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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

METRO VANCOUVER REGIONAL DISTRICT
WATER COMMITTEE

MEETING

Wednesday, June 11, 2025
1:00 pm
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. June 11, 2025 Meeting Agenda
That the Water Committee adopt the agenda for its meeting scheduled for June 11, 2025 as circulated.

B. ADOPTION OF THE MINUTES

1. May 14, 2025 Meeting Minutes *pg. 5*
That the Water Committee adopt the minutes of its meeting held May 14, 2025 as circulated.

C. DELEGATIONS

D. INVITED PRESENTATIONS

E. REPORTS FROM COMMITTEE OR CHIEF ADMINISTRATIVE OFFICER

1. Drinking Water Management Plan Update – Proposed Strategies and Actions *pg. 9*

Executive Summary
Metro Vancouver has drafted strategies and actions for the Drinking Water Management Plan to address challenges and advance work in priority areas, including conservation, water quality, infrastructure resilience, and operational workforce development. Staff have developed these strategies and actions in collaboration with member jurisdictions, local First Nations, and interest holders, and will be seeking the public's feedback this summer. The Water Committee will also have an opportunity for meaningful dialogue and to share their feedback on the draft plan at a dedicated workshop this fall.

The goal of the plan is to establish a clear, actionable framework and support informed decision-making, long-term planning, and project development. The plan update has been underway since late 2020 and is currently in phase two of a three-phased process. The plan is scheduled for completion and will be presented to the Water Committee and the Board for endorsement in early 2026.

Recommendation
That the Water Committee receive for information the report dated May 23, 2025, titled "Drinking Water Management Plan Update - Proposed Strategies and Actions".

2. 2024 GVWD Dam Safety Program Annual Update *pg. 26*

Executive Summary
The GVWD owns and operates seven dams that are regulated by the Ministry of Water, Land and Resource Stewardship – Dam Safety Section, five of which are regional drinking water supply dams and two of which store water for ecological and recreational purposes. The GVWD Dam Safety Program is compliant with the requirements outlined in the provincial Dam Safety Regulation (BC Regulation 40/2016; amended by Regulation 32/2023) for the water supply dams. There were no unsafe or unacceptable conditions identified from the check and review activities carried out in 2024, including comprehensive third-party Dam Safety Reviews, routine surveillance, monitoring, or formal dam inspections.

In 2024, progress continued with the newly established Water Services Dam Safety division in providing centralized dam safety support for all Metro Vancouver dam owner departments. Regulatory compliance and engagement with internal and external partners remained a key focus, with efforts to identify, prioritize and initiate activities and projects associated with the corporate dam portfolio.

Recommendation
That the Water Committee receive for information the report dated May 27, 2025, titled "2024 GVWD Dam Safety Program Annual Update".

3. 2025 Update on Water Sustainability Innovation Fund Projects *pg. 36*

Executive Summary
Last year Metro Vancouver celebrated the 100th anniversary of the Greater Vancouver Water District. It took incredible innovation, collaboration, and foresight to achieve the safe, reliable, world-class system that we enjoy today. Ongoing innovation supports the reliable supply of high-quality drinking water to the growing region. This report provides an update on 19 projects that were approved for funding between 2018 and 2024 under the Water Sustainability Innovation Fund.

Projects funded by the Sustainability Innovation Fund support regional sustainability, protect the environment, advance resilience, and continuously improve service delivery by allowing Metro Vancouver to explore and implement innovative approaches, and respond to emerging issues and evolving best practices. The projects outlined in this report advance these objectives through assessing contaminants of emerging concern including microplastics, water supply monitoring and information management, greywater reuse, earthquake early warning systems, digitizing and updating existing hydrological and hydraulic analytical processes, and water quality management.

The last update was presented in July 2023. Since then, of the 19 projects in this report, two have been completed, one is on hold, and 16 are in various stages of progress.

Recommendation
That the GVWD Board receive for information the report titled "2025 Update on Water Sustainability Innovation Fund Projects", dated May 23, 2025.

4. Manager's Report *pg. 54*

Recommendation
That the Water Committee receive for information the report dated June 4, 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.

