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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

METRO VANCOUVER REGIONAL DISTRICT
AIR QUALITY AND CLIMATE

MEETING

Friday, May 9, 2025
9:00 am
28th Floor Committee Room, 4515 Central Boulevard, Burnaby, British Columbia
Webstream available at https://www.metrovancouver.org

A G E N D A

A. ADOPTION OF THE AGENDA

1. May 9, 2025 Meeting Agenda
That the Air Quality and Climate Committee adopt the agenda for its meeting scheduled for May 9, 2025 as circulated.

B. ADOPTION OF THE MINUTES

1. April 4, 2025 Meeting Minutes *pg. 8*
That the Air Quality and Climate Committee adopt the minutes of its meeting held April 4, 2025 as circulated.

C. DELEGATIONS

1. Mariah Mund, Resilience Lead, Emergency Planning Secretariat and Deborah Carlson, Staff Lawyer, West Coast Environmental Law
Subject: Lower Fraser Floodplains Coalition

D. INVITED PRESENTATIONS

1. Jenny Koss, Assistant Program Manager, Flood Program, Fraser Basin Council; and Reza Rezvani, Water Resources Engineer-in-Training, Ebbwater Consulting
Subject: Dike Vulnerability Mapping

E. REPORTS FROM COMMITTEE OR CHIEF ADMINISTRATIVE OFFICER

1. Scan of Flood-related Capital Projects in the Metro Vancouver Region - Preliminary Results

pg. 14

Executive Summary

Metro Vancouver actively participates in ongoing flood resiliency planning processes in the Lower Fraser region. To support this ongoing work and to help advance the BC Flood Strategy, staff presented a scope of work to the Flood Resiliency Committee in July 2024 for a scan of flood-related capital projects in the Metro Vancouver region. The scan, in the form of a visual map and information table, is substantially complete and is presented as part of this report as preliminary results for Committee and Board review and feedback.

The scan provides a lay of the land in terms of existing and planned flood risk reduction capital projects, relying primarily on provincial and federal funding data. A total of 89 projects have been scanned, dating from ~2010 to the present, ranging from coastal and river flood protection, to stormwater flood protection, to dike-related projects and nature-based solutions. Staff will next look to fill in any gaps in information, including adding in new or missed projects. The Committee and Board will be provided with updated versions of the map and table later this year.

Recommendation

That the MVRD Board receive for information the report dated April 17, 2025, titled "Scan of Flood-related Capital Projects in the Metro Vancouver Region – Preliminary Results".

2. Climate 2050 Roadmap Update

pg. 33

Executive Summary

This report presents a revised approach for the remaining four Climate 2050 issue areas / road maps (Land Use and Urban Form, Water and Wastewater Infrastructure, Solid Waste, and Human Health and Well-Being), which integrates climate policy and actions into existing planning processes and implementation plans. Rather than creating stand-alone roadmaps, climate actions related to these four issue areas will be integrated within updates to management plans and other planning processes. This revised approach aims to optimize staff resources and engagement efforts, respond to Board direction, and to ensure climate actions are aligned with other plans and policies. This approach is expected to lead to operational efficiencies for integrating climate considerations into core services and planning.

Recommendation

That the MVRD Board receive for information the report dated April 9, 2025, titled "Climate 2050 Roadmap Update".

3. Local Government Policy Toolkit for Improving Thermal Safety in Apartment Buildings *pg. 38*

Executive Summary

Metro Vancouver, member jurisdictions, public health authorities and others are exploring ways to protect residents from heat waves such as the 2021 heat dome that caused 619 deaths in BC. Vulnerable residents in apartment buildings without cooling are especially at risk.

Metro Vancouver partnered with the City of North Vancouver, Vancouver Coastal Health Public Health (VCH Public Health), and the City of Vancouver to develop a policy toolkit for local governments that supports climate and health priorities outlined in the Climate 2050 Buildings Roadmap and Metro 2050. Member jurisdiction staff have expressed the need for information that collates approaches and solutions to protect residents from the health risks of extreme heat in a coordinated manner. The toolkit identifies a range of measures that will improve thermal safety, including installing cooling devices, adding shading to building exteriors, improving airflow, and managing heat-related risks for occupants. Based on this toolkit, Metro Vancouver will engage members to explore collaborative opportunities to enhance thermal safety in the region's housing stock. This work aligns with the BC Government's recent commitment to continue funding for heat pump incentives in apartment buildings for residents vulnerable to extreme heat.

Recommendation

That the MVRD Board:

a) receive for information the report dated April 2, 2025, titled "Local Government Actions for Improving Thermal Safety in Apartment Buildings"; and
b) direct staff to forward a copy of the report dated April 2, 2025, titled "Local Government Actions for Improving Thermal Safety in Apartment Buildings" to member jurisdictions with an offer of a presentation to Council upon request.

4. BC Utilities Commission Decisions on BC Hydro's Distribution Extension Policy and 2024 Rate Design Applications *pg. 46*

Executive Summary
As directed by the MVRD Board, Metro Vancouver participated with member jurisdictions (City of Richmond, City of Vancouver, and District of North Vancouver) as local government interveners in two BC Utilities Commission proceedings for BC Hydro's Distribution Extension Policy and 2024 Rate Design. The local government interveners recommended the BC Utilities Commission approve both applications, stating support along with suggested areas for improvement and analysis.

The BC Utilities Commission approved the new Distribution Extension Policy, effective July 5, 2025, and the 2024 Rate Design, with most changes in effect as of April 1, 2025. A separate Net Metering Service Rate proceeding, stemming from the Rate Design process, is underway to address compensation for customer-generated electricity exported to the grid. Local government intervenors' input informed BC Hydro's commitments to engage local governments on small-scale multi-unit housing connections and to the BC Utilities Commission directing BC Hydro to report on rate impacts for low-income households. Metro Vancouver staff will continue to engage with BC Hydro, the Province and the BC Utilities Commission to support policies and rate designs aligned with local government energy transition goals.

Recommendation
That the MVRD Board receive for information the report dated April 10, 2025, titled "BC Utilities Commission Decisions on BC Hydro's Distribution Extension Policy and 2024 Rate Design Applications."

5. Air Quality Advisory Program and Preparedness for 2025 *pg. 52*

Executive Summary
For over 30 years, Metro Vancouver has operated an air quality advisory program in collaboration with health authorities and partners. Metro Vancouver issues air quality warnings to protect public health when regional air quality degrades. In 2025, the name "air quality advisory" will change to "air quality warning", aligning with provincial and federal partners to improve public understanding of air quality warnings.

The risk of wildfire and smoke this season depends on May and June rainfall, which can influence the length and intensity of the wildfire season in BC. Lower snowpack levels are also important indicators of increased wildfire risk in summer. Average snowpack levels are below normal in BC (73 percent on March 1) and Metro Vancouver's watersheds (80 percent on April 3). Metro Vancouver is experiencing

the impacts of a changing climate now, with wildfire smoke and heat waves degrading regional air quality in seven of the last ten summers.

Recommendation
That the MVRD Board receive for information the report dated April 7, 2025, titled "Air Quality Advisory Program and Preparedness for 2025".

6. Proposed Amendments to Air Quality Management Fees: Initiating Engagement *pg. 60*

Executive Summary
The MVRD Board directed staff to continue to work toward cost recovery for Metro Vancouver's air quality regulatory function. Staff propose to engage with interest holders on amendments to *Metro Vancouver Regional District Air Quality Management Fees Regulation Bylaw No. 1330, 2021* (MVRD Bylaw No. 1330, 2021), a bylaw that establishes regulatory fees to recover program costs for air quality management and encourage emission reduction.

The proposed amendments are needed to reduce the scheduled increase to fee rates to balance cost recovery while avoiding undue financial impact on industry and regional affordability. Some program costs have decreased since MVRD Bylaw No. 1330, 2021 was adopted, which warrants a reduction in fee rates. However, odorous air contaminants remain an important generator of air quality complaints and program costs, so it is critical to set a fee structure that enables a reasonable level of program cost recovery for future years.

This report includes a discussion paper that describes the proposed amendments and that will serve as the foundation for the engagement. Staff will consider input from affected audiences and present refined proposed amendments, together with a summary of input and how it was considered, to the MVRD Board in late 2025. If adopted, implementation would proceed in 2026 or sooner if feasible.

Recommendation
That the MVRD Board direct staff to engage with interest holders on proposed amendments to the *Metro Vancouver Regional District Air Quality Management Fees Regulation Bylaw No. 1330, 2021*, based on the discussion paper in the report titled "Proposed Amendments to Air Quality Management Fees: Initiating Engagement", dated April 7, 2025.

7. Update on Work to Amend the GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008 *pg. 86*

Executive Summary
As part of Metro Vancouver's responsibility to manage regional air quality, the GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008 (GVRD Bylaw No. 1087, 2008) controls the discharge of air contaminants from boilers and process heaters in buildings and light industrial facilities. In May 2022, the MVRD Board authorized staff to engage on proposed bylaw amendments to reduce emissions of nitrogen oxides, with the aim to continue meeting federal ambient air quality standards, protect public health, and minimize costs to equipment owners.

Current health findings indicate that even low concentrations of nitrogen oxides can cause health impacts like illness, hospitalization, and premature death, so it is important to keep air quality regulations current and aligned with research and best practices. In addition, proposed amendments will account for current economic conditions, feedback from engagement with those most likely to be impacted, and alignment with leading jurisdictions.

Before bringing proposed amendments to the MVRD Board, staff will explore options that propose cleaner technology, set short-term requirements achievable with Canadian technologies where possible, reduce costs relative to initial proposed amendments, and protect people near higher emitting facilities.

Recommendation
That the Air Quality and Climate Committee receive for information the report titled "Update on Work to Amend the GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008", dated April 17, 2025.

8. Exploring Approaches to Manage Health-Related Air Contaminants from Commercial Food Production *pg. 110*

Executive Summary
This report outlines a proposed study to explore measures to reduce air contaminant emissions from high-emitting commercial food production. The study will identify relevant emission control technologies and management measures used in other jurisdictions with consideration for the cost and availability of these technologies in the current context of economic uncertainty. Food production in the region is a vital sector, and staff are seeking information and options that address health concerns while accounting for costs and technology availability.

A few types of equipment and processes generate air contaminants, (such as those in smoke), that can impact the health of surrounding communities. Metro Vancouver receives about 100 to 200 air quality complaints per year related to commercial food production. Some member jurisdictions have asked Metro

Vancouver to explore community impacts and potential changes to policies and regulations to better address impacts. This work will inform the evaluation of options for addressing impacts from high-emitting equipment and processes that discharge health harming air contaminants. Staff will incorporate any input from the Air Quality and Climate Committee into the project's scope of work, and report back at a future meeting.

Recommendation
That the Air Quality and Climate Committee receive for information the report dated April 11, 2025 titled "Exploring Approaches to Manage Health-Related Air Contaminants from Commercial Food Production".

9. Manager's Report *pg. 114*

Recommendation
That the Air Quality and Climate Committee receive for information the report dated April 15, 2025, titled "Manager's Report".

F. INFORMATION ITEMS

G. OTHER BUSINESS

H. RESOLUTION TO CLOSE MEETING

Note: The Committee 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.

I. ADJOURNMENT

That the Air Quality and Climate Committee adjourn its meeting of May 9, 2025.

Membership:

Dominato, Lisa (C) – Vancouver
Marsden, Dennis (VC) – Coquitlam
Baillie, Tim – Langley Township
Berry, Ken – Lions Bay
Wallace, Rosemary – Langley City
Watt, Linda – West Vancouver
Dueck, Judy – Maple Ridge
Elford, Doug – Surrey
Gu, Alison – Burnaby
Lahti, Meghan – Port Moody
McCutcheon, Jen – Electoral Area A
McNulty, Bill – Richmond
Ross, Jamie – Belcarra
Ruimy, Dan – Maple Ridge

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

METRO VANCOUVER REGIONAL DISTRICT
AIR QUALITY AND CLIMATE COMMITTEE

Minutes of the Regular Meeting of the Metro Vancouver Regional District (MVRD) Air Quality and Climate Committee held at 9:00 am on Friday, April 4, 2025 in the 28th Floor Committee Room, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:
Vice Chair, Councillor Dennis Marsden, Coquitlam
Councillor Tim Baillie, Langley Township
Director Ken Berry, Lions Bay* (arrived at 9:04 am)
Councillor Judy Dueck, Maple Ridge
Director Doug Elford, Surrey
Councillor Alison Gu, Burnaby
Director Jen McCutcheon, Electoral Area A
Director Bill McNulty, Richmond
Director Jamie Ross, Belcarra
Director Dan Ruimy, Maple Ridge
Councillor Rosemary Wallace, Langley City
Councillor Linda Watt, West Vancouver (arrived at 9:22 am)

*denotes electronic meeting participation as authorized by the *Procedure Bylaw*

MEMBERS ABSENT:
Chair, Director Lisa Dominato, Vancouver
Director Meghan Lahti, Port Moody

STAFF PRESENT:
Heather McNell, Deputy Chief Administrative Officer, Policy and Planning
Conor Reynolds, Director, Air Quality and Climate Action Services
Hadir Ali, Legislative Services Coordinator, Board and Information Services
Esther Bérubé, Division Manager, Air Quality Bylaw and Regulation Development, Air Quality and Climate Action Services
Jeff Carmichael, Division Manager, Business Development, Liquid Waste Services
Stefanie Ekeli, Regional Planner, Regional Planning and Housing Services
Jason Emmert, Program Manager, Air Quality and Climate Action Policy, Air Quality and Climate Action Services
Sara Muir, Air Quality Planner, Air Quality and Climate Action Services
Edward Nichol, Senior Planner, Regional Planning and Housing Services
Marcin Pachcinski, Division Manager, Electoral Area and Implementation Services
Kathy Preston, Director, Environmental Regulation and Enforcement
Julie Saxton, Program Manager, Enforcement and Regulation Air Quality, Environmental Regulation and Enforcement
Lise Townsend, Division Manager, Air Quality and Climate Action Policy, Air Quality and Climate Action Services

A. ADOPTION OF THE AGENDA

1. April 4, 2025 Meeting Agenda

It was MOVED and SECONDED
That the Air Quality and Climate Committee adopt the agenda for its meeting scheduled for April 4, 2025 as circulated.

CARRIED

B. ADOPTION OF THE MINUTES

1. February 7, 2025 Meeting Minutes

It was MOVED and SECONDED
That the Air Quality and Climate Committee adopt the minutes of its meeting held February 7, 2025 as circulated.

CARRIED

C. DELEGATIONS

No items presented.

D. INVITED PRESENTATIONS

No items presented.

E. REPORTS FROM COMMITTEE OR CHIEF ADMINISTRATIVE OFFICER

1. Air Quality and Climate Committee Revised Terms of Reference and 2025 Work Plan

Report dated March 12, 2025, from Marcin Pachcinski, Division Manager, Electoral Area and Implementation Services and Conor Reynolds, Director, Air Quality and Climate Action Services providing the Committee with the Air Quality and Climate revised Terms of Reference and 2025 Work Plan.

Marcin Pachcinski provided the committee with a review of the updated Committee's Terms of Reference, noting the addition of the flood resiliency work and upcoming projects, and anticipated presentations from third-party stakeholders such as the Provincial government, the Fraser Basin Council and others.

9:04 am Director Berry arrived at the meeting.

It was MOVED and SECONDED

That the Air Quality and Climate Committee:

a) receive for information the revised Air Quality and Climate Committee Terms of Reference as presented in the report dated March 12, 2025, titled “Air Quality and Climate Committee Revised Terms of Reference and 2025 Work Plan"; and

b) endorse the revised 2025 Air Quality and Climate Committee Work Plan, as presented in the report dated March 12, 2025, titled “Air Quality and Climate Committee Revised Terms of Reference and 2025 Work Plan".

CARRIED

2. Land Use Resilience Best Practice Guide - Flooding and Related Hazards - Proposed Scope of Work

Report dated March 21, 2025, from Stefanie Ekeli, Regional Planner, Regional Planning and Housing Services, providing the Air Quality and Climate Committee and MVRD Board with the scope of work of the Land Use Resilience Best Practice Guide: Flooding and Related Hazards, and an opportunity to provide feedback on the proposed work.

Stefanie Ekeli provided members with a presentation titled “Land Use Resilience Best Practice Guide: Flooding and Related Hazards – Proposed Scope of Work” noting that the proposed guide will provide member jurisdictions with support developing hazard Development Permit Area guidelines.

9:22 am Councillor Watt arrived at the meeting.

It was MOVED and SECONDED

That the MVRD Board receive for information the report dated March 21, 2025, titled “Land Use Resilience Best Practice Guide: Flooding and Related Hazards – Proposed Scope of Work”.

CARRIED

3. 2025 Regional District Sustainability Innovation Fund Application: Regional-Scale Hazard, Risk, and Vulnerability Analysis

Report dated March 21, 2025, from Edward Nichol, Senior Planner, Regional Planning and Housing Services, presenting the Regional-Scale Hazard, Risk, and Vulnerability Analysis project, and requesting funding through the Regional District Sustainability Innovation Fund.

Edward Nichol provided members with a presentation titled "Regional-Scale Hazard, Risk, and Vulnerability Analysis,” outlining the proposed project which involves developing a regional-scale hazard, risk, and vulnerability analysis for the Metro Vancouver region to support jurisdictions meet requirements in the Emergency and Disaster Management Act.

It was MOVED and SECONDED
That the MVRD Board approve allocation from the Regional District Sustainability Innovation Fund for the project "Metro Vancouver Regional-Scale Hazard, Risk, and Vulnerability Analysis (HRVA)" for $250,000 for 2025 and 2026 for a total of $500,000.

CARRIED

4. Appointment of Enforcement Officer
Report dated February 19, 2025, from Julie Saxton, Program Manager, Enforcement and Regulation Air Quality, Environmental Regulation and Enforcement, appointing a Metro Vancouver employee as a Board-designated officer.

It was MOVED and SECONDED
That the MVRD Board, pursuant to the *Greater Vancouver Regional District Air Quality Management Bylaw 1082, 2008* and the *Environmental Management Act,* appoint Metro Vancouver employee Gabriel de Andrade Fazioni as an officer.

CARRIED

5. MVRD Notice of Bylaw Violation Enforcement and Dispute Adjudication Bylaw Amendment Bylaw No. 1410, 2025
Report dated March 17, 2025, from Esther Bérubé, Division Manager, Air Quality Bylaw and Regulation Development, Air Quality and Climate Action Services and Julie Saxton, Program Manager, Enforcement and Regulation - Air Quality, Environmental Regulation and Enforcement, proposing adoption by the MVRD Board of amendments to *GVRD Bylaw No. 1117, 2010*,. through *MVRD Notice of Bylaw Violation Enforcement and Dispute Adjudication Amendment Bylaw No. 1410, 2025* to allow designated contraventions to be addressed through a notice of bylaw violation.

It was MOVED and SECONDED
That the MVRD Board:
a) give first, second, and third reading to *Metro Vancouver Regional District Notice of Bylaw Violation Enforcement and Dispute Adjudication Amendment Bylaw No. 1410, 2025*; and
b) pass and finally adopt *Metro Vancouver Regional District Notice of Bylaw Violation Enforcement and Dispute Adjudication Amendment Bylaw No. 1410, 2025*.

CARRIED

6. Analyzing Thermal Energy Opportunities Across Metro Vancouver

Report dated March 20, 2025, from Sara Muir, Air Quality Planner, Air Quality and Climate Action Services and Jeff Carmichael, Division Manager, Business Development, Liquid Waste Services informing the Air Quality and Climate Committee about a project to study opportunities for thermal energy networks (TENs) in Metro Vancouver, in collaboration with funding partners (BC Hydro and the Zero Emissions Innovation Centre) and member jurisdictions.

Sara Muir and Jeff Carmichael provided members with a presentation titled "Analyzing Thermal Energy Opportunities" highlighting the project's objectives which include investigating cross-municipal opportunities and shared learning, and provide member jurisdictions with studies and policies to support the goal of facilitating energy transition and local energy generation potential.

It was MOVED and SECONDED
That the MVRD Board receive for information the report dated March 20, 2025, titled "Analyzing Thermal Energy Opportunities Across Metro Vancouver".

CARRIED

7. Manager's Report

Report dated March 10, 2025, from Conor Reynolds, Director, Air Quality and Climate Action Services, providing the Air Quality and Climate Committee with an update on Climate 2050 Roadmaps.

Heather McNell, Deputy Chief Administrative Officer, Policy and Planning, provided the committee with a verbal update regarding recent decisions at the MVRD Board concerning proposed Metro 2050 amendments, noting that after review, the proposed amendments were found to have not received the required 2/3 weighted vote needed. The bylaws therefore did not advance.

10:50 am Director Berry departed the meeting.

It was MOVED and SECONDED
That the Air Quality and Climate Committee receive for information the report dated March 10, 2025, titled "Manager's Report".

CARRIED

F. INFORMATION ITEMS

1. Metro Vancouver Tree Guide

G. OTHER BUSINESS

No items presented.

H. RESOLUTION TO CLOSE MEETING

It was MOVED and SECONDED

That the Air Quality and Climate Committee close its meeting scheduled for April 4, 2025 pursuant to section 226 (1) (a) of the *Local Government Act* and the *Community Charter* provisions as follows:

90(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.

CARRIED

I. ADJOURNMENT

It was MOVED and SECONDED

That the Air Quality and Climate Committee adjourn its meeting of April 4, 2025.

CARRIED

(Time: 11:01 am)

Hadir Ali,
Legislative Services Coordinator

Lisa Dominato,
Chair

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Marcin Pachcinski, Division Manager, Electoral Area and Implementation Services, Regional Planning and Housing Services

Date: April 17, 2025 Meeting Date: May 9, 2025

Subject: **Scan of Flood-related Capital Projects in the Metro Vancouver Region – Preliminary Results**

RECOMMENDATION

That the MVRD Board receive for information the report dated April 17, 2025, titled "Scan of Flood-related Capital Projects in the Metro Vancouver Region – Preliminary Results".

EXECUTIVE SUMMARY

Metro Vancouver actively participates in ongoing flood resiliency planning processes in the Lower Fraser region. To support this ongoing work and to help advance the *BC Flood Strategy*, staff presented a scope of work to the Flood Resiliency Committee in July 2024 for a scan of flood-related capital projects in the Metro Vancouver region. The scan, in the form of a visual map and information table, is substantially complete and is presented as part of this report as *preliminary results* for Committee and Board review and feedback.

The scan provides a lay of the land in terms of existing and planned flood risk reduction capital projects, relying primarily on provincial and federal funding data. A total of 89 projects have been scanned, dating from ~2010 to the present, ranging from coastal and river flood protection, to stormwater flood protection, to dike-related projects and nature-based solutions. Staff will next look to fill in any gaps in information, including adding in new or missed projects. The Committee and Board will be provided with updated versions of the map and table later this year.

PURPOSE

To present the preliminary results of the scan of flood-related capital projects in the Metro Vancouver region.

BACKGROUND

In July 2024, the Flood Resiliency Committee and MVRD Board received a scope of work for a scan of flood-related capital projects in the Metro Vancouver region (Reference 1). This project is on the 2025 Committee work plan, and preliminary results are now presented for review and feedback.

SCAN OF FLOOD-RELATED CAPITAL PROJECTS – PRELIMINARY RESULTS

The scan of flood-related capital projects in the Metro Vancouver region provides information on existing and planned flood risk reduction capital projects in the Metro Vancouver region. The information is presented in two ways: on a map, intended to easily display the types of projects and their location (Attachment 1), and in a table, containing additional details for each project (Attachment 2). The information was collected primarily using available data from provincial and

federal grant funding sources, as well as some municipal websites and input from municipal and First Nation staff.

The focus of the scan is recently constructed projects (from 2010 onwards, with a few earlier examples) and projects that have received funding and are still in the planning and early design/construction phases. The projects have been categorized by the following three main flood types, and projects may fit into more than one category:

- Coastal (sea);
- Pluvial (rain/stormwater); and
- Riverine (rivers and creeks).

This information is intended to provide an overview of what projects exist, where they are located, and their associated costs and timelines. This information is intended to help assess, among other things, the project types (e.g., whether they are traditional hard-armouring or nature-based), distribution (e.g., how these projects are spread across the region or concentrated in certain areas), and scale (e.g., how they contribute to flood risk reduction beyond the local site). This information will also show the extent to which there is already cross-jurisdictional coordination and how individual projects relate to one another.

Of the 89 projects scanned from ~2010 to the present:

- 29 projects are related to rain/stormwater (pluvial) flood protection, including numerous pump station projects in Richmond and six projects to separate stormwater from sewer pipes in Burnaby, New Westminster, and Vancouver;
- 27 projects are related to coastal flood protection, most of which are in the Boundary Bay area;
- 23 projects are related to both coastal and river flood protection, mostly involving dikes along the Fraser River;
- 10 projects are related to river flood protection, five of which are for North Shore creeks;
- 36 projects are dike related;
- Six projects involve more than one municipal or First Nation jurisdiction:
    - three involve Delta, Semiahmoo First Nation, and Surrey;
    - Coquitlam and the kʷikʷəƛ̓əm (Kwikwetlem) First Nation);
    - Metro Vancouver (Barnston Island, Electoral Area A) and qʼicəˀyˀ (Katzie) First Nation; and
    - North Vancouver City and North Vancouver District;
- Nine projects use nature-based solutions, including green infrastructure:
    - Hastings Sunrise Sewer Renewal & Green Infrastructure Project (Vancouver);
    - Lawson Creek to McDonald Enhancement (West Vancouver)
    - Lawson Park Riparian Enhancement (West Vancouver)
    - Mud Bay Nature-based Foreshore Enhancements (Delta, Semiahmoo First Nation, and Surrey);
    - Nicomekl Riverfront Park (Surrey);
    - Rain City Strategy Using Nature-Based Solutions (Vancouver);

- Reserve Shoreline Adaptation and Habitat Enhancement Project (səlilwətaɬ (Tsleil-Waututh Nation));
- West End Combined Sewer Separation & Green Infrastructure Program (New Westminster)
- Yorkson Lowlands Stormwater Management and Ecological Restoration (Langley Township);

While the majority of flood related capital projects are conceived and implemented by individual local jurisdictions, several recent projects involve more than one municipal or First Nation jurisdiction, which may foretell more cooperation among member jurisdictions, First Nations, and others in the future. In addition, several recent projects using nature-based solutions may indicate that this approach to flood protection may become more common in the future.

NEXT STEPS

While the scan is substantially complete, there are some gaps in information, and there may be additional projects that can be added to the map and table. Therefore, staff will continue to reach out to municipal and First Nation staff to confirm the data and update where appropriate.

The map and table will be shared with participants in flood resiliency planning processes that are ongoing in the Lower Fraser, including provincial staff who are implementing the *BC Flood Strategy*. This resource can also be used by member jurisdictions to see what types of projects are being done by adjacent members, how the projects might influence their flood risk, and indicate opportunities for potential collaboration.

In addition, the scan will provide baseline information for the development of a prioritization criteria matrix for flood-related projects that is also on the Committee's 2025 work plan. The Committee and Board will be provided with updated versions of the map and table later this year.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Metro Vancouver contracted Ebbwater Consulting Inc. to undertake this project and a related one (the development of a prioritization criteria matrix for flood-related projects, expected to be finished in late 2025). The budget for completing both projects, including technical work and consultation, totals approximately $70,000. Work completed in 2024 done primarily on the scan was accommodated within the Board-approved Regional Planning budget and totaled approximately $23,000.

CONCLUSION

The scan of flood-related capital projects is one way in which Metro Vancouver is contributing to the ongoing work around flood resiliency in the Lower Fraser. This scan can be used as baseline information to help the MVRD Board, member jurisdictions, and others understand the types and location of such projects across the region and help inform future decisions and advocacy related to flood protection funding.

ATTACHMENTS

1. Map of flood-related capital projects in the Metro Vancouver region.
2. Table of flood-related capital projects in the Metro Vancouver region.
3. Presentation re: "Scan of Flood-related Capital Projects in the Metro Vancouver Region", dated May 9, 2025**.**

REFERENCE

1. Metro Vancouver (June 18, 2024) *Regional Flood Resiliency Initatoves Scan and Prioritization Matrix – Scope of Work.* Retrieved from: https://metrovancouver.org/boards/FloodResiliency/FRE-2024-07-12-AGE.pdf#page=7. Last Accessed 2025, April 9.

