow and support individual firms and the industry as a whole. Funding and support for the industry is provided by provincial and federal governments and agencies and by the organizations and funds in research support and funding. Some of the included players, such as Michael Smith Health Research BC, provide multiple layers of support. It includes BC SUPPORT (Support for People & Patient-Oriented Research & Trials) which advances patient-oriented research; Clinical Trials BC, which helps clinical trial investigators, sites and institutions; and Research Ethics BC, which provides a harmonized provincial system for research ethics reviews.

Figure XX: The Metro Vancouver Life Sciences Industry Supporting Ecosystem

Ecosystem Players

Industry Builders

- adMare BioInnovations
- Life Sciences BC
- •BC Tech Association
- Creative Destruction Lab (CDL) West
- entrepreneurship@UBC
- •SFU Venture Labs
- New Ventures BC
- TRIUMF Innovations

Research Institutes

- Providence Health Care Research Institute
- Vancouver Coastal Health Research Institute
- BC Children's Hospital Research Institute
- •BC Cancer Research
- Women's Health Research Institute

Provincial and Federal Governments and Agencies

- BC Ministry of Jobs, Economic Development and Innovation
- Innovate BC
- Innovation, Science and Economic Development Canada
- The Canadian Trade Commissioner Service
- PacifiCan
- National Research Council of Canada

Research Support and Funding

- Michael Smith Health Research BC
- Genome BC
- The BC Knowledge Development Fund
- The Canada Foundation for Innovation
- The Canadian Institutes of Health Research

Academic Research

- University of British Columbia
- School of Biomedical Engineering
- Faculty of Medicine
- The Life Sciences Institute at UBC
- Michael Smith Laboratories
- UBC's Djavad Mowafaghian Centre for Brain Health
- Simon Fraser University
- 4D Labs
- ImageTech
- eBrain Lab
- WearBioTech Centre
- British Columbia Institute of Technology
 - Department of Biotechnology

Upcoming Investments: The Ongoing Expansion of the Supporting Ecosystem

Existing physical clusters of life science activity in the region are expanding, and new ones are being established. Figure XX shows clusters of life science activity and highlights new research and wet lab space planned in the coming years. The mix of new projects run the gamut from those that are currently under construction to those that are still in the earliest planning stages.

University of Endowment Lands

- The School of Biomedical Engineering (SBME) is a partnership between the Faculties of Applied Science and Medicine that is building Western Canada's new hub for transformative biomedical engineering education and research. The SBME is UBC's first inter-faculty school and is a living laboratory for new models of convergent research and education in Canada. The SBME is exploring the potential for expansion past 2025.
- adMare BioInnovations, Canada's Life Sciences industry builder, is currently seeking to
 expand and fully operationalize their Vancouver Innovation Centre at UBC. The facility
 would expand their Vancouver-based drug development infrastructure and would be
 operated so that the facilities are accessible (under supportive tenancy terms) for
 emerging companies.

City of Vancouver:

- AbCellera anchors Mount Pleasant's growing tech neighbourhood, where you will also find firms such as Zymeworks. AbCellera has 78,500 square feet of lab and office space, and a new, 380,000-square-foot global headquarters and biotech campus that is under construction and slated for completion in 2023/2024. Separately, at the eastern end of the flats, AbCellera is also building its 130,000-square-foot Good Manufacturing Practices (GMP) facility for the production of therapeutic antibodies to complement its Mount Pleasant headquarters. The GMP is slated to open in 2024.
- The new 18.4-acre St. Paul's Hospital development (currently under construction) includes a state-of-the-art research and development platform integrated with the hospital. This unique innovation hub will enable development of complex health solutions by providing space and expertise to support life. Planned facilities include wet labs, a Phase I-III Clinical Trial and Biomanufacturing Unit, and a Data Access and Services Centre.
- Masimo, the global medical technology firm, will be opening a 100,000-square-foot research hub, joining the bustling biotech False Creek Flats neighbourhood near the new hospital. The neighbourhood is already home to companies such as STEMCELL Technologies, Chinook Therapeutics, and Variational AI.

City of Surrey:

- The City of Surrey's Health & Technology District is adjacent to Surrey Memorial Hospital. The fourth of a planned eight towers in the district is under construction, and will include 75,000 square feet of wet lab space over five floors. Future phases of this development could add up to a million square feet of wet lab space.
- Joining the district is the UBC Masters of Physical Therapy program that will expand to a new teaching and research space in the district in 2023.
- Presenting many future opportunities for innovation, the new SFU Medical School will
 also be located in the district and is aiming to accept students starting in 2026.



Figure XX: Geographic Clustering of Life Science Activity in Metro Vancouver

The federal and provincial governments are also contributing to the expansion of the life sciences ecosystem in Metro Vancouver. In 2021, the federal government released its *Biomanufacturing and Life Sciences Strategy*, which commits \$2.2 billion "towards growing a vibrant domestic life sciences sector, securing pandemic preparedness, and creating good high-skilled jobs for Canadians". ¹² The strategy has five priorities, including coordinated governance; strengthening research systems and the talent pipeline; investing in existing and emerging areas of strength; building public capacity; and designing regulation that encourages innovation.

The \$2.2 billion in federal funding includes:

- \$1 billion over seven years to be invested in domestic life sciences and biomanufacturing firms, with an emphasis on closing capabilities gaps, strengthening emerging areas and augmenting supply chains
- \$500 million over four years to support bioscience infrastructure at post-secondary institutions and research hospitals
- \$250 million over four years for biomedical research funding plus \$45 million to support stem cell and regenerative medicine research
- \$250 million to establish a new Clinical Trial Fund to support a mix of research investments, projects, and platforms related to clinical trials (including up to \$18.2 million to help Vancouver's Precision NanoSystems advance a COVID-19 vaccine candidate through preclinical

¹² Canada's Biomanufacturing and Life Sciences Strategy https://ised-isde.canada.ca/site/biomanufacturing/sites/default/files/attachments/1098_01_21_Biomanufacturing_Strategy_EN_WEB.pdf

- trials plus \$25.1 million towards a project to expand Canadian capabilities in the production of ribonucleic acid (RNA) vaccines)
- \$92 million allocated to adMare BioInnovations (adMare) to support company creation, scale up, and training activities

The biomanufacturing and life sciences strategy funding supplements commitments made during the early phase of the pandemic. For example, the federal government invested \$175.6 million in AbCellera's antibody therapy production facility (the GMP in Vancouver, described above).¹³

The Province of British Columbia is developing its own *Life Sciences and Biomanufacturing Strategy* to position the province "as a worldwide life sciences hub by nurturing new talent, developing new lab space, leveraging the research capacities of B.C.'s post-secondary sector and supporting employment across the sector".¹⁴ Ahead of the release of the strategy (expected in 2023), the province is providing \$116.6 million in funding to Michael Smith Health Research BC (Health Research BC) and another \$78 million to Genome BC.

The announced investments and new facilities coming online in the Metro Vancouver region point to strong commitment from the government and from large life science firms based within the region and internationally.

The Microeconomic Perspective: What We Heard from Firms in the Industry

To develop a firm-level understanding of the industry, we interviewed chief executives, founders, and senior executives of regional life sciences firms. These interviews are an important research tool. Economic statistics such as contribution to GDP, employment, labour hours, and total capital stock, can reveal long-term industry trends. Investment activity can indicate areas of strength where people see genuine opportunity. Government commitments and an expanding ecosystem are grounds for optimism. Yet, only the people with day-to-day experience running firms can explain their view of the region's competitive advantages and which shortcomings most urgently need to be addressed. Several themes emerged from our interviews:

- The dynamic nature of the life sciences industry produces ups and down on multiple fronts. Individual firms deal with scientific risk and the entire industry deals with fluctuations in the relative availability of financial capital.
- The region excels at early-stage research, with strengths in drug delivery (lipid nanoparticles), antibody discovery, and precision health (genomics).
- Lack of wet lab space is a bottleneck constricting growth. With the local industry concentrated at the front end of the life sciences value chain, the region needs access to additional wet lab space, particularly for the earliest stage firms.
- A growing life sciences industry will require more (and more specialized) talent. To meet the demand, the region will need to develop and attract more talent.
- The government of Quebec is perceived as doing a good job supporting the life sciences industry.

¹³ Biomanufacturing: Projects underway, Innovation, Science and Economic Development Canada. (May 5, 2022) https://ised-ised-canada.ca/site/biomanufacturing/en/biomanufacturing-projects-underway

¹⁴ New life sciences investment helps build stronger B.C., Province of British Columbia. (March 2, 2022) https://news.gov.bc.ca/releases/2022JERI0007-000280

• The implications of macroeconomic uncertainties are top of mind.

The dynamic nature of the life sciences industry produces ups and down on multiple fronts

The life sciences industry is laden with scientific, macroeconomic, and other risks. Firms in the industry are subject to reversals of fortune based on scientific progress (or lack thereof); financial capital access fluctuates with macroeconomic conditions and investing fashions; and mergers and acquisitions are commonplace.

Due to the nature of scientific research, many firms have uncertain futures that depend heavily on whether the science "works out". (In the earliest stages, scientific risk is predominant since there is generally demand for viable therapeutics. The risk shifts from scientific to business risk as the firms scale up and products move closer to commercialization.) The uncertainty stemming from the scientific risk can complicate leasing office and lab space, for example, since success might mean a sudden need to triple the firm's physical footprint, while failure might bring the entire operation to a crashing halt.

Apart from challenges inherent in running a firm based on scientific discovery and innovation, there are also ups and downs from an investment standpoint. Many of our interviewees have been in the industry long enough to remember at least one "nuclear winter" for funding, when it was virtually impossible to raise capital. In contrast, 2020 and 2021 were described as a "crazy time" with large funding rounds, public offerings, and sky-high valuations in the wake of pandemic-fueled public and private sector interest in the life sciences industry.

The Metro Vancouver region has seen the rise and fall of many life sciences companies, and it has been rare to see larger life sciences firms that have endured. Typically, firms reach a certain size before being acquired by a larger firm, usually one based in the United States. This should not necessarily be seen as a negative. An acquisition may lead to capital being recycled in the region as former owners and employees start new firms. Also, for some companies, being acquired may be the most viable path to successfully scale up their innovations.

These ups and downs highlight the challenges of this unique industry, where the risks are pronounced and the returns (both in terms investment and benefits for human health) are great.

The region excels in early-stage research

Metro Vancouver's life sciences industry is powered by the quality of research being produced in the region's universities and research institutes. (It is

WORLD LEADING SCIENCE

In the Metro Vancouver region

Drug Delivery: Discovered in Vancouver, lipid nanoparticles are a ground-breaking innovation in drug delivery. A crucial component in mRNA therapeutics, lipid nanoparticle technology was used in the Pfizer-BioNTech and Moderna COVID-19 vaccines.

Antibody Discovery: combining its competencies in artificial intelligence and therapeutics, Vancouver is a world-leader in antibody discovery. Notably, AbCellera's antibody discovery platform led to the discovery of two antibodies that neutralize viral variants of COVID-19.

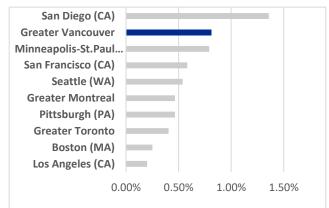
Precision Health: Metro Vancouver is an international leader in genomics, proteomics and bioinformatics for precision medicine. Through the use of cutting-edge genomics, firms and research institutions are creating novel strategies to prevent and diagnose cancers and other diseases, and uncovering new therapeutic targets.

difficult to imagine a successful life sciences industry where this would not be true.) In an earlier section, figure XX showed the depth and breadth of the regional life sciences innovation ecosystem, which serves as the foundation for the industry. This activity is especially important in the Metro Vancouver region because our leading areas of specialization, notably biotechnology and drug discovery, are concentrated at the beginning of the value chain (e.g. research and development, and clinical development). This contrasts with Montreal, for example, where the focus is on the later stages of the value chain (e.g. pharmaceuticals and contract manufacturing organizations).

The prominence of research and development in the region is apparent when comparing the number of researchers as a share of total employment in Metro Vancouver¹⁵ and nine other life sciences centres in North America. Figure XX shows that the region ranks second using this measure.

Another indicator of the importance of research activities is the number of patents issued to inventors by the U.S. Patent and Trademark Office. Figures XX and XX compares the number of patents granted in

Figure XX: Researchers as a Share of Total Employment



Source: Invest Vancouver, using data from fDi Benchmark, a service from the Financial Times of London

Figure XX: Patent Specialization in Life Sciences*
(Patents per 100,000 population since 2003)



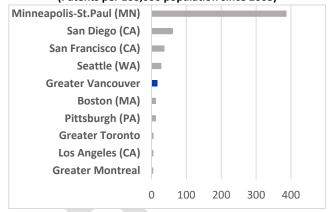
*Patents in biotechnology, bioinformatics, healthcare, and pharmaceuticals. Source: Invest Vancouver, using data from fDi Benchmark, a service from the Financial Times of London

selected North American life sciences centres since 2003, per 100,000 population.

¹⁵ As mentioned earlier, the data from fDi Benchmark is for 'Greater Vancouver', which includes Vancouver, Surrey, Burnaby, Richmond, Coquitlam, Langley, Delta, North Vancouver, Maple Ridge, New Westminster, and Port Coquitlam.

Figure XX reveals that the Metro Vancouver region ranks sixth in per capita patents related to biotechnology, bioinformatics, healthcare, and pharmaceuticals, while Figure XX shows that the region is fifth in patents per capita related to medical devices. In all of these fields, the region ranks highest in Canada in patents issued per capita. These comparisons all demonstrate that Metro Vancouver's life science industry is an attractive investment prospect for early-stage research, particularly when comparing with other Canadian life science hubs.

Figure XX: Patent Specialization in Medical Devices (Patents per 100,000 population since 2003)



Source: fDi Benchmark, a service from the Financial Times of London

Lack of wet lab space is a bottleneck constricting growth

We heard, repeatedly, that the most critical need in the region is wet lab space. The problem is not unique to the Metro Vancouver region, but the deficit of wet lab space has only recently begun to be addressed after decades in which viable spaces were put to other uses. For early-stage life science firms, buying and outfitting space is not financially feasible and for developers, there is insufficient incentive to build, maintain and lease these types of spaces. The general lack of lab space also affects mature firms and hurts the ability to develop a larger industry. International firms attracted by the regional excellence in research and development may split their investments, putting money into research in the region, and developing the results elsewhere.

Given the prominence of early-stage research in the region, we expected the commercialization of intellectual property (IP) developed in local universities to be raised as a prominent issue. And, some of our interviewees did recount frustrating experiences working with university transfer offices. They made a persuasive case for re-orienting the transfer offices' incentives to make the entire process less onerous, faster, and more responsive. (When asked, other interviewees rated the universities favorably in this area.) For now, however, the issue is moot. The lack of access to wet labs for early stage firms is the metaphorical kink in the garden hose in the industry. Until it is resolved, removing all IP-related barriers would not help the industry grow.

Many life science firms need specialized laboratory spaces (or wet labs). These spaces must be customized for the specialized and regulated nature of the work being undertaken. These requirements can include custom heating, ventilation and air conditioning requirements, electrical systems, plumbing, and equipment such as lab benches and fume hoods. Access to wet lab space outside of academic and research institutions is extremely challenging. As ventures spin out of research institutes and successful life sciences firms seek to scale up, they need a physical space to turn their research into a viable commercial success. Since these firms are pre-revenue, buying and outfitting spaces is often not a viable option. Additionally, the risky nature of the work means that the firm may need double the space or shutter the business entirely within a year.

For private developers, building and leasing lab space, especially to the earliest stage firms, is not an attractive proposition. As described by Colliers, from an ownership perspective, life sciences "isn't for everyone," citing high costs, high risks, but potentially high rewards. 16 The costs are clear: building office buildings in Vancouver (at \$245 - \$295 per square foot) is a far more attractive proposition than a pharmaceutical lab, which is over double the price (at \$605 - \$855 per square foot). ¹⁷ For landlords these prospective tenants are not attractive, their revenues are unproven, and they need more flexibility than other tenants. If landlords can look past the instability of the client, there can be a gain in terms of an additional 50% premium on rents.¹⁸

The critical shortage of wet lab space was consistently raised as an issue by interviewees and the planned construction of wet lab space will not be enough to meet demand. Adding to the availability of flexible wet lab space is the minimum required to keep up with other life science jurisdictions.

Developing into a globally prominent life sciences hub will require more (and more specialized) talent

The future of the life sciences industry in the region will be determined in large part by the supply of highly educated, skilled workers. Interviewees consistently identified talent development and attraction as a significant area of concern. Their firms need particular skillsets, many of which are in short supply in the region and in Canada. They expect the demand for talent will intensify as individual companies scale and the overall industry grows. Raising the global profile of the local industry would help firms recruiting talent from outside the region. The supply of workers was characterized as the potential rate-limiting step in the industry's growth.

Interviewees frequently mentioned the need for skill development, and expressed a desire for more workers with pharmaceutical expertise. This sentiment is corroborated by job posting activity in the region over the past two years. Figure XX shows the most frequently requested skillsets, with pharmaceuticals (appearing in 65% of job postings) at the top. Firms are struggling to meet this need.

Lightcast Q1 2022 Data Set

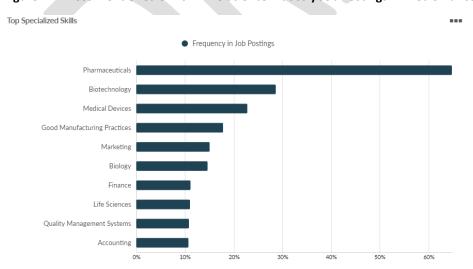


Figure XX: Most Mentioned Skills in Life Science Industry Job Postings in Metro Vancouver

¹⁶ https://www.cbre.ca/insights/articles/life-sciences-sector-gets-a-big-boost-from-covid-19

¹⁷ https://www.altusgroup.com/reports/canadian-cost-guide/

¹⁸ Ibid.

Skills related to manufacturing will also be in demand, as Canada moves to improve its ability to produce vaccines domestically, and AbCellera's GMP facility comes online. Yet, BioTalent Canada predicts severe labour shortages in biomanufacturing and processing, and suggests that only 25% of job openings will be filled between 2021 and 2029. Firms mentioned the lack of "seasoned, experienced" workers with pharmaceutical manufacturing experience in the region.

Interviewees also brought up recruiting from outside the region. They described needing to hire people with specific skills or backgrounds that are comparatively common in U.S. life sciences centres and much rarer in Canada. For example, we heard frequently about the importance of hiring people with experience navigating the regulatory requirements of the United States Food and Drug Administration (FDA) in order to access the enormous U.S. market. Some interviewees reported that their firms have been using "work from anywhere" remote work policies to make sure they have the right people in place.

Convincing people to relocate was identified as a challenge. The cost of housing plays a role, and it is particularly hard to recruit workers with ten to fifteen years of experience who have established themselves elsewhere. Interviewees indicated a willingness to offer competitive salaries but explained that the larger issue is reputational in nature. Due to the nature of the work and the risks involved, prospective employees are reluctant to relocate unless they are confident there will be suitable employment opportunities in the future. The industry needs to continue to expand and to be promoted internationally so that Metro Vancouver earns a higher profile as a leading life sciences centre.

Life Sciences BC will be releasing (fall of 2023) a labour market analysis for the life sciences industry that will capture the needs of the industry and identify the jobs and skills sought by employers. The report will provide an up-to-date workforce profile, including five-year labour demand and supply forecasts, a skills training assessment, gender-based analysis plus data, and recommendations for sector-led strategies.

Also on the training side, UBC's School of Biomedical Engineering is partnering with the Canadian Alliance for Skills and Training in Life Sciences (CASTL) to deliver a 17-week intensive Introduction to Biopharmaceutical Manufacturing. In addition to university offerings, CASTL also delivers online learning options on all aspects of biopharmaceutical manufacturing.

Training is one piece of the puzzle. Interviewees stressed that training and recruitment are both necessary, since there is no substitute for industry experience.

The government of Quebec is perceived as doing a good job supporting the life sciences industry

The Government of Quebec's support for the life sciences industry was brought up in various contexts across multiple interviews. We heard praise for their promotional efforts at the BIO International Convention (a leading biotechnology and pharma industry event); their "serious" life sciences policy and its coordinated delivery; their spending on industry development; and their commitment of additional capital to support investment attraction. In some cases, interviewees also used Quebec as an example to illustrate a perceived gap in our region. They told us that "[Quebec] has someone to play a coordination role and we need [someone to act as] glue for the sector"; "Ontario and Quebec are far ahead in

¹⁹ Close-up on the bio-economy, BioTalent Canada (2021), https://www.biotalent.ca/wp-content/uploads/BioTalent-Canada-LMI-National-Report-13OCT2021.pdf

support of start-ups". Interviewees noted the strong engagement and coordination of the Government of Quebec, contrasting it with a lack of similar engagement by the BC government.

The Quebec Life Sciences Strategy, 2017-2027, was launched with a five-year, \$205 million commitment and the goal of making the province a top five life science hub in North America by 2027. ²⁰ The strategy increased investment in research and innovation; fostered creation and growth of new firms; supported private investment projects; promoted the life sciences industry; and integrated innovation into the health network. Based on consultations and working groups, the strategy was renewed for 2022-2025 with an additional \$110 million in funds. ²¹ The current priorities are addressing health challenges through innovation; developing human capital and attracting talent; strengthening infrastructure support; attracting investment projects; and supporting commercialization of innovations.

Stimulating private investment in the entire sciences value chain is a major goal of the strategy and the province is investing heavily in making it a reality. During the 2022-2025 period, life science companies will be able to access financial support estimated at \$569 million, including \$375 million financed by contributions from the Fonds du développement économique du Québec and \$70 million for the Impulsion PME and BioMed Propulsion programs. A further \$200 million will be available through Investissement Québec (Invest Quebec, IQ), which has a dedicated life sciences team. IQ provides development (equity) capital to develop strategic partnerships and launch projects in Quebec; loans and loan guarantees to finance refundable tax credits; other loans, interest-free loans and loan-guarantees; and financial assistance for workforce development.²²

Any inter-provincial comparison should take into account Quebec's considerable size advantage: relative to BC it is 1.63 times larger by population, and 1.45 times larger by provincial GDP.²³ Size differences notwithstanding, the impressive characteristic of the Quebec life sciences effort is its overall coordination.

The implications of macroeconomic uncertainty are top of mind

The prospects for investment activity over the next several years came up in almost all of our interviews. As discussed previously, global macroeconomic conditions and the prospect of a recession translated into a steep decline in investment activity in the regional life sciences industry in 2022. The memory of some particularly lean years when it was exceptionally difficult to raise financial capital has many industry participants taking a careful look at their budgets and growth plans.

Investors, financial institutions, and other capital providers have signalled clearly that uncertain times will translate into tighter access to financial capital. Yet, the sky is not falling. Compared to 2008, when the financial crisis made it seem as if almost no one had access to financial capital, 2022 was less about scarcity and more an overabundance of caution, as investors waited to see how the contest between rising inflation and interest rates would play out. Venture capitalists still have "dry powder" (i.e. cash)

²⁰ The original 2017-2027 plan is no longer available on the Quebec government website. A summary can be found here: https://www.thecoolesthotspot.com/news/quebecs-sciences-

 $[\]frac{strategy/\#:\sim:text=2017\%E2\%80\%932027\%20Qu\%C3\%A9bec\%20Life\%20Sciences\%20Strategy\%201\%20Ambitious\%20goals,...\%}{204\%20Growth\%20in\%20two\%20cross-cutting\%20niches\%20}$

²¹ For the 2022-2025 Quebec Life Sciences Strategy, see: https://cdn-contenu.quebec.ca/cdn-

 $[\]underline{contenu/adm/min/economie/publications-adm/politique/PO_strategie_sciences_vie_2022-2025_MEI_EN.pdf?1654528370$

²² https://www.investquebec.com/international/en/industries/life-sciences/customized-financial-products.html

²³ Statistics Canada. Table 17-10-0009-01 Population estimates, quarterly and Table 36-10-0402-02 Gross domestic product (GDP) at basic prices, by industry, provinces and territories, growth rates (x 1,000,000)

available, and the most promising firms with the most compelling business cases will still be able to find investors.

For life sciences companies, the continued macroeconomic uncertainty is going to mean ensuring costs are contained, milestones are clear, and capital is raised cautiously.

Investments in infrastructure and the development of strategies to strengthen the life sciences industry are vital components to keep the industry stable in uncertain economic times. To further build on these positive actions, it is important to undertake steps to enable further growth. Direct discussions with CEOs, founders and senior executives of firms reveal the competitive advantages of the Metro Vancouver region, but also the areas for improvements to allow the firms to thrive as well as to facilitate additional investments. The next section of the report discusses actions to support further expansion of the life sciences industry in the region.

Recommendations to Advance Metro Vancouver's Life Sciences Industry

Metro Vancouver has a vibrant, growing life sciences industry underpinned by the region's extensive and expanding innovation ecosystem and concentration of highly skilled people. There are researchers, labs, and firms making globally significant contributions in their fields. The industry's long-term trajectory of employment growth is well established and could be accelerated further with coordinated action to build industry capacity.

The overarching goal should be to elevate the regional industry to the point that it is regarded as a globally significant life sciences hub with a critical mass of skilled workers and firms. This self-reinforcing pool of workers and firms, each drawn to and anchored in a specific geographic area by the presence of the other, is the distinguishing feature of world-leading life sciences centres. The framework for taking the industry to the next level can be borrowed from Quebec, which has a focused, coordinated effort to advance the life sciences industry across multiple entities.

The life sciences industry in Quebec is supported (among others) by BIOQuébec, the provincial industry association; Investissement Québec, which leads international investment attraction for the province; Montreal International, an economic development agency; and InVivo, a non-profit economic development agency focused exclusively on the life sciences and health technologies. As an example of the formal coordination among the industry supporters, "The Coolest Hotspot" campaign was established by 15 partners as an umbrella initiative to represent the ecosystem and promote investment attraction in the partner regions (Montreal, Quebec City and Sherbrooke). The combination of the Quebec Life Sciences Strategy and the coordinated efforts such as "Coolest Hotspot" demonstrate a seriousness of purpose and commitment to the industry that is producing results and could be emulated in BC.

The life sciences industry would benefit from coordinated action on specific challenges related to talent, cost control, and lab space. Specifically, elected leaders, government officials and other decision makers should consider:

Actively promoting talent attraction for the life sciences industry. The industry relies on a pool
of highly trained, specialized workers. Increasing the size of the talent pool will be critical as the
overall industry grows, and additional skill sets will be needed as more firms scale up. There
needs to be a two-pronged effort to add people to the talent pool through training and

attraction. Talent attraction efforts should incorporate elements of the Montreal International strategy.

- Looking for opportunities to help firms control costs through economies of scale. Cost containment is always an issue, particularly for start-ups, and looms larger when the economy (and access to investment dollars) slows. BIOQuébec offers an example of how to help firms contain costs and maintain the region's cost-competitiveness.
- Building public sector-supported wet lab space for fledging firms. There is an acute shortage of wet lab space, especially for young firms emerging from the region's universities and accelerators. The market will not provide a solution since developers can make more money with less risk with alternative approaches. A lower (and still positive) return may be acceptable to the government, because unlike private developers, it benefits from the long-term gains from greater employment and tax revenue generation. The government could copy models from Nova Scotia, Montreal, and Toronto to unlock growth in the life sciences industry.

Actively Promote Talent Attraction for the Life Sciences Industry

Life sciences firms depend on talent. For the industry to thrive in the region, new workers will need to be trained in sufficient numbers, and local firms will need to recruit senior level people with highly-specialized skillsets from outside the region. The industry association, Life Sciences BC, has initiated work on the talent development part of the equation through the labour market analysis project they are leading (report due fall of 2023). The study will look at the demand for specific occupations, skills needed and where they can be acquired, as well as the number of prospective new workers graduating from local post-secondary institutions. Our focus here is specifically on the talent attraction piece.

Two factors outside a firm's control profoundly affect their ability to recruit specialized and senior talent from outside the country: lifestyle and industry perception. The Metro Vancouver region is well positioned in terms of lifestyle, particularly when it comes to recruiting Europeans, who may find Canada a better cultural fit than the U.S. The region's high cost of living is less of an issue, since these positions are well compensated. The industry perception issue boils down to whether the region is perceived as a viable life sciences hub. Given the risky nature of the industry, people are understandably reluctant to relocate unless they believe there will be many other opportunities available if things don't work out.

AbCellera's antibody therapy production facility, now in development, illustrates the push-pull nature of the challenge. The company needs to attract specialized talent to the facility, since its operation requires people with skills that are not otherwise in demand in the region. Yet, as the region continues to add such facilities, they bolster the region's attractiveness to people with pharmaceutical experience.

While the regional industry is much smaller than some of the world-leading U.S. hubs, it is growing rapidly and would benefit from a more vigorous, Quebec-style approach to talent attraction. Montreal International has a talent attraction department that supports the life sciences industry with a variety of

programs and initiatives. Jointly with companies, they conduct foreign talent recruitment missions, which are patterned after the more familiar export promotion and investment attraction missions. They run multiple talent recruitment websites. They have standard job posting boards where companies solicit workers, as well as the "I choose Montreal" and "Talent Montreal" websites which specifically target foreign audiences and actively solicit resumes from qualified people who would be willing to

Talent Attraction Strategies

- ✓ Dedicated talent attraction staff
- ✓ Recruitment missions
- ✓ Solicit qualified professionals prepared to move to the region
- ✓ Retention of international students

relocate to Montreal. They also try to match international students in relevant programs at Quebec universities with local life sciences firms, to the mutual benefit of both. And they have an established network of HR firms to help firms looking to get established in Montreal. These efforts are possible because Montreal International has the people, funding and strong strategic support from the Province of Quebec.

Look for opportunities to help firms control costs through economies of scale

Controlling costs and stretching dollars can be a matter of survival for early-stage, pre-revenue firms at the best of times. The life sciences industry is expensive and capital intensive. Developing novel medical treatments and devices and gaining regulatory approval is a lengthy, expensive process. The industry relies on highly educated, well paid people. Land prices are high in Metro Vancouver, and the physical spaces such as wet labs required for life sciences firms are costly to build and outfit. When investment capital becomes scarce because macroeconomic conditions sour or investment trends shift, finding ways to cut expenses takes on an extra degree of urgency.

The region would benefit from finding ways to use economies of scale (through pooled buying power) to help individual firms lower their costs. The potential extends beyond the need for industry-specific equipment and services and could include routine expenditures for non-core services, such as payroll and accounting. BIOQuébec, the industry association representing the life sciences industry in Quebec, is a Canadian example using pooled purchasing power to improve the value proposition local firms. Their program covers **operations** (laboratory equipment, biostatistical analysis services, pharmacokinetic studies in animals, and postings on the BioTalent Canada job board); **administration** (group insurance, pharmaceutical training, payroll services, travel); **business development** (memberships with Innovative Medicines Canada, MassBio, and Pharmabio Development activities and events); and **information and media** (including press release distribution through Business Wire and communication, marketing and management consulting services).

Build Public Sector-Supported Wet Labs for Early-Stage Firms

The lack of wet lab space in the region, particularly for the earliest stage firms that have outgrown a university lab or accelerator, is a market failure.²⁴ The private sector lacks sufficient financial incentive to provide these facilities. Labs are expensive to build and typically require at least some customization. Early-stage life sciences firms are not exactly desirable tenants. Landlords prefer stability and long-term

²⁴ A market failure is an inefficient allocation of resources in the free market.

leases, not pre-revenue firms that may fold or outgrow their space depending on whether the science works out. Given the strong demand for industrial land (and persistent low vacancy rates), developers can make a larger return with less hassle by redeveloping light industrial with multistory light industrial and office space. There is room for government intervention to provide these much needed spaces, since the public sector could accept less-than-the-maximum-possible profit, particularly given the added benefits of anchoring valuable intellectual property and well paid jobs here.

Beyond the job creation spurred by removing a serious barrier to growth, an investment in infrastructure such as wet labs could attract additional private and public dollars. The income stream produced by renting the labs could be used to cover ongoing operation costs and contribute towards the long-term repayment of initial capital. The impact would be long-lasting since the lab space could serve multiple vintages of firms. And the government would retain the option of recouping the initial outlay by selling the asset.

There are many ways to structure governmental involvement in wet labs. Here are examples from Montreal, Halifax, and Toronto.

Innovation Spaces and Centres with Wet Labs

adMare BioInnovation's (adMare) Montreal Innovation Centre currently houses 27 companies, ranging from emerging start-ups through to industry leading pharmaceutical/biotechnology companies, alongside contract research organizations and specialized commercialization support service organizations. Construction of the Montreal Innovation Centre was supported by the Government of Quebec, the City of Montreal, and Canada Economic Development for Quebec Regions (CED).



adMare's Montreal Innovation Centre

adMare is a non-profit organization that receives support from various levels of government, as well

as revenue from its activities. The organization provides infrastructure, programming, and access to additional support and resources, to enable domestic companies the opportunity to grow and maintain their operations in Canada. The innovation centre has turn-key, state-of-the art dedicated laboratories designed to support chemistry, biology, and preclinical animal studies, as well as shared specialized drug development facilities, equipment, and services to support analytical chemistry and in vivo pharmacology. adMare is currently exploring creating a similar innovation centre in Vancouver.

Invest Nova Scotia's The Labs at Innovacorp are a state-of-the-art life sciences facility located at Halifax's knowledge hub. The facility is a part of the newly created provincial crown corporation that

combines two provincial agencies, Nova Scotia Business Inc. (NSBI) and Innovacorp, into one entity. For clarity, this section describes the activities of Innovacorp and will refer to it by that name, which is still in use at the time of writing.

Innovacorp is focused on early-stage investments and makes equity investments directly in start-ups and in privately managed funds. Innovacorp also runs several innovation spaces for young firms including The Labs at Innovacorp, which offers wet and dry lab space, IT support, and most crucially of all, *flexible leasing arrangements* that allow firms to increase or decrease space without penalty. The labs are currently home to 14 firms. As a provincial agency (and now crown



Invest Nova Scotia's The Labs at Innovacorp

corporation) Innovacorp receives its funding from the Province of Nova Scotia. In addition, as Innovacorp makes equity investments in early-stage companies, they receive some revenues when divesting from companies. With a current portfolio of over 80 companies and some significant returns (one deal provided a 35x return on investment), this model provides early-stage companies with physical supports, as well as addressing the lack of early-stage capital in the ecosystem.²⁵

MaRS Discovery District in Toronto is a 1.5-million-square-foot innovation hub in downtown Toronto serving a diverse community of more than 120 tenants, including research labs and global tech companies. A registered charitable organization, MaRS is supported by the governments of Ontario and Canada (35% and 22.5% of total funding in the 2021/22 fiscal year, respectively). The remaining funding comes from grants, donations, sponsorship revenue, and other fees. MaRS Health supports nearly 300 high potential health start-ups that span the full industry spectrum, from health monitoring and disease treatment to information storage and sharing. Located within the Discovery District is JLABS, a life sciences incubator, hosting up to 50 companies across the life sciences spectrum, including therapeutics, medical devices, and consumer health solutions. JLABS is the first Johnson & Johnson Innovation Lab to open outside of the U.S.

²⁵ https://innovacorp.ca/news/innovacorp-wins-venture-capital-deal-year-award-cvca

²⁶ https://www.marsdd.com/wp-content/uploads/2021/07/MaRS Discovery District Audited Financials March 2021.pdf

In a risky and investment-intensive industry like life sciences, government investment is needed to provide essential innovation spaces that are crowded out of the market by alternatives that offer private

developers greater short-term profits. Other jurisdictions in Canada have successfully set up models to support wet lab facilities to serve multiple generations of life science firms.

Talent attraction, industry savings and physical infrastructure are common life science industry challenges that could be addressed in the Metro Vancouver region by adopting approaches from other jurisdictions. Overcoming these common challenges will elevate the region's life science industry to greater global prominence, bring increased positive economic benefits to the region, and advance human health the world over.



MaRS Discovery District in Toronto

Conclusion

The Metro Vancouver region has a flourishing life sciences industry powered by a concentration of highly skilled people and backed by an extensive and expanding innovation ecosystem. Our investigation into the life sciences industry sought to answer two fundamental questions to guide the work of Invest Vancouver and key decision makers in the ecosystem.

- 1. Why do firms in the life sciences industry invest in Metro Vancouver? Investing in the life sciences industry in Metro Vancouver is an attractive prospect due to the enviable combination of research competencies, talent, supporting institutions, and emerging and established firms in the region. With its research competencies, Vancouver would be high on any investor's list who is seeking to open a life sciences research and development facility, particularly one in Canada.
- 2. What actions would unlock additional growth and investment in the life sciences industry? Unlocking additional growth and investment is possible with focused, coordinated support from public and private stakeholders. Elevating the industry's growth trajectory will require matching the supply of talent to the needs of a rapidly expanding industry; ensuring early-stage firms have access to wet labs; and keeping the cost of doing business in the region competitive. Overcoming these common challenges will elevate the region's life science industry, helping it rise to become a specialized globally prominent hub on the world stage, bringing with it increased positive economic benefits to the region, and advancing human health the world over.

Appendix: NAICS Codes Used to Track the Life Sciences Industry

The North American Industry Classification System (NAICS) codes the government uses to collect and organize firm-level statistical data do not include the life sciences industry as a distinct category at any level of the heirarchy.²⁷ The export-oriented parts of the life sciences industry are scattered across the manufacturing; professional, scientific, and technical services; and information *sectors*.

The most specific 6-digit national industries that capture export-oriented life sciences activity are:

- Pharmaceuticals and medicine manufacturing (325410)
- Measuring, medical and controlling devices (334512)
- Medical equipment and supplies (339110)
- Research and development in the physical, engineering and life sciences (541710)

Measuring, medical and controlling devices (339110) and research and development in the physical, engineering and life sciences (541710) each encompass activities of firms unrelated to the life sciences industry, but these are the narrowest possible categories. (In the US, biotechnology research and development is tracked separately as 541714.) Some digital health firms are grouped in computing and software-related NAICS categories, and cannot be isolated from non-medical software firms. Since we are interested in the underlying trends, and not an accounting of all possible life sciences-related activity, these limitations are not a concern. Because this report focuses on firms producing exportable goods and services, we do not include population-serving components, such as medical laboratories.²⁸

Data at the *national industry* level is sometimes supressed by Statistics Canada for privacy reasons, and is not always available quarterly or for the Metro Vancouver region. Invest Vancouver undertook a project and worked with a consultant to fill in missing values using statistical techniques to extrapolate from data sets that are reported less frequently and with less granularity in geography (i.e. federal versus provincial) and industry coverage (i.e. transportation and warehousing vs. scheduled freight air transportation).

²⁷ The NAICS hierarchy, from broadest to most specific, is *sector* (2-digit code), *subsector* (3-digit code), *industry group* (4-digit code), *NAICS industry* (5-digit code), and *national industry* (6-digit code). For example, the *sector* (2-digit NAICS code) "retail trade" narrows to multiple *national industries* (6-digit NAICS codes), such as "motorcycle dealers", and "beer, wine and liquor dealers".

²⁸ Firms in medical and diagnostic laboratories (621510) provide analytic or diagnostic services to the medical profession or to patients on referral from a health practitioner.

To: Invest Vancouver Management Board

From: Katie Fitzmaurice, Vice President, Collaboration, Invest Vancouver

Date: January 17, 2023 Meeting Date: February 10, 2023

Subject: 2023 CanExport Community Investment Contribution Award

RECOMMENDATION

That the MVRD Board receive for information the report dated January 17, 2023 titled "2023 CanExport Community Investment Contribution Award".

EXECUTIVE SUMMARY

Global Affairs Canada, through the 2023 CanExport Community Investment program, awarded Invest Vancouver approval for up to \$244,735 in match funding. The program is dedicated to supporting projects that serve to attract, retain, and expand foreign direct investment and provides reimbursement of up to 50 percent of eligible expenses. Projects must be completed between January 1 and December 31, 2023.

Invest Vancouver proactively aligned CanExport Community Investment project proposals with planned work activities and budget for 2023. In order to implement projects effectively, project management documents will be generated in order to sequence work, manage budget and procurement processes, and identify and collaborate with project partners.

PURPOSE

To provide the Invest Vancouver Management Board and MVRD Board information related to the Global Affairs Canada 2023 CanExport Community Investment Contribution Award.

BACKGROUND

Invest Vancouver applied to the Global Affairs Canada CanExport Community Investment program for funding to support areas of work it plans to focus on for the Metro Vancouver region in 2023. The CanExport Community Investment program provides funding to assist community organizations in attracting, retaining and expanding foreign direct investment (FDI). Eligible programming must align with specific criteria related to FDI objectives. This report summarizes the process, the Invest Vancouver grant award, and outlines next steps.

PROCESS

On October 18, 2022, Invest Vancouver invited Invest Vancouver Advisory Committee (IVAC) member jurisdictions to share and discuss project proposals occurring across the region and identify opportunities for collaboration. Invest Vancouver then aligned the CanExport Community Investment project proposals with planned work activities for the 2023 year, ensuring requested contributions could be matched by allocated funds to support proposed projects.

Following the October 20 discussion with IVAC, some member jurisdictions also submitted their own applications through the CanExport Community Investment program.

CANEXPORT COMMUNITY INVESTMENT CONTRIBUTION AWARD

The CanExport Community Investment program awarded Invest Vancouver approval for up to \$244,735 of eligible expenses for 2023, a \$26,490 increase in funding compared to funding provided in 2022. Of that total, the highest amount was given for Foreign Direct Investment Tool and Material Development (\$111,250). Additionally, \$102,025 is dedicated to FDI Strategic Planning and Analysis, and \$31,460.00 is dedicated to FDI Lead Generation and Meetings with Potential Investors. See Table 1 below for a summary of approved CanExport Community Investment initiatives.

Table 1: Summary of the 2023 CanExport Community Investment Award by Category

Category	Project	Award
FDI Strategic Planning and	Key Competitor Analysis	\$102,025
Analysis	Tech talent guide	
FDI Tool and Material Development	 Marketing materials (e.g., videos, promotional assets) Website resources and assets (e.g., dynamic map, data dashboard) Promotional videos 	\$111,250
FDI Lead Generation and Meetings with Potential Investors	Outbound lead generation events	\$31,460

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Global Affairs Canada CanExport Community Investment award program provides non-repayable contributions for a one-year period with reimbursement of up to 50 percent. For January 1 through to December 31, 2023, Invest Vancouver has been approved to receive up to \$244,735 of eligible expenses. The match funding required by Invest Vancouver to advance eligible projects can be accommodated within the annual financial plan. The CanExport Community Investment program enables Invest Vancouver to complete work for the Metro Vancouver region that otherwise may not have been resourced within the approved budget or completed by any particular member jurisdiction.

CONCLUSION

Global Affairs Canada, through the 2023 CanExport Community Investment program, awarded Invest Vancouver approval for up to \$244,735 in match funding. Projects put forward as part of the CanExport Community Investment program were developed in line with the Invest Vancouver's priorities for the 2023 year. This access to funding means these important priorities can be amplified for the benefit of the region.



To: MVRD Board of Directors

From: Heather McNell, Deputy Chief Administrative Officer, Policy and Planning

Mark Seinen, Senior Planner, Regional Planning and Housing Services

Date: January 30, 2023 Meeting Date: February 24, 2023

Subject: TransLink's Application for Federal Gas Tax Funding for 2023 Fleet Replacement –

Part B for 84 Conventional Renewable Natural Gas Buses

RECOMMENDATION

That the MVRD Board approve \$75.24 million in funding from the Greater Vancouver Regional Fund for TransLink's purchase of 84 conventional Renewable Natural Gas buses proposed in its 2023 application for Federal Gas Tax Funding as attached to the report dated January 30, 2023, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement – Part B".

EXECUTIVE SUMMARY

At its October 28, 2022 meeting, the MVRD Board postponed the consideration of a portion of TransLink's application for a Renewable Natural Gas bus replacement project under the Greater Vancouver Regional Fund program. This matter was postponed to give TransLink an opportunity to provide greater clarity on how this application fits into their Low Carbon Fleet Strategy. This project, which proposes the purchase of 84 conventional Renewable Natural Gas buses ("RNG Bus Project") is now again before the MVRD Board for consideration. Additional information has been provided by TransLink to the Board regarding their Climate Action Plan and RNG supply.

PURPOSE

This report presents for MVRD Board consideration TransLink's postponed application for funding from the Greater Vancouver Regional Fund (GVRF) under Metro Vancouver's *Federal Gas Tax Fund Expenditures Policy* (GVRF Policy) (Reference 1).

BACKGROUND

At its October 28, 2022 meeting, the MVRD Board considered the attached report titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement" (Attachment 1). At that meeting, the MVRD Board separated TransLink's two proposed projects in that application into two motions. Part a) was approved for \$400.6 million in funding for 188 Conventional Trolley Bus Replacements. With respect to part b) of the application (i.e. the purchase of 84 conventional Renewable Natural Gas buses), some concern was expressed by Board directors about the use of Renewable Natural Gas (RNG) and the long-term vision for overall electrification of the transit fleet. The MVRD Board resolved to postpone consideration of the portion of the GVRF application pertaining to the RNG Bus Project in the amount of \$75.24 million pending further information and clarification regarding TransLink's Low Carbon Fleet Strategy.

This report provides additional information to inform the MVRD Board's reconsideration of the RNG Bus Project.

Greater Vancouver Regional Fund

The MVRD Board has approval authority over TransLink requests for GVRF funding. The Union of British Columbia Municipalities holds the federal gas tax funds and transfers the funds to TransLink upon formal notification by the MVRD Board of its approval of applications per the GVRF Policy.

Project eligibility for GVRF funding is determined by the *Administrative Agreement on the Federal Gas Tax Fund in British Columbia* (Reference 2). The Agreement sets out the following:

- The GVRF pools 95 percent of MVRD and member jurisdictions' per-capita allocation of federal gas tax funds to support regional transportation projects proposed for funding by TransLink.
- The remaining 5 percent of federal gas tax funds is allocated among local governments in Metro Vancouver through the Community Works Fund.
- Requests for new projects, amendments to the scope of prior approved projects, and use of approved but unspent funds for other projects must receive approval from the MVRD Board.

Additional background about the Greater Vancouver Regional Fund is contained in Attachment 1.

ADDITIONAL INFORMATION FROM TRANSLINK

Further information from TransLink has been provided in a letter (Attachment 2). The letter includes:

- Confirmation that the Mayors' Council re-affirmed its support for the RNG Bus Project at its January 26, 2023 meeting;
- An overview TransLink's long-term plans for fleet replacement (with battery-electric and RNG) and investment in charging infrastructure;
- An assessment of factors that limit the speed of transition to battery-electric buses; and
- An evaluation of risks (i.e. to bus maintenance, service reliability, air quality and GHG emissions) should the funding for the RNG Bus Project not be approved.

In addition to TransLink's work, Metro Vancouver staff have been engaged in discussions with FortisBC, the Province, and other key stakeholders regarding the supply and use of RNG in the region. These discussions are informing the *Climate 2050 Energy Roadmap*, which lays out the goals, targets, and actions for increasing the supply and use of clean, renewable, and resilient energy to meet regional GHG reduction targets. It also includes background on opportunities and barriers of different types of renewable energy, including renewable natural gas. It is anticipated that staff will be seeking endorsement of the *Climate 2050 Energy Roadmap* by the MVRD Board in Q2 of 2023.

ALTERNATIVES

- 1. That the MVRD Board approve \$75.24 million in funding from the Greater Vancouver Regional Fund for TransLink's purchase of 84 conventional Renewable Natural Gas buses proposed in its 2023 application for Federal Gas Tax Funding as attached to the report dated January 30, 2023, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement Part B".
- 2. That the MVRD Board receive for information the report dated January 30, 2023, titled "TransLink's Application for Federal Gas Tax Funding for 2023 Fleet Replacement Part B" and provide staff with alternative direction.

FINANCIAL IMPLICATIONS

If the MVRD Board approves Alternative 1, the Union of British Columbia Municipalities will be notified of the Board's decision to approve \$75.24 million in GVRF funding. This would leave approximately \$11.1 million in unallocated GVRF funds. Given that the Canada Community-Building Fund is ongoing, additional funds will be contributed to the GVRF in 2023, although that amount is currently unknown.

If the MVRD Board approves Alternative 2, the Metro Vancouver staff report and recommendations, along with the TransLink application, would be forwarded to the Mayors' Council on Regional Transportation for information. The requested \$75.24 million would remain in the GVRF fund and would be available to support future applications for funding from the GVRF.