That the Water Committee close its meeting scheduled for June 11, 2025 pursuant to section 226 (1) (a) of the *Local Government Act* and the *Community Charter* provisions as follows:

90 (1) A part of a council meeting may be closed to the public if the subject matter being considered relates to or is one or more of the following:

(m) a matter that, under another enactment, is such that the public may be excluded from the meeting.

I. ADJOURNMENT

That the Water Committee adjourn its meeting of June 11, 2025.

Membership:

West, Brad (C) – Port Coquitlam
Sager, Mark (VC) – West Vancouver
Albrecht, Paul – Langley City
Baillie, Tim – Langley Township
Bell, Don – North Vancouver City
Cassidy, Laura – sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation)
Guichon, Alicia – Delta
Hodge, Craig – Coquitlam
Keithley, Joe – Burnaby
Little, Mike – North Vancouver District
MacDonald, Nicole – Pitt Meadows
Meiszner, Peter – Vancouver
Stutt, Rob – Surrey

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

METRO VANCOUVER REGIONAL DISTRICT
WATER COMMITTEE

Minutes of the Regular Meeting of the Metro Vancouver Regional District (MVRD) Water Committee held at 1:00 pm on Wednesday May 14, 2025 in the 28th Floor Committee Room, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:
Chair, Director Brad West, Port Coquitlam
Vice Chair, Director Mark Sager, West Vancouver
Director Paul Albrecht, Langley City
Councillor Tim Baillie, Langley Township
Councillor Don Bell, North Vancouver City (arrived at 1:06 pm)
Director Laura Cassidy, sc̓əw̓aθən məsteyəxʷ (Tsawwassen First Nation)*
Director Craig Hodge, Coquitlam
Councillor Joe Keithley, Burnaby
Mayor Mike Little, North Vancouver District
Director Nicole MacDonald, Pitt Meadows
Director Peter Meiszner, Vancouver

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

MEMBERS ABSENT:
Councillor Alicia Guichon, Delta
Director Rob Stutt, Surrey

STAFF PRESENT:
Marilyn Towill, General Manager, Water Services
Nikki Tilley, Legislative Services Supervisor, Board and Information Services
Daniel Roberge, Deputy General Manager - Operations, Water Services
Nermine Tawfik, Program Manager, Policy, Planning, and Analysis, Water Services

A. ADOPTION OF THE AGENDA

1. May 14, 2025 Meeting Agenda

It was MOVED and SECONDED
That the Water Committee adopt the agenda for its meeting scheduled for May 14, 2025 as circulated.

CARRIED

B. ADOPTION OF THE MINUTES

1. April 16, 2025 Meeting Minutes

It was MOVED and SECONDED
That the Water Committee adopt the minutes of its meeting held April 16, 2025 as circulated.

CARRIED

C. DELEGATIONS

No items presented.

D. INVITED PRESENTATIONS

No items presented.

E. REPORTS FROM COMMITTEE OR CHIEF ADMINISTRATIVE OFFICER

1. Water Supply Update for Summer 2025

Report dated May 6, 2025 from Daniel Roberge, Deputy General Manager - Operations, Water Services, and Linda Parkinson, Director, Policy Planning and Analysis, Water Services, providing the Water Committee with an update on the status of water supply before the high-demand period.

Daniel Roberge and Nermine Tawfik, Program Manager, Policy, Planning, and Analysis, Water Services, provided members with a presentation titled "Water Supply Update for Summer 2025" which outlined the maintenance, monitoring, and planning undertaken to meet summer water demands, provided an overview of anticipated water restrictions for Summer 2025, and outlined the public education efforts.

It was MOVED and SECONDED
That the Water Committee receive for information the report dated May 6, 2025, titled "Water Supply Update for Summer 2025".

CARRIED

2. Wildfire Preparedness Update

Report dated April 22, 2025 from Kevin Brown, Division Manager, Watersheds and Environment, Water Services, providing the Water Committee with an update on wildfire preparedness for the water supply areas in advance of the 2025 summer season.

It was MOVED and SECONDED
That the Water Committee receive for information the report dated April 22, 2025, titled "Wildfire Preparedness Update".