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Map of Flood-Related Capital Projects in the Metro Vancouver Region

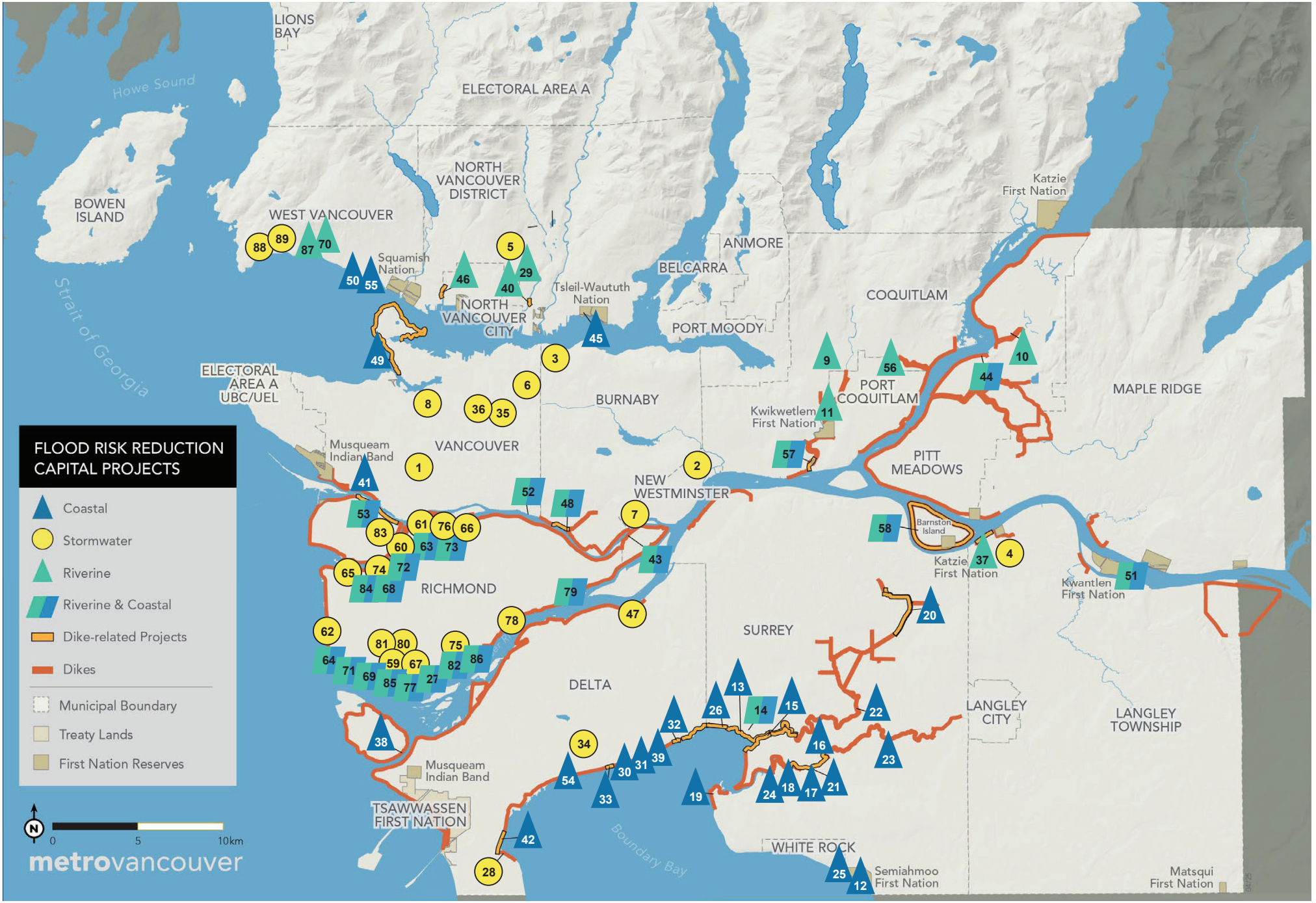


Table of Flood-Related Capital Projects in the Metro Vancouver Region (sorted by jurisdiction)

Jurisdiction	Project No.	Program Name	Project Name	Project Description	Flood Type	Federal Contribution	Provincial Contribution	Estimated Total Cost	Estimated Start Year	(Estimated) Completion Year	Project Status
Burnaby	**3**	Clean Water and Wastewater Fund	Combined Sewer Separation Program 2017	The project works will include: - Separation of 1,355m of combined sewer mains into separate sanitary and storm sewer systems; - Replacement of 1,185m of aged watermains within the same road sections; and, - Restoration of affected road pavements, curb and gutter, sidewalk structures.	Pluvial	$2,943,080		$5,886,160	2017	2024	Completed
Burnaby	**48**	Municipality Funded	Burnaby Fraser River Dike Upgrade near Byrne Creek	The $6-million dike upgrade will raise the dike to 3.9 metres above geodetic elevation. The dike section between Glenlyon and Byrne creeks, known as Reach 8, will be the last major upgrade to the Fraser River Dike.	Riverine & Coastal			$6,000,000	2019		Completed
Coquitlam	**9**	Disaster Mitigation and Adaptation Fund	New drainage and environmental channel project	The project seeks to reduce the risk of future flooding events on Cedar Drive in Coquitlam BC. The project involves the relocation and raising of Cedar Drive, and constructing a drainage channel parallel to Partington Creek. Additionally, the project will significantly reduce the number of residents without essential services and number of people directly affected, who will not have access to the road during high precipitation events.	Riverine	$4,454,000		$11,135,000	2022	2029	In Progress
Coquitlam; kʷikʷəƛ̓əm (Kwikwetlem First Nation)	**57**	Green Infrastructure Stream of the Investing in Canada Infrastructure Program	Joint flood mitigation program	With rising water levels and increased rainfall due to climate change, the flooding risk is increasing for slakəyánc IR1, the regional transportation network, Mayfair Industrial Park in Coquitlam, and within ƛ̓éxətəm Regional Park. Through this project, the Kwikwetlem First Nation and Coquitlam will upgrade the area's existing flood protection network and construct enhanced dikes. The project will also strengthen fish habitat and install new flood boxes to support water connectivity through the dike and local drainage system and to prevent back flow.	Riverine & Coastal	$11,487,350	$4,827,684	$19,978,000	2027	2029	Planning
Delta	**28**	Provincial-Territorial Infrastructure Component - Small Communities Fund	12th Avenue Storm Water Management Improvements	The 12th Avenue Drainage Pump Station required a complete replacement as it was at the end of its useful life. The pump station replacement is part of the City's 12th Avenue Stormwater Management improvement plan. Key considerations for this upgrade were: Station to meet post-disaster criteria. Presence of liquefiable soils require ground densification (stone columns) under the station footprint to satisfy the seismic criteria. Design accounts for climate change through incorporating a future capacity increase by simply changing the pumps with all other systems being sized accordingly. Three submersible Flygt axial-flow pumps providing an initial 3.6 m^3/s combined, with an option to upgrade to 5.4 m^3/s. Pumps operate on VFDs. Dyke was raised from an elevation of 3.1 m to 4.1 m. Pump station is located within a Metro Vancouver park and required significant environmental permitting. Stationary generator on site, sized to operate two pumping units. Architectural design of the structures.	Pluvial	$2,700,000		$8,100,000	2018	2020	Completed
Delta	**30**	Building Canada Fund - Communities Component	Boundary Bay Dike Foreshore Protection (2 Sites)	The Delta project includes 450 metres of dike along Boundary Bay between 96th and 104th streets as well as 50 metres of dike north of Beach Grove. Work will improve the grade of the slope and provide a larger riprap protection layer. It's a continuation of dike erosion protection upgrades underway since 2003.	Coastal	$252,555	$413,445	$1,000,000	2014	2016	Completed
Delta	**31**	Building Canada Fund - Communities Component	Boundary Bay Dike Foreshore Protection: Between 96 St and 104 St	The project will upgrade approximately 300 metres of the Boundary Bay Dike, between 96 Street and 104 Street, by improving the slope and adding riprap on the seaward side of the dike. The project is the fifth phase of an erosion protection project that started in 2003.	Coastal	$87,284		$600,000	2010	2011	Completed

Delta	**32**	Building Canada Fund - Communities Component	Boundary Bay Dike Foreshore Protection: Oliver Pump Station Area	The project will upgrade approximately 300 metres of the Boundary Bay Dike in the Oliver Pump Station area by raising the dike, improving the slope, and adding riprap on the seaward side of the dike. The project is the seventh phase of an erosion protection project that started in 2003.	Coastal	$107,292	$600,000	2010	2011	Completed
Delta	**33**	Building Canada Fund - Communities Component	Boundary Bay Dike Foreshore Protection: Beharrel Pump Station Area	The project will upgrade approximately 250 metres of the Boundary Bay Dike in the Beharrel Pump Station area by improving the slope and adding riprap on the seaward side of the dike. The project is the sixth phase of an erosion protection project that started in 2003. The Boundary Bay Dike provides a coastal barrier that protects low lying agricultural land and ultimately, the communities of Ladner, lower Tsawwassen and Surrey.	Coastal	$69,625	$515,000	2010	2011	Completed
Delta	**34**	Disaster Mitigation and Adaptation Fund	84th Street Drainage Pump Station	The 84 Street Drainage Pump Station will address flooding concerns, including water ponding on roadways, railway tracks, and agricultural lands. The station will manage stormwater, transporting it through a force main pipeline to the discharge point at the Boundary Bay dike. It will also protect critical transportation networks, including local roads, Highway 99, and the railway corridor to Deltaport, from disruptions caused by flooding-related closures. Additionally, the pump station will include a flap gate and an energy dissipation structure to prevent backflow and minimize environmental impacts on local ecosystems.	Pluvial	Portion of $7,600,000	$14,000,000	2025		In Progress
Delta	**38**	Building Canada Fund - Communities Component Top Up	Westham Island Dike (Trim Road) Upgrade	This project will widen the structure and upgrade 130 metres of the dyke.	Coastal	$49,173	$266,519	2010	2011	Completed
Delta	**39**	Building Canada Fund - Communities Component Top Up	Boundary Bay Dyke Foreshore Upgrade	No detailed project descriptions found.	Coastal	$183,345	$700,000	2010	2011	Completed
Delta	**42**	Provincial Grants	Beach Grove Seawall Improvements and Foreshore Protection	Delta is embarking on two projects that will mitigate flood risk arising from high tides, storm surges and wind driven waves. In the Beach Grove area the city will replace a section of deteriorating seawall that has developed large cracks. The second area targeted for mitigation is a 450 metre section of dike in Boundary Bay at the southern end of 96th Street, where the city will install large rip rap material to minimize debris deposits and damage from storms. The combined funding will help Delta upgrade the foreshore and seawall protecting over 2,000 residents in areas that have been hit by frequent flooding.	Coastal		$550,000	$825,000	2016		Completed
Delta	**47**	Disaster Mitigation and Adaptation Fund	Silda Drainage Pump Station	The Silda Drainage Pump Station will reduce the risk of flooding at Highway 91/17 interchange. It will also address flooding concerns, including water ponding on roads, railway tracks, and pedestrian trails, as well as impacts on local businesses in the low-lying catchment area.	Pluvial	Portion of $7,600,000			2027		In Progress
Delta	**54**	Community Emergency Preparedness Fund	Boundary Bay Dike Improvements	The City will initiate a pilot project that involves raising a section of the Boundary Bay dike adjacent to Boundary Bay Airport between 72 Street and 88 Street.	Coastal		$2,000,000				In Progress
Langley Township	**4**	Investing in Canada Infrastructure Program	Yorkson Lowlands Stormwater Management and Ecological Restoration	The proposed project will increase the capacity to treat and manage stormwater by constructing a series of wetlands to and improve surface water quality. The project works include: - Site preparation, slope grading, and mobilization; - Removing invasive reed canary grass; - Stream channel restoration; - Excavating an approximately 21,000 m3 stormwater wetland; - Excavation work to connect stomrwater channels to the constructed wetlands; - Planting, mulching and site surface upgrades to prevent re-colonization of invasive plant species; - Removing old stormwater (culverts) infrastructure; - Installation of stormwater control weirs; - Planting wetlands with native wetland plant, tree, and shrub species; - Building a 250 metre access trail to the site; and, - Installation of interpretive signage.	Pluvial	$692,744		$1,731,860	2024	2025	Pre-Construction

Langley Township	**37**	Building Canada Fund - Communities Component Top Up	West Langley Dike Upgrade	The project will raise the West Langley Dike crest by approximately 1.1 metres and widen the crest to 4 metres along a 960 metre section of the dike. The project will also include slope re-grading, cross-sectional improvements, and improving the tie-in to high ground at the west extent of the dike. This section of dike protects numerous businesses/facilities including Metro Vancouver's Northwest Langley Wastewater Treatment Plant, Mainland Sand and Gravel, Lehigh Cement Ltd., Chemical Lime Company of Canada Inc., Brenntag Canada Inc., and Burnco Rock Products Ltd.	Riverine	$314,989	$1,425,000	2010	2011	Completed
Metro Vancouver - Electoral Area A; q̓ic̓əy̓ (Katzie First Nation)	**58**	Emergency Program Act / Growing Communities Fund	Barnston Island Dike Improvements	In summer 2023, the Province provided Metro Vancouver with a grant of $5.25 million under the Emergency Program Act. The funds are for dike improvements to advance flood protection and help ensure Barnston Island remains a viable place for living and farming. Metro Vancouver has allocated an additional $1.5 million from the provincial Growing Communities Fund to toward implementation of dike improvements.	Riverine & Coastal		$6,750,000		2023	In Progress
New Westminster	**2**	Clean Water and Wastewater Fund	Sapperton Combined Sewer Separation	The project works will include: - Approximately 10.8km of storm main; - Approximately 134 manholes; and - Related works.	Pluvial	$3,326,172	$6,652,344	2017	2024	Completed
New Westminster	**7**	Investing in Canada Infrastructure Program	West End Combined Sewer Separation & Green Infrastructure Program	This project will help increase the capacity to manage wastewater and increase the capacity to treat and/or manage storm water through installation of green Infrastructure which will improve the quality of storm water that enters the Fraser River. This project will separate combined sewers in the City as a part of ongoing efforts to separate a minimum of 1.5% of combined sewer system and align with Metro Vancouver's Integrated Liquid Waste and Resource Management Plan. The project works include: - Installation of approximately 8.4 km of storm sewers; - Installation of approximately 24 rain gardens; - Installation of approximately 3 permanent flow monitoring stations; - Installation of necessary appurtenances; and, - Rehabilitation of roadworks impacted by project works.	Pluvial	$5,705,595	$14,263,988	2024	2027	Pre-Construction
New Westminster	**43**	Community Emergency Preparedness Fund (CEPF)	Queensborough Dike Shoreline Protection Rehabilitation	The City of New Westminster is proposing to rehabilitate and stabilize a failing segment of existing rip-rap shoreline protection, approximately 130 metres in length, along the Queensborough Dike. The Project would consist of: Site preparation, including removal of vegetation, anthropogenic debris, existing rip rap and profile and grading the slope Placement of geotextile, filter rock, rip rap and fill, if required Vegetation planting on the rip rap bench and riparian area	Riverine & Coastal		$800,000		2024	In Progress
North Vancouver City; North Vancouver District	**46**	Provincial Grants	Mackay Creek Flood Mitigation	The $2.4-million project includes $334,666 from the City of North Vancouver and $474,461 from the District of North Vancouver. The combined funding will help the two local governments build a 1,200-metre-long flood protection dike on both sides of Mackay Creek between Marine Dr. and First St. The new dike, being built on both the east and west sides in a coordinated manner by the two local governments, will increase public safety and protect adjacent residential, commercial and light-industrial lands, as well as public transportation corridors from flooding and its associated costs in lost business and property damage.	Riverine		$1,600,000	$2,400,000	2017	Completed

North Vancouver District	**5**	Investing in Canada Infrastructure Program	Reduction of Inflow and Infiltration Program (RIIP) - Lynn Valley	The proposed project will increase the capacity to manage wastewater with rehabilitation of sewer pipes to reduce the inflow of rainwater into the system. The inflow and infiltration of rainwater into the sanitary sewer system is causing sanitary sewer overflows, allowing raw sewage to enter the environment. The pipe improvements will reduce the frequency of overflows, reduce system operating costs, and reduce the need for future infrastructure improvements. The project works will include: - rehabilitation of about 4500 m of sanitary sewers; - rehabilitation of manholes, lateral connections, and chambers; - repair of cross connections and pipe defects; and, - inspection of about 75 km of sanitary sewer.	Pluvial	$2,000,000	$5,000,000	2022	2026	In Progress
North Vancouver District	**29**	Provincial-Territorial Infrastructure Component - Small Communities Fund	District of North Vancouver Creek Flood and Debris Flow Disaster Mitigation Infrastructure	This disaster-mitigation project in North Vancouver will control flood and debris flow in the Deep Cove and Lynn Valley areas. The project includes better protecting the culvert inlet and debris basin upgrades on Thames Creek at Grouse Mountain Road; new inlet protection and a debris basin on the Thames Creek at Kilmer Road; culvert and diversion inlet improvements; a debris basin, trash racks and overflow structures at two locations on Kilmer Creek; replacing the culvert on Gallant Creek at Deep Cove Road; and constructing a debris basin on Gallant Creek upstream of Badger Road. These improvements will help reduce the risk of flooding and the property damage and clean up associated by debris typically carried by flood waters.	Riverine	$841,683	$2,525,050	2016	2019	Completed
North Vancouver District	**40**	Building Canada Fund - Communities Component Top Up	Lynnmour Dike Flood Protection	The project will upgrade the flood protection works on Lynnmour Creek including the St Denis Road Dike, the Fire Training Centre deflection berm, the Orwell Street deflection berm, the Forsman Road floodway, and a park berm. The project will protect residential properties in the Lynnmour area.	Riverine	$142,780	$428,340	2010	2010	Completed
Pitt Meadows	**10**	Provincial-Territorial Infrastructure Component - Small Communities Fund	Pitt Polder Pump Station Replacement	To replace the aging and failing Pitt Polder (1952) pump station with new, more efficient technology (duplex screw system with backup power and electrical components) set above the 200 year flood elevation level.	Riverine	$2,325,000	$6,975,000	2018	2024	Completed
Pitt Meadows	**44**	Community Emergency Preparedness Fund (CEPF)	Fenton Pump Station Replacement	This grant will provide the opportunity to replace the Fenton Road pump and back-up generator including rebuilding the motor centre, switchgear and power upgrades, installation of new tubes and pumps, as well as a back-up generator for the Baynes Road pump. The two existing pumps at the Fenton Station are at the end of their service life and are the only pumps which service the surrounding dike system. Work on this project will begin in the coming months and is expected to be completed by January 2022.	Riverine & Coastal		$739,740	2020	2024	Completed
Port Coquitlam	**11**	Disaster Mitigation and Adaptation Fund	Maple Creek Drainage Pump Station Upgrade	The Maple Creek Drainage Pump Station project will protect people and properties in low-lying areas from flooding caused by increased rainfall and rising sea levels. It will replace the existing pumps with fish-friendly pumps and upgrade the floodbox structure for improved water management, while enhancing fish passage and survival. Additional upgrades will include seismic and structural improvements, as well as enhancements to civil, mechanical, and electrical systems.	Riverine	$5,600,000			2027	Design
Port Coquitlam	**56**	Disaster Mitigation and Adaptation Fund	Cedar Creek Drainage Pump Station Upgrade	The Cedar Creek Drainage Pump Station project will increase capacity to effectively manage water flow during storm events resulting from climate change. This includes providing flood protection for residential, commercial, and agricultural properties in low-lying areas, while also preventing localized flooding on roads. This project will replace the existing pumps with fish-passable pumps, upgrade the existing floodbox, and add a permanent generator.	Riverine	$4,000,000			2026	Design and permitting

q̓ʷɑ:n̓ƛ̓ən̓ (Kwantlen First Nation)	**51**	First Nation Project	McMillan Island Rip Rap	In 2016, McMillan Island was undergoing significant bank erosion at the east end caused by the Fraser River. To protect the island from further erosion, Kwantlen First Nation (KFN) received authorizations to armor 1.7 km of the bank with rip rap, which is rock placed on shorelines, between 2017 and 2018. This protects the north east portion of the island, effectively delaying the most significant risk of erosion that threatens to split the island	Riverine & Coastal				2017	2018	Completed
Richmond	**27**	Investing in Canada Infrastructure Program	No. 3 Road South Drainage Pump Station and Dike Upgrade	The project consists of two components. Reconstructing the pump station will quadruple its pumping capacity from 1.2 m3/s to a minimum of 4.8 m3/s. Raising approximately 220 m of dike by 1.2 m to an elevation of 4.7 m will connect two already raised sections, resulting in over 1,200 meters of dike built to year 2100 flood design levels. Completing this project will enhance the City's level of flood protection and ensure that Richmond is better prepared for climate change induced sea level rise and increases to rainfall intensities while protecting approx. 29,500 residents, 47 businesses and 8 square kms of agricultural land.	Riverine & Coastal	$1,350,991		$13,000,000	2025	2028	Pre-Construction
Richmond	**53**	Vancouver Airport Authority Funded	Sea Island Climate Resilience Project	The project will see YVR upgrade the dike and drainage system on Sea Island by raising the existing perimeter dikes by approximately one metre to a total height of 4.7 metres and improving overall drainage and geotechnical stability.	Riverine & Coastal				2024	2025	In Progress
Richmond	**59**	Likely Infrastructure Stimulus Fund	Gilbert Road South Drainage Pump Station Rehab	Stormwater Management	Pluvial	Likely a portion of $1,224,445		Likely a portion of $4,049,000		2010	Complete
Richmond	**60**	Municipality Funded	Cambie Road West Pump Station Rebuild	Stormwater Management	Pluvial					2010	Complete
Richmond	**61**	Municipality Funded	No. 4 Road North Pump Station Rebuild	Stormwater Management	Pluvial					2011	Complete
Richmond	**62**	Municipality Funded	Williams Road Pump Station Rebuild	Stormwater Management	Pluvial					2013	Complete
Richmond	**63**	Funding details not found	Oris "Parc Riviera Phase 1" Superdike Construction	Dike Raising	Riverine & Coastal					2013	Complete
Richmond	**64**	Funding details not found	Onni (Steveston) "Imperial Landing" Superdike Construction	Dike Raising	Riverine & Coastal					2013	Complete
Richmond	**65**	Municipality Funded	No. 1 Road North Pump Station Rebuild	Stormwater Management	Pluvial					2014	Complete
Richmond	**66**	Provincial Grants	Bath Slough Pump Station Rebuild	Stormwater Management	Pluvial		$2,040,000			2015	Complete
Richmond	**67**	Funding details not found	Woodward Slough Drainage Pump Station Rehab	Stormwater Management	Pluvial					2015	Complete
Richmond	**68**	Funding details not found	Aspac (west of Oval) Superdike Construction	Dike Raising	Riverine & Coastal					2016	Complete
Richmond	**69**	Funding details not found	Oris "Kawaki" Superdike Construction	Dike Raising	Riverine & Coastal					2017	Complete

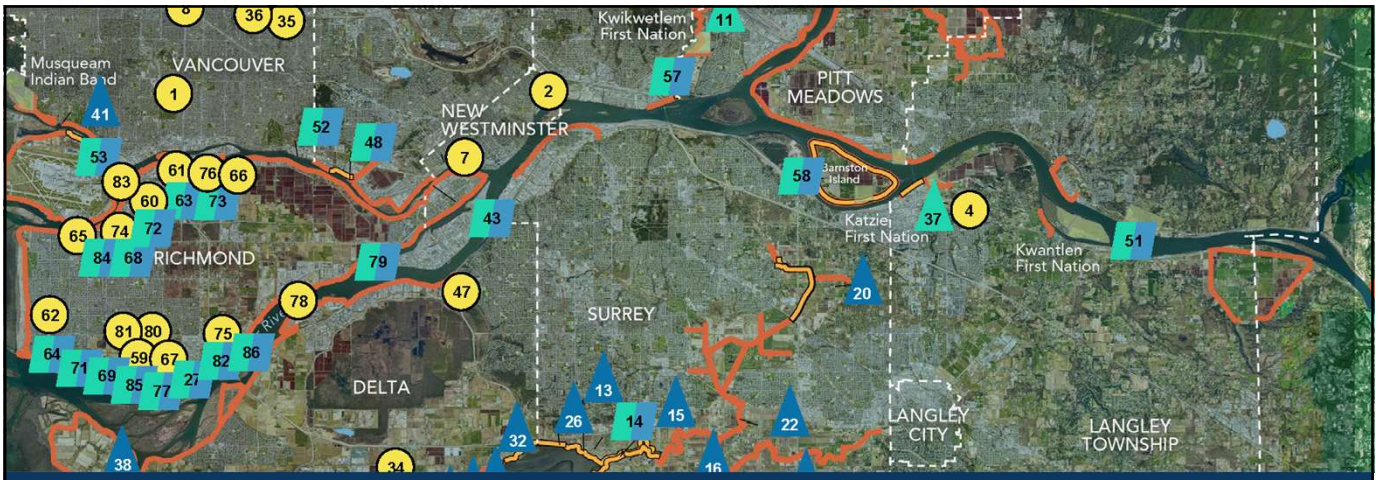
Richmond	**71**	Funding details not found	Britannia Flood Protection Improvements	Following significant flooding in December 2014 that was the result of a combination of high tide and storm surge, a number of flood protection concepts were developed in consultation with City staff and the Britannia Heritage Shipyard Society. The solution involved flood-proofing the existing perimeter bulkhead wall and raising it by approximately 0.7 m, to an elevation of 2.9 m, through the installation of a vinyl sheet pile wall with wooden cladding to maintain the heritage appearance of the site. For sections of the floodwall that required walkway access to three historic buildings, removable aluminum flood panels were installed for high water events to ensure the wall is water tight throughout.	Riverine & Coastal			2018	Complete
Richmond	**72**	Funding details not found	Aspac “River Green” (east of Oval) Superdike Construction	Dike Raising	Riverine & Coastal			2018	Complete
Richmond	**73**	Funding details not found	Oris “Parc Riviera Phase 2” Superdike Construction	Dike Raising	Riverine & Coastal			2018	Complete
Richmond	**74**	Likely provincial grants	No. 2 Road North Pump Station Design	Stormwater Management	Pluvial			2018	Complete
Richmond	**75**	Disaster Mitigation and Adaptation Fund	Horseshoe Slough Drainage Pump Station	Stormwater Management	Pluvial			2020	Complete
Richmond	**76**	Disaster Mitigation and Adaptation Fund	Shell Road North Drainage Pump Station	Stormwater Management	Pluvial			2020	Complete
Richmond	**77**	Disaster Mitigation and Adaptation Fund	Gilbert to No. 3 Road South Dike Upgrade	Dike Raising	Riverine & Coastal			2020	Complete
Richmond	**78**	Disaster Mitigation and Adaptation Fund	No. 7 Road South Drainage Pump Station	Stormwater Management	Pluvial			2021	Complete
Richmond	**79**	Disaster Mitigation and Adaptation Fund	No. 9 Road South Dike Upgrade	Dike Raising	Riverine & Coastal			2022	Complete
Richmond	**80**	Disaster Mitigation and Adaptation Fund	Steveston Highway to No. 3 Road Pump Station Upgrade	Stormwater Management	Pluvial	$1,000,000		2022	Complete
Richmond	**81**	Funding details not found	Steveston Highway to Gilbert Road Pump Station Upgrade	Stormwater Management	Pluvial			2022	Complete
Richmond	**82**	Disaster Mitigation and Adaptation Fund	No. 3 Road to Finn Slough Dike Upgrade	Dike Raising	Riverine & Coastal			2023	Complete
Richmond	**83**	Funding details not found	Burkeville Drainage Upgrades	The Burkeville neighbourhood is undergoing a comprehensive drainage upgrade project that includes replacing ageing watermains, sanitary sewers, and roadways in several phases. The phasing is designed to prioritize address servicing concerns and reduce construction impacts to the community. During each phase, drainage, water, sanitary, and road infrastructure improvements within the identified phasing areas will be completed. Upgrading the drainage network will reduce local flood risks by increasing the City’s storm system capacity and better servicing the Burkeville area.	Pluvial		$3,000,000	Q4 2024	

Richmond	**84**	Funding details not found	Lynas Lane to No. 2 Road along River Road North Dike Upgrade	Dike Raising	Riverine & Coastal		2027	In Design
Richmond	**85**	Muncipality Funded	6080 Dyke Road to Gilbert Road South Dike Upgrade	Dike Raising	Riverine & Coastal		2027	In Design
Richmond	**86**	Funding details not found	No. 4 Road to No. 5 Road South Dike Upgrade	Dike Raising	Riverine & Coastal		2028	In Design
səlilwətaɬ (Tsleil-Waututh Nation)	**45**	Community Emergency Preparedness Fund (CEPF)	Reserve Shoreline Adaptation and Habitat Enhancement Project	Key objectives for the reserve shoreline adaptation and restoration project are to: -attenuate wave action and protect community lands and sensitive archaeological sites from coastal erosion and flooding; -use nature-based solutions that integrate Indigenous Knowledge and stewardship technologies to restore marine ecology and culturally important local species; -reconnect community members to the shoreline by facilitating shoreline access at suitable places; and -build TWN capacity and stewardship role through training and community member involvement in all stages of the project.	Coastal	$2,000,000	2023	In Progress
Surrey	**13**	Disaster Mitigation and Adaptation Fund	Colebrook Dyke (100 Series): Mud Bay	Upgrading 7.5 kilometres of the earth dyke along Mud Bay and at the mouth of the Serpentine River, including flood boxes, providing protection to the Highway 99 regional link to the Peace Arch border, BC Hydro's primary transmission line and regional sewer and watermains. This project will be done in phases.	Coastal		2022? 2027	In Porgress
Surrey	**14**	Disaster Mitigation and Adaptation Fund	Colebrook Drainage Pump Station Replacement	Removing and replacing existing pump station built in the 1990's at 13168 - 48 Avenue with a modern pump station. The new pump station will protect the agricultural floodplain area from extreme flooding. It will include new 'fish friendly' pumps to allow fish to pass through unharmed and will be less vulnerable to the impacts of a seismic event.	Riverine & Coastal			In Progress
Surrey	**15**	Disaster Mitigation and Adaptation Fund	Serpentine River Sea Dam	Removing and replacing the sea dam with a modern structure that is climate and seismic resilient. The new structure will have a higher crest elevation, and a robust foundation and dyke tie-in to resist extreme earthquakes.	Coastal			Planning
Surrey	**16**	Disaster Mitigation and Adaptation Fund	152 Street Road Upgrades	Raising and widening 152 Street crossing the floodplain and making improvements along King George Blvd from Highway 99 to Serpentine River to provide secondary flood protection for 152 Street. We will also twin the Nicomekl River Bridge and create a four-lane road and bridge crossing with cycling and pedestrian pathways. This will improve flood resilience and emergency response as well as help reduce congestion.	Coastal		2023 2026	In Progress
Surrey	**17**	Disaster Mitigation and Adaptation Fund	Nicomekl Riverfront Park	Creating a 3-km riparian park that incorporates recreation, traditional culture and natural values with flood attenuation features. These features will include wetlands and habitat islands. The new Nicomekl Riverfront Park will employ innovative climate adaptation and mitigation measures. It will also provide opportunities for reconciliation, climate awareness, and environmental stewardship.	Coastal		2024	In Progress
Surrey	**18**	Disaster Mitigation and Adaptation Fund	King George Boulevard Bridge and Nicomekl River Sea Dam Replacement	Upgrading the adjacent 100-year old sea dam to improve flood and irrigation controls.	Coastal			Planning

Surrey	**19**	Disaster Mitigation and Adaptation Fund	Crescent Beach Storm Sewer Upgrades	Continuing expansion of perforated storm sewer system together with ground and road raising. This will provide efficient conveyance to manage storm water runoff and rising groundwater levels. This project will be done in phases.	Coastal				In Progress
Surrey	**20**	Disaster Mitigation and Adaptation Fund	Lower Nicomekl River and Serpentine River Dyking	Upgrading the dyking system at the Serpentine dyke between 88 Avenue and Fraser Highway. This will increase the area's resiliency to sea level rise and protect Surrey lowlands from coastal flooding. We will also replace the flood boxes at Fry's Corner Pump Station (7627-176 St) to protect the surrounding area, agriculture and highways from future flooding. This project will be done in phases.	Coastal				In Progress
Surrey	**21**	Disaster Mitigation and Adaptation Fund	Lower Nicomekl River and Serpentine River Dyking	Upgrading the dyking system at the 3-kilometre reach of the Nicomekl River between Elgin Road and the 40 Avenue Pump Station. This will increase the area's resiliency to sea level rise and protect Surrey lowlands from coastal flooding. This project will be done in phases.	Coastal				In Progress
Surrey	**22**	Disaster Mitigation and Adaptation Fund	SRY Rail Link Serpentine Bridge Replacement	The new railway bridge is resilient to flooding and sea level rise. It will help the city realize the full benefits of the Serpentine-Nicomekl flood control system to improve flood control of agricultural land.	Coastal			2019	2020	Completed
Surrey	**23**	Disaster Mitigation and Adaptation Fund	Burrows Drainage Pump Station Upgrade	The new Burrows Pump Station is resilient to flooding and earthquakes. The new design allows fish to pass through it easier and it has better flood control and irrigation for surrounding agriculture. A new building houses the electric controls to power the new fish-friendly pump.	Coastal			2020	2021	Completed
Surrey	**24**	Disaster Mitigation and Adaptation Fund	Stewart Farm Sanitary Pump Station Upgrade	The Stewart Farm sanitary pump station is part of the City of Surrey's sanitary sewer system to collect wastewater from the community and carry it to the Annacis Island Wastewater Treatment Plan. This station is located at low elevation on the south bank of the Nicomekl River. This lower part of the river is impacted by tides which makes the station more vulnerable to flooding. The pump station needed to be raised to avoid any damage to the infrastructure and environment, while keeping it functioning in the case of a severe flood.	Coastal			2020	2021	Completed
Surrey; Delta; Semiahmoo First Nation	**12**	Disaster Mitigation and Adaptation Fund	Coastal Flood protection	The project consists of the new construction, rehabilitation and expansion of 13 assets including pump stations, sea dams, dykes, road, bridges, and a park which provide transportation, water, wastewater, stormwater, and safety essential services. The project will provide a higher level of protection to surrounding agricultural lands, traffic corridors and other infrastructure of local, regional and national importance.	Coastal	$76,602,850	$187,000,000	2019	2028	In Progress
Surrey; Delta; Semiahmoo First Nation	**26**	Disaster Mitigation and Adaptation Fund	Mud Bay Nature-based Foreshore Enhancements	The Mud Bay Nature-based Foreshore Enhancements Project is a partnership between City of Surrey, City of Delta and Semiahmoo First Nation. The project involves a nature-based approach to flood protection known as a living dyke. The project will begin with Pilot Studies to test stabilization techniques for the living dyke in two locations in Mud Bay. This will mitigate river flooding and the loss of biodiversity. It will also help salt marsh habitats keep pace with rising sea levels.	Coastal			2023	2027	In Progress
Surrey; Semiahmoo First Nation	**25**	Disaster Mitigation and Adaptation Fund	Campbell River Pedestrian Bridge Replacement	Partnering with the Semiahmoo First Nation to remove and replace the failing pedestrian bridge over the Campbell River. This bridge connects the Semiahmoo First Nation with the City of Surrey and City of White Rock. The new structure will be built to current flood protection standards and allow for 1 meter of sea level rise. It will also provide an alternate emergency access route.	Coastal					Planning
Vancouver	**1**	Clean Water and Wastewater Fund	Vancouver South Sewer Separation Project	The project works will include: - 1400m sanitary trunk sewers; - 1400m storm trunk sewer; - 40 manholes; - 80 service connections; - Import backfill; - Pavement and curb restoration; and, - Miscellaneous appurtenances.	Pluvial	$5,837,500	$11,675,000	2017	2024	Completed