CONCLUSION

At its October 28, 2022 meeting, the MVRD Board considered an application by TransLink for Federal Gas Tax Funding. At that meeting, the MVRD Board approved \$400.6 million in funding for 188 Conventional Trolley Bus Replacements, but deferred the portion of the application proposing the purchase of 84 conventional Renewable Natural Gas buses in the amount of \$75.24 million over concerns expressed about the use of Renewable Natural Gas as a fuel for the replacement buses, and TransLink's long-term vision for overall electrification of the transit fleet. The MVRD Board resolved to postpone consideration of the portion of the GVRF application pertaining to the RNG Bus Project. TransLink staff have provided additional information and the MVRD Board is being asked to reconsider the proposed RNG Bus Project. Staff are recommending Alternative 1, to approve \$75.24 million in GVRF funding for the purchase of 84 conventional Renewable Natural Gas buses.

Attachments

- 1. MVRD Board report dated October 13, 2022, titled "<u>TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement</u>"
- 2. Letter from TransLink dated January 26, 2023, titled "Additional Information Regarding TransLink 2023 Application for Community Building Funding from the Greater Vancouver Regional Fund"

References

- 1. Federal Gas Tax Fund Expenditures Policy (GVRF Policy)
- 2. Administrative Agreement on the Federal Gas Tax Fund in British Columbia

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ATTACHMENT 1



To: MVRD Board of Directors

From: Finance Committee

Date: October 13, 2022 Meeting Date: October 28, 2022

Subject: TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement

FINANCE COMMITTEE RECOMMENDATION

That the MVRD Board approve \$400.6 million in funding from the Greater Vancouver Regional Fund for the transit projects proposed by TransLink in its Application for Federal Gas Tax Funding as attached to the report dated October 5, 2022, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement" for 188 Conventional Trolley Bus Replacements.

At its October 13, 2022 meeting, the Finance Committee considered the attached report titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement", dated October 5, 2022.

The Finance Committee considered the following motion:

That the MVRD Board approve \$475.84 million in funding from the Greater Vancouver Regional Fund for the following transit projects proposed by TransLink in its Application for Federal Gas Tax Funding as attached to the report dated October 5, 2022, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement":

- a) 188 Conventional Trolley Bus Replacements and
- b) 84 Conventional Renewable Natural Gas Bus Replacements.

Subsection a) of the motion was carried and subsection b) of the motion was referred back to staff for additional information. The recommendation included above reflects subsection a) of the original recommendation, and the administrative adjustment to \$400.6 million for the 188 conventional trolley buses that a) includes.

TransLink's Response to the Finance Committee's Request for Additional Information

At the October 13, 2022 Finance Committee meeting, concern was expressed about: 1) the source of TransLink's Renewable Natural Gas (RNG); 2) the timing for the full electrification of the transit fleet; and 3) the expected emission reductions associated with the proposed replacement of diesel buses with RNG buses. TransLink has since provided the following information.

1. Source of Renewable Natural Gas

TransLink purchases RNG from FortisBC Energy Inc., which contracts production from: Seabreeze Farm Ltd (Delta, BC), Fraser Valley Biogas (Abbotsford, BC), Lulu Island Wastewater Treatment Plant (Metro Vancouver), Surrey Biofuel Facility (Surrey, BC), Stormfisher (London, ON), Glenmore Landfill (Kelowna, BC) and Salmon Arm Landfill (Salmon Arm, BC).

Under the BC Low Carbon Fuel Standard, suppliers of RNG into BC are registered with the BC Ministry of Energy, Mines and Low Carbon Innovation's Low Carbon Fuels Branch. The carbon intensity of RNG sold in BC (i.e., those purchased by TransLink) is verified by the BC Ministry of Energy, Mines and Low Carbon Innovation's Low Carbon Fuels Branch. TransLink's current RNG contract with FortisBC (extending to 2029) specifies increasing volumes to source 100% RNG for the fleet replacement associated with this application, and the entire CNG fleet by 2024. TransLink does not foresee any issues with securing a contract for RNG after 2029.

2. Timing for the full electrification of the transit fleet

Currently, 17% of TransLink's bus fleet is battery-electric or electric trolley, with no tailpipe emissions. TransLink's Low Carbon Strategy commits that by 2026, 37% of the bus fleet will be electric, supported by the Port Coquitlam Transit Centre (In-Route Charging for 136 battery electric buses) and the Marpole Transit Centre (ready for 350 battery-electric buses). The limiting factor in terms of the pace of change is the infrastructure to support the battery- electric or electric trolley buses. By 2030, 39% of the bus fleet will be electric; by 2032, 44% will be electric. By 2040, 100% of the bus fleet will be zero emission, alongside fully electric SkyTrain and electric-trolley systems.

Electrification alone will not get TransLink to the region's critical 45% greenhouse gas reduction target by 2030. Together, fleet electrification and RNG will achieve a 37% reduction in TransLink's GHG emissions by 2030.

To reach the target, TransLink will need additional funding to:

- redevelop the Burnaby Transit Center for electrification / zero-emissions;
- implement a zero-emissions next generation SeaBus;
- test and phase in zero-emissions HandyDart and/or Community Shuttles when the technology becomes feasible;
- test and evaluate hydrogen fuel cell electric buses; and
- testing and evaluate low carbon intensity renewable diesel fuels.
- 3. The expected emission reductions associated with the RNG buses in the 2023 application. The fleet replacement would result in a 8,980t/yr reduction in annual GHG emissions, which represents a 6% reduction across all fleet and facilities, or an 8% reduction in revenue fleet emissions, against the 2010 baseline. Common air pollutants would also be reduced by 18.4 t/yr reduction in NOx and 0.1t/yr reduction in Particulate Matter.

If this information satisfactorily answers the Board's questions, the Board could opt to pass the recommendations as presented in the report titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement", dated October 5, 2022.

This matter is now before the Board for its consideration.

Attachment

"TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement", dated October 5, 2022

Attachment



To: Finance Committee

From: Mark Seinen, Senior Planner, Regional Planning and Housing Services

Date: October 5, 2022 Meeting Date: October 13, 2022

Subject: TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement

RECOMMENDATION

That the MVRD Board approve \$475.84 million in funding from the Greater Vancouver Regional Fund for the following transit projects proposed by TransLink in its Application for Federal Gas Tax Funding as attached to the report dated October 5, 2022, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement":

- a) 188 Conventional Trolley Bus Replacements and
- b) 84 Conventional Renewable Natural Gas Bus Replacements.

EXECUTIVE SUMMARY

TransLink is requesting the approval of two projects for Federal Gas Tax funding from the Greater Vancouver Regional Fund (GVRF) totaling \$475.84 million. The majority of the funding (i.e. \$414.6 million) would be used to replace 188 conventional trolley buses with new trolley buses capable of In-Motion Charging, with the remaining \$77.8 million being used to procure 84 conventional Renewable Natural Gas buses to replace existing diesel-fuelled buses.

This application is broadly consistent with the MVRD Board's policies on regional growth management, air quality, and climate protection, along with the Board's interest in economic prosperity. While this request is large, requiring 98 percent of remaining available funding, the GVRF has a growing balance thanks to one-time doubling of Canada Community-Building Funds in both the 2019 and 2021 federal budgets. This application is also consistent with TransLink's commitment that, going forward, it will not seek GVRF funding for vehicle types other than electric or Renewable Natural Gas.

PURPOSE

To present for MVRD Board consideration TransLink's application for funding from the GVRF under Metro Vancouver's Federal Gas Tax Fund Expenditures Policy (GVRF Policy) (Reference 1).

BACKGROUND

On October 4, 2022, Metro Vancouver received an application from TransLink for GVRF funding (Attachment 1). With this application, TransLink is seeking approval of two projects for Federal Gas Tax Funding from the GVRF for transit fleet replacement.

The MVRD Board has approval authority over TransLink requests for GVRF funding. The Union of British Columbia Municipalities holds the federal gas tax funds and transfers the funds to TransLink upon formal notification by the MVRD Board of its approval of applications per the GVRF Policy.

The GVRF Policy sets out the application process, information requirements, and evaluation criteria that are to be used to evaluate and respond to TransLink's request for GVRF funding. TransLink's proposed projects were evaluated under these guidelines, which include requirements for projects to quantify emissions reduction benefits and demonstrate alignment with *Metro Vancouver 2040: Shaping our Future (Metro 2040)*, the regional growth strategy.

Project eligibility for GVRF funding is determined by the *Administrative Agreement on the Federal Gas Tax Fund in British Columbia* (Reference 2). Public transit is an eligible project category, including expenditures associated with procurement, planning, design, construction, or renovation of capital assets.

Since the GVRF program began in 2005, TransLink has received \$1,970.3 million through the fund to expand and modernize the region's transit network. Currently, there is a balance of \$486.9 million available to TransLink.¹ Interest earned on funds received, which must be used for approved GVRF projects, totalled \$62.7 million at December 31, 2021.

In June 2021, the Federal Gas Tax Fund was renamed to the Canada Community-Building Fund. This administrative change does not affect the terms of the GVRF Policy.

THE FUNDING REQUEST

TransLink is now seeking approval of GVRF funding for two projects totaling \$475.84 million. This is the largest gas tax funding request TransLink has made to date under the current gas tax agreement. It will require 98 percent of the available GVRF funds, leaving a balance of approximately \$11.1 million.

Larger GVRF investments in recent years have been enabled, in part, by a growing Canada Community-Building Fund; the Federal Government's 2019 and 2021 budgets each included a one-time doubling of funds, resulting in an additional \$2.2 billion transferred to Canadian communities. Table 1 shows the requests from previous years, which have ranged from \$120 to \$360 million.

Table 1 – Previous GVRF Funding Requests

Finance Committee Meeting Date	GVRF Funding Approved (\$ millions)
September 23, 2016	127.18
April 28, 2017	121.28
October 27, 2017	121.15
October 26, 2018	142.10
October 16, 2019	149.10
January 20, 2021	154.13
October 13, 2021	358.48
October 13, 2022	475.84

¹ Available funding includes the \$70.4 million returned to the GVRF in July 2022 as part of an approved scope change by the MVRD Board (Reference 3).

Proposed Projects

The project descriptions, including costs and GVRF funding requests, are set out in Table 2. Both projects are for replacement of existing fleet and are part of TransLink's 2022 Investment Plan.

With respect to Project 1, TransLink's application notes that conventional trolley buses have a life expectancy of 20 years or 1,000,000 km. The new conventional trolley buses proposed with this application would retire the 40-foot trolley fleet purchased in 2006-2007 that are currently based out of the Vancouver Transit Centre, replacing them on a one-for-one basis between 2024 and 2027.

Project 2 involves the replacement of diesel buses, which have a life expectancy of 17 years or 1,000,000 km. The proposed project would replace 126 40-foot diesel buses from service year 2007 with 84 40-foot RNG buses. TransLink notes the reason for the reduced number of replacement buses is that there has been an increase in 60-foot buses in the transit fleet, including several of the bus routes served by this proposed fleet replacement.

Table 2 - Project Descriptions

Project	Scope	Units	(\$ millions)	
			Cost	GVRF
				Funding
				Request
1. Conventional Trolley Bus –	40-foot trolley buses	188	414.6	400.6
Replacement				
2. Conventional Bus – Replacement	40-foot RNG buses	84	77.8	75.3
Totals		272	492.4	475.9

Project Locations

The projects are to be deployed in the following geographic locations:

- Trolley bus replacements will operate out of Vancouver Transit Centre and will serve the Burrard Peninsula sub-region; and
- Renewable Natural Gas (RNG) bus replacements will operate out of the Port Coquitlam, Hamilton and Surrey Transit Centres, which together serve multiple sub-regions.

Project Timelines

TransLink's applications for GVRF funding are typically made about two years in advance of initiation of the project or service. The current application includes projects that would be purchased in 2023 and begin service in 2024.

METRO VANCOUVER ANALYSIS

A summary of analysis based on the prescribed evaluation criteria contained in the *Federal Gas Tax Fund – Greater Vancouver Regional Fund Application Guide* is presented below.

Screening Criteria – TransLink's application is complete and meets the screening criteria for eligibility, consistency with regional plans and alignment with TransLink's corporate policies. The projects

represent a significant contribution towards the transit service expansion, state of good repair, and electrification commitments set out in TransLink's 2022 Investment Plan.

Integrated Criteria – The projects score "good" or better on integrated criteria relating to the policies of *Metro 2040*, Transportation Performance, Regional Environmental Objectives, and Economic Development.

Assessment of Evaluation Criteria – Table 3 assesses the two projects in TransLink's application as a whole. Individual projects might score higher or lower if they were assessed separately. For example, Project 2 will significantly reduce greenhouse gases (GHGs) by replacing diesel buses with RNG buses, while Project 1 will result in less of a GHG benefit since it is largely a like-for-like replacement of existing trolley fleet. Overall, the Regional Environmental Objectives criteria have been assessed as "good."

Table 3 - Assessment of Evaluation Criteria

Criterion	Description	MV Staff Assessment
Screening Criteria		
Eligible Project Category	Local roads and bridges, including active transportation, OR public transit.	Meets criterion. All public transit infrastructure is eligible.
Eligible Expenses	As set out in the 2014 Administrative Agreement.	Meets criterion. All scope elements qualify as Eligible Expenditures.
Plan Consistency	Projects must be consistent with TransLink's Capital Plan, 10-Year Investment Plan, the Regional Growth Strategy, and the Regional Transportation Strategy.	Meets criterion. The projects are identified in TransLink's 2022 Investment Plan and are consistent with long-range regional plans.
Corporate Policies	Projects must be consistent with applicable TransLink policies such as sustainability, environmental responsibility, emissions, and infrastructure.	Meets criterion.
Integrated Criteria: Region	nal Growth Strategy	
Supports the Regional Growth Strategy	The degree to which the project assists in achieving the goals in the Regional Growth Strategy and directions set out in the Metro Vancouver Board Strategic Plan.	Good. The projects will support a compact urban form and benefit growing neighbourhoods and sub-regions.
Urban Centres and	Where applicable, the project is	Good. The replacement buses will
Frequent Transit Development Areas	located in, or demonstrates tangible benefits to, the overall performance of Urban Centres and Frequent Transit Development Areas.	serve five sub-regions (Burrard Peninsula, Northeast, Ridge Meadows, South of Fraser – West and South of Fraser – East).

Integrated Criteria: Transp	oortation Performance	
Headline Targets	Demonstrates tangible beneficial effects on vehicle kilometres travelled (VKT) and /or walk / cycle / transit / multiple occupancy vehicle mode share.	Poor. Replacement buses support a state of good repair and improve customer experience, but do not significantly reduce VKT or increase transit mode share.
Other Transportation Outcomes	Demonstrates tangible beneficial effects on vehicle congestion, transit passenger congestion, transit ridership, transportation safety, and / or goods movement for the duration of the project.	Good. These projects support a state of good repair, which enhances passenger safety. In-Motion Charging technology adds flexibility and resilience to the trolley bus system.
Project Type	Demonstrated value of the project type.	Excellent. Both projects involve replacement of existing assets. Upgrading assets at the end of their service life is an essential investment in safety and system cost-effectiveness.
Integrated Criteria: Region	nal Environmental Objectives	
Supports the Climate 2050 Strategic Framework and Clean Air Plan	Contributes to the achievement of regional climate action and air quality goals, including directions set out in the Metro Vancouver Board Strategic Plan, the Regional Growth Strategy, Climate 2050, and the Clean Air Plan	replacement is a slight improvement over a like-for-like replacement as the In-Motion Charging technology reduces a small amount of emissions from backup diesel use. Replacement of diesel buses with buses fuelled by RNG aligns with the strategies in the Clean Air Plan and Climate 2050. Ensuring that the buses are fuelled by RNG as opposed to the traditional Compressed Natural Gas (CNG) is critical to the success of this project.
Quantifiable Emissions Impacts	Achieves quantifiable beneficial impacts on GHG and common air contaminant emissions relative to baseline transit vehicles, and lowers the emissions profile of the transit fleet.	Good. There is a small but measurable reduction in emissions from the trolley bus replacement. There is a more notable reduction in emissions from the use of CNG buses fuelled by RNG. However, the magnitude of emissions reductions is strongly dependent on the use of RNG rather than

		fossil CNG, and the lifecycle
		emissions of the RNG used.
		TransLink estimates that RNG
		technology reduces GHG
		emissions by 85% compared to
		diesel. By using RNG, TransLink
		also earns Carbon Credits under
		the BC Low Carbon Fuel Standard
		(\$5.2 million in 2021).
		As described in the project
		application, TransLink's
		partnership with FortisBC secures
		RNG for 100% of the CNG fleet (by
		2024), along with a commitment
		to increase RNG volumes through
		2029.
Integrated Criteria: Econo	mic Development	
Supports Regional	Contributes to a regional	The projects modernize the transit
Prosperity	transportation system that moves	system, reduce energy costs and
	people and goods and aligns with	improve reliability.
	regional prosperity.	

Summary of the Evaluation

The proposed projects meet all of the Screening Criteria, and score mixed results on the integrated Criteria.

- Regional Growth Strategy since the projects are primarily replacement, rather than
 expansion, they make only minor contributions to the regional growth objectives of Metro
 2040.
- Transportation Performance while the projects support a state of good repair, service reliability and safety, they do not expand service, so there will be minimal benefits for congestion, ridership, goods movement, VKT or mode share.
- Regional Environmental Objectives the projects will contribute to small but measurable emissions reductions, particularly for the replacement of diesel buses with RNG buses.

ALTERNATIVES

- 1. That the MVRD Board approve \$475.84 million in funding from the Greater Vancouver Regional Fund for the following transit projects proposed by TransLink in its Application for Federal Gas Tax Funding as attached to the report dated October 5, 2022, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement":
 - a) 188 Conventional Trolley Bus Replacements,
 - b) 84 Conventional Renewable Natural Gas Bus Replacements.

2. That the MVRD Board endorse, in principle, the report dated October 5, 2022, titled "TransLink Application for Federal Gas Tax Funding for 2023 Fleet Replacement" and refer it to the Mayors' Council on Regional Transportation for comment prior to final consideration by the MVRD Board.

FINANCIAL IMPLICATIONS

Each of TransLink's proposed projects includes a risk assessment that identifies potential risk factors and mitigation approaches. Generally, the continued use of deferred retirement vehicles would pose a risk to reliability, while increasing maintenance cost and GHG emissions.

If the MVRD Board approves Alternative 1, the Union of British Columbia Municipalities will be notified of the Board's decision to approve \$475.84 million in GVRF funding for all of the projects in TransLink's application. This alternative would leave approximately \$11.1 million in unallocated GVRF funds. Given that the Canada Community-Building Fund is ongoing, additional funds will be contributed to the GVRF in 2023, although that amount is currently unknown.

If the MVRD Board approves Alternative 2, the Metro Vancouver staff report and recommendations, along with the TransLink application, would be forwarded to the Mayors' Council on Regional Transportation for consideration and comment prior to final consideration by the MVRD Board.

CONCLUSION

TransLink is requesting approval of two projects for Federal Gas Tax funding from the Greater Vancouver Regional Fund totaling \$475.84 million. \$414.6 million of the funding would be used to replace 188 conventional trolley buses with new trolley buses capable of In-Motion Charging, while the remaining \$77.8 million would be used to procure 84 conventional RNG buses to replace existing diesel-fuelled buses. After evaluation the application is broadly consistent with the MVRD Board's policies on regional growth management, air quality, and climate protection, along with the Board's interest in economic prosperity.

Attachments

1. TransLink, Application for Federal Gas Tax Funding, dated October 4, 2022

References

- 1. Federal Gas Tax Fund Expenditures Policy (GVRF Policy)
- 2. Administrative Agreement on the Federal Gas Tax Fund in British Columbia
- 3. Finance Committee report dated June 17, 2022, titled "Greater Vancouver Regional Fund 2021 Annual Report and Application for Scope Change to Previously Approved Projects"

54765259

Attachment 1

To: Jerry Dobrovolny, Chief Administrative Officer, Metro Vancouver

From: Christine Dacre, Chief Financial Officer, TransLink

Sarah Ross, Vice President, Transportation Planning and Policy, TransLink

Date: October 4, 2022

Subject: 2023 Application for Canada Community-Building Funding from the Greater

Vancouver Regional Fund

PURPOSE

TransLink is requesting the Metro Vancouver Regional District (Metro Vancouver) approve \$475.84 million in Canada Community-Building Funds (CCBF) from Greater Vancouver Regional Fund (GVRF). This application includes funding requests for the replacement of 188 Conventional Trolley Buses with 188 new Trolley Buses capable of In-Motion Charging (IMC), and the replacement of 126 Diesel Conventional Buses with 84 Compressed Natural Gas (CNG) Conventional Buses to be fueled with Renewable Natural Gas (RNG). These replacement vehicles are critical to ensuring TransLink meets its 45% by 2030 GHG Emissions reduction goal, that the transit fleet remains in a state of good repair and the reliability of the transit system is maintained.

The funding requests for projects detailed in this application are consistent with the 2022 Investment Plan (2022 Plan) and Low Carbon Fleet Strategy (LCFS), approved by TransLink's Board of Directors (the Board) and endorsed by the Mayors' Council. The 2022 Plan and LCFS advance the goals identified in TransLink's Regional Transportation Strategy (T2050), TransLink's Corporate Climate Action Plan, Metro Vancouver's Regional Growth Strategy and Metro Vancouver's new Climate 2050 and Clean Air Plan goals.

This application is the administrative process to access the funding outlined per the Administrative Agreement on Federal Gas Tax Fund in British Columbia approved in 2014 and Metro Vancouver's *GVRF Policy* approved in 2016 (and revised in 2020).

This request will support the region's environmental policies, specifically:

- Metro Vancouver's Clean Air Plan strategies:
 - Strategy 1.1: Reduce driving through active transportation and public transport; and
 - Strategy 1.3: Reduce heavy truck emissions and support early adoption of zero emission heavy trucks.
- Metro Vancouver 2040: Shaping Our Future (Metro 2040) actions to encourage transportation infrastructure that reduces energy consumption and greenhouse gas emissions and improves air quality:
 - Action 3.3.6 That TransLink pursue reductions of common air contaminants and greenhouse gas emissions from on-road transportation sources in support of regional air quality objectives and greenhouse gas reduction targets; and

- Action 3.3.7 That TransLink manage its transit fleet and operations with the goal of increasing fuel efficiency and reducing common air contaminants and greenhouse gas emissions over time, in support of the Regional Growth Strategy and Air Quality Management Plan.
- Metro Vancouver's Climate 2050 goals to ensure our infrastructure, ecosystems, and communities are resilient to the impacts of climate change and pursue a carbon neutral region by 2050.
- TransLink's Regional Transportation Strategy's (T2050) goal to bring carbon-free transportation choices to everyone by eliminating carbon pollution from transport altogether by 2050:
 - o Strategy 5.1 Reduce the energy requirements of the transport system,
 - Strategy 5.2 Transition to zero-emissions vehicles; and
 - Strategy 5.4 Account for and reduce upstream and downstream emissions in the transportation system.
- TransLink's Corporate Climate Action Strategy (2022) and the goals to reduce TransLink's fleet and facility GHG emissions by 45% by 2030 and achieve net-zero by 2050.

BACKGROUND

Since the GVRF program began in 2005, TransLink has received \$1,970.3 million in funding to expand and modernise the transit network. Interest earned on funds received, which must be used for approved GVRF projects, totalled \$62.7 million at December 31, 2021. Currently, there is \$486.9 million in funds available to TransLink. Metro Vancouver Regional District and its member municipalities have specified that their 95% portion of GVRF funding go to public transportation, with a small amount going to the Community Works Fund. A summary of the funds and usage is provided below:

Greater Vancouver Regional Fund

(as of December 31, 2021)

In millions

In millions	
Approved GVRF Funds	1,970.3
Interest earned on funds received	62.7
Unapproved GVRF Funds	548.1
Total Gas Tax Funds	2,581.1
Less	
Funds applied to completed projects ¹	(1,015.5)
Funds applied to active and approved in principle projects ²	(935.2)
Interest allocated to completed projects	(14.5)
Funds Available for use as of December 31, 2021	615.9
Add	
2022 Program Allocation	146.4
2020 Approved Application for Scope Change	70.4
Forecasted interest earned on funds received ³	12.7
Less	
Funds applied to 2022 application ⁴	(358.5)
Funds Available for use	486.9
Proposed Project Funding ⁵	(475.9)
Funds Remaining	11.0

¹ This figure is exclusive of unused funds remaining from projects which have completed their approved scope. Any such remaining funds are to be made available for proposed projects in this application.

² See Table 4a for Active projects and 4b for Approved in Principle projects that have previously received GVRF funding up to December 31, 2021. These tables are located in Appendix B.

³ Forecasted interest earned is an estimation of interest to be collected in 2022 determined by calculating the interest earned for Q3 & Q4 2022 by using Q1 & Q2 2022 as the basis for estimate.

⁴ On November 10, 2021, TransLink's 2022 application for \$358.5M of GVRF funding was approved by the Metro Vancouver Board of Directors. However, the funds were not transferred until January 2022. As such, the Unapproved GVRF Funds per December 31, 2021 does not include the 2022 application.

⁵ See Table 1 for Projects requesting GVRF funding in this application.

As required in this application process, Appendix A includes a summary of TransLink's strategic plan, the 2022 Investment Plan, including the projects funded or anticipated to be funded by the GVRF as well as other funding anticipated in the 2022 Plan.

Appendix B contains a list of all Active and Approved in Principle projects funded by the GVRF.

PROPOSED PROJECTS AND FUNDING

This application is requesting \$475.9 million for two projects, as shown in Table 1. The projects are consistent with the 2022 Investment Plan.

Table 1: Summary of Projects, Total Costs, and Gas Tax Funding Request

Projects	Scope	Total Project Budget (\$ millions)	Requested Gas Tax Funding (\$ millions)
#1 Conventional Trolley Bus Replacement	188 40' Conventional Trolley Buses	414.6	400.6
#2 Conventional Bus Replacement	84 40' Conventional CNG Buses	77.8	75.3
Total	272 vehicles	492.4	475.9

Fleet Propulsion Selection

All vehicle projects are evaluated based on vehicle purchase cost, fuel and maintenance cost, lifecycle cost, GHG emissions, NOx, Hydrocarbon and particulate matter (PM), aspects of vehicle performance and customer and driver environment such as noise and ride quality. Route characteristics such as topography and average route speed (based on bus stop spacing and traffic conditions) can affect the performance of different technologies. Fuel infrastructure and depot space are considerations in fleet deployment. TransLink considers all these factors in identifying the most advantageous propulsion technology for different vehicle projects, consistent with financial and environmental goals and policies.

Fleet procurement projects are brought to an internal steering committee to ensure alignment with the Investment Plan and Regional Transportation Strategy, consider operational aspects to fleet deployment, prioritize projects, and submit business cases and project financials. Projects are then reviewed by TransLink's Senior Executive team to ensure that the business cases and financials are sound, and to evaluate the projects against TransLink's affordability criteria. The final list of recommended capital projects is submitted to the Board of Directors for approval within the Annual Capital Budget.

The LCFS (2020) and current policy direction (above) indicates that diesel propulsion is no longer a preferred option for TransLink's fleet operations. The LCFS outlined two main pathways for aggressive decarbonization of TransLink's bus fleet: zero-emissions battery-electric buses and the expansion of the CNG fleet fueled by RNG. The Corporate Climate Action Plan (2022) commits TransLink to find innovative low-carbon technologies/fuels based on optimum total cost of ownership and life cycle environmental impact to achieve its climate goals.

Selection of propulsion technology for the 84 40' Conventional CNG Buses in this application considers the following:

- TransLink began operating CNG buses in 2006 (50 40' buses). When using fossil-fuel derived
 natural gas, they have 20% fewer GHG emissions, 50% lower fuel costs compared to diesel
 and produce fewer atmospheric pollutants (i.e., common air contaminants) which helps to
 improve regional air quality. CNG buses have proved to be a critical, and economically viable
 alternative over diesel.
- Today, TransLink's current CNG fleet (299 40' buses) comprises roughly a fifth of TransLink's overall bus fleet with dedicated fueling stations, operations and maintenance at the Hamilton, Surrey and Port Coquitlam Transit Centres.
- During the development of the LCFS, TransLink identified that GHG emissions from the CNG fleet could be reduced further by fueling them with RNG. RNG is produced by capturing and processing bio-methane from landfill and agricultural wastes and reduces GHG emissions by 80% versus fossil fuel derived natural gas (and 85% versus diesel). As a result, TransLink identified the opportunity to expand the CNG fleet to 383 buses by replacing 126 diesel buses with 84 CNG buses and integrated this into the 2022 Investment Plan (2022 Plan) and now led to this application.
- In 2019 Translink announced its partnership with FortisBC to source RNG for 100% of its CNG fleet by 2024. TransLink's current contract with FortisBC (extending to 2029) specifies increasing volume to meet TransLink's commitment to 100% RNG by 2024 through 2029.
- Fossil fuel derived natural gas and RNG are recognized as low carbon fuels under the BC Low Carbon Fuel Standard (BC-LCFS). Under BC-LCFS, TransLink's use of these fuels enables it to earn revenue from Carbon Credits (\$5.2 million in 2021). The BC-LCFS has been one of the Province's most successful emission reductions policies, achieving significant reductions in air pollution from the transportation sector. TransLink's Carbon Credit revenue, in combination with its long-term contract with FortisBC, will continue to make RNG an economically viable alternative.
- TransLink assessed the possibility of replacing the 126 diesel buses with zero-emission Battery
 Electric buses, however due to the required charging infrastructure not coming on-line until
 2025/2026, this option was deemed not viable. Deferring the replacement of these buses
 past their service life was also assessed to be too high of a risk to service reliability and safety.

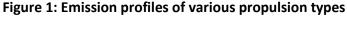
Selection of propulsion technology for the 188 40' Conventional Trolley Buses in this application considers the following:

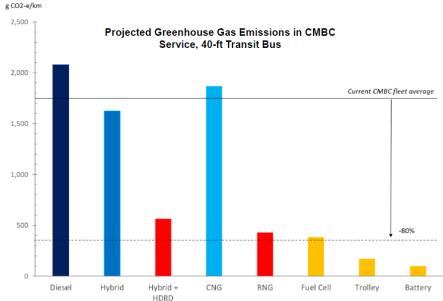
- The existing Trolley Buses have reached the end of their useful life.
- The Trolley Overhead System serves Burnaby and Vancouver, with 315 km of overhead network allows thousands of customers to travel with zero tailpipe emissions every day.
- The next generation of Trolley Buses is In-Motion Charging (IMC) capable. IMC-equipped trolley buses are capable of being automatically de-wired and re-wired from the overhead

- network. This significantly reduces the need to deploy pole pullers, reducing risk to operators, and improving system efficiency.
- The IMC-equipped trolley buses also have batteries with a published max range of 35km, allowing them to operate away from the overhead network. This will allow Coast Mountain Bus Company (CMBC) to:
 - Discontinue the need to maintain a "dieselization" backup fleet to support service during reroutes, construction, and other events that would normally require trolleys to deviate from the overhead network.
 - Expand system coverage using zero-emissions technology without the requirement to expand the overhead network, and further eliminate the use of diesel buses on some routes. Further study on this capability is planned to commence in 2023.
 - Further reduce GHG emissions, common air contaminants and improve air quality in the region.

To meet our target of 45% reduction in GHG emissions by 2030 against our 2010 baseline, we will continue our investment in zero-emissions, battery electric buses and their supporting charging infrastructure. However, the climate emergency calls on us to maximize the opportunity and innovation potential of our existing fleet and infrastructure to achieve our goals. By expanding the CNG fleet and fueling it with RNG, and replacing our existing trolleys with state of the art, IMC-equipped trolley buses, we are leveraging:

- A CNG-RNG technology that TransLink has been operating and maintaining for years, utilizes three existing fueling stations (Hamilton, Port Coquitlam, Surrey), and can be rapidly deployed.
- The existing Trolley Overhead System's potential to further eliminate diesel buses and increase the routes being served with zero-emissions technology.





Note, low carbon and zero-emissions propulsion technology is not currently feasible or available for Community Shuttle, HandyDart, 60' articulated buses and highway routes. Gasoline and diesel propulsion will continue to be used for these specific applications until the technology matures and becomes financially feasibility. This is anticipated for the 2025-2030 timeframe. TransLink continues to track and evaluate low carbon, zero-emissions fleet propulsion technology and is currently planning to develop a detailed Zero-Emissions Fleet Transition Plan in 2023 that will supersede the LCFS.

Project Summaries

- **#1 Conventional Trolley Bus Replacement:** Replace the 188 40' Conventional Trolley Buses which entered service in 2006-2007 with all new in-motion charged (IMC) capable Trolley Buses.
- **#2 Conventional Bus Replacement:** Purchase 84 40' CNG buses fueled by RNG to replace 126 existing 40' diesel buses due for retirement in 2024. The reduction in replacements is a result of continual optimization of routes, several of which are now being serviced by 60' buses.

Deployment of Proposed Projects

Replacement vehicles will service areas as set out in Table 2 below.

Table 2: Deployment of Proposed Replacement Vehicle Projects

Project Type	# of Replacement Vehicles for 2023/24 (Current Application)	Service Areas for 2023/24 Vehicles
#1 Conventional Trolley Bus Replacement	188	West Sector*
#2 Conventional Bus Replacement	84	NE Sector*

^{*}Trolley buses are limited to operating within the existing Trolley Overhead Network in Vancouver and Burnaby; Trolley buses are maintained from the Vancouver Transit Center.

^{**}RNG fueled buses are limited to garages that have RNG fuelling capability: Hamilton, Port Coquitlam and Surrey.

BENEFITS

The replacement of 188 Conventional Trolley Buses with 188 new Trolley Buses capable of In-Motion Charging (IMC), and the replacement of 126 Diesel Conventional Buses with 84 Compressed Natural Gas (CNG) Conventional Buses to be fueled with Renewable Natural Gas (RNG) have the following benefits:

- Reduces GHG, NOx and Particulate Matter emissions (Table 3);
- Improves service quality, transit system reliability and customer comfort;
- Maintains transit fleet in state of good repair;
- Contributes to meeting TransLink's, Metro Vancouver's and the Province of BC's climate and transportation goals and policy objectives;
- Builds upon and leverages past investments and operational experience in CNG-RNG technology; and
- Leverages the past investment and innovation potential of the Trolley Overhead System to further eliminate diesel buses.

Emissions Reduction

Table 3: Emissions Reductions from Vehicles Relative to Baseline Diesel Projects

Projects	Propulsion	GHG Approx. Impact	NOx Approx. Impact	PM Approx. Impact
#1 Conventional Trolley Bus Replacement	IMC-equipped electric trolley (replaces conventional trolleys)	209 t/yr* reduction	0.57 t/yr* reduction	0.004 t/yr * reduction
#2 Conventional Bus Replacement	CNG buses fueled by RNG (replaces diesel buses)	8,980 t/yr reduction (85%)**	18.4 t/yr reduction (97%)**	0.1 t/yr reduction (66%)**

^{*}Based on eliminating the need for temporarily scheduled diesels in 2021 to go around areas where overhead trolley lines are unavailable (191,482km).

The impacts noted in Table 3 are estimated to reduce TransLink's fleet and facilities GHG emissions by 6% against its 2010 GHG baseline. This is a significant contribution towards TransLink's 45% by 2030 GHG reduction goal.

^{**}Based on the replacement of 126 Diesel Conventional Buses with 84 Compressed Natural Gas (CNG) Conventional Buses to be fueled with Renewable Natural Gas (RNG).

RISKS

This request for GVRF funding will allow TransLink to begin the procurement process for vehicle projects by early 2023 to ensure deliveries in the 2024 to 2028 timeframe.

If funding is not received in time:

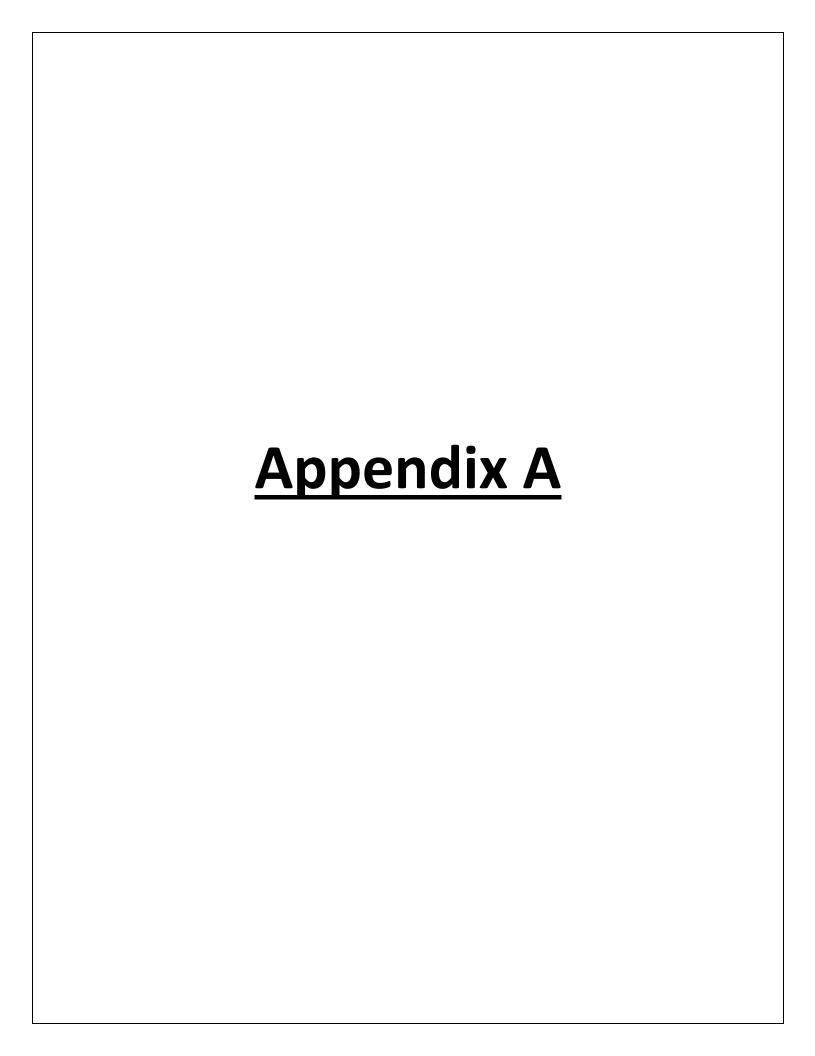
- TransLink's 45% by 2030 GHG reduction goal would be at risk. TransLink would be required
 to find alternative technologies many of which are currently not available or financially
 feasible to achieve the estimated 6% reduction in GHG emissions. This would also mean
 TransLink would need to deviate from the aggressive decarbonization CNG-RNG pathway
 determined by the LCFS.
- TransLink would miss the opportunity to earn approximately \$1.6 million in annual revenue from Carbon Credits earned under the BC Low Carbon Fuel Standard.
- TransLink will have to continue to rely on deferred retirement vehicles. This would result in higher greenhouse gas (GHG) and common air contaminant emissions than new vehicles.
- TransLink would be required to continue the use of deferred retirement vehicles, posing a
 risk to system reliability. TransLink may lose credibility among customers and the public if
 service is not reliable.
- TransLink would incur further costs due to continued maintenance and additional equipment costs to keep the deferred retirement vehicles in service.

If the supply or cost of RNG changes:

- TransLink works with FortisBC under the current long term RNG contract to manage the risk and ensure supply can meet demand for 100% RNG by 2024 and beyond.
- FortisBC has applied for a rate review for RNG to the BC Utilities Commission (i.e., BCUC FEI
 BERC Rate Methodology and Review of Revised RNG Program). TransLink's analysis of the
 currently proposed rates, in combination with BC-LCFS Carbon Credits, indicate that RNG will
 continue to be economically viable. TransLink continues to monitor the rate review process
 and if this will affect its contract with FortisBC.

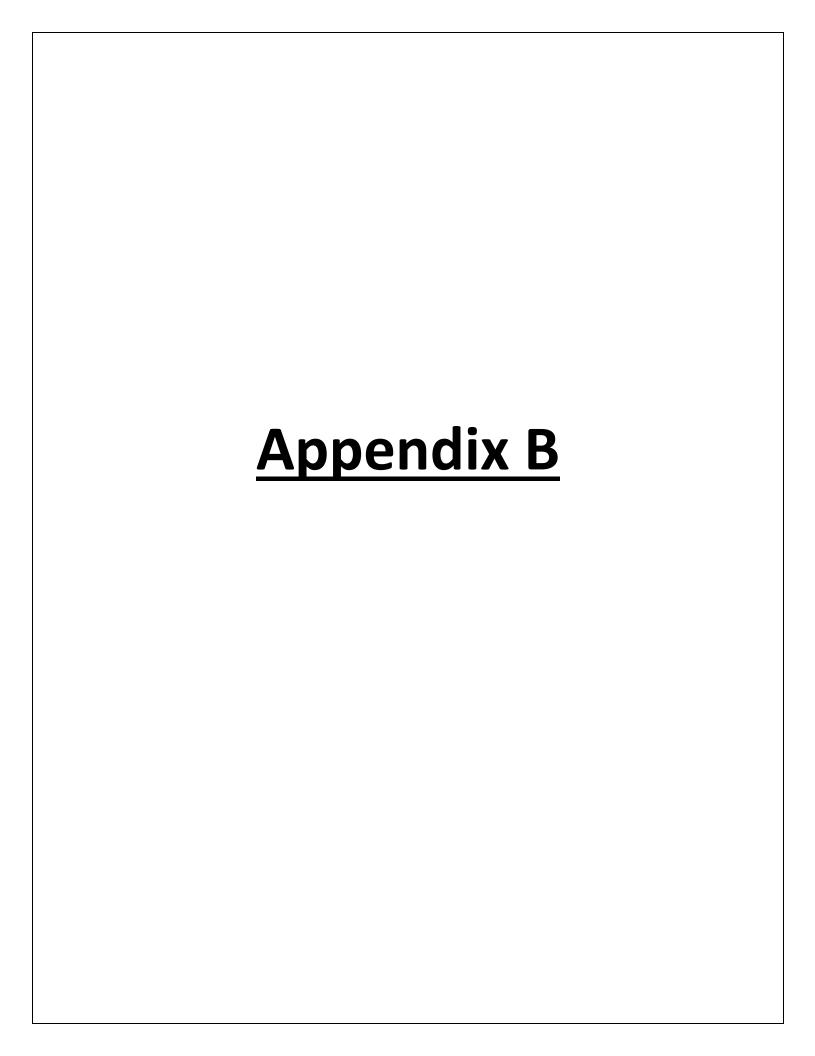
CONCLUSION

TransLink relies on the CCBF, made available through the GVRF, to be able to construct key infrastructure and modernize our vehicles that have reached the end of their useful life. This funding is also vital to ensure TransLink's revenue vehicle fleets are in a state of good repair, avoiding increased maintenance costs and protecting the reliability of the transit system. This application is aligned with Metro Vancouver's *Metro 2040* supporting urban centres and frequent transit development areas and encouraging transportation choices. Finally, CCBF funding from the GVRF is critical for TransLink to continue to implement the LCFS, meet its own climate goals through GHG and common air contaminant emission reductions and support the environmental goals of Metro Vancouver's *Clean Air Plan* and *Metro 2040*, *Climate 2050* goals and policy objectives.



TransLink 2022 Investment Plan: Projects funded by GVRF

A7F: PROJEC	TS FUNDED BY GREATER VANCOUVER REGIONAL	FUND (GVRF)	
BUS FLEET		SEABUS	
Program Year	Project Name	Program Year	Project Name
2018	2019 Community Shuttle Vehicle Replacement	2022	Next Generation SeaBus Design
2019	2020 Conventional Bus Replacement	BUS INFRASTR	UCTURE
	2020 Conventional Bus Expansion 2020 HandyDART Vehicle Replacement 2020 HandyDART Vehicle Expansion	2021	Port Coquitlam Transit Centre - Infrastructure to Support Battery Electric Bu
	2020 Community Shuttle Vehicle Expansion	2022	Marpole Transit Centre – Implementation (P
2020	2021 Conventional Bus Expansion 2021 HandyDART Vehicle Replacement	RAIL INFRASTI	RUCTURE
	2021 HandyDART Vehicle Expansion 2021 Community Shuttle Vehicle Replacement 2021 Community Shuttle Vehicle Expansion	2021	Elevating Devices Asset Renewal Program - E Elevating Devices Asset Renewal Program - E
2021	2022 Community Shuttle Vehicle Replacement	BUS SERVICE S	SUPPORT VEHICLES
	2022 HandyDART Vehicle Replacement	2021	Service Support Vehicles Replacement
	2023 Conventional Bus Replacement	2023-2027	Service Support Vehicles Replacement
2022	2023 Community Shuttle Vehicle Replacement 2023 Conventional Bus Replacement	2028-2031	Service Support Vehicles Replacement
	2023 HandyDART Vehicle Replacement	RAIL SERVICE	SUPPORT VEHICLES
2023	2024 Conventional Bus Replacement 2024-2028 Conventional Bus Replacement - Trolleys	2021	Rail Service Support Vehicle Replacement
2024		2023-2027	Rail Service Support Vehicle Replacement
2024	2026 Conventional Bus Replacement 2025-2029 Conventional Bus Replacement - Trolleys	2028-2031	Rail Service Support Vehicle Replacement
2027	2029 Conventional Bus Replacement	POLICE SERVICE	E SUPPORT VEHICLES
2029	2031 Conventional Bus Replacement	2028	Transit Police Non-Revenue Vehicles Replace
RAIL FLEET		2029	Transit Police Non-Revenue Vehicles Replace
2011	100-400 Series MK I Refurbishment Project		
2020	MKI Refurbishment (500-800 series was 30 years old in 2021)		



Projects with GVRF Funding: Active and Approved in Principle

Active Projects

Table 4a below shows the status of active projects with GVRF funding. The total forecasted project cost for active projects is \$432.0 million, with \$475.5 million in GVRF funds approved for these projects. At December 31, 2021, project costs incurred totalled \$184.8 million, with \$162.4 million in GVRF funds spent.

Table 4a: Active Projects

Active Projects with GVRF Funding (\$ millions)	Budget	Expenditures to Dec 31, 2021	Final Forecast Cost	Budget to Forecast Variance	Approved Funding	Funding spent to Dec 31, 2021	Total Forecast Funding	Funding Variance
SkyTrain Mark I Vehicle Refurbishment	28.0	26.3	28.0	-	24.4	14.9	24.4	-
2018 Conventional Bus - Replacement	65.8	65.0	65.1	0.7	61.9	61.9	61.9	-
Electric Battery Bus Purchases - Pilot	10.0	8.9	9.6	0.4	6.9	6.9	6.9	-
2019 Conventional Bus - Replacement	33.9	32.0	32.6	1.3	30.0	30.0	30.0	-
2019 Community Shuttle Vehicles - Replacement	12.6	10.3	10.3	2.3	10.8	10.0	10.0	0.8
2020 Conventional Bus - Replacement	32.5	12.5	32.4	0.1	31.6	11.8	31.6	-
2020 Conventional Bus - Expansion	100.7	16.5	100.6	0.1	97.8	14.8	97.8	-
2020 HandyDART Vehicles - Replacement	6.3	0.1	6.3	-	6.1	-	6.1	-
2020 HandyDART Vehicles - Expansion	1.6	-	1.6	-	1.6	-	1.6	-
2020 Community Shuttle Vehicles - Expansion	2.5	-	2.5	-	2.4	-	2.4	-
2021 Conventional Bus - Expansion	46.8	0.1	46.8	-	107.8	-	46.8	61.0
2021 HandyDART Vehicles - Replacement	6.5	0.1	6.5	-	6.4	-	6.4	-
2021 Community Shuttle Vehicles - Replacement	14.1	11.7	14.1	-	13.7	10.9	13.7	-
Mark 1 500-800 Refurbishment	10.0	1.2	10.4	(0.4)	17.2	1.1	10.3	6.9
2022 Community Shuttle Vehicles - Replacement	15.9	-	15.9	-	15.3	-	15.3	-
2022 HandyDART Vehicles - Replacement	6.8	-	6.8	-	6.5	-	6.5	-
2021 CMBC Service Support Vehicles - Replacement	1.3	-	1.2	0.1	1.4	-	1.2	0.2

Active Projects with GVRF Funding (\$ millions)	Budget	Expenditures to Dec 31, 2021	Final Forecast Cost	Budget to Forecast Variance	Approved Funding	Funding spent to Dec 31, 2021	Total Forecast Funding	Funding Variance
Port Coquitlam Transit Centre Infrastructure (LCFS)	30.6	0.1	30.6	-	27.8	0.1	27.8	-
2021 BCRTC Service Support Vehicles - Replacement	0.3	-	0.4	(0.1)	0.4	-	0.4	-
BCRTC Elevating Devices Escalators Replacement Total	10.5 436.7	184.8	10.3 432.0	0.2 4.7	5.5 475.5	162.4	5.5 406.6	68.9

Approved in Principle Projects

Table 4b below shows the projects with GVRF funding which are approved in principle as at December 31, 2021. The total forecasted project cost for approved in principle projects is \$474.0 million, with \$459.7 million in GVRF funds approved for these projects.