CARRIED

3. 2025 Water Sustainability Innovation Fund Applications

Report dated May 6, 2025, from Linda Parkinson, Director, Policy, Planning and Analysis, Water Services, presenting the Water Committee and the GVWD Board with three projects for consideration of funding through the Water Sustainability Innovation Fund.

It was MOVED and SECONDED

That the GVWD Board approve the allocation from the Water Sustainability Innovation Fund of $1,150,000 for the following three applications, starting in 2025:

a) Integrating Natural Assets into Water Services' Asset Management Program for $300,000 over three years;
b) Evaluating Agricultural Water Demands in the Metro Vancouver Region for $350,000 over three years; and
c) Quantifying Climate Change Impact on Dam Safety – A Case Study for $500,000 over three years.

CARRIED

4. Manager's Report

Report dated May 6, 2025, from Marilyn Towill, General Manager, Water Services, providing the committee with information on correspondence received from the Province of BC regarding preparing for potential drought conditions, the GVWD Audited 2024 Financial Statements, a proposed Water Committee Tour, and the Water Committee Work Plan.

It was MOVED and SECONDED

That the Water Committee receive for information the report dated May 6, 2025, titled "Manager's Report".

CARRIED

F. INFORMATION ITEMS

No items presented.

G. OTHER BUSINESS

No items presented.

H. RESOLUTION TO CLOSE MEETING

No items presented.

I. ADJOURNMENT

It was MOVED and SECONDED
That the Water Committee adjourn its meeting of May 14, 2025.

CARRIED
(Time: 1:14 pm)

Nikki Tilley,
Legislative Services Supervisor

Brad West,
Chair

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

From: Linda Parkinson, Director, Policy, Planning & Analysis, Water Services

Date: May 23, 2025 Meeting Date: June 11, 2025

Subject: **Drinking Water Management Plan Update - Proposed Strategies and Actions**

RECOMMENDATION
That the Water Committee receive for information the report dated May 23, 2025, titled "Drinking Water Management Plan Update - Proposed Strategies and Actions".

EXECUTIVE SUMMARY
Metro Vancouver has drafted strategies and actions for the *Drinking Water Management Plan* to address challenges and advance work in priority areas, including conservation, water quality, infrastructure resilience, and operational workforce development. Staff have developed these strategies and actions in collaboration with member jurisdictions, local First Nations, and interest holders, and will be seeking the public's feedback this summer. The Water Committee will also have an opportunity for meaningful dialogue and to share their feedback on the draft plan at a dedicated workshop this fall.

The goal of the plan is to establish a clear, actionable framework and support informed decision-making, long-term planning, and project development. The plan update has been underway since late 2020 and is currently in phase two of a three-phased process. The plan is scheduled for completion and will be presented to the Water Committee and the Board for endorsement in early 2026.

PURPOSE
To provide the Water Committee with an update on the progress of the *Drinking Water Management Plan* update, including the proposed strategies and actions, and the launch of public engagement in summer 2025.

BACKGROUND
Metro Vancouver began the process of updating the *Drinking Water Management Plan* in late 2020. As the guiding document for Metro Vancouver's drinking water system, the plan establishes strategic priorities and direction for drinking water initiatives over the next decade. The plan is being developed in three phases:

- **Phase 1: Conduct background research and develop guiding principles and goals (2020- 2024)**
  During this phase, staff conducted background research and a gap analysis, and engaged with member jurisdictions, First Nations, key interest holders, and the public to develop guiding principles and goals.

- **Phase 2: Develop strategies and actions (2024 - 2025)**
  In the current phase, staff, working in collaboration with member jurisdictions and informed by input from First Nations and key stakeholders, have drafted a set of strategies and actions. Engagement on these drafts, including a broad public engagement process, will continue through fall 2025 and will support ongoing refinement of the plan.

- **Phase 3: Complete the Drinking Water Management Plan Update (2025 - 2026)**
  This phase will focus on incorporating all feedback to finalize the *Drinking Water Management Plan*. The completed plan will then be brought forward to the GVWD Board for endorsement in early 2026.