Vancouver	**6**	Investing in Canada Infrastructure Program	Hastings Sunrise Sewer Renewal & Green Infrastructure Project	The proposed project will replace the existing combined sewer with new separate sanitary and storm sewers in the Hastings Sunrise area of the City to mitigate flooding, reduce sewer overflows into local marine waters and increase capacity for future. The addition of green infrastructure components will capture pollutants and allow rain water to infiltrate the ground. The project works include: - Replacement of about 4.5 km of combined sewer in the Hastings Sunrise area with separated storm and sanitary sewers; - Installation of about 30 bio-retention bulges and about 18 catch basin with infiltration drywell manholes; - Installation of approximately 1km of sidewalks; - Restoration of disturbed surface infrastructure including manholes, service connections, other appurtenances, testing and surface restoration; - Pre & Post construction monitoring, flow monitoring; and, - Related site works.	Pluvial	$8,182,684	$20,456,710	2022	2026	In Progress
Vancouver	**8**	Natural Infrastructure Fund	Rain City Strategy Using Nature-Based Solutions	The Project will implement or enhance natural infrastructure distributed across the city, including rainwater tree trenches, wetlands, stream restoration, and hybrid infrastructure such as bioswales and permeable land cover. Once complete, this project will improve water quality and provide climate adaptation and increase flood resilience, species protection, and biodiversity. Furthermore, it will improve livability for residents by reducing urban heat island effects, improving air quality and creating more access to nature.	Pluvial	$18,900,000	$31,500,000	2023	2024	In Progress
Vancouver	**35**	Infrastructure Stimulus Fund	Upper Trout Lake East Sewer Separation	This project involves replacing and extending several hectares of the sewer line in the eastern portion of Trout Lake Tributary.	Pluvial	$3,333,300	$10,000,000	2010	2011	Completed
Vancouver	**36**	Infrastructure Stimulus Fund	Upper Trout Lake West Sewer Separation	This project involves replacing and extending several hectares of the sewer line in the eastern portion of Trout Lake Tributary.	Pluvial	$3,333,300	$10,000,000	2010	2011	Completed
Vancouver	**41**	Community Emergency Preparedness Fund (CEPF)	Southlands Tide Gates Replacement Program	In 2014, the City completed the Coastal Flood Risk Assessment (Phase 2). This report evaluated various flood mitigation approaches and identified key assets in the floodplain. In Southlands, there are over 400 buildings (primarily residential), approximately 2,000 people and several recreational assets that may be impacted during a severe flood event. The report indicated that Southlands is at risk for significant flooding in the near future during a very rare flood event. However, a tide gate failure would render areas of Southlands vulnerable to flooding during much more common events.	Coastal	$750,000		2021		
Vancouver	**49**	Vancouver Board of Parks and Recreation	Stanley Park and English Bay Seawall Repairs Phase 1 & 2	The project includes repair works at multiple locations along the seawall between the foot of Chilco Avenue at Coal Harbour and Sunset Beach Park near the mouth of False Creek. Repair works include undermining and bulge repairs, cavity repairs and mortar repointing, and reconstruction of one section of seawall. The repair work is being conducted to improve public safety, maintain the structural integrity on the seawall, and repair damage caused by storms and age-related impacts. The proposed repair works are being completed in two phases. Phase 1 works started in March 2018 and were completed in December 2018. Phase 2 works started in early 2019 and are continuing in 2020.	Coastal		$4,500,000	2018		Completed
Vancouver	**52**	Privately Funded	Development at 3398 North Arm Avenue	Prior to the PDP submission, the applicants provided several studies of the building footprints and parkade design based on flood protection and its required setbacks. A minimum of 30 m (98.4 ft) setback is required for flood protection from the high-water line. Also, a minimum of 7.5 m (24.6 ft) setback is required from provincial lease areas by the city of Vancouver which will accommodate a flood protection wall. An 8 m (26.2 ft) dike will also be provided for flood protection which will serve as a multi-use pathway. The proposed dike considers the future sea level rise and provides the required expansion of 0.75 m (2.4f ft) in the design of the dike	Riverine & Coastal			2024		Preliminary DP application in progress

West Vancouver	**50**	Municipality Funded	Lawson Park Riparian Enhancement	The shoreline and creek mouth at Lawson Park have undergone extensive enhancement work with great success. Reshaping the pathway will permit the expansion of the riparian habitat along the upper shore and replace the existing angular rock along the upper beach with round river rock which has been reclaimed from nearby construction work. The project will provide better protection for the upper shore and John Lawson Park from flooding or overtopping by waves, or debris impact. In addition the project will improve public access across the site and to the shoreline, improved aesthetic value of the upper shore for visitors to the site, and enhanced biodiversity.	Coastal	$25,000	2012	2012	
West Vancouver	**55**	Municipality Funded	Lawson Creek to McDonald Enhancement	The projects at 15th Street, Lawson Pier, Lawson Creek, 18th Street, and McDonald Creek and Bypass involved the construction of tombolos and wave trips that were initially positioned along the upper and mid shore to rebuild the upper shore. In addition to the relocation and construction of tombolos, expansion of the existing riparian habitat bench along the shoreline will provide additional wave protection and drainage, preventing flooding and overtopping of the Seawalk while increasing biodiversity across the site and improving the aesthetic value of the site for the public	Coastal	$25,000	2012	2012	
West Vancouver	**70**	Municipality Funded	Culvert Inlet Enhancement at various locations	Ongoing Creek Culvert Inlet improvements at various locations throughout the District to improve ability for debris management and better intake efficiencies allowing more time for crew to response during high flow events.	Riverine	$1,000,000	2022	2027	Ongoing
West Vancouver	**87**	Muncipality and Developer Funded	Five Creeks Stormwater Protection Project	In 2013, The District of West Vancouver adopted an Integrated Stormwater Management Plan (ISMP) which identified many sections of the existing creek systems are incapable of conveying large storm events safely. The multi-phased project entailed the construction of a large-diameter stormwater pipe that runs from above the Upper Levels Highway, down to a new outfall at the Burrard inlet to address concerns of overland flooding for the benefit of both existing and future neighbourhoods below and above the Upper Levels Highway within the watershed area referred to as the Five Creeks (Pipe, Westmount, Cave, Turner, and Godman Creeks). Intake structures installed on the creeks capture any significant stormwater that will overflow the creek banks and divert the excess flow into the pipe.	Riverine		2020	2023	Complete
West Vancouver	**88**	Municipality Funded	Drainage Improvements at the Intersection of Ross Crescent and Ross Lane	In 2018, to address localized drainage issues observed at the outlet of Claymore Creek watershed, this project involved the installation of approximately 50 meters of 600mm diameter storm bypass on Ross Crescent. The project connected Claymore Creek West directly to an existing culvert inlet bypassing the section of the existing channel which was under capacity. The works also included channel improvement utilizing gabion and Lock Block headwall, and a custom-built debris deflector to improve debris management.	Pluvial	$160,000	2018	2018	Complete
West Vancouver	**89**	Municipality Funded	Drainage Improvements at Stonecrest Culvert Inlet	In 2018, to address localized drainage issues observed at the culvert inlet from massive amounts of debris washed down from Willow Creek, this project involved the construction of a Lock Block debris collection basin, installation of a large triangular shaped steel debris deflector, new debris screen and improvements to access and provisions for machine access for debris management.	Pluvial	$85,000	2018	2018	Complete



Scan of Flood-related Capital Projects in the Region

PRELIMINARY RESULTS

Marcin Pachcinski
Division Manager, Electoral Area and Implementation Services

Linda Fang
Hydrotechnical Specialist, Ebbwater Consulting Inc.

Air Quality and Climate Committee, May 9, 2025
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BACKGROUND

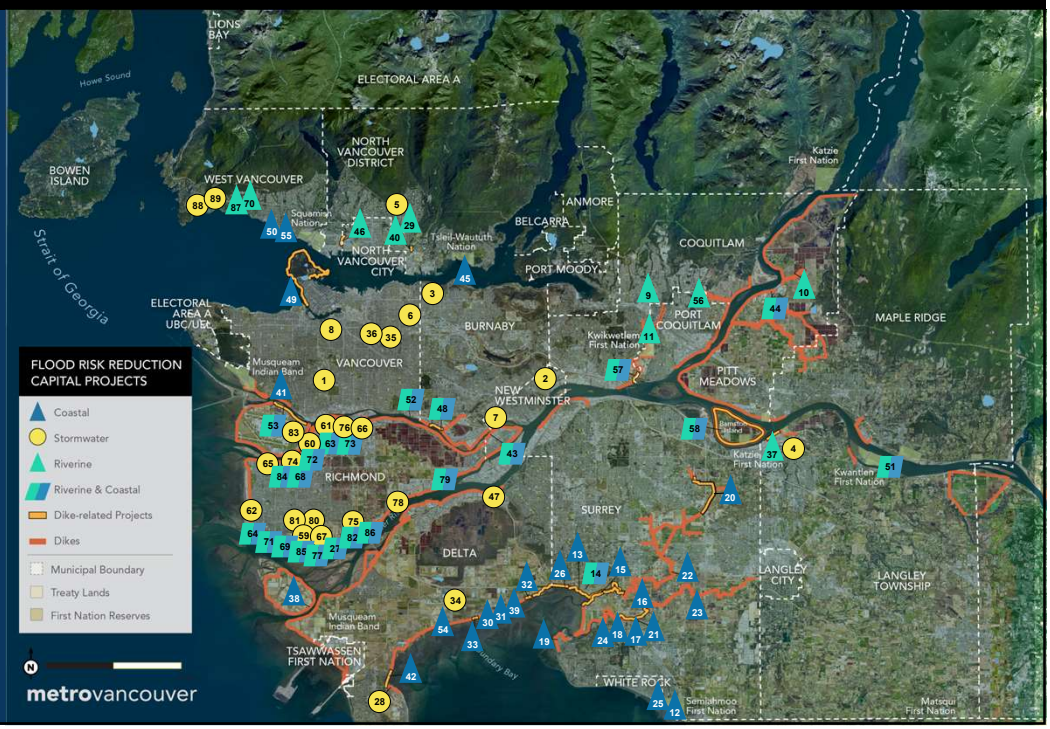
- Air Quality and Climate Committee's work supports ongoing flood resiliency planning processes in the Lower Fraser region and helps to implement the *BC Flood Strategy*.

- In July 2024, the Flood Resiliency Committee and MVRD Board received the scope of work for two projects:
  - Scan of Flood-related Capital Projects (presented today); and
  - Prioritization Criteria Matrix.

2

Scan of Flood-related Capital Projects

Orthophoto Map



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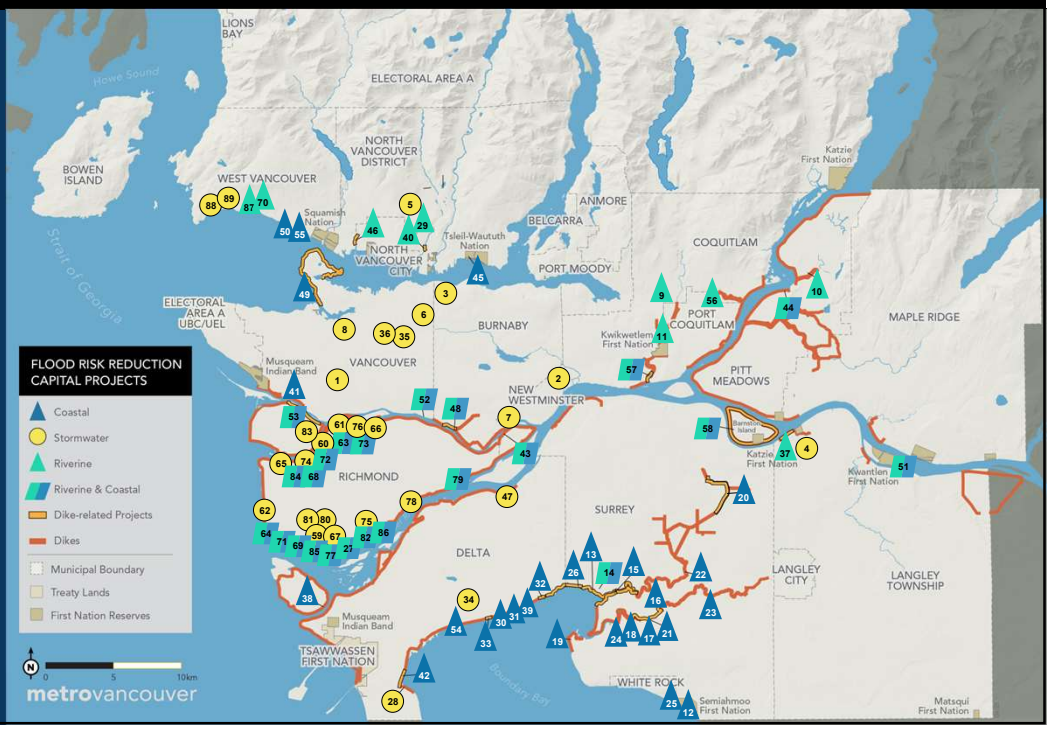
Scan of Flood-related Capital Projects

Illustrated Map



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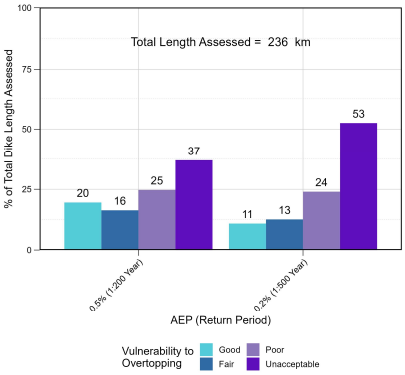
SUMMARY OF DIKE VULNERABILITIES

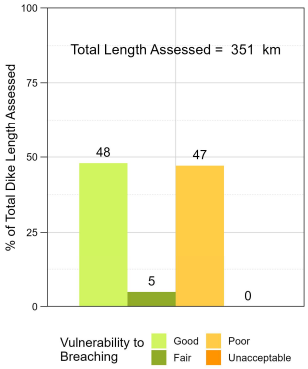
Metro Vancouver Region

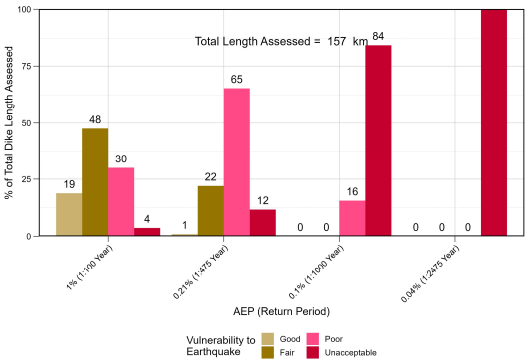
Overtopping

Breaching

Earthquake (Seismic)



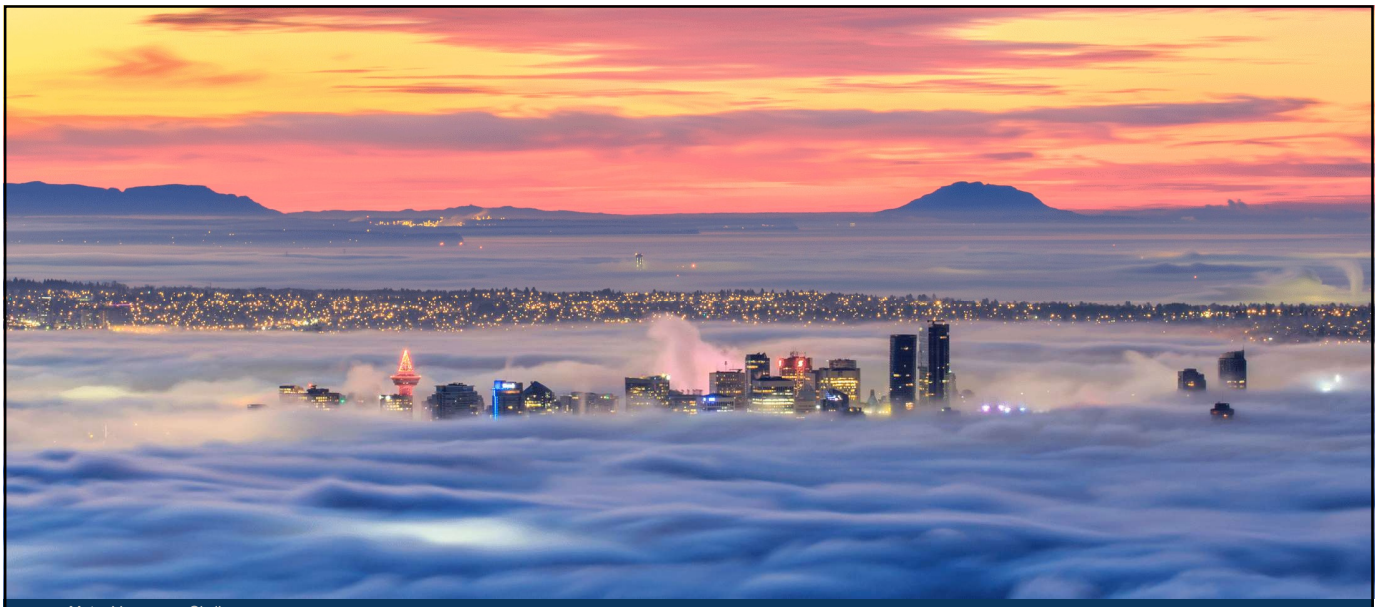




Figures adapted from Ebbwater Consulting Inc. (2024). Lower Mainland Dike Vulnerabilities Mapping. Final Report. Prepared for the Fraser Basin Council.

NEXT STEPS

- Fill in any information gaps and add missing projects;
- Share map and table with participants in Lower Fraser flood resiliency planning processes, including member jurisdiction staff;
- Work on prioritization criteria matrix; and
- Bring back to Committee/Board in late 2025.



Metro Vancouver Skyline

Thank you

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Johann Zerbe, Senior Policy & Planning Analyst, and
Jason Emmert, Program Manager, Regional Climate Action Policy, Air Quality and Climate Action Services

Date: April 9, 2025 Meeting Date: May 9, 2025

Subject: **Climate 2050 Roadmap Update**

RECOMMENDATION

That the MVRD Board receive for information the report dated April 9, 2025, titled "Climate 2050 Roadmap Update".

EXECUTIVE SUMMARY

This report presents a revised approach for the remaining four *Climate 2050* issue areas / road maps (Land Use and Urban Form, Water and Wastewater Infrastructure, Solid Waste, and Human Health and Well-Being), which integrates climate policy and actions into existing planning processes and implementation plans. Rather than creating stand-alone roadmaps, climate actions related to these four issue areas will be integrated within updates to management plans and other planning processes. This revised approach aims to optimize staff resources and engagement efforts, respond to Board direction, and to ensure climate actions are aligned with other plans and policies. This approach is expected to lead to operational efficiencies for integrating climate considerations into core services and planning.

PURPOSE

To provide an update on a revised approach for integrating climate action and policy related to the four remaining *Climate 2050* issue areas into Metro Vancouver's planning processes and utility management plans.

BACKGROUND

In September 2018, the MVRD Board adopted *Climate 2050* (Reference 1), a long-term strategy guiding the region's transition to a carbon-neutral and resilient future by 2050, with interim targets for 2030. The Board directed the development of ten issue-based *Climate 2050 Roadmaps* outlining actions for Metro Vancouver, member jurisdictions, and partners to achieve these targets.

Six Roadmaps (Transportation, Buildings, Industry, Nature & Ecosystems, Energy, and Agriculture) have been endorsed and are in implementation, aligning with board-adopted strategic plans such as *Metro 2050* and the *Clean Air Plan*. For the remaining four issue areas (Land Use and Urban Form, Human Health and Well-being, Water and Wastewater Infrastructure, Solid Waste), staff have completed background research and analysis and identified potential actions but have not yet completed Roadmaps.

Metro Vancouver is currently updating its *Solid Waste Management Plan* (Reference 2)*, Liquid Waste Management Plan* (Reference 3)*,* and *Drinking Water Management Plan* (Reference 4). These plans establish goals, strategies, and actions to ensure Metro Vancouver continues to deliver high-quality services to the region in the face of challenges such as affordability, regional population growth, and climate change. The *Liquid Waste Management Plan* and *Solid Waste Management Plan* are authorized by the Government of BC and regulated through the *Environmental Management Act*. All three management plans are developed with input from member jurisdictions and First Nations, as well as other governments, community and business groups, and residents. Staff expect to finalize and seek Board endorsement of the *Liquid Waste Management Plan* in 2025, and the *Solid Waste Management Plan* and *Drinking Water Management Plan* in 2026. The Board recently considered proposed amendments to *Metro 2050* to strengthen climate related policies. The Board did not advance these proposed amendments to *Metro 2050*.

The Board has also directed staff to seek opportunities for cost savings and efficiencies across the organization. In response to this direction, staff are proposing a revised approach to integrating climate action and policy related to the four remaining *Climate 2050* issue areas into Metro Vancouver's planning processes and utility management plans.

INTEGRATING CLIMATE 2050 ACTIONS INTO MANAGEMENT PLAN UPDATES

Below are the processes for how climate action and policy related to each *Climate 2050* issue area will be integrated into existing planning processes and implementation of Board-endorsed plans.

Land Use and Urban Form

Land use planning and community design that considers and plans for climate change will reduce the region's communities' exposure to climate-related risks and impacts. Complete, compact communities enable options for low-carbon transportation and buildings while protecting agricultural land and natural assets critical for climate-resilient communities. These core concepts are already reflected in *Metro 2050* in all goal areas as well as the regional GHG emissions reduction targets adopted in *Metro 2050* and *Climate 2050.*

Based on MVRD Board direction, staff conducted research, analysis, and stakeholder engagement on land-use policies to further enhance climate policy in *Metro 2050*. This research informed proposed amendments to *Metro 2050*, however, these were ultimately not approved by the Board. Given this direction, staff will not be moving forward with a stand-alone *Climate 2050 Land Use and Urban Form Roadmap*. Climate-related policies in *Metro 2050* will continue to be implemented through opportunities for the Board to advocate to provincial and federal governments and other partners to support member jurisdictions in responding to specific climate challenges.

Solid Waste

Management and disposal of solid waste generated in Metro Vancouver contributes to approximately 3% of regional greenhouse gas (GHG) emissions. An updated *Solid Waste Management Plan* will include strategies and actions that not only reduce solid waste but also GHG emissions in support of Metro Vancouver's 2050 target of a carbon-neutral, climate resilient region.

Given the integration of climate actions into the updated solid waste management plan, staff will publish a *Climate 2050* Solid Waste primer rather than a stand-alone roadmap. The primer will provide context on opportunities for adapting to climate impacts and reducing regional emissions related to solid waste management, as well as an overview of Metro Vancouver's existing solid waste actions that have climate benefits, and their projected contribution towards the region's *Climate 2050* goals. The primer will also estimate the reduction in solid waste emissions associated with disposal since 2010 due to increased landfill gas capture and utilization and diversion of organics.

Water and Wastewater Infrastructure

Climate change is impacting the way Metro Vancouver manages drinking water and liquid waste. There are also opportunities to address climate change in how we manage our infrastructure, such as recovering clean energy for communities from the liquid waste system. Metro Vancouver's *Drinking Water Management Plan* (DWMP) and *Liquid Waste Management Plan* (LWMP) are currently being updated to reflect challenges for managing drinking water and liquid waste services, such as population growth and climate change. The Board-approved *Drinking Water Management Plan* will set direction and policies for Metro Vancouver's drinking water utility, including strategies and actions for Metro Vancouver to reduce emissions and increase climate resilience for the region's drinking water system. The *Liquid Waste Management Plan* will include strategies and actions for member jurisdictions and Metro Vancouver to reduce emissions and increase climate resilience within the region's liquid waste system.

Given the integration of climate actions into these two management plans, staff will develop a *Climate 2050* Water and Wastewater primer rather than a stand-alone roadmap. The primer will provide context on opportunities for adapting to climate impacts and reducing emissions for the regional drinking water and liquid waste utilities.

Human Health and Well-Being

Climate change is already affecting the health and well-being of Metro Vancouver residents in many ways. Heat waves can make older apartments dangerously hot, worsening existing health conditions and increasing the risk of death. Wildfire smoke from longer, hotter, and drier summers can trigger asthma and heart and lung conditions. Extreme rainfall can cause floods and landslides that damage homes and infrastructure and put people's safety at risk.

Climate-related extreme weather can also damage essential infrastructure like power and drinking water systems, disrupting heating, cooling, food and water safety, and access to health care. Ecosystem disruptions are contributing to new pests and diseases and are affecting agricultural productivity. Mental health is also impacted, with climate anxiety and stress increasing, particularly among young people.

These health impacts are expected to worsen over time. People with lower incomes, seniors, and those who are unhoused are especially at risk. However, by working together to cut GHG emissions and prepare for climate impacts, we can reduce these risks and improve overall well-being.

Metro Vancouver's services —including solid waste, liquid waste, drinking water, regional parks, non-market housing, economic development, emergency planning, and air quality management — already play a vital role in protecting health and well-being. Board-approved plans guiding these services include goals and strategies to protect and improve human health and well-being as they relate to climate change.

For these reasons, a stand-alone *Climate 2050* Human Health and Well-Being Roadmap is not proposed. Instead, staff will continue to integrate human health and well-being into existing plans and programs, in collaboration with health authorities, the Province and other agencies. This includes:

1) assessing how Metro Vancouver's services support human health and well-being in the context of climate change, and identifying ways these services can improve health and mitigate risks;
2) implementing actions and policies that support health and well-being in existing management plans; and
3) quantifying and communicating the health benefits of climate-related actions across the region's plans, policies and programs.

Examples of this collaborative approach include work to improve thermal safety in apartment buildings (see report E3 in this agenda), studying the impacts of wildfire smoke, and assessing regional climate hazards, risks, and vulnerabilities.

ALTERNATIVES
This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS
The revised approach is intended to lead to operational efficiencies by re-allocating staff time towards advancing management plan updates and implementation of climate actions endorsed in the management plans and the existing roadmaps. This revised approach will allow for engagement resources to be refocused towards management plan development and implementation. Costs to develop the updated *Solid Waste Management Plan, Drinking Water Management Plan, and Liquid Waste Management Plan* are approved under existing departmental budgets. As specific proposals are developed, their costs, benefits, and partnerships will be clarified and approval will be sought as per current financial practices.

Metro Vancouver is working to assess the costs of responding to climate change within its operations and services. Metro Vancouver is also working with partners to assess the costs related to current and future impacts of climate change on the region, as well as the costs and benefits of taking near-term action to reduce emissions and adapt to a changing climate. Staff will continue to bring this information to the Board along with policy and action initiatives.

CONCLUSION
Staff will take a revised approach for the final four *Climate 2050* issue areas that will document climate actions within the existing planning processes instead of creating standalone roadmaps. This approach will create planning efficiencies and allow staff time to be reallocated towards

implementation of climate actions in Board-approved plans that are developed with input from member jurisdictions on regional climate priorities. Progress to advance climate action in each issue area will continue to be communicated through annual *Climate 2050* reporting and regular reporting processes for other management plans (*Metro 2050*, *Solid Waste Management Plan, Liquid Waste Management Plan, Drinking Water Management Plan*).

REFERENCES

1. Metro Vancouver (July 2019). *Metro Vancouver Climate 2050 Strategy.* Retrieved from: https://metrovancouver.org/services/air-quality-climate-action/climate-2050/regional-priorities. Last Accessed 2025, April 9.
2. Metro Vancouver (n.d.). *Solid Waste Management Plan Update.* Retrieved from: https://metrovancouver.org/services/solid-waste/solid-waste-management-plan-update. Last Accessed 2025, April 9.
3. Metro Vancouver (n.d.). *Liquid Waste Management Plan Update.* Retrieved from: https://metrovancouver.org/services/liquid-waste/liquid-waste-management-plan-update. Last Accessed 2025, April 9.
4. Metro Vancouver (n.d.). *Drinking Water Management Plan Update.* Retrieved from: https://metrovancouver.org/services/water/drinking-water-management-plan-update. Last Accessed 2025, April 9.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Erik Blair, Senior Planner, Air Quality and Climate Action Services
Morgan Braglewicz, Air Quality Planner, Air Quality and Climate Action Services

Date: April 2, 2025 Meeting Date: May 9, 2025

Subject: **Local Government Policy Toolkit for Improving Thermal Safety in Apartment Buildings**

RECOMMENDATION

That the MVRD Board:

a) receive for information the report dated April 2, 2025, titled "Local Government Actions for Improving Thermal Safety in Apartment Buildings"; and
b) direct staff to forward a copy of the report dated April 2, 2025, titled "Local Government Actions for Improving Thermal Safety in Apartment Buildings" to member jurisdictions with an offer of a presentation to Council upon request.

EXECUTIVE SUMMARY

Metro Vancouver, member jurisdictions, public health authorities and others are exploring ways to protect residents from heat waves such as the 2021 heat dome that caused 619 deaths in BC. Vulnerable residents in apartment buildings without cooling are especially at risk.

Metro Vancouver partnered with the City of North Vancouver, Vancouver Coastal Health Public Health (VCH Public Health), and the City of Vancouver to develop a policy toolkit for local governments that supports climate and health priorities outlined in the *Climate 2050 Buildings Roadmap* and *Metro 2050*. Member jurisdiction staff across the region have expressed the need for information that brings together approaches and solutions to protect residents from the health risks of extreme heat. The toolkit identifies a range of measures that will improve thermal safety, including installing cooling devices, adding shading to building exteriors, improving airflow, and managing heat-related risks for occupants. Based on this toolkit, Metro Vancouver will engage members to explore collaborative opportunities to enhance thermal safety in the region's housing stock. This work aligns with the BC Government's recent commitment to continue funding for heat pump incentives in apartment buildings for residents vulnerable to extreme heat.