Table 4b: Approved in Principle Projects

Table 4b: Approved in Principle Projects								
Active Projects with	Budget	Expenditu	Final	Forecast	Approved	Funding	Total	Funding
GVRF Funding		res to	Forecast	to Budget	Funding	spent to	Forecast	Variance
(\$ millions)		Dec 31,	Cost	Variance		Dec 31,	Funding	
		2021				2021		
2021 HandyDART Vehicles								
– Expansion	1.6	-	1.6	-	1.6	-	1.6	-
2021 Community Shuttle								
Vehicles - Expansion	0.9	-	0.9	-	2.4	-	0.9	1.5
Next Generation SeaBus								
Design	2.7	-	2.7	-	2.5	-	2.5	-
2023 Conventional Bus								
(Electric) - Replacement	88.7	-	88.7	-	86.1	-	86.1	-
BCRTC Elevating Devices								
Elevators Replacement	11.8	-	11.8	-	11.2	-	11.2	-
2023 Community Shuttle								
Vehicles - Replacement	6.9	-	6.9	-	6.7	-	6.7	-
2023 Conventional Bus								
(CNG) - Replacement	46.0	-	46.1	(0.1)	44.4	-	44.4	-
2023 HandyDART Vehicles								
- Replacement	7.0	-	7.0	-	6.8	-	6.8	-
Marpole Transit Centre								
	308.3	-	308.3	-	298.0	-	298.0	-
Total	473.9	-	474.0	(0.1)	459.7	-	458.2	1.5

APPLICATION FOR FUNDING FROM THE GREATER VANCOUVER REGIONAL FUND FOR CANADA COMMUNITY-BUILDING FUNDS

Project 1 2024 Conventional Trolley Bus Replacement (Ref# 262004)

A. 10-YEAR INVESTMENT PLAN

Please describe how the project fits within, and provides support to, the 10-Year Investment Plan

This is a state of good repair project identified for GVRF funding included in the 2022 Investment Plan.

B. PROJECT DESCRIPTION

Please complete the following for each project proposed for expenditure from the GVRF.

1. Executive Summary (not to exceed two pages)

Project Overview

This project replaces one hundred and eighty-eight (188) Conventional Trolley Buses with one hundred and eighty-eight (188) 40' in-motion charged (IMC) capable Trolley Buses. Conventional trolley buses have a life expectancy of 20 years/1,000,000 km. For this reason, the retiring 2006-2007 service year 40' Conventional Trolley buses currently based out of Vancouver Transit Center will be replaced on a one-for-one basis between 2025 and 2028. The new buses will operate out of Vancouver Transit Center, utilize the existing trolley overhead network and serve thousands of passengers every day using zero-emissions technology.

One of TransLink's corporate priorities is to ensure a state of good repair. The purchase of one hundred and eighty-eight new in-motion charged (IMC) capable Trolley buses to replace retiring Conventional Trolley buses is in alignment with this goal. The main benefit will be to continue reducing GHGs across TransLink's fleet, providing more reliable service with new buses, avoiding downtime, and reducing maintenance costs associated with aging vehicles. This next generation of Trolley Bus is in-motion charging (IMC) capable, with a published maximum range of 35km, allowing Trolley Buses to operate away from the overhead network. IMC capability allows trolleys to work around disruptions and reroutes without the need to maintain a diesel backup fleet.

Criteria for identifying vehicles due for retirement are based on a number of factors, including:

- Age (life expectancy of 20 years);
- Mileage (generally 1,000,000 km);
- State of repair/condition;
- Severity of service duty cycle; and
- GHG and common air contaminant emissions reduction potential.

This project is consistent with the 2022 Investment Plan, approved in May 2022 by the Mayors' Council and the TransLink's Board of Directors.

TransLink strives to optimize resources by matching service to passenger demand, including allocating vehicles of an appropriate size to serve the demand on a route. This allocation is optimized through continuous review and planning to distribute resources where they are most needed. This service allocation is based on ridership data, which has been substantially enhanced with the deployment of Compass system. TransLink has also undertaken recent work to determine optimal fleet propulsion technology on each route, which is interdependent with vehicle size.

Tangible Benefits and Outcomes

The new vehicles will allow CMBC to maintain existing service, reduce downtime, and avoid incremental operating and maintenance costs. The new electric trolley buses will enable TransLink to continue providing zero-emissions transportation to thousands of customers every day in Vancouver and Burnaby.

IMC will allow CMBC to discontinue the need to maintain a diesel back-up fleet to support service during reroutes, construction, and other events that would normally require trolleys to deviate from the overhead network. IMC equipped trolley buses are also capable of being automatically de-wired and re-wired, significantly reducing the need to deploy pole pullers, reducing risk to operators and improving system efficiency.

The new IMC-equipped trolley buses also have the potential to expand system coverage using zeroemissions technology without the requirement to expand the overhead network. They have the potential to further accelerate the elimination of diesel buses and contribute to TransLink's goal of 45% reduction of fleet and facilities GHG emissions by 2030. The full potential of this is currently being explored by TransLink.

Project Budget, Expenses, and GVRF Funding Request

The project budget is \$414,600,000 with a Greater Vancouver Regional Fund (GVRF) request of \$400,576,890. Expenses covered by this budget primarily include vehicle procurement, ancillary on-board equipment, labour and other miscellaneous project costs. The funding requested in this application will be applied towards expenses considered eligible per the terms of the Administrative Agreement dated April 2014. Due to limited demand in North America, manufacturers of Trolley Buses cannot reach the economies of scale in production. Therefore, the cost per bus for trolleys is higher than CNG or other propulsion technologies. This is offset by the benefits of long life expectancy, zero tailpipe GHG emissions and air pollutants and reduced bus maintenance.

Steps taken by TransLink to identify, evaluate, and prioritize the proposed project for inclusion in the Application.

This project was identified for GVRF funding in the 2022 Investment Plan. State of good repair projects are prioritized through the annual capital planning process for inclusion in the GVRF Applications.

2. Project Name

Conventional Trolley Bus Replacement (Ref# 262004)	

3. Project Need and Location

The objectives are to maintain high-quality customer service while minimizing maintenance and operating costs through continued provision of reliable, fully-accessible transit vehicles that are appropriate for routes on which they operate. The criteria for achieving these objectives are: avoidance of incremental maintenance and operating costs, reduced vehicle breakdowns, less vehicle downtime, and improved accessibility.

One hundred eighty-eight in-motion charged (IMC) capable Trolley Buses will replace one hundred eighty-eight existing Conventional Trolley buses due for retirement. All 188 new Trolley Buses will operate out of Vancouver Transit Centres as deemed optimal per the service plan.

7. Project Staging:

Year(s) of	Year of	Year of Service	Year(s) of	Year(s) of End of	
Acquisition or	Completion of	Initialization	Renewal	Service	
Start of	Construction				
Construction					
2024	2028	2028	N/A	2047	

8. Has the project previously received funding through GVRF? Please explain.

No. This is the first application for GVRF funding for this project.

9. Was GVRF funding previously declined for the project? Please explain.

No. This is the first application for GVRF funding for this project.

10. Is the project anticipated to require additional future GVRF funding? If so, please explain.

No. TransLink is planning to complete this project within budget.

11. Project Cost + Funding

11.a Budget & Expenditures

Budget	Expenditures to	Forecast to	Final Forecasted	Variance (budget –	
	Date	Complete	Cost	final forecasted	
				cost)	
\$414,600,000	\$0	\$414,600,000	\$414,600,000	\$0	

11.b Project Funding

Prior Approved GVRF	Current Year GVRF Funding	Other Funding – Specify source	
Funding	Request	and whether	
		confirmed/pending	
\$0	\$400,576,890	N/A	

11.c Project Budget Schedule

Item	2023	2024	2025	2026	2027	2028	2029
GVRF-	\$50,000	\$100,000	\$2,460,000	\$73,800,000	\$305,466,890	\$11,220,000	\$7,480,000
funded							
Project							
Budget							
Total	\$108,130	\$268,590	\$3,509,150	\$76,968,370	\$314,671,760	\$11,444,400	\$7,629,600
Project							
Budget							

12. Project Budget Rationale

Describe the types of proposed project expenses to be funded by the Greater Vancouver Regional Fund

a. Explain how the project reflects the intent of the GVRF

This project ensures TransLink's assets are maintained in a state of good repair, allowing TransLink to efficiently and effectively provide transit service to the general public.

b. In the absence of GVRF funding, can the project proceed with other funding sources? What risks do the other funding sources present to the project?

No. TransLink relies on GVRF funding for replacement of its revenue vehicle fleets and plans its annual budgets accordingly.

Other source of funding available to TransLink is the Investing in Canada Infrastructure Program (ICIP) and the Zero Emission Transit Fund. The ICIP funding program is focused on infrastructure improvement relating to capacity, quality and safety or, access to public transit systems. The ZETF program is focused on funding diesel to electric replacements, accordingly, this project is not eligible for this funding. The projects chosen by TransLink for GVRF funding are better suited compared to the other sources of funding.

In the absence of GVRF funding, TransLink would be required to borrow funds externally to fund the replacement of these assets, which is not a feasible option given current debt limit restrictions facing TransLink.

 Identify potential risks – corporate and regional – of this project that could result in this project not being completed or being unsuccessful. Describe possible mitigation strategies to address these risks.

TransLink requires these vehicles to be in service between 2025 and 2028 in order to retire vehicles reaching the end of their useful service lives. There is an approximate lead time of 12 to 18 months between TransLink ordering the vehicles and those vehicles entering service. This lead time is extended to approximately 24 months in this submission as a pilot bus and additional testing will be required. As such, it is important to have the funding in place to ensure the timely retirement of vehicles before they reach the end of their useful service lives.

If funding is not received in time, TransLink will have to rely on deferred retirement vehicles to deliver transit service. Continued use of deferred retirement vehicles poses a risk to reliability, as well as results in incremental maintenance costs to keep them in service. This may result in lost opportunities to realize goals of reduced congestion, maintain peak hour service and frequency.

d. How may the project cost vary as a result of changing external factors, such as interest rates and currency exchange rates?

Project costs may vary due to foreign exchange fluctuations (as vehicles are procured from the USA) and vendor pricing. These uncertainties are mitigated with a sufficient contingency allowance to absorb price and foreign exchange fluctuations.

e. How may foreseeable changes in investment, regulation, or policies from other orders of government affect the project?

Due to recent increases in senior government funding for public transit projects, many suppliers are experiencing larger demands to order vehicles. This may create a backlog with vendors, and if procurement is not initiated soon, could result in further delay in ordering and receiving vehicles.

f. How may foreseeable changes in technology affect the project?

This application is based on the all new in-motion charged (IMC) capable Trolley Buses. Trolley Technology is well established and will not likely see any major changes other than the addition of in motion charging (IMC). IMC uses the existing trolley systems and a Lithium Ion Battery to enable the off overhead network capabilities. Advancements in Battery technology will continue to improve off network range. Automation of pole pulling and setting is also expected.

g. What other corporate or external factors could alter the project need, scope, budget, or timeline for project delivery?

Project timeline may be affected by manufacturer's capacity and schedules, availability of parts and/or time for vehicle delivery from the manufacturer. Budget may fluctuate due to parts pricing and/or foreign exchange.

h. Describe how the project lowers the emissions profile of the transit fleet, for both greenhouse gas and common air contaminant emissions and advances the fleet towards the region's greenhouse gas emissions reduction targets.

IMC capabilities may further allow CMBC to expand system coverage with zero-emission vehicles from the existing trolley overhead network. Further study on IMC capability is planned to commence in 2023. At a minimum, IMC will allow CMBC to discontinue the need to maintain a diesel back-up fleet to support service during reroutes, construction, and other events that would normally require trolleys to deviate from the overhead network. In 2021, diesel buses were temporarily scheduled in this manner, and drove a total of 191,428km. This translated to 209 t/yr in GHG, 0.57 t/yr in NOx, and 0.004t/yr in PM, all of which can be eliminated with IMC capabilities.

C. EVALUATION CRITERIA

Please describe how project achieves or works towards each criterion by identifying and reporting on relevant performance measures. Where appropriate, present quantitative information. Please do not exceed 10 pages per project.

Two types of evaluation criteria are identified: Screening Criteria, which represent requirements that are mandatory for any project for which GVRF funding is requested; and Criteria, which allow for a qualitative assessment of proposed projects based on high priority objectives that reflect the intent of the Canada Community-Building Fund, of Metro Vancouver goals, and of the Mayors' Council Vision.

Criterion	Description	Assessment
	SCREENING CRITERIA	
Eligible Project Category	□ Local roads and bridges, including active transportation☑ Public transit	Required
Eligible Expenses	As set out in the 2014 Administrative Agreement (Schedule C) Eligible Item Conventional Bus Replacement \$396,366,890 On-board equipment 4,210,000 Total \$400,576,890	Required
Plan Consistency	Projects must be consistent with TransLink's Capital Plan, 10-Year Investment Plan, the Regional Growth Strategy and the Regional Transportation Strategy. ☑ 10-Year Investment Plan ☑ Mayors' Council Transportation and Transit Plan ☑ Metro 2040: Shaping our Future ☑ Regional Transportation Strategy	Required
Corporate Policies	Projects must be consistent with applicable TransLink policies such as sustainability, environmental responsibility, emissions and infrastructure. ☑ Sustainability policy ☑ Environmental policy ☑ Emissions policy ☐ Infrastructure policy – n/a	Required

Criterion	Description	Assessment				
	INTEGRATED CRITERIA					
	Regional Growth Strategy					
Supports the Regional Growth Strategy	The degree to which the project assists in achieving the goals in the Regional Growth Strategy and directions set out in the Metro Vancouver Board Strategic Plan. ☑ Create a Compact Urban Area ☑ Support a Sustainable Economy ☑ Protect Environment and Respond to Climate Change Impacts ☑ Develop Complete Communities ☑ Support Sustainable Transportation Choices	Poor/Good/ Excellent				
	Trolley Buses provide services to Vancouver and Burnaby communities within TransLink's transportation service region, offer an environmentally responsible, zeroemissions and sustainable transportation alternative to single occupant vehicle travel.					
Urban Centres and Frequent Transit Development Areas	Where applicable, the project is located in, or demonstrates tangible benefits to the overall performance of Urban Centres and Frequent Transit Development Areas. Trolley bus routes out of VTC directly serve 6 Urban Centres & FTDAs in the West Sector - Urban Centres: Metro Core, Oakridge MTC, Metrotown RCC - FTDAs: UBC, Cambie North, Cambie South Buses provide services to Metro Vancouver communities within TransLink's transportation service region and offer	Poor/Good/ Excellent				
	an environmentally responsible and sustainable transportation alternative to single occupant vehicle travel. They link communities with business, institutional and social hubs and destinations, and facilitate the creation and expansion of Transit Oriented Developments (TODs). They also provide collector and distribution services to Expo, Millennium, Evergreen and Canada Lines, West Coast Express and SeaBus.					
	Transportation Performance					
Headline Targets	Demonstrates tangible beneficial effects on vehicle kilometres travelled and/or walk/cycle/transit/multiple occupancy vehicle mode share	Poor/Good/ Excellent				
	This is a like-for-like vehicle fleet replacement project with no change in service provided (i.e. incremental					

Criterion	Description	Assessment
	vehicle kilometers travelled or shift to walk/cycle/transit/multiple occupancy vehicles mode share).	
Other Transportation Outcomes	Demonstrates tangible beneficial effects on vehicle congestion, transit passenger congestion, transit ridership, transportation safety and/or goods movement for the duration of the project.	Poor/Good/ Excellent
	This is a like-for-like vehicle fleet replacement project with no change in service provided. As such, there are no incremental benefits tor vehicle congestion, transit passenger congestion, transit ridership and/or transportation safety.	
Project Type	Demonstrated value of the project type (refer to section 6).	Poor/Good/ Excellent
	By maintaining TransLink's assets in good repair, vehicles will have fewer breakdowns and service disruptions, and operating costs will not increase. Additionally, with a diesel back-up fleet no longer required, replacement of those vehicles can be avoided.	
	IMC equipped trolley buses are also capable of being automatically de-wired and re-wired, significantly reducing the need to deploy pole pullers, reducing risk to operators and improving system efficiency.	
	Regional Environmental Objectives	
Supports the Climate 2050 Strategic Framework and Clean Air Plan	Contributes to the achievement of regional climate action and air quality goals, including directions set out in the Metro Vancouver Board Strategic Plan, the Regional Growth Strategy, Climate 2050, and the Clean Air Plan.	Poor/Good/ Excellent
	The purchase of IMC-capable trolley buses to replace retired trolley buses supports the Clean Air Plan's: Strategy 1.1: Reduce driving through active transportation and public transport; and Strategy 1.3: Reduce heavy truck emissions and support early adoption of zero emission heavy trucks.	
	Periodically, an existing trolley bus route needs to be served by diesel buses. This is usually due to road construction where the overhead trolley wires are not accessible by electric trolley buses. Diesel buses are temporarily scheduled to service such routes, causing GHG and Criteria Air Contaminant (CAC) emissions to increase along this route. In 2021, diesel buses were	

Criterion	Description	Assessment
	temporarily scheduled in this manner, and driven a total of 191,428km.	
	The new IMC capable buses utilize larger batteries than existing, end-of-life trolley buses. These are charged while the bus is connected to overhead wires and enable the bus to have extended range while detached from the overhead wires. IMC buses are capable of being automatically de-wired and re-wired and require limited changes to catenary infrastructure. These new capabilities allow IMC buses to be used on routes with construction zones, avoiding the need for temporarily scheduling polluting diesels, and the associated GHG and CAC emissions. These capabilities also provide opportunities to expand system coverage with zero-emission vehicles from the existing trolley overhead network. Further study on IMC capability is planned in 2023.	
Quantifiable Emissions Impacts	Achieves quantifiable beneficial impacts on greenhouse gas and common air contaminant emissions relative to baseline transit vehicles and lowers the emissions profile of the transit fleet. The information requirement for this criterion is fulfilled as follows:	Poor/Good/ Excellent
	1. For each transit vehicle project, provide a comparison of the emissions of the project versus the baseline vehicle. For the application in aggregate, provide the:	
	 Annualized transit fleet emissions in the current year; Plus, incremental changes in transit fleet emissions with full deployment of any proposed expansion, modernized, or refurbished vehicles. 	
	As discussed above, a diesel back-up fleet is maintained to support the Trolley Overhead routes during reroutes, construction, or other events that would normally require trolleys to deviate from the overhead network. In 2021, diesel buses that were temporarily scheduled in this manner drove a total of 191,428km. This translated to 209 t/yr in GHG, 0.57 t/yr in NOx, and 0.004 t/yr in PM, all of which can be eliminated with IMC capabilities.	
	Economic Development	
Supports regional prosperity	Contributes to a regional transportation system that moves people and goods and aligns with regional prosperity.	Poor/Good/ Excellent
	Replacement of trolley buses will provide improved reliability of the fleet, resulting in improved reliability to	

Criterion	Description	Assessment
	the regional transportation system. Passengers will	
	continue to have reliable access to populous destinations	
	for work and/or leisure activities, which would avoid	
	otherwise having to rely on single occupant vehicle travel.	

APPLICATION FOR FUNDING FROM THE GREATER VANCOUVER REGIONAL FUND FOR CANADA COMMUNITY-BUILDING FUNDS

Project 2 2024 Conventional Bus Replacement (84 40' CNG(RNG) Buses) (Ref# 222073)

A. 10-YEAR INVESTMENT PLAN

Please describe how the project fits within, and provides support to, the 10-Year Investment Plan

This is a state of good repair project identified for GVRF funding included in the 2022 Investment Plan.

B. PROJECT DESCRIPTION

Please complete the following for each project proposed for expenditure from the GVRF.

1. Executive Summary (not to exceed two pages)

Project Overview

This project replaces one hundred twenty-six (126) 40' retiring diesel buses with eighty-four (84) 40' CNG (RNG) buses. Conventional buses have a life expectancy of 17 years/1,000,000 km. For this reason, the retiring 2007 service year 40' conventional diesel buses currently based out of several Transit Centres (Burnaby, Vancouver, Richmond) will be replaced in 2024. It is being proposed to purchase only 84 replacement buses due to an overall increase in the number of 60' buses in the Fleet. Also, there have been several routes that are now being serviced by 60' buses rather than 40' buses. The new buses will operate out of various Transit Centres (Hamilton, Port Coquitlam, Surrey) which already have operating CNG fueling stations and maintenance facilities.

These replacement vehicles are critical to ensuring TransLink meets its 45% by 2030 GHG Emissions reduction goal, that the transit fleet remains in a state of good repair and the reliability of the transit system is maintained. The purchase of eighty-four new CNG buses, replacing retiring 126 diesel buses is in alignment with these priorities. The main benefits will be reducing GHGs, improving regional air quality, better fuel economy, providing more reliable service with new buses, avoiding the downtime, and avoiding increasing maintenance costs associated with aging vehicles.

Criteria for identifying vehicles due for retirement are based on a number of factors, including:

- Age (life expectancy of 17 years);
- Mileage (generally 1,000,000 km);
- State of repair/condition;
- Severity of service duty cycle; and
- GHG and common air contaminant emissions reductions.

This project is consistent with the 2022 Investment Plan (2022 Plan), approved in May 2022 by the Mayors' Council and the TransLink's Board of Directors. It also supports the continued implementation of TransLink's Low Carbon Fleet Strategy (LCFS), approved by TransLink's Board of Directors (the Board) and endorsed by the Mayors' Council in 2020. The 2022 Plan and LCFS advance the goals identified in TransLink's Regional Transportation Strategy (T2050), TransLink's

Corporate Climate Action Plan, Metro Vancouver's Regional Growth Strategy and Metro Vancouver's new Climate 2050 and Clean Air Plan goals.

TransLink strives to optimize resources by matching service to passenger demand, including allocating vehicles of an appropriate size to serve the demand on a route. This allocation is optimized through continuous review and planning to distribute resources where they are most needed. This allocation is based on ridership data, which has been substantially enhanced with the deployment of Compass system. TransLink has also undertaken recent work to determine optimal fleet propulsion technology on each route, which is interdependent with vehicle size.

Tangible Benefits and Outcomes

The LCFS and current policy direction (above) indicates that diesel propulsion is no longer a preferred option for TransLink's fleet operations. The replacement of 126 retiring diesel buses with eighty-four new CNG buses (fueled by Renewable Natural Gas (RNG)), is a critical part of continued implementation of the LCFS, aggressive decarbonization of its fleet, meeting TransLink's interim climate goal of reducing its fleet and facility emissions by 45% by 2030 and improving air quality in the region by reducing common air contaminants. The replacement of 126 retiring diesel buses with eighty-four new CNG buses (fueled by Renewable Natural Gas (RNG)) is estimated to achieve a 6% reduction in TransLink's overall fleet and facility GHG emissions against its 2010 baseline.

In addition, the new vehicles will also allow CMBC to maintain existing service, reduce downtime, avoid incremental operating and maintenance costs.

TransLink's choice of the low carbon intensive RNG supports Metro Vancouver's *Clean Air Plan, Climate* 2050, TransLink's *Regional Transportation Strategy (T2050)* and TransLink's efforts to reduce its own emissions under its *Corporate Climate Action Plan (2022)* and *Low Carbon Fleet Strategy (LCFS)*. TransLink's use of RNG also supports the CleanBC Roadmap to 2030 which committed to developing increased production capacity for made-in-B.C. renewable fuels to 1.3 billion litres per year by 2030. TransLink has committed to fueling its entire CNG fleet with 100% RNG by 2024.

TransLink's use of fossil fuel derived natural gas and RNG are recognized as low carbon fuels under the BC Ministry of Energy, Mines and Low Carbon Innovation's Low Carbon Fuel Standard. TransLink is required report its use of these fuels under the Standard, entitling it to annually earn Carbon Credits (\$5.2 million in 2020).

Project Budget, Expenses, and GVRF Funding Request

The project budget is \$77,814,100 with a Greater Vancouver Regional Fund (GVRF) request of \$75,264,000. Expenses covered by this budget primarily include vehicle procurement, ancillary on-board equipment, labour and other miscellaneous project costs. The funding requested in this application will be applied towards expenses considered eligible per the terms of the Administrative Agreement dated April 2014.

Steps taken by TransLink to identify, evaluate, and prioritize the proposed project for inclusion in the Application.

This project was identified for GVRF funding in the 2022 Investment Plan. State of good repair projects are prioritized through the annual capital planning process for inclusion in the GVRF Applications.

During the development of the LCFS, TransLink identified the opportunity that it's CNG fleet, fueled by RNG could play a significant role in reducing its GHG emissions and improving air quality in the region. As a result, the LCFS implementation plan outlined the expansion of the CNG fleet to 383 buses by replacing 126 diesel buses with 84 CNG buses. Through 2021 and 2022, this was integrated into the 2022 Investment Plan (2022 Plan) and in turn led to this GVRF application.

2. Project Name

2024 Conventional Bus Replacement (84 CNG(RNG) Buses) (Ref# 222073)

3. Project Need and Location

The LCFS (2020) and current policy direction indicates that diesel propulsion is no longer a preferred option for TransLink's fleet operations. This project fulfills the need to reduce GHG emissions and common air contaminants in the region and meet Metro Vancouver and TransLink's climate goals.

The project also meets the need to maintain high-quality customer service while minimizing maintenance and operating costs through continued provision of reliable, fully-accessible transit vehicles that are appropriate for routes on which they operate.

The criteria for achieving these objectives are: avoidance of incremental maintenance and operating costs, reduced vehicle breakdowns, less vehicle downtime, and improved accessibility.

All 84 new 40' CNG buses will operate out of the Hamilton, Port Coquitlam, and Surrey Transit Centres as deemed optimal per the service plan.

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	Local Roads and Bridges, including active transportation
Χ	Public Transit

5. Project Purpose (check one):

\square Expansion: Expands the carrying capacity of people and/or goods movemer	١t.
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- ☑ **State of Good Repair:** Replaces or modernizes assets to keep the regional transportation system in a state of good repair.
- ☐ **Operational Efficiency/Effectiveness:** Improves the efficiency or effectiveness of the regional transportation system.

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oject Type (check	cone):			
Growth				
] Upgrade] Risk (Resilience)	\			
Maintenance				
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11. Project Cost + Funding

11.a Budget & Expenditures

Budget	Expenditures to Date	Forecast to Complete	Final Forecasted Cost	Variance (budget – final forecasted cost)
\$77,814,100	\$0	\$77,814,100	\$77,814,100	\$0

11.b Project Funding

Prior Approved GVRF	Current Year GVRF Funding	Other Funding – Specify source
Funding	Request	and whether
		confirmed/pending
\$0	\$75,264,000	N/A

11.c Project Budget Schedule

Item	2023	2024	2025	2026	2027	2028
GVRF-		\$75,104,000	\$160,000			
funded						
Project						
Budget						
Total		\$77,140,900	\$673,200			
Project						
Budget						

12. Project Budget Rationale

Describe the types of proposed project expenses to be funded by the Greater Vancouver Regional Fund

a. Explain how the project reflects the intent of the GVRF

This project ensures TransLink's assets are maintained in a state of good repair, allowing TransLink to efficiently and effectively provide transit service to the general public. Replacing diesel buses with CNG buses fueled by RNG contributes to lowering the fleet's GHG, NOx and particulate matter emissions which aligns with Metro Vancouver's *Clean Air Plan* and *Climate* 2050 and TransLink's Corporate Climate Action Plan goals and continued implementation of the LCFS.

b. In the absence of GVRF funding, can the project proceed with other funding sources? What risks do the other funding sources present to the project?

No. TransLink relies on GVRF funding for replacement of its revenue vehicle fleet and plans its annual budgets accordingly.

Other source of funding available to TransLink is the Investing in Canada Infrastructure Program (ICIP). The ICIP funding program is focused on infrastructure improvement relating to capacity, quality and safety or, access to public transit systems. The projects chosen by TransLink for GVRF funding are better suited compared to the other sources of funding.

In the absence of GVRF funding, TransLink would be required to borrow funds externally to fund the replacement of these assets, which is not a feasible option given current debt limit restrictions facing TransLink.

 Identify potential risks – corporate and regional – of this project that could result in this project not being completed or being unsuccessful. Describe possible mitigation strategies to address these risks.

TransLink requires these vehicles to be in service for 2024 in order to retire vehicles reaching the end of their useful service lives. There is an approximate lead time of 12 to 18 months between TransLink ordering the vehicles and those vehicles entering service. As such, it is important to have the funding in place to ensure the timely retirement of vehicles before they reach the end of their useful service lives.

If funding is not received in time:

- TransLink's 45% by 2030 GHG reduction goal would be at risk. TransLink would be required
 to find alternative technologies many of which are currently not available or financially
 feasible to achieve an estimated 6% reduction in GHG emissions. This would also mean
 TransLink would need to deviate from the aggressive decarbonization CNG-RNG pathway
 determined by the LCFS.
- TransLink would miss the opportunity to earn approximately \$1.6 million in annual revenue from Carbon Credits earned under the BC Low Carbon Fuel Standard.
- TransLink will have to rely on deferred retirement vehicles to deliver transit service.
 Continued use of deferred retirement vehicles poses a risk to reliability, as well as results
 in incremental maintenance costs and additional equipment costs to keep them in service.
 This may result in lost opportunities to realize goals of reduced congestion, maintain peak
 hour service and frequency.
- TransLink will have to continue to rely on deferred retirement vehicles. This would result in higher greenhouse gas (GHG) and common air contaminant emissions than new vehicles. It would also pose a risk to system reliability. TransLink may lose credibility among customers and the public if service is not reliable.

If the supply or cost of RNG changes:

- TransLink's current contract with FortisBC (extending to 2029) specifies increasing volume to meet TransLink's commitment to source 100% RNG for the CNG fleet by 2024 through 2029.
- TransLink works meets with FortisBC on a monthly basis, and amongst other topics, works to to manage the risk and ensure supply can meet demand for 100% RNG by 2024 and beyond.
- FortisBC has applied for a rate review for RNG to the BC Utilities Commission (i.e., BCUC FEI BERC Rate Methodology and Review of Revised RNG Program). TransLink's analysis of
 the currently proposed rates, in combination with BC-LCFS Carbon Credits, indicate that
 RNG will continue to be economically viable. TransLink continues to monitor the rate
 review process and if this will affect its contract with FortisBC.

d. How may the project cost vary as a result of changing external factors, such as interest rates and currency exchange rates?

Project costs may vary due to foreign exchange fluctuations (as vehicles are procured from the USA) and vendor pricing. These uncertainties are mitigated with a sufficient contingency allowance to absorb price and foreign exchange fluctuations.

It should be noted that TransLink's long-term RNG contract with FortisBC extends to 2029. TransLink earns Carbon Credits under the BC Low Carbon Fuel Standard for its fueling and use of CNG and RNG. The revenue derived from these credits varies year to year and is dependent upon the carbon intensity of RNG production and fluctuations in the carbon markets.

e. How may foreseeable changes in investment, regulation, or policies from other orders of government affect the project?

Due to recent increases in senior government funding for public transit projects, many suppliers are experiencing larger demands to order vehicles. This may create a backlog with vendors, and if procurement is not initiated soon, could result in further delay in ordering and receiving vehicles.

f. How may foreseeable changes in technology affect the project?

This application is based on the new vehicles being powered by Compressed Natural Gas engines, to be fueled by Renewable Natural Gas. Advances in Renewable Natural Gas (RNG) production biomethane continues to help reduce Provincial GHG emissions by capturing methane (a greenhouse gas 25 times more effective than carbon dioxide at trapping heat in the atmosphere) and processing it into RNG.

As FortisBC continues to bring additional RNG producers on line to meet growing demand and meet its GHG reduction commitments to the Province of British Columbia, the carbon intensity of RNG is expected to vary from year to year. This may affect the amount of carbon credit revenue TransLink receives as well as the amount of GHG emissions reductions achieved. Under the BC-LCFS, suppliers of RNG (and other low carbon fuels) have the carbon intensity verified by the Low Carbon Fuels Branch of the BC Ministry of Energy, Mines and Low Carbon Innovation. This verification supports TransLink's disclosure of annual GHG emissions and claimed emissions reductions.

Alternative technology allowing significant reduction in GHG and emissions, and achieving the goals of LCFS and other regional strategies are battery-electric buses. However, TransLink does not currently have the charging infrastructure capacity to support replacing these 84 conventional buses with battery-electric buses before the completion of our Marpole Transit Centre in 2025.

g. What other corporate or external factors could alter the project need, scope, budget, or timeline for project delivery?

Project timeline may be affected by manufacturer's capacity and schedules, availability of parts and/or time for vehicle delivery from the manufacturer. The global COVID-19 pandemic has adversely affected supply chain needed to manufacture the vehicles. Budget may fluctuate due to parts pricing and/or foreign exchange.

h. Describe how the project lowers the emissions profile of the transit fleet, for both greenhouse gas and common air contaminant emissions and advances the fleet towards the region's greenhouse gas emissions reduction targets.

To reduce GHG emissions and improve air quality in the region, TransLink began operating compressed natural gas (CNG) buses in 2006 (50 40' buses). Today CNG buses comprise roughly a fifth of TransLink's overall fleet (299 40' buses). When fueled by fossil fuel derived natural gas, these vehicles have approximately 20% fewer GHG emissions and 50% lower fuel costs versus diesel. They also significantly reduce emissions of common air contaminants (NOx and particulate matter) compared to diesel, which helps to improve air quality of the region. CNG buses have proven to be reliable, financially viable and a cleaner alternative to diesel.

As part of the implementation of the LCFS, Translink began using RNG in 2019. It has committed to source RNG for 100% of its CNG fleet by 2024. RNG reduces GHG emissions by approximately 85% compared to diesel and 80% compared to fossil fuel derived natural gas. RNG is produced by capturing bio-methane (CH₄) from landfills or agricultural wastes, which is then processed into RNG. RNG is molecularly equivalent to fossil fuel derived natural gas and is delivered to customers via the natural gas pipeline. A significant portion of RNG purchased by TransLink is produced locally in British Columbia, the Lower Mainland and within the jurisdiction of some Metro Vancouver municipalities. TransLink's purchasing of RNG also helps agricultural and landfill operations reduce methane emissions, a short-lived greenhouse gas that is 25 times more effective than carbon dioxide at trapping heat in the atmosphere.

In comparison to the diesel, the replacement of 126 Diesel Conventional Buses with 84 Compressed Natural Gas (CNG) Conventional Buses to be fueled with Renewable Natural Gas (RNG) are estimated to have the following emissions impacts:

- 8,980t/yr reduction in GHG
- 18.4 t/yr reduction in NOx
- 0.1t/yr reduction in PM

This is approximately an 8% reduction of TransLink's revenue fleet GHG emissions or a 6% reduction across all fleet and facilities against a 2010 baseline. This is a significant contribution towards TransLink's 45% by 2030 GHG reduction goal and improvement of air quality in the region.

C. EVALUATION CRITERIA

Please describe how project achieves or works towards each criterion by identifying and reporting on relevant performance measures. Where appropriate, present quantitative information. Please do not exceed 10 pages per project.

Two types of evaluation criteria are identified: Screening Criteria, which represent requirements that are mandatory for any project for which GVRF funding is requested; and Integrated Criteria, which allow for a qualitative assessment of proposed projects based on high priority objectives that reflect the intent of the Canada Community Building Fund, of Metro Vancouver goals, and of the Mayors' Council Vision.

Criterion	Description	Assessment		
	SCREENING CRITERIA			
Eligible Project	☐ Local roads and bridges, including active	Required		
Category	transportation			
	☑ Public transit			
Eligible	As set out in the 2014 Administrative Agreement	Required		
Expenses	(Schedule C)			
	Eligible Item Expenditure ¹			
	Conventional Bus Replacement \$73,904,000			
	On-board equipment 1, <u>360,000</u>			
	Total \$75,264,000			
	¹ Per Schedule C, Section 1.1, Part a)			
Plan	Projects must be consistent with TransLink's Capital Plan,	Required		
Consistency	10-Year Investment Plan, the Regional Growth Strategy			
	and the Regional Transportation Strategy.			
	✓ Mayors' Council Transportation and Transit Plan✓ Metro 2040: Shaping our Future			
	⊠ Regional Transportation Strategy			
	, ,			
Corporate	Projects must be consistent with applicable TransLink	Required		
Policies	policies such as sustainability, environmental			
	responsibility, emissions and infrastructure. Sustainability policy			
	⊠ Environmental policy			
	⊠ Emissions policy			
	☐ Infrastructure policy – n/a			
	Δ IIII astructure policy = 11/ a			
	INTEGRATED CRITERIA			
	Regional Growth Strategy			
Supports the	The degree to which the project assists in achieving the	Poor/Good/ Excellent		
Regional Growth	goals in the Regional Growth Strategy and directions set out in the Metro Vancouver Board Strategic Plan.			
Strategy	 ☑ Create a Compact Urban Area 			
J. G. G. C. S. Y	☐ Support a Sustainable Economy			
	 ☑ Support a Sustainable Economy ☑ Protect Environment and Respond to Climate Change 			
	Impacts			
	☑ Develop Complete Communities			
	Support Sustainable Transportation ChoicesThe new			
	CNG buses will provide services to New Westminster,			
	Surrey, Port Coquitlam, Coquitlam, Port Moody, Pitt			
	Meadows and Maple Ridge communities within			
	TransLink's transportation service region. They offer an			

Criterion	Description	Assessment
	environmentally responsible, low-carbon and	
	sustainable transportation alternative to single occupant	
	vehicle travel.	
Urban Centres	Where applicable, the project is located in, or	Poor/Good/ Excellent
and	demonstrates tangible benefits to the overall	
Frequent	performance of Urban Centres and Frequent Transit	
Transit	Development Areas.	
Development	Buses provide services to Metro Vancouver communities	
Areas	within TransLink's transportation service region and offer	
	an environmentally responsible and sustainable	
	transportation alternative to single occupant vehicle	
	travel. They link communities with business, institutional	
	and social hubs and destinations, and facilitate the	
	creation and expansion of Transit Oriented Developments	
	(TODs). They also provide collector and distribution services to Expo, Millennium, Evergreen and Canada	
	Lines, West Coast Express and SeaBus.	
	Entes, West coust Express and seabas.	
	The new CNG buses out of HTC, PTC and STC will provide	
	services to the following 29 Urban Centres (Regional City	
	Centre (RCC), Municipal Town Centre (MTC) and Frequent	
	Transit Development Areas (FTDA):	
	Richmond City Centre RCC	
	Cambie Corridor South FTDA	
	Metrotown RCC New Additional Control	
	Brentwood MTCEdmonds MTC	
	Edmonds MTC 22 nd Street FTDA	
	New Westminster Downtown RCC	
	Braid Station FTDA	
	Lougheed MTC	
	Burquitlam FTDA	
	Moody FTDA	
	Inlet Centre MTC	
	Coquitlam Town Centre RCC	
	Port Coquitlam MTC	
	Pitt Meadows MTC	
	Maple Ridge Town Centre RCC	
	• 104 th Ave FTDA	
	Cloverdale MTC Fast Clayton ETDA	
	East Clayton FTDAFleetwood MTC	
	Fleetwood Wrc Fleetwood West FTDA	
	Guildford MTC	
	Newton MTC	
<u> </u>		I

Criterion	Description	Assessment
	 Semiahmoo MTC Surrey Metro Centre RCC Carvolth FTDA Willoughby MTC Langley Town Centre RCC Aldergrove MTC 	
	Transportation Performance	
Headline Targets	Demonstrates tangible beneficial effects on vehicle kilometres travelled and/or walk/cycle/transit/multiple occupancy vehicle mode share As a result of TransLink's continual efforts to optimize resources to match demand on routes, this project will be	Poor/Good/ Excellent
	replacing 126 diesel 40' buses with only 84 40' CNG buses fueled by RNG. Other than the number of buses being replaced, this is a like-for-like vehicle fleet replacement project with no change in service provided (i.e. incremental vehicle kilometers travelled or shift to walk/cycle/transit/multiple occupancy vehicles mode share).	
Other Transportation Outcomes	Demonstrates tangible beneficial effects on vehicle congestion, transit passenger congestion, transit ridership, transportation safety and/or goods movement for the duration of the project.	Poor/Good/ Excellent
	As a result of TransLink's continual efforts to optimize resources to match demand on routes, this project will be replacing 126 diesel 40' buses with only 84 40' CNG buses fueled by RNG. Other than the number of buses being replaced, this is a like-for-like vehicle fleet replacement project with no change in service provided. As such, there are no incremental benefits for vehicle congestion, transit passenger congestion, transit ridership and/or transportation safety.	
Project Type	Demonstrated value of the project type (refer to section 6).	Poor/Good/ Excellent
	By maintaining TransLink's assets in good repair, vehicles will have fewer breakdowns and service disruptions, operating costs will not increase, and pollutant emissions will be reduced.	
	Regional Environmental Objectives	

Criterion	Description	Assessment
Supports the Climate 2050 Strategic Framework and Clean Air Plan	Contributes to the achievement of regional climate action and air quality goals, including directions set out in the Metro Vancouver Board Strategic Plan, the Regional Growth Strategy, Climate 2050, and the Clean Air Plan.	Poor/Good/ Excellent
	The purchase of new compressed natural gas buses to replace retiring diesel buses supports the Clean Air Plan's: Strategy 1.1: Reduce driving through active transportation and public transport; and Strategy 1.3: Reduce heavy truck emissions and support early adoption of zero emission heavy trucks.	
	TransLink's CNG bus fleet and the use of Renewable Natural Gas (RNG) is a critical strategy to helping reduce regional transportation emissions and improving air quality in the region. CNG buses significantly reduce NOx and Particulate Matter emissions as compared to conventional diesel.	
	RNG is a biogas collected from landfills, wastewater treatment plants and manure digesters that is captured, purified, and injected into the natural gas supply. A significant portion of RNG purchased by TransLink is produced locally in the Lower Mainland and British Columbia. This helps regional agricultural and landfill operations reduce methane emissions, a short-lived greenhouse gas that is 25 times more effective than carbon dioxide at trapping heat in the atmosphere. Our investment in RNG also supports the Province of British Columbia's Clean BC Roadmap to 2030 and the renewable fuel industry in Canada.	
Quantifiable Emissions Impacts	Achieves quantifiable beneficial impacts on greenhouse gas and common air contaminant emissions relative to baseline transit vehicles and lowers the emissions profile of the transit fleet. The information requirement for this criterion is fulfilled as follows:	Poor/Good/ Excellent
	1. For each transit vehicle project, provide a comparison of the emissions of the project versus the baseline vehicle. For the application in aggregate, provide the:	
	 Annualized transit fleet emissions in the current year; Plus, incremental changes in transit fleet emissions with full deployment of any proposed expansion, modernized, or refurbished vehicles. 	
	As noted above, the replacement of 126 Diesel Conventional Buses with 84 Compressed Natural Gas	

Criterion	Description	Assessment
	(CNG) Conventional Buses to be fueled with Renewable	
	Natural Gas (RNG) are estimated to have the following	
	emissions impacts (compared to diesel):	
	- 8,980t/yr reduction in GHG	
	- 18.4 t/yr reduction in NOx	
	- 0.1t/yr reduction in PM	
	This is approximately an 8% reduction of TransLink's revenue fleet GHG emissions or a 6% reduction across all fleet and facilities against a 2010 baseline. This is a significant contribution towards TransLink's 45% by 2030 GHG reduction goal and improvement of air quality in	
	the region.	
	Economic Development	
Supports regional prosperity	Contributes to a regional transportation system that moves people and goods and aligns with regional prosperity.	Poor/Good/ Excellent
	Replacement of buses will provide improved reliability of the fleet, resulting in improved reliability to the regional transportation system. Passengers will continue to have reliable access to populous destinations for work and/or leisure activities, which would avoid otherwise having to rely on single occupant vehicle travel.	

ATTACHMENT 2



TransLink

400 - 287 Nelson's Court New Westminster, BC V5H 4N2 Canada Tel 778.375.7500 translink.ca

South Coast British Columbia Transportation Authority

January 26, 2023

Metro Vancouver Regional District Board Attn: Jerry Dobrovolny, Chief Administrative Officer Metrotower III – 4515 Central Boulevard Burnaby, BC V5H 0C6

Dear Mr. Dobrovolny

Subject: Additional Information Regarding TransLink 2023 Application for Community Building Funding from the Greater Vancouver Regional Fund

PURPOSE:

To provide the Metro Vancouver Regional District Board with additional information related to renewable natural gas and the rapid conversion of TransLink's bus fleet to zero emissions.

BACKGROUND:

On October 28, 2022, the Metro Vancouver Regional District Board deferred the motion to approve Community Building Funding the TransLink application for 2023 replacement of 126 Diesel Conventional Buses with 84 Conventional Renewable Natural Gas Buses, pending receipt of additional information.

RESPONSE:

TransLink remains committed to working collaboratively with Metro Vancouver and the Province of British Columbia on the rapid conversion to a zero emissions fleet as outlined in our Climate Action Strategy and Plan, Low Carbon Fleet Strategy and Transport 2050. It continues to work collaboratively with member jurisdictions and other key partners to implement Metro Vancouver's Clean Air Plan, Climate 2050 and its associated Transportation Roadmap.

TransLink's Climate Action Strategy and Plan aims to reduce green house gas emissions (GHG) by 45% compared to 2010 levels by 2030, and to achieve net zero emissions by 2050. This transition entails the replacement of 34% of the current diesel bus fleet with battery-electric buses (BEB) by 2030, expanding the Natural Gas fleet (replacing diesels), purchasing 100% renewable natural gas (RNG), development of new transit centres, infrastructure upgrades at existing transit centres, and installing on-route charging infrastructure to support the BEB fleet.

TransLink fully recognizes the importance of BEBs to achieving our climate goals. While BEB buses achieve the highest reduction in GHGs (93%), the pace of progress with which the fleet can be converted to BEB is impacted and informed by the following:

Availability of charging infrastructure (in-route and transit centre). Implementation of such
charging infrastructure requires a considerable capital investment and time to implement.
Constructing or upgrading a transit centre able to support BEB fleet requires 4-8 years to plan,
design and construct.

- TransLink is currently working on designing and constructing the Marpole Transit Centre (MTC), our first fully battery-electric bus depot. MTC will support a fleet of 350 BEBs, and is expected to be in service by 2025 (permitting work is under way). We are also installing plugin chargers at the Hamilton Transit centre to accommodate 19 BEBs, and currently in procurement for BEBs and charging infrastructure at Port Coquitlam Transit Centre (PTC) to accept up to 136 BEBs by 2025. These measures will reduce TransLink's enterprise annual GHG emissions by approximately 20% by 2030.
- Implementation of BEB technology for certain type of fleet is currently constrained by the technology. For example, this technology is not currently feasible for highway coaches and articulated buses. TransLink constantly monitors the market and the new technology as it becomes available.
- TransLink is working actively with BC Hydro to ensure alignment of our transition to BEBs is supported by the necessary electrical distribution and infrastructure upgrades.
- The above constrains the pace with which diesel bus fleet can be converted to BEBs.
- 20% of TransLink's bus fleet is Compressed Natural Gas. The purchasing of 100% RNG and
 expanding this fleet to take more end-of-life diesels off the road, represents an important
 component of TransLink's strategy to achieve GHG reduction targets. These two measures
 will reduce TransLink's enterprise annual GHG emissions by approximately 17% by 2024, with
 6% of this coming from the 84 buses proposed under TransLink's application.
- The diversity in fleet energy and propulsion technologies assists TransLink to provide a resilient, flexible and responsive fleet in case of severe weather, or natural or man-made disasters.