PROPOSED STRATEGIES AND ACTIONS

The proposed strategies and actions are grouped into five priority areas to align with the region's most pressing drinking water challenges and anticipated future needs. While not all actions for each strategy are listed here, Attachment 1 provides a complete overview of all strategies and their corresponding actions.

The five priority areas of the *Drinking Water Management Plan* are as follows:

1. Resilient Water System

The proposed strategies aim to strengthen the resilience of the regional drinking water system to ensure the continued uninterrupted delivery of drinking water to the region in the face of climate change, natural hazards, and other disruptions.

- Strategy 1: Advance planning and designing for resilience to natural hazards and climate change impacts
- Strategy 2: Respond and recover from emergencies
- Strategy 3: Proactively manage existing infrastructure

2. Water Supply Quantity and Quality

The proposed strategies focus on maintaining safe and sufficient drinking water as the region grows and faces climate impacts, emerging contaminants, and regulatory changes.

- Strategy 1: Prepare for water quality changes due to climate change and natural hazards
- Strategy 2: Protect and manage water quality
- Strategy 3: Prepare for future drinking water demands

3. Greenhouse Gas Emissions Reduction and Environmental Protection

The proposed strategies support reducing GHG emissions, improving environmental performance, and adapting infrastructure and operations to climate change.

- Strategy 1: Reduce GHG emissions and implement energy efficiency measures across projects, facilities, and operations
- Strategy 2: Advance ecological health and environmental stewardship across Metro Vancouver lands
- Strategy 3: Support healthy fish populations in the Capilano, Seymour, and Coquitlam River systems
- Strategy 4: Minimize the environmental impacts of leaks and spills

4. Conservation and Efficiency

Member jurisdictions deliver drinking water to the residents and business in the region and are responsible for billing, metering and enforcement of water restrictions. Therefore, many of the strategies under this priority area are the responsibility of member jurisdictions and are critical to ensure the efficient use of drinking water resources. These strategies reduce infrastructure needs and support regional growth while conserving resources and helping to manage costs.

- Strategy 1: Advance residential water metering
  Proposed actions:
    - Mandate metering on new construction and other convenient metering opportunities (e.g., major renovations, conversion of meter ready connections, etc.) by 2028
    - Increase the overall percentage of drinking water that is metered by 1.1 to 2 times the current levels by 2035
    - Metro Vancouver will support residential water metering by providing implementation guidance and standardized communication for members
- Strategy 2: Reduce drinking water use through active conservation
  Proposed actions:
    - Continue to implement and advance region-wide drinking water conservation programs and promotions
    - Demonstrate and promote water use efficiency within regional and member facilities
    - Work together to conserve drinking water by reducing base drinking water demand
    - Work together to conserve drinking water by reducing seasonal demand
    - Implement water rates that promote conservation, such as tiered and seasonal pricing
    - Implement leakage reduction programs
    - Progress a region-wide drinking water conservation program for the industrial, commercial, institutional, and agriculture sectors
- Strategy 3: Continue advancing the recovery and reuse of non-potable water
  Proposed actions:
    - Support the adoption of non-potable water systems and use through advocacy, education, and research
    - Explore opportunities and partnership with member jurisdictions and First Nations to increase adoption of non-potable water use within their communities
- Strategy 4: Increase operational efficiency

5. Operational Workforce Development

To support infrastructure expansion and replace retiring workers in the operations field, strategies under this area aim to grow and retain a skilled workforce for reliable water service.

- Strategy 1: Pursue regional youth recruitment opportunities
- Strategy 2: Collaborate with key industry advocates and training providers
- Strategy 3: Enhance career development opportunities for existing Metro Vancouver operators

UPCOMING PUBLIC ENGAGEMENT

Public engagement on the *Drinking Water Management Plan* will run from July through September 2025. The purpose of this engagement is to raise awareness of the draft plan, foster public connection to its key themes, and gather meaningful feedback from residents, businesses, and key interest holders on the proposed strategies and actions. Engagement efforts will include webinars, participation in community events, and targeted outreach under the theme "Our Water. Our Future."