PURPOSE

To provide the Air Quality and Climate Committee and MVRD Board with a policy toolkit delivered through a collaborative project to support Metro Vancouver and member jurisdictions, alongside regional agencies, aimed at protecting vulnerable residents from health risks of extreme heat.

BACKGROUND

As heat waves worsen with climate change, Metro Vancouver is supporting member jurisdictions with coordinated, regionally aligned actions to protect vulnerable residents. This project was initiated in 2023 in response to the *Climate 2050 Buildings Roadmap,* including Action 6.5

("Integrate resiliency into low carbon upgrade solutions") and Action 6.6 ("Provide education on retrofit options that can increase resilience to heatwaves and wildfires"), and *Metro 2050,* including Strategy 3.4.2a ("collaboratively develop and share information and data related to hazards, risks, and vulnerabilities in the Metro Vancouver region") and Strategy 3.4.4b ("incorporate resilience considerations into building codes and standards").

This project is a collaboration with the City of North Vancouver, VCH Public Health, and City of Vancouver, and responds to City of North Vancouver Council's direction to develop policies and programs with strong potential to reduce heat-caused death and illness in existing residential buildings. This project also aligns with Vancouver Coastal Health's 2023 Chief Medical Health Officer Report, which includes actions to work with local and provincial governments to implement policies to protect building residents during extreme heat events (Reference 1).

IMPROVING THERMAL SAFETY TO COMBAT EXTREME HEAT

The 2021 heat dome, which caused 619 deaths across British Columbia, highlighted the deadly consequences of rising temperatures—most individuals had pre-existing conditions and died in their own homes. Climate projections for the region show more frequent and severe hot days and nights and a twelvefold increase in days requiring cooling by the 2080s. Many apartment buildings in the Lower Mainland were designed for milder climates and lack air conditioning, leading to unsafe indoor temperatures.

Addressing extreme heat in residential buildings is now a critical priority to protect residents from heat-caused death and illness, one that requires cooperation among all levels of government and other institutions.

This project focuses on actions local governments and regional agencies such as housing providers and health authorities can take to improve "thermal safety", which means keeping indoor temperatures at safe levels to protect people's health, especially those with chronic conditions like diabetes, heart disease, or respiratory disease. Thermal safety is different from "thermal comfort", which refers to indoor temperatures that feel comfortable for occupants. The toolkit identifies various types of measures, including:

- Installing devices that heat and cool indoor spaces, like electric heat pumps;
- Blocking heat from the sun – such as by adding exterior shading or trees;
- Improving airflow to help move hot air out – like adding windows that open;
- Reducing heat risks with temporary solutions while long-term fixes are explored – such as placing a small air conditioner in a common room; and,
- Identifying solutions that provide cooling along with co-benefits, such as installing a green roof.

Many of these upgrades also support the transition to cleaner, more energy-efficient buildings in the long run.

Aligning Thermal Safety with Emissions Reduction Goals

Many of the solutions to improve thermal safety in buildings can also conserve energy and reduce emissions and align with several ongoing and proposed policies and programs. For example, a 2024 BC Building Code update for new construction stipulates a maximum indoor design temperature of 26°C in at least one living space per home to minimize overheating risks. BC Hydro offers rebates and support for energy efficiency and emissions reduction upgrades in existing multi-unit residential buildings. The BC Government's proposed Highest Efficiency Equipment Standards would, if implemented, require all new space and water heating equipment sold and installed in BC by 2030 to be at least 100% efficient, accelerating the adoption of heat pumps that provide both heating and cooling in new and existing buildings. Underpinning the proposed standard, the BC Government also recently committed to continued incentive funding of $100M through 2025 and 2026 to reduce the cost of heat pumps in apartment buildings housing residents who are vulnerable to extreme heat.

The policy toolkit complements these efforts by focusing on actions local governments can take in the next five years, including advocacy to other levels of government.

Policy Toolkit for Local Governments to Advance Thermal Safety

The main deliverable from this project is a policy toolkit (Reference 2) primarily for local governments that identifies actions including advocacy to other levels of government to support thermal safety in buildings. The toolkit outlines policy options for local governments together with other partners to ensure apartment owners and tenants in the Lower Mainland have access to the information, technologies and supports they need to safeguard their thermal safety.

The toolkit outlines 31 policy options organized in four categories to address typical barriers to thermal safety retrofits:

- *Awareness and understanding* – Expanding knowledge of thermal safety risks and solutions among tenants, building owners, and decision makers;
- *Policy and legislation* – Removing regulatory barriers and enacting policies that enable widespread adoption of cooling measures;
- *Funding and financing* – Increasing access to and affordability of cooling retrofits, including exploring municipal financial tools to support installations; and,
- *Industry and technology* – Strengthening industry capacity to design, install, and maintain effective cooling solutions.

The policy options were derived from a variety of sources, including an extensive literature review, subject matter and practitioner expertise, and industry insights. Although the primary audience for the toolkit is municipal and regional governments in BC's Lower Mainland, other local governments across the province, health authorities, and the BC Government, among others, may take an interest in the findings. Many of the policy options are highly collaborative in nature, requiring several organizations to work together to effectively implement. Similar projects to this one are now underway in the cities of Toronto, New York, Washington DC, and Austin.

Supporting Local Government Action on Thermal Safety
Metro Vancouver staff, along with the project partners, will engage with interested member jurisdictions to discuss implementation of the toolkit, determine priorities including advocacy to provincial and federal governments, and explore opportunities for collaboration or support on actions to improve thermal safety in apartments.

ALTERNATIVES
This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS
Metro Vancouver's financial contribution to this project was $50,000, allocated from the 2023 Air Quality and Climate operating budget, which matched partner funding contributions. The City of North Vancouver contributed $25,000 and led procurement for the project, VCH Public Health contributed $25,000 and staff time for project management, and the City of Vancouver contributed in-kind.

CONCLUSION
Thermal safety in buildings is an increasing concern for residents in Metro Vancouver as temperatures rise. This project provides a toolkit for local government to consider opportunities for improving thermal safety in low-rise apartment buildings. Successfully reducing indoor heat risks will require collaboration. This report represents a first step in identifying opportunities for Metro Vancouver and other local governments to collaborate on future work.

ATTACHMENTS
1. Presentation re: "Local Government Policy Toolkit for Improving Thermal Safety in Apartment Buildings", dated May 9, 2025.

REFERENCES
1. Vancouver Coastal Health. (2023). *Vancouver Coastal Health's 2023 Chief Medical Health Officer Report*. Retrieved from https://www.vch.ca/en/chief-medical-health-officer-report. Last Accessed 2025, April 11.
2. Metro Vancouver. (April 2025). *Thermal Safety in Existing Multi-Unit Residential Buildings: A Policy Toolkit for Local Governments in BC's Lower Mainland.* Retrieved from https://metrovancouver.org/services/air-quality-climate-action/Documents/thermal-safety-in-existing-multi-unit-residential-buildings.pdf. Last Accessed 2025, April 25.

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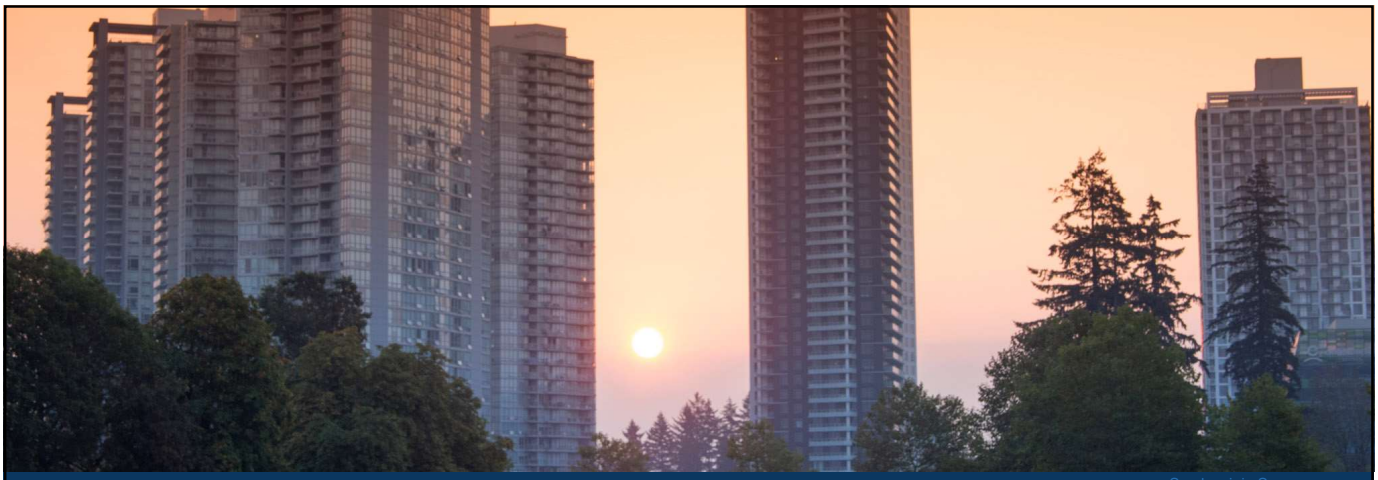

Smoky air in Surrey

Local Government Policy Toolkit to Improve Thermal Safety in Apartment Buildings

Erik Blair
Senior Planner, Air Quality and Climate Action Services

Morgan Braglewicz
Air Quality Planner, Air Quality and Climate Action Services

Air Quality and Climate Committee, May 9, 2025
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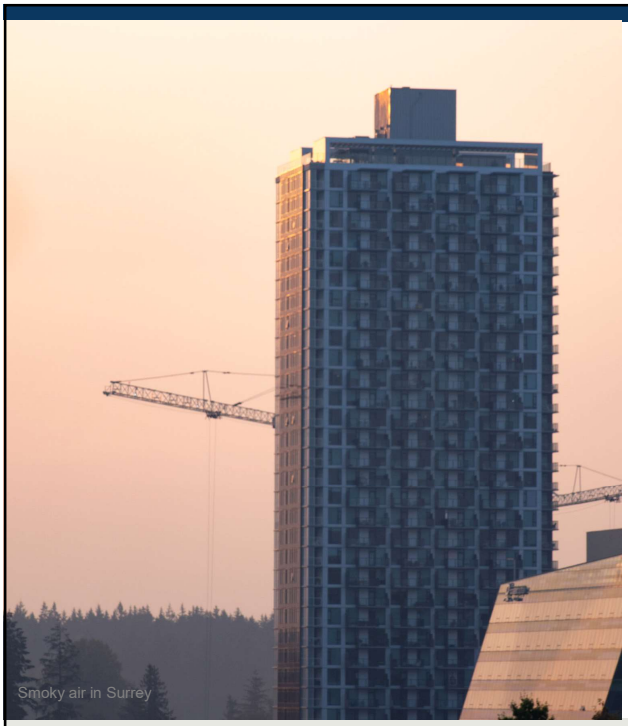


Smoky air in Surrey

HEAT RISK IS REAL AND GROWING

- 619 deaths in BC during the 2021 Heat Dome
- 12-fold increase in days requiring cooling expected by 2080s
- Heat risks disproportionately affect seniors, low-income residents, and those with health conditions

2

DEFINING THERMAL SAFETY

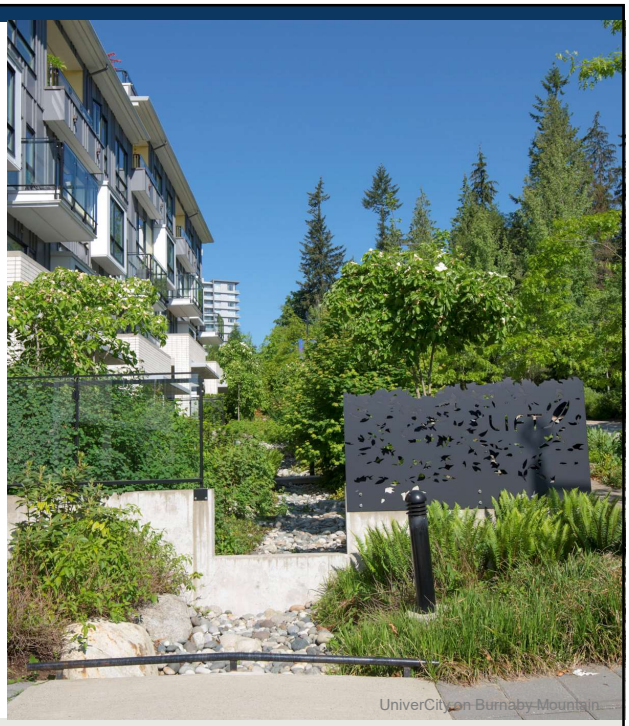
A state in which indoor temperatures are maintained at a level that prevents adverse health effects

The BC Building Code now requires a maximum design temperature of 26°C in at least one room

3

POLICY TOOLKIT

- Purpose: promote actions to protect residents in apartments during extreme heat
- Target audience: local governments and regional authorities



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THERMAL SAFETY SOLUTIONS

- Installing heat pumps to provide **active cooling**
- Adding **exterior shading** or trees to block sun
- Adding **windows that open** to improve airflow
- Placing a small **air conditioner** in a common room as a temporary measure
- Measures with cooling co-benefits such as a green roof

5

ACTION THEMES

Awareness & Understanding

Expanding knowledge of thermal safety risks and solutions among tenants, building owners, and decision makers

Policy & Legislation

Removing regulatory barriers and enacting policies that enable widespread adoption of cooling measures

Funding & Financing

Increasing access to and affordability of cooling retrofits, including exploring municipal financial tools to support installations

Industry & Technology

Strengthening industry capacity to design, install, and maintain effective cooling solutions

6

NEXT STEPS

Supporting Local Government Action on Thermal Safety

Engage with member jurisdictions to explore priorities and use of the toolkit

Support implementation of priority actions where there's interest

Collaborate with provincial partners to align on retrofit policies

Advance priority actions for improving thermal safety in apartment buildings without cooling

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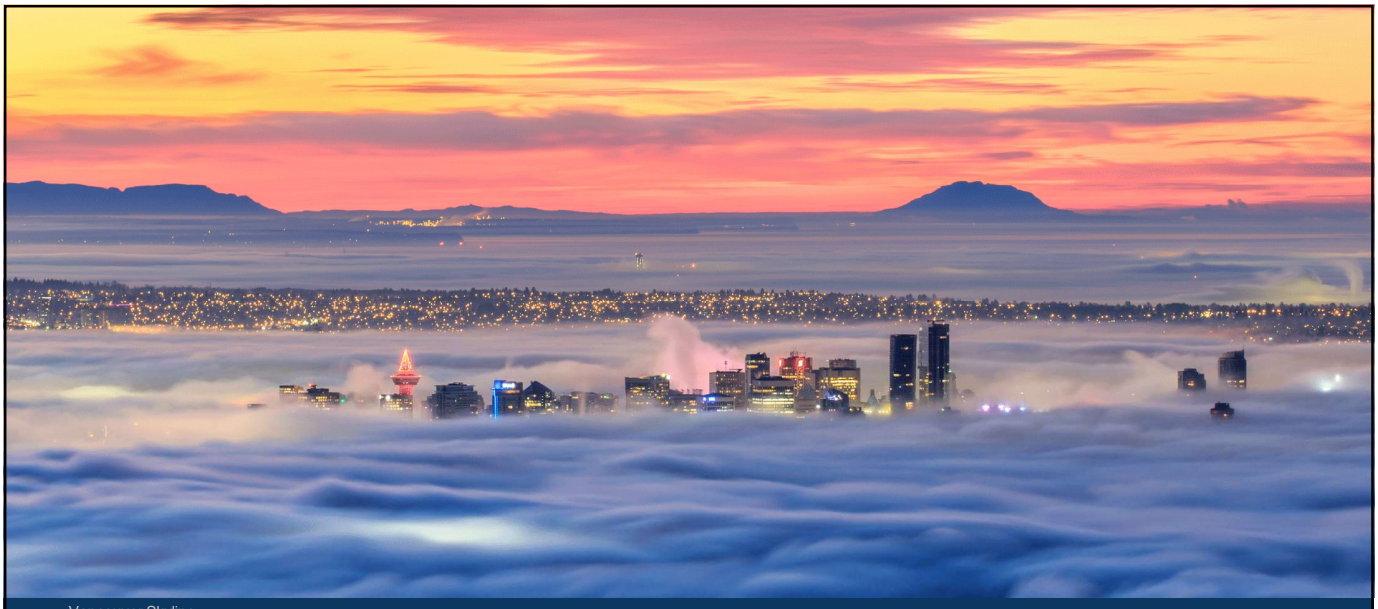

Vancouver Skyline

Thank you

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Lise Townsend, Division Manager, Air Quality and Climate Action Services
Sara Muir, Air Quality Planner, Air Quality and Climate Action Services

Date: April 10, 2025 Meeting Date: May 9, 2025

Subject: **BC Utilities Commission Decisions on BC Hydro's Distribution Extension Policy and 2024 Rate Design Applications**

RECOMMENDATION
That the MVRD Board receive for information the report dated April 10, 2025, titled "BC Utilities Commission Decisions on BC Hydro's Distribution Extension Policy and 2024 Rate Design Applications."

EXECUTIVE SUMMARY
As directed by the MVRD Board, Metro Vancouver participated with member jurisdictions (City of Richmond, City of Vancouver, and District of North Vancouver) as local government interveners in two BC Utilities Commission proceedings for BC Hydro's Distribution Extension Policy and 2024 Rate Design. The local government interveners recommended the BC Utilities Commission approve both applications, stating support along with suggested areas for improvement and analysis.

The BC Utilities Commission approved the new Distribution Extension Policy, effective July 5, 2025, and the 2024 Rate Design, with most changes in effect as of April 1, 2025. A separate Net Metering Service Rate proceeding, stemming from the Rate Design process, is underway to address compensation for customer-generated electricity exported to the grid. Local government interveners' input informed BC Hydro's commitments to engage local governments on small-scale multi-unit housing connections and to the BC Utilities Commission directing BC Hydro to report on rate impacts for low-income households. Metro Vancouver staff will continue to engage with BC Hydro, the Province and the BC Utilities Commission to support policies and rate designs aligned with local government energy transition goals.

PURPOSE
To inform the MVRD Board of the outcomes of two BC Utilities Commission Proceedings that Metro Vancouver participated in as an intervener, including relevance to local government policy goals and interests in the energy transition.

BACKGROUND
As outlined in the report to the Climate Action Committee on September 5, 2024, titled "BC Hydro's 'Distribution Extension Policy' and '2024 Rate Design' Applications to the BC Utilities Commission" (Reference 1), the MVRD Board directed staff to:

a) participate as an intervener in the BCUC proceedings for BC Hydro's applications for "Distribution Extension Policy" and "2024 Rate Design";

b) analyze and provide input to the proceedings to align with Board-adopted policies and targets including for regional air quality, clean and renewable energy and GHG reduction, including submitting comments, evidence, and a final argument; and
c) report back to the Climate Action Committee and Board on outcomes of the proceedings as outlined in the report.

Consistent with Board direction and BC Utilities Commission (BCUC) requirements, Metro Vancouver coordinated with the City of Richmond, City of Vancouver, and District of North Vancouver in the proceedings on information requests and submitted final arguments jointly as the Local Government Interveners.

Metro Vancouver's board-endorsed *Climate 2050 Energy Roadmap* includes targets and strategies to plan for the region's transition to clean, renewable, and resilient energy. Actions include working with member jurisdictions to provide input to relevant utility and regulatory processes, and advocating to the provincial government, the BCUC, and utilities for coordinated long-term planning for the energy transition.

LOCAL GOVERNMENT INTERESTS IN ELECTRICAL DISTRIBUTION POLICY AND RATES

The Metro Vancouver region, and society more broadly, is transitioning to clean, reliable, and resilient energy for services, buildings, and industries. Metro Vancouver, member jurisdictions and utilities are engaged in this transition while grappling with challenges such as scaling electrical infrastructure to accommodate rapid growth while maintaining affordable and fair electricity rates. BC Hydro's policies and rates can support or delay local governments' progress on affordability, growth, and climate goals. Consistent with previous BCUC proceedings, Metro Vancouver's participation leverages its role in convening member jurisdictions to offer meaningful input on energy planning matters most efficiently addressed at a regional scale.

As outlined in the September 2024 report to the Climate Action Committee, the interests of the Local Government Interveners in each proceeding are primarily as follows:

- In the Distribution Extension Policy proceeding, addressing long-standing concerns about unpredictable costs and timelines for electrical connections for new development that can impede delivery of new housing and skew decisions toward gas-based systems.
- In the 2024 Rate Design proceeding, ensuring that rates are equitable, protect low-income customers, and support efficient electrification aligned with air quality and climate goals.

BCUC PROCEEDING: BC HYDRO'S DISTRIBUTION EXTENSION POLICY APPLICATION

Distribution infrastructure refers to the network of wires, poles, transformers, and substations that delivers electricity from high voltage transmission lines to individual homes, businesses, and other end users at a lower, usable voltage. BC Hydro's Distribution Extension Policy application (Reference 2) was filed with the BCUC on June 27, 2024. The Distribution Extension Policy guides the allocation of costs of new electrical service for connections of 35 kV and under. BC Hydro's application was the first update to the policy in 16 years. The application aims to "modernize" the approach to paying for new and upgraded electrical distribution extensions, including allocation of cost and responsibilities for the addition or modification of infrastructure to serve new or increased

electricity demand. It also seeks to address stakeholder concerns regarding cost predictability and fairness in distribution extensions, while supporting affordable and sustainable housing development and electrification.

Local Government Interveners Input to the BCUC Proceeding on BC Hydro's Distribution Extension Policy Application

The Local Government Interveners' final argument on the Distribution Extension Policy application, submitted on December 2, 2024, stated overall support for the policy due to improved cost predictability and fairness in distribution extensions, expediting housing development, and supporting electrification. The LGI noted the application represents a significant and overdue improvement and recommended the BCUC find the application in the public interest and approve it without delay or conditions. The LGI also recommended five areas for improvement, including:

1. Continue to engage with local governments to explore reducing the uncertainty and cost of **small-scale multi-unit housing (i.e., four to six units per building)** connections, and report back within two years;
2. Provide equal treatment for system improvement investments for **thermal energy centres** compared to building-scale extensions;
3. Provide contribution for service upgrades for **existing customers** as well as new dwellings;
4. Update future **contribution calculations** to ensure they reflect accelerated electrification and growing per-customer power consumption; and
5. The BCUC should initiate an inquiry to **update the system extension test guidelines** to ensure they more consistently and comparably apply to modern utility practices and conditions, including integrated planning of electrical, gas and thermal energy systems.

The BCUC approved the application on March 5, 2025, and the new Distribution Extension Policy will come into effect on July 5, 2025. The new policy will shift system upgrade costs (e.g., upgrades to a distribution line triggered by a development application) from new customers to the broader rate base. BC Hydro will provide the BCUC with an evaluation report by December 5, 2028, to assess the policy's effectiveness, including an evaluation of service connection effectiveness for small-scale multi-unit housing, and will continue to engage with local governments on this topic.

BCUC PROCEEDING: BC HYDRO'S 2024 RATE DESIGN APPLICATION

BC Hydro's 2024 Rate Design proposal (Reference 3) was filed on June 27, 2024, outlining proposed rate design changes, including residential service rates, net metering[1], non-integrated area rates, and the Electric Tariff Terms and Conditions.

The Local Government Interveners submitted their final argument for BC Hydro's 2024 Rate Design application (excluding net metering) on November 28, 2024. The Local Government Interveners' final argument indicates overall support of the 2024 Rate Design application, with four suggested areas for improvement:

[1] BC Hydro requested and was granted an extension to its net metering proposal to March 20, 2025, in a related but separate proceeding. All registered interveners, including the LGI, were automatically registered into the Net Metering Proceeding, which remains underway at the time of this report.

1. Include more robust analysis of impacts to low-income customers;
2. Explore additional rate options for low-income customers in future rates application to be submitted by end of 2025;
3. Include assessment of greenhouse gas (GHG) emissions implications resulting from rate design changes in future rate design applications; and,
4. Investigate incentives for thermal storage technologies related to thermal energy networks.

The BCUC approved the 2024 Rate Design application on February 24, 2025. The new rate design makes a flat electricity rate available to all customers, starting April 1, 2025. Under this new flat rate residential electricity rates will no longer increase above a threshold of 1,350 kwh in a two-month billing period, which helps support the adoption of heat pumps and EVs. Though the flat rate aligns with direction from the BCUC and was supported by Metro Vancouver and the other local government intervenors, the BCUC agreed with input from the Local Government Interveners that a shift to the flat rate could negatively impact low-income customers who use relatively less electricity. BCUC directed BC Hydro to examine this issue more closely in their next Revenue Requirements Application, to be filed December 2028.

Net Metering Service Rates Proceeding

In February 2025, the BCUC approved BC Hydro's request to create a separate review proceeding for the Net Metering portion of the 2024 Rate Design Application and on March 20, 2025, BC Hydro submitted its Net Metering Service Rates evidentiary update (Reference 4). The Net Metering Service Rates submission includes a proposed excess generation price for self-generation customers and a new community generation rate for multiple account holders invested collectively in generation facilities for compensation for electricity exported to the BC Hydro grid. Metro Vancouver staff, together with other local governments, are currently reviewing BC Hydro's net metering submission to confirm their level of involvement, and staff will report back to the AQC and Board on any LGI input provided and outcomes of this final phase later in 2025 or early 2026.

LOCAL GOVERNMENT POLICY IMPLICATIONS

Metro Vancouver, together with the City of Vancouver, City of Richmond and District of North Vancouver, offered important input as local government interveners on the BC Hydro Distribution Extension Policy and 2024 Rate Design applications (excluding Net Metering Service Rates).

The updated Distribution Extension Policy represents an improvement in the administration of extensions and cost recovery for extensions and BC Hydro has committed to: meeting with local governments every six months to advance its small scale multi-unit housing commitments; analyzing small scale multi-unit housing connection requests and sharing its findings with local governments; and implementing process and business practice improvements to facilitate efficient small scale multi-unit housing connections.

In response to the Local Government Intervener input on the 2024 Rate Design application, the BCUC directed BC Hydro to provide more data with each future rate change, including bill impacts by customer consumption level and, where available, the proportion of low-income customers affected. BC Hydro has also committed to assessing the legal basis for a potential income-qualified

discount. Noting that BC Hydro plans to initiate customer engagement in early 2025, the BCUC did not mandate a specific timeline regarding additional rate applications.

Metro Vancouver staff will continue to engage with BC Hydro, the Province and the BCUC to advocate for further policy improvements and rate designs that support local government energy transition goals, including issues not fully addressed in the present proceedings. Some of these issues may include:

- the broader issue of proactive investments in the distribution grid for future load growth;
- opportunities analyses and support for distributed energy resources; and
- energy self-sufficiency and microgrid feasibility to support critical infrastructure and community resilience.

Future BCUC proceedings that could present opportunities for Metro Vancouver and other local governments to assess and engage on the regulation of these and related matters include:

- BC Hydro's Evaluation Report
- BC Hydro's F2027-F2028 Revenue Requirements Application
- BC Hydro's 2025 Integrated Resource Plan
- FortisBC Energy Inc. (FEI) 2026 Long Term Gas Resource Plan

Staff would seek Board direction on intervening in these or other BCUC proceedings.

NEXT STEPS
The Local Government Interveners (excluding City of Richmond) are participating in BCUC's proceeding on BC Hydro's Net Metering Rates and are currently reviewing BC Hydro's recently submitted net metering evidentiary update. The timing on BCUC's final decision for BC Hydro's net metering application is yet to be determined. Staff will report back to the Board on the outcomes of the BCUC net metering proceeding via a future Air Quality and Climate Committee meeting.

ALTERNATIVES
This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS
This report is for information and does not have any direct financial implications. Costs to hire a consultant to support the LGI participation in these BCUC proceedings were provided for in the departmental operating budget and are being shared among the LGI parties. Electricity policies and rates can have significant financial implications for residents, businesses, and Metro Vancouver's corporate operations, and is one of the central interests to Metro Vancouver in these proceedings.

CONCLUSION
Consistent with Board direction and previous BC Utilities Commission proceedings, Metro Vancouver participated jointly with other jurisdictions as local government interveners in the BC Utilities Commission proceedings for BC Hydro's Distribution Extension Policy and 2024 Rate Design

applications. The Local Government Interveners recommended the BC Utilities Commission approve both applications and provided input on areas for improvement.

Metro Vancouver staff are continuing to engage with BC Hydro, the Province and the BCUC to support policies and rate designs aligned with local government energy transition goals. Staff will report back to the MVRD Board on outcomes of the Net Metering update, which is the final stage of the original 2024 Rate Design proceeding.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Geoff Doerksen, Air Quality Planner, Air Quality and Climate Action Services
Ken Reid, Superintendent Environmental Sampling and Monitoring, Air Quality and Climate Action Services

Date: April 7, 2025 Meeting Date: May 9, 2025

Subject: **Air Quality Advisory Program and Preparedness for 2025**

RECOMMENDATION

That the MVRD Board receive for information the report dated April 7, 2025, titled "Air Quality Advisory Program and Preparedness for 2025".

EXECUTIVE SUMMARY

For over 30 years, Metro Vancouver has operated an air quality advisory program in collaboration with health authorities and partners. Metro Vancouver issues air quality warnings to protect public health when regional air quality degrades. In 2025, the name "air quality advisory" will change to "air quality warning", aligning with provincial and federal partners to improve public understanding of air quality warnings.

The risk of wildfire and smoke this season depends on May and June rainfall, which can influence the length and intensity of the wildfire season in BC. Lower snowpack levels are also important indicators of increased wildfire risk in summer. Average snowpack levels are below normal in BC (73 percent on March 1) and Metro Vancouver's watersheds (80 percent on April 3). Metro Vancouver is experiencing the impacts of a changing climate now, with wildfire smoke and heat waves degrading regional air quality in seven of the last ten summers.

PURPOSE

To provide information about Metro Vancouver's air quality advisory program, wildfire smoke preparedness, and advisory planning activities for the 2025 advisory season.

BACKGROUND

The Air Quality and Climate Committee 2025 Work Plan includes an item to provide a report on the air quality advisory program and preparedness for the 2025 season. This air quality advisory program began in 1993 and is operated under Metro Vancouver's delegated authority to manage air quality in the Metro Vancouver region and through a shared service agreement for the Fraser Valley Regional District.

AIR QUALITY AND HEALTH IMPACTS

Air pollution significantly affects human health, the environment, and the economy. Health-harming air contaminants (commonly referred to as "air pollutants") that Metro Vancouver residents breathe directly impact their health and lifespan, and also have costs to society, including increased medical treatments and lost productivity.

The potential regional health benefits from implementing Metro Vancouver's Clean Air Plan over a ten-year period have been estimated to be as much as $1.6 billion, based on Health Canada data.

Health Canada estimates that air pollution from human sources and wildfires contributes to 1,900 premature deaths per year in British Columbia (Reference 1), and recent research on the health effects of wildfire smoke exposure has demonstrated that relatively low smoke concentrations can still lead to an increase in asthma-related physician visits (Reference 2). For these reasons, it is important to warn residents when air quality is degraded so that they can take action to protect themselves from air pollution.