Following the recommendation of Metro Vancouver Finance Committee, TransLink has also considered the alternatives to the purchase of these buses and determined that:

- It is not feasible to replace 126 end-of-life Diesel Conventional Buses with BEB in 2023, due to charging infrastructure not being available.
- Without Community Building Funding, TransLink will not be able to fund the replacement of these 126 end-of-life diesel buses with CNG-RNG-powered buses, and this current fleet will have to remain in service. This will result in additional maintenance costs, impacts to service reliability and local air quality in Surrey, Tri-Cities, and Richmond.
- Replacement of these end-of-life diesel conventional buses with like-for-like diesel buses does
 not align with the TransLink's Climate Action Strategy and Plan, the Low Carbon Fleet
 Strategy, and the 2022 Investment Plan (all endorsed by the Mayors' Council on Regional
 Transportation).
- If this application is not approved, TransLink's ability to meet its 45 percent by 2030 GHG reduction target will be in jeopardy.

If this application is approved, TransLink will continue to work with Metro Vancouver, the Province of BC and Fortis BC to ensure reporting of emissions reductions associated with RNG are clear, consistent, verified and aligned to best practices.

Regardless of the Committee's decision regarding the Application, TransLink will:

 Continue to apply the BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions to ensure reporting of emissions reductions are clear, consistent and aligned to best practices.

- Work with Fortis BC and Ministry of Energy, Mines and Low Carbon Innovation to ensure procedures for verifying emission reduction claims and appropriate GHG accounting frameworks associated with RNG are in place or established.
- Assess alternative means of securing RNG should the supply from Fortis become limited.
- Replace its natural gas buses before their scheduled end of life, should low carbon intensity RNG supply become limited.

Since October, TransLink has continued to advance the commitment to climate action in the region by:

- Meeting with staff from Metro Vancouver, BC Ministry of Environment and Climate Change Strategy and member jurisdictions on December 2, 2022 to gain a common understanding of the supply of Renewable Natural Gas (RNG), the associated regulatory and policy landscape.
- Meeting with staff from Metro Vancouver, FortisBC and member jurisdictions on January 30, 2023 to work collaboratively to develop strategies and opportunities around RNG, hydrogen, decarbonization and regulation of environmental attributes.
- Re-affirmed with the Mayors' Council on Regional Transportation on January 26th (in-camera) their support of the purchase of these buses and the purchase of renewable natural gas for TransLink's natural gas fleet as part of our overall transition to a zero-emission transit fleet.
- Engaged staff at the BC Ministry of Environment and Climate Change Strategy, Ministry of Energy, Mines and Low Carbon Innovation, and Ministry of Transportation and Infrastructure to ensure both regulatory and market measures are put in place to avoid potential double counting of emissions reductions associated with RNG production and use.
- Launched our Climate Action Plan in December 2022 which lays out a three year roadmap
 of actions to continue to create a net-zero and resilient public transportation system aligned
 to Metro Vancouver's Clean Air Plan, Climate 2050 and its associated Transportation
 Roadmap.

TransLink greatly appreciates the support from the Metro Vancouver Regional District Board over the course of many years allowing the important investments into fleet and infrastructure renewal aligned with climate change action plans and goals. TransLink staff is available to answer questions of the Metro Vancouver Regional District Board and its Finance Committee on this application.

Sincerely,

Olga Kuznetsova

VP Financial Services, Acting CFO

TransLink 400-287 Nelson's Court New Westminster, BC V3L 0E7 Canada



To: MVRD Board of Directors

From: Heather McNell, Deputy Chief Administrative Officer, Policy and Planning

James Stiver, Division Manager of Regional Land Use Policy, Regional Planning and

Housing Services

Erin Rennie, Senior Planner, Regional Planning and Housing Services

Date: February 13, 2023 Meeting Date: February 24, 2023

Subject: Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022

Third Reading and Final Adoption

RECOMMENDATION

That the MVRD Board:

- a) give third reading to Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 as presented in the report dated February 13, 2023, titled "Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 Third Reading and Final Adoption";
- b) pass, and finally adopt *Metro Vancouver Regional District Regional Growth Strategy Bylaw No.* 1339, 2022;
- c) direct staff to notify the Minister of Municipal Affairs that the MVRD Board has adopted *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*; and
- d) direct staff to notify all affected local governments, local First Nations, and other organizations and government agencies that participated in the development of *Metro 2050* that the MVRD Board has adopted *Metro Vancouver Regional District Regional Growth Strategy Bylaw No.* 1339, 2022.

EXECUTIVE SUMMARY

Following three years of extensive engagement and policy development *Metro 2050* was read a first and second time in March 2022 and a Public Hearing was held, in April 2022. Once adopted, *Metro 2050* would repeal and replace *Metro Vancouver 2040: Shaping our Future*, the current regional growth strategy. For the MVRD Board to consider third reading and to adopt the *Metro 2050* bylaw, all 24 affected local governments must first accept the update to the regional growth strategy by Council or Board resolution. In July 2022, staff reported that 22 out of 24 affected local governments had accepted the update. Subsequently, the final two affected local governments rescinded their objections and accepted *Metro 2050*.

Now that all 24 affected local governments have passed resolutions accepting *Metro 2050*, the update to the regional growth strategy, in accordance with the provisions of the *Local Government Act*, the MVRD Board can now consider third reading and adoption of *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*.

PURPOSE

To provide the MVRD Board with the opportunity to consider third reading and adoption of *Metro 2050*, the update to the regional growth strategy (*Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*).

BACKGROUND

Metro 2050 has been under development since April of 2019 when the MVRD Board directed staff to undertake a comprehensive policy review and engagement process to update Metro Vancouver 2040: Shaping our Future (Metro 2040), the current regional growth strategy. After three years of policy development, engagement, and review, Metro 2050 was read a first and second time by the MVRD Board on March 25, 2022. A Public Hearing was held on April 20 and on April 29, 2022 the MVRD Board, in accordance with the provisions of the Local Government Act, referred Metro 2050 out for local government acceptance. During the 60-day acceptance period, two of the 24 local governments refused to accept Metro 2050. However, since that time, the councils of the City of Surrey and the Township of Langley have passed resolutions to accept Metro 2050.

With all 24 affected local governments having accepted *Metro 2050*, it is now possible for the MVRD Board to consider third reading and adoption of Bylaw No. 1339, 2022. By considering third reading and adoption of Bylaw No. 1339, 2022 at the same meeting, a minimum 2/3 weighted voting threshold by the Board is needed to pass.

DEVELOPMENT OF METRO 2050

Metro 2050 was scoped in the spring of 2019 to update and build on the successes of Metro 2040, bringing forward many of its long-standing and effective policies, while making improvements in areas where lessons had been learned after over 10 years of implementation. Recognizing the emerging and growing challenges facing the region, new policy content in key issue areas such as housing, resilience, and climate action was also part of the Board directed scope of Metro 2050. In addition, Metro 2050 was scoped to align closely with Transport 2050, TransLink's new regional transportation strategy, and Climate 2050, the region's new climate action plan, both of which were also under development.

Early in the project, 11 themed Policy Reviews were completed, which included best practice research and extensive engagement, and which led to recommendations on how each of the policy areas of the regional growth strategy should be updated with *Metro 2050*. The recommendations of each policy review were endorsed by the MVRD Board and provided to all affected local governments as the basis for proposed policy updates in *Metro 2050*.

Between 2019 and 2022, the Board-endorsed *Metro 2050* Engagement Plan (Reference 1) was implemented, and staff provided quarterly engagement updates to the Regional Planning Committee and MVRD Board as well as summary reports at the end of every phase of engagement (References 2 to 5). Member jurisdictions, TransLink, the Province via multiple ministries, other regional agencies and organizations, and in-region First Nations contributed strongly in the development of *Metro 2050* through the Metro 2050 Intergovernmental Advisory Committee.

In July, 2021 the draft of *Metro 2050* was released for a five-month comment period. During that time, presentations were provided to all member jurisdictions, the Board of TransLink and the Board of adjacent regional districts. Over 900 comments from member jurisdictions, regional agencies and organizations, academia, and the public were submitted, and these thoughtful comments and suggestions resulted in significant improvements to *Metro 2050*, which were provided in detail back to the Regional Planning Committee and MVRD Board via an updated plan (Reference 6 and 7).

APPROVALS PROCESS

The process for adopting or making major amendments to a regional growth strategy is set out by the *Local Government Act*. The *Act* states that all affected local governments must pass resolutions to accept the regional growth strategy, and then approval of the implementing bylaw is considered by the MVRD Board. The Board must determine whether to hold a Public Hearing, and in this instance the Board directed that one be held in April of 2022.

In summary, the approvals process to date is as follows:

- March 25, 2022 Bylaw No. 1339, 2022 read a first and second time (Attachment 1, Reference 8);
- April 20, 2022 Public Hearing is held (Reference 9);
- April 29, 2022 Metro 2050 referred to all affected local governments for consideration, commencing a 60-day acceptance period;
- July 22 out of 24 affected local governments accept Metro 2050, 2 refusals to accept are received, indicating the specific Metro 2050 provisions to which they objected (Reference 10);
- July 29, 2022 MVRD Board receives a report with the outcome of the acceptance period and moves to notify the Minister of Municipal Affairs and request the appointment of a facilitator to assist with a dispute resolution process. The Board also directs staff to continue to engage with Langley Township and City of Surrey staff to explore possible resolutions to the noted outstanding concerns;
- September 21, 2022 Metro Vancouver issues a letter to the Minister of Municipal Affairs indicating that *Metro 2050* was not accepted by all members and requesting direction (Attachment 2); and
- November 10, 2022 the Minister of Municipal Affairs responds with a letter acknowledging receipt of the earlier letter and indicating that further direction would be provided following the October 2022 municipal election (Attachment 3).

OBJECTING LOCAL GOVERNMENTS RESCIND REFUSALS TO ACCEPT METRO 2050

While waiting for direction from the Minister, Metro Vancouver staff and the staff of the two objecting member jurisdictions continued to engage on the specific areas of concern. On December 12, 2022, Surrey City Council reconsidered and passed a resolution rescinding its previous objection and accepting *Metro 2050* (Attachment 4). At its meeting on January 16, 2023 Township of Langley Council similarly reconsidered and passed a resolution rescinding its previous objection and accepted *Metro 2050* (Attachment 5). The Township's acceptance was noted as being subject to the development of a memorandum of understanding to better define the Rural regional land use designation for the Salmon River Uplands area of the Township. Staff of the Township and Metro

Vancouver have begun discussing the content of the MOU and are committed to work collaboratively to develop wording that meets both the Township's interests and the shared regional vision set out by the regional growth strategy.

FORTHCOMING EARLY AMENDMENTS FOR CONSIDERATION

Staff have identified a number of "housekeeping" amendments needed to address some minor errors and omissions and to bring *Metro 2050* into consistency with recent Regional Context Statements that have been accepted by the MVRD Board. Therefore, post-adoption of *Metro 2050* in late 2023, staff anticipate presenting to the Regional Planning Committee and MVRD Board recommendations for the following future amendments:

- Correct the mapping error identified by the Township of Langley in acceptance letter of *Metro 2050*. This is a minor error in the legend of Map 12 made at the design stage;
- Correct minor formatting errors and typos; and
- Update maps in Metro 2050 to reflect the new Lions Bay and Pitt Meadows Regional Context Statements that were accepted by the MVRD Board in 2022 after second reading of Metro 2050 Bylaw No. 1339, 2022 (References 11 and 12).

These are all Type 3 amendments requiring a simple majority at the MVRD Board.

ALTERNATIVES

- 1. That the MVRD Board:
 - a) give third reading to Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 as presented in the report dated February 13, 2023, titled "Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 Third Reading and Final Adoption";
 - b) pass, and finally adopt *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*;
 - c) direct staff to notify the Minister of Municipal Affairs that the MVRD Board has adopted Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022; and
 - d) direct staff to notify all affected local governments, local First Nations, and other organizations and government agencies that participated in the development of *Metro 2050* that the MVRD Board has adopted the *Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022*.
- 2. That the MVRD Board receive for information the report dated February 13, 2023, titled "Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 Third Reading and Final Adoption", and provide alternative direction to staff.

FINANCIAL IMPLICATIONS

If the Board chooses Alternative 1, *Metro 2050* will replace *Metro Vancouver 2040: Shaping our Future* as the regional growth strategy for Metro Vancouver. Metro Vancouver will notify the Minister of Municipal Affairs, affected local governments, local First Nations, regional agencies and organizations, and others who participated on the Intergovernmental Advisory Committee, or were engaged throughout the *Metro 2050* process.

Staff are now working closely with External Relations staff to prepare a communication and promotions roll-out plan. Promotional expenses are included in the Board-approved 2023 Regional Planning budget.

If the Board chooses Alternative 2, *Metro Vancouver 2040: Shaping our Future* will continue to be the regional growth strategy for Metro Vancouver. Staff will notify the Minister of Municipal Affairs and request direction on how to proceed.

OTHER IMPLICATIONS

If the Board chooses Alternative 1 it will initiate the two-year period within which member jurisdictions are required by the *Local Government Act* to update their Regional Context Statements and submit them to the MVRD Board for consideration of acceptance. Regional Context Statements must demonstrate how the Official Community Plan (or equivalent) is generally consistent with *Metro 2050* or, if not consistent, demonstrate how they will become more consistent over time.

Metro Vancouver will draft Implementation Guidelines and other resources to support member jurisdictions in their work on the Regional Context Statements, and staff are always available to provide implementation support as needed.

CONCLUSION

Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022, was read a first and second time in March of 2022. During the local government acceptance period between May and June of 2022, 22 out of 24 affected local governments accepted Metro 2050 by resolution, while the City of Surrey and the Township of Langley refused to accept. Subsequently, in December of 2022 the City of Surrey rescinded its refusal and accepted Metro 2050, and in January of 2023 the Township of Langley also accepted Metro 2050.

Now that all affected local governments have accepted *Metro 2050*, third reading and adoption of Bylaw No. 1339, 2022 can be considered by the MVRD Board. Following its adoption, *Metro 2050* will replace *Metro 2040* as the regional growth strategy and a two-year period within which member jurisdictions must prepare and submit Regional Context Statements demonstrating local alignment with the regional growth strategy would begin. Staff recommend Alternative 1.

Attachments

- 1. Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022
- 2. Letter to Minister of Municipal Affairs, dated September 21, 2022
- 3. Letter from Minister of Municipal Affairs, dated November 10, 2022
- Letter from Surrey City Council. dated December 15, 2022, Re: Status on the Dispute Resolution Process for Non-Acceptance of the Metro Vancouver Regional Growth Strategy
- 5. Letter from Langley Township Council, dated January 20, 2023, Re: MVRD Regional Growth Strategy Bylaw No. 1339, 2022, a bylaw to adopt Metro 2050

References

- 1. Metro 2050 Engagement Plan, Report, August 15, 2019
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- 3. Metro 2050 Phase 1 Engagement Report, March 5, 2021
- 4. Comments on the Draft of Metro 2050 and Proposed Next Steps, Report, January 14, 2022
- 5. Metro 2050 Phase 2 Engagement Including Activities in Q4 2021, Report, February 8, 2022
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- 7. Metro 2050 Engagement website
- 8. <u>Consideration of Metro Vancouver Regional District Regional Growth Strategy Bylaw No.</u> 1339, 2022, a bylaw to adopt Metro 2050, Report, March 9, 2022
- 9. MVRD Regional Growth Strategy Bylaw No. 1339, 2022, a bylaw to adopt Metro 2050 Public Hearing Minutes and Bylaw Referral for Acceptance, Report dated April 22, 2022
- 10. Metro 2050 Outcome of Acceptance Period and Next Steps, Report dated July 12, 2022
- 11. Village of Lions Bay Regional Context Statement, Report dated July 8, 2022
- 12. City of Pitt Meadows' Regional Context Statement, Report dated July 12, 2022

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METRO VANCOUVER REGIONAL DISTRICT BYLAW NO. 1339, 2022

A Bylaw to Adopt a Regional Growth Strategy for the Metro Vancouver Regional District

WHEREAS:

- A. Part 13 of the *Local Government Act* provides for a regional district to undertake the development, adoption, implementation, monitoring, and review of a regional growth strategy; and
- B. The Board of the Metro Vancouver Regional District by resolution on April 26, 2019 initiated the review of "Greater Vancouver Regional District Regional Growth Strategy Bylaw Number 1136, 2010" pursuant to section 433 of the *Local Government Act*.

NOW THEREFORE the Board of the Metro Vancouver Regional District enacts as follows:

Citation

1. The official citation of this bylaw is "Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022". This bylaw may be cited as "Metro 2050".

Repeal of Bylaw

 "Greater Vancouver Regional District Regional Growth Strategy Bylaw Number 1136, 2010", as amended, is hereby repealed.

Schedule

3. The following Schedule is attached to and forms part of the bylaw: Schedule "A", Metro 2050, Regional Growth Strategy for the Metro Vancouver Regional District.

Regional Growth Strategy

4. Schedule "A", Metro 2050, Regional Growth Strategy for the Metro Vancouver Regional District, is adopted and designated as the regional growth strategy for the Metro Vancouver Regional District.

Read a first time this		MARCH	<u>2022</u> .
Read a second time this	day of	MARCH	2022
Public Hearing held the	<u>20</u> day of	Apral	
Read a third time this	day of		·
Passed and finally adopted this	day o	of	**

Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022

Accepted, by Resolution:

•	by the Village of Anmore	on the 17 day of _	MAY	2022
•	by the Village of Belcarra	on the 20 day of _	JUNE	, 2022
•	by the City of Burnaby	on the 20 day of _	JUNE	, 2022
•	by the City of Coquitlam	on the 13 day of	JUNE	, 2022
•	by the City of Delta	on the 13 day of	JUNE	, 2022
•	by the City of Langley	on the 13 day of _	JUNE	, 2022
•	by the Township of Langley	on the 16 day of _	VANUARY	, 2013
•	by the Village of Lions Bay	on the day of	JUNE	, 2022
•	by the City of Maple Ridge	on the 10 day of _	MAY	2022
•	by the City of New Westminster	on the 30 day of _	MAY	2022
•	by the City of North Vancouver	on the 30 day of _	MAY	, 2022
•	by the District of North Vancouver	on the 20 day of _	JUNE	, 2022
•	by the City of Pitt Meadows	on the 21 day of _	JUNE	2022
•	by the City of Port Coquitlam	on the 28 day of _	JUNE	2022
•	by the City of Port Moody	on the 14 day of _	JUNE	, 2022
•	by the City of Richmond	on the 30 day of _	JUNE	, 2022
•	by the City of Surrey	on the 12 day of _	DECEMBER	2022
•	by the Tsawwassen First Nation	on the 14 day of _	JUNE	, 2022
•	by the City of Vancouver	on the 21 day of _	JUNE	2022
•	by the District of West Vancouver	on the 13 day of _	JUNE	2022
•	by the City of White Rock	on the 21 day of _	JUNE	, 2022
•	by the Fraser Valley Regional District	on the 29 day of _	JUNE	2022
•	by the Squamish-Lillooet Regional Distric	ct on the <u>25</u> day of _	MAY	2022
•	by the South Coast British Columbia			
	Transportation Authority	on the 23 day of _	JUNE	2022

George V. Harvie,	, Chair	

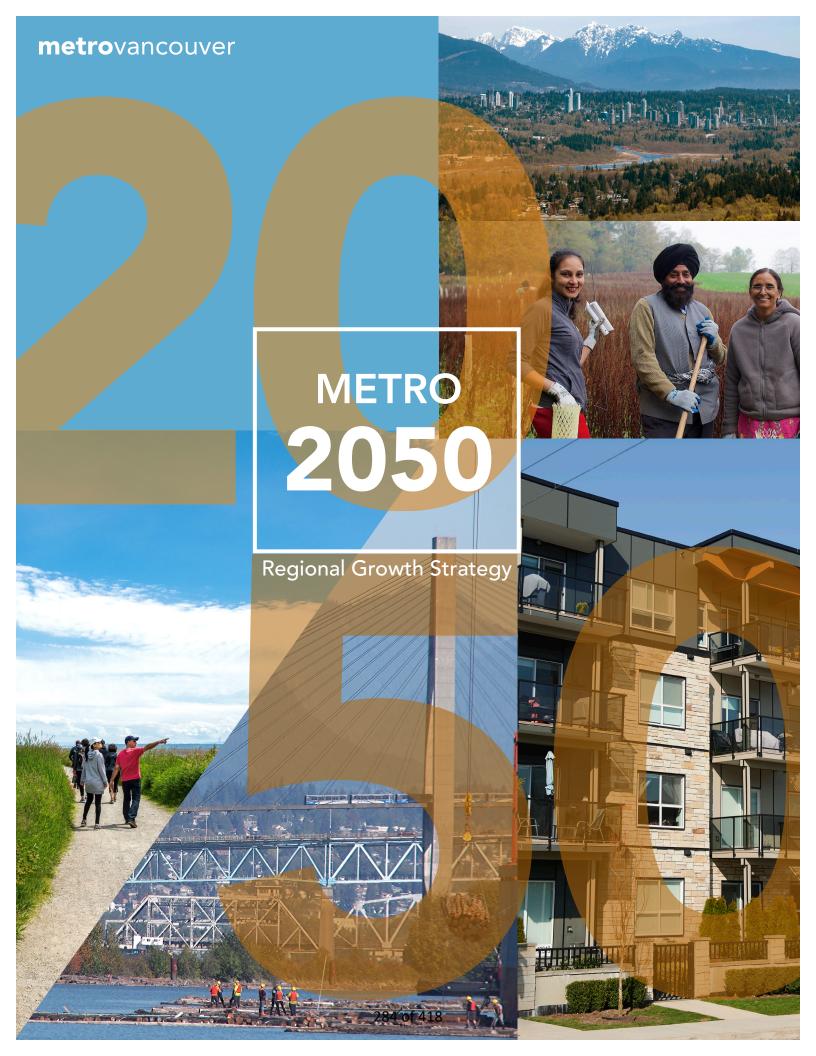
Dorothy Shermer, Corporate Officer

Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022





Metro Vancouver Regional District Regional Growth Strategy Bylaw No. 1339, 2022 Page 3 of 3



Metro 2050 Metro Vancouver Regional District

4515 Central Boulevard, Burnaby, BC, V5H 0C6

February, 2022

Acknowledgment of Indigenous Territory

Metro Vancouver acknowledges that the region's residents live, work, and learn on the shared territories of many Indigenous peoples, including ten local First Nations: Katzie, Kwantlen, Kwikwetlem, Matsqui, Musqueam, Qayqayt, Semiahmoo, Squamish, Tsawwassen, and Tsleil-Waututh.

Metro Vancouver respects the diverse and distinct histories, languages, and cultures of First Nations, Métis, and Inuit, which collectively enrich our lives and the region.

Metro Vancouver

Metro Vancouver is a federation of 21 municipalities, one Electoral Area and one Treaty First Nation, working collaboratively in planning and providing vital utility and local government services to about 2.75 million residents. Essential services include the provision of drinking water, sewage treatment, and solid waste disposal, along with regional services like parks, affordable housing, land use planning, and air quality management that help keep the region one of the most livable in the world.

FIGURE 1. METRO VANCOUVER ENTITIES AND SERVICES



Mission

Metro Vancouver's mission is framed around three broad roles:

1. Serve as a Regional Federation

Serve as the main political forum for discussion of significant community issues at the regional level, and facilitate the collaboration of members in delivering the services best provided at the regional level.

2. Deliver Core Services

Provide regional utility services related to drinking water, liquid waste, and solid waste to members. Provide regional services, including parks and affordable housing, directly to residents and act as the local government for Electoral Area A.

3. Plan for the Region

Carry out planning and regulatory responsibilities related to the three utility services as well as air quality, regional planning, regional parks, Electoral Area A, affordable housing, regional economic prosperity, and regional emergency management.

Building a Resilient Region

Building the resilience of the region is at the heart of Metro Vancouver's work. Each of Metro Vancouver's regional plans and strategies adopts a vision, guiding principles, goals, strategies, actions, and key performance measures that will support a more resilient, low carbon and equitable future. Metro Vancouver's interconnected plans and strategies are guided by the Board Strategic Plan, which provides strategic direction for each of Metro Vancouver's legislated areas of responsibility and the Long-Term Financial Plan which projects total expenditures for capital projects and operations that sustain important regional services and infrastructure. Together these documents outline Metro Vancouver's policy commitments and specific contributions to achieving a resilient region.

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A. Metro 2050 Scope and **Linkages to Other Plans**

Regional Growth Strategies: Legislative Authority

The Local Government Act establishes authority for regional districts to prepare a regional growth strategy, which is intended to "promote human settlement that is socially, economically and environmentally healthy and that makes efficient use of public facilities and services, land and other resources."

Metro Vancouver's Management Plans

Metro Vancouver's regional growth strategy, Metro 2050, is one plan among a suite of interconnected management plans developed around Metro Vancouver's Board Strategic Plan (Figure 2). The regional growth strategy uses land use policies to guide the future development of the region and support the efficient provision of transportation, regional infrastructure, and community services; it helps support the region's priorities, mandates, and long-term commitments to sustainability and resiliency, in combination with other management plans.

The regional growth strategy provides the land use framework for planning related to regional utilities (water, liquid waste, and solid waste), transportation, housing, and air quality. Reciprocally, the Drinking Water Management Plan, Integrated Liquid Waste and Resource Management Plan, and Integrated Solid Waste and Resource Management Plan set the utility frameworks within which the regional growth strategy

must be developed. Housing policies in the regional growth strategy are implemented in part through the Metro Vancouver Housing 10-Year Plan, while the environmental and active transportation policies have important linkages with the Regional Parks Plan, Ecological Health Framework, and Regional Greenways 2050. The regional growth strategy helps improve air quality and reduce greenhouse gas emissions, as called for in the Clean Air Plan and Climate 2050, by encouraging growth patterns that facilitate energy efficient built form and travel patterns. Finally, the economic actions in the regional growth strategy support a prosperous economy through the implementation of the Regional Industrial Lands Strategy and Invest Vancouver.

Metro Vancouver and TransLink: Working Together for a Livable Region

Metro Vancouver has a unique relationship with TransLink, the regional transportation authority responsible for planning, managing, and operating the regional transportation system. TransLink is required by the South Coast British Columbia Transportation Authority Act to support Metro Vancouver's regional growth strategy, air quality and greenhouse gas reduction objectives, and the economic development of the region. TransLink's regional transportation strategy, Transport 2050, sets out transportation strategies for the road and transit networks as well as other matters affecting the regional transportation system. The regional growth strategy and regional transportation plan must support each plan's policy frameworks to be successful.

Metro Vancouver acknowledges TransLink's mandate is to prepare and implement regional transportation system plans and demand management strategies. The mandate of the Mayors' Council on Regional Transportation includes approving long-term, 30 year transportation strategies and 10 year investment plans.

Metro Vancouver's role in regional transportation planning is to:

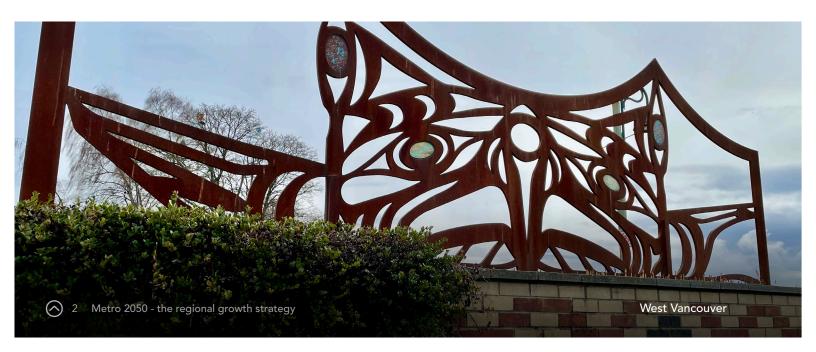
- communicate its objectives for the regional transportation system to TransLink;
- provide transportation planning input through the provision of land use, growth management and air quality information and forecasts and, as appropriate, the evaluation of land use and vehicle emissions impacts; and
- provide advice and input to TransLink and the Mayors' Council in the fulfillment of their roles in light of regional objectives and the circumstances of the day.

Metro Vancouver and TransLink share a commitment to coordination, information-sharing, and pursuing joint policy research on topics of mutual interest such as walkability, parking, new mobility, social equity, and resilience.

Working Together with First Nations

Metro Vancouver acknowledges that all levels of government have roles and responsibilities with regards to the implementation of the Truth and Reconciliation Commission of Canada's Calls to Action. Metro Vancouver engages and collaborates with local First Nations on matters of shared regional planning interest. With regards to the regional growth strategy, this includes engaging with First Nations on regional growth strategy updates, amendments, and projections, as well as on key planning initiatives. It may also include opportunities to partner or collaborate on regional planning projects such as corridor studies or inventories. Metro Vancouver shares regional planning reports and data and is available to serve as a planning resource. Metro Vancouver strives to work towards better relationships with Indigenous groups and encourages member jurisdictions to also foster improved relationships.

Metro Vancouver acknowledges that regional growth has impacts on Indigenous territories. Metro Vancouver respects that First Nations' reserve lands are not subject to the land use policies in the regional growth strategy. In addition, many First Nations have interests in land and land holdings off reserve, which are subject to the regional growth strategy. If and when First Nations develop land management plans, Metro Vancouver, the respective First Nation,



and adjacent member jurisdictions will endeavour to engage, collaborate, and coordinate with one another at an early stage to ensure, to the extent possible, that the regional growth strategy, municipal Official Community Plans, regional transportation plans, and First Nations' land management plans are all mutually respectful and supportive.

Working Together with Federal and Provincial Governments and Other Regional Stakeholders

An important part of successful regional planning is collaboration and building inter-jurisdictional partner-ships. Metro Vancouver works with other important partners including the Federal Government and the Province, other authorities and agencies, residents, non-profit organizations and business associations on all aspects of the regional growth strategy where there are shared or overlapping interests. Metro Vancouver strives to foster strong relationships with other government agencies and regional stakeholders, seeks to find opportunities for collaboration, and shares information for the benefit of all, while respecting unique jurisdictional responsibilities.

Due to Canada's federal system, there are federal, provincial, and local jurisdictions and responsibilities that interplay and have significant impacts on how people live and use the region. While some jurisdiction is clearly separate, others can be shared or overlapping. In Canada, international immigration policy and rates are set by the Federal Government. The Province has some influence over immigration programs. In addition, the Province is responsible for immigrant settlement programs. The Federal Government has jurisdiction and funding responsibilities for federal trade and transportation facilities, such as ports and airports, while the Province is responsible for transportation planning, education, agriculture, child care, and health care, all of which have significant impacts on how people live and use the region. Both the Federal Government and the Province are responsible for funding programs that enable the creation of affordable and supportive housing and for taking action on climate change.

Metro Vancouver's collaboration with regional stakeholders includes the role of convening and fostering dialogue with and among health authorities, port and airport authorities, post-secondary educational institutions, the Agricultural Land Commission, housing providers, industry groups, and the non-profit sector.

FIGURE 2. METRO VANCOUVER REGIONAL MANAGEMENT PLANS.



B. Introduction to the Region

Context for the Regional Growth Strategy

Geographic Context: Surrounded by Natural Beauty, but Constrained

Located in the southwestern corner of the British Columbia mainland, the Metro Vancouver region is a diverse urban place rich in natural beauty. Metro Vancouver is a globally important ecological hub. It is an essential stop for migratory birds along the Pacific Flyway, and the Fraser River is one of the world's most significant salmon rivers. Situated on the Salish Sea, bisected by the Fraser River, and flanked by the Coast Mountains to the north, the region's natural features have contributed to its position as a major international port, an important location for agricultural production, and one of the most desirable places to live in Canada. These features, as well as the international border to the south, lead to a constrained land base that strengthens the imperative for regional planning and growth management. Consequently, the regional federation has a long history of thoughtfully considering how to accommodate population and economic growth with limited land for expansion.

Indigenous Context: A Rich Indigenous History and Vibrant Modern Presence

For thousands of years, Indigenous peoples have lived on, and responsibly stewarded, their respective and shared territories that collectively have also become known as the Metro Vancouver region. Today there are ten First Nations with communities located within the Metro Vancouver region: Katzie First Nation, Kwantlen First Nation, Kwikwetlem First Nation, Matsqui First Nation, Musqueam Indian Band, Qaygayt First Nation, Semiahmoo First Nation, Squamish Nation, Tsawwassen First Nation, and Tsleil-Waututh Nation. In addition, there are many other Indigenous Nations and organizations located outside the boundaries of Metro Vancouver, having land and territorial interests that include the Metro Vancouver region. Furthermore, many First Nation peoples from other areas of Canada, as well as Inuit and Métis peoples, live within this region. Indigenous communities continue to thrive in the region and aim to enhance current environmental stewardship measures.



Social Context: A Culturally Diverse Region

Metro Vancouver is the largest region in British Columbia with over 53% of the province's population. Metro Vancouver is an ethnically diverse region with approximately 49% of the population of European heritage, 20% Chinese, 12% South Asian, 5% Filipino, 2.5% Indigenous, and a wide variety of other cultural backgrounds. This cultural diversity continues to enrich the region; helps make the region an attractive place to live; and supports tourism, immigration, and investment.

Immigration is a major driver of population growth and diversity with approximately 80% of permanent residents to BC settling in Metro Vancouver. India, China, and the Philippines are the top countries of origin for immigrants, with a particularly strong growth trajectory for immigration from India. Temporary residents in BC (international students and foreign workers) also predominantly reside in Metro Vancouver and numbers have grown substantially in recent years. Temporary residents likely comprise between 5-10% of the Metro Vancouver population.

Housing is one of the most important social and economic issues in Metro Vancouver. Land values and housing prices in the region are very high and have led to associated housing challenges, including: barriers to accessing housing in both the rental and ownership markets, many households spending more than 30% of their gross income on housing, lack of supply across the housing continuum, low rental vacancy rates, and a high rate of homelessness.

The BC Centre for Disease Control estimates that approximately 75% of our overall health is determined by social and ecological factors like working or living conditions, built environment, income, and educational opportunities. These factors strongly affect the rates of chronic disease and injury, leading to different levels of health and well-being for people of different groups. Community and regional planning decisions have the potential to support better health outcomes for all residents. Improving air quality, access to nature, community resilience, and neighbourhood walkability can support health equity in Metro Vancouver.

Climate Change and Natural Hazards Context: Vulnerable to Impacts and Risks

Metro Vancouver is situated on the Fraser River delta, amongst many forested areas and steep slopes, and in one of the most seismically active zones in Canada. As a result, the region is susceptible to a variety of natural hazards, including earthquakes, wildfires, landslides, and floods. Climate change is already affecting Metro Vancouver, and the impacts are projected to become more frequent and severe over time, increasingly affecting the communities, infrastructure, and natural environment within the region. Climate change can also amplify the impacts of natural hazards; for instance, sea level rise can increase the severity of coastal floods, heavier rainfall events can influence the likelihood of floods and landslides, and warmer temperatures combined with longer drought periods can increase the risk of wildfires.

Challenges and Opportunities

Metro Vancouver's population has grown substantially over the past decades, adding more than one million people in a generation. This strong population growth is projected to continue, therefore the key challenge will be to accommodate growth in ways that advance both livability and sustainability. To accomplish this, the regional growth strategy strives to address the following issues:

Accommodating Growth to Advance Livability and Sustainability

The region is expected to continue to grow by about 35,000 residents per year. Accommodating growth within a land-constrained region implies greater density of development. By carefully shaping and structuring growth and ensuring the right diversity of land uses, regional planning can reduce congestion, improve the efficiency of transportation infrastructure, improve the economics of public services, increase the viability of local businesses and retail services, foster the creation of vibrant centres for culture and community activities, and maintain an attractive urban environment.

Building Resilient, Healthy, and Complete Communities

As the region's population both grows and ages, ensuring access to the key elements of healthy, social and complete communities becomes more challenging. Access to amenities like local shops, personal services, community activities, recreation, green spaces, employment, culture, entertainment, and a safe and attractive public realm can improve community health, social connectedness, and resilience. Planning for complete communities also means considering the needs of a diverse population to promote inclusion and accessibility. This requires careful planning, primarily at the local scale, but also regionally. Complete communities can also help with other challenges, such as climate change, by encouraging active transportation and reducing the need to commute or travel long distances to access employment, amenities, or services.



Ensuring Housing for All

Ensuring affordable and appropriate housing that meets a variety of needs across the housing continuum is an ongoing challenge. While the region's housing market continues to evolve, stresses of high prices and low supply have evolved over the past decade to the point where there is extreme pressure on both ownership and rental tenure, and heightened public concern over the impacts of housing challenges on the region's social and economic well-being. Strong regional policy and performance measures pertaining to housing can help to increase the supply of all forms and tenures of housing, and reduce pressures on the housing market.

Supporting Economic Prosperity

Metro Vancouver's economy benefits from a highly varied and specialized base of employment activities, including international trade and logistics; manufacturing; professional and business services; film and television production; tourism and hospitality; education and knowledge creation; agriculture; and emerging technology-driven sectors, such as apparel technology, agri-tech, clean technology, digital media, medical technology, and new mobility. The region connects with, and serves, a resource-rich province and has strong gateway links to the North American and Asia-Pacific regions through the Port of Vancouver and YVR International Airport. An intent of the regional growth strategy is to provide an adequate supply of jobs-producing industrial and commercial space throughout the region for new and expanding industrial and employment uses. This could include research and development, incubation and acceleration, production, and export, located according to their needs, and in a manner that supports an efficient transportation system on which the economy depends.

Advancing Social Equity

Economic and social inequity can contribute to broad health and social problems as well as a wide variety of other challenges. In Metro Vancouver, incorporating social equity into regional growth planning practice is crucial to ensuring that the region moves forward in an equitable and inclusive manner. Improving social equity will also support the region's other objectives including resilience, sustainability, livability, and prosperity for all. Some of the key social equity concerns in the Metro Vancouver region that relate to the regional growth strategy include: access to green space, employment, public safety, and transit; housing adequacy, suitability, and affordability; vulnerability to climate change impacts and natural hazards; and the displacement impacts that are the result of redevelopment.

Ensuring Resilience

Metro Vancouver is vulnerable to a variety of shocks and stressors. Regional resilience is the capacity of communities and organizations to prepare, avoid, absorb, recover, and adapt to the effects of shocks and stresses in an efficient manner through the preservation, restoration, and adaptation of essential services and functions, while learning from shocks and stresses to build a more resilient place. Proactive growth management policies can promote land use and built form patterns that reduce exposure to risk, help communities prepare for future shocks, and ensure that residents have the necessary community and social assets located close to where they live and work.

Reconciliation with Indigenous Peoples

The Province passed the *Declaration on the Rights of Indigenous Peoples Act* into law in November 2019. It is anticipated that the *Local Government Act* will be brought into harmony with the *Declaration* over time which will provide greater clarity on the relationship between regional districts and Indigenous governments. In the meantime, a commitment to ongoing relationship building is essential.

Working towards reconciliation introduces a cross jurisdictional consideration for regional districts, since the primary intergovernmental relationships for First Nations is with the federal and provincial governments. While the regional growth strategy does not apply to reserve lands, it potentially impacts them. In further fostering relationships with First Nations and understanding the various challenges, opportunities, and impacts on all partners, we can collectively move forward and be inclusive of all residents of the region. Fostering stronger relationships with First Nations also offers the opportunity for all members to learn about Indigenous knowledge systems and Indigenous values, which can inform and complement regional planning policy and practice.

Protecting the Environment

Many natural assets in Metro Vancouver are of national and international significance, such as the Fraser River Estuary. Managed carefully, natural assets provide essential ecosystem services such as clean air, fresh water, and nutritious food. The challenge is to protect and restore the integrity of these assets for the benefit of current and future generations in the face of a growing population, associated development, and a changing climate. Regional policy that emphasizes protecting, connecting, and enhancing ecosystems and integrating best practices across disciplines can help address this challenge. In addition, Indigenous knowledge can inform and complement approaches to environmental protection.

Preparing for Climate Change and Natural Hazards

The major natural hazard risks in Metro Vancouver include earthquakes, floods, landslides, and wildfires. The risks associated with these hazards are often worsened by climate change. By 2050, the region is projected to experience sea level rise; warmer temperatures; longer summer drought periods; increased precipitation in the fall, winter, and spring; a reduced annual snowpack; and more frequent extreme weather events. The challenge is to prepare for the impacts of climate change and regional natural hazards, while also reducing regional greenhouse gas emissions and achieving a carbon neutral region by the year 2050. Emerging global issues such as climate change-related population displacement may impact and influence land use and growth management planning in the Metro Vancouver region. An example of a policy approach focused on preparing for the impacts of climate change and natural hazards includes avoiding siting new settlements and infrastructure in locations with known and unmitigated hazards and, where settlements already exist, mitigating those hazards to minimize risk to people and property. In addition, Indigenous knowledge can inform and complement regional resilience strategies.

Protecting Agricultural Land to Support Food Production

Local production of food is dependent on a protected land base for agriculture. Metro Vancouver has approximately 60,000 hectares in the provincial Agricultural Land Reserve, and that land is a vital asset for the economic viability of the region, the agricultural sector in particular, along with supporting local food production for future generations. The ongoing production of fresh and local food contributes to a secure food supply and economic resilience, and supports other co-benefits such as ecosystem services. Yet land speculation, the conflicts between urban and agricultural uses, and the conversion pressures from other land uses on agricultural lands continue to threaten the resilience of agriculture in the region. The impacts of climate change are also projected to have significant impacts on the agricultural industry. Effective growth management policy includes strategies to protect and enhance agricultural lands and support agricultural viability over the long-term.

Improving Accessibility and Mobility and Reducing Congestion

Metro Vancouver has some of the highest levels of transit ridership, walking, and cycling in Canada. However, sustainable mode share varies significantly across the region, the majority of trips are still taken by private motor vehicle, and transportation remains the region's largest source of greenhouse gas emissions. Shaping infrastructure, street design, and population growth in a way that supports sustainable transportation choices are keys to reaching the region's carbon neutrality target by 2050. Strategies include investing in transit and active transportation; supporting the creation of compact, complete, and walkable communities; directing growth towards transit-oriented areas; and managing transportation demand through parking requirements, transportation user pricing, and other tactics for promoting sustainable modes of transportation.



Changing Generational Trends and Behaviours

Younger and older generations often have different perspectives, preferences, and options regarding: housing type, tenure, and location; transportation choice; employment; proximity to amenities and services; and recreational opportunities. In addition, macroeconomic trends have delayed or limited many opportunities for employment and home ownership while technological innovation is also impacting consumer behaviour. The result has been a general trend towards living in more urban environments, making more environmentally-sensitive choices, and prioritizing access over ownership.

Other trends that are being seen include smaller family sizes, lower personal savings, higher educational attainment, older age of household formation, and lower rates of home and car ownership.

Demographic shifts including an aging population and immigration will also impact consumer behaviour. An awareness and consideration of changing generational and demographic trends and behaviours will support better long-range planning as well as regional prosperity through improved labour force recruitment and retention.



C. Introduction to the Regional Growth Strategy

Metro 2050 Vision

Metro Vancouver is a region of diverse, equitable, and complete communities connected by sustainable transportation choices where residents take pride in vibrant neighbourhoods that offer a range of opportunities to live, work, play, and learn, and where natural, agricultural, and employment lands are protected and enhanced.

Shaping long-term growth and development in the region is essential to meeting this vision in a way that protects the natural environment, fosters community well-being, fuels economic prosperity, provides local food security, improves social equity, provides diverse and affordable housing choices, ensures the efficient provision of utilities and transit, reduces greenhouse gas emissions, and improves resilience to climate change impacts and natural hazards.

Guiding Regional Planning Principles

Metro 2050 is guided by the following five principles:

- 1. Put growth in the right places;
- 2. Protect important lands;
- 3. Develop complete communities;
- 4. Provide affordable mobility, housing, and employment choices for all; and
- 5. Support the efficient provision of infrastructure.





Responding to the Challenges: Metro 2050 Goals

To respond to the challenges faced by the region, the regional growth strategy sets out a series of strategies and actions for Metro Vancouver and member jurisdictions arranged under five overarching goals intended to achieve the desired outcomes. While each of the goals in *Metro 2050* are separate sections by theme, they are all closely interrelated and complementary to the others. Collectively, the goals, actions, and strategies support *Metro 2050*'s vision and five guiding regional planning principles, and it is intended that they be considered together as they are mutually-supportive.

Goal 1. Create a Compact Urban Area

Metro Vancouver's growth is focused inside an Urban Containment Boundary, within which are a variety of complete communities with access to a range of housing choices, employment opportunities, amenities, and services. Concentrating growth in a network of transit-oriented centres and corridors helps reduce greenhouse gas emissions and pollution, while supporting an efficient transportation network and the efficient use of land.

Goal 2. Support a Sustainable Economy

The objective of this goal is to protect and optimize the land base and transportation systems required to ensure the viability of business sectors. This means supporting regional employment and economic growth, including the established and new emerging sectors and businesses. This is best achieved through the long-term protection of Industrial, Employment, and Agricultural lands, and ensuring that supports are in place to allow commerce to flourish in Urban Centres throughout the region, and heavy and light industrial activities on Industrial lands, connected by a diverse and reliable transportation system.



Goal 3. Protect the Environment, Address Climate Change, and Respond to Natural Hazards

The region's vital ecosystems provide essential services for all life. A connected network of protected Conservation and Recreation lands and other green spaces throughout the region provides opportunities to enhance physical and mental health, supports biodiversity, and increases community resilience. The strategies in this goal also help Metro Vancouver and its member jurisdictions contribute to meeting the regional greenhouse gas emission reduction targets, and prepare for the impacts of climate change and natural hazards.

Goal 4. Provide Diverse and Affordable Housing Choices

Metro Vancouver is a region of communities with a diverse and affordable range of housing choices suitable for residents at any stage of their lives, including a variety of unit types, sizes, tenures, prices, and locations. There is an increased supply of purpose-built rental housing, particularly in proximity to transit, and there are robust tenant protections in place to mitigate the impacts of renovation and redevelopment on renters. Residents experiencing or at risk of homelessness and those with lower incomes or special needs can access permanent, affordable, and supportive housing in neighbourhoods across the region.

Goal 5. Support Sustainable Transportation Choices

Metro Vancouver's compact, transit-oriented urban form supports a range of sustainable transportation choices. This pattern of development expands the opportunities for transit, walking, cycling, and multiple occupancy vehicles, which reduces greenhouse gas emissions and household expenditures on transportation, and improves air quality. The region's road, transit, rail, and waterway networks play vital roles in serving and shaping regional development, providing linkages among the region's communities, and providing important goods movement networks.

D. Urban Containment Boundary, Regional Land Use Designations, Overlays, and Projections

The following tools, regional land use designations, and overlays are key to achieving the five goals of the regional growth strategy. They establish a long-term regional land use framework and provide the basis for defining land use matters of regional significance.

The intent statements for the regional land use designations and overlays are to be read in conjunction with applicable strategies and actions under each goal and are to be supported by member jurisdictions in their Regional Context Statements. The boundaries for the regional designations are established on a parcel-based map maintained by Metro Vancouver and are depicted on the Regional Land Use Designations map (Map 2).

Once they have been defined by member jurisdictions, the locations of Urban Centre and Frequent Transit Development Area overlays are shown on Maps 4 and 5. The parcel-based boundaries of Urban Centre and Frequent Transit Development Area overlays, as determined by member jurisdictions, will be depicted on a reference map maintained by Metro Vancouver.

Urban Containment Boundary

The Urban Containment Boundary is a stable, longterm, regionally-defined area for urban development that protects Agricultural, Conservation and Recreation, and Rural lands from developments requiring utility infrastructure and from auto-oriented, dispersed development patterns. Locating housing, regional transportation, and other infrastructure investments within the Urban Containment Boundary supports land development patterns that can protect food producing land and reduce energy demand and greenhouse gas emissions form commuter traffic; it also secures land that stores carbon and helps communities adapt to climate change. Residential and employment infill development is encouraged within the Urban Containment Boundary.



Urban Land Use Designations

General Urban

General Urban lands are intended for residential neighbourhoods and centres, and are supported by shopping, services, institutions, recreational facilities and parks. Within General Urban lands, commercial, employment, and residential development should be focused in Urban Centres and Frequent Transit Development Areas (FTDAs). Higher density trip-generating development is to be directed to Urban Centres and FTDAs. Neighbourhood-serving shops and services are encouraged in General Urban lands both inside and outside Urban Centres and FTDAs. In central locations of the region, outside of Urban Centres and FTDAs, multi-unit and mixed-use infill development may be aligned with the goals and strategies of Metro 2050, however, the principles of walkability, proximity to frequent transit and employment, and resilience to hazards must be given due consideration.