METRO VANCOUVER AIR QUALITY ADVISORY PROGRAM

Metro Vancouver operates one of the most comprehensive air quality advisory programs in Canada. Metro Vancouver issues advisories, now called warnings, for the entire Lower Fraser Valley airshed, including Metro Vancouver and parts of the Fraser Valley Regional District, when air quality is degraded or expected to degrade. The program is delivered in collaboration with Environment and Climate Change Canada, the BC Ministry of Environment and Parks, Fraser Valley Regional District, Vancouver Coastal Health Authority, Fraser Health Authority, First Nations Health Authority, and the BC Centre for Disease Control.

Metro Vancouver's air quality monitoring network provides data that is available in real time on AirMap.ca (Reference 3) and informs the air quality advisory program. Air contaminants of primary concern are those with greatest potential to reach levels in the region that may be harmful to human health:

- **ground-level ozone**, or smog, is produced by a chemical reaction between nitrogen oxides and volatile organic compounds on hot and sunny days, and
- **fine particulate matter**, from sources including wildfire smoke, residential wood smoke, vehicle exhaust, industrial processes, and chemical reactions.

These contaminants are measured against Metro Vancouver's ambient air quality objectives, which are benchmarks for acceptable air quality.

Metro Vancouver is updating the name of "Air Quality Advisories" to "Air Quality Warnings" this season. While the underlying advisory program will remain unchanged, the terminology is being revised to support greater consistency and clarity. This change aligns with ongoing collaboration between Metro Vancouver and provincial and federal partners to improve public understanding and communication of air quality warnings. Social media posts in the spring will notify the public of this change, and related web pages will be updated.

Metro Vancouver staff provide on-call coverage seven days a week from June to mid-September, when air quality has historically been degraded, with further coverage if needed. Staff use tools, such as data from the air quality monitoring network, air quality and wildfire smoke forecasts, and satellite imagery, to guide decisions about issuing a warning, and regularly consult with advisory program partners.

PUBLIC COMMUNICATION

As air quality deteriorates, staff post summaries of conditions on Metro Vancouver's website (Reference 4) and email the summaries to a public subscription list (Reference 5). The summaries inform the public, municipalities, and emergency managers that Metro Vancouver is considering issuing an air quality warning, which may help guide actions to protect public health, such as opening clean air spaces.

An air quality warning is issued when air quality exceeds or is predicted to exceed thresholds defined by Metro Vancouver's air quality objectives. Warnings are intended to reflect regional conditions rather than localized air quality issues (e.g., small structure fire). Warnings are sent to media outlets, a public subscription list, health authorities, and other government agencies, and posted on Metro Vancouver's website, AirMap.ca, and provincial and federal websites. The warning contains information about the reason for the warning being issued, where it is in effect, important information such as checking the Air Quality Health Index (AQHI) regularly, and other actions residents can take to protect their health.

Metro Vancouver may also post information on social media before and during a warning. Posts may include updates about current conditions, health advice, how to receive air quality warnings, where to find information on local air quality conditions, and other resources. For more information about the health impacts of wildfire smoke and ways to reduce exposure, such as using air filtration, residents can visit the BC Centre for Disease Control website (Reference 6).

OUTLOOK FOR THE 2025 SEASON

Summer wildfire conditions across the province will depend on the amount of rain that falls in May and June, as the amount and duration of rain during these months influence the length and intensity of the wildfire season. Provincial and regional snowpack levels are also important indicators leading into wildfire season. Lower snowpacks can limit drought recovery heading into the summer. As of March 1, snowpack levels across the province were below normal, averaging about 73 percent of normal (Reference 7), while snowpack levels in Metro Vancouver's watersheds were about 80 percent of normal on April 3. The BC River Forecast Center has indicated that low snowpacks and lingering impacts from on-going drought combined with warm seasonal weather forecasts are pointing towards elevated drought hazards for this upcoming spring and summer (Reference 7). As of April 4, BC Wildfire Service has yet to publish their Spring 2025 Seasonal Outlook.

CLIMATE CHANGE IMPACTS ON AIR QUALITY

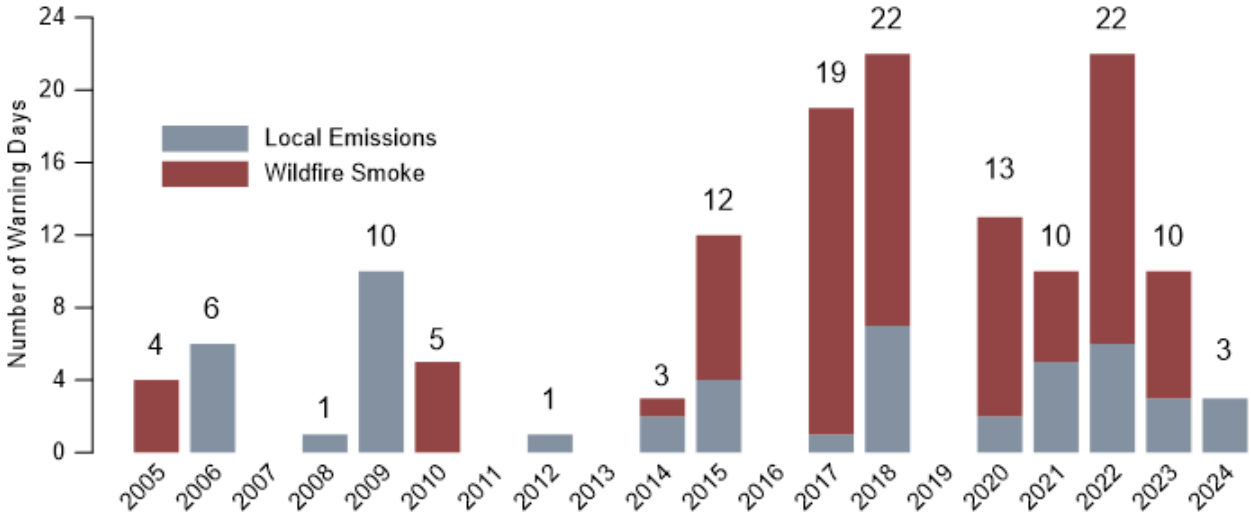
Air quality in the region is already being degraded by the impacts of climate change, and poor air quality causes a wide range of adverse health effects and associated costs. The region is facing

impacts and costs associated with climate change, with increased flooding, crop damage, wildfires, and heat waves, the latter two of which significantly impact air quality.

The summer heat dome in 2021 saw ground-level ozone levels not experienced since the 1980s, and on May 15, 2023, Metro Vancouver issued its earliest ozone advisory since the air quality advisory program began in 1993. Metro Vancouver's *Regional Ground-Level Ozone Strategy* is being updated to consider more extreme temperatures and new sources of emissions, including wildfires, and is included in the Air Quality and Climate Committee's 2025 Work Plan.

Extensive wildfire smoke impacts have occurred in seven of the last ten summers (Figure 1). Research indicates that after nearly a century-long decline, wildfire activity in BC has increased significantly since 2005 (Reference 8). More area has burned in BC in a recent 7-year period (2017-2023) than in the 58 years preceding (1959-2016). Figure 2 shows the area burned in BC by year in the last 10 years. The combined effects of climate-induced changes and altered wildfire fuels is causing more frequent years of intense and prolonged wildfire activity. With a changing climate, the region can expect warmer, drier summers, and longer periods of drought in the Metro Vancouver region, which can lead to more frequent and severe wildfire smoke impacts and elevated levels of ground-level ozone.

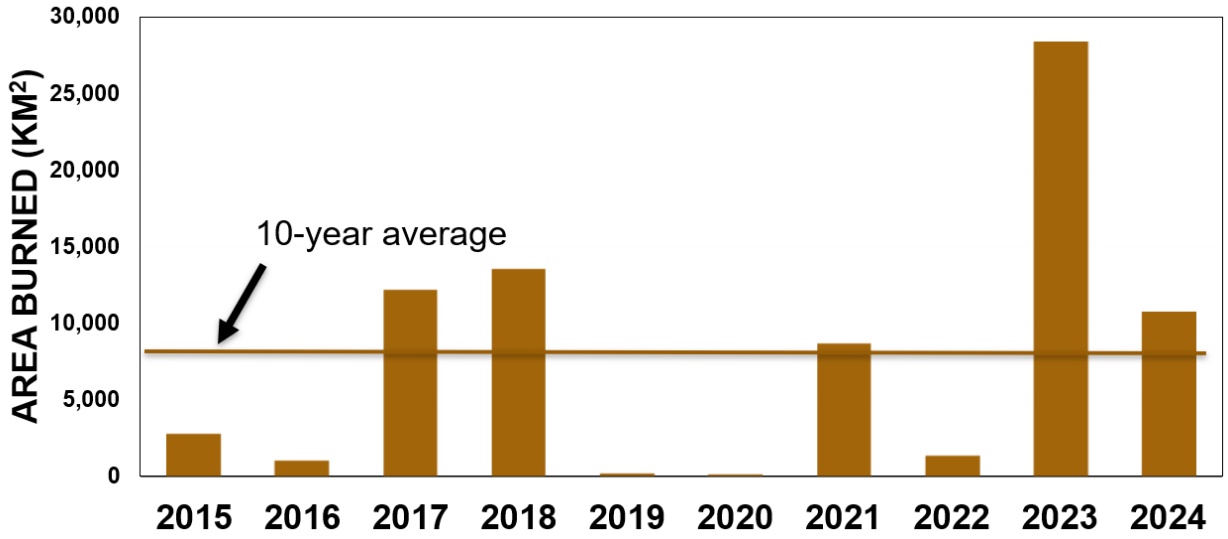
Figure 1: Number of days of air quality warnings (previously called advisories) in the Lower Fraser Valley



Note: Trigger levels for advisories have changed over the years; care must be taken when interpreting these trends.

Metro Vancouver's *Climate 2050* strategy has identified actions to help residents adapt to climate-related impacts on regional air quality, such as accelerating the use of electric heat pumps to cool homes while also reducing greenhouse gas emissions. The *Clean Air Plan* outlines strategies for continuous improvement in regional air quality, including actions to: provide better protection against wildfire smoke (such as public clean air spaces), develop resources to help residents and businesses manage indoor air quality, and provide high quality information to the public during air quality advisories.

Figure 2: Area burned in British Columbia over the last ten years.



Note: Data obtained from the BC Wildfire Service.

ALTERNATIVES
This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS
Staff time for the air quality advisory program is included in annual operating budgets, including overtime for evening and weekend work. Consideration of increased resource levels in long term financial planning may be needed as wildfire activity continues to increase in the future.

CONCLUSION
Metro Vancouver staff work closely with health authorities and other partners to continuously improve the air quality advisory program to protect public health. This year the term Air Quality Warning will be used when referring to the public notification of degraded air quality, which replaces the use of Air Quality Advisory. Rainfall amounts and snowpack levels in the next several months are important in shaping the severity of the upcoming wildfire season. The region is experiencing the impacts of a changing climate now, with wildfire smoke impacting the region in seven of the last ten summers. It is essential that Metro Vancouver continues to accelerate actions to reduce greenhouse gas emissions, adapt to a changing climate, and improve regional air quality.

ATTACHMENT
1. Presentation re: “Air Quality Advisory Program and Preparedness for 2025”, dated May 9, 2025.

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View of Howe Sound from Brunswick Mountain

Air Quality Advisory Program and Preparedness for 2025

Geoff Doerksen, M.Sc.
Air Quality Planner

Ken Reid, M.Sc.
Superintendent, Environmental Sampling and Monitoring

Air Quality and Climate Committee Meeting
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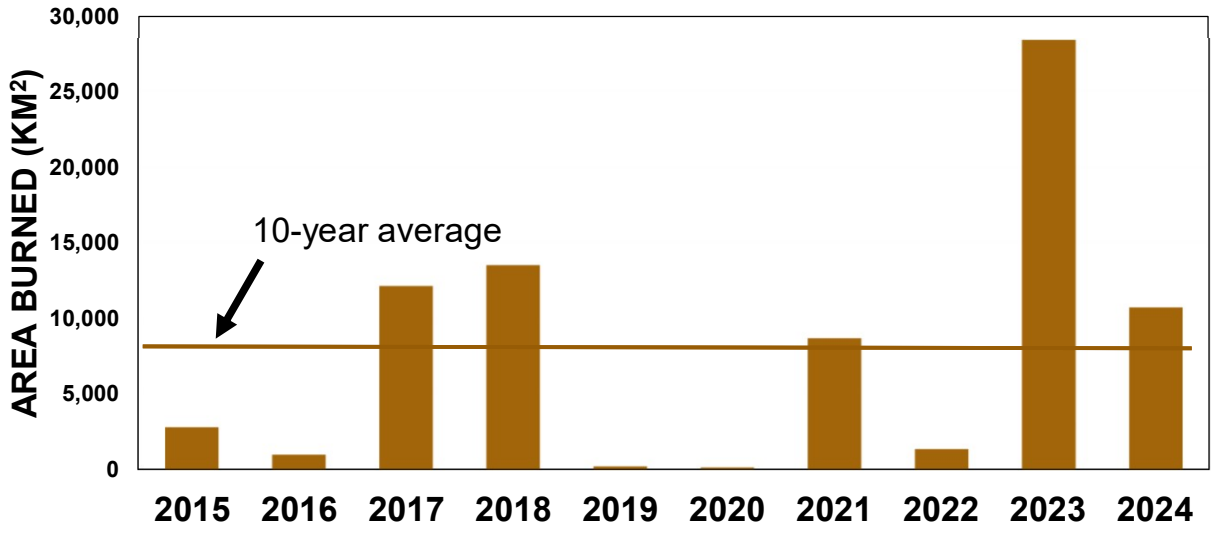
RECENT BRITISH COLUMBIA WILDFIRE SEASONS



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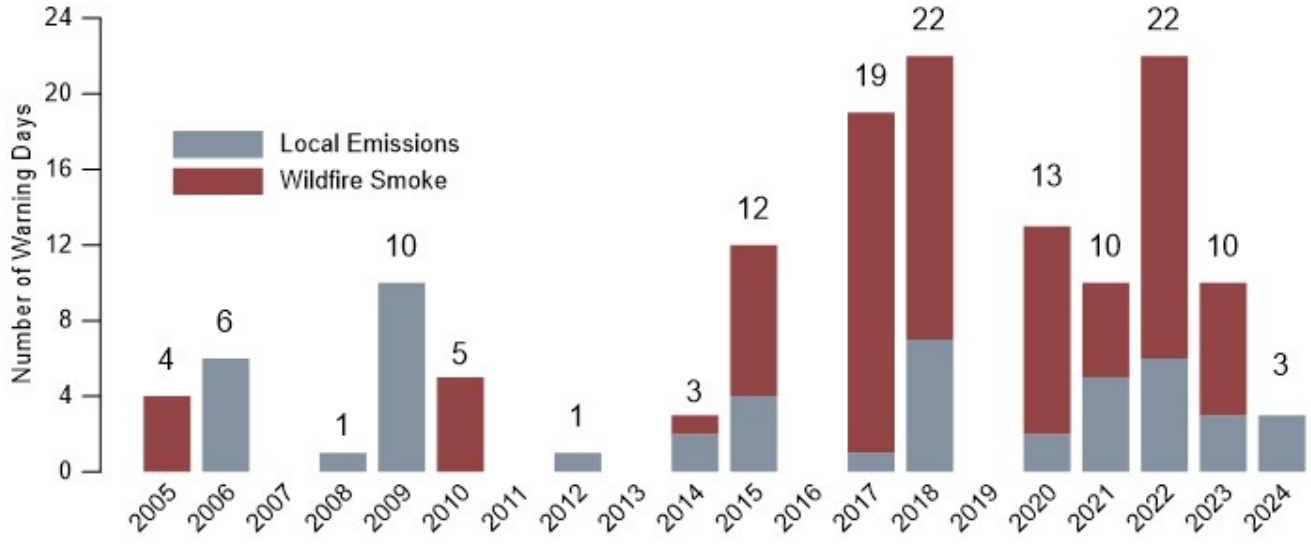
AIR QUALITY WARNINGS 2005-2024



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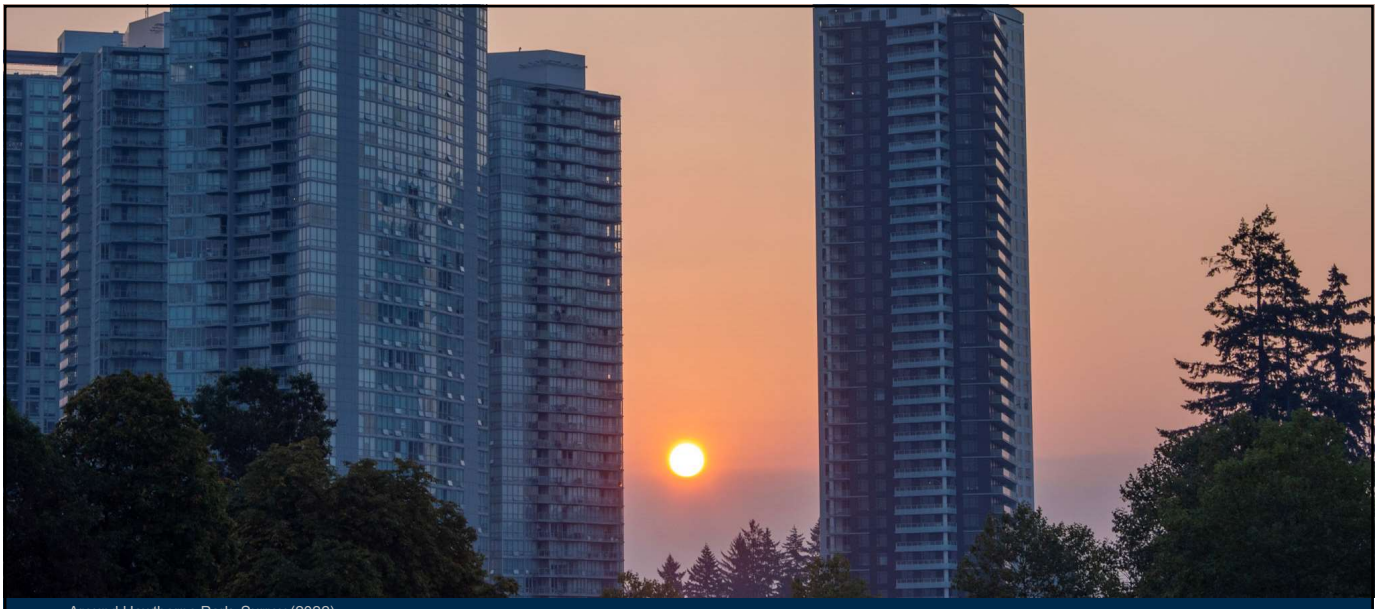

Around Hawthorne Park, Surrey (2022)

Questions?

metrovancouver
Together we make our region strong

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4

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Gaurav Singh, Air Quality Planner, Air Quality Bylaw and Regulation Development, Air Quality and Climate Action Services
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Date: April 7, 2025 Meeting Date: May 9, 2025

Subject: **Proposed Amendments to Air Quality Management Fees: Initiating Engagement**

RECOMMENDATION

That the MVRD Board direct staff to engage with interest holders on proposed amendments to the *Metro Vancouver Regional District Air Quality Management Fees Regulation Bylaw No. 1330, 2021*, based on the discussion paper in the report titled "Proposed Amendments to Air Quality Management Fees: Initiating Engagement", dated April 7, 2025.

EXECUTIVE SUMMARY

The MVRD Board directed staff to continue to work toward cost recovery for Metro Vancouver's air quality regulatory function. Staff propose to engage with interest holders on amendments to *Metro Vancouver Regional District Air Quality Management Fees Regulation Bylaw No. 1330, 2021* (MVRD Bylaw No. 1330, 2021), a bylaw that establishes regulatory fees to recover program costs for air quality management and encourage emission reduction.

The proposed amendments are needed to reduce the scheduled increase to fee rates to balance cost recovery while avoiding undue financial impact on industry and regional affordability. Some program costs have decreased since MVRD Bylaw No. 1330, 2021 was adopted, which warrants a reduction in fee rates. However, odorous air contaminants remain an important generator of air quality complaints and program costs, so it is critical to set a fee structure that enables a reasonable level of program cost recovery for future years.

This report includes a discussion paper that describes the proposed amendments and that will serve as the foundation for the engagement. Staff will consider input from affected audiences and present refined proposed amendments, together with a summary of input and how it was considered, to the MVRD Board in late 2025. If adopted, implementation would proceed in 2026 or sooner if feasible.

PURPOSE

To seek MVRD Board approval to engage with interest holders on proposed amendments to MVRD Bylaw No. 1330, 2021 (Reference 1).

BACKGROUND

At its October 29, 2021 meeting, the MVRD Board adopted MVRD Bylaw No. 1330, 2021, replacing *Air Quality Management Fees Regulation Bylaw No. 1083, 2008,* to set out an updated fee structure for Metro Vancouver's air quality permits, approvals, and emission regulations. The Air Quality and Climate Committee's 2025 work plan identifies the need for engagement to inform updates to MVRD Bylaw No. 1330, 2021, as an opportunity to hear feedback after three years' experience in implementation, changes in legislation referred to in the bylaw, and the current context of economic and geopolitical uncertainty.

This report summarizes the proposed amendments and the engagement approach and seeks direction to initiate engagement with interest holders.

REGIONAL FRAMEWORK FOR AIR QUALITY FEES

Metro Vancouver protects air quality through emission regulations and site-specific permits and approvals to control the discharge of air contaminants. Metro Vancouver charges regulatory fees for authorized air emissions and for applications for authorization to recover administrative costs and to encourage emissions reduction. However, regulatory fees for odorous air contaminants have recovered only a small part of the cost of managing those contaminants, despite them being the leading cause (75-90%) of the 1,500-4,000 air quality complaints received per year by Metro Vancouver. Odorous air contaminants are the main cause of air quality complaints for many air quality regulators (Reference 2).

Public opinion research conducted in 2020 found that 80% of residents believed that businesses emitting pollutants should pay most or all of the costs for regulating those emissions (Reference 3). MVRD Bylaw No. 1330, 2021 was adopted to enhance cost recovery for overall air quality management and incentivize emissions reduction, partly through a significant increase in fee rates for odorous air contaminants scheduled for 2025. Those fee rates were intended to support cost recovery for a rise in odorous air contaminant-related air quality complaints (Reference 4) and appeals (Reference 5) of Metro Vancouver permit decisions observed from 2016 to 2020. While the cost of managing permits and complaints remains high, the effort and cost associated with complaints has decreased at this time.

NEED FOR UPDATES

Metro Vancouver strives to balance environmental protection with economic considerations. As such, Metro Vancouver's air quality regulatory framework requires periodic updates to provide clarity to regulated businesses, update cost recovery, and maintain alignment with federal and provincial legislation. Staff are also looking to address feedback received from regulated businesses in the current context of economic and geopolitical uncertainty.

1. Review of fee calculations

There have been requests for clarification on how fee rates apply when an air contaminant meets the definition of more than one category of air contaminants. Staff are also responding to concerns about the scheduled removal of the fee rate for Total Reduced Sulphur (TRS) compounds in 2025, which could result in higher fees for some facilities when 2025 fee rates for odorous air contaminants apply.

2. Review of application fees

There is currently no upper limit on application fees for businesses applying for permits and other authorization to discharge air contaminants. This may result in relatively high costs for some businesses. Staff have identified a need to review and adjust these fees to reflect Metro Vancouver's experience with processing applications for large, complex facilities.

3. Need for alignment with recent updates to federal and provincial legislation

In its definitions, MVRD Bylaw No. 1330, 2021 references other legislation in which there have been recent changes. Two to note are the *Canadian Environmental Protection Act, 1999* (CEPA) and its list of toxic substances, as well as the BC *Public Notification Regulation* and its definition of minor amendments to permits.

PROPOSED AMENDMENTS

The four main proposed amendments are described in the discussion paper in Attachment 1 and summarized below.

1. Clarifying the calculation of emission fees for multi-category air contaminants

The proposed amendments would clarify that when an air contaminant meets the definition of more than one category, the highest applicable emission fee rate would apply. This approach would support consistency and align fees with the most significant potential impacts of emissions.

2. Reducing fee rates for odorous air contaminants

The proposed amendments would reduce fee rates for odorous air contaminants to balance cost recovery with regional affordability. Extending the use of the 2024 emission fee rate for Total Reduced Sulphur compounds is also proposed, with a phased increase over time. These fee rates would continue to encourage emissions reduction in coordination with how Metro Vancouver manages odorous air contaminants in current issued permits and approvals. Additional clarifications are proposed regarding the calculation of fees where emission limits are specified in permits or approvals or where emissions are measured above or below analytical method detection limits. This will maintain fairness and predictability for businesses subject to emission fees.

3. Reducing maximum fees for applications for authorization, and applying interest on overdue payments

The proposed amendments would introduce a limit of $450,000 on application fees for businesses applying for authorization to discharge air contaminants. This limit reflects the historical effort to process large, complex facilities' applications for authorization.

The proposed amendments would also introduce a provision to charge interest on overdue payments, consistent with provisions under other Metro Vancouver bylaws.

4. Updating definitions

The proposed amendments would refine definitions for hazardous air pollutants (HAP), volatile organic compounds (VOC), and other air contaminants. The bylaw would also be updated to reflect recent changes to the *Canadian Environmental Protection Act, 1999* and the BC *Public Notification Regulation*. The definition of "minor amendment" to permits and approvals will reflect changes to that definition in the revised BC *Public Notification Regulation*.

ENGAGEMENT APPROACH

Staff propose engaging with interest holders including those likely to comment, be impacted, or have a role in implementation. These would include regulated businesses as well as First Nations, member jurisdictions, government agencies, health authorities, and members of the public with an interest in air quality and related health impacts. Metro Vancouver would ensure the opportunity for public input, particularly for residents that live or work near permitted facilities or have indicated an interest in the management of odorous air contaminants. Staff will use this input to refine the proposed amendments.

The purpose of the engagement is to:

- Provide information on the process to update the bylaw and opportunities for input;
- Hear and record the findings from the identified key audiences; and
- Demonstrate through reporting how the input was considered in final policy recommendations.

Examples of the activities that will be promoted to support this engagement are:

- A website with information about this engagement process and the discussion paper;
- Meetings to share information and hear feedback; and
- An online feedback form.

ALTERNATIVES

1. That the MVRD Board direct staff to engage with interest holders on proposed amendments to the *Metro Vancouver Regional District Air Quality Management Fees Regulation Bylaw No. 1330, 2021*, based on the discussion paper in the report titled "Proposed Amendments to Air Quality Management Fees: Initiating Engagement", dated April 7, 2025.
2. That the MVRD Board receive for information the report dated April 7, 2025, titled "Proposed Amendments to Air Quality Management Fees: Initiating Engagement".

FINANCIAL IMPLICATIONS

Under Alternative 1, staff will proceed with engagement on proposed amendments. Funds for this engagement are included in the approved program budget for 2025.

Included in the engagement will be a review and potentially a proposal to reset the scheduled fees for 2025 in MVRD Bylaw No. 1330, 2021, as odour management costs can vary widely from year to year, and therefore could lead to over or under recovery of costs and have a cumulative effect on future fees. Current scheduled fees are based on the years with the highest levels of air quality complaints and associated regulatory costs. The proposed fee rates and bylaw clarifications seek to progressively align fee rates with low to medium levels of regulatory costs estimated to range from $125,000 to $300,000 per year. The MVRD Board has directed staff to continue to work toward cost recovery for Metro Vancouver's air quality regulatory function to avoid over or under cost recovery as we set regulatory rates.

CONCLUSION

Proposed amendments to MVRD Bylaw No. 1330, 2021 aim to improve clarity, reduce fee rates to balance cost recovery with regional affordability while encouraging emissions reduction, and align with federal and provincial legislation and other standards. These updates support the objectives outlined in the *Clean Air Plan* and *Board Strategic Plan 2022-2026*. The proposed amendments include clearer calculation of fees, reduced fee rates, a limit on application fees for permits and other authorizations, and updated definitions.

Staff recommend Alternative 1, that the MVRD Board direct staff to engage with interest holders, before returning to the Board with refined proposed bylaw amendments for consideration.

ATTACHMENTS

1. Discussion paper on proposed amendments to Metro Vancouver's Air Quality Management Fees Regulation Bylaw No. 1330, dated May 2025.
2. Presentation re: "Proposed Amendments to Air Quality Management Fees", dated May 9, 2025.

REFERENCES

1. Metro Vancouver Regional District, Bylaw No. 1330, 2021, *MVRD Air Quality Management Fees Regulation Bylaw, Unofficial Consolidation, 2021.* Retrieved from https://metrovancouver.org/boards/Bylaws/MVRD_Bylaw%201330_Consolidated.pdf Last accessed 2025, April 6.
2. Nicell, J. A. (2009) Assessment and regulation of odour impacts. Atmospheric Environment. 43. (1): 196-206.
3. Justason Market Intelligence Inc., 2020. *Air Quality Fees Survey.* Retrieved from https://metrovancouver.org/services/air-quality-climate-action/Documents/air-quality-fees-survey-2020.pdf. Last accessed 2025, April 6.
4. Metro Vancouver Regional District, 2025. *GFL Delta Organics Facility*. Retrieved from https://metrovancouver.org/services/environmental-regulation-enforcement/air-quality-regulatory-program/gfl-delta-organics-facility . Last accessed 2025, April 6.
5. Metro Vancouver Regional District, October 2021. *MVRD Air Quality Management Fees Regulation Bylaw No. 1330, 2021*. Agenda item G 2.1. Retrieved from https://metrovancouver.org/boards/GVRD/RD_2021-Oct-29_AGE.pdf#243. Last accessed 2025, April 7.

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Proposed Amendments to Metro Vancouver's Air Quality Management Fees Regulation Bylaw No. 1330

Discussion Paper

May 2025

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Summary

Metro Vancouver regulates the discharge of air contaminants from businesses and other emission sources within the region. Businesses with emissions authorized under permits, approvals, or emission regulation bylaws pay fees based on the quantity and potential impact of authorized air contaminants.

In response to feedback from regulated businesses, Metro Vancouver proposes focused amendments to the *Metro Vancouver Regional District Air Quality Management Fees Regulation Bylaw No. 1330, 2021* (MVRD Bylaw 1330, 2021). The proposed amendments would clarify the fee structure, reduce some fee rates to balance cost recovery with impacts on regulated businesses and regional affordability, and align definitions with federal and provincial legislation. These updates align with Metro Vancouver's commitments under the *Clean Air Plan* and the *Board Strategic Plan 2022-2026*, and are guided by continuous improvement.

Proposed amendments would:

- clarify which fees apply to air contaminants that fall within more than one category of air contaminants;
- reduce fee rates for odorous air contaminants (OACs), and clarify how these fees are applied;
- reduce the maximum fee for applications for permits, approvals, and amendments;
- apply interest to overdue payments; and
- update definitions to align with federal and provincial legislation that has changed since MVRD Bylaw 1330, 2021 was adopted in October 2021.

The proposed amendments emphasize the principle of cost recovery from emitters of air contaminants, requiring businesses to bear financial responsibility in proportion to the potential impacts of their emissions. This approach encourages emissions reduction and promotes fairness across regulated businesses.

Metro Vancouver invites feedback on the proposed amendments by August 1, 2025. All input will be considered until the Metro Vancouver Board makes a decision on the final amendments.

Purpose of this Discussion Paper

The proposed changes reflect Metro Vancouver's commitment to balancing environmental protection with economic considerations, ensuring the region's air quality management framework remains effective, equitable, and responsive to evolving needs.

This discussion paper serves to:

- Provide detailed information on the proposed amendments;
- Explain the rationale behind the proposed amendments, emphasizing alignment with the principles of cost recovery and regional affordability; and

- Support engagement with interest holders likely to comment, be impacted, or have a role in implementation.

This discussion paper may be of interest to:

- Businesses subject to air quality regulatory fees;
- First Nations;
- Metro Vancouver's member jurisdictions;
- Provincial, federal, and other government agencies;
- Health authorities; and
- The broader public, including those with an interest in air emissions, or who may be impacted by this bylaw (for example, through proximity to a permitted facility).

Metro Vancouver welcomes feedback from all interest holders on the proposed amendments. Input will be considered until the Metro Vancouver Board decides on amendments to MVRD Bylaw 1330, 2021.

Context

The Metro Vancouver Regional District (MVRD) consists of 21 municipalities, one electoral area, and one Treaty First Nation. Under authority delegated by the provincial government initially through Letters Patent and then through the British Columbia *Environmental Management Act* (EMA), Metro Vancouver has been responsible for managing air quality and regulating the discharge of air contaminants in the region for over 50 years. Section 31 of the EMA grants the Metro Vancouver Board the power to "prohibit, regulate and otherwise control and prevent the discharge of air contaminants" and "establish […] rates or levels of fees" through bylaws.

The *Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008* (GVRD Bylaw 1082, 2008) provides the regulatory framework for managing air emissions. Under this bylaw, emissions of air contaminants are prohibited unless authorized through a valid permit, approval, order, or emission regulation. GVRD Bylaw 1082, 2008 also requires that emissions do not cause pollution, irrespective of the authorization status.

The *Clean Air Plan*, endorsed in 2021, guides Metro Vancouver's vision and actions for managing air quality over the next decade. These initiatives aim to achieve ambitious air quality goals and compliance with or improvement on ambient air quality standards and objectives at the federal and regional levels, respectively.

MVRD Bylaw 1330, 2021 and its predecessor air quality management fee regulation bylaws were established to support the regulatory measures in GVRD Bylaw 1082, 2008 and to define the fee structure to recover costs for air quality regulatory services. The fee structure is designed to encourage emitters to reduce emissions, thereby supporting the goals of the *Clean Air Plan*. MVRD Bylaw 1330, 2021 imposes different fees on air contaminants depending on their relative potential impacts on people and the environment. These fees are guided by the discharger-pay principle, ensuring that those

responsible for emissions bear the financial responsibility for managing their impacts. This approach incentivizes businesses to minimize their emissions to avoid higher costs, promotes continuous improvement in air quality, and aids in the achievement of regional goals.

Defining the Problem

Since the Metro Vancouver Board adopted MVRD Bylaw 1330, 2021 in October 2021, there have been changes to the economic and regulatory landscape that have influenced the impact of the bylaw's fees, such as:

- Economic and geopolitical uncertainty have increased pressure on regional affordability;
- Regulated businesses have sought greater clarity regarding applicable fee rates, particularly when an air contaminant belongs to multiple categories of air contaminants;
- Regulated businesses have raised questions about the implications of the scheduled discontinuation of the fee rate for Total Reduced Sulphur compounds (TRS) in 2025. This change will result in the application of fee rates for specified odorous air contaminants (OACs) and for whole emission discharge of OACs, which are currently much higher.
- There is currently no upper limit on application fees for businesses applying for authorization to discharge air contaminants, which may result in high application fees for some businesses.
- The federal government updated the *Canadian Environmental Protection Act, 1999* (CEPA) and its list of toxic substances, which affects the definition of hazardous air pollutants (HAP) in MVRD Bylaw 1330, 2021.
- The provincial government updated the *BC Public Notification Regulation* (PNR) and its definition of "minor amendment" for permits and approvals, which affects which types of permit and approval applications qualify as minor amendments under MVRD Bylaw 1330, 2021.

Guiding Principles

The proposed revisions aim to align with the following principles that provided the foundation for the current air quality management fees in MVRD Bylaw 1330, 2021:

- Minimize the risk to human and environmental health from emissions of air contaminants;
- Assess fees that reflect the potential harmful impacts on human health and the environment;
- Support continuous improvement in air quality by reducing emissions to achieve regional ambient air quality objectives;
- Support the discharger-pay principle, where dischargers such as permit holders and regulated businesses, pay more for emissions that can have more impact;
- Support the user-pay principle, where users who benefit from regulatory services pay for increased service needs;
- Incentivize the reduction of air emissions; and
- Recover regulatory program costs in an effective, fair, and efficient manner.

Proposed Changes to the Fees

Metro Vancouver's air quality management framework has played a vital role in reducing emissions and supporting regional air quality goals to protect human health and the environment. However, an evolving landscape calls for the following proposed bylaw amendments to provide clarity on fee calculations to the regulated community, balance cost recovery with impacts on regulated businesses and regional affordability, and align with updated federal and provincial legislation.

Clarifying the Calculation of Emission Fees for Multi-Category Air Contaminants
Metro Vancouver proposes to clarify that the highest applicable emission fee rate will be charged when an air contaminant meets the definition of more than one class or group of air contaminants because of its physical and chemical properties or health impacts. For example, an air contaminant may be classified as both a metal and a hazardous air pollutant, or as part of TRS compounds and as a specified odorous air contaminant. This approach would support consistency and align fees with the most significant potential impacts of emissions and associated effort for emissions management.

Reducing Fee Rates for Odorous Air Contaminants
Metro Vancouver proposes to adjust the fee structure for odorous air contaminants (OACs) to improve clarity, balance cost recovery with regional affordability, and better reflect how these emissions are currently managed through emission limits and emission measurement requirements in permits and approvals. This adjustment would account for the effects of OACs on health, environment, and the normal conduct of business.

The proposed amendments would:

- reduce the emission fee rates for specified OACs as shown in Appendix 1;
- reduce the maximum emission fee rate for specified OACs not to exceed $10,000 per tonne;
- reduce the emission fee rate for whole emission discharge of OACs to $5 per billion cubic metre odour units where there is an odour unit emission limit in a permit or approval;
- reduce the emission fee rate for whole emission discharge of OACs to $20 per billion cubic metre odour units where there is no odour unit emission limit in a permit or approval;
- extend the use of the 2024 emission fee rate ($800/tonne) for TRS compounds up to 2026;
- phase in increases to the emission fee rates for specified OACs, whole emission discharge of OACs, and TRS compounds until 2030 as shown in Appendix 1 to move closer to recovering the lower to medium range of annual costs for odour management;
- In Schedule B, section 5, align the calculation of the emission fee rate for an OAC not listed in Schedule B, Table 9 with the calculation used to develop the proposed emission fee rates for specified OACs shown in Appendix 1, which takes the form:

Emission fee rate for OAC = Emission fee rate for hydrogen sulphide (H_2S) x
(Odour detection threshold for H_2S / Odour detection threshold for OAC)

where “odour detection threshold” means the lowest concentration of a specified odorous air contaminant that can be detected by an odour panel, as set out in the reference noted for the substance listed in Column A of Table 3 in Appendix 1, or as set out in another reference approved by the district director.

- clarify that if there is a quantity of a specified OAC authorized by permit or approval, the emission fee will be calculated based on that authorized quantity to be consistent with how fees are assessed for all other air contaminants. In cases where the quantity of a specified OAC in the discharge is not stated in a permit or approval, fees will be calculated based on measured concentrations of specified OACs, as the bylaw already stipulates for whole emission discharge of total OACs;
- clarify that in cases where there is no permitted emission limit, and measured emissions of a specified OAC are below the detection limit for the analytical method used, the associated emission fee rate will apply to 25% of the analytical method detection limit for OACs that are in Table 9 and for those that are not.

Updates to Application Fees and Payment of Fees

Reducing maximum application fees for authorizations

Metro Vancouver proposes to limit the maximum application fee for permits, approvals, and amendments to $450,000. Currently, there is no upper limit on these fees, which can result in relatively high costs for a few businesses with high emissions. This limit would reflect Metro Vancouver’s experience with the application process for high-emitting businesses.

Charging Interest on Overdue Payment of Fees

Currently, MVRD Bylaw 1330, 2021 does not include provisions for interest on late payments. Metro Vancouver proposes to charge interest on overdue invoices if payment is not received within 30 days of the invoice date, to encourage timely payments. Overdue accounts would be subject to interest charges of 1.25% per month or 15% per annum, which is the standard interest that Metro Vancouver charges on the type of invoices related to regulation and enforcement. Interest would continue to accrue on outstanding fees even if, as set out under MVRD Bylaw 1082, 2008, the permit or approval is suspended due to non-payment beyond 75 days.

A reinstatement fee will continue to be 50 percent of the total amount of all fees owing at the time a permit or approval is suspended. For clarity, the calculation of the reinstatement fee would not include accrued interest.

Updates to Definitions and Fee Exemptions

Metro Vancouver intends to update definitions and provisions related to air contaminants and fee exemptions to improve clarity and alignment with federal and provincial legislation. The updates will:

- refine classifications for hazardous air pollutants, volatile organic compounds, and other regulated air contaminants to avoid overlaps and improve transparency;
- align definitions with recent regulatory changes to the CEPA and its list of toxic substances.

Metro Vancouver will update the definition of “minor amendment” to align with the relevant parts of the updated definition in the PNR (changes in bold), which are:

- a decrease in the authorized quantity of the discharge**, emission or stored material**;
- an increase in the authorized quantity of the discharge**, emission or stored material** that does not exceed 10% of the authorized quantity;
- a change in the authorized quality of the discharge**, emission or stored material** such that, in the opinion of the district director, the change has or will have **an equal or** less**er** impact on the environment;
- a change in a monitoring program; or
- a change to the works, method of treatment or any other condition of a permit or approval such that, in the opinion of the district director, the change has or will have **an equal or** less**er** impact on the environment.

This update will expand the types of permit and approval applications that qualify for the application fee for minor amendments. The existing definition and fee for "administrative amendment" will remain unchanged.

These updates aim to support clear and consistent regulatory application while achieving the goals of the *Clean Air Plan*.

Providing Feedback and Comments

Metro Vancouver is seeking input on the proposed amendments to *MVRD Air Quality Management Fees Regulation Bylaw No. 1330, 2021*, as outlined in this discussion paper. Feedback from the public, regulated businesses, and other interested and affected parties will help shape the final amendments.

The MVRD Board will receive a summary of the feedback collected to inform their decision-making process. Metro Vancouver staff and contractors will treat the comments received with confidentiality. However, comments and any information identifying you as the source may be subject to disclosure under the BC *Freedom of Information and Protection of Privacy Act*.

How to Provide Feedback

Submit your feedback by August 1, 2025, via email to AQBylaw@metrovancouver.org

Visit Metro Vancouver’s website for additional engagement opportunities (search for “2025 Updates to Bylaw 1330”). If you have any questions or require further information, please call 604-432-6200.

Thank you for taking the time to provide input on the proposed amendments to MVRD Bylaw 1330, 2021. Your feedback is valuable and will be carefully considered in the development of the updated bylaw.

Appendix - 1

Metro Vancouver proposes to replace the fee rates for permitted levels of specified odorous air contaminants (OACs) in Table 9 of Schedule B in MVRD Bylaw 1330, 2021 for January 1, 2025 and onward with the following table of fee rates. Proposed fee rates could take effect in 2026 or sooner if possible. The emission fee for a specified OAC is based on the odour detection threshold of the specified OAC from Nagata, 2003[a]. In cases where no threshold is available in Nagata, 2003 for a specified OAC, another reference is used as noted in the table below.

The proposed fee rates for measured levels of specified OAC would follow the same approach as the current bylaw and be calculated as four times the permitted fee rate.

The maximum proposed fee rates for permitted and measured levels of specified OAC would be limited to $10/kg in 2026 or sooner if possible, increasing in phases until 2030 to between $35/kg and $85/kg to recover the lower to medium range of annual costs for odour management. The current maximum fee rate for specified OACs is $1,000/kg.

Table 1. Fee rates for permitted levels of Total Reduced Sulphur (TRS) compounds

Odorous Air Contaminant	Fee rate in 2024 (current bylaw) ($/tonne)	Fee rate in 2025 (current bylaw) ($/tonne)	Proposed fee rate in 2026 ($/tonne)	Option 1 Potential fee rate in 2030 (lower range of historic annual costs for odour management) ($/tonne)	Option 2 Potential fee rate in 2030 (medium range of historic annual costs for odour management) ($/tonne)
Total Reduced Sulphur (TRS)	800	N/A	800	$2,900	$7,000

Table 2. Fee rates for permitted and measured levels of Odour Units

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/billion cubic metres)	Proposed fee rates in 2026 ($/billion cubic metres)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/billion cubic metres)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/billion cubic metres)
Permitted Odour Units (OU)*	60	5	20	40
Measured Odour Units (OU)	240	20	80	160

**There are no permits or approvals that specify permitted levels of odour units. The amendment to the fee rate for permitted odour units is proposed to maintain consistency with how fee rates for permitted and measured OACs are determined.*

Table 3. Fee rates for permitted levels of specified odorous air contaminants [a]

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
1-nonene	22	0.22	0.80	1.91
1-octene	13	0.25	0.91	2.18
2,3-pentanedione [b]	2.8	0.05	0.20	0.48

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
2,6-nonadienal [b]	810	10.00	35.00	85.00
2-chlorophenol [b]	15	0.29	1.07	2.56
2-heptanone (methyl n-amyl ketone)	1.8	0.001	0.002	0.005
2-methyl butanoic acid [b]	7.5	0.03	0.13	0.30
2-methyl-1-propanol (isobutanol)	1.8	0.14	0.53	1.27
2-methylpropionoic acid (isobutyric acid)	11.1	0.21	0.77	1.85
3-methyl butanoic acid (isovaleric acid)	181	3.51	12.80	30.69
3-methylbutanal (isovaleraldehyde)	171	3.24	11.84	28.39
Acetic acid (ethanoic acid)	4.0	0.08	0.28	0.68
Allyl sulphide	58	1.71	6.25	14.99
Butanal [b]	30	0.04	0.15	0.36
Butanoic acid (butyric acid)	88	1.67	6.09	14.61

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
Butyl mercaptan	1,000	10.00	35.00	85.00
Decanal (decaldehyde, capradehyde) [b]	23	0.19	0.71	1.70
Diacetyl	341	6.49	23.69	56.80
Diallyl disulphide	58	0.86	3.13	7.50
Diethyl disulphide	6.0	0.10	0.37	0.88
Diethyl sulphide	493	9.39	34.27	82.16
Dimethyl disulphide	7.0	0.13	0.49	1.18
Dimethyl sulphide	7.8	0.15	0.55	1.31
Dimethyl trisulphide [b]	6.8	0.13	0.48	1.15
Ethyl isobutyrate	575	10.00	35.00	85.00
Ethyl isovalerate	868	10.00	35.00	85.00
Ethyl mercaptan (ethanethiol)	1,000	10.00	35.00	85.00
Ethyl n-butyrate	316	6.01	21.95	52.63
Ethyl n-valerate	103	1.95	7.12	17.07
Ethyl propionate	2.1	0.03	0.13	0.30

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
Hexanal (hexaldehyde) [b]	54	0.02	0.07	0.17
Hexanoic acid (caproic acid)	21	0.40	1.46	3.51
Hydrogen sulphide	105	2.00	7.30	17.50
Isoamyl mercaptan	1,000	10.00	35.00	85.00
Isobutyl acetate	1.6	0.03	0.11	0.26
Isobutyl acrylate	13	0.25	0.90	2.15
Isobutyl amine	136	0.25	0.93	2.23
Isobutyl isovalerate	1.8	0.05	0.17	0.40
Isobutyl mercaptan	1,000	10.00	35.00	85.00
Isobutyl n-butyrate	6.4	0.13	0.49	1.17
Isohexanoic acid	32	0.60	2.20	5.26
Isooctanol	1.2	0.02	0.08	0.20
Isopentanol	9.8	0.19	0.68	1.63
Isopropyl mercaptan	1,000	10.00	35.00	85.00
Isopropyl n-butyrate	2.7	0.04	0.14	0.34
Isopropyl propionate	3.1	0.06	0.21	0.51

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
Isopropylbenzene	1.5	0.04	0.16	0.37
Isobutylaldehyde	58	1.11	4.04	9.69
Methacrolein	2.5	0.05	0.17	0.41
Methyl acrylate	4.9	0.09	0.34	0.81
Methyl allyl sulphide	119	2.26	8.26	19.81
Methyl isoamyl ketone	6.1	0.13	0.48	1.16
Methyl isobutyrate	7.6	0.14	0.52	1.24
Methyl isovalerate	5.7	0.11	0.40	0.96
Methyl mercaptan (methanethiol)	437	8.30	30.29	72.62
Methyl n-butyrate	20	0.04	0.14	0.34
Methyl n-valerate	5.7	0.11	0.40	0.96
Methylamine	2.2	0.03	0.09	0.22
n-Amyl mercaptan	1,000	10.00	35.00	85.00
n-Butyl acrylate	21	0.44	1.60	3.83
n-Butyl n-butyrate	2.1	0.04	0.15	0.35
n-Butylaldehyde	30	0.58	2.11	5.06

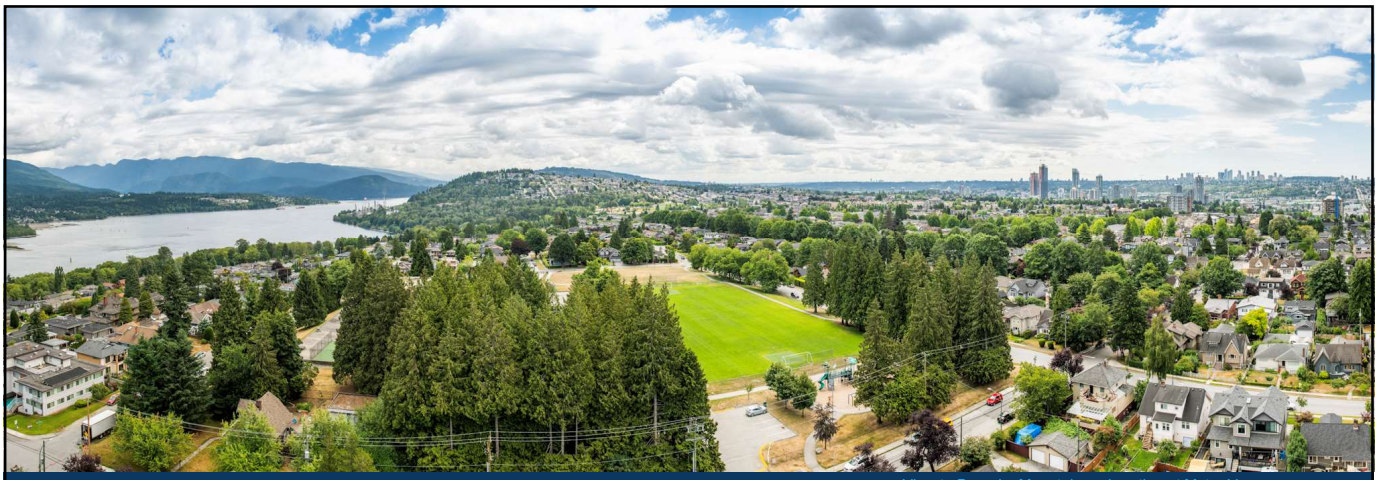
Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
n-Butylbenzene	1.3	0.03	0.10	0.24
n-Decanol	12	0.25	0.91	2.17
n-Decylaldehyde	23	0.44	1.59	3.81
n-Heptanol	2.6	0.05	0.18	0.44
n-Heptylaldehyde	71	1.34	4.88	11.69
n-Hexanol	2.4	0.05	0.17	0.41
n-Hexyl acetate	5.7	0.12	0.44	1.04
n-Hexyl mercaptan	827	10.00	35.00	85.00
n-Hexylaldehyde	52	1.00	3.64	8.72
n-Nonanol	11.3	0.22	0.80	1.91
n-Nonylaldehyde	30	0.58	2.11	5.06
n-Octylaldehyde	1,000	10.00	35.00	85.00
Nonanoic acid [b]	4.6	0.09	0.32	0.77
n-propyl isobutyrate	6.3	0.12	0.44	1.05
n-propyl isovalerate	182	3.83	13.99	33.54
n-propyl n-valerate	3.1	0.06	0.21	0.51
Octanal	1,000	0.08	0.29	0.71

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
p-Diethylbenzene	28	0.67	2.46	5.91
Pentanal (valeraldehyde)	42	0.79	2.89	6.92
Pentanoic acid (valeric acid)	400	7.39	26.99	64.70
p-Ethyltoluene	1.5	0.03	0.12	0.28
Propanal (propionaldehyde)	25	0.48	1.76	4.21
Propionic acid	3.5	0.07	0.24	0.58
Propyl mercaptan (propanethiol)	1,000	10.00	35.00	85.00
Propylbenzene	3.1	0.09	0.34	0.82
Pyridine	143	0.01	0.02	0.05
sec. Butyl mercaptan	542	10.00	35.00	85.00
sec.Butyl acetate	5.3	0.10	0.37	0.88
tert. Butyl mercaptan	561	10.00	35.00	85.00
Tetrahydrothiophene	27	0.51	1.87	4.47
Thiophene	31	0.59	2.16	5.19
Trimethylamine	107	10.00	35.00	85.00

Odorous Air Contaminant	Fee rates in 2025 (current bylaw) ($/kg)	Proposed fee rates in 2026 ($/kg)	Option 1 Potential fee rates in 2030 (lower range of historic annual costs for odour management) ($/kg)	Option 2 Potential fee rates in 2030 (medium range of historic annual costs for odour management) ($/kg)
Undecanal [b]	3.3	0.10	0.35	0.83

[a] The fee rates for columns 3, 4, and 5 in Table 3 were determined using the odour detection threshold values for individual odorous air contaminants from the following study: Nagata, Yoshio, Measurement of Odor Threshold by Triangle Odor Bag Method, 2003. References for other compounds without odour detection thresholds in the Nagata list were taken from:

[b] Devos, M, Standardized human olfactory thresholds, 1990



View to Burnaby Mountain and northeast Metro Vancouver

Proposed Amendments to Air Quality Management Fees

INITIATING ENGAGEMENT

Gaurav Singh
Air Quality Planner

Esther Bérubé, P.Eng.
Division Manager, Air Quality Bylaw and Regulation Development

Climate Action Committee, May 9, 2025
74483169

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1

GUIDING PRINCIPLES

Cost recovery

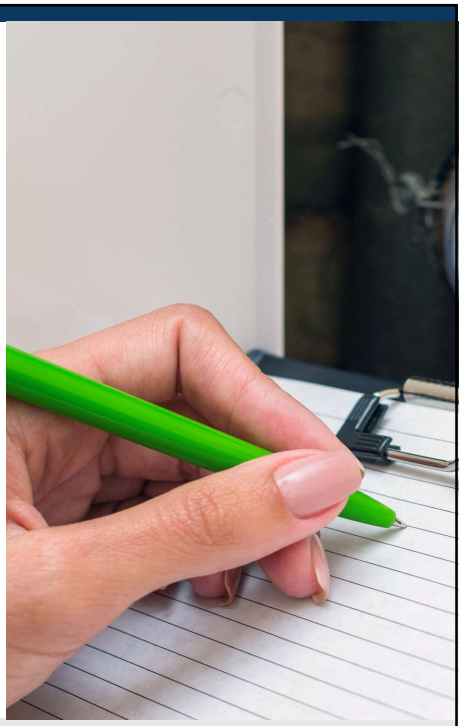
- Recover regulatory costs while maintaining affordability

Discharger-pay

- Have emitters bear financial responsibility for their emissions that can impact public health and the environment

Emissions reduction

- Encourage businesses to adopt cleaner practices to reduce emission fees



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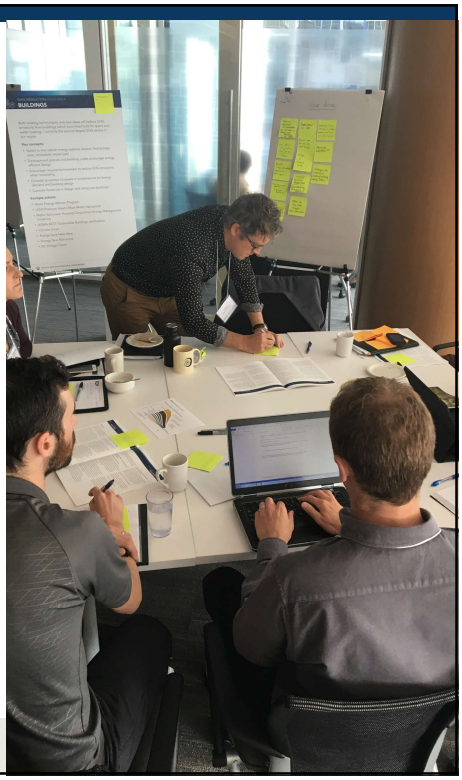
SEEKING APPROVAL TO ENGAGE

- It is critical to engage with interest holders including regulated businesses, First Nations, member jurisdictions, and the public
- Provide information and collect feedback on proposed bylaw amendments
- Use feedback to refine amendments before returning to the Board in late 2025



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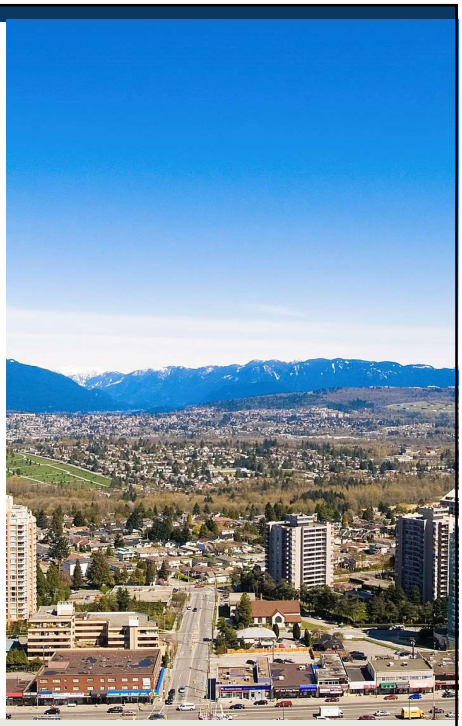
PROPOSED BYLAW AMENDMENTS

- Update bylaw definitions
- Clarify which emission fees will apply to air contaminants that belong to two or more fee categories
- Reduce scheduled odorous air contaminant emission fee rates, and enhance cost recovery over time
- Limit application fee for authorizations
- Charge interest on overdue fee payment



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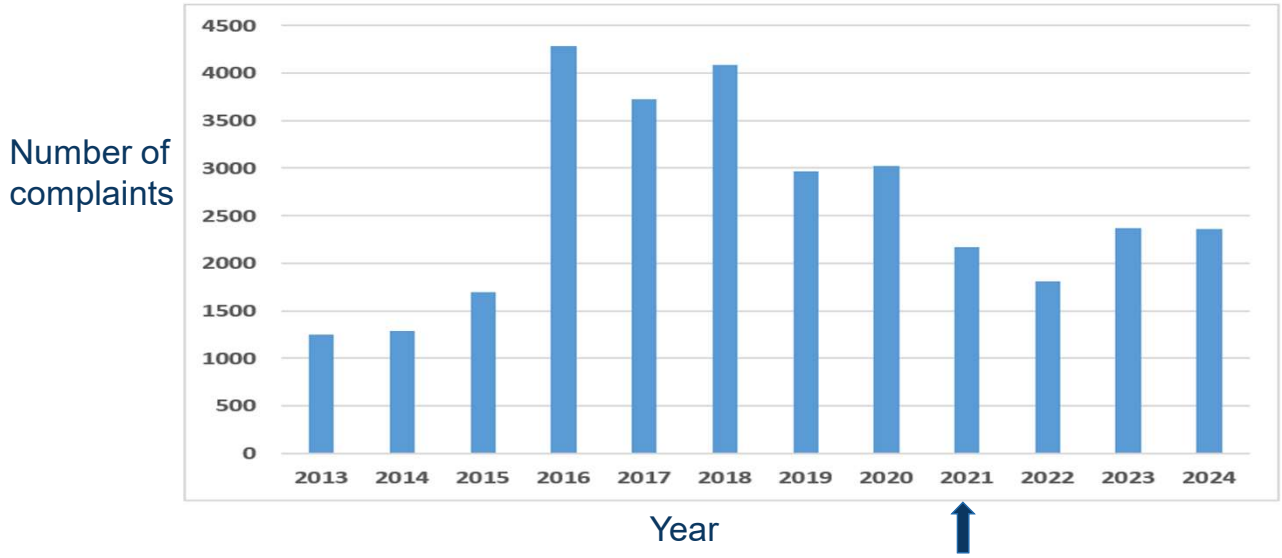
RESPONDING TO A CHANGING CONTEXT

Annual air quality complaints before and after adoption of MVRD Bylaw 1330, 2021



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PROPOSED TIMELINE AND NEXT STEPS

May 2025	June – July 2025	Aug – Sept 2025	Oct – Nov 2025
Board direction to engage Release proposed discussion paper and engagement strategy	**Engagement** Hold meetings, webinars, and gather online feedback		**Board consideration of bylaw adoption** Present a final amendment bylaw to the MVRD Board for adoption
	Analysis and refinement Analyze feedback and adjust proposed amendments		

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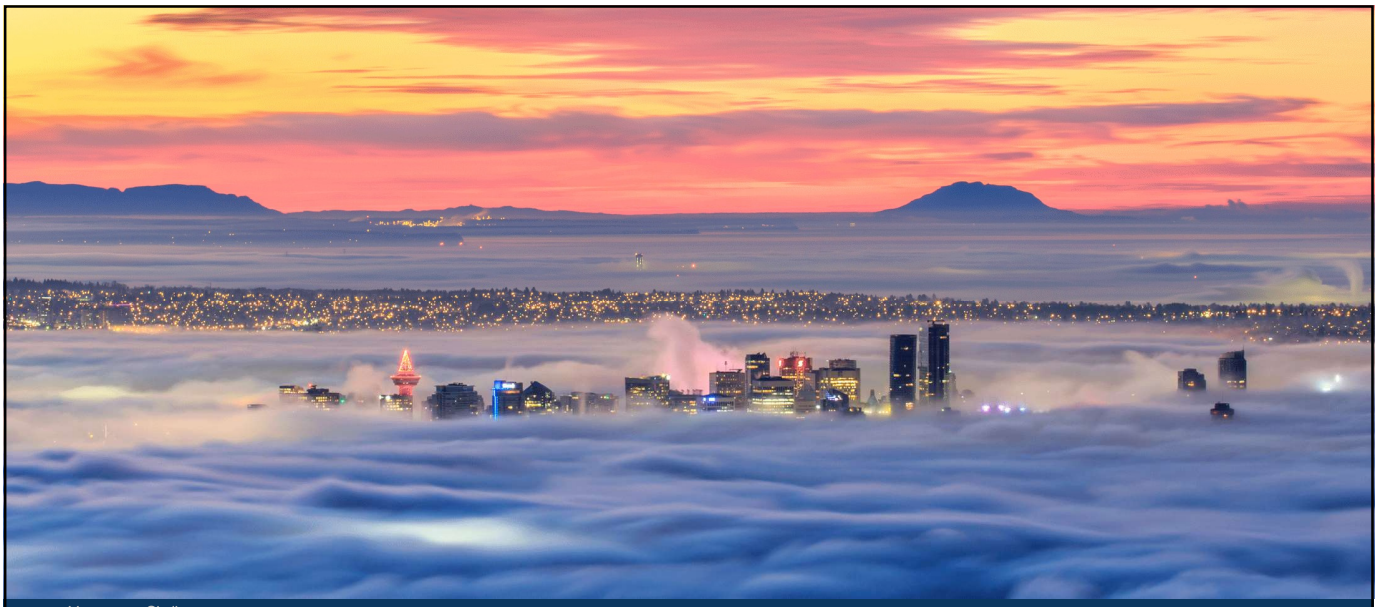

Vancouver Skyline

Questions?