General Urban areas are intended to emphasize place-making and an enriched public realm, and to promote transit-oriented communities, where transit, multiple-occupancy vehicles, cycling, walking, and rolling are the preferred modes of transportation.

Industrial

Industrial lands are intended for heavy and light industrial activities, including: distribution, warehousing, repair, construction yards, infrastructure, outdoor storage, wholesale, manufacturing, trade, e-commerce, emerging technology-driven forms of industry, and appropriatelyrelated and scaled accessory uses.

The intensification and densification of industrial activities and forms, as contextually appropriate to the surrounding area, are encouraged. Limited industrial-serving commercial uses that support the primary industrial functions are appropriate. Residential uses are not intended.

Employment

Employment lands are intended for light industrial, commercial, and other employment-related uses to help meet the needs of local and regional economic activities, and complement the planned functions of Urban Centres and Frequent Transit Development Areas.

Employment lands that are located within Urban Centres and Frequent Transit Development Areas provide locations for a range and mix of employment activities and more intensive forms of commercial development.

Residential uses are not intended on Employment lands, with the exception of sites that are located within 200 metres of a rapid transit station and within either an Urban Centres or FTDA. In those exceptional circumstances, limited residential uses (with an emphasis on affordable, rental housing) are permitted on the upper floors of mid- to high-rise buildings, where appropriate, while commercial and light industrial uses are to be located on the ground or lower floors.

Employment lands located outside of Urban Centres and Frequent Transit Development Areas are primarily intended for: light industrial and commercial uses that require larger-format buildings, which may have particular goods movement needs and impacts; generally lower employment densities and lower transit-generating uses; and uses and forms that are not consistent with the character of a dense transit-oriented neighbourhood, Urban Centre, or Frequent Transit Development Area.

Non-Urban Land Use Designations

Rural

Rural lands are intended to protect the existing character, landscapes, and environmental qualities of rural communities outside the Urban Containment Boundary. Land uses in these areas include low density forms of residential; agricultural; and small-scale commercial, industrial, or institutional uses, that do not require the provision of urban services such as sewerage or transit. As such, Rural lands are not intended as future urban development areas and generally will not have access to regional sewerage services. Rural designated land generally comprise natural areas, agricultural lands, lands with low-intensity residential or built environments that are historical, remote, or not contiguous with the urban area, and may have topographic constraints.

Agricultural

Agricultural lands are intended for agricultural production and agriculture-related uses that are compatible with farming operations and that directly support the local agricultural industry. Lands designated as Agricultural reinforce the provincial Agricultural Land Reserve and local land use plans that protect the region's agricultural land base. These lands are protected to encourage agricultural activities over the long-term.

Conservation and Recreation

Conservation and Recreation lands are intended to protect significant ecological and recreation assets, including: drinking water supply areas, environmental conservation areas, wildlife management areas and ecological reserves, forests, wetlands, riparian areas, major parks and outdoor recreation areas (e.g. ski hills and other tourist recreation areas), and other ecosystems that may be vulnerable to climate change and natural hazard impacts, or that provide buffers to climate change impacts or natural hazard impacts for communities. These lands are protected and managed to ensure they continue providing vital ecosystem services for the benefit of current and future generations.

Regional Overlays and the Major Transit Growth Corridors

Within the Urban Containment Boundary, Urban Centres and Frequent Transit Development Areas may be overlaid on any regional land use designation. Urban Centre and Frequent Transit Development Area overlays and policies enable higher density residential and commercial development for General Urban lands, and higher density commercial and industrial development for Employment lands. Where overlays cover lands other than those designated General Urban or Employment, the intent and policies of the underlying regional land use designations still apply.

Urban Centres

Urban Centres are intended to be the region's primary focal points for concentrated growth and transit service. They are intended as priority locations for employment and services, higher density forms, mixed residential tenures, affordable housing options, commercial, cultural, entertainment, institutional, and mixed uses. Urban Centres are intended to emphasize place-making and an enriched public realm, and to promote transit-oriented communities, where transit, multiple-occupancy vehicles, cycling, walking, and rolling are the preferred modes of transportation. Urban Centres are priority locations for services and amenities that support a growing population.

Maps 4 and 5 show the location of Urban Centres. Urban Centre boundaries are identified by member jurisdictions in their Regional Context Statements in a manner generally consistent with the guidelines in Table 3 (Guidelines for Urban Centres and Frequent Transit Development Areas). As per Table 3, there are different types of Urban Centres with different scales of expected activity and growth.

Major Transit Growth Corridors

Major Transit Growth Corridors are select areas along TransLink's Major Transit Network within which member jurisdictions, in consultation with Metro Vancouver and TransLink, may identify new Frequent Transit Development Areas (FTDAs). These corridors, shown on Map 5, extend approximately 1 kilometre from the roadway centreline in both directions and do not extend outside the Urban Containment Boundary. The intent of these corridors is to provide a framework for the region in an effort to support the regional planning principle of directing significant proportions of the region's growth towards Urban Centres and areas around transit. The Major Transit Growth Corridors are also a growth monitoring tool to assess performance on transit-oriented development objectives.

The Major Transit Growth Corridors have been identified as good potential locations for regionally -significant levels of transit-oriented growth based on a consideration of the following principles: anchored by Urban Centres or FTDAs, connected by the Major Transit Network, generally resilient to natural hazards, accessible to jobs and services, and walkable. Not all locations in the Major Transit Growth Corridors will be appropriate locations for growth (such as: rail yards or parks). Further local planning will be needed along these corridors to ensure that human settlement patterns support the development of healthy, walkable, and complete communities.

Major Transit Growth Corridors are not an overlay; rather, they are an organizing framework to support the identification of FTDAs. Major Transit Growth Corridors do not alter the underlying land use designation.

Major Transit Growth Corridor

Selection Principles

- 1. Anchored by Urban Centres or FTDAs,
- 2. Connected by the Major Transit Network,
- 3. Generally resilient to natural hazards,
- 4. Accessible to jobs and services, and
- 5. Walkable

Frequent Transit Development Areas

Frequent Transit Development Areas (FTDAs) are additional priority locations to accommodate concentrated growth in higher density forms of development. They are identified by member jurisdictions and located at appropriate locations within the Major Transit Growth Corridors. FTDAs complement the network of Urban Centres, and are characterized by higher density forms of residential, commercial, and mixed uses. FTDAs may contain community, cultural, and institutional uses. Urban design for these areas promotes transit-oriented communities where transit, cycling, walking, and rolling are the preferred modes of transportation.

Identifying FTDAs within the Major Transit Growth Corridors: 1) provides greater certainty and integration between local, regional, and transit plans; and 2) supports transit-oriented development planning across jurisdictional boundaries.

Maps 4 and 5 show the location of FTDAs. The FTDA boundaries are established by member jurisdictions in Regional Context Statements in a manner generally consistent with the guidelines in Table 3 (Guidelines for Urban Centres and Frequent Transit Development Areas). The size and shape of FTDAs may manifest in different ways in accordance with the transit service provided as well as with the local context. In corridors where transit stops are spaced more closely together, a linear shaped FTDA may be more appropriate, whereas when stops are spaced further apart a "nodal" FTDA around the station area may be a better fit. Transit service that is more frequent and higher capacity is better supported by an FTDA with a larger geographic area (up to 1000 metres) while transit service that is less frequent or lower capacity could be better supported by an FTDA with a slightly smaller geographic area (approximately 800 metres). All FTDAs are good locations for a variety of multiunit housing forms, especially affordable and rental housing, but in general densities should scale with the level of transit service provided.

Trade-Oriented Lands Overlay

The Trade-Oriented Lands Overlay is intended for Industrial lands that are required to support goods movement in, out, and through the Metro Vancouver region, and that keep British Columbia and Canada connected to the global supply chain.

These important areas are occupied by such uses as: terminal facilities, distribution centres, warehouses, container storage, and freight forwarding activities that serve a national trade function and contribute to the provincial and regional economies. These operations generally require large sites and are located near major transportation infrastructure corridors and terminals.

Industrial lands with a Trade-Oriented Lands Overlay are not intended for stratification tenure or small lot subdivision.

Natural Resource Areas Overlay

The Natural Resource Areas Overlay is intended to illustrate existing provincially-approved natural resource uses within the Conservation and Recreation regional land use designation that may not be entirely consistent with the designation, but continue to reflect its longterm intent. These uses include a landfill; quarries; lands with active forest tenure managed licences; and wastewater and drinking water treatment facilities. Metro Vancouver creates and maintains this overlay.

Growth Projections

The population, housing, and employment growth projections are included in the regional growth strategy as a collaborative guide for land use and infrastructure planning for Metro Vancouver utilities, member jurisdictions, TransLink, and other regional agencies. The growth projections are provided as a reference, and are not specific growth targets for the region, sub-regional areas, or member jurisdictions.

Regional Projections

Metro 2050 forecasts indicate that over the next thirty years, Metro Vancouver will need to accommodate approximately one million more residents. This means that the region will also require approximately 500,000 additional housing units and almost 500,000 additional jobs. The regional growth strategy encourages member jurisdictions to focus this growth in Urban Centres and Frequent Transit Development Areas to support complete and walkable communities. It is projected that between 2021 and 2050, most housing and employment growth will occur in these key areas, aligning with the Metro 2050 Urban Centre and Frequent Transit Development Area growth targets.

At the last Census in 2016, Metro Vancouver's population was just under 2.6 million. Growth over the next thirty years is projected to add about one million people to reach 3.8 million by the year 2050 (Figure 3).

Similar to the majority of Canadian cities, Metro Vancouver's population is aging. While the percentage of seniors (aged 65 and over) comprised 14.7% of the total population in 2016, this is projected to increase to 22% by 2050. The aging population will have a significant impact on the demand for services in the region, from seniors' housing, health care, accessible public transit, and many other aspects.

Strong population growth is an indicator of strong housing growth. To accommodate projected growth, the region will require an additional 500,000 dwelling units. Apartments are projected to make up over 50% of future growth, followed by multi-attached units. Single-detached housing will grow; however, minimally as locations for additional housing are exhausted.

In 2016, the average number of people living in a household in Metro Vancouver was 2.54 persons. Household size has been decreasing over the last two census periods. This trend is projected to continue and is expected to reach 2.38 by 2050 for all housing structure types. This shift will impact the number and type of new housing units required to accommodate the projected population.

Employment growth tends to follow strong population growth, and Metro Vancouver is expected to gain approximately 500,000 additional jobs by the year 2050, for a total of 1.9 million jobs (Table 1), with a population-to-employment ratio of 0.5. Commercial services will continue to grow and will make up about 50% of total future jobs. New jobs in public administration and other employment sectors will each make up approximately a quarter of job growth. The primary resource sector is projected to remain at a very low level for the region.

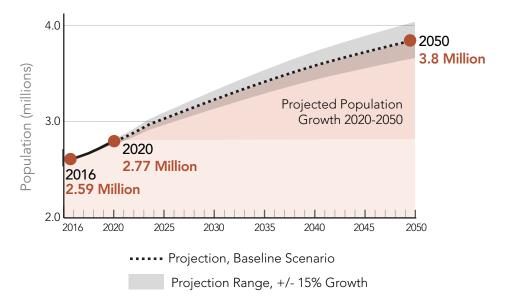


FIGURE 3. PROJECTED POPULATION TO 2050 FOR METRO VANCOUVER

Sub-Regional Projections

To establish a long-term regional growth management framework, the regional growth strategy provides population, dwelling unit, and employment projections at a sub-regional level (Figure 4) to help frame growth distribution across the region and support the following objectives:

- support Metro Vancouver utility, TransLink and member jurisdiction long-term capital planning and infrastructure investment programs;
- establish a baseline in setting future growth targets for the Urban Centres and Frequent Transit Development Areas within sub-regions;
- provide flexibility for member jurisdictions in preparing and adjusting local projections over time, and to guide long-range policy planning; and
- achieve greater resiliency to changes in residential and employment market demands.

Metro 2050's sub-regions are:

- North Shore (Bowen Island Municipality; City of North Vancouver; Districts of North Vancouver and West Vancouver; Electoral Area A; and Village of Lions Bay);
- 2. **Burrard Peninsula** (Cities of Burnaby, New Westminster, and Vancouver; UBC; and UEL);
- 3. **Northeast** (Cities of Coquitlam, Port Coquitlam, and Port Moody; Villages of Anmore and Belcarra);
- South of Fraser West (Cities of Delta and Richmond; Tsawwassen First Nation);
- South of Fraser East (Cities of Langley, Surrey, and White Rock; Langley Township; and Barnston Island); and
- Ridge Meadows (Cities of Maple Ridge and Pitt Meadows).

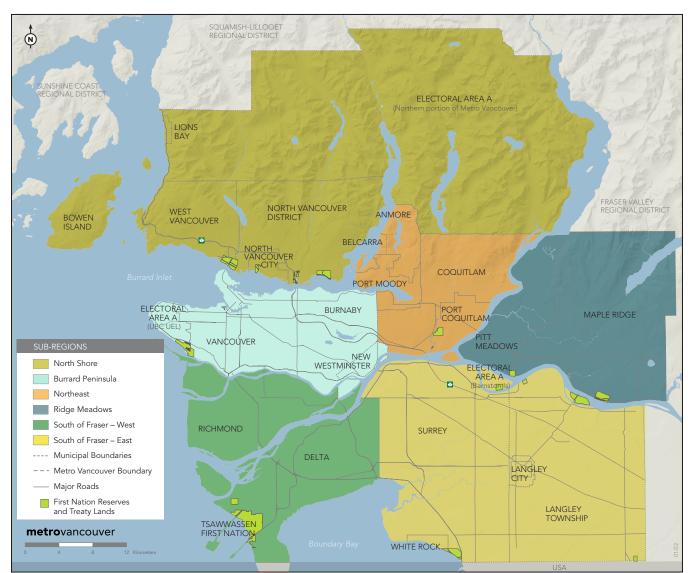


FIGURE 4. METRO VANCOUVER'S SUB-REGIONS FOR THE PURPOSES OF METRO 2050 PROJECTIONS

TABLE 1. REGIONAL AND SUB-REGIONAL PROJECTIONS BY DECADE TO 2050

POPULATION								
SUB-REGIONS		2016	2020	2030	2040	2050		
	Metro Vancouver Total	2,593,200	2,767,000	3,206,100	3,564,100	3,836,800		
	Burrard Peninsula	1,014,800	1,064,900	1,206,000	1,311,900	1,387,800		
	North Shore	199,600	207,600	236,400	254,100	271,000		
	Northeast	245,300	263,100	316,100	363,800	396,500		
	Ridge Meadows	105,500	110,800	127,200	142,800	155,000		
	South of Fraser – East	713,400	782,600	939,300	1,077,400	1,185,300		
	South of Fraser – West	314,500	337,900	381,100	414,100	441,300		
DWELLING UNITS								
		2016	2020	2030	2040	2050		
	Metro Vancouver Total	1,000,500	1,075,500	1,287,700	1,460,500	1,589,400		
SUB-REGIONS	Burrard Peninsula	435,900	462,900	533,200	584,600	623,400		
	North Shore	79,600	83,500	100,500	111,800	121,900		
	Northeast	90,000	96,800	124,800	148,600	165,700		
SU	Ridge Meadows	38,800	42,200	50,000	56,800	61,900		
	South of Fraser – East	242,800	267,000	332,400	395,300	441,100		
	South of Fraser – West	113,500	123,100	146,700	163,400	175,400		
EMPLOYMENT								
SUB-REGIONS		2016	2020	2030	2040	2050		
	Metro Vancouver Total	1,342,200	1,420,100	1,621,600	1,775,300	1,883,600		
	Burrard Peninsula	643,700	671,700	739,500	786,500	820,000		
	North Shore	89,400	94,000	107,200	115,900	123,200		
	Northeast	92,000	98,900	120,500	137,500	148,200		
	Ridge Meadows	35,800	38,600	45,500	51,200	55,100		
	South of Fraser – East	287,100	309,500	372,900	426,600	465,200		
	South of Fraser – West	194,100	207,500	236,000	257,700	271,900		

To minimize urban sprawl and its negative impacts; support the protection of agricultural, industrial, and ecologically important lands; and support the efficient provision of urban infrastructure, the regional growth strategy sets a target of containing 98% of the region's growth to areas within the Urban Containment Boundary.

To support the development of compact, complete, and transit-oriented communities within the Urban Containment Boundary, the regional growth strategy also includes targets for structuring growth to the network of Urban Centres and Frequent Transit Development Areas. It sets out targets of focusing 40% of the region's dwelling unit growth and 50% of the region's employment growth to areas within Urban Centres, and targets of focusing 28% of the region's dwelling unit growth and 27% of the region's employment growth to Frequent Transit Development Areas (Table 2).

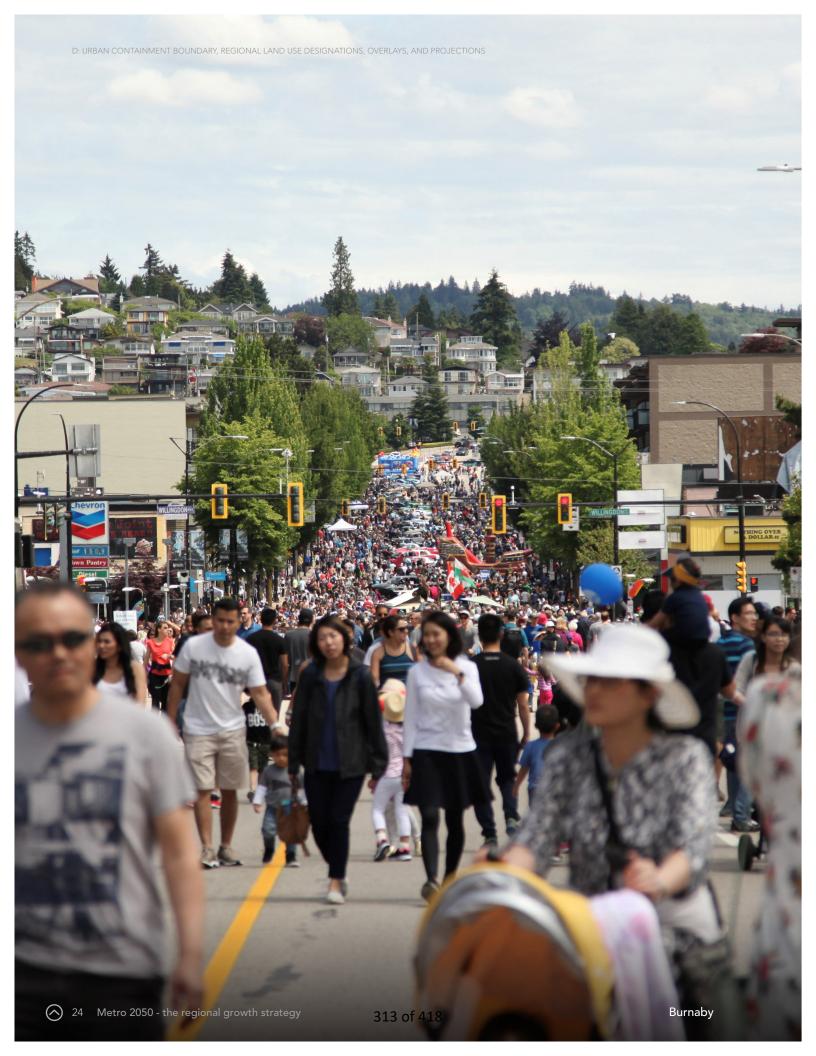
TABLE 2. DWELLING UNIT AND EMPLOYMENT GROWTH TARGETS FOR URBAN CENTRES AND FREQUENT TRANSIT DEVELOPMENT AREAS**

Location	Percent of Regional Dwelling Unit Growth 2006-2047				
All Urban Centre Types	40%				
Frequent Transit Development Areas	28%				
Jrban Centre Type Breakdown					
Metropolitan Core	5%				
• Surrey Metro Core	6%				
Regional City Centres	16%				
Municipal Town Centres*	13%				
REGIONAL TARGETS FOR EMPLOYMENT GROWTH BY LOCATION					
ocation	Percent of Regional Employment Growth 2006-2041				
All Urban Centre Types	50%				
Frequent Transit Development Areas	27%				
Jrban Centre Type Breakdown					
Metropolitan Core	10%				
Surrey Metro Core	5%				
Regional City Centres	19%				

^{*}Includes Municipal Town Centres and High Growth Municipal Town Centres.



^{**}This table provides guidance to assist in regional and local planning. It will be updated to extend the targets out to the year 2050 in an amendment following the adoption of *Metro 2050*.



E. Goals, Strategies & Actions

GOAL

1

Create a Compact Urban Area



Goal 1: Create a Compact Urban Area

A commitment to a compact urban area within the region reflects the recognition that sprawling urban development consumes the natural landscape, necessitates costly and inefficient urban infrastructure such as sewerage services and transit, contributes to negative health impacts, and adds to the global problem of greenhouse gas emissions thereby worsening climate change. Strategies under this goal delineate between urban and non-urban areas through the use of an Urban Containment Boundary.

To protect Rural, Conservation and Recreation, and Agricultural lands, it is critical to maintain the Urban Containment Boundary and to structure growth within it. This includes creating strong Urban Centres throughout the region that are well served by transit and the road network. These centres collectively make an important contribution to providing locations for employment and convenient access to shops and services close to home. Frequent Transit Development Areas, located in strategic areas within Major Transit Growth Corridors, provide an additional focus for growth, particularly for higher density residential, commercial, transit-oriented, and mixed-use development. Major Transit Growth Corridors represent the priority locations for transit investment and new Frequent Transit Development Areas, helping to bring additional certainty and greater coordination for member jurisdictions, TransLink and Metro Vancouver. Together, the Urban Centres and Frequent Transit Development Areas help shape transportation demand, optimize investments in the region's transportation system, and support the development of a region-wide network of complete communities.

Complete communities are walkable, mixed use, and transit-oriented places where people can live, work, and play, at all ages and stages of their lives. Compact and complete communities enable most people to have close access to a wide range of employment, health, social, cultural, educational, and recreational services and amenities. This is integral to positive mental and physical health and well-being, and helps reduce greenhouse gas emissions and air pollution. These places also help create a strong sense of neighbourhood identity, social connection, and community resilience.

Equitable growth management includes a commitment to advancing equity to enhance sustainability, social cohesion, and overall living conditions for all, while intentionally working to mitigate negative consequences that are unique to each community.

Strategies to achieve this goal are:

- 1.1 Contain urban development within the **Urban Containment Boundary**
- 1.2 Focus growth in Urban Centres and Frequent Transit Development Areas
- 1.3 Develop resilient, healthy, connected, and complete communities with a range of services and amenities
- 1.4 Protect Rural lands from urban development

Strategy 1.1 Contain urban development within the Urban Containment Boundary

Containing urban development, including job and housing growth, within the Urban Containment Boundary limits urban sprawl and supports the efficient and cost-effective provision of infrastructure (such as water, sewerage, and transit) and services and amenities (such as schools, hospitals, community centres, and child care). The Urban Containment Boundary helps to protect important lands such as Conservation and Recreation, Agricultural, and Rural lands from dispersed development patterns. Containing urban development also supports greenhouse gas emission reductions through trip reduction and trip avoidance, while protecting some of the region's important lands for food production and carbon sequestration and storage.

Metro Vancouver will:

- 1.1.1 Direct the Greater Vancouver Sewerage and Drainage District (GVS&DD) to not allow connections to regional sewerage services to lands with a Rural, Agricultural, or Conservation and Recreation regional land use designation. Notwithstanding this general rule, in the exceptional circumstances specified below, the Metro Vancouver Regional District (MVRD) Board will advise the GVS&DD Board that it may consider such a connection for existing development or for new development where, in the MVRD Board's opinion, that new development is consistent with the underlying regional land use designation, and where the MVRD Board determines either:
- a) that the connection to regional sewerage services is the only reasonable means of preventing or alleviating a public health or environmental contamination risk; or
- b) that the connection to regional sewerage services would have no significant impact on the goals of containing urban development within the Urban Containment Boundary, and protecting lands with a Rural, Agricultural, or Conservation and Recreation regional land use designation.
- **1.1.2** Accept Regional Context Statements that accommodate all urban development within the areas defined by the Urban Containment Boundary, and that meet or work towards Action 1.1.9.

- 1.1.3 In collaboration with member jurisdictions, develop an Implementation Guideline to guide the process by which member jurisdictions are to provide Metro Vancouver's Liquid Waste Services with specific, early, and ongoing information about plans for growth that may impact the regional sewer system, as well as plans to separate combined sewer systems.
- **1.1.4** Work collaboratively with the Federal Government, the Province, TransLink, BC Transit, and adjacent regional districts to study how interregional transportation connections can be supported and enhanced.
- 1.1.5 Ensure that sea level rise, flood risk, and other natural hazards have been considered and that a plan to mitigate any identified risks is in place when approving applications submitted by the respective member jurisdiction related to new sewers, drains or alterations, connections, or extensions of sewers or drains.
- **1.1.6** Work with First Nations to incorporate development plans and population, employment, and housing projections into the regional growth strategy to support potential infrastructure and utility investments.

- 1.1.7 Advocate to the Federal Government and the Province requesting that they direct urban, commercial, and institutional facilities and investments to areas within the Urban Containment Boundary, and to Urban Centres and Frequent Transit Development Areas.
- 1.1.8 Advocate to the Province to ensure that any transportation plans, strategies, and infrastructure investments do not encourage the dispersal of housing and employment growth outside the Urban Containment Boundary, consistent with the goals of the regional growth strategy.

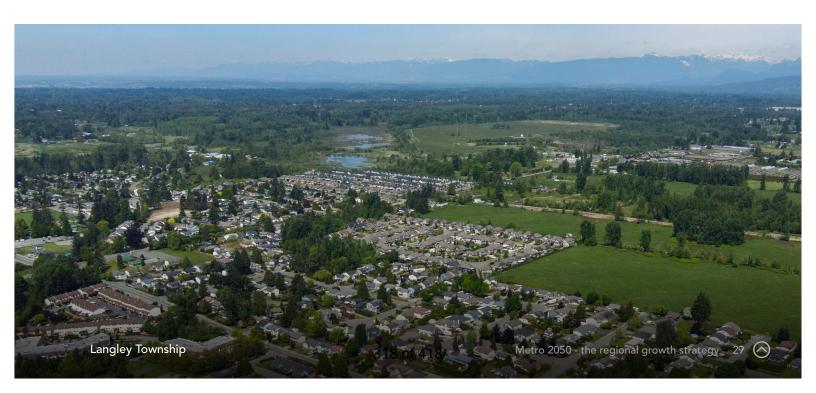
Member Jurisdictions will:

- **1.1.9** Adopt Regional Context Statements that:
- a) Depict the Urban Containment Boundary on a map, generally consistent with the Regional Land Use Designations map (Map 2);
- b) Provide member jurisdiction population, dwelling unit, and employment projections, with reference to guidelines contained in Table 1, and demonstrate how local plans will work towards accommodating the projected growth within the Urban Containment Boundary in accordance with the regional target of focusing 98% of residential growth inside the Urban Containment Boundary;

- c) Include a commitment to liaise regularly with Metro Vancouver Liquid Waste Services and Metro Vancouver Water Services to keep them apprised of the scale and timeframe of major development plans as well as specific plans to separate combined sewers; and
- d) Integrate land use planning policies with local and regional economic development strategies, particularly in the vicinity of the port and airports, to minimize potential exposure of residents to environmental noise and other harmful impacts.

TransLink will:

- **1.1.10** Continue to support a compact urban form within the Urban Containment Boundary when developing and implementing transportation plans, strategies, and investments.
- 1.1.11 Discourage the provision of infrastructure that would facilitate the dispersal of housing and employment growth outside the Urban Containment Boundary when preparing and implementing transportation plans, strategies, and investments.



Strategy 1.2 Focus growth in Urban Centres and Frequent Transit Development Areas

Focusing growth into a network of centres and corridors reduces greenhouse gas emissions both by supporting sustainable transportation options and by reducing the distances that people have to travel to make essential trips, all while improving the cost-efficiency of infrastructure investments. In addition, a compact built form is, on average, significantly more land and energy efficient than other forms of development. Focusing growth into centres and corridors fosters the development of walkable, vibrant, and mixed use communities that can support a range of services and amenities.

Identifying Frequent Transit Development Areas in appropriate locations within Major Transit Growth Corridors ensures that growth is being directed to locations with high quality and frequent transit service. This provides greater certainty to residents, TransLink, and member jurisdictions, and ensures greater integration of land use and transportation planning.

Metro Vancouver will:

- **1.2.1** Through its Regional Planning and Invest Vancouver functions, explore, with member jurisdictions, other governments and agencies, the use of financial and economic development tools and other incentives to support the location of major commercial, office, retail, and institutional development in Urban Centres.
- **1.2.2** Work with member jurisdictions, TransLink, and other governments and agencies to support the development and delivery of effective regional transportation networks and services that support the growth and development of Urban Centres and Frequent Transit Development Areas.
- **1.2.3** Maintain a reference map to provide updated information on the location and extent of Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors.
- 1.2.4 Monitor progress towards the targets set out in Table 2 (Metro Vancouver Dwelling Unit and Employment Growth Targets for Urban Centres and Frequent Transit Development Areas) for Urban Centres and Frequent Transit Development Areas.

- **1.2.5** Accept Regional Context Statements that prioritize growth and focus higher density development primarily in Urban Centres, additionally in Frequent Transit Development Areas, and that meet or work towards Action 1.2.24.
- **1.2.6** In consultation with TransLink, accept the identification of new Frequent Transit Development Areas located within Major Transit Growth Corridors identified on Map 5.
- 1.2.7 Work with member jurisdictions, TransLink, and other governments and agencies to support the development and delivery of effective regional transportation networks and services that support the growth and development of Urban Centres and Frequent Transit Development Areas.
- 1.2.8 Consult with TransLink and utilize the required criteria set out in the Urban Centre and Frequent Transit Development Area Type Reclassification Framework (Table 4) when reviewing Regional Context Statements for acceptance or proposed amendments to the regional growth strategy for the reclassification of Frequent Transit Development Areas or Urban Centres.

- 1.2.9 Only consider a new Urban Centre in the regional growth strategy where, in addition to meeting the criteria listed in Urban Centre and Frequent Transit Development Area Type Reclassification Framework (Table 4), all of the following criteria have been met:
- a) it intersects with a Major Transit Growth Corridor identified on Map 5;
- b) appropriate supporting local or neighbourhood plans have been completed by the respective member jurisdiction, that demonstrate how the future Urban Centre will accommodate the intended regionally-significant levels of employment and residential growth, and identify the adequate provision of park land, public spaces, and amenities to serve the anticipated growth; and
- c) the location is outside known and unmitigated flood and other natural hazard risk areas
- 1.2.10 Only consider the identification of a new Frequent Transit Development Area that is:
- a) within a Major Transit Growth Corridor; and
- b) outside known and unmitigated flood and other natural hazard risk areas.
- **1.2.11** Only consider reclassifying an Urban Centre or a Frequent Transit Development Area to a growthintensive classification if it is located outside of known and unmitigated flood and natural hazard areas.
- **1.2.12** Develop an Implementation Guideline, in collaboration with member jurisdictions and TransLink, to be used as a resource to support transit-oriented planning throughout the region.

- 1.2.13 Implement the strategies and actions of the regional growth strategy that contribute to regional targets as shown on Table 2 to:
- a) focus 98% of the region's dwelling unit growth to areas within the Urban Containment Boundary;
- b) focus 40% of the region's dwelling unit growth and 50% of the region's employment growth to Urban Centres; and
- c) focus 28% of the region's dwelling unit growth and 27% of the region's employment growth to Frequent Transit Development Areas.
- 1.2.14 Monitor the region's total dwelling unit and employment growth that occurs in Major Transit Growth Corridors.
- 1.2.15 Work with First Nations and other relevant agencies to encourage all major new development and infrastructure investments on First Nations lands to be transit-oriented and resilient to climate change impacts and natural hazards.
- 1.2.16 Advocate to the Federal Government and the Province requesting that:
- a) they direct major office and institutional development, public service employment locations, and other Major Trip-Generating uses to Urban Centres, Frequent Transit Development Areas, and locations within the Major Transit Growth Corridors, where appropriate. This may include, but is not necessarily limited to hospitals, post-secondary institutions, secondary schools, and public-serving health care service facilities; and
- b) that government-owned or funded affordable or supportive housing developments be located in areas with good transit access.



- **1.2.17** Advocate to the Federal Government and the Province that their procurement, disposition, and development of land holdings be consistent with the goals of the regional growth strategy.
- **1.2.18** Advocate to the Province that Metro Vancouver, member jurisdictions, TransLink, First Nations, and other stakeholders be engaged early in the process on any initiatives pertaining to the planning of new or expanded major transit capital investments.
- **1.2.19** Advocate to the Province that any future or expanded rail-based rapid transit service:
- a) avoid locations that are exposed to unmitigated natural hazards and climate change risk;
- b) improve place-making, safety, access, and amenities for people on foot, on bikes, and for those using mobility aids; and
- c) support the safe and efficient movement of people, goods, and service vehicles, to, from, and within Urban Centres and Frequent Transit Development Areas.
- **1.2.20** Advocate to the Federal Government and the Province to support the coordination of growth, land use, and transportation planning at the regional scale through updates to legislation, regulations, partnerships, plans, agreements, and funding programs, including coordination between regional districts.
- **1.2.21** Advocate to the Federal Government and the Province to support the integration of regional land use and transportation by ensuring that all housing and transportation funding programs and initiatives for the region are consistent with the goals of the regional growth strategy.
- 1.2.22 Advocate to the Federal Government and the Province requesting that they support local community concerns and public health by ensuring that the Port of Vancouver, rail companies, and airport operators continue with efforts to measure, report, and manage traffic, noise, air pollution, and vibration impacts, including cumulative impacts, on adjacent communities.

1.2.23 Advocate to the Province, Health Authorities, and TransLink, requesting continued efforts to develop guidance on community design, appropriate setbacks, and building standards along the Major Roads Network, Major Transit Network, railways, and Federal and Provincial Highways to minimize public exposure to unhealthy levels of noise, vibration, and pollution.

Member Jurisdictions will:

- **1.2.24** Adopt Regional Context Statements that:
- a) provide dwelling unit and employment projections that indicate the member jurisdiction's share of planned growth and contribute to achieving the regional share of growth for Urban Centres and Frequent Transit Development Areas as set out in Table 2 (Dwelling Unit and Employment Growth Targets for Urban Centres and Frequent Transit Development Areas);
- **b)** include policies and actions for Urban Centres and Frequent Transit Development Areas that:
 - i) identify the location, boundaries, and types of Urban Centres and Frequent Transit Development Areas on a map that is consistent with the guidelines set out in Table 3 (Guidelines for Urban Centres and Frequent Transit Development Areas) and Map 4;
 - ii) focus and manage growth and development in Urban Centres and Frequent Transit Development Areas consistent with guidelines set out in Table 3 (Guidelines for Urban Centres and Frequent Transit Development Areas) and demonstrate how that growth will contribute to the Urban Centre and Frequent Transit Development Area targets set out in Table 2 and Action 1.2.13;
 - iii) encourage office development to locate in Urban Centres through policies, economic development programs, or other financial incentives;

- iv) support modal shift by establishing or maintaining reduced residential and commercial parking requirements in Urban Centres and FTDAs and consider the use of parking maximums;
- v) consider the identification of appropriate measures and neighbourhood plans to accommodate urban densification and infill development in Urban Centres, Frequent Transit Development Areas, and, where appropriate, Major Transit Growth Corridors in a resilient and equitable way (e.g. through community vulnerability assessments, emergency services planning, tenant protection policies, and strategies to enhance community social connectedness and adaptive capacity);
- vi) consider support for the provision of child care spaces in Urban Centres and Frequent Transit Development Areas;
- vii) consider the implementation of green infrastructure;
- viii) focus infrastructure and amenity investments (such as public works and civic and recreation facilities) in Urban Centres and Frequent Transit Development Areas, and at appropriate locations within Major Transit Growth Corridors;
- ix) support the provision of community services and spaces for non-profit organizations;
- x) consider, where Urban Centres and Frequent Transit Development Areas overlap with Employment lands, higher density forms and intensification of commercial and light industrial; and
- xi) take appropriate steps to avoid or mitigate the negative health impacts of busy roadways on new or redeveloped residential areas.

- c) Include policies for General Urban lands that:
 - identify General Urban lands and their boundaries on a map generally consistent with Map 2;
- ii) exclude new non-residential Major Trip-Generating uses, as defined in the Regional Context Statement, from those portions of General Urban lands outside of Urban Centres and Frequent Transit Development Areas and direct new non-residential Major Trip-Generating uses to Urban Centres and Frequent Transit Development Areas;
- iii) encourage infill and intensification (e.g. row houses, townhouses, mid-rise apartments, laneway houses) in appropriate locations within walking distance of the Frequent Transit Network; and
- iv) encourage neighbourhood-serving commercial uses.
- d) with regards to Actions 1.2.16 and 1.2.24 c) ii), include a definition of "non-residential Major Trip-Generating uses" that includes, but is not limited to, the following uses: office or business parks, outlet shopping malls, post-secondary institutions, and large-format entertainment venues;
- e) consider the identification of new Frequent Transit Development Areas in appropriate locations within Major Transit Growth Corridors, as part of the development of new or amended area or neighbourhood plans, or other community planning initiatives; and
- f) consider long-term growth and transportation planning coordination with adjacent municipalities, First Nations, TransLink, and Metro Vancouver for transit corridors that run through or along two or more adjacent jurisdictions.



TransLink will:

- **1.2.25** Develop procurement, disposition, and development plans and actions for land holdings that support the goals of the regional growth strategy and include the provision of affordable rental housing.
- 1.2.26 Collaborate with member jurisdictions and other stakeholders on the expansion of the Frequent Transit Network, Major Transit Network, and new transit stations, and avoid expansion of permanent transit infrastructure into hazardous areas. Where risk is unavoidable, such as in existing settlements, use risk-mitigation or climate change adaptation strategies in the expansion of transit infrastructure.
- 1.2.27 Work with member jurisdictions to support the safe and efficient movement of people, goods, and service vehicles, to, from, and within Urban Centres and Frequent Transit Development Areas (e.g. by enhancing the design and operation of the road network), where appropriate.
- **1.2.28** Continue to develop walking and biking infrastructure programs that prioritize improvements in and between Urban Centres and Frequent Transit Development Areas.



TABLE 3. GUIDELINES FOR URBAN CENTRES AND FREQUENT TRANSIT DEVELOPMENT AREAS

This table provides an overview of the function and location of the different types of Urban Centres and FTDAs. It also includes planning guidance about the Urban Centre and FTDA attributes that members are expected to plan for and work towards over time.

CENTRE TYPE	FUNCTION	GENERAL EXPECTATIONS / ATTRIBUTES	LOCATION
Urban Centre - All (applies to Metro Core, Surrey Metro Centre, RCCs, HG-MTCs, and MTCs)	Primary hubs of activity. Accommodates significant regional residential and employment growth and contributes to targets. Provides a range of amenities and services. Major Road Network access. Primary locations for Major Trip-Generating Uses.	Primary focal points for concentrated growth in the region. Complete communities with a balanced mix of housing, employment, services, and amenities. High intersection densities. High quality, accessible walking, cycling, and rolling environment. Provision of transit priority measures and other transit-supportive road infrastructure and operations. Managed parking supply. Parks, green spaces, and public open spaces. The supply of affordable rental housing is protected and expanded. Industrial uses are maintained.	Locations identified on Map 2
Metro Core - Vancouver	The Region's downtown. Region-serving uses (central business district). Accommodates significant levels of regional employment and residential growth. Principal centre of business, employment, cultural, and entertainment activity for the region.	Region-serving uses. Institutional, community, cultural, and entertainment uses. Office uses. High degree of cycling connectivity and cycling network completeness. High walkability index score. Provision of transit priority measures and other transit-supportive road infrastructure and operations.	Vancouver
Metro Centre - Surrey	Centre of activity South of the Fraser River. Region-serving uses. Accommodates significant levels of regional employment and residential growth.	High degree of cycling connectivity and cycling network completeness. High walkability index score. Office uses. Provision of transit priority measures and other transit-supportive road infrastructure and operations. Institutional, community, cultural, and entertainment uses.	Surrey
Regional City Centre	Sub-regional hub of activity. Accommodates significant levels of sub-regional residential and employment growth.	Sub-region serving uses (hospital, post-secondary). Office uses. Sub-regional-scale employment, services, business and commercial activities. Major institutional, community, cultural and entertainment uses. High and medium density forms of housing (in General Urban only), including affordable housing choices. Existing frequent transit services. Provision of transit priority measures and other transit-supportive road infrastructure and operations. Minimum density of 60-350 Jobs + People/hectare.	Locations on the Major Transit Network.

High Growth Municipal Town Centre Municipal Town Centre	Centre of activity for one or more member jurisdictions. Accommodates significant levels of municipal employment and residential growth. Centre of activity for one or more member jurisdictions. Accommodates municipal residential and employment growth.	Municipally-serving shops, services, uses, and amenities. Higher density commercial uses. Higher density residential uses, (in General Urban only) including affordable and rental options. Minimum density of 60-200 Jobs + People/hectare. Municipal focus for community and cultural activities. Services, shops, uses, amenities, and activities oriented to the local needs of the surrounding communities. Employment, services, business and commercial activities, typically serving the municipal or local area. Institutional, community, cultural, and entertainment uses. Medium to high density forms of residential uses, including	Maximum 1,200 metres from a Major Transit Network station. Not in an area with known and unmitigated natural hazards. Locations with high regional accessibility to jobs. Locations on the Major Transit Network.
		affordable options. Minimum density of 20-150 Jobs + People/hectare.	
Frequent Transit Development Area (FTDA)	Location for transit-oriented development and mixed uses in alignment with the Major Transit Growth Corridors. Accommodates additional employment and residential growth. Locations for multi-unit housing including affordable and rental housing. Locations for Major Trip-Generating Uses.	Transit-oriented employment and / or housing growth. Supply of affordable and rental housing is protected and expanded. A range of multi-unit housing forms. Development intensity scales to the frequency and capacity of the transit service. Walkable and bike-friendly urban design. Managed parking supply. Transit priority measures. Provides appropriate noise, vibration, and air quality mitigation measures. Parks, green spaces, and public open spaces. Industrial uses are maintained.	Located in appropriate locations withir the Major Transit Growth Corridors. The shape of an FTDA is tailored to the stop spacing distance of the transit service. Distance of FTDA boundaries to the transit stops are scaled to the frequency and capacity of the service provided; the greater the service capacity, the greater the radius.
General Guidance on Frequent Transit Development Areas	Corridors Linear FTDAs that support frequent transit corridors that have generally shorter stop spacing. Densities and uses to support bus- based frequent and rapid transit.	Generally linear-shaped geography along a transit corridor. Location for medium density housing forms, especially wood-frame construction. Location for affordable and rental housing and employment growth. Minimum density of 35-80 Jobs + People/hectare.	Located along segments of the MTGC with shorter stop spacing. No more than 1,000 metres from the Major Transit Growth Corridor centreline. Boundary radius scaled to the level of transit service capacity and frequency. 800 metre radius recommended for frequent bus.
	Station Areas Nodal FTDAs that support transit stations. Generally, located where stations are further apart. Accommodates significant residential and employment growth including rental and affordable housing. Densities and uses to support high-capacity rapid and frequent transit.	Generally nodal-shaped around a transit station. May include higher density forms supportive of higher capacity transit service. Office and employment uses. Additional parking management to support transit and active transportation. Minimum density of 60-350 Jobs + People/hectare.	Located along higher capacity and higher frequency transit service with wider stop spacing. No more than 1,000 metres from an existing Major Transit Network Station. Boundary radius scaled to the level of transit service capacity and frequency.

TABLE 4. URBAN CENTRE AND FREQUENT TRANSIT DEVELOPMENT AREAS TYPE RECLASSIFICATION FRAMEWORK

This table lays out the criteria required before a new FTDA, new Urban Centre, or reclassified Urban Centre can be considered.

CENTRE TYPE	REQUIRED CRITERIA FOR A NEW URBAN CENTRE OR FTDA, OR FOR URBAN CENTRE RECLASSIFICATION	METRO 2050 AMENDMENT PROCESS
In order to become	The area must currently meet the following criteria	And pursue the following amendment process
Frequent Transit Development Area (FTDA)	Located within a Major Transit Growth Corridor (as shown on Map 5) and no more than 1,000 metres from the MTGC centreline. FTDA geography should be tailored to transit service level; nodal FTDAs are better suited to corridors with wider transit stop spacing, while linear FTDAs are better suited to corridors with shorter stop spacing. Policies supportive of street, sidewalk, and cycling network connectivity. Policies supportive of managed parking supply. Not in an area with known and unmitigated natural hazards. Official Community Plan (OCP) Land Use Map and policies supportive of infill and intensified residential and/or employment growth.	Type 3 or Regional Context Statement Update
Urban Centre - All (applies to all Urban Centre types)	Required for a new Urban Centre, or reclassification to any Urban Centre type: Located on the Major Transit Network. Not in a known and unmitigated natural hazard area. OCP Land Use Map and policies supportive of infill and intensified residential and employment growth.	
Municipal Town Centre	Meets the above criteria for Urban Centre, and: • Formerly a Frequent Transit Development Area; • Evidence that the area is a primary hub of activity within a member jurisdiction; • Minimum 60 Jobs + People / hectare; and • Minimum area of 40 hectares.	Туре 3
High Growth Municipal Town Centre	Meets the above criteria for Urban Centre, and: • Formerly a Municipal Town Centre or FTDA; • Existing rail rapid transit service; • High regional accessibility (i.e. many employment nodes can be accessed by transit within a defined amount of time); • Not in a known and unmitigated natural hazard area; • Minimum 100 Jobs + People / hectare; and • Minimum area of 40 hectares.	Туре 3
Regional City Centre and Metro Centres	Reclassification from any Urban Centre type to or from the "Regional City Centre" or to "Metro Centre" types is not contemplated by the regional growth strategy.	

Strategy 1.3 Develop resilient, healthy, connected, and complete communities with a range of services and amenities

Creating complete communities, especially in the region's Urban Centres, with a mix of uses and affordable services and amenities, allows residents of all ages and abilities to meet most of their daily needs by walking, rolling, or transit without leaving their neighbourhoods. This supports trip reduction, walking, healthier living, climate action, more equitable access to the key amenities that support a high quality of life, and creates resilient places with inclusion and connection.

Metro Vancouver will:

- **1.3.1** Support member jurisdictions and work with First Nations and other agencies in developing resilient, healthy, connected, and complete communities through regional strategies, research, and best practices that:
- a) promote greater local access to affordable community services and child care, healthy food, and public spaces (including regional parks and greenways);
- b) reduce greenhouse gas emissions, bolster resilience to climate change impacts and natural hazards, and improve social equity, universal accessibility, and inclusive engagement; and
- c) encourage the provision and enhancement of urban green spaces in new and established neighbourhoods.
- 1.3.2 Provide technical advice, assistance, research, and data to member jurisdictions, First Nations, and other agencies to improve air quality, reduce greenhouse gas emissions, increase access to community services, and to better understand the health and social equity aspects of land use and infrastructure decisions.
- **1.3.3** Collaborate with health authorities, academic institutions, First Nations, and other researchers to share best practices, research, data, and tools that can advance land use policies to:
- a) ensure neighbourhoods are designed for walking, cycling, rolling and social activities to promote positive mental and physical health;
- b) meet community social needs and priorities;

- c) reduce community exposure to climate change and air quality impacts, especially communities that are disproportionally impacted; and
- d) increase equitable access and exposure to public spaces through urban green space enhancement and retention opportunities.
- **1.3.4** Measure and monitor access to community services and amenities, particularly in Urban Centres and Frequent Transit Development Areas.
- **1.3.5** Advocate to the Federal Government and the Province to ensure that growing communities are served appropriately and in a timely manner with social amenities, health, schools and educational opportunities, to avoid inequities in service levels between communities in the region.
- **1.3.6** Advocate to the Federal Government and the Province to ensure that community, arts, cultural, recreational, institutional, social services, health and education facilities funded or built by them are located in Urban Centres or areas with good access to transit.