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Jacquay Foyle, Senior Project Engineer, Bylaw Regulation and Development, Air Quality and Climate Action Services
Lucy Duso, Division Manager, Collaboration and Engagement, External Relations

Date: April 17, 2025 Meeting Date: May 9, 2025

Subject: **Update on Work to Amend the GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008**

RECOMMENDATION

That the Air Quality and Climate Committee receive for information the report titled "Update on Work to Amend the GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008", dated April 17, 2025.

EXECUTIVE SUMMARY

As part of Metro Vancouver's responsibility to manage regional air quality, the GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008 (GVRD Bylaw No. 1087, 2008) controls the discharge of air contaminants from boilers and process heaters in buildings and light industrial facilities. In May 2022, the MVRD Board authorized staff to engage on proposed bylaw amendments to reduce emissions of nitrogen oxides, with the aim to continue meeting federal ambient air quality standards, protect public health, and minimize costs to equipment owners.

Current health findings indicate that even low concentrations of nitrogen oxides can cause health impacts like illness, hospitalization, and premature death, so it is important to keep air quality regulations current and aligned with research and best practices. In addition, proposed amendments will account for current economic conditions, feedback from engagement with those most likely to be impacted, and alignment with leading jurisdictions.

Before bringing proposed amendments to the MVRD Board, staff will explore options that propose cleaner technology, set short-term requirements achievable with Canadian technologies where possible, reduce costs relative to initial proposed amendments, and protect people near higher-emitting facilities.

PURPOSE

That the MVRD Board receive information on progress to update GVRD Bylaw No. 1087, 2008, which aim to reduce the impacts of nitrogen oxides (NO_x) emissions from boilers and process heaters in this region.

BACKGROUND

Metro Vancouver's *Clean Air Plan*, 2021 includes a goal to meet or be better than ambient air quality objectives and standards at the regional, provincial, and federal levels in order to continue protecting public health. In response to stricter federal standards, at its November 29, 2024

meeting, the MVRD Board adopted an updated regional ambient air quality objective for nitrogen dioxide due to the health-harming potential of NO_2 even at relatively low concentrations. Taking action to reduce NO_x emissions from boilers and process heaters will contribute to improving air quality in the Metro Vancouver region. At its meeting on May 27, 2022, the MVRD Board authorized staff to proceed with engagement on approaches to reduce emissions from this sector, as presented in the report titled "Engagement on Proposed Amendments to *GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008*", dated April 20, 2022.

This report updates the Air Quality and Climate Committee and MVRD Board on progress in the development of the amendments and outlines the results of engagement on proposed amendments to GVRD Bylaw No. 1087, 2008.

HEALTH IMPACTS OF EMISSIONS OF NITROGEN OXIDES FROM BOILERS AND PROCESS HEATERS

Nitrogen oxides (NO_x) are a mixture of nitrogen oxide (NO) and nitrogen dioxide (NO_2). They are formed when fuel such as natural gas or biomass is burned at high temperatures, for example to produce steam or hot water used in industrial processes, and for space heating and hot water in buildings. NO emitted during combustion quickly reacts to form NO_2 in the atmosphere. Boilers and process heaters regulated under GVRD Bylaw No. 1087, 2008 contribute over half of the NO_x emissions from heating of buildings and light industrial processes in the Metro Vancouver region.

NO_2 causes adverse impacts on heart and respiratory health, increases hospitalization, and can cause premature death, even at low concentrations (Reference 1). Children, the elderly, and people with existing cardiac and respiratory conditions are particularly sensitive to NO_2. Approximately 1,900 tonnes of NO_x are emitted from boilers and process heaters in the Metro Vancouver region annually. The associated health impacts are estimated at a cost of about $58 million per year (Reference 2). NO_x can contribute to the formation of other harmful air contaminants like ground-level ozone and particulate matter, which also affect human health. Metro Vancouver has received air quality complaints from building occupants located near boiler emission stacks who experience localized impacts from exposure to the air contaminants emitted, including NO_2.

Emissions from high-capacity boilers and process heaters can cause nearby concentrations of NO_2 to increase above the federal standards and regional ambient air quality objectives in locations where people live, work, and play. Because NO_2 is harmful even at low concentrations, it is important to protect the public from exposure to local emissions. Localized and regional impacts of boilers and process heaters can be reduced through amendments to GVRD Bylaw No. 1087, 2008.

PROPOSED AMENDMENTS TO GVRD BYLAW NO. 1087, 2008

Under Metro Vancouver's delegated authority to manage air quality, GVRD Bylaw No. 1087, 2008 (Reference 3) regulates the discharge of air contaminants such as NO_x from boilers and process heaters fueled solely by natural gas, propane, or biomass having a combined capacity under 50 MW. This equipment is used in residential, institutional, commercial, and light industrial facilities. Facilities having a larger total boiler and process heater capacity are typically managed through site-specific permits.

To protect public health, Metro Vancouver proposed bylaw amendments for the purpose of:

- Using cleaner, lower-emitting equipment that is now available on the market, and
- Identifying and mitigating local impact of higher-emitting facilities.

ENGAGEMENT

Engagement began in July 2022 on proposed bylaw amendments, focusing on those likely to comment, be impacted, or have a role in implementation. Metro Vancouver collected input from meetings with interest holders, feedback forms, roundtable discussions, webinars, and direct letters or emails. Through these activities, staff heard from a range of backgrounds and perspectives — governments including First Nations, interested and affected groups including those in the public health and safety sector, industry associations, facility operators, thermal energy network (district energy) providers, equipment suppliers and manufacturers, and the public. These groups provided input on proposed bylaw changes as described in a discussion paper (Reference 4). Attachment 1 summarizes engagement activities and what staff heard in that engagement. Staff continue to have conversations with key interest holders.

FINDINGS FROM ENGAGEMENT AND RESEARCH

Research to refine the initial proposed amendments included input from interest holders, such as health authorities, equipment manufacturers, and building developers, owners, and managers.

The key comments and suggestions received during engagement were:

- Protect sensitive populations (children, the elderly, and people with existing respiratory and cardiac conditions) from exposure to nitrogen oxides
- Ensure that equipment would be available to meet the proposed amendments
- Reduce costs associated with the proposed amendments
- Avoid premature equipment replacements
- Make allowances for equipment selected before amendments take effect
- Align with other jurisdictions' requirements, as well as codes and standards
- Provide clarity around regulatory fees applied to institutions

Metro Vancouver retained a consultant to analyze options to address interest holders' concerns and recommendations. This research includes examples from other leading jurisdictions and interviews with equipment manufacturers. Key findings are:

- Equipment is available in BC to meet the proposed emission limits or improve upon the current bylaw's emission limits, at comparable or slightly higher cost in 2024;
- Codes, standards, and other jurisdictions' policies applicable to this sector identify emission stack design criteria that can mitigate local impacts of NOx emissions; and
- As currently understood, alignment with the BC government's proposed highest energy efficiency standards (HEES) is not possible for boilers fueled solely by natural gas or propane, whether they meet current or proposed NOx emission limits. Other types of heating equipment, such as dual-fuel systems, may meet the HEES. Packaged hybrid and dual-fuel systems are not regulated under GVRD Bylaw No. 1087, 2008.

NEXT STEPS

Staff are refining the proposed amendments with the intent of aligning with leading jurisdictions and taking into account the impacts of current economic and geopolitical uncertainty on the costs and availability of lower-emitting technologies in Canada.

Staff are moving toward:

- Proposing stricter requirements only when new equipment is installed or when equipment is replaced at its natural end-of-life;
- Setting short-term requirements achievable with Canadian technology;
- Reducing the cost of the proposed changes; and
- Protecting people near higher-emitting facilities.

Staff will continue to engage with institutions, in particular post-secondary institutions and hospitals, about potential fee amendments to fairly recover costs and encourage emissions reductions from higher-emitting facilities in this sector. Staff will continue to welcome feedback from all key interest holders and consider it along with findings from technical studies. Staff intend to return to the Air Quality and Climate Committee and MVRD Board with a report describing the response to the feedback and proposing the adoption of updated amendments later in 2025.

ALTERNATIVES

This is an information report, and therefore no alternatives are presented.

FINANCIAL IMPLICATIONS

The engagement program, research, and ongoing conversations have been accommodated within the annual budget. Any staff resource implications associated with amendments to GVRD Bylaw No. 1087, 2008 will be presented as part of a report proposing the adoption of amendments.

CONCLUSION

Metro Vancouver staff continue to engage on proposed amendments to the *GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008*. In response to feedback, Metro Vancouver staff undertook additional research to inform the development of bylaw amendments. The proposed amendments are expected to protect residents from localized air quality impacts near boilers and industrial process heaters. The proposed amendments would also support continuous improvement in ambient air quality to meet or be better than federal standards and regional ambient air quality objectives for NO_2, which became more stringent in 2025. Metro Vancouver staff continue to discuss potential amendments with key interest holders. Staff intend to return to the Committee and Board with a report that considers feedback from affected audiences and additional research and proposes the adoption of updated amendments.

ATTACHMENTS

1. "Proposed Amendments to the Boilers and Process Heaters Emission Regulation Bylaw No. 1087: Engagement Summary", dated February 11, 2025.
2. Presentation re: "Update on Work to Amend Boilers and Process Heaters Emission Regulation", dated April 4, 2025.

REFERENCES

1. Health Canada. (2018, May). *Human Health Risk Assessment for Ambient Nitrogen Dioxide*. Retrieved from https://publications.gc.ca/collections/collection_2016/sc-hc/H114-31-2016-eng.pdf. Last accessed 2025, February 21.
2. Metro Vancouver. (2019, May 16). *Health Impact Scale for Air Quality Improvements in the Canadian Lower Fraser Valley Airshed*. Retrieved from https://metrovancouver.org/services/air-quality-climate-action/Documents/health-impact-scale-for-air-quality-improvements-in-the-canadian-lower-fraser-valley-airshed.pdf. Last accessed 2025, February 21.
3. Metro Vancouver. (2008). *Greater Vancouver Regional District Boilers and Process Heaters Emission Regulation Bylaw No. 1087*. Retrieved from https://metrovancouver.org/boards/Bylaws/MVRD_Bylaw_1087_Consolidated.pdf. Last Accessed 2025, March 3.
4. Metro Vancouver. (2022, June). *Proposed Amendments to the Boilers and Process Heaters Emission Regulation Bylaw No. 1087 – Discussion Paper*. Retrieved from https://metrovancouver.org/services/air-quality-climate-action/Documents/boilers-and-heaters-discussion-paper.pdf. Last Accessed 2025, February 21.

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Proposed Amendments to the Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008

Engagement Summary

February 11, 2025

EXECUTIVE SUMMARY

The engagement period for the Proposed Amendments to the Boilers and Process Heaters Emission Regulation Bylaw No. 1087 took place between 2022 and 2024. The formal engagement period occurred from July 2022 to Nov 2022. Staff have continued conversations with key audiences throughout 2023 and 2024. Engagement focused on those likely to comment, be impacted or have a role in implementation. Staff heard a range of perspectives including from governments including First Nations, interested and affected groups including those in the public health and safety sector, industry associations, facility operators, District Energy providers, biomass manufacturers, equipment suppliers and manufacturers, and the public. During the formal engagement, Metro Vancouver collected input through 16 meetings with interest holders, 23 feedback forms, five roundtable discussions, two webinars, and 11 direct letters. Broader promotion of the opportunity to provide input reached approximately 43,000 people over social media.

Feedback is organized around the proposed bylaw amendments and comprises several cross-cutting themes, including challenges to meet the reduced NO_x emission limits by 2040, costs of upgrades and dispersion modelling, retrofitting, and equipment replacement, and the need for clarity in requirements and alignment with other jurisdictions' requirements, codes and standards. This report summarizes engagement activities and what staff heard, which will be used alongside technical work to refine proposed changes to Bylaw 1087.

TABLE OF CONTENTS

1.0 OVERVIEW

Metro Vancouver is considering amendments to the GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008 (Bylaw 1087), which regulates the discharge of air contaminants from boilers and process heaters in buildings and some industrial facilities in the Metro Vancouver region. This initiative is part of Metro Vancouver's commitment to ongoing improvements to regional air quality while meeting or exceeding national standards for ambient air quality, as well as efforts to protect human health per Metro Vancouver's *Clean Air Plan*.

Boilers and process heaters are sources of air contaminants such as nitrogen oxides (NO_x) and greenhouse gas (GHG) emissions. Emissions of NO_x result in the formation of nitrogen dioxide (NO_2) and can also contribute to the formation of harmful ground-level ozone and fine particulate matter. Because NO_2 is harmful even at low concentrations, it is important to protect sensitive populations, such as children, elderly people, and people with existing cardiac and respiratory conditions, from exposure to NO_2.

The proposed amendments aim to support continuous improvement to regional ambient air quality and protection of human health by further reducing the discharge of health-harming air contaminants from boilers and process heaters.

The proposed amendments include:

1. Stricter NO_x emission limits for natural gas or propane-fired boilers and process heaters
2. Introduction of a NO_x emission limit for biomass-fired boilers and process heaters
3. Accelerated replacement of existing boilers and process heaters before end of life to meet stricter emission limits by 2040
4. Mandatory dispersion modelling for new larger natural gas or propane-fired boilers and process heaters
5. Monitoring and mitigation requirements when ambient air quality objectives are not met in dispersion modelling, including phasing out higher-emitting, existing equipment within 10 years
6. Additional design criteria for emission stacks

As part of our commitment to engage with audiences affected by changes in the region, Metro Vancouver delivered an engagement program for this initiative that focused on those who are likely to comment, be impacted, or have a role in implementation of the proposed amendments.

Engagement for this initiative was based on a foundational discussion paper which describes the proposed amendments as well as the timeline for engagement and implementation.

2.0 ENGAGEMENT APPROACH

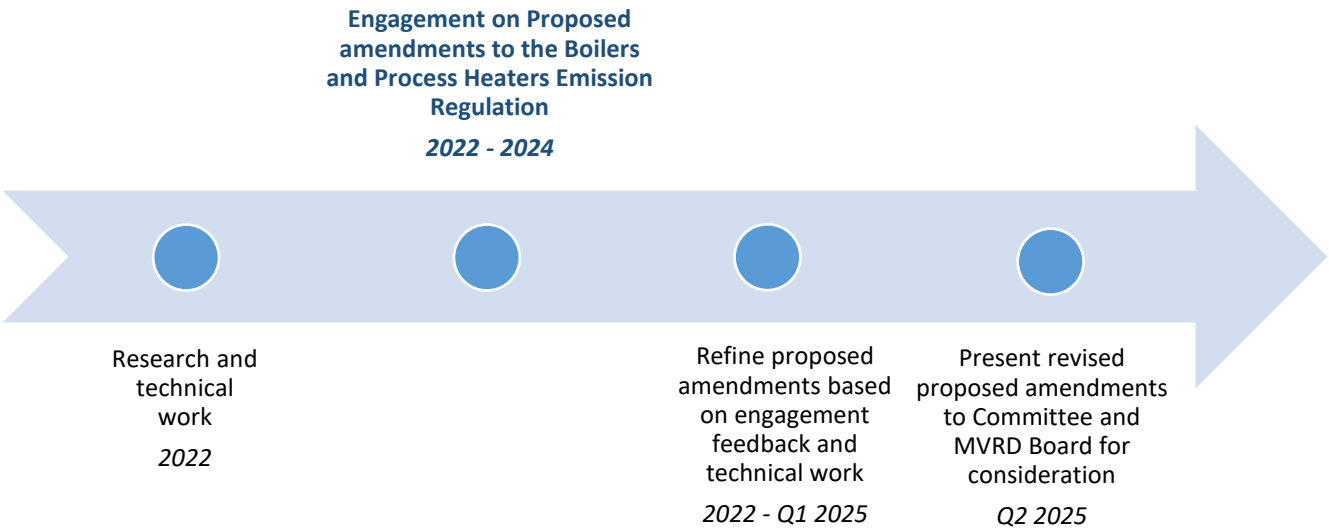
2.1 Purpose of Engagement

The objectives of the engagement for the proposed amendments are:

1. Share clear and comprehensive information about this initiative (e.g. correspondence, discussion paper and summary, website, webinar recordings, etc.)
2. Create audience-specific opportunities to provide feedback (e.g. sector-focussed webinars, association newsletter content, online feedback options etc.).
3. Receive input through at least correspondence, meeting minutes, webinars, and feedback forms.

2.2 Project Timeline

The engagement period for the Proposed Amendments to Bylaw 1087 took place between 2022 and 2024. Metro Vancouver began engagement in July 2022 with governments including First Nations, interested and affected groups including those in the public health and safety sector, industry associations, facility operators, Energy District providers, biomass manufacturers, equipment suppliers and manufacturers, and the public to seek input on the proposed changes to Bylaw 1087. Staff continued a dialogue with key audiences, including District Energy providers and the building sector, to inform refinements to the proposed Bylaw 1087 amendments over 2023 and 2024.



2.3 Engagement Activities

Mero Vancouver offered a variety of engagement activities to gather feedback on the proposed amendments. Throughout the engagement period, staff attended over 16 meetings or site tours with groups, hosted 5 roundtables and 2 webinars, received 11 direct letters or emails and 23 completed feedback forms.

Table 1 below outlines the engagement activities, as well as their respective audience(s).

Table 1: Summary of Engagement Activities Undertaken to Gather Feedback on Proposed Amendments to Bylaw 1087

Activity	Audience	Timing	Medium
Presentation to Lower Fraser Valley Air Quality Coordinating Committee	Staff from member jurisdictions and regulatory agencies	June 22, 2022	Virtual
Invitation to complete feedback form	Public, members of the development community, industry and business associations	July to November 30, 2022	Project webpage on Metro Vancouver website, Industry newsletters, email to subscribed lists
Invitation to First Nations to review and comment	First Nations (ten): • q̓iċəy̓ (Katzie First Nation) • q̓ʷɑ:ṅƛ̓əṅ (Kwantlen First Nation) • kʷikʷəƛ̓əm (Kwikwetlem First Nation) • máthxwi (Matsqui First Nation) • xʷməθkʷəy̓əm (Musqueam Indian Band) • qiqéyt (Qayqayt First Nation) • Semiahmoo First Nation • Sḵwx̱wú7mesh Úxwumixw (Squamish Nation) • scəẇaθən məsteyəxʷ (Tsawwassen First Nation) • səlilwətaɬ (Tsleil-Waututh Nation)	July to November 30, 2022	Email
Two public webinars	Public, building owners and operators, industry and business associations	July 20, 2022 November 3, 2022	Virtual
Focused discussions and one-on-one meetings	• Industry associations • Facility operators and Energy District providers • Biomass manufacturers • Equipment suppliers and manufacturers • Agencies or organizations with a role in implementation	July 2022 to August 2024	Virtual

Activity	Audience	Timing	Medium
Presentations to Metro Vancouver Advisory Committees	Municipal District Energy Advisory Committee Regional Engineers Advisory Committee (REAC)	September 23, 2022 October 7, 2022	Virtual
Invitation to review and comment	Chambers and Commerce Business Improvement Association First Nations Economic and Business Entities	October 2022	Email
Roundtable discussions	• Building owners, managers, and developers • HVAC and plumbing manufacturers, suppliers, trades, and mechanical contractors • Public institutions, School Districts, and municipal facility managers, and operators • Health facility managers • NGO/NPO academics with focus on building sector policy development	October 26, 2022 November 2, 2022 November 9, 2022 November 10, 2022 November 18, 2022	Virtual

3.0 ENGAGEMENT PROMOTION

The engagement for proposed amendments to Bylaw 1087 was promoted on various online platforms during the engagement period, including the Metro Vancouver website, through email to our list of subscribed audiences and current registrants of Bylaw 1087, and via social media. In addition to Metro Vancouver promotion, industry associations, chambers of commerce and BC BIA were asked to distribute engagement information in their virtual newsletters.

Website

A dedicated project webpage was set up to highlight the information about the proposed changes to Bylaw 1087 and outlined opportunities to provide feedback during the engagement period. In addition, engagement opportunities were also promoted on Metro Vancouver's engagement webpage as well as the calendar of events webpage, featuring the feedback form and webinar series. There were over 1,130 project webpage views within the engagement period.

Feedback Form

Staff hosted a feedback form for interested and affected parties to provide input. The feedback form consisted of 10 questions specific to proposed new emission limits and requirements, and spaces for additional comments and suggestions. The form was promoted on the Metro Vancouver project webpage, social media, e-newsletters, and at all meetings and webinars.

Social Media
The engagement was promoted on LinkedIn, Twitter, and Facebook. The social media strategy used a series of organic posts to build awareness of the project, and encouraged feedback and social sharing. The campaign reached a total of 42,964 people across all platforms. 6% of the reach clicked on the feedback form link.

E-newsletters
Engagement activities were promoted via e-newsletters to Metro Vancouver's project subscription lists. To extend reach, staff included a communications package for industry associations to consider promoting to their membership. A total of 13 e-newsletters were circulated.

4.0 ENGAGEMENT FEEDBACK

4.1 Summary of Feedback

Across feedback on all the proposed bylaw amendments, there were several cross-cutting themes, including:

- **Challenges with Accelerated Replacement of Existing Equipment to Meet NO_x Emission Limit Reductions by 2040**
  Participants stressed the importance of the proposed bylaw amendments in addressing public health impacts from boilers and process heaters emissions. However, there is some concern about meeting the proposed 2040 equipment replacement targets due to high retrofitting costs and potential premature equipment replacement.

- **Costs of Upgrades, Retrofitting, and Equipment Replacement**
  Participants raised concerns that there was potentially a significant cost increase for installing ultra-low NO_x equipment compared to the current low NO_x equipment, and that there is limited availability of ultra-low NO_x equipment in BC, specifically if it is available for all sizes of equipment. There is concern for the cost of upgrading existing systems to accommodate the new ultra-low NO_x equipment and the practical challenges of doing so, including facility infrastructure upgrades. Participants emphasized the financial cost of retrofitting or replacing existing equipment that does not achieve the Ambient Air Quality Objectives in its dispersion modelling, especially within the proposed 10-year timeframe.

- **Need for Clarity in Requirements and Alignment**
  There is a clear need for more guidance on when and how dispersion modelling will be required, as well as clarity around alternatives to equipment replacement for facilities that do not achieve the Ambient Air Quality Objectives. It will also be important to outline how the updated bylaw aligns and interacts with other layers of regulation (i.e., provincial mandates, municipal GHG targets, building codes, etc.).

4.2 Detailed Feedback on Proposed Amendments

Below summarizes responses that were heard from feedback forms, direct letters, emails, group meetings, roundtables and webinars. Comments are organized by the proposed amendments to Bylaw 1087 and by audience/group.

Feedback on Proposed Amendment:

Stricter NO_x Emission Limits for Natural Gas or Propane-Fired Boilers and Process Heaters
Reduce the emission limit for new natural gas or propane-fired boilers and process heaters from 60 mg/m^3 (current limit) to 20 mg/m^3. This lower limit corresponds to ultra-low NO_x technology or zero-emission technology.

The feedback on the proposed bylaw amendment supports reducing NO_x emissions for public health benefits but raises concerns about the cost and availability of the new equipment, as well as the ability for all existing equipment to comply with the reduced emission limit by 2040. Key challenges include limited availability of and information on compliant technology for all sizes of equipment (including both NO_x and GHG reduction), high costs of upgrades, and premature equipment replacements. Concerns remain about the high cost of retrofitting and maintenance of existing facilities as well as facilities that may need to electrify to meet the proposed emission limits.

Positive Impact on Public Health

- Public health agencies emphasized potential health impacts from NO_x, including respiratory issues, and expressed the need to make necessary changes immediately.
- From the feedback forms, eight respondents indicated that the proposed emission limit reductions are achievable. Four indicated that the limit was not stringent enough. There were comments that facilities should prioritize switching to zero emission technology as a first choice.

Concerns with Stringent Limit Reduction

- Equipment suppliers and manufacturers suggested to separate regulation into two categories, distinguishing emission limits between smaller size residential/commercial boilers (packaged boilers) and larger size commercial/industrial boilers.
- Facility Operators and District Energy providers expressed concern that equipment purchased shortly before or after a new regulation takes effect may not comply with new regulation. Commitments to equipment selection can be made years before the purchase.
- From the feedback forms, ten respondents indicated that the proposed emission limit reductions are too stringent to apply to all new natural gas or propane-fired boilers and process heaters.

Equipment Availability and GHG Reductions

- In roundtable discussions, participants questioned whether there is equipment available to meet ultra-low NO_x or zero-emission limits and requested more information on compliant equipment that is currently on the market.
- Energy utilities and District Energy providers emphasized that premature introduction of NO_x emissions targets could restrict the use of renewable natural gas and limit use of peaking boilers to supplement zero-emission systems, possibly increasing unsafe and unpermitted work.
- From the feedback forms, participants were concerned about availability of technology and equipment that are compliant with proposed requirements. There were comments on the lack of commercially available boilers - other than electric boilers - that can achieve proposed emission limits.
- Participants also questioned whether 'low NO_x emitting equipment' will meet the BC government's proposed energy efficiency standards, noting there is currently no natural gas-fired boilers available that can meet the proposed energy efficiency standards.

- Facility operators and District Energy providers shared concerns that electrification would be the only solution to meet the proposed changes, which for the large equipment that they employ would be very expensive to purchase and operate.
- Equipment suppliers and manufacturers requested that Metro Vancouver provide test methodology/standards for measuring NO_x emissions and harmonize standards with other jurisdictions. This includes providing a conversion methodology for mg/m^3 to ppm or ng/J.

Upgrading and Operating Costs

- Facility operators and District Energy providers expressed concern with increased operating and maintenance cost. Participants also expressed that costs could unfairly impact District Energy Utilities (DEU) and might discourage DEU connectivity.
- From the feedback forms, participants shared concerns about potential expensive upgrades and installation of new boilers and requested more information on capital cost implications.

Equipment Lifespan and Replacement

- Facility operators and District Energy providers indicated that the lifespan of equipment varies widely from 15 to 30 years, based on size and how much the equipment is used, and possibly up to 50 years for large equipment that is used infrequently.
- Facility Operators and District Energy providers felt that emission limits for existing equipment needs to align with the equipment's natural end-of-life.

Feedback on Proposed Amendment:

Introduction of a NO_x Emission Limit for Biomass-Fired Boilers and Process Heaters
Include NO_x emission limit of 120 mg/m^3 for new biomass-fired boilers and process heaters.

There is support for regulating emissions from biomass facilities similarly to natural gas or propane-fired boilers, with some feedback suggesting that the regulations are not stringent enough. Concerns remain about the high cost of retrofitting and maintenance of existing facilities.

Importance of Regulating Emissions from Biomass Facilities

- Participants emphasized that biomass-fired boilers do not produce less emissions than natural gas, therefore should be regulated too.
- From the feedback forms, one respondent indicated that the proposed emission limit is reasonable. Six indicated that the limit was not stringent enough.

Cost of Retrofitting and Maintenance

- A facility operator and biomass boiler permit holder stated that their facility may be able to meet the proposed emission limits.
- There was a suggestion to reduce the proposed emission limit for biomass boilers to 90 mg/m^3, and apply it to new biomass boilers only.
- A facility operator and biomass boiler permit holder expressed concern that meeting the proposed NO_x emission requirement in an existing facility would not be straightforward and would be too costly to install and maintain as the costs for retrofitting an existing facility are higher than the initial installation.

- Energy utilities and District Energy providers had concerns about the lack of available biomass boilers that can achieve proposed emission limits, without the use of additional emission control technology such as scrubbers and other high-cost emission reduction technology.
- There were comments on the lack of commercially available boilers that can achieve proposed emission limits.
- From the feedback forms, four respondents indicated that the proposed emission limit is too stringent to apply to all new biomass-fired boilers and process heaters.

Feedback on Proposed Amendment:

Accelerated Replacement of Existing Boilers and Process Heaters before End of Life to Meet Stricter Emission Limits by 2040

Require all boilers and process heaters to meet the proposed nitrogen oxides (NO_x) emission limits by 2040 (for natural gas or propane-fired boilers and process heaters and biomass-fired boilers and process heaters).

The feedback on the proposed bylaw amendment suggest that the requirements may be difficult and costly to achieve. While some emphasized the need to protect public health, others raised concerns over the costs of forced equipment replacements.

Equipment Lifespan and support for Replacements

- Facility Operators and District Energy providers felt that the proposal to replace existing equipment by 2040 is too short and may result in unnecessary and costly replacements before the equipment end-of-life.
- From the feedback forms, two respondents indicated the requirement for all boilers and process heaters to meet the proposed NO_x emission limits by 2040 will be easily achievable or somewhat possible to achieve, noting that while it would be difficult to achieve, steps need to be taken to prioritize public health. They expressed the need for better incentive programs, such as better rebates for heat pumps and improving electrical service capacity to electrify buildings.

Upgrading Costs

- From the feedback forms, fourteen respondents indicated that the requirement for all boilers and process heaters to meet the proposed NO_x emission limits by 2040 will be difficult or impossible to achieve. There were concerns about cost to businesses, homeowners and customers.

From the feedback forms, participants questioned whether 2040 is an achievable timeline to replace existing equipment unless the cost to convert equipment is known. They expressed that it does not make financial sense to replace usable equipment and it would be best to align any requirements with the natural end-of-life of equipment.

Feedback on Proposed Amendment:

Mandatory Dispersion Modelling for New Larger Natural Gas or Propane-Fired Boilers and Process Heaters
Introduce mandatory dispersion modelling for new boilers or process heaters fueled by propane or natural gas:

- *when the facility capacity is greater than or equal to 10 MW*
- *when the facility capacity is greater than 3 MW and less than 10 MW, and the discharge point(s) are within 100 metres of sensitive receptors such as schools, hospitals, and community care facilities*

The feedback on the proposed bylaw amendment showed mixed perspectives on dispersion modelling as a tool to address Metro Vancouver's Ambient Air Quality Objectives. While some emphasized the need for dispersion modelling to mitigate negative impacts on vulnerable or sensitive populations, others raised concerns with the proposed size thresholds and highlighted the need for more clarity on funding and contractor availability for modelling. There were also questions about how dispersion models will show compliance and the potential outcomes if a model shows that a site occupied by vulnerable or sensitive populations would be affected.