Member Jurisdictions will:

- **1.3.7** Adopt Regional Context Statements that:
- a) support compact, mixed use, transit, walking, cycling and rolling-oriented communities;
- b) locate and support community, arts, cultural, recreational, institutional, medical/health, social service, education and child care facilities, and local serving retail uses in Urban Centres or areas with good access to transit;

- c) provide and encourage public spaces and other place-making amenities and facilities (e.g. community gardens, playgrounds, gathering places, etc.) in new and established neighbourhoods, for all ages, abilities, and seasons, to support social connections and engagement.
- d) respond to health and climate change-related risks by providing equitable access to:
 - i) recreation facilities;
 - ii) green spaces and public spaces (e.g. parks, trails, urban forests, public squares, etc.); and
- iii) safe and inviting walking, cycling, and rolling environments, including resting spaces with tree canopy coverage, for all ages and abilities;
- e) support the inclusion of community gardens (at-grade, rooftop, or on balconies), grocery stores and farmers' markets to support food security, and local production, distribution and consumption of healthy food, in particular where they are easily accessible to housing and transit services;
- f) consider, when preparing new neighbourhood and area plans, the mitigation of significant negative social and health impacts, such as through the use of formal health and social impact assessment methods in neighbourhood design and major infrastructure investments;

- g) provide design guidance for existing and new neighbourhoods to promote social connections, universal accessibility, crime prevention through environmental design, and inclusivity while considering the impacts of these strategies on identified marginalized members of the community; and
- h) consider where appropriate, opportunities to incorporate recognition of Indigenous and other cultures into the planning of Urban Centres, FTDAs, and other local centres.

TransLink will:

- **1.3.8** Provide equitable and accessible levels of transit service to communities and employment areas.
- **1.3.9** Continue to improve sustainable mobility options for neighbourhoods outside the Urban Centres and Frequent Transit Development Areas within the General Urban land use designation as shown on Map 2.



Strategy 1.4 Protect Rural lands from urban development

Rural designated lands are located outside the Urban Containment Boundary and are not intended for urban forms of development. Containing growth within the Urban Containment Boundary ensures the protection of natural, rural, and agricultural areas, and the efficient and cost-effective provision of sewerage, transit, and other community services. The inherent benefits of urban containment also support reduced greenhouse gas emissions and increases opportunities for natural carbon sinks.

Metro Vancouver will:

- 1.4.1 Direct the Greater Vancouver Sewerage and Drainage District (GVS&DD) to not allow connections to regional sewerage services to lands with a Rural regional land use designation as identified on Map 2. Notwithstanding this general rule, in the exceptional circumstances specified below, the Metro Vancouver Regional District (MVRD) Board will advise the GVS&DD Board that it may consider such a connection for existing development or for new development where, in the MVRD Board's opinion, that new development is consistent with the Rural regional land use designation and where the MVRD Board determines either:
- a) that the connection to regional sewerage services is the only reasonable means of preventing or alleviating a public health or environmental contamination risk; or
- b) that the connection to regional sewerage services would have no significant impact on the strategy to protect lands with a Rural regional land use designation from urban development.
- **1.4.2** Accept Regional Context Statements that protect lands with a Rural regional land use designation from urban development and that meet or work towards Action 1.4.3.

Member Jurisdictions will:

- 1.4.3 Adopt Regional Context Statements that:
- a) identify Rural lands and their boundaries on a map generally consistent with Map 2;
- b) limit development to a scale, form, and density consistent with the intent for the Rural land use designation, and that is compatible with on-site sewer servicing;
- c) specify the allowable density and form, consistent with Action 1.4.1, for land uses within the Rural regional land use designation;
- d) prioritize and support agricultural uses within the Agricultural Land Reserve, and where appropriate, support agricultural uses outside of the Agricultural Land Reserve; and
- e) support the protection, enhancement, restoration, and expansion of ecosystems identified on Map 11 to maintain ecological integrity, enable ecosystem connectivity, increase natural carbon sinks and enable adaptation to the impacts of climate change.



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Goal 2: Support a Sustainable Economy

The regional growth strategy leverages the region's existing economic strengths to provide for a prosperous future by supporting diverse commercial and industrial sectors, employment growth, ensuring well designed regional places with an emphasis on public space and transit, and recognizing the region's role as a key provincial and national gateway. The regional growth strategy supports a sustainable economy through its regional land use designations and economic and transportation strategies and policies.

Urban Centres distributed throughout the region provide opportunities for commercial activities, services, and employment uses to be located close to where people live, and enable economic and transportation efficiencies. The design of these centres supports a strong sense of place, a public realm that promotes a positive civic image, and ensures a high quality of life through the provision of amenities and diversity of housing types. Policies discourage the dispersal of major employment and Major Trip-Generating uses outside of Urban Centres and Frequent Transit Development Areas, to support jobs in close proximity to homes and connected by sustainable forms of transportation.

Increasing demands for land for industrial activities as the population and economy grow, coupled with ongoing market pressure to convert Industrial lands to office, retail, residential, and other uses, has resulted in a critically diminished supply of Industrial land in the region. In addition to the national, provincial, and regional serving industries in Metro Vancouver, many small to medium sized industries provide for the day-to-day needs of the region's population, such as repair and servicing activities, e-commerce, manufacturing, and renovation and construction functions. Additional lands are needed for container storage, freight forwarding, warehouses, and other distribution functions that support the regional economy to provide for a sustainable and resilient supply chain system.

Meeting the needs of both a growing regional economy and an expanding international gateway for trade requires an adequate supply of serviced industrial lands, such as those identified as 'trade-oriented' lands. Preserving the region's industrial lands supports existing businesses by allowing them to expand and supports new businesses to locate in the region, all the while avoiding long transportation distances, business inefficiencies, and higher greenhouse gas emissions. In response to the vulnerability of industrial land, policies are included to protect and intensify the use of the limited supply in the region. Efforts that encourage industrial densification and intensification provide a range of benefits such as: more efficient use of lands and resources; reduced pressures on other lands; improved capacity for businesses to grow to create employment opportunities; increased job opportunities; greater clustering of co-located operations; circular economy; and a more efficient transportation system.

There are some economic activities that are not traditional industrial uses and cannot be easily accommodated or viable in Urban Centres or Frequent Transit Development Areas. The regional growth strategy provides for these activities to be accommodated in Employment areas, which are intended to complement the planned function of Urban Centres, Frequent Transit Development Areas, and Industrial lands.

Major educational and medical institutions in this region also have a vital role in the economy, as they have key linkages with many sectors, provide and support research and innovation, and are incubators for new industries.

Agriculture is an important sector of the region's economy and a critical component of the local food system. The agricultural industry is dependent on the protection and availability of Agricultural land for the production of food and other goods and services and on the regional industrial land supply for storage, processing, and distribution. Effective legislation and an economically viable agricultural sector are important ways to protect Agricultural land for future generations.

Agricultural production is vulnerable to the impacts of climate change. Projected changes in temperature, precipitation, flooding and extreme weather events will profoundly affect agriculture production. Policies focus on increased resilience and the long-term protection of land for sustainable food production, edge planning, new drainage and irrigation infrastructure, and climate change adaptation. This strategy also seeks to protect Agricultural land for local food production and supports the economic viability of the agricultural sector, while recognizing the value of ecosystem services.

Equitable growth management includes a commitment to advancing equitable and sustainable planning and land development practices that support a regional economy that is accessible and designed to benefit all people. It includes a commitment to: employment growth; effective use of industrial lands; an efficient transportation system; sustainable practices that work to enhance and protect natural resources; building resilience through climate-smart agricultural approaches; and mitigating the potential disproportionate impacts on ecosystems, communities, groups, or individuals.

Strategies to achieve this goal are:

- 2.1 Promote land development patterns that support a diverse regional economy and employment opportunities close to where people live
- 2.2 Protect the supply and enhance the efficient use of industrial land
- 2.3 Protect the supply of agricultural land and strengthen agricultural viability



Strategy 2.1 Promote land development patterns that support a diverse regional economy and employment opportunities close to where people live

Economic and employment activities, such as post-secondary and medical institutions, shopping streets, retail centres, business parks, transportation terminals and associated infrastructure, complement employment activities in Urban Centres (Strategy 1.2) and industrial uses on Industrial lands (Strategy 2.2), which have different location requirements and attributes. These businesses support the region's economy and population, and rely on and have implications for the transportation network and the design of neighbourhoods. Locating jobs close to where people live and near the transit network supports the creation of complete communities (Strategy 1.3), reduces social inequities in the region, and helps to reduce energy consumption and greenhouse gas emissions through reduced vehicle travel and increased active transportation.

- Provide regional utility infrastructure to support the region's economic functions and to support efficient employment and settlement patterns.
- Work with the Federal Government, the 2.1.2 Province, member jurisdictions, First Nations, and the private sector to advance shared economic prosperity and resilience through Invest Vancouver to attract strategic investment to the region.
- Work with the Federal Government, the Province, and member jurisdictions to explore:
- a) fiscal measures to reinforce the attraction of investment and employment opportunities to Urban Centres, Frequent Transit Development Areas, and lands with an Industrial or Employment regional land use designation; such employment opportunities should be consistent with the intention of the underlying regional land use designation; and
- b) fiscal reform to ensure that the property tax system supports sound land use decisions.
- **2.1.4** Collaborate with the Fraser Valley and Squamish-Lillooet Regional Districts on shared initiatives related to economy, transportation, and other related matters.

- Accept Regional Context Statements that support economic activity and an urban form designed to be consistent with its context in: Urban Centres, Frequent Transit Development Areas, Industrial lands, Employment lands, ports and airports, and that meet or work towards Action 2.1.10.
- Advocate to the Federal Government, the 2.1.6 Province, and TransLink to develop and operate transportation infrastructure that supports and connects the region's economic activities by sustainable modes of transportation in Urban Centres, Frequent Transit Development Areas, Industrial lands, Employment lands, ports and airports.
- 2.1.7 Advocate that airport authorities:
- a) encourage the use of surplus airport lands for industrial activities, and where appropriate, discourage non-airport related commercial development and any expansion beyond the Industrial and Employment areas specified on Map 7;
- b) expedite the transition to energy efficient, low, and zero emission modes for goods movement; and
- c) develop strategies to adapt to climate change impacts and natural hazard risks.

2.1.8 Advocate that the Port of Vancouver:

- a) encourage the use of surplus port lands for industrial activities, and where appropriate, discourage non-port related commercial development and any expansion beyond the Industrial and Employment lands specified on Map 7;
- b) expedite the transition to energy efficient, low, and zero emission modes for goods movement; and
- c) develop strategies to adapt to climate change impacts and natural hazard risks.
- **2.1.9** Advocate that the Federal Government and the Province support existing and new industries in the region through such means as investment, procurement strategies, tax incentives, skill development, and small business loan programs.

Member Jurisdictions will:

- **2.1.10** Adopt Regional Context Statements that:
- a) include policies to support appropriate economic activities, as well as context-appropriate built form for Urban Centres, Frequent Transit Development Areas, Industrial lands, and Employment lands;
- b) support the development and expansion of large-scale office and retail uses in Urban Centres, and lower-scale uses in Frequent Transit Development Areas through policies such as: zoning that reserves land for commercial uses, density bonus provisions to encourage office development, variable development cost charges, and/or other incentives; and
- c) discourage the development and expansion of major commercial uses outside of Urban Centres and Frequent Transit Development Areas and that discourage the development of institutional land uses outside of Urban Centres and Frequent Transit Development Areas.



Strategy 2.2 Protect the supply and enhance the efficient use of industrial land

Industrial lands are critical to supporting a diverse, resilient economy - one that supports businesses and residents by securing land for economic development and jobs within the region, and reducing costs for commuting and the transportation of goods. In response to the vulnerability of industrial land, policies are included to protect and appropriately use the region's limited supply of Industrial and Employment lands, while also considering the future of industrial activities and work, greenhouse gas emissions, and the impacts of climate change.

- 2.2.1 Monitor the supply, demand, and utilization of Industrial land with the objective of assessing whether there is sufficient capacity to meet the needs of the growing regional economy.
- Work with the Province, member jurisdictions, and other agencies to investigate industrial taxation rates and policies that support industrial development, efficient use of Industrial land, and industrial densification.
- In collaboration with member jurisdictions, develop an Implementation Guideline covering the following topics: opportunities for Industrial lands to support new growth planning initiatives, new forms of industry and technologies, urban industry and e-commerce, design of industrial forms, guidance on setting criteria for trade-oriented lands, and other policy measures.
- Seek input from TransLink, the Port of Vancouver, the Vancouver International Airport Authority, the Ministry of Transportation and Infrastructure, and/or the Agricultural Land Commission on any proposed Regional Context Statement or regional growth strategy amendments for Industrial and Employment lands, as appropriate.
- Accept Regional Context Statements that include provisions that protect and support the ongoing economic viability of industrial activities and that meet or work towards the strategies set out in Action 2.2.9.

- 2.2.6 Advocate to the Federal Government and the Province to coordinate transportation infrastructure and service investments that support the efficient movement of goods and people for industrial and employment operations, and considers the Regional Goods Movement Strategy and the Regional Truck Route Network.
- Advocate to the Federal Government and the Province to support initiatives and infrastructure investments that:
- a) introduce more energy efficient, low carbon and zero emissions equipment operations and vehicles;
- b) reduce distances travelled by commercial vehicles;
- c) expedite the transition to energy efficient, low, and zero emission modes for goods movement; and
- d) shift freight activity out of peak congestion periods.
- Advocate to the Federal Government, the Province, and relevant agencies to enhance data collection and sharing related to industrial, employment, transportation, and economic matters in support of the efficient use of Industrial lands in the region.

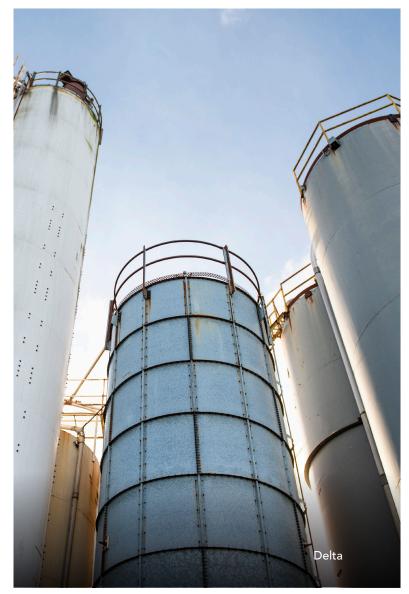


Member jurisdictions will:

- **2.2.9** Adopt Regional Context Statements that:
- a) identify the Industrial and Employment lands and their boundaries on a map generally consistent with Map 7.
- b) identify Trade-Oriented lands, if applicable, with a defined set of permitted uses that support inter-regional, provincial, national, and international trade (e.g. logistics, warehouses, distribution centres, transportation and intermodal terminals) and location needs (e.g. large and flat sites, proximity to highway, port, or rail infrastructure) on a map consistent with the goals in the regional growth strategy. Strata and/or small lot subdivisions on these lands should not be permitted;
- c) include policies for Industrial lands that:
 - i) consistently define, support, and protect industrial uses, as defined in *Metro 2050*, in municipal plans and bylaws, and ensure that non-industrial uses are not permitted;
- support appropriate and related accessory uses, such as limited-scale ancillary commercial spaces, and caretaker units;
- exclude uses that are not consistent with the intent of Industrial lands and not supportive of industrial activities, such as medium and large format retail uses, residential uses, and standalone office uses, other than ancillary uses, where deemed necessary;
- iv) encourage improved utilization and increased intensification/densification of Industrial lands for industrial activities, including the removal of any unnecessary municipal policies or regulatory barriers related to development form and density;

- v) review and update parking and loading requirements to reflect changes in industrial forms and activities, ensure better integration with the surrounding character, and reflect improvements to transit service, in an effort to avoid the oversupply of parking;
- vi) explore municipal industrial strategies or initiatives that support economic growth objectives with linkages to land use planning;
- vii) provide infrastructure and services in support of existing and expanding industrial activities;
- viii) support the unique locational and infrastructure needs of rail-oriented, waterfront, and trade-oriented industrial uses;
- ix) consider the preparation of urban design guidelines for Industrial land edge planning, such as interface designs, buffering standards, or tree planting, to minimize potential land use conflicts between industrial and sensitive land uses, and to improve resilience to the impacts of climate change; and
- x) do not permit strata and/or small lot subdivisions on identified Trade-Oriented lands.
- d) include policies for Employment lands that:
- i) support a mix of industrial, small scale commercial and office, and other related employment uses, while maintaining support for the light industrial capacity of the area, including opportunities for the potential densification/intensification of industrial activities, where appropriate;
- allow large and medium format retail, where appropriate, provided that such development will not undermine the broad objectives of the regional growth strategy;

- support the objective of concentrating largerscale commercial, higher density forms of employment, and other Major Trip-Generating uses in Urban Centres, and local-scale uses in Frequent Transit Development Areas;
- iv) support higher density forms of commercial and light industrial development where Employment lands are located within Urban Centres or Frequent Transit Development Areas, and permit employment and service activities consistent with the intent of Urban Centres or Frequent Transit Development Areas, while low employment density and low transit generating uses, possibly with goods movement needs and impacts, are located elsewhere;
- v) do not permit residential uses, except for:
 - an accessory caretaker unit; or
 - limited residential uses (with an emphasis on affordable, rental units) on lands within 200 metres of a rapid transit station and located within Urban Centres or Frequent Transit Development Areas, provided that the residential uses are located only on the upper floors of buildings with commercial and light industrial uses, where appropriate and subject to the consideration of municipal objectives and local context.
- e) include policies to assist existing and new businesses in reducing their greenhouse gas emissions, maximizing energy efficiency, and mitigating impacts on ecosystems; and
- f) include policies that assist existing and new businesses to adapt to the impacts of climate change and reduce their exposure to natural hazards risks, such as those identified within the regional growth strategy (Table 5).





Strategy 2.3 Protect the supply of agricultural land and strengthen agricultural viability

Protecting land for agricultural production is essential for the viability of the agricultural industry and a resilient region. Collaboration with the Agricultural Land Commission is necessary to address the ongoing challenges from competing residential, industrial, and commercial land use demands. Improved multi-jurisdictional collaboration that recognizes the priority to protect farm land for food production, and the importance of climate change adaptation while restricting other land uses in agricultural lands is critical. Equally important is the need to strengthen the economic viability of agricultural operations by encouraging new markets and expanding the distribution of local foods.

- and Drainage District (GVS&DD) to not allow connections to regional sewerage services for lands with an Agricultural regional land use designation.

 Notwithstanding this general rule, in the exceptional circumstances specified below, the Metro Vancouver Regional District (MVRD) Board will advise the GVS&DD Board that it may consider such a connection for existing or for new development where, in the MVRD Board's discretion, the use is consistent with the underlying Agricultural regional land use designation and where the MVRD Board determines either:
- a) that the connection to regional sewerage services is the only reasonable means of preventing or alleviating a public health or environmental contamination risk; or
- b) that the connection to regional sewerage services would have no significant impact on the regional growth strategy goal to protect the supply of agricultural land and strengthening agricultural viability.
- **2.3.2** Monitor the status of agricultural land in the region including local agriculture production and other public benefits such as the provision of ecosystem services in collaboration with the Province and the Agricultural Land Commission.

- 2.3.3 Identify and pursue strategies and actions to increase actively farmed agricultural land, strengthen the economic viability of agriculture, and minimize conflicts between agriculture and other land uses, within or adjacent to agricultural land, in collaboration with member jurisdictions, the Province, and the Agricultural Land Commission.
- 2.3.4 Work with the Agricultural Land Commission (ALC) to protect the region's agricultural land base and not consider amending the Agricultural or Rural regional land use designation of a site if it is still part of the Agricultural Land Reserve (ALR). However, where the ALC has provided conditional approval to exclude land from the ALR, the Metro Vancouver Board may also provide conditional approval of a regional land use designation amendment for the exclusion site, subject to the ALC exclusion conditions being met.
- **2.3.5** Undertake agricultural awareness activities that promote the importance of the agricultural industry, the protection of agricultural land, and the value of local agricultural products and experiences, in partnership with other agencies and organizations.
- **2.3.6** Accept Regional Context Statements that protect the region's supply of Agricultural land and strengthen agricultural viability that meet or work towards the provisions set out in Action 2.3.12.

- 2.3.7 Advocate to all levels of government the necessity of agriculture impact assessments and mitigation requirements when transportation, utility, and recreational infrastructure is being planned, developed, or operated on agricultural lands.
- 2.3.8 Advocate to the Province for farm property tax reform that encourages more actively farmed land and enables secure land tenure for new and established farmers.
- Advocate to the Province to increase agricultural producers' knowledge and adoption of innovative practices for advancing agriculture economic development, and resilience to climate change and natural hazard impacts, such as those identified in the regional growth strategy (Table 5).
- **2.3.10** Advocate to the Province to provide incentives to encourage land management practices that reduce greenhouse gas emissions, improve soil health, protect natural assets, and maintain ecosystem services from agricultural land.
- 2.3.11 Advocate to the Province for changes to the Local Government Act to require that Official Community Plans prioritize the need for agricultural land, similar to how long-term needs are considered for residential, commercial, and industrial lands.

Member Jurisdictions will:

- 2.3.12 Adopt Regional Context Statements that:
- a) specify the Agricultural lands within their jurisdiction, denoting those within the Agricultural Land Reserve, on a map generally consistent with Map 8;
- b) consider policies and programs that increase markets and the distribution of local food in urban areas to strengthen the viability of agriculture and increase availability of local food for all residents;
- c) include policies that protect the supply of agricultural land and strengthen agriculture viability including those that:

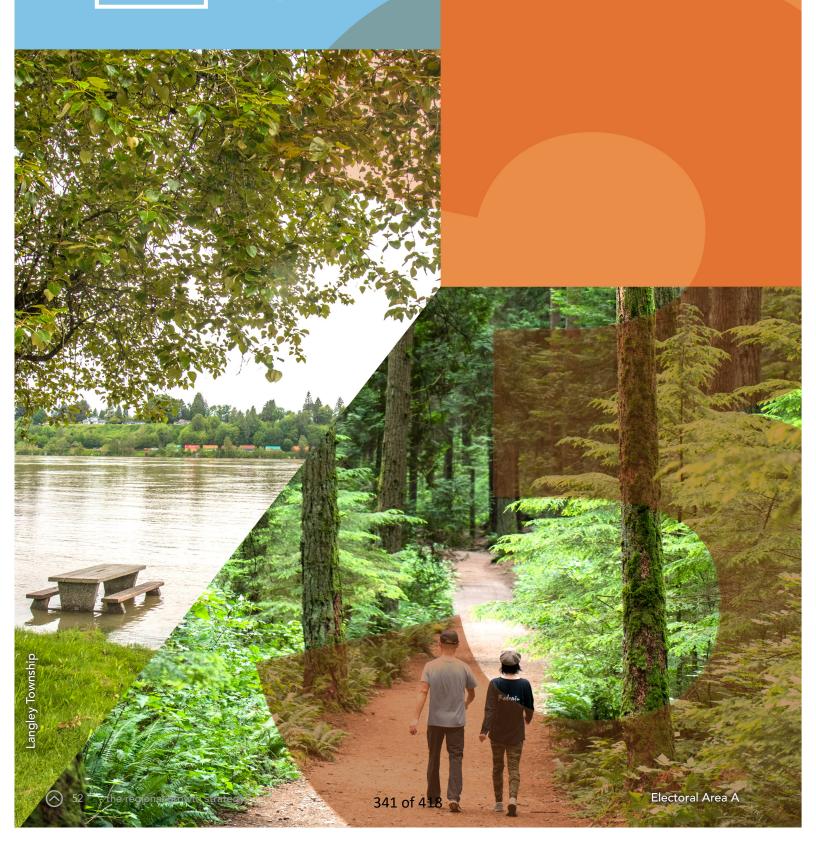
- assign appropriate land use designations to protect agricultural land for future generations and discourage land uses on Agricultural lands that do not directly support and strengthen agricultural viability;
- ii) encourage the consolidation of small parcels and discourage the subdivision and fragmentation of agricultural land;
- iii) support climate change adaptation including:
 - monitoring storm water, flooding, and sea level rise impacts on agricultural land,
 - implementing flood construction requirements for residential uses, and
 - · maintaining and improving drainage and irrigation infrastructure that support agricultural production, where appropriate and in collaboration with other governments and agencies;
- iv) protect the integrity of agricultural land by requiring edge planning along the Urban Containment Boundary and adjacent to agricultural operations through activities such as screening, physical buffers, roads, or Development Permit area requirements;
- demonstrate support for economic development opportunities for agricultural operations that are farm related uses, benefit from close proximity to farms, and enhance primary agricultural production as defined by the Agricultural Land Commission Act; and
- vi) align policies and regulations, where applicable, with the Minister's Bylaw Standards and Agricultural Land Commission legislation and regulations.
- 2.3.13 In partnership with other agencies and organizations, support agricultural awareness and promote the importance of the agricultural industry, the importance of protecting agricultural land, and the value of local agricultural products and experiences.



GOAL

3

Protect the Environment, Address Climate Change, and Respond to Natural Hazards



Goal 3: Protect the Environment, Address Climate Change, and Respond to Natural Hazards

Metro Vancouver has a spectacular natural environment. Many of Metro Vancouver's ecosystems have global significance, such as the Fraser River estuary, which provides both internationally-important fish habitat and key feeding and resting points for migratory birds along the Pacific Flyway. The region's forests, fields, coastal and intertidal areas, wetlands, and watercourses together are integral pieces of a habitat network for birds, fish, and other wildlife.

The diverse mountain, coastal, and river areas provide the region's residents with essential ecosystem services such as fresh water, clean air, pollination, traditional Indigenous food and medicines, fertile soil, flood control, cooling, carbon storage, and opportunities for tourism, recreation, cultural and spiritual enrichment, health and well-being (Figure 5). Climate change, land development, invasive species, and other human-induced pressures are causing ecosystem change and loss in many areas, which reduces nature's capacity to provide these life-sustaining services. If planned, designed, and built in harmony with nature, communities will be healthier and more resilient over the long-term.

The tenets of the regional growth strategy (such as the ongoing focus on urban containment and land use patterns that support sustainable transportation options and carbon storage opportunities in natural areas) are critical for the region to address climate change. This section contains a strategy and associated policies that support Metro Vancouver's commitment to reaching a carbon neutral region by the year 2050. Climate change is expected to continue to cause warmer temperatures, a reduced snowpack, increasing sea levels, and more intense and frequent drought and rainfall events in the region. An additional strategy aims to improve resilience to these climate change impacts, as well as natural hazards. Many of the region's natural hazards are, and will continue to be, worsened by a changing climate.

Addressing both greenhouse gas emissions and the impacts of climate change and natural hazards simultaneously is critical, as the challenges and solutions associated with these issues are often interlinked. Given the dynamic and rapidly changing impacts of climate change on the Metro Vancouver region, and in response to best practices research and climate science, progress towards the *Metro 2050* targets and performance measures will be regularly monitored with an aim to proposing improvements to the policies and actions in the plan.

A commitment to improving social equity includes advancing equitable climate change strategies and actions that will: intentionally consider the suite of concerns that increase community vulnerability, and acknowledge current financial, health, and social disparities that may be exacerbated by low carbon solutions and the impacts of climate change.

For thousands of years Indigenous people have lived on and stewarded their respective and shared territories developing deep and special relationships with the land and waters. Indigenous knowledge systems that have been developed over many years have the potential to inform and complement regional planning policy and practice.

Strategies to achieve this goal are:

- 3.1 Protect and enhance Conservation and Recreation lands
- 3.2 Protect, enhance, restore, and connect ecosystems
- 3.3 Advance land use, infrastructure, and human settlement patterns that reduce energy consumption and greenhouse gas emissions, create carbon storage opportunities, and improve air quality
- 3.4 Advance land use, infrastructure, and human settlement patterns that improve resilience to climate change impacts and natural hazards

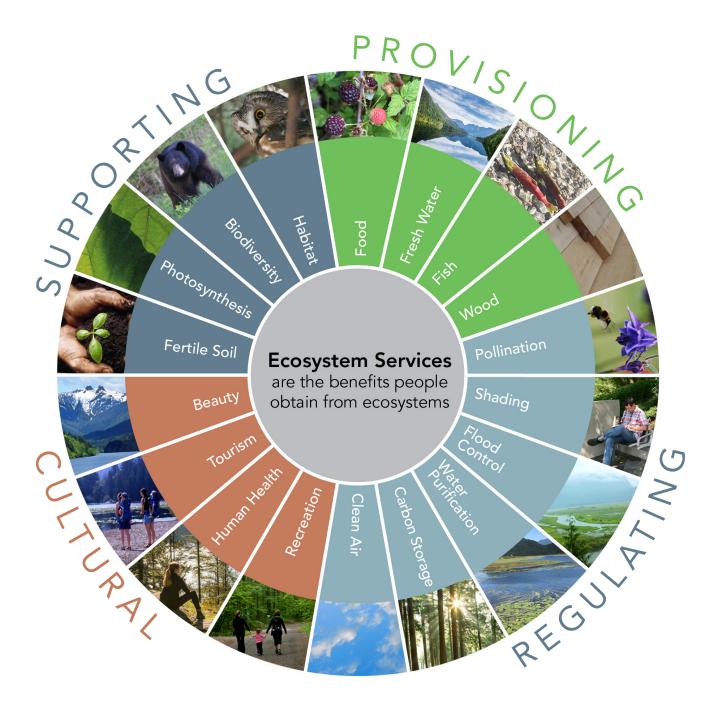


FIGURE 5. ECOSYSTEM SERVICES PROVIDED BY HEALTHY ECOSYSTEMS

Strategy 3.1 Protect and enhance Conservation and Recreation lands

The Conservation and Recreation regional land use designation is intended to help protect significant ecological and recreation assets throughout the region. Protection and management of these assets will ensure they remain productive, resilient, and adaptable, providing vital ecosystem services that support both humans and wildlife, while also safeguarding communities from climate change and natural hazard impacts.

- Direct the Greater Vancouver Sewerage and Drainage District (GVS&DD) to not allow connections to regional sewerage services to lands with a Conservation and Recreation regional land use designation. Notwithstanding this general rule, in the exceptional circumstances specified below, the Metro Vancouver Regional District (MVRD) Board will advise the GVS&DD Board that it may consider such a connection for existing development or for new development where, in the MVRD Board's opinion, that new development is consistent with the underlying Conservation and Recreation regional land use designation and where the MVRD Board determines either:
- a) that the connection to regional sewerage services is the only reasonable means of preventing or alleviating a public health or environmental contamination risk; or
- b) that the connection to regional sewerage services would have no significant impact on the strategy to protect lands with a Conservation and Recreation regional land use designation.

- Implement the Metro Vancouver Regional Parks Plan, the Regional Parks Land Acquisition 2050 Strategy, and Regional Greenways 2050, and work collaboratively with member jurisdictions to identify, secure and enhance habitat and park lands, and buffer park and conservation areas from activities in adjacent areas.
- 3.1.3 For the Greater Vancouver Water District and the Greater Vancouver Sewerage and Drainage District, avoid ecosystem loss and fragmentation on lands with a Conservation and Recreation regional land use designation when developing and operating infrastructure, but where unavoidable, mitigate the impacts, including ecosystem restoration and striving for no net ecosystem loss.
- Monitor ecosystem gains and losses on lands with a Conservation and Recreation regional land use designation and the Natural Resource Areas therein, as identified on Map 9.
- Accept Regional Context Statements that protect lands with a Conservation and Recreation

regional land use designation, and that meet or work towards Action 3.1.9.

- **3.1.6** Advocate to the Federal Government, the Province, utility companies, and TransLink to avoid ecosystem loss and fragmentation on lands within a Conservation and Recreation regional land use designation when developing and operating utility and transportation infrastructure, but where unavoidable, to mitigate the impacts, including ecosystem restoration and striving for no net ecosystem loss.
- 3.1.7 Advocate to the Province and its agencies to actively manage provincially-owned land within a Conservation and Recreation regional land use designation, and work with adjacent land owners to effectively buffer these lands, with the intent of minimizing negative impacts and enhancing ecosystem integrity and providing public recreational opportunities.
- **3.1.8** Advocate to the Federal Government and the Province to:
- a) recognize the Conservation and Recreation regional land use designation and ensure that their activities within or adjacent to these lands are consistent with the long-term intent of the land use designation; and
- b) consult and collaborate with all levels of government, including First Nations, and other stakeholders in the planning and management of lands with a Conservation and Recreation regional land use designation, including during the review of future natural resource extraction projects.

Member jurisdictions will:

- **3.1.9** Adopt Regional Context Statements that:
- a) identify Conservation and Recreation lands and their boundaries on a map generally consistent with Map 2;
- b) include policies that support the protection and enhancement of lands with a Conservation and Recreation land use designation, which may include the following uses:
- i) drinking water supply areas;
- ii) environmental conservation areas;
- iii) wildlife management areas and ecological reserves;
- iv) forests;
- wetlands (e.g. freshwater lakes, ponds, bogs, fens, estuarine, marine, freshwater, and intertidal ecosystems);
- vi) riparian areas (i.e. the areas and vegetation surrounding wetlands, lakes, streams, and rivers);
- vii) ecosystems not covered above that may be vulnerable to climate change and natural hazard impacts, or that provide buffers to climate change impacts or natural hazard impacts for communities; and



- viii) uses within those lands that are appropriately located, scaled, and consistent with the intent of the designation, including:
 - major parks and outdoor recreation areas;
 - education, research and training facilities, and associated uses that serve conservation and/or recreation users;
 - commercial uses, tourism activities, and public, cultural, or community amenities;
 - limited agricultural use, primarily soil-based; and
 - land management activities needed to minimize vulnerability / risk to climate change impacts.

c) include policies that:

- i) protect the integrity of lands with a Conservation and Recreation regional land use designation from activities in adjacent areas by considering wildland interface planning, and introducing measures such as physical buffers or development permit requirements; and
- ii) encourage the consolidation of small parcels, and discourage subdivision and fragmentation of lands with a Conservation and Recreation regional land use designation.



Strategy 3.2 Protect, enhance, restore, and connect ecosystems

This strategy establishes a collective vision for ecosystems across the region, recognizing the scientific evidence that 'nature needs half' of the land base to continue functioning for the benefit of all life and support human well-being. The vision can be realized in this region by working together to protect, enhance, and restore ecosystems, strategically linking green spaces, both in and between urban and rural areas, into a region-wide network that sustains ecosystem services and movement of wildlife across the landscape. Actions to enhance tree canopy cover in urban areas will also improve community resilience by intercepting rainwater, moderating the urban heat island effect, and improving health outcomes.

- **3.2.1** Implement the strategies and actions of the regional growth strategy that contribute to regional targets to:
- a) increase the area of lands protected for nature from 40% to 50% of the region's land base by the year 2050; and
- b) increase the total regional tree canopy cover within the Urban Containment Boundary from 32% to 40% by the year 2050.
- **3.2.2** Implement the Metro Vancouver *Ecological Health Framework*, including relevant actions to:
- a) collect and maintain data, including the Sensitive Ecosystem Inventory, tree canopy cover, imperviousness, and carbon storage datasets; report on gains and losses and climate change impacts on ecosystems; and share these datasets with member jurisdictions; and
- b) incorporate natural assets and ecosystem services into Metro Vancouver's corporate planning, asset management systems and investments, and provide regionally appropriate guidance on methodologies, tools and decision-making frameworks.

- **3.2.3** Manage Metro Vancouver assets and collaborate with member jurisdictions, First Nations, and other agencies to:
- a) protect, enhance, and restore ecosystems as identified on Map 11 or more detailed local ecological and cultural datasets;
- b) identify ecosystems that may be vulnerable to climate change and natural hazard impacts as part of regional multi-hazard mapping in Action 3.4.2 a);
- c) identify a regional green infrastructure network that connects ecosystems and builds on existing local networks, while maximizing resilience, biodiversity, and human health benefits; and
- d) prepare Implementation Guidelines to support a regional green infrastructure network and to assist with the protection, enhancement, and restoration of ecosystems.

3.2.4 Work with local First Nations to:

- a) increase understanding of Indigenous ecological knowledge, and share information about environmental research, policy development, and planning best practices;
- b) find joint stewardship and restoration opportunities on Metro Vancouver sites, and expand access to sustainably cultivate and harvest plants for cultural purposes; and
- c) seek other Indigenous stewardship, research, and co-management opportunities.
- **3.2.5** Accept Regional Context Statements that advance the protection, enhancement, restoration, and connection of ecosystems in a regional green infrastructure network, and that meet or work towards Action 3.2.7.
- **3.2.6** Advocate to the Federal Government and the Province to:
- a) strengthen species-at-risk and ecosystem protection legislation to better protect critical habitat, and support restoration and biodiversity, in addition to convening a local government support network;
- b) support the uptake of nature-based climate change solutions, including those that protect or restore foreshore ecosystems;
- c) update and consolidate provincial invasive species legislation to better support the management of high-risk invasive species; and
- **d)** undertake a regional impact assessment of the Fraser River Estuary to support the management of cumulative effects from development.

Member jurisdictions will:

- **3.2.7** Adopt Regional Context Statements that:
- a) identify local ecosystem protection and tree canopy cover targets, and demonstrate how these targets will contribute to the regional targets in Action 3.2.1;
- b) refer to Map 11 or more detailed local ecological and cultural datasets and include policies that:
 - i) support the protection, enhancement, and restoration of ecosystems through measures such as land acquisition, density bonusing, development permit requirements, subdivision design, conservation covenants, land trusts, and tax exemptions;
 - ii) seek to acquire, restore, enhance, and protect lands, in collaboration with adjacent member jurisdictions and other partners, that will enable ecosystem connectivity in a regional green infrastructure network;
 - iii) discourage or minimize the fragmentation of ecosystems through low impact development practices that enable ecosystem connectivity; and
- iv) indicate how the interface between ecosystems and other land uses will be managed to maintain ecological integrity using edge planning, and measures such as physical buffers, or development permit requirements.



c) include policies that:

- support the consideration of natural assets and ecosystem services in land use decision-making and land management practices;
- ii) enable the retention and expansion of urban forests using various tools, such as local tree canopy cover targets, urban forest management strategies, tree regulations, development permit requirements, land acquisition, street tree planting, and reforestation or restoration policies, with consideration of resilience;
- iii) reduce the spread of invasive species by employing best practices, such as the implementation of soil removal and deposit bylaws, development permit requirements, and invasive species management plans;
- v) increase green infrastructure along the Regional Greenway Network, the Major Transit Network, community greenways, and other locations, where appropriate, and in collaboration with Metro Vancouver, TransLink, and other partners; and
- iv) support watershed and ecosystem planning, the development and implementation of Integrated Stormwater Management Plans, and water conservation objectives.

Strategy 3.3 Advance land use, infrastructure, and human settlement patterns that reduce energy consumption and greenhouse gas emissions, create carbon storage opportunities, and improve air quality

The tenets of the regional growth strategy are crucial for meeting the region's commitment to reduce greenhouse gas emissions and to reach carbon neutrality by the year 2050. As described in other strategies in the regional growth strategy, this can be achieved in three key ways: by supporting growth and development patterns that enable sustainable transportation options; by encouraging higher-density built forms and multi-unit developments which are typically more energy efficient than lower-density alternatives; and by reducing development pressures in areas that naturally store and sequester carbon (such as conservation and agricultural lands). To supplement these important policy actions from other goal areas in the regional growth strategy, Strategy 3.3 contains the region's greenhouse gas emissions reduction targets and associated policies.

Metro Vancouver will:

3.3.1 Implement the:

- a) strategies and actions of the regional growth strategy that contribute to regional targets to reduce greenhouse gas emissions by 45% below 2010 levels by the year 2030 and to achieve a carbon neutral region by the year 2050; and
- b) Metro Vancouver Clean Air Plan, Climate 2050, and other associated actions to help achieve the regional greenhouse gas emissions reduction targets in Action 3.3.1 a).
- **3.3.2** Work with the Federal Government, the Province, TransLink, member jurisdictions, First Nations, non-governmental organizations, energy utilities, the private sector, and other stakeholders, as appropriate, to:
- a) monitor energy consumption, greenhouse gas emissions, and air quality related to land use, buildings, industry, agriculture, waste, transportation, and other emission sources, and consider lifecycle energy and emissions;
- b) monitor and pursue opportunities to increase carbon storage in natural areas; and

- c) promote best practices and develop guidelines to support local government actions that reduce energy consumption and greenhouse gas emissions, support a transition to clean, renewable energy (including electricity), create carbon storage opportunities, and improve air quality.
- Work with TransLink, member jurisdictions, and health authorities to advocate that health impact assessments be conducted for major transportation projects and significant development projects with an aim to minimizing public exposure to traffic-related air contaminants.
- **3.3.4** Work with the Federal Government, the Province, and other stakeholders when conducting environmental assessments to reduce the environmental and health impacts related to regional air quality and greenhouse gas emissions.
- Accept Regional Context Statements that 3.3.5 advance land use, infrastructure, and settlement patterns that reduce energy consumption and greenhouse gas emissions, improve air quality, create carbon storage opportunities, and that meet or work towards Action 3.3.7.

- **3.3.6** Advocate to the Federal Government and the Province to establish and support legislative and fiscal actions, that help the public and private sector maximize reductions in energy consumption and greenhouse gas emissions, and improve air quality, such as:
- a) in the building sector,
- accelerating the transition of energy efficiency requirements in the BC Building Code to net zero energy ready levels by 2032;
- setting greenhouse gas and energy performance requirements for new and existing buildings;
- iii) increasing incentives and financing tools for new low-carbon, zero-emissions, and resilient buildings;
- iv) supporting large-scale building electrification;
- v) requiring benchmarking and energy labels for new and existing buildings;
- vi) supporting reductions in embodied emissions of buildings, and the increased use of low-carbon circular building products and processes;
- vii) supporting programs, services and incentives for low-carbon upgrade options in rental buildings that benefit building owners and tenants;
- viii) incenting equitable transit-oriented development through policy and funding programs; and
- ix) supporting, where feasible and appropriate, energy recovery, renewable energy generation and zero-carbon district energy systems, and related transmission needs.
- b) in the transportation sector,
 - revising enabling legislation to allow regional road usage charging for the purposes of managing congestion and greenhouse gas emissions;
- supporting electric vehicle charging in new and existing buildings through requirements and programs;

- iii) continuing to increase the amount of reliable and sustainable funding available for sustainable transportation infrastructure and low emission travel modes, such as active transportation and public transit; and
- iv) continuing to advance stringent standards for on-road vehicle emissions and fuel carbon content.

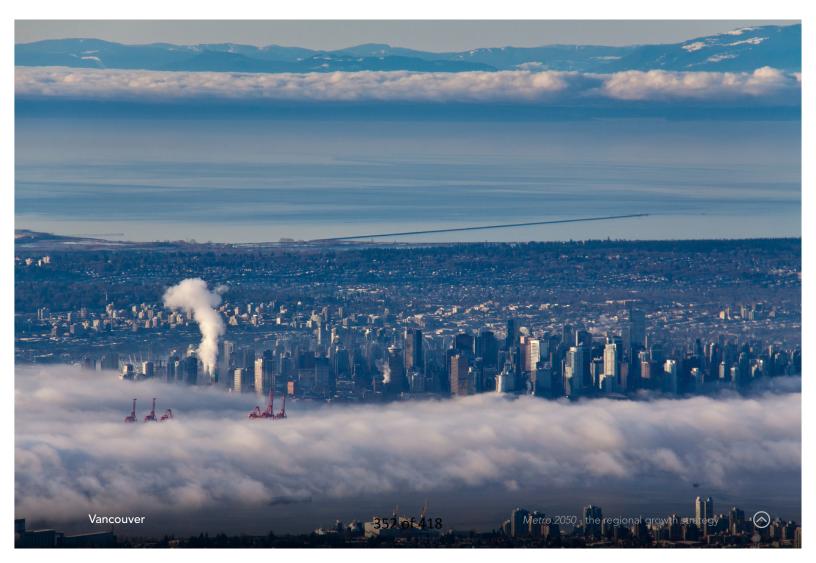
Member jurisdictions will:

- **3.3.7** Adopt Regional Context Statements that:
- a) identify how local land use and transportation policies will contribute to meeting the regional greenhouse gas emission reduction target of 45% below 2010 levels by the year 2030 and achieving a carbon neutral region by the year 2050;
- b) identify policies, actions, incentives, and / or strategies that reduce energy consumption and greenhouse gas emissions, create carbon storage opportunities, and improve air quality from land use, infrastructure, and settlement patterns, such as:
 - i) existing building retrofits and construction of new buildings to meet energy and greenhouse gas performance guidelines or standards (e.g. BC Energy Step Code, passive design), the electrification of building heating systems, green demolition requirements, embodied emissions policies, zero-carbon district energy systems, and energy recovery and renewable energy generation technologies, such as solar panels and geoexchange systems, and zero emission vehicle charging infrastructure; and
 - ii) community design, infrastructure, and programs that encourage transit, cycling, rolling and walking; and
- c) focus infrastructure and amenity investments in Urban Centres and Frequent Transit Development Areas, and at appropriate locations along Major Transit Growth Corridors.

TransLink will:

3.3.8 Support regional air quality objectives and greenhouse gas emission reduction targets by advancing policy and infrastructure to support the aggressive transition of the ground-based vehicle fleet to zero-emissions, and by transitioning the entire transit fleet to one that utilizes low-carbon fuels.

3.3.9 In collaboration with Metro Vancouver and member jurisdictions, establish a definition of major development proposals, which are referenced in the *South Coast British Columbia Transportation Authority Act*, to support the objective of concentrating Major Trip-Generating uses in areas well served by transit.



Strategy 3.4 Advance land use, infrastructure, and human settlement patterns that improve resilience to climate change impacts and natural hazards

Climate change is expected to continue to impact Metro Vancouver through warmer temperatures, decreased snowpack, sea level rise, longer summer drought periods, and increased precipitation in the fall, winter, and spring. The region is also exposed to multiple natural hazards, many of which are worsened by climate change. Where and how the region accommodates growth determines the degree to which communities and infrastructure are exposed to these risks. While efforts need to be made to ensure that all populations are well-equipped to address these challenges, proactive and collaborative planning can minimize risks by encouraging growth and development in more resilient areas, where feasible, and taking measures to ensure existing communities and infrastructure are resilient to current and future risks.

TABLE 5. MAJOR NATURAL HAZARDS AND CLIMATE CHANGE IMPACTS AFFECTING METRO VANCOUVER

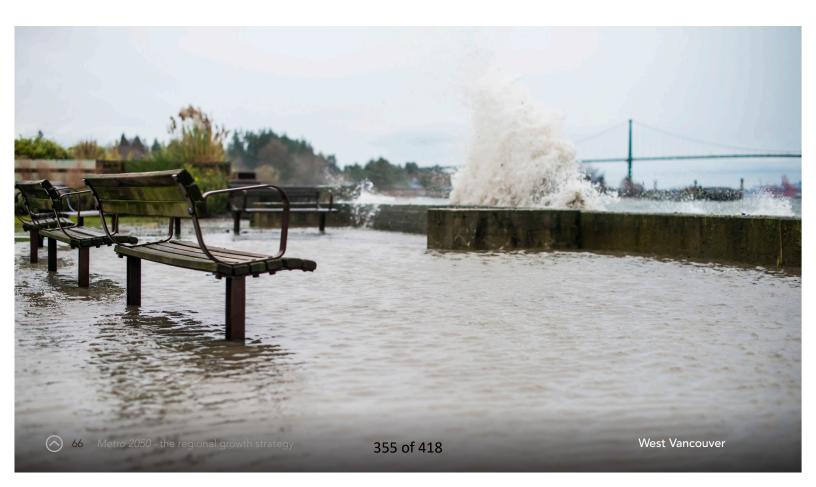
NATURAL HAZARDS	RELATED CLIMATE CHANGE IMPACTS
Earthquakes	
Tsunamis	Sea level rise
Landslides	More precipitation (fall, winter, and spring)
Floods (pluvial, coastal, riverine)	More precipitation (fall, winter, and spring) Sea level rise Decrease in snowpack
Wildfires	Longer drought periods (summer) Warmer temperatures and extreme heat events Reduced air quality
Erosion	Sea level rise More precipitation (fall, winter, and spring)
Subsidence	Sea level rise
Windstorms and other extreme weather events	Sea level rise More precipitation (fall, winter, and spring)

- Incorporate climate change and natural hazard risk assessments into the planning and location of existing and future Metro Vancouver utilities, assets, operations, and other critical infrastructure.
- Work with the Integrated Partnership for 3.4.2 Regional Emergency Management, the Federal Government, the Province, First Nations, TransLink, member jurisdictions, adjacent regional districts, and other stakeholders, as appropriate, to:
- a) collaboratively develop and share information and data related to hazards, risks, and vulnerabilities in the Metro Vancouver region, which may include preparing a regional multi-hazard map, and identifying and coordinating priority actions, implementation strategies, and funding mechanisms;
- b) plan for climate change impacts and natural hazard risks when extending utilities and transportation infrastructure that support development;
- c) support the integration of emergency management, utility planning, and climate change adaptation principles in land use plans, transportation plans, and growth management policies;
- d) research and promote best practices and develop guidelines to support resilience to the impacts of climate change and natural hazards as it relates to planning and development;
- e) support regional flood management approaches, such as the implementation of the Lower Mainland Flood Management Strategy; and
- f) research and share information related to the impacts of climate change and natural hazards on vulnerable populations, and focus resilience actions on equitable outcomes.