General Support for Dispersion Modelling Requirements

- Public health agencies noted support for this proposed change as a way for new facilities to demonstrate attainment of Metro Vancouver's Ambient Air Quality Objectives.
- From the feedback forms, five respondents indicated that the proposed size threshold (greater than or equal to 10 MW) is acceptable. Five respondents also indicated that the threshold was too high and that smaller equipment should be subject to dispersion modelling. There was also a suggestion to consider a threshold model where the criteria are based on the capacity of individual pieces of equipment rather than the overall system capacity.

Mitigation of Health Impacts on Vulnerable or Sensitive Populations

- Public health agencies emphasized the need for dispersion modelling to mitigate health impacts on vulnerable or sensitive populations and suggested the inclusion of impacts on any residences located within 100 metres of smaller facilities, since these sites could be occupied by vulnerable or sensitive populations.
- From the feedback forms, six respondents indicated that dispersion modelling is acceptable when the facility capacity is greater than 3 MW and less than 10 MW, and the discharge point(s) are within 100 metres of sites occupied by vulnerable or sensitive populations (sensitive receptors) such as hospitals, schools, and community care facilities. Four respondents indicated that the proposed size threshold is too high and that smaller equipment near sensitive receptors should be subject to dispersion modelling.

Exemptions from Dispersion Modelling

- Industry associations working in building management suggested that if systems comply with ultra-low NO_x emissions and emission stack design requirements that they be exempt from testing and dispersion modelling.
- From the feedback form, four respondents indicated that facility capacity greater than or equal to 10 MW is too low and that only larger equipment should be subject to dispersion modelling.
- From the feedback forms, five respondents indicated that the facility capacity between 3-10 MW is too low and that only larger equipment near sensitive receptors should be subject to dispersion modelling.

Availability of Funding and Support for Dispersion Modelling

- Industry associations working in building management requested more information on dispersion modelling and costs, including the availability of contractors and funding to assist with and conduct required modelling.

Process and Cost of Demonstrating Compliance

- Facility operators and District Energy providers commented on the burden of requiring dispersion modelling if a sensitive receptor (e.g., community care facility) is developed within 100 metres of a facility after the boiler/process heater is installed.
- Industry associations questioned how dispersion models will show achievement of ambient air quality objectives and the potential outcomes if a model shows that a sensitive receptor would be affected. There was some concern that not meeting the objectives would result in additional costs and burden on the facilities.
- From the feedback forms, some expressed concerns about fairness and unbiased assessment as requirements are seen to promote electrification as the only way to demonstrate achievement of Ambient Air Quality Objectives.

Feedback on Proposed Amendment:

Monitoring and Mitigation Requirements when Ambient Air Quality Objectives are Not Met in Dispersion Modelling, Including Phasing Out Higher-Emitting, Existing Equipment Within 10 years

Introduce requirements if dispersion modelling shows that modelled impact due to emissions from a new boiler or process heater exceeds an ambient air quality objective:

- *make changes to the discharge of air contaminants and/or stack configuration to demonstrate attainment*
- *additional testing to demonstrate achievement of ambient air quality objectives*
- *the District Director may also require additional studies, such as more complex emissions modelling, ambient monitoring, and implementation of an approved exposure mitigation plan*

For existing boilers and process heaters, it is proposed that the Metro Vancouver District Director could require dispersion modelling by the owner/operator of the facility. If dispersion modelling does not achieve ambient air quality objectives, the owner/operator would be required to achieve objectives when the boiler or process heater is replaced or within ten years from the date of the dispersion modelling, whichever is sooner.

Feedback on the proposed bylaw amendment suggests that the requirements are generally achievable, but clearer guidelines are needed on when dispersion modelling is required and alternatives to address situations where the ambient air quality objectives are not achieved. Participants also highlighted the need for more robust NO_x mitigation plans and expressed concern about the cost of equipment replacement, indicating the 10-year replacement timeline is too short given the long lifespan of existing equipment.

Clarity on Dispersion Modelling Authority & Alternatives to Address Situations where Ambient Air Quality Objectives Not Achieved

- Roundtable and webinar participants expressed a need for clarification on the District Director's authority, usage and process for requiring dispersion modelling and additional studies to be undertaken by building owners/operators. This includes the frequency and method used to require modelling.

- From the feedback forms, twelve participants indicated that the requirement is easily achievable or somewhat possible to achieve. Some comments expressed the need for more information on alternatives to equipment replacement to achieve ambient air quality objectives.
- Industry associations questioned how dispersion models will show achievement of ambient air quality objectives, and wanted more information on the potential implications if a model shows that a sensitive receptor would be affected. There was some concern that not meeting the objectives would result in additional costs and burden on the facilities.

Need for Robust Emission Mitigation Plans

- Public health agencies supported actions to enforce and require more robust NO_x exposure mitigation plans for existing facilities that do not achieve ambient air quality objectives.
- Roundtable and webinar participants were supportive of more robust NO_x exposure mitigation planning for existing facilities, but questioned what measures might be included in NO_x exposure mitigation plans and asked for more clarity on the requirement.

Cost of Dispersion Modelling and Compliance

- Industry associations expressed concern with the added cost and burden of mandatory dispersion modelling to prove that ambient air quality objectives are achieved. There were questions related to the kind of support or funding available to complete modelling requirements.
- A facility operator suggested that new developments adjacent to an existing utility contribute to the cost of the required dispersion modelling.
- From the feedback forms, six indicated that the requirement is difficult or impossible to achieve. Participants expressed concern about the negative impact on small businesses with the added cost.
- Industry associations and facility operators questioned the expectations of how to achieve ambient air quality objectives, what measures might be included in NO_2 exposure mitigation plans, and the costs of the additional studies and monitoring.
- Participants want to learn more about exposure mitigation measures for facilities that cannot meet the objectives and questioned the costs and availability for additional modelling, monitoring and potential facility design changes when ambient air quality objectives are not achieved.

Timeline for Equipment Replacement

From the roundtables and feedback form, participants felt the 10-year timeframe for achieving ambient air quality objectives is too short, especially when equipment has an approximate 20-30 year lifespan. It will be difficult for owners/operators to afford replacing equipment within that time and may result in costly replacements before the equipment's end-of-life.

Feedback on Proposed Amendment:

Additional Design Criteria for Emission Stacks
Improve stack design for new boilers and process heaters; specifically, vertical discharge and the avoidance of rain caps, to improve dispersion of air contaminants and reduce impacts.

Metro Vancouver proposes to identify and require a minimum exit velocity from emission discharge stacks for new boilers and process heaters, where operationally feasible, to improve dispersion of air contaminants and reduce health impacts.

The feedback on the proposed bylaw amendment supports improving stack design to reduce negative public health impacts but raises concerns about the feasibility of vertical discharge and compatibility with municipal requirements and building codes. Participants also highlighted potential challenges with ensuring safety in system design and need for alignment with CSA standards.

Health Impacts in Surrounding Areas

- From the feedback forms, thirteen respondents indicated that the proposed requirement to improve stack design, specifically vertical discharge and the avoidance of rain caps, is easily achievable or somewhat possible to achieve. Participants emphasized the increasing number of new stacks and boilers and their health impacts on surrounding area residents.

Safe System Design

- Facility Operators and District Energy Providers expressed the importance of having new stack design align with CSA standards.
- Public safety agencies emphasized the need for stack design requirements to be engineered into the system design from the start to ensure the system can operate safely. There may be issues if existing systems are retrofitted to achieve requirements.

Concerns with Vertical Discharge

- From the feedback forms, three respondents indicated that the proposed requirement to improve stack design, specifically vertical discharge and the avoidance of rain caps, is difficult to achieve (none indicated it was impossible to achieve). Participants questioned that vertical design might not be the best option, especially without rain caps, as water will run down to the boiler. There were also concerns that neighboring buildings with differing heights would result in NO_2 exposure for the taller buildings, as the smaller ones send exhaust above.

Municipal Requirements and Building Code Alignment

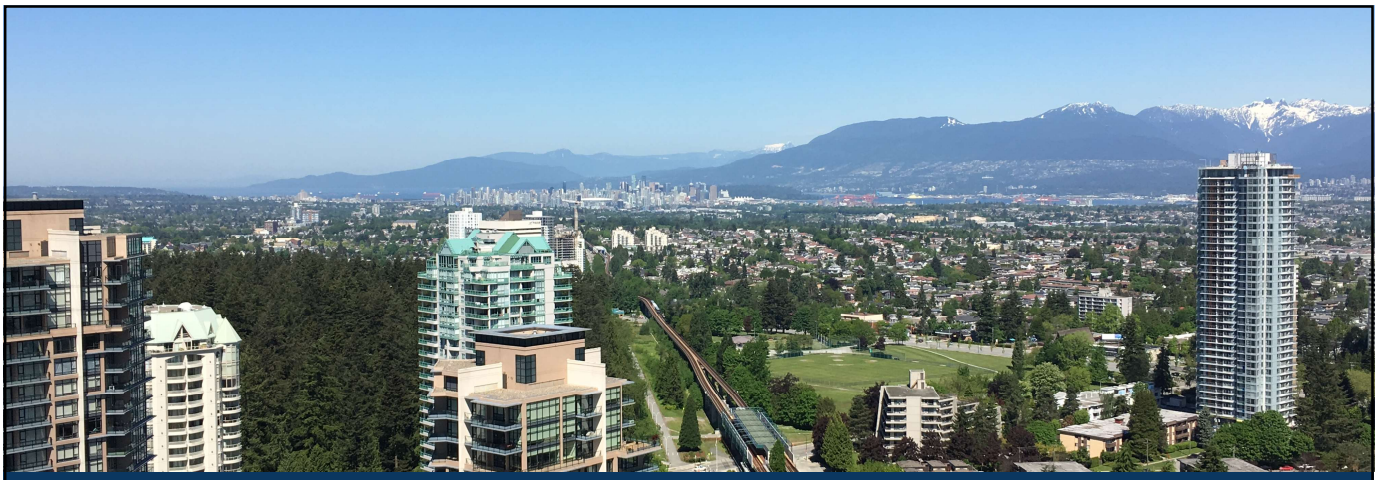
- Roundtable and webinar participants questioned how the proposed requirements for stack design would integrate with building codes, particularly regarding height differences. Some participants suggested that stack design should be determined by manufacturer limits depending on building height (e.g., a tall building may have challenges with boiler vent lengths when boilers are located on lower storeys and may require side vents instead of vertical stacks).
- Roundtable and webinar participants questioned the cost of stack changes from current requirements, and how this aligns with other government requirements.
- Feedback form respondents also expressed concern that the proposed requirements would affect requirements set out by local governments and result in associated compliance costs.

Increased Exit Velocity Requirement

- Public safety agencies recommended that stack system designs be evaluated to ensure they can tolerate factors like extended stack length and changes to support increased exit velocity.
- From the feedback forms, five respondents indicated that the minimum exit velocity requirement is ‘desirable and likely doable’; four respondents indicated that requirement is ‘difficult and likely costly’; two respondents indicated that it was ‘desirable but likely costly’, while four indicated that it was ‘desirable but difficult’.

5.0 NEXT STEPS

Feedback gathered through engagement will be reviewed and considered along with ongoing technical work and will help staff to finalize the proposed Bylaw 1087 amendments for Committee and Board consideration in 2025. Committee and Board will be presented with the feedback to make an informed decision.



Update on Work to Amend Boilers and Process Heaters Emission Regulation

Jacquay Foyle, P.Eng.
Senior Project Engineer

Esther Bérubé, P.Eng.
Division Manager, Air Quality Bylaw Development

Air Quality and Climate Committee - April 4, 2025
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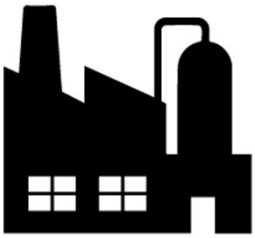
MANAGING BOILER AND PROCESS HEATER EMISSIONS

GVRD Boilers and Process Heaters Emission Regulation Bylaw 1087 (under 50 MW capacity)



Site-specific permits (over 50 MW)

2

BOILERS AND PROCESS HEATERS EMISSION REGULATION

Fuels:

- Natural gas
- Propane
- Biomass

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HEALTH IMPACTS

Fuel combustion produces nitrogen oxides

- Impacts even at low concentrations of nitrogen dioxide:
  - Respiratory illness
  - Heart disease
  - More frequent hospitalization
  - Premature death
- Most at risk: children, elderly, and people with existing cardiac and respiratory conditions

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POLICY DRIVERS

Protect public from health impacts of nitrogen dioxide

Meet or be better than stricter ambient air quality objectives for nitrogen dioxide adopted by MVRD Board

Align with federal standards that took effect in 2025

Address air quality complaints from people exposed to nearby boiler emission stacks

ENGAGEMENT ON BYLAW AMENDMENTS

What we heard:

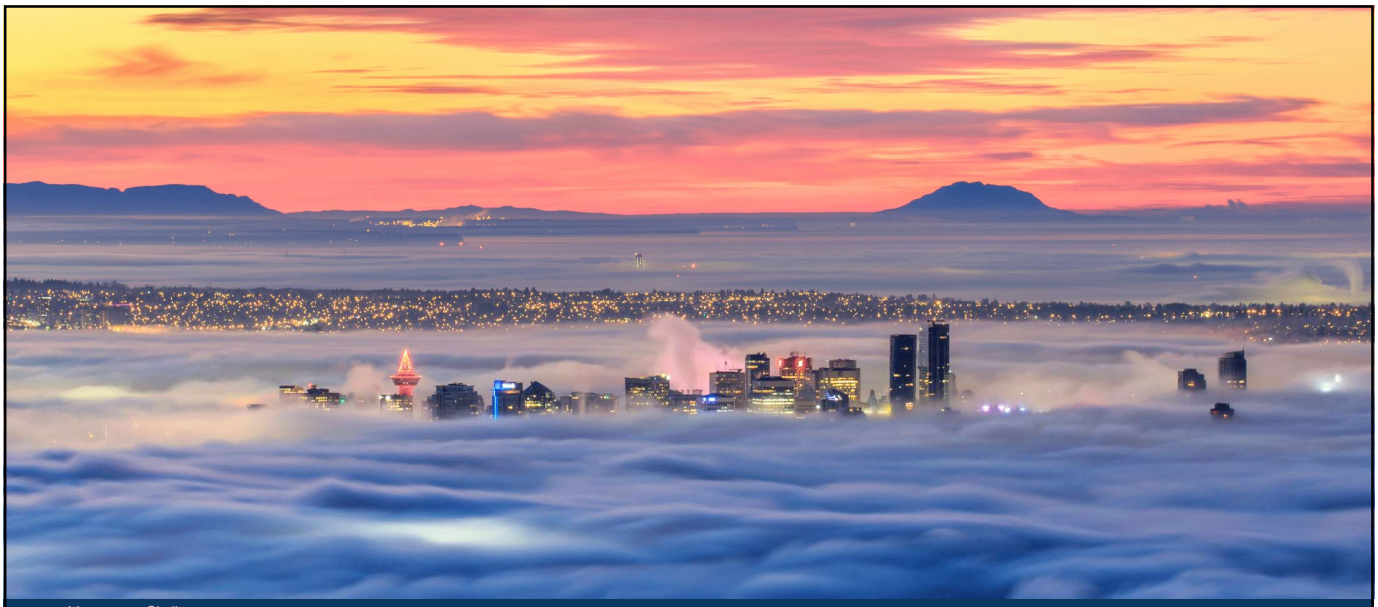
- Protect sensitive populations
- Consider cost impacts and physical constraints
- Consider availability and reliability of equipment
- Avoid accelerated replacement
- Focus on reducing impacts of large facilities
- Align with codes and standards
- Provide clarity about fees for institutions

HOW WE ARE RESPONDING

- Align with codes, standards, available equipment
- Reduce emissions from new equipment or replaced at end-of-life
- Reduce the cost of proposed changes
- Assess and mitigate impacts of larger facilities (including those near sensitive populations)
- Set achievable phase-in dates
- Continue to engage with institutions about fees

NEXT STEPS

- Continue to work on the proposed amendments
- Bring a proposal to the Board in mid-2025
- If adopted,
  - inform regulated community
  - phase-in likely starting 2026



Vancouver Skyline

Thank you

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Daphne Mazarura, Senior Policy Analyst, Air Quality Bylaw and Regulation Development, Air Quality and Climate Action Services
Esther Bérubé, Division Manager, Air Quality Bylaw and Regulation Development, Air Quality and Climate Action Services

Date: April 11, 2025 Meeting Date: May 9, 2025

Subject: **Exploring Approaches to Manage Health-Related Air Contaminants from Commercial Food Production**

RECOMMENDATION
That the Air Quality and Climate Committee receive for information the report dated April 11, 2025 titled "Exploring Approaches to Manage Health-Related Air Contaminants from Commercial Food Production".

EXECUTIVE SUMMARY
This report outlines a proposed study to explore measures to reduce air contaminant emissions from high-emitting commercial food production. The study will identify relevant emission control technologies and management measures used in other jurisdictions with consideration for the cost and availability of these technologies in the current context of economic uncertainty. Food production in the region is a vital sector, and staff are seeking information and options that address health concerns while accounting for costs and technology availability.

A few types of equipment and processes generate air contaminants, (such as those in smoke), that can impact the health of surrounding communities. Metro Vancouver receives about 100 to 200 air quality complaints per year related to commercial food production. Some member jurisdictions have asked Metro Vancouver to explore community impacts and potential changes to policies and regulations to better address impacts. This work will inform the evaluation of options for addressing impacts from high-emitting equipment and processes that discharge health harming air contaminants. Staff will incorporate any input from the Air Quality and Climate Committee into the project's scope of work, and report back at a future meeting.

PURPOSE
To inform the Air Quality and Climate Committee about a project to explore health-related emission reduction measures for commercial food production equipment and processes.

BACKGROUND
Metro Vancouver is responsible for managing air quality in the Metro Vancouver region under authority delegated by the BC *Environmental Management Act* (EMA). Metro Vancouver manages the discharge of air contaminants from industries, trades and businesses, which include commercial food production, through the provisions of the *Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008* (GVRD Bylaw No. 1082, 2008). At the Metro Vancouver

Regional District (MVRD) Board meeting on November 1, 2024, staff were asked about work to explore impacts of emissions from commercial wood-burning ovens as well as potential changes to policies or regulations.

The *Clean Air Plan* includes actions to encourage businesses to adopt cleaner operating practices:

- *3.1.10* "Reduce Air Quality Impacts from Odorous Air Contaminants"; and
- *3.3.2 "*Air Quality Best Management Practices for Businesses and Organizations".

This report provides information on an upcoming study to explore options to reduce the impacts of emissions of health-harming air contaminants from commercial food production equipment and processes.

COMMERCIAL FOOD PRODUCTION EMISSIONS IN METRO VANCOUVER

Commercial food production is a large and diverse sector in Metro Vancouver including over 12,000 facilities. A few commercial food production equipment and processes such as wood-burning ovens and charbroilers generate health-harming air contaminants impacting residents in close proximity. While not all commercial food production activities are high-emitting, certain equipment and processes generate smoke and odorous air contaminants that lead to 100 to 200 air quality complaints from residents to Metro Vancouver per year. Member jurisdictions have also received air quality complaints related to commercial food production.

Fine particulate matter ($PM_{2.5}$), a main component of smoke, is known to harm human health even at low concentrations in the air. Commercial food production is estimated to contribute about 6% of total regional $PM_{2.5}$ emissions (Reference 1), although these estimates are uncertain and may not reflect the full range of emissions from this sector. These emission sources are frequently located in densely populated residential and commercial areas, where the emissions can have a strong localized impact on human health. Other health-harming air contaminants from commercial food production include nitrogen oxides and polycyclic aromatic hydrocarbons.

Commercial Food Production Emissions Management

The discharge of air contaminants from an industry, trade, or business is not authorized except in accordance with GVRD Bylaw No. 1082, 2008 and, where applicable, the terms and conditions of an emission regulation or a valid and subsisting permit, order, or approval. There is no emission regulation for the types of commercial food production that discharge air contaminants, therefore these emissions can only be authorized by permit, order, or approval. A more efficient approach to managing air emissions from high-emitting commercial food production is needed to cost effectively address residents' concerns and protect public health, while taking into consideration the impacts of current economic and geopolitical uncertainty.

PROJECT DESCRIPTION

The goal of the project is to evaluate health-related emissions from commercial food production and identify emission management measures that can streamline and simplify the process for addressing the impacts of these emissions. The proposed study will:

- identify the types of low-emitting and high-emitting commercial food production equipment and processes used in the Metro Vancouver region;

- assess existing and potential emission control technologies for health-harming air contaminants from commercial food production, with consideration for Canadian technologies;
- conduct a cost-benefit analysis of emission control technologies considering impacts of current economic and geopolitical uncertainty, such as tariffs;
- evaluate policy interventions in other jurisdictions that manage emissions from commercial food production; and
- enhance Metro Vancouver's ability to proactively address emissions of health-related air contaminants from high-emitting commercial food production.

Project Deliverables
The anticipated deliverable for this work is a report evaluating the findings on regional commercial food production equipment and processes, emission intensity, emission control technologies, and potential emission reduction interventions.

NEXT STEPS
Subject to feedback received from the Air Quality and Climate Committee, staff will initiate the project and issue a request for proposals for a study to evaluate emission reduction interventions for high-emitting commercial food production equipment and processes. Staff plan to issue a request for proposals in the spring of 2025, with the study to be completed by late 2025. Staff will report back at a future meeting.

ALTERNATIVES
This is an information report, and therefore no alternatives are presented.

FINANCIAL IMPLICATIONS
The estimated project cost is $85,000. The final cost will be determined via a competitive procurement process in accordance with Metro Vancouver's procurement policies. Funds for this project are included in the approved program budget for 2025.

CONCLUSION
Some commercial food production equipment and processes, such as wood-burning ovens and charbroilers, generate air contaminants that can affect the health of residents in surrounding communities, especially children, seniors, and people with heart and lung conditions. Metro Vancouver and member jurisdictions have received many air quality complaints related to emissions from commercial food production. Exploring the emission intensity of commercial food production equipment and processes and potential emission reduction measures will help streamline and simplify the process for addressing emission impacts from high-emitting sources. Staff will incorporate any input provided by the Air Quality and Climate Committee into the project's scope of work, and report back at a future meeting.

REFERENCE

1. Metro Vancouver. (2018, March). *2015 Lower Fraser Valley Air Emissions Inventory and Forecast*. Retrieved from https://metrovancouver.org/services/air-quality-climate-action/Documents/lower-fraser-valley-air-emissions-inventory-forecast-2015.pdf. Last accessed 2025, March 10.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Air Quality and Climate Committee

From: Conor Reynolds, Director, Air Quality and Climate Action Services

Date: April 15, 2025 Meeting Date: May 9, 2025

Subject: **Manager's Report**

RECOMMENDATION
That the Air Quality and Climate Committee receive for information the report dated April 15, 2025, titled "Manager's Report".

AIR QUALITY AND CLIMATE COMMITTEE 2025 WORK PLAN
Attachment 1 sets out the Committee's Work Plan for 2025. The status of work plan priorities is indicated as pending, in progress, or complete. The work plan is updated, as needed, to include new priorities that arise, items requested by the Committee, and changes to the schedule.

CLIMATE ACTION DIALOGUES: REGIONAL CLIMATE RESILIENCE – MAY 29 AND JUNE 3, 2025
Metro Vancouver's Climate Action Dialogues (Reference 1) return this spring with a focus on climate resilience. Dialogues will take place on May 29 in Vancouver and June 3 in an online webinar. Panelists will challenge assumptions and explore the co-benefits of climate resilience, from resilient infrastructure and smart investments to community-driven solutions and emergency response. Promotion is underway, including a video (Reference 2).

The sessions will be moderated by a guest moderator, Dr. Simon Donner, a climate scientist and Professor in the Department of Geography at the University of British Columbia and co-chair of Canada's Net-Zero Advisory Body. Panelists include Qudsia Ahmed, Assistant Vice President, Underwriting, Co-operators; Harvy Takhar, Manager of Drainage & Natural Hazards, City of Delta; Dr. Andréanne Doyon, Associate Professor, School of Resource and Environmental Management, Simon Fraser University; and Kelly Sims, Director, Flood Policy - Water Management Branch Water, Fisheries and Coast Division Ministry of Water, Lands and Resource Stewardship (webinar). Staff are also hoping to confirm a speaker who will provide an Indigenous perspective to climate resilience.

This will be the fifth installment of a dialogues series that highlights key areas of the region's climate strategy, Climate 2050. Dialogues are popular and always well attended. Previous dialogues have been on the topics of:

- Human Health and Well-being (November 2024)
- Transportation (May 2024)
- Decarbonizing Buildings (November 2023), and
- Economic Opportunity and Policy Drivers (May 2023).

Air Quality and Climate Committee members are welcome to register online or connect with our staff through the *Climate 2050* email: climate2050@metrovancouver.org.

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AIR QUALITY MONITORING AT SQUAMISH NATION

During November 2024, Metro Vancouver's Mobile Air Monitoring Unit (MAMU) began a year-long study to measure ambient air quality and weather on Sḵwx̱wú7mesh Úxwumixw (Squamish Nation) reserve land on the north shore of Burrard Inlet. In cooperation with Sḵwx̱wú7mesh Úxwumixw, MAMU was located near the Yúustway community health centre, which is about 175 metres north-east of Metro Vancouver's Lions Gate Wastewater Treatment Plant. MAMU will sample the air continuously, tracking air contaminants like odorous reduced sulphur gases, nitrogen oxides, sulphur dioxide, fine particulate, and more.

This study began in response to Sḵwx̱wú7mesh Úxwumixw concerns regarding air quality in their community and a monitoring program implemented by the Lions Gate Wastewater Treatment Plant to mitigate odours generated by the plant.

Air quality monitoring at Sḵwx̱wú7mesh Úxwumixw will continue until fall 2025. A report will be prepared at the completion of the study, including a comparison to other stations operated in the regional air quality monitoring network. Metro Vancouver also operates three permanent air quality monitoring stations on the North Shore: North Vancouver-Second Narrows, North Vancouver-Mahon Park, and Horseshoe Bay.

NEW REPORT: ECONOMIC OUTLOOK OF THE CANADIAN EV INDUSTRY

This report from Electric Mobility Canada (Reference 3) outlines projected growth in electric vehicles (EVs) and associated increases in the contribution to gross domestic product (GDP) and employment. The EV industry in Canada includes vehicle production facilities for both passenger cars and medium- and heavy-duty trucks, battery and battery component production, raw materials extraction, and the deployment of public and at-home EV charging.

The report assesses three different scenarios ranging from low EV uptake to high, reflecting different levels of overall economic growth, government support, public awareness, and continuing improvements to EV technology and infrastructure. Should current trends in these areas continue, EVs are expected to contribute to over half of the transportation sector's contribution to GDP (61%) and employment (58%) by 2040, representing more than a 4-fold increase from 2026. However, a strongly favorable environment for EV uptake could significantly accelerate the pace of economic growth from EVs, with over 90% of GDP and employment in the transportation sector generated by the EV industry and higher overall GDP and employment.

Among the sources of uncertainty considered in the report are tariffs and market instability, which could increase manufacturing costs and supply chain disruptions for all vehicles, gas and electric alike. While growth in GDP and employment related to EVs is expected even in a more uncertain scenario, the pace will be slower (i.e., a 2.5-fold increase from 2026 to 2040). In this low EV uptake scenario, the report also assumes a slowdown in overall economic growth, weaker than expected technology advancement, and less government support also influence EV adoption.

Audited 2024 Financial Statement and Annual Financial Results

At their meeting on April 25, 2025, the MVRD Board approved Metro Vancouver's "Audited 2024 Financial Statement and Annual Financial Results". Legislation requires that annual audited financial statements for the Metro Vancouver Districts and Metro Vancouver Housing Corporation are presented and approved by the Board and submitted to the Province by May 15 each year. The report provides an explanation for the operating surplus and capital project spend in 2024 (Reference 4).

ATTACHMENTS

1. Air Quality and Climate Action Committee 2025 Work Plan, dated April 15, 2025.

REFERENCES

1. Metro Vancouver (n.d.). *Climate Action Dialogues.* Retrieved from: https://metrovancouver.org/events/climate-action-dialogues. Last accessed 2025, April 11.
2. Metro Vancouver (2025). *Regional Climate Resilience Promo Video.* Video Link: https://vimeo.com/1068295570
3. Electric Mobility Canada (April 10 2025). *Electrifying progress: A complete economic outlook of the Canadian EV industry.* Retrieved from: https://emc-mec.ca/wp-content/uploads/2025/04/PUBLIC-OFFICIAL-April-10-2025-EMCs-Economic-Report_EN.pdf
4. Metro Vancouver. (2025). GVS&DD Board Report titled "2024 Annual Financial Results and Audited Financial Statements" dated April 15, 2025. Retrieved from https://metrovancouver.org/boards/GVSDD/SDD-2025-04-25-AGE.pdf. Last accessed 2025, May 2.

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Air Quality and Climate Committee 2025 Work Plan

1st Quarter Priorities	Status
Air Quality and Climate Committee 2025 Meeting Schedule and Work Plan	Complete
Metro Vancouver's Air Quality Management and Regulation Service	Complete
Amendment to Boilers and Process Heaters Emission Regulation Bylaw	In progress
Appointment of Enforcement Officers	Complete
2nd Quarter Priorities	**Status**
Outcome of BC Utilities Commission Decisions	In progress
Overview of Air Quality Advisory Program and Preparedness for 2025 Season	In progress
Community Wood Smoke Reduction Program - Update and New Retailers	Pending
Amendment to Notice of Bylaw Violation Enforcement and Dispute Adjudication Bylaw	Complete
Amendment to Ticket Information Utilization Bylaw Amendment Bylaw	Pending
Engagement on Amendments to Air Quality Management Fees Bylaw	In progress
Regional Air Contaminant Emissions Inventory and Trends	Pending
Transportation Emissions Policy Updates	Pending
Resilient Buildings Emissions Policy Updates	Pending
Industrial Emissions Policy Updates	Pending
Land Use Resilience Best Practice Guide – Flooding	Complete
Scan of Flood-related Capital Projects in the Metro Vancouver Region – Preliminary Results	In progress
Regional Flood Resiliency Planning Processes – Update	In progress
3rd Quarter Priorities	**Status**
Annual Regional Air Quality Report	Pending
Update to Regional Ground Level Ozone Strategy	Pending
BC Retrofit Accelerator Update	Pending
Approach for Reducing Air Contaminants From Small Gas-Powered Equipment	Pending
Engagement on Managing Air Contaminants from Wood Product Manufacturing	Pending
Climate 2050 Solid Waste Roadmap	In progress
Climate 2050 Water and Wastewater Roadmap	In progress
Climate 2050 Human Health and Well-Being Update	Pending
Climate 2050 Progress Report	Pending
Regional Flood Resiliency Planning Processes – Update	Pending
4th Quarter Priorities	**Status**
Report on 2025 Air Quality Advisory Season	Pending
Report on Corporate Energy and GHG Management	Pending
Update on Thermal Energy Networks in Metro Vancouver	Pending
Advocate for Long-Term Planning for Energy Transition	Pending
Update on Ecosystem Services on Agricultural Lands	Pending
Ecological Health Framework Progress Report	Pending
Annual Budget and Five-Year Financial Plan	Pending
Regional Flood Risk Reduction Priorities Criteria Matrix	Pending
Regional Flood Resiliency Planning Processes – Update	Pending