- Accept Regional Context Statements that advance land use, settlement patterns, transportation and utility infrastructure which improve the ability to withstand climate change impacts and minimize natural hazard risks, and that meet or work towards Actions 3.4.5, 3.4.6, 3.4.7, and 3.4.8.
- Advocate to the Federal Government and the Province that they:
- a) review and improve existing provincial legislation and guidelines regarding flood hazard management at the local level, encourage the adoption of local flood hazard policies and bylaws, and implement appropriate preparatory actions to address the longterm implications of sea level rise on infrastructure planning, construction, and operations;
- b) incorporate resilience considerations into building codes and standards;
- c) modernize the provincial Emergency Program Act and associated regulations with requirements for land use planning, and consider land use implications in the development of climate change adaptation strategies; and
- d) provide guidelines, programs, funding, and timely data and information to support regional and local planning for climate change impacts and natural hazards.

Member jurisdictions will:

- **3.4.5** Adopt Regional Context Statements that:
- a) include policies that minimize risks associated with climate change and natural hazards in existing communities through tools such as heat and air quality response plans, seismic retrofit policies, and flood-proofing policies; and
- b) include policies that discourage new development in current and future hazardous areas to the extent possible through tools such as land use plans, hazard-specific Development Permit Areas, and managed retreat policies, and where development in hazardous areas is unavoidable, mitigate risks.
- **3.4.6** Incorporate climate change and natural hazard risk assessments into planning and location decisions for new municipal utilities, assets, operations, and community services.
- **3.4.7** Integrate emergency management, utility planning, and climate change adaptation principles when preparing land use plans, transportation plans, and growth management policies.
- **3.4.8** Adopt appropriate planning standards, guidelines, and best practices related to climate change and natural hazards, such as flood hazard management guidelines and wildland urban interface fire risk reduction principles.



GOAL
4 Provide Diverse and Affordable Housing Choices New Westminster

Goal 4: Provide Diverse and Affordable **Housing Choices**

A diverse and affordable housing stock is critical to accommodating growth and supporting the region's population. Communities across Metro Vancouver are experiencing significant housing pressures paired with accelerating housing costs in the rental and ownership markets. Strong demand for rental housing is causing low rental vacancy rates and rising rental costs, and at the same time, existing affordable rental housing stock is aging and in need of maintenance and renewal.

High land and construction costs make the delivery of new rental units that are affordable to low and moderate income households challenging, particularly in proximity to transit. Lower income households earning less than 80% of the Regional Median Household Income, who make up the majority of renters in the region, are being forced to look further afield for housing that is affordable and meets their needs. Additionally, there is a shortage of permanent, affordable, and supportive housing units to meet the acute housing needs of vulnerable populations including those experiencing or at risk of homelessness.

In response to these challenges, a diverse mix of housing types and tenures that respond to an aging population, changing family and household characteristics, and a range of household incomes across the region is needed. Having housing choices means that all residents can find adequate and suitable housing that is affordable based on their household income, and that meets their unique needs and preferences. For the purpose of implementing Metro 2050's policies, "affordable housing" is defined as housing that is affordable to households earning up to 120% of the Regional Median Household Income. Goal 4 encourages diverse and affordable housing choices as a means to provide opportunities for residents to live in their desired community or neighbourhood, close to employment, transit, schools, parks, amenities and important social connections.

The first strategy identifies actions to promote an adequate supply of housing to meet existing and future housing needs across the housing continuum. Supporting housing policy efforts across the region through housing strategies or action plans that work towards achieving the number and type of housing units required to meet the needs identified in local housing needs reports or assessments is critical to this strategy.

The second strategy encourages policies and actions that expand rental housing supply, mitigate or limit the net loss of existing purpose-built rental and non-market housing stock, and protect renter households. The strategy also advocates for measures and incentives to stimulate the supply of below-market and market rental housing, particularly in proximity to transit.

The third strategy advocates for capital and operating funding to support the non-profit housing sector and the overall provision of permanent, affordable, and supportive housing. The strategy also requests ongoing housing and income benefits to supplement the high cost of rent in the private market. It recognizes that housing strategies and action plans must be aligned with plans to address homelessness. All levels of government have a role to play in creating opportunities for diverse housing options, and senior government funding is essential to meeting the housing needs of these populations.

A commitment to social equity prioritizes planning and decision-making processes that ensure the housing needs of the region's residents and populations that are housing insecure are met, so that everyone can access safe, quality, affordable, and climate resilient housing. Furthermore, it means intentionally seeking to prevent economic, health or access disparities in the housing market that are primarily experienced by lower income populations, renter households, and individuals experiencing or at risk of homelessness. Essential to this commitment is examining and modifying any systemic and institutional practices and policies that may limit the quality, affordability, accessibility, and equitable distribution of housing that is necessary to create a livable and resilient region for current and future generations.

Strategies to achieve this goal are:

- 4.1 Expand the supply and diversity of housing to meet a variety of needs
- 4.2 Protect tenants and expand, retain, and renew rental housing supply
- 4.3 Meet the housing needs of lower income households and populations experiencing or at risk of homelessness



Strategy 4.1 Expand the supply and diversity of housing to meet a variety of needs

Housing diversity refers to the range of housing types and tenures required to meet the needs of households of all sizes, incomes, ages, and abilities. Expanding the supply and diversity of housing that meets a variety of needs across the housing continuum increases affordability, social equity, and resilience in the region.

- **4.1.1** Assist member jurisdictions in developing housing strategies or action plans by providing analysis on regional demographics, household characteristics, and market conditions, and work with member jurisdictions to review and refine local housing priorities, policies, and housing needs reports or assessments in the context of this analysis.
- **4.1.2** Monitor and report on the progress of member jurisdiction housing strategies or action plans in achieving the number and type of housing units required to meet current and anticipated housing needs, as determined in the member jurisdiction's housing needs report or assessment.
- **4.1.3** Support member jurisdictions in the development and delivery of housing policies and actions by compiling, analyzing, and communicating data, preparing implementation guidelines and best practices research, and convening discussions on issues of common interest.

- **4.1.4** Accept Regional Context Statements that describe how local plans, strategies, and policies will achieve diverse and affordable housing options, expand the supply and diversity of housing to meet a variety of needs along the housing continuum, and meet or work towards Actions 4.1.8 and 4.1.9.
- **4.1.5** Advocate to the Province to create new enabling legislation that provides the ability for local governments to mandate affordable housing through inclusionary zoning powers.
- **4.1.6** Advocate to the Province to provide funding to support member jurisdictions in the development and update of housing strategies or action plans that are aligned with housing needs reports or assessments.
- **4.1.7** Advocate to the Province for expanded funding maximums and eligibility that support Treaty and other First Nations in developing housing needs reports or assessments to ensure a complete regional and provincial understanding of housing needs, and to help inform local plans, policies, and development decisions.



Member jurisdictions will:

- **4.1.8** Adopt Regional Context Statements that:
- a) indicate how they will work towards meeting estimated future housing needs and demand, as determined in their housing needs report or assessment;
- b) articulate how local plans and policies will meet the need for diverse (in tenure, size, and type) and affordable housing options;
- c) identify policies and actions that contribute to the following outcomes:
 - i) increased supply of adequate, suitable, and affordable housing to meet a variety of needs along the housing continuum;
- ii) increased supply of family-friendly, age-friendly, and accessible housing;
- iii) increased diversity of housing tenure options, such as attainable homeownership, rental, co-op housing, rent-to-own models, and cohousing;
- iv) increased density and supply of diverse ground-oriented and infill housing forms in low-density neighbourhoods, such as duplex, four-plex, townhouse, laneway/coach houses, and apartments, particularly in proximity to transit;
- v) integration of land use and transportation planning such that households can reduce their combined housing and transportation costs;

- vi) increased social connectedness in multi-unit housing;
- vii) integrated housing within neighbourhood contexts and high quality urban design; and
- viii) existing and future housing stock that is low carbon and resilient to climate change impacts and natural hazards.
- **4.1.9** Prepare and implement housing strategies or action plans that:
- a) are aligned with housing needs reports or assessments, and reviewed or updated every 5-10 years to ensure that housing strategies or action plans are based on recent evidence and responsive to current and future housing needs;
- b) are based on an assessment of local housing market conditions, by tenure, including assessing housing supply, demand, and affordability;
- c) identify housing priorities, based on the assessment of local housing market conditions, household incomes, changing population and household demographics, climate change and natural hazards resilience, and key categories of local housing need, including specific statements about special needs housing and the housing needs of equity-seeking groups; and
- d) identify implementation measures within their jurisdiction and financial capabilities, including actions set out in Action 4.1.8.

Strategy 4.2 Protect tenants and expand, retain, and renew rental housing supply

Purpose-built rental housing is a critical component of the housing continuum, offering security of tenure to the many residents who cannot or choose not to purchase a home. The private rental market also forms a large part of the region's overall rental housing stock, and provides additional rental housing options such as secondary suites, laneway/coach houses, and rented condominiums. Increasing the rental housing supply, retaining existing rental housing, and renewing aging rental housing while minimizing the impacts of redevelopment and renovation on existing tenants preserves affordability and increases opportunities for everyone in the region to access an energy efficient home they can afford.

Metro Vancouver will:

- **4.2.1** Monitor the purpose-built rental housing stock in the region, and report on rental housing supply gaps by income level and number of bedrooms.
- **4.2.2** Implement the *Metro Vancouver Housing* 10-Year Plan (2019) and seek opportunities for Metro Vancouver Housing to partner with member jurisdictions and others to expand affordable rental housing across the region.
- **4.2.3** Set a regional target that at least 15% of newly completed housing units built within all Urban Centres and Frequent Transit Development Areas combined, by the year 2050, be affordable rental housing units. Metro Vancouver will monitor progress towards the target and review the target periodically.

- **4.2.4** Accept Regional Context Statements that describe how local plans, strategies, and policies will increase rental housing supply while protecting tenants, and that meet or work towards Actions 4.2.7 and 4.2.8.
- **4.2.5** Advocate to the Federal Government and the Province to provide measures and incentives to stimulate private sector investment in rental housing to help achieve the current and anticipated need for rental housing units, as determined by housing needs reports or assessments.
- **4.2.6** Advocate to the Province for expanded measures to address housing speculation and vacant homes as a means of increasing long-term rental options, and bringing unoccupied housing into the secondary rental market.



Member jurisdictions will:

- **4.2.7** Adopt Regional Context Statements that:
- a) indicate how they will, within their local context, contribute toward the regional target of having at least 15% of newly completed housing units built within all Urban Centres and Frequent Transit Development Areas combined, to the year 2050, be affordable rental housing units (recognizing that developing affordable rental housing units in transit-oriented locations throughout the urban area is supported);
- b) articulate how local plans and policies will mitigate impacts on renter households, particularly during redevelopment or densification of Urban Centres and Frequent Transit Development Areas;
- c) identify the use of regulatory tools that protect and preserve rental housing;
- **d)** identify policies and actions that contribute to the following outcomes:
 - i) increased supply of affordable rental housing in proximity to transit and on publicly-owned land;
- ii) increased supply of market and below-market rental housing through the renewal of aging purpose-built rental housing and prevention of

- net rental unit loss;
- iii) protection and renewal of existing non-market rental housing;
- iv) mitigated impacts on renter households due to renovation or redevelopment, and strengthened protections for tenants; and
- reduced energy use and greenhouse gas emissions from existing and future rental housing stock, while considering impacts on tenants and affordability.
- **4.2.8** Prepare and implement housing strategies or action plans that:
- a) encourage the supply of new rental housing and mitigate or limit the loss of existing rental housing stock;
- b) encourage tenant protections and assistance for renter households impacted by renovation or redevelopment of existing purpose-built rental housing; and
- c) cooperate with and facilitate the activities of Metro Vancouver Housing under Action 4.2.2.



Strategy 4.3 Meet the housing needs of lower income households and populations experiencing or at risk of homelessness

Lower income households and populations experiencing or at risk of homelessness have the most acute housing needs in the region. Through collaboration with the Federal Government and the Province, efforts to support the provision of non-market housing can ensure equitable access to housing for all. Meeting the housing needs of the most vulnerable in our communities also provides a number of co-benefits including positive health outcomes and improved social cohesion.

Metro Vancouver will:

- **4.3.1** Accept Regional Context Statements that describe how local plans, strategies, and policies will meet the specific housing needs of lower income households, including the existing housing needs of populations experiencing or at risk of homelessness, and that meet or work towards Actions 4.3.7 and 4.3.8.
- **4.3.2** Collaborate with member jurisdictions, non-profit housing and homelessness services providers, and the Federal Government and the Province on coordinated actions to address regional homelessness.
- **4.3.3** Advocate to the Federal Government and the Province for measures and incentives to stimulate non-market rental supply and capital and operating funding to support the construction of permanent, affordable, and supportive housing across the region.
- **4.3.4** Advocate to the Federal Government and the Province to provide capital and operating funding to meet the current and anticipated housing needs of lower income households and populations experiencing or at risk of homelessness, as determined by housing needs reports or assessments.
- **4.3.5** Advocate to the Federal Government and the Province for portfolio-based, long-term funding sources for non-profit housing providers that shift away from short-term, project-based funding models as a means of ensuring the sustainability of the non-profit housing sector.
- **4.3.6** Advocate to the Federal Government and the Province to provide and expand ongoing rent supplements and housing benefits in a way that takes into account geographic and cost of living

considerations, and to increase the shelter portion of income assistance to ensure that lower income households and populations experiencing or at risk of homelessness can afford suitable and adequate housing.

Member jurisdictions will:

- **4.3.7** Adopt Regional Context Statements that:
- a) indicate how they will collaborate with the Federal Government, the Province, and other partners, to assist in increasing the supply of permanent, affordable, and supportive housing units; and
- b) identify policies and actions to partner with other levels of government and non-profit organizations in order to create pathways out of homelessness and contribute to meeting the housing and support needs of populations experiencing or at risk of homelessness.
- **4.3.8** Prepare and implement housing strategies or action plans that:
- a) identify opportunities to participate in programs with other levels of government to secure additional housing units to meet the housing needs of lower income households:
- b) identify strategies to increase community acceptance and communicate the benefits of affordable and supportive housing development; and
- c) are aligned with or integrate plans to address homelessness, and identify strategies to reduce the total number of households that are in core housing need and populations experiencing or at risk of homelessness.

GOAL 5

Support Sustainable Transportation Choices



Goal 5: Support Sustainable Transportation Choices

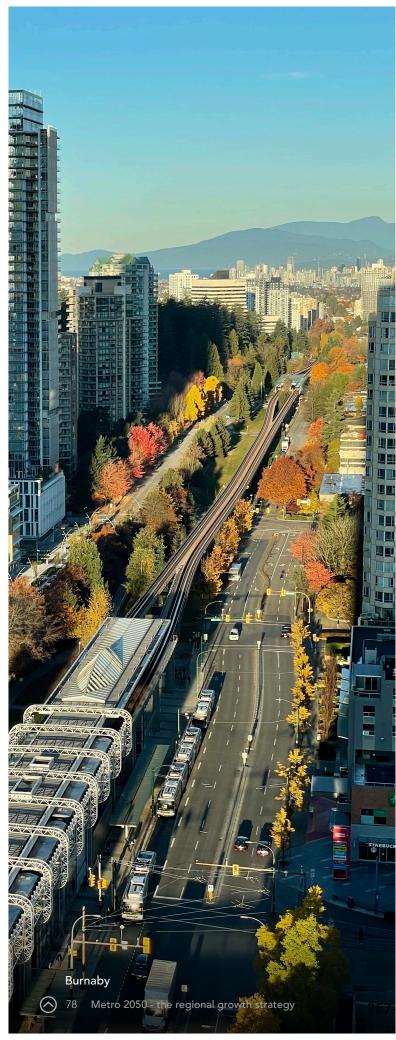
Land uses influence travel patterns and transportation systems, in turn, affect land use and development. Achieving the goals of Metro 2050 requires the alignment of land use and transportation strategies. Accessible and sustainable transportation choices are supported by strategies for a compact urban area, with transit-oriented development patterns that focus growth in Urban Centres, Major Transit Growth Corridors and Frequent Transit Development Areas. This transit-oriented pattern of growth helps reduce vehicle use, traffic congestion, energy consumption and greenhouse gas emissions from on-road sources while fostering transit ridership and active transportation. It provides the region's residents with resilient mobility options, a cleaner environment, and opportunities to reduce household transportation costs.

The first strategy identifies actions to increase the proportion of trips by transit, cycling, walking, and other alternatives to single occupancy vehicles. Transport 2050's Major Transit Network will be critical in reinforcing Metro 2050's network of Urban Centres and Frequent Transit Development Areas. Metro 2050 aligns these locations for growth with planned transit connections to provide clearer expectations about future growth and investment. Aligning land use and transportation in this way enables a diversity of transit oriented affordable housing, shorter trips and greater access to opportunity. Careful and coordinated planning efforts will ensure that new mobility options, including micro-mobility and automated vehicles, are integrated into the region's transportation system in an equitable way that promotes reductions in both greenhouse gas emissions and traffic congestion.

The second strategy recognizes the fundamental role that the Major Road Network, Regional Truck Route Network, provincial highways, and federal transportation facilities play in shaping regional growth, moving people and goods within the region, and connecting the region with intra-provincial, national and international destinations. The strategy advocates for active management of the existing and planned capacity of the road network and the demands put upon it to minimize the need for capital-intensive roadway expansion in the future.

Further, rail and marine transportation have the potential to play a larger role in the future for goods movement, so protecting rail rights-of-way and access points to waterways today is critical to preserving transportation options in the future. This strategy also anticipates the changing nature of industry and digitalization of commerce.

Metro Vancouver works in partnership with member jurisdictions, TransLink, the Port of Vancouver, airport authorities, the Federal Government, and the Province to coordinate decision-making in support of the regional growth strategy. TransLink prepares and implements strategic transportation plans for roads, transit, active transportation, and goods movement, among other regional transportation programs. TransLink is the region's lead agency for coordinating micro-mobility, automated vehicles, and other new mobility options. TransLink is also responsible for the region's long-term transportation strategy, Transport 2050. Metro 2050 and Transport 2050 comprise the region's long-term vision for the land use and



transportation system. The Province prepares provincial highway and transit plans which help to guide the development of regional transportation plans. Both the Federal Government and the Province play significant roles in funding regional transit and goods movement infrastructure. Metro Vancouver advocates for reductions in transportation-related greenhouse gas emissions and common air contaminants.

A commitment to equity includes creating a more equitable land use and transportation system across the region that will enhance social cohesions and connectedness to benefit all communities; mitigate the environmental, economic, and social risks associated with goods and service movement; and ultimately, provide affordable and accessible transportation that creates quality jobs, promotes safe and inclusive communities, and focuses on results that benefit all.

Strategies to achieve this goal are:

- 5.1 Coordinate land use and transportation to encourage transit, multiple-occupancy vehicles, cycling and walking
- 5.2 Coordinate land use and transportation to support the safe and efficient movement of vehicles for passengers, goods, and services

Strategy 5.1 Coordinate land use and transportation to encourage transit, multiple-occupancy vehicles, cycling and walking

The coordination of land use and transportation supports positive region building by ensuring communities are connected to sustainable transportation networks while investing in transportation improvements for existing neighbourhoods. Over time, this creates a regional growth pattern where destinations are closer together and more accessible for all, with less need to drive. The benefits of this transit-oriented growth pattern include: reduced greenhouse gas emissions; formation of complete, compact communities; more physical activity and improved health; lower transportation costs; and a more resilient economy with better access to job opportunities, diverse and affordable housing, and community amenities.

Metro Vancouver will:

- Provide advice and input into TransLink's regional transportation system, planning, and demand management strategies through the provision of land use, growth management and air quality information and forecasts, and the evaluation of land use and vehicle emissions impacts.
- Establish the following objectives for the regional transportation system:
- a) support the regional land use framework and strategy, as set out in Strategy 1.2;
- b) reduce energy consumption and greenhouse gas emissions while improving air quality, as set out in Strategy 3.3; and
- c) ensure the safe and efficient movement of vehicles for passengers, goods, and services, as set out in Strategy 5.2.
- Encourage TransLink and member jurisdictions, in support of Action 5.1.2 (a), to increase transit services between Urban Centres, according to the following priorities:
 - Priority 1: Major Transit Network
 - Priority 2: Frequent Transit Network
 - Priority 3: Local Transit Networks

- 5.1.4 Collaborate with TransLink, in support of Action 5.1.2 (b), on the achievement of regional priorities to increase the share of trips made by transit, shared mobility options, cycling, walking, and rolling; and to reduce energy consumption and air emissions from on-road transportation sources. Metro Vancouver will support the development of strategic transportation plans to achieve this objective, within TransLink's mandate to plan and manage the regional transportation system.
- In collaboration with other levels of 5.1.5 government, implement the Regional Greenway Network, as shown in Map 10.
- **5.1.6** Collaborate with member jurisdictions and TransLink to jointly develop a regional parking strategy that:
- a) provides guidance to inform municipal parking requirements;
- b) considers local needs through customized guidance for different land use and transportation contexts: and
- c) seeks to right-size the supply of parking in the region, reduce the number of vehicles, make more efficient use of the limited land supply, and improve housing and transportation affordability.

- **5.1.7** Accept Regional Context Statements that identify policies and actions that coordinate land use and transportation planning to support transit, shared mobility options, cycling, walking, and rolling; that support the transition to zero-emission vehicles; and that meet or work towards Action 5.1.14.
- **5.1.8** Advocate to the Federal Government and the Province, in collaboration with TransLink and member jurisdictions, to evaluate and develop measures to mitigate the potential negative impacts on the region's Industrial, Agricultural, and Conservation and Recreation lands when planning transportation infrastructure, including roadways, railways and rapid transit systems.
- **5.1.9** Advocate for the Province to work with TransLink, adjacent regional districts, and Metro Vancouver in coordinating transportation planning and infrastructure projects in the Lower Mainland.
- **5.1.10** Advocate to the Federal Government and the Province to provide increased and permanent funding for expanding, upgrading, and operating:
- a) the regional transit system;
- b) the Regional Cycling Network (i.e. the Major Bikeway Network for utility cycling trips and Regional Greenway Network for recreational travel); and
- c) municipal pedestrian infrastructure.
- **5.1.11** Advocate to railway companies, when developing their plans and strategies for rail corridors and facilities in the region, that they coordinate and consult with member jurisdictions, TransLink, Port of Vancouver, and Metro Vancouver to ensure that they are compatible with and support the regional transportation and land use planning goals of the regional growth strategy.
- **5.1.12** Advocate to member jurisdictions to engage with impacted municipalities and First Nations when developing plans, polices, and programs related to new mobility, shared mobility, and inter-jurisdictional connectivity.

5.1.13 Advocate to the Province and TransLink to co-locate active transportation and micro-mobility facilities with rapid transit infrastructure and include delivery of such facilities within the scope of rapid transit projects.

Member jurisdictions will:

- **5.1.14** Adopt Regional Context Statements that:
- a) identify land use and transportation policies and actions to encourage a greater share of trips made by transit, shared mobility options, cycling, walking, and rolling;
- b) support the development and implementation of transportation demand management strategies, such as: parking pricing and supply measures, transit priority measures, end-of-trip facilities for active transportation and micro-mobility, and shared mobility services;
- c) manage and enhance municipal infrastructure in support of transit, multiple-occupancy vehicles, cycling, walking, and rolling;
- d) support the transition to zero-emission vehicles;
- e) support implementation of the Regional Greenway Network and Major Bikeway Network, as identified in Map 10; and
- f) support implementation of local active transportation and micro-mobility facilities that provide direct, comfortable, all ages and abilities connections to the Regional Greenway Network, Major Bikeway Network, transit services, and everyday destinations.

TransLink will:

5.1.15 In support of coordinated land use and transportation to encourage transit, multiple occupancy vehicles, cycling, walking, and rolling:

- a) prepare and implement strategic transportation plans that support focused growth in Urban Centres and Frequent Transit Development Areas, while avoiding known unmitigated flood and other natural hazard risk areas;
- b) provide Metro Vancouver with adequate opportunity to provide input into TransLink's strategic planning and decision-making processes that would affect the achievement of the objectives and priorities set out in Action 5.1.2;
- c) establish and monitor performance measures and / or targets that support: an increased share of trips made by transit, shared mobility, zero-emission vehicles, cycling, walking, and rolling; and the associated reductions in air emissions from on-road transportation sources;
- d) prepare and implement regional transportation system and demand management strategies, such as: ridesharing programs, transportation user-based pricing, and regulation for ride-hailing services and other emerging mobility technologies;
- e) support the development of safe and comfortable cycling networks, including both the Regional Cycling Network and local infrastructure, serving Urban Centres, Frequent Transit Development Areas, and other areas of high potential for utility and/or recreational cycling;

- f) work with the Province, the Integrated Partnership for Regional Emergency Management, and member jurisdictions to evaluate the potential impacts of climate change and known unmitigated natural hazards on rapid transit alignments, station locations, and associated transportation infrastructure;
- g) explore methods to support affordable housing through existing and future revenue sources, such as: continuing the reduction or waiver of the TransLink Development Cost Charge on certain types of not-for-profit rental housing; seeking partnership opportunities with the Province and others to support delivering affordable housing; seeking commitments on the development of affordable housing policies and targets in partnership agreements required for major transportation projects; and considering the impacts of proposed projects on affordable housing when evaluating future rapid transit investments;
- h) continue developing active transportation, micromobility, and transit networks as a means to create redundancy in low-cost, low-emission travel options;
- i) work with the Province, member jurisdictions, and others to implement both the Regional Greenway Network and the Major Bikeway Network, as identified in Map 10; and
- j) continue to identify viable new opportunities to create and improve transit, active transportation, and micro-mobility linkages to and within First Nations communities.



Strategy 5.2 Coordinate land use and transportation to support the safe and efficient movement of vehicles for passengers, goods, and services

Roadways, truck routes, provincial and federal highways, port terminals, rail corridors, navigable waterways, airports, transit routes, and active transportation and micro-mobility facilities play a vital role in supporting the regional economy, shaping regional growth, and connecting Metro Vancouver to other regions. Making the most of the goods movement system requires protecting industrial lands and transportation rights-of-way, minimizing community impacts, reducing greenhouse gas emissions, and seeking demand-management alternatives to roadway expansion.

Metro Vancouver will:

- **5.2.1** Support implementation of the Regional Goods Movement Strategy and continue to participate in the Greater Vancouver Urban Freight Council.
- **5.2.2** Accept Regional Context Statements that identify coordinated land use and transportation policies and actions in support of the safe and efficient movement of vehicles for passengers, goods, and services; and that meet or work towards Action 5.2.6.
- **5.2.3** Support the ongoing efforts of the Federal Government, the Province, and the Port of Vancouver to reduce truck traffic on local roads by exploring: the more effective use of the existing multi-modal transportation network on a 24-hour basis; expanding short-sea shipping; moving more containers by rail directly from marine container terminals to transload facilities; and enhancing co-location of import and export transload facilities.

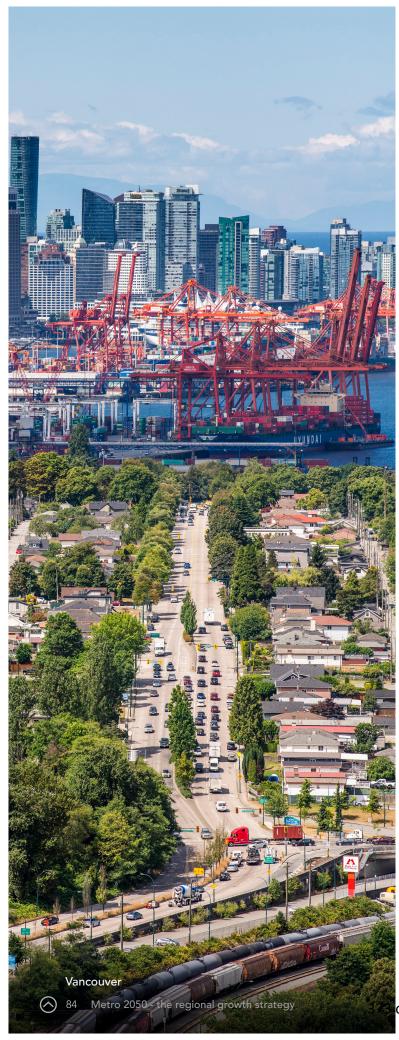
- **5.2.4** Advocate to the Province, TransLink, and neighbouring regional districts that the following elements be considered when contemplating expansion of private vehicle capacity on major roads, highways, and crossings:
- a) transportation demand management, active transportation, and micro-mobility strategies as alternatives to, or as integral with, such capacity expansion;
- b) the negative impacts on the achievement of regional greenhouse gas emission reduction targets and air quality objectives;
- c) the negative impacts on the implementation of the regional land use framework and strategy as set out in Strategy 1.2;
- d) the long-term effects of induced demand, ongoing maintenance requirements, life-cycle costs, and opportunity costs;
- e) the negative impacts on ecosystems, as identified in Map 11; and
- f) the ability of the transportation system to withstand known and unmitigated climate change impacts and natural hazards.

- **5.2.5** Advocate to the Federal Government and the Province to support the safe, reliable, and efficient movement of vehicles for passengers, goods, and services through:
- a) policies and regulations to protect rail rights-ofway, truck routes, transit routes, and access points to navigable waterways;
- b) policies and regulations to protect communities and habitats by mitigating air quality impacts;
- c) local government funding programs for applied research into transportation system and demand management-related technologies, policies, and regulations to optimize the low-carbon movement of vehicles for passengers, goods, and services in particular, to and from airports, ports, intermodal goods handling facilities, last mile delivery, and distribution centres for e-commerce;
- d) local government funding programs for survey instruments to obtain timely and comprehensive data on the travel patterns of residents, workers, and goods and service vehicles travelling inter- and intra-regionally; and
- e) local government funding programs and regulations to encourage the transition to zero-emissions options for medium- and heavy-duty vehicles.

Member jurisdictions will:

- **5.2.6** Adopt Regional Context Statements that:
- a) identify routes on a map for the safe and efficient movement of goods and service vehicles to, from, and within Urban Centres; Frequent Transit Development Areas; Major Transit Growth Corridors; Industrial, Employment, and Agricultural lands; ports; airports; and international border crossings;
- b) identify land use and related policies and actions that support the optimization and safety of goods movement via roads, highways, railways, aviation, short sea shipping, and active transportation;
- c) support the development of local and regional transportation system management strategies, such as the provision of information to operators of goods and service vehicles for efficient travel decisions, management of traffic flow using transit priority measures, coordinated traffic signalization, and lane management;
- d) identify policies and actions that support the protection of rail rights-of-way, truck routes, and access points to navigable waterways in order to reserve the potential for goods movement;
- e) identify policies and actions to mitigate public exposure to unhealthy levels of noise, vibration, and air pollution associated with the Major Road Network, Major Transit Network, railways, truck routes, and Federal / Provincial Highways; and





f) identify policies and actions that anticipate the land and infrastructure requirements for goods movement and drayage, such as truck parking, zero-emission vehicle charging infrastructure, and e-commerce distribution centres, and mitigate any negative impacts of these uses on neighbourhoods.

TransLink will:

- **5.2.7** Support the safe and efficient movement of vehicles for passengers, goods, and services in consideration of the regional land use framework and strategy, as set out in Strategy 1.2, by:
- a) managing and maintaining the Major Road Network and Regional Truck Route Network;
- **b)** implementing the Regional Goods Movement Strategy;
- c) preparing and implementing regional transportation system and demand management strategies; and
- d) continuing to identify viable new opportunities to create and improve active transportation, micro-mobility, and transit linkages between the region's Industrial and Employment lands and the regional labour force.
- **5.2.8** Support the protection of rail rights-of-way, truck routes, and access points to navigable waterways to preserve the potential for goods movement, in consideration of the potential impacts on air quality, habitat, and communities.
- **5.2.9** Seek to minimize negative impacts from within-and-through passenger, goods, and service vehicle movement on the environment and public health within the Lower Fraser Valley Airshed.

F. Implementation

6.1 Regional Growth Strategy Implementation Framework

6.1.1 Metro Vancouver and affected local governments will implement the regional growth strategy within a collaborative decision-making framework. This framework is based on provisions set out in the *Local Government Act* and in recognition by Metro Vancouver and affected local governments that collaborative decision-making is necessary in order to achieve the vision and goals laid out in the regional growth strategy.

The regional growth strategy has been designed so that the more regionally significant an issue, the higher the degree of regional federation involvement in decision-making, and conversely, the less regionally significant an issue, the less Metro Vancouver involvement there is. This approach is intended to provide appropriate consideration of land use planning decisions made within Metro Vancouver and member jurisdictions.

This collaborative decision-making process applies to:

- acceptance by affected local governments of the initial regional growth strategy and subsequent amendments;
- acceptance by Metro Vancouver of municipal Regional Context Statements and subsequent amendments;
- ongoing regional growth strategy and Regional Context Statement administration and procedures; and
- implementation guidelines.

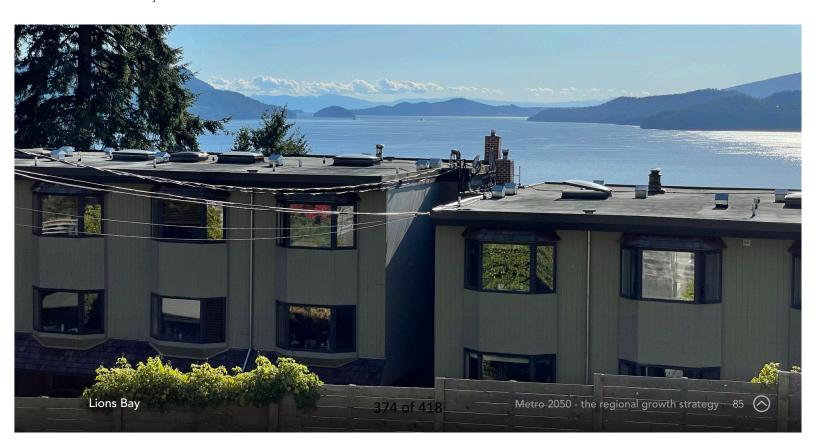


TABLE 6. REGIONAL GROWTH STRATEGY IMPLEMENTATION FRAMEWORK*

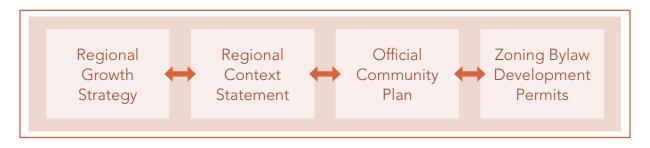
PRINCIPLES	EXAMPLES	PROCEDURES
Fundamental change to core goals or strategies	Amend the goals or strategies; delete an entire goal; change the amendment process	Type 1: 50% + 1 MVRD Board weighted vote and acceptance by all affected local governments
Region-wide significance for non-urban designations	Change Urban Containment Boundary or Agricultural designation	Type 2: 2/3 MVRD Board weighted vote
Region-wide significance for urban designations	Large scale Industrial area designation change	Type 3: 50% + 1 MVRD Board weighted vote
Small scale urban designation changes	Small scale Industrial land use designation change	As described under 6.2.7, Official Community Plan amendment and notification of Metro Vancouver in writing within 30 days after OCP adoption
Local planning matter with no regional significance	Rezoning consistent with Official Community Plan	Official Community Plan matters, no Regional Context Statement reference required

^{*}Table 6 for reference only

6.2 Regional Context Statements

6.2.1 Within two years of the Metro Vancouver Board's adoption of a regional growth strategy, each member jurisdiction must prepare or update a regional context statement as part of its Official Community Plan and submit it to the MVRD Board for acceptance. A member jurisdiction will submit its Regional Context Statement to the MVRD Board for acceptance after the member jurisdiction holds its public hearing and subsequent reading relating to its Official Community Plan bylaw amendment.

FIGURE 6. RELATIONSHIP BETWEEN THE REGIONAL GROWTH STRATEGY AND OFFICIAL COMMUNITY PLANS



Each member jurisdiction prepares an updated Official Community Plan (OCP) and Regional Context Statement (RCS) within two years of the adoption of a new regional growth strategy or a Type 1 Amendment. The RCS sets out the relationship between the regional growth strategy and the member jurisdiction's OCP, and identifies how local actions will contribute to achieving regional growth strategy goals. Member jurisdictions must submit their RCS to the Metro Vancouver Regional District Board for acceptance.

Contents of Regional Context Statement

The Regional Context Statement must identify the relationship between an Official Community Plan and the goals, strategies, and actions identified in the regional growth strategy. If applicable, the Regional Context Statement will identify how the Official Community Plan will be made consistent with the regional growth strategy over time. Regional Context Statements that propose to add or delete Frequent Transit Development Areas must be accompanied by written comments from TransLink.

Regional Context Statement Process

- If a member jurisdiction proposes an amendment to a Regional Context Statement, it must submit to Metro Vancouver a council resolution, including an accompanying report, that sets out the member jurisdiction's proposed amendment(s).
- 6.2.4 If a member jurisdiction anticipates that its proposed Regional Context Statement, or amendment to its Regional Context Statement, will not be accepted by the Metro Vancouver Board because it is not generally consistent with the regional growth strategy, the member jurisdiction should submit a proposed amendment to the regional growth strategy. The procedure for amendments to the regional growth strategy is set out in section 6.4.
- The Metro Vancouver Board will respond within one-hundred-and-twenty (120) days of receiving a Regional Context Statement from a member jurisdiction by Council resolution, indicating whether it accepts the Regional Context Statement. If the Board does not accept a Regional Context Statement, the Board will indicate the provisions to which it objects and the reasons for its objections.

Consistency with Regional **Growth Strategy**

In considering acceptance of Regional Context Statements, the Metro Vancouver Board's expectation is that acceptable Regional Context Statements are generally consistent with the regional growth strategy's goals, strategies, actions and the regional land use designations depicted on Map 2. Regional Context Statements should respond to all applicable policies in the regional growth strategy, and indicate how the Official Community Plan is generally consistent (including projections, maps, and specific policy language) or how it will be made consistent over time.

Providing for Appropriate Municipal Flexibility

- A member jurisdiction may include language in its Regional Context Statement that permits amendments to the municipality's Official Community Plan to adjust the boundaries of regional land use designations within the Urban Containment Boundary, as follows:
- a) the member jurisdiction may re-designate land from one (1) regional land use designation to another regional land use designation, only if the aggregate area of all proximate sites so re-designated does not exceed one (1) hectare;
- b) notwithstanding section 6.2.7 (a), for sites that are greater than one (1) hectare and less than three (3) hectares in area, the member jurisdiction may redesignate land:
 - from Industrial to General Urban regional land use designation, if the site is contiguous with an Industrial site and the developable portion of the site will be predominantly within 150 metres of an existing or approved rail rapid transit station: or



 from Industrial to Employment regional land use designation if the developable portion of the site will be predominantly within 250 metres of an existing or approved rail rapid transit station,

provided that:

- the re-designation does not impede rail, waterway, road, or highway access for industrial uses; and
- the aggregate area of all proximate sites so re-designated does not exceed three (3) hectares;
- c) the aggregate area of land affected by all re-designations under section 6.2.7 (a) and (b) together cannot exceed two (2) percent of the member jurisdiction's total lands within each applicable regional land use designation as of July 29, 2011.
- 6.2.8 A member jurisdiction may include language in its Regional Context Statement that permits amendments to its Official Community Plan to adjust the boundaries of Urban Centres and Frequent Transit Development Areas, provided such boundary adjustments meet the guidelines set out in Table 3 (Guidelines for Urban Centres and Frequent Transit Development Areas) of the regional growth strategy.

- **6.2.9** Member jurisdictions will notify Metro Vancouver, in writing, of any and all adjustments, as permitted by sections 6.2.7 and 6.2.8, within thirty (30) days after the member jurisdiction has adopted its Official Community Plan amendment bylaw.
- **6.2.10** If a member jurisdiction includes language in its Regional Context Statement that permits amendments to its Official Community Plan to adjust the boundaries of regional land use designations within the Urban Containment Boundary or the boundaries of Urban Centres and Frequent Transit Development Areas, as permitted by sections 6.2.7 and 6.2.8 respectively, the prescribed adjustments do not require a new Regional Context Statement or consideration by the Metro Vancouver Regional District (MVRD) Board. All other adjustments to regional land use designation boundaries require an amendment to the member jurisdiction's Regional Context Statement, which must be submitted to the MVRD Board for acceptance in accordance with the requirements of the Local Government Act.

6.3 Categories of Regional Growth Strategy Amendments

Type 1 Amendments to the Regional Growth Strategy

- The following Type 1 amendments to the regional growth strategy require an affirmative 50%+1 weighted vote of the Metro Vancouver Regional District Board and acceptance by all affected local governments in accordance with section 436 of the Local Government Act:
- a) the addition or deletion of regional growth strategy goals or strategies;
- b) an amendment to the process for making minor amendments to the regional growth strategy, which is specified in sections 6.3.3 and 6.3.4; and
- c) the matters specified in section 437 (4) of the Local Government Act.
- All amendments to the regional growth strategy 6.3.2 other than the amendments specified in section 6.3.1 are minor amendments (Type 2 and Type 3) for the purposes of section 437 (2) of the Local Government Act.

Type 2 Amendments to the Regional Growth Strategy

- The following Type 2 amendments require an affirmative two-thirds weighted vote of the Metro Vancouver Regional District Board:
- a) amendment to the Urban Containment Boundary;
- b) amendment of Agricultural or Conservation and Recreation regional land use designations, except as set out in section 6.3.4 (e), (f) and (g);
- c) amendment from Rural to Industrial, Employment, or General Urban regional land use designations;

- d) amendment of sites located outside the Urban Containment Boundary from Employment to a General Urban regional land use designation;
- e) the addition or deletion of an Urban Centre; and
- f) the addition or deletion of, or amendment to, the descriptions of the regional land use designations or actions listed under each strategy.



Type 3 Amendments to the Regional Growth Strategy

- **6.3.4** The following Type 3 amendments require an affirmative 50% + 1 weighted vote of the Metro Vancouver Regional District Board:
- a) the addition or deletion of a Frequent Transit Development Area;
- b) for sites within the Urban Containment Boundary, amendments from Industrial, Employment, or General Urban to any other such regional land use designation(s);
- c) amendment from Industrial, Employment, or General Urban to Rural, Agricultural, or Conservation and Recreation regional land use designations;
- d) amendment from Rural to Agricultural or Conservation and Recreation regional land use designation;
- e) amendment from Conservation and Recreation to Agricultural regional land use designation;
- f) for sites that are contiguous with, or within, the Urban Containment Boundary, and are not within the Agricultural Land Reserve and are not subject to the Agricultural Land Commission Act, amendment from Agricultural or Rural to Industrial regional land use designation, and associated Urban Containment Boundary adjustments;

- g) for sites that are identified as Special Study Areas on Map 12, an amendment to another regional land use designation and associated Urban Containment Boundary adjustments;
- h) removal of the Trade-Oriented Lands overlay from parcels with an Industrial regional land use designation;
- i) housekeeping amendments to figures, tables or maps, performance measures or other items related to document structure that do not alter the intent of the regional growth strategy;
- j) amendments to mapping to incorporate maps included in accepted Regional Context Statements;
- k) the reclassification of a Frequent Transit Development
 Area to an Urban Centre, or reclassification of an
 Urban Centre type to another Urban Centre type;
- I) an amendment to the Major Transit Growth Corridors; and
- m) all other amendments not identified in sections 6.3.1 or 6.3.3.



6.4 Procedures for Regional Growth Strategy Amendments

Who Can Apply for an Amendment

The process to initiate amendments to the regional growth strategy is by resolution of the Metro Vancouver Regional District (MVRD) Board. Member jurisdictions may, by resolution, request amendments. The MVRD Board will not give first reading to an amendment bylaw which proposes to change a regional land use designation or the Urban Containment Boundary unless or until the member jurisdiction or jurisdictions in which the subject site is located have requested that amendment or have been given the opportunity to formally comment on the proposed amendment.

Notification and Request for Comments

- For all proposed amendments to the regional growth strategy the Metro Vancouver Regional District (MVRD) Board will:
- a) provide written notice of the proposed amendment to all affected local governments;
- b) provide a minimum of forty-five (45) days from the date of the notice for affected local governments, and the appropriate agencies, to respond to the proposed amendment;
- c) post notification of the proposed amendment on the Metro Vancouver website, for a minimum of forty-five (45) days from the date of the notice;
- d) if the proposed amendment is to change a site from Industrial or Employment to General Urban regional land use designation, provide written notice and a minimum of forty-five (45) days from the date of the notice for the Port of Vancouver, the Vancouver International Airport Authority, the Ministry of Transportation and Infrastructure and/or the Agricultural Land Commission, as appropriate, to respond to the proposed amendment.

Procedures for Type 1 Amendments

For Type 1 amendments to the regional growth strategy set out in section 6.3.1, the procedures set out in section 436 of the Local Government Act apply.

Procedures for Type 2 Amendments

- For Type 2 amendments to the regional growth strategy set out in section 6.3.3, the Metro Vancouver Regional District (MVRD) Board will:
- a) consider first, second, and third reading of the amendment bylaw;
- b) provided the amendment bylaw receives an affirmative two-thirds weighted vote of the MVRD Board at first, second, and third readings, refer for comment the proposed amendment to the regional growth strategy to all affected local governments, in accordance with the requirements set out in section 6.4.2;
- c) provide public engagement opportunities that may include:
 - notification of the proposed amendments on the Metro Vancouver website:
 - requesting written comments by way of a comment form on the Metro Vancouver website;
 - opportunities for the public to appear as a delegation to the Regional Planning Committee or the MVRD Board when the amendment is being considered;
 - conveyance of comments submitted from the respective local public hearing to the MVRD Board, and
 - hosting a public information meeting (digitally or in person).



d) receive the comments from the notification and referral for comments process set out in section 6.4.2, and consider final reading and adoption of the amendment bylaw, which must receive at least a two-thirds weighted vote of the MVRD Board.

Procedures for Type 3 Amendments

- **6.4.5** For Type 3 amendments to the regional growth strategy set out in section 6.3.4, the Metro Vancouver Regional District (MVRD) Board will:
- a) consider first, second, and third reading of the amendment bylaw;
- b) provided the amendment bylaw receives an affirmative majority weighted vote of the MVRD Board at each of the first, second, and third readings, notify and refer for comment the proposed amendment to the regional growth strategy to all affected local governments, in accordance with the requirements set out in section 6.4.2:
- c) provide public engagement opportunities that may include those listed under 6.4.4 c); and
- d) consider final adoption of the amendment bylaw and, provided the amendment bylaw receives an affirmative simple majority weighted vote of the MVRD Board, adopt the amendment bylaw.

6.5 Coordination with First Nations

6.5.1 Metro Vancouver will work with First Nations to facilitate the compatibility of the regional growth strategy and First Nations' planning and development initiatives.

6.5.2 A land use plan prepared by Tsawwassen First Nation will include a statement equivalent to a Regional Context Statement as defined in the *Local Government Act*, identifying how Tsawwassen First Nation's land use plan is consistent with the regional growth strategy.

6.6 Coordination with TransLink

6.6.1 Metro Vancouver will work with TransLink with the objective that the regional growth strategy and TransLink's regional transportation plans are compatible and complementary. Metro Vancouver will refer to TransLink for written comments on proposed Regional Context Statements that would impact the regional transportation system or significantly affect the demand for regional transportation services.

6.6.2 As an affected local government, TransLink is required to consider acceptance of the regional growth strategy and any proposed Type 1 amendments, as set out in section 6.3.1.

6.6.3 TransLink is mandated to provide a regional transportation system that is consistent and supportive of the regional growth strategy, and its associated goals, objectives, land use designations, overlays, and policies. The South Coast British Columbia Transportation Authority Act also requires TransLink to: review the regional growth strategy and any amendments to it and advise Metro Vancouver of the implications for the Regional Transportation Strategy, and prepare regional transportation investment plans that set out the relationships between major actions and the regional growth strategy.

6.7 Coordination with Other Governments and Agencies

6.7.1 Metro Vancouver will work with the Fraser Valley Regional District, the Squamish-Lillooet Regional District, and the Islands Trust (regarding Bowen, Bowyer, and Passage Islands) to facilitate the compatibility of regional planning and growth management initiatives in Metro Vancouver and these neighbouring jurisdictions.

6.7.2 Metro Vancouver will collaborate with the Federal Government and the Province on major investments in the regional transportation system, expansion of diverse and affordable housing options, and the location of public facilities that support the goals and strategies specified in the regional growth strategy. Metro Vancouver will seek formal Implementation Agreements with these agencies to give effect to that intent.



6.8 Coordination with Metro Vancouver / Greater Vancouver Boards

6.8.1 All bylaws adopted and all works and services undertaken by Metro Vancouver Regional District, the Greater Vancouver Water District, or the Greater Vancouver Sewerage and Drainage District must be consistent with the regional growth strategy.

The Greater Vancouver Sewerage and Drainage District and the Greater Vancouver Water District will not directly or indirectly supply, agree to supply, or authorize connections that enable the supply of services to a site that is developed or proposed to be developed after the date of adoption of the regional growth strategy where the nature of that development is, in the sole judgment of the Metro Vancouver Regional District Board, inconsistent with the provisions of the regional growth strategy.

6.8.2 For further clarity, sites within the Urban Containment Boundary that are designated General Urban, Industrial, or Employment, would be eligible for sewerage services, subject to normal Greater Vancouver Sewerage and Drainage District technical considerations, provided that the proposed development complies with the applicable policies under those designations and any such Urban Centre and Frequent Transit Development Area overlays that might apply.

6.8.3 For lands with a Rural, Agricultural, or Conservation and Recreation regional land use designation, sections 1.1.1, 1.4.1, 2.3.1, and 3.1.1 apply regardless of whether the area is within one of the Greater Vancouver Sewerage and Drainage District's sewerage areas.

With reference to sections 1.1.1, 1.4.1, 2.3.1, and 3.1.1, in determining whether, in the circumstances, connection to regional sewerage services is the only reasonable means of preventing or alleviating a public health or environmental contamination risk, the Metro Vancouver Regional District (MVRD) Board will consider the opinion of a professional, as such term is defined in the Sewerage System Regulation pursuant to the Public Health Act (British Columbia), or if appropriate a qualified professional, as such term is defined in Municipal Wastewater Regulation 87/2012 pursuant to the Environmental Management Act (British Columbia), submitted by the member jurisdiction as to the technical and economic feasibility of installing and maintaining a private on-site sewage treatment system in accordance with all laws and regulations applicable in British Columbia. The MVRD Board may also obtain its own opinion from a professional and consider such opinion.

6.9 Sewerage Area Extensions

6.9.1 Notwithstanding any other provision in the regional growth strategy, within the areas identified on Map 12 in the Township of Langley as "Rural within the Sewerage Area", which includes part of the Salmon River Uplands that is contained within the Greater Vancouver Sewerage and Drainage District's Fraser Sewerage Area, and within the area identified as "Sewerage Extension Areas", known as North Salmon River Uplands and South Fernridge, regional sewer servicing will be permitted subject only to the land uses being consistent with the applicable regional land use designation and normal Greater Vancouver Sewerage and Drainage District technical considerations.

6.9.2 All connections to regional sewerage services approved by the Greater Vancouver Sewerage and Drainage District (GVS&DD) Board as per sections 1.1.1, 1.4.1, 2.3.1, and 3.1.1 will be contained within a sewerage area footprint boundary as determined by the Metro Vancouver Regional District (MVRD) and GVS&DD Boards. Any sewerage service connection outside of that boundary will require MVRD Board and GVS&DD Board approval.

6.10 Special Study Areas

6.10.1 Special Study Areas as depicted on Map 12 identify locations where, prior to the adoption of *Metro Vancouver 2040, Shaping our Future*, a member jurisdiction had expressed an intention to alter the existing land use, and is anticipating a future regional land use designation amendment. Pending Metro Vancouver Regional District Board approval of a regional land use designation amendment, the current regional land use designation(s) applies within the Special Study Area. Amending a regional land use designation within a Special Study Area is considered a Type 3 amendment under section 6.3.4 of the regional growth strategy. This includes any

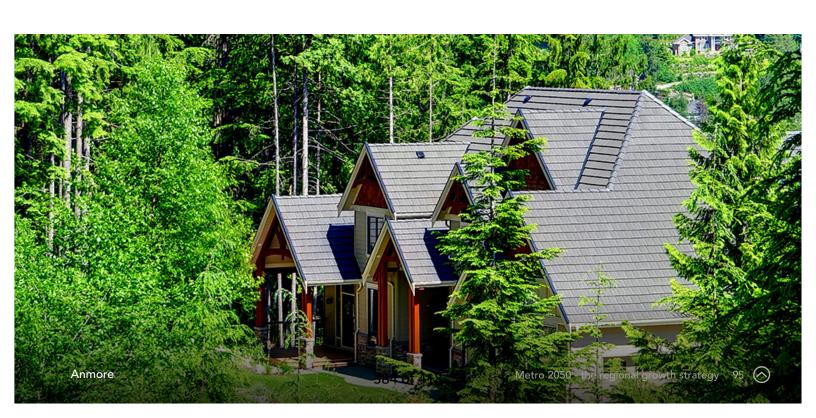
associated adjustment(s) to the Urban Containment Boundary for a Special Study Area. As part of any amendment establishing a change in regional land use designation, the Special Study Area boundaries for those amended lands will be removed from the regional growth strategy.

6.10.2 If the Special Study Area involves lands within the Agricultural Land Reserve, the member jurisdiction is required to consult with the Agricultural Land Commission during the preparation of the planning studies prior to initiating an application to exclude the lands from the Agricultural Land Reserve.

6.11 Jurisdiction

6.11.1 The regional growth strategy applies to all lands within the boundaries and jurisdiction of the Metro Vancouver Regional District.

6.11.2 In accordance with the Agricultural Land Commission Act, in the event that there is an inconsistency between the regional land use designations or policies set out in the regional growth strategy and the requirements of the Agricultural Land Commission Act or regulations and orders made pursuant thereto, the Agricultural Land Commission requirements will prevail.



6.12 Regional Growth Strategy Maps

6.12.1 The maps contained in the regional growth strategy are small scale depictions of the official regional land use designation maps and have been included for convenience purposes only. The official regional land use designation maps, the Sensitive Ecosystems Inventory map, and the Major Transit Growth Corridor map are maintained by Metro Vancouver and available for viewing on the Metro Vancouver website, and will be updated to incorporate changes to designation boundaries that result from adopted regional growth strategy amendment bylaws. TransLink owns and maintains the official Major Transit Network map on its website.

6.12.2 Where a regional land use designation boundary does not align with a property or parcel legal boundary, the Agricultural Land Reserve boundary, a member jurisdiction Official Community Plan or zoning boundary, or a distinct geographic or natural feature, the regional land use designation boundary will be considered approximate, and the boundary depicted in the respective accepted Regional Context Statement will prevail.

6.12.3 The boundaries of Urban Centres, Frequent Transit Development Areas, and Trade-Oriented Lands are to be defined by member jurisdictions in Official Community Plans, Neighbourhood or Area Plans, or equivalent, and shown in Regional Context Statements. Where member jurisdictions amend the boundaries of Urban Centres, Frequent Transit Development Areas, or Trade-Oriented Lands, and, in accordance with section 6.2.8, have not changed their Regional Context Statement, member jurisdictions will notify Metro Vancouver, in writing, within thirty (30) days.

6.12.4 The boundaries for Special Study Areas depicted on Map 12 are not to be expanded nor are new areas to be created. A Type 3 amendment to Map 12 is only permitted to delete Special Study Areas and may occur after the regional growth strategy has been amended to change the regional land use designation of the Special Study Area or when a member jurisdiction decides to eliminate a Special Study Area.

6.13 Tables, Figures and Performance Measures

6.13.1 Tables 1 and 2 showing growth projections and dwelling unit and employment growth targets for Metro Vancouver and member jurisdictions are included in the strategy as guidelines only. These tables are included in the regional growth strategy as a reference for use when preparing Regional Context Statements and regional planning initiatives. Metro Vancouver, in collaboration with member jurisdictions, will maintain projections to monitor growth and will propose updates to tables in accordance with the amendment process set out in section 6.3.4 following Metro Vancouver Regional District Board acceptance of Regional Context Statements or a significant change in the growth projections assumptions.

6.13.2 The following figures and maps in the regional growth strategy are included as reference only: Tables 5 and 6; Figures 1, 2, 3, 4, 5, and 6; and Maps 1, 10, and 11.

6.13.3 Pursuant to the *Local Government Act*, Metro Vancouver will prepare an annual report on progress in meeting the goals of the regional growth strategy through the monitoring of the performance measures identified in the Performance Measures section and in meeting other targets set out in the regional growth strategy.

6.14 Interpretation

6.14.1 All terms used in the regional growth strategy that are defined in the *Local Government Act* have the meanings given to such terms in the *Local Government Act*.

6.14.2 For terms not addressed in 6.14.1, a Glossary of Terms is provided and will be used to define terms used in *Metro 2050*.

6.14.3 In the case of the Electoral Area A, a Regional Context Statement is not required, but the policy actions listed for member jurisdictions should be addressed in the Electoral Area A Official Community Plan, as applicable.

6.15 Implementation Guidelines

6.15.1 Metro Vancouver may periodically prepare Implementation Guidelines to assist in the implementation of the regional growth strategy, to be prepared in collaboration with member jurisdictions. These guidelines should be read in conjunction with the regional growth strategy, and do not replace or supersede the content and requirements of the regional growth strategy.



G. Performance Monitoring

Performance monitoring allows for the informed review and update of the regional growth strategy as required. Metro Vancouver will produce annual reports on implementation of the regional growth strategy and progress towards its goals using the following performance measures.

Regional land use designations

Total and cumulative change in hectares of land in each of the six regional land use designations

Goal 1: Create a Compact Urban Area

Urban Containment

- Total and cumulative change in hectares of land in the Urban Containment Boundary
- Percent of regional dwelling unit growth located within the Urban Containment Boundary
- Number and status of new regional sewerage service connection applications made for areas outside of the Urban Containment Boundary to lands with an Agricultural, Rural, or Conservation and Recreation regional land use designation
- Change in hectares of greenfield lands within the Urban Containment Boundary that have a General Urban regional land use designation

Growth in Priority Areas

- Percent of regional dwelling unit growth located in Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors
- Change in "Activity Density" (as measured by people + jobs per hectare) in Urban Centres,
 Frequent Transit Development Areas, and Major Transit Growth Corridors

Complete Communities and Health

- A walkability index composed of: land use mix, commercial floor area ratio, intersection density, residential density, and sidewalk completeness
- Total and change in number of community services and amenities in Urban Centres and Frequent Transit Development Areas, including, but not limited to child care and green space

Goal 2: Support a Sustainable Economy

Employment in Priority Areas

- Percent of regional employment growth located in Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors
- Total and change in employment by sector in Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors
- Change in office floor area within Urban Centres, Frequent Transit Development Areas, and Major Transit Growth Corridors

Agricultural Lands

 Percent of land in the Agricultural Land Reserve that is actively farmed

Employment Accessibility

- Average number of kilometres travelled for commute (region-wide)
- Average number of minutes travelled for commute (region-wide)
- Average trip length by transportation mode (region-wide)

Industrial and Employment Lands

 Total and cumulative change in hectares of land designated Industrial and Employment that is developed and vacant

Goal 3: Protect the Environment, Address Climate Change, and Respond to Natural Hazards

Ecosystem Health

- Change in hectares of land protected for nature across the region
- Change in the percentage of regional total tree canopy cover within the Urban Containment Boundary
- Change in hectares of land identified as a Sensitive or Modified Ecosystem
- Change in hectares of identified Sensitive and Modified Ecosystems rated high quality

Greenhouse Gas Emission Reduction

- Total and change in tonnes of regional greenhouse gas emissions related to land use, buildings, industry, agriculture, waste, transportation, and other emission sources in support of the regional target to reduce greenhouse gas emissions by 45% below 2010 levels by the year 2030 and to achieve a carbon neutral region by the year 2050
- Tonnes of carbon storage in natural areas including lands with Rural, Conservation and Recreation, and Agricultural regional land use designations



Goal 4: Provide Diverse and Affordable Housing Choices

- Percentage of newly completed housing units built within Urban Centres and Frequent Transit Development Areas that are affordable rental housing units
- Percentage of household income spent on housing and transportation expenses across the region and by tenure and income level

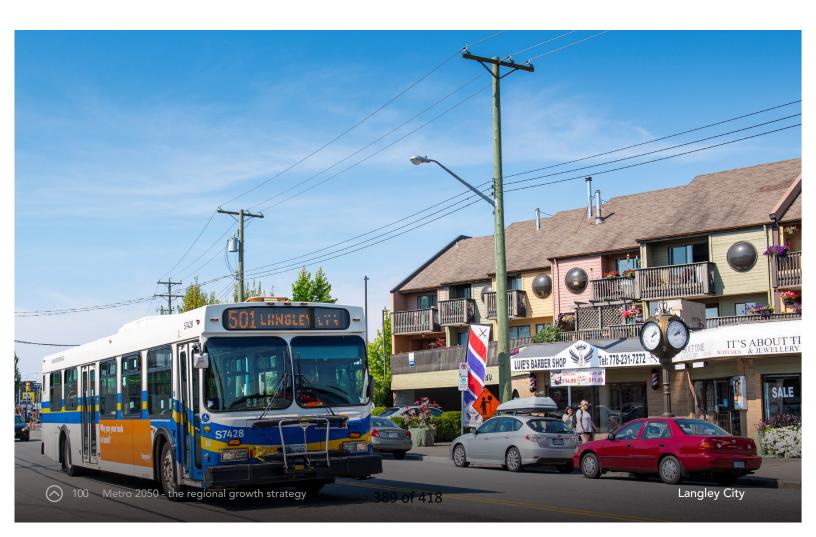
Goal 5: Support Sustainable Transportation Choices

Travel Mode Choices

- Total and change in trips by transportation mode
- Percent of residents within walking distance of the Major Transit Network
- Total and per-capita change in the number of actively insured vehicles

Road and Vehicle Use

 Total and per-capita change in annual vehicle kilometres travelled by transportation mode



H. Glossary of Terms

The following terms used in the regional growth strategy are defined as follows:

Affected Local Governments - Metro Vancouver Regional District member jurisdictions (excluding Bowen Island Municipality), Squamish-Lillooet Regional District, Fraser Valley Regional District, and the South Coast British Columbia Transportation Authority (also known as TransLink).

Affordable Housing - For the purpose of *Metro 2050*, "Affordable Housing" is housing that is affordable to households earning up to 120% of the Regional Median Household Income. In Canada, a general measure of housing affordability is the shelter-cost-to-income ratio, where no more than 30% of a household's gross income is spent on housing (including all housing-related costs like utilities).

Air Contaminant - Any substance that is introduced into the air that: injures or is capable of injuring the health or safety of a person; injures or is capable of injuring property or any life form; interferes or is capable of interfering with visibility; interferes or is capable of interfering with the normal conduct of business; causes or is capable of causing material physical discomfort to a person; or damages or is capable of damaging the environment.

Carbon Neutral Region - A region that generates no net greenhouse gas emissions. This is achieved by any greenhouse gas emissions across all economic sectors being balanced out by the removal of carbon dioxide from the atmosphere by the plants, trees, and soil of the region, or through technological means.

Carbon Storage - The total amount of carbon stored in ecosystems such as forests, wetlands and intertidal areas, which often takes thousands of years to accumulate. A conservative estimate of the total carbon stored in the vegetation and soils of the region's ecosystems is 65 million tonnes. This estimate is derived from Metro Vancouver's regional carbon storage dataset and applies to the full extents of the watersheds that supply the Metro Vancouver region's drinking water, along with estuarine and intertidal areas.

Climate Change Impacts - The consequences of realized climate change risks on ecosystems, economies, infrastructure, and communities.

Dwelling Unit - For the purposes of *Metro 2050*, the term "Dwelling Unit" is used as a short-form for "private dwelling that is occupied by usual residents" and is measured using Census household data.

Ecosystem Connectivity - The physical and functional links between ecosystems that support biodiversity by allowing the movement of species within and between ecosystems. Ecosystem connectivity is achieved by conserving and maintaining a connected network of natural and urban ecosystems.

Ecosystem Fragmentation - The process of ecosystems being divided into smaller and isolated patches of land thereby reducing ecosystem integrity.



Ecosystem Integrity - The ability of an ecosystem to support diverse communities of organisms and maintain ecological processes (e.g. water, carbon, and nutrient cycling).

Ecosystem Services - The benefits people obtain from ecosystems. These services can be grouped into four main types: supporting, provisioning, cultural, and regulating (see Figure 5).

Embodied Emissions - The greenhouse gas emissions associated with the construction of goods and products, including the raw materials, manufacture, and the transport of the good or product to where it is sold.

Green Infrastructure - The natural, enhanced, and engineered assets that collectively provide society with ecosystem services. Natural assets (e.g. forests, wetlands, and soil), enhanced assets (e.g. urban trees, and bioswales), and engineered systems (e.g. green roofs and permeable pavement) improve resilience and mitigate negative environmental impacts from urban development, benefiting both people and ecosystems.

Low Impact Development - Development that works with nature to: manage stormwater quantity and quality by preserving trees and other natural features where possible; support ecosystem connectivity; minimizes impervious surfaces; and create dispersed multi-functional landscapes that minimize pollutant runoff, the need for stormwater infrastructure, and extreme flooding and heat events.

Lower Income Households - Households earning less than 80% of the Regional Median Household Income.

Member Jurisdictions - Metro Vancouver Regional District member municipalities, Tsawwassen First Nation, and Electoral Area A.

Natural Hazards - Naturally occurring phenomena that may cause loss of life, injury or other health impacts, property damage, social, and economic disruption or environmental degradation. Examples of natural hazards affecting the Metro Vancouver region include earthquakes, landslides, floods, and wildfires. Many natural hazards are worsened by climate change.

Official Community Plan - As defined by the British Columbia *Local Government Act*, or land use plan equivalent in the case of the City of Vancouver, Tsawwassen First Nation, and Electoral Area A.

Province - The Government of British Columbia, including its ministries and agencies.

Regional Context Statement - As described by the British Columbia Local Government Act, the linking document that demonstrates the relationship between an Official Community Plan and the regional growth strategy and, if applicable, how the Official Community Plan is to be made consistent with the regional growth strategy over time. A Regional Context Statement and the rest of the Official Community Plan must be consistent or must demonstrate how they will made consistent over time.

Regional Median Household Income - The median total household income of all households living in the Metro Vancouver region based on Census data. As defined by Statistics Canada, the median divides the region's households into two equal groups: half having an income above that amount, and half having an income below that amount. It differs from the mean (or average) income.

Resilience - The capacity to prepare for, avoid, absorb, recover, and adapt to the effects of shocks and stresses in an efficient manner through the preservation, restoration, and adaptation of essential services and functions.

Risk - A combined function of the probability of a hazard occurring and the magnitude or severity of its potential consequences (i.e. injury, damage, loss of habitat etc.).

Sensitive Ecosystem Inventory - An inventory of the region's most ecologically important areas mapped using provincial methodology. It does not include small, young, significantly disturbed, farmed or landscaped vegetation (e.g. young forests <5 hectares, crop or fallow land, enhanced or engineered assets, backyards and street trees). The inventory includes sensitive ecosystems and modified ecosystems, as follows:

- Sensitive Ecosystems are ecologically fragile, rare or at-risk ecosystems such as wetlands, forests, and riparian areas.
- Modified Ecosystems include young forests (30-80 years old) and freshwater reservoirs, that have experienced some human alteration, but still provide ecosystem services and remain important for biodiversity. In many cases, modified ecosystems are essential to maintaining ecosystem connectivity in highly fragmented landscapes where sensitive ecosystems have been lost.

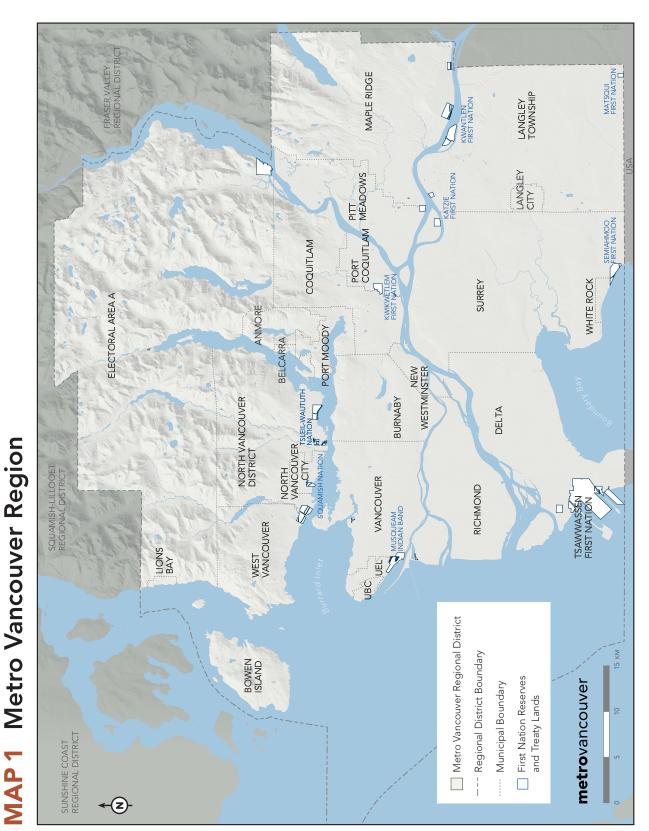
Social Equity - The promotion of fairness and the removal of systemic barriers that may cause or aggravate disparities experienced by different groups of people. This can include the many dimensions of identity, such as socioeconomic status, ethnicity, race, sex, age, disability, gender, sexuality, religion, indigeneity, class, and other equity related issues.

Transit-Oriented - Areas located in close proximity to transit (generally within 800 metres). Distances over 800 metres from rapid transit stations may also be considered within the context of the area.

Transportation Demand Management - Measures that seek to reduce the overall amount of driving, particularly for single-occupant vehicle trips, through strategies aimed at deterring driving (e.g. priced parking) or promoting alternative modes of transportation (e.g. providing free bike parking).

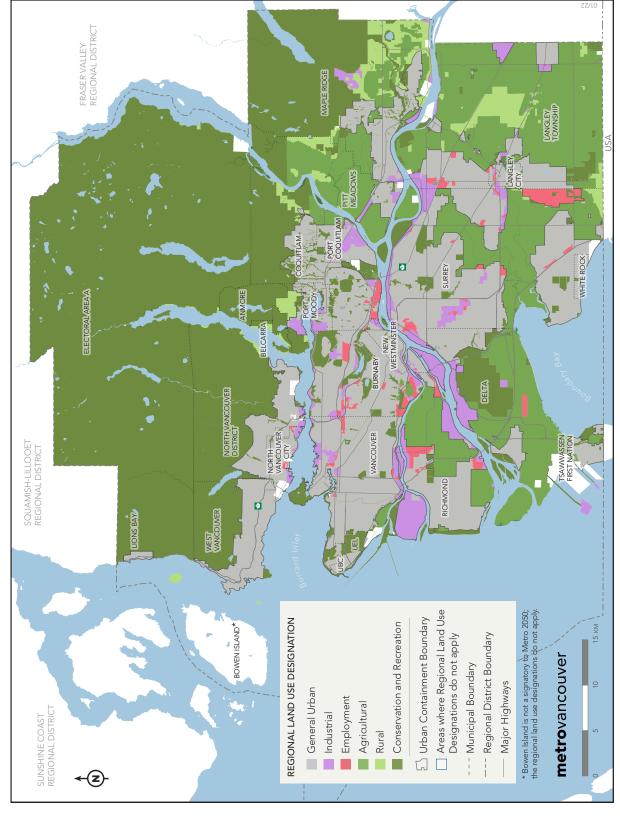


I. Maps



Map for reference only.

MAP 2 Regional Land Use Designations

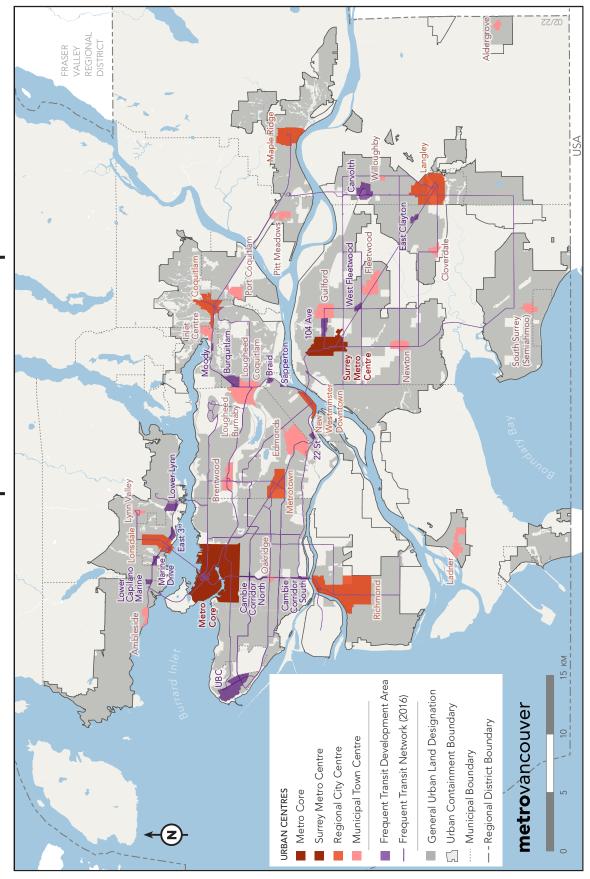


This map is a small scale representation of the Regional Land Use Designation Map that Metro Vancouver maintains as the basis for defining land-use designation boundaries. The official Regional Land Use Designation Map can be found at metrovancouver.org

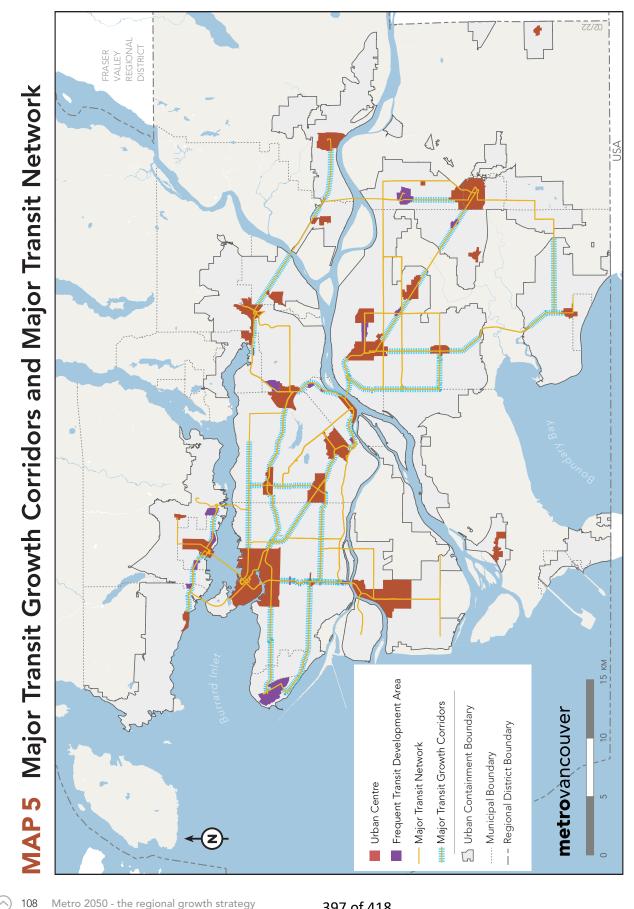
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01/22 FRASER VALLEY REGIONAL DISTRICT MAP 3 Urban Containment Boundary and General Urban Lands Q. REGIONAL LAND USE DESIGNATION Urban Containment Boundary ---Regional District Boundary **metro**vancouver Municipal Boundary 10 General Urban **(Z)**

MAP 4 Urban Centres and Frequent Transit Development Areas



Urban Centres and FTDAs are overlays for structuring residential and employment growth. The boundaries are identified by member jurisdictions. Where overlays cover areas other than General Urban or Employment, the intent and policies of the underlying regional land use designations still apply.



The Major Transit Growth Corridors include a buffer area of approximately 1km on either side of select segments of the Major Transit Network. Not all areas within MTGCs are appropriate for growth. The Major Transit Network is defined in Transport 2050 and is subject to periodic updates; it is shown for illustrative purposes only.

FRASER VALLEY REGIONAL DISTRICT MAPLE RIDGE LANGLEY LANGLEY PITT PORT WHITEROCK SURREY ANMORE MOODY MOODY BELCARRA NEW WESTMINSTER BURNABY DELTA NORTH VANCOUVER DISTRICT NORTH VANCOUVER TSAWWASSEN FIRST NATION VANCOUVER RICHMOND WEST VANCOUVER LIONS BAY MAP 6 Rural Lands 15 KM **metro**vancouver [5] Urban Containment Boundary REGIONAL LAND USE DESIGNATION --- Regional District Boundary 10 ---- Municipal Boundary SUNSHINE COAST REGIONAL DISTRICT — Major Highways **BOWEN ISLAND** General Urban Rural Lands **Z**



01/22 FRASER VALLEY REGIONAL DISTRICT MAPLE RIDGE LANGLEY TOWNSHIP LANGLEY PITT MEADOWS H PORT COQUITLAM WHITE ROCK ф SURREY PORT : BELCARRA WESTMINSTER NEW BURNABY DELTA NORTH VANCOUVER DISTRICT NORTH VANCOUVER TSAWWASSEN FIRST NATION VANCOUVER **RICHMOND** ✓ WEST VANCOUVER 4 UEL Vancouver International Airport REGIONAL LAND USE DESIGNATION --- Regional District Boundary metrovancouver Port Facilities/Terminals 6 -- Municipal Boundary **Employment Lands** Regional Airports Major Highways Industrial Lands Ferry Terminals **BOWEN ISLAND** Rail **+ +**

MAP 7 Industrial and Employment Lands

The depicted highway network, rail lines, and port/airport transportation facilities are shown for reference only.

FRASER VALLEY REGIONAL MAPLE RIDGE LANGLEY TOWNSHIP PITT PORT COQUITLAM WHITE ROCK SURREY BELCARRA WESTMINSTER NEW BURNABY NORTH VANCOUVER DISTRICT NORTH VANCOUVER CITY VANCOUVER RICHMOND WEST VANCOUVER LIONS BAY Urban Containment Boundary metrovancouver REGIONAL LAND USE DESIGNATION --- Regional District Boundary N Agricultural Land Reserve 9 Municipal Boundary Agricultural Lands BOWEN ISLAND Major Highways **←**②

For the latest Agricultural Land Reserve geography, please visit the Agricultural Land Commission website.

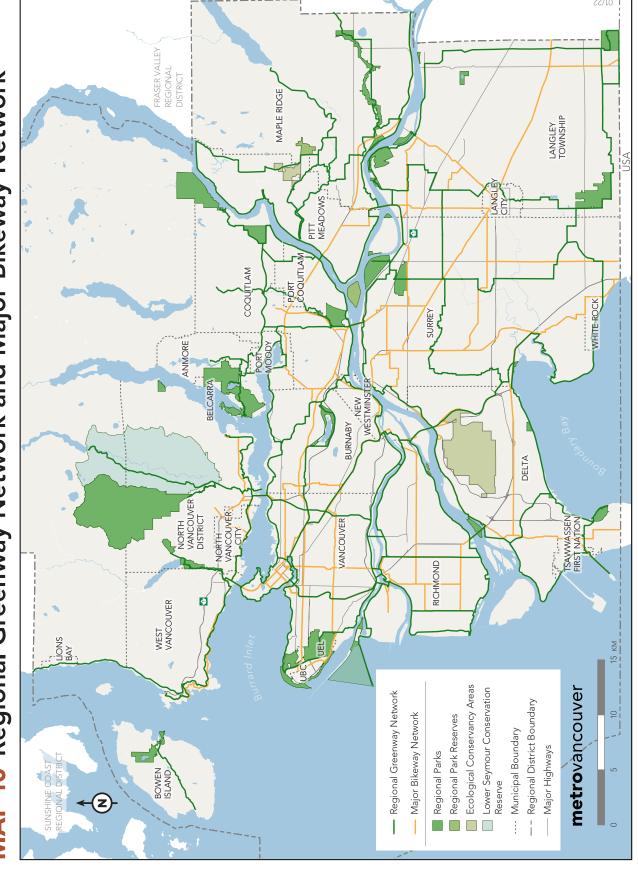
MAP 8 Agricultural Lands

FRASER VALLEY REGIONAL DISTRICT LANGLEY TOWNSHIP Conservation and Recreation Lands SQUAMISH-LILLOOET REGIONAL DISTRICT Urban Containment Boundary REGIONAL LAND USE DESIGNATION Conservation and Recreation BOWEN ISLAND Regional District Boundary Natural Resource Area metrovancouver Municipal Boundary Major Highways SUNSHINE COAST REGIONAL DISTRICT MAP9

01/55

The Natural Resource Areas Overly was collated by Metro Vancouver from several data sources including: Active managed forest tenure licenses, relevant OCPs, GVS&DD, and GVWD.

MAP 10 Regional Greenway Network and Major Bikeway Network



The Regional Greenway Network and Major Bikeway Network (MBN) are concepts illustrating existing and planned active transportation corridors of regional significance. The MBN is being developed through TransLink's Transport 2050 process and will be updated following the identification of a preferred MBN concept.

MAP 11 Sensitive Ecosystem Inventory SQUAMISH-LILLOOET REGIONAL DISTRICT Regional District Boundary metrovancouver Sensitive Ecosystems Modified Ecosystems -- Municipal Boundary Major Highways Shorelines SUNSHINE COAST REGIONAL DISTRICT

Map for reference only and does not reflect Regional Land Use Designations. An online SEI Tool is available at gis.metrovancouver.org/mvmaps/SEI and downloadable from metrovancouver.org/data. The SEI data set is from 2014. Local ecological datasets may be more current and detailed.

FRASER VALLEY REGIONAL DISTRICT MAP 12 Special Study Areas and Sewerage Extension Areas metrovancouver Special Study Area REGIONAL LAND USE DESIGNATION Urban Containment Boundary Conservation and Recreation 9 Regional District Boundary Sewerage Extension Area Areas where Regional Land Use Designations Municipal Boundary General Urban do not apply Employment Agricultural **②** Industrial Rural

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Office of the Chair Tel. 604 432-6215 or via Email CAOAdministration@metrovancouver.org

September 21, 2022

File: CR-12-01 Ref: RD 2022 Jul 29

The Honourable Nathan Cullen Minister of Municipal Affairs Room 027 Parliament Buildings Victoria, BC V8V 1X4

VIA EMAIL: MUNI.Minister@gov.bc.ca

Dear Minister Cullen:

Metro 2050 – Outcome of Acceptance Period and Next Steps

In April 2019, the Metro Vancouver Board resolved to update *Metro Vancouver 2040: Shaping the Future*, the current regional growth strategy. The updated regional growth strategy is called *Metro 2050*, and under the advice of the Ministry of Municipal Affairs, is considered a "Type 1 Major Amendment" for the purposes of determining the approvals process.

At its July 29, 2022 regular meeting, the Board Directors of the Metro Vancouver Regional District adopted the following resolution:

That the MVRD Board:

- a) notify the Minister of Municipal Affairs that the Township of Langley and the City of Surrey have refused to accept Metro 2050 and request that the Minister initiate a non-binding resolution process to attempt to reach acceptance on any outstanding concerns that cannot be resolved;
- b) request that the Minister of Municipal Affairs appoint a facilitator for the remainder of the Metro 2050 adoption process; and
- c) direct staff to engage with the Township of Langley and City of Surrey to explore options that would resolve some or all of the noted concerns with Metro 2050.

Between 2019 and 2022, all affected local governments, as well as in-region First Nations, regional stakeholders, provincial ministry staff, and members of the general public have been involved in a robust engagement and policy development process to prepare *Metro 2050*. A draft was circulated for a 5-month comment period in the fall 2021 and, after being revised to incorporate the many comments received, in March 2022 the implementing bylaw was read a first and second time and a public hearing held. In early May, *Metro 2050* was referred to affected local governments for acceptance.

54202301

Of the 24 affected local governments, 22 have accepted *Metro 2050* by council or board resolution, demonstrating a high level of regional consensus. Two affected local governments, the Township of Langley and the City of Surrey, have refused to accept *Metro 2050*. In accordance with subsection 439(1) of the *Local Government Act*, this letter is to formally notify you, as the Minister of Municipal Affairs, that two affected local governments have refused to accept the proposed update to the regional growth strategy.

The stated reasons for the refusals are described in the attached staff report that was presented to the MVRD Board at its meeting on July 29, 2022. The MVRD Board believes that, with additional dialogue, a consensus on *Metro 2050* with the objecting parties can be reached. The MVRD Board is requesting that a non-binding dispute resolution process take place, as set out in section 439 of the *Local Government Act*. While the precise commencement date and duration are to be confirmed with all parties, it is desired and anticipated that this process begin in late November 2022 and end by February 28, 2023.

The MVRD Board will invite all affected local governments to participate in the process. We understand that together, the participating local governments will agree on a qualified facilitator to guide the process, and move through the process with the goal of coming to a consensus. It is intended that only the stated provisions of objection will be discussed. Should any changes to the regional growth strategy be agreed-upon through this process, the MVRD Board will determine if a Public Hearing is required for the revised bylaw and, subsequently, a revised *Metro 2050* will be referred to all affected local governments for a second 60-day acceptance period.

Metro Vancouver commits to keeping the Minister and ministry staff apprised throughout the course of this process and, if consensus and acceptance by all affected local governments cannot be reached, a binding settlement process may be requested in accordance with section 440 of the *Local Government Act*.

We would like to extend our gratitude to ministry staff for their guidance throughout the course of this process to date.

Yours sincerely,

Sav Dhaliwal

Chair, Metro Vancouver Board

SD/JWD/hm

cc: Rob Fleming, Minister of Transportation and Infrastructure

Bowinn Ma, Minister of State for Infrastructure

George Heyman, Minister of Environment and Climate Change Strategy

Josie Osborne, Minister of Land, Water and Resource Stewardship

Okenge Yuma Morisho, Deputy Minister of Municipal Affairs

Eric Nicholls, Director of Planning and Land Use, Ministry of Municipal Affairs

Encl:

- 1. Metro 2050, the Regional Growth Strategy
- 2. Metro 2050 Outcome of Acceptance Period and Next Steps Report, July 29, 2022

All enclosures can also be found at this link: https://cloudshare.metrovancouver.org:5001/sharing/103PvjnXq

54202301

ATTACHMENT 3



November 10, 2022

Ref: 271205

Jerry Dobrovolny Chief Administrative Officer Metro Vancouver 4515 Central Blvd Burnaby BC V5H 0C6

Dear Jerry Dobrovolny:

I am writing regarding the previous Board Chair's letter of September 21, 2022, on the outcome of the acceptance process for the updated Metro Vancouver Regional Growth Strategy (RGS), Metro 2050, and anticipated next steps.

I was pleased to see the high level of regional consensus demonstrated by 22 of 24 affected local governments accepting Metro 2050. The Province of British Columbia continues to see this updated RGS, developed in tandem with the Regional Transportation Strategy, as critical to ensuring better growth management, housing, climate and other community outcomes in the region. I greatly appreciate all the time and effort that elected officials and staff across Metro Vancouver have put into this RGS update process so far, and the collaborative spirit with which they have undertaken this work.

From the letter, I also understand that the City of Surrey and the Township of Langley refused to accept Metro 2050 during the 60-day acceptance period, and that the Metro Vancouver Board believes that consensus can be reached with the objecting local governments on Metro 2050 and wishes to proceed with a non-binding resolution process, under s. 439 of the Local Government Act. I appreciate being notified of this, and of indicating preferred timelines for the non-binding process.

With that in mind, resolving this dispute so that Metro 2050 can move to acceptance in a timely manner is of utmost importance. Local governments in Metro Vancouver have a long history of co-operation to achieve regional goals, and I am confident in this situation the parties will once again be able to work together to find common ground and move forward with the RGS.

I am currently considering the previous Board's request and plan to follow-up with further communication in the coming weeks, after new municipal councils and a new regional board have had the opportunity to be sworn in, assess priorities and familiarize themselves with the current status of the RGS. At that point, I plan to provide direction on next steps in relation to the non-binding resolution process.

410 of 418:

.../2

Jerry Dobrovolny Page 2

In the meantime, I encourage Metro Vancouver to continue communicating with Ministry of Municipal Affairs staff as needed. The primary ministry contact on this matter continues to be Eric Nicholls, Director, Planning and Land Use, who can be contacted by email at Eric.Nicholls@gov.bc.ca, or by telephone at 778 698-3457.

Sincerely,

Nathan Cullen Minister

pc: Honourable George Heyman, Minister of Environment and Climate Change Strategy

Honourable Josie Osborne, Minister of Land, Water and Resource Stewardship

Honourable Rob Fleming, Minister of Transportation and Infrastructure Honourable Bowinn Ma, Minister of State for Infrastructure

Eric Nicholls, Director, Planning and Land Use, Local Government Division





the future lives here.

December 15, 2022

File: 0450-30 (Metro 2050)

Via email: chris.plagnol@metrovancouver.org

Chris Plagnol Corporate Officer Metro Vancouver

Dear Mr. Plagnol:

Re: Status on the Dispute Resolution Process for Non-Acceptance of the Metro Vancouver Regional Growth Strategy

At the December 12, 2022 Regular Council – Public Hearing meeting, Council considered the Status on the Dispute Resolution Process for Non-Acceptance of the Metro Vancouver Regional Growth Strategy, and passed the following resolution.

"That Council:

- 1. Endorse Option 2, as outlined in this report, to reverse previous objections to Metro 2050, and to endorse Metro 2050 as currently prepared; and
- 2. Direct the City Clerk to forward a copy of the report, along with the related Council resolution, to Metro Vancouver."

Yours truly,

Jennifer Ficocelli City Clerk

Stroull:

JF/GY

Encls.

G. CORPORATE REPORTS

The Corporate Reports, under date of December 12, 2022, were considered and dealt with as follows:

Item No. R211 Status on the Dispute Resolution Process for Non-Acceptance of the

Metro Vancouver Regional Growth Strategy

File: 0450-30 (Metro 2050)

The Acting General Manager, Planning & Development, submitted a report to update Council on the status of the dispute resolution process related to Surrey's non-acceptance of the Regional Growth Strategy and to provide options for Council's consideration on how to proceed with respect to the consideration of Metro Vancouver's update to the Regional Growth Strategy.

It was Moved by Councillor Bose

Seconded by Councillor Annis That Council divide the question on

Corporate Report R211.

RES.R22-2308 <u>Carried</u>

It was Moved by Councillor Bose

Seconded by Councillor Annis

That Council receive Corporate Report R211

for information.

RES.R22-2309 Carried

It was Moved by Councillor Elford

Seconded by Councillor Nagra

That Council endorse Option 1, as outlined

in Corporate Report R211, to continue to share the concerns with Metro 2050 as previously expressed to Metro Vancouver, and direct staff to prepare for the forthcoming dispute

resolution process.

RES.R22-2310 <u>Defeated</u>

With Mayor Locke and Councillors Annis, Bose, Bains, Hepner, Kooner and Stutt

opposed.

It was Moved by Councillor Annis

Seconded by Councillor Bose

That Council endorse Option 2, as outlined

in this report, to reverse previous objections to Metro 2050, and to endorse Metro 2050 as

currently prepared

RES.R22-2311 <u>Carried</u>

With Councillors Elford and Nagra opposed.

REGULAR COUNCIL – PUBLIC HEARING MINUTES MONDAY, DECEMBER 12, 2022

It was Moved by Councillor Annis

Seconded by Councillor Kooner

That Council direct the City Clerk to forward

a copy the report, along with the related Council resolution, to Metro Vancouver.

RES.R22-2312 <u>Carried</u>

With Councillor Nagra opposed.

ATTACHMENT 5



January 20, 2023 File No. 6540-04

Chris Plagnol, Corporate Officer, Metro Vancouver Chris.Plagnol@metrovancouver.org

Dear Chris:

Re: MVRD Regional Growth Strategy Bylaw No. 1339, 2022, a bylaw to adopt Metro 2050

At its January 16, 2023 Regular Meeting, Township Council adopted the following resolution:

That Council advise the Metro Vancouver Regional District (MVRD) Board that the Township of Langley accepts MVRD Regional Growth Strategy Bylaw No. 1339, 2022, a bylaw to adopt Metro 2050 (rescinding Council's previous refusal to accept Metro 2050), subject to the following:

- 1. That a Memorandum of Understanding between MVRD and the Township of Langley be developed to define 'Rural' for the Salmon River Uplands noted as a 'Rural within the Sewerage Area' and 'Sewerage Extension Area' in Metro 2050, with consideration that Rural be defined to allow gross densities equivalent to half acre lots with some minimal flexibility for subdivision design as may be appropriate; and
- 2. That post adoption of Metro 2050, Metro Vancouver initiate a Type 3 amendment to correct an error on Map 12 that reverses areas titled 'Rural within the Sewerage Area' and 'Sewerage Extension Area'.

A certified copy of this resolution is enclosed.

If you have any questions or require any additional clarification, please contact the undersigned at 604-533-6127.

Yours truly,

Jason Chu

MANAGER, COMMUNITY AND POLICY PLANNING

Enclosure: Certified Resolution

Copies to: Mark Bakken, Chief Administrative Officer, Township of Langley

THE TOWNSHIP OF LANGLEY

The following is a certified correct copy of a resolution passed by Langley Township Council at its Regular Council Meeting held January 16, 2023:

Metro 2050 Regional Growth Strategy Update Report 22-56
File CD 6540-04

That Council advise the Metro Vancouver Regional District (MVRD) Board that the Township of Langley accepts MVRD Regional Growth Strategy Bylaw No. 1339, 2022, a bylaw to adopt Metro 2050 (rescinding Council's previous refusal to accept Metro 2050), subject to the following:

- That a Memorandum of Understanding between MVRD and the Township of Langley be developed to define 'Rural' for the Salmon River Uplands noted as a 'Rural within the Sewerage Area' and 'Sewerage Extension Area' in Metro 2050, with consideration that Rural be defined to allow gross densities equivalent to half acre lots with some minimal flexibility for subdivision design as may be appropriate; and
- 2. That post adoption of Metro 2050, Metro Vancouver initiate a Type 3 amendment to correct an error on Map 12 that reverses areas titled 'Rural within the Sewerage Area' and 'Sewerage Extension Area'.

CARRIED

CERTIFIED A CORRECT COPY:

Suzarne Little

DEPUTY TOWNSHIP CLERK

COMMITTEE INFORMATION ITEMS AND DELEGATION SUMMARIES

Metro Vancouver Regional District Board Meeting Date – Friday, February 24, 2023

This information item, listing recent information received by committee, is provided for the MVRD Board's information. Please access a complete PDF package here.

Regional Parks Committee – February 1, 2023

Delegations:

No delegations presented

Information Items:

5.2 Pacific Spirit Regional Park – Wreck Beach Update

Mayors Committee - February 1, 2023

Delegation Summaries:

- 3.1 Eoin Finn and Peter van der Velden, Friends of Tilbury Subject: Expansion Proposals Fortis Tilbury LNG Facility Executive Summary
- 3.2 Roderick V. Louis

Subject: Overview – Housing Supply Act and Strata Property Act Amendments Executive Summary

Information Items:

5.3 Overview – Housing Supply Act and Strata Property Act Amendments

Climate Action Committee - February 2, 2023

Delegation Summaries:

No delegations presented

Information Items:

5.2 Climate 2050 Land Use and Urban Form Roadmap – Scope of Work and Project Status

Finance Committee – February 9, 2023

Delegation Summaries:

No delegations presented

Information Items:

- 5.1 Authorization to Attend 2023 Standing Committee Events
- 5.2 Authorization to Attend 2023 International Events
- 5.3 Treasury Report June 1, 2022 to December 31, 2022
- 5.4 MVRD Audit Plan from BDO Canada LLP

Regional Planning Committee – February 10, 2023

Delegation Summaries:

No delegations presented

Information Items:

- 5.3 Metro 2050 Climate Policy Enhancement Study Project Initiation
- 5.4 Climate 2050 Land Use and Urban Form Roadmap Scope of Work and Project Status

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