To reach a wide and diverse audience, Metro Vancouver will engage in a range of activities and events, including:

- The Pacific National Exhibition (PNE)
- Festivals such as Khatsahlano, Surrey Fusion, and Car Free Days
- Metro Vancouver's Youth Education and Advisory Panel
- Meetings with business improvement and community associations, academic institutions, and environmental organizations

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

There are no financial implications arising from this report.

CONCLUSION

Metro Vancouver is making significant progress in updating the *Drinking Water Management Plan* to ensure a safe, resilient, and sustainable water system for the region. This report outlines progress and presents draft strategies and actions that will guide drinking water initiatives over the next decade. These strategies respond to emerging challenges such as climate change, population growth, water quality, infrastructure needs, and resource development, and align with long-term regional goals and priorities. The Water Committee will have an opportunity for meaningful dialogue to share their feedback on the draft plan at a dedicated workshop this fall.

Ongoing collaboration with member jurisdictions, First Nations, the public, and key interest holders has been essential to shaping a comprehensive plan, which will be brought forward for Board endorsement in 2026. Metro Vancouver remains committed to working collaboratively with its member jurisdictions and local First Nations at every stage of plan development, to ensure the final *Drinking Water Management Plan* is practical, future-focused, and representative of the region's shared vision: to deliver high-quality drinking water in a reliable and environmentally sensitive manner that meets the needs of a growing region.

ATTACHMENTS

1. Drinking Water Management Plan - Proposed Strategies and Actions.
2. Presentation re: Drinking Water Management Plan Update.

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Drinking Water Management Plan
Proposed Strategies and Actions

Priority Area: Resilient Water System

Strategies	Actions
1.0 Advance Planning and Designing for Resilience to Natural Hazards and Climate Change Impacts	1. Increase the resilience of the water system to the impacts of natural hazards, extreme temperatures, and other emerging hazard risks.
	2. Advance water system redundancies to prepare for the possibility of infrastructure failures.
	3. Improve power resilience through a diverse portfolio of energy sources and storage option.
	4. Define supply commitments and identify system redundancy requirements.
	5. Advance design requirements such that new infrastructure is resilient to climate change.
2.0 Respond and Recover from Emergencies	1. Support access to drinking water at critical locations in the region for essential use in the event of an emergency.
	2. Prepare to execute an adaptive emergency response plan.
	3. Coordinate emergency response with member jurisdictions.
	4. Promote disaster preparation with respect to drinking water (for residents and businesses).
3.0 Proactively Manage Existing Infrastructure	1. Ensure assets remain in good condition to deliver water reliably throughout the region
	2. Continue shifting towards proactive maintenance planning.
	3. Ensure spare parts for critical infrastructure are readily available when needed.
	4. Further reduce risks to MV infrastructure from third-party proximal works.

Priority Area: Water Supply Quantity and Quality

Strategies	**Actions**
1.0 Prepare for Water Quality Changes due to Climate Change and Natural Hazards	1. Understand and mitigate the risks from climate change and natural hazards in the water supply areas.
	2. Enhance the utility's operational ability to respond to rapid changes in source water quality.
	3. Continue to prepare for the impacts of increased water temperatures on treated water quality.
2.0 Protect and Manage Water Quality	1. Continue to maintain protected water supply areas
	2. Protect water quality at transmission reservoirs.
	3. Minimize the amount of time water spends (water age) in the transmission system.
	4. Include water quality considerations during the planning and design of new infrastructure.
	5. Reduce the risk of contamination from treatment to tap.
3.0 Prepare for Future Drinking Water Demands	1. Plan infrastructure using an adaptive approach.
	2. Prepare for and manage the impacts of drought on water supply and demand.

Priority Area: Conservation and Efficiency

Strategies	Actions
1.0 Advance Residential Water Metering	1. Mandate metering on new construction in addition to one or more of the following by 2028: • Properties undergoing major renovations • Upon utility service replacement. • Properties participating in a voluntary metering program. • Upon transfer of property ownership • Properties with secondary or laneway suites • Existing meter-ready connections. • Connections with pools, hot tubs, and/or water features.
	2. Increase the overall percentage of drinking water that is metered by 1.1 to 2 times the current level by 2035 • If less or equal to 25% of drinking water volume is metered, target to increase to 2.0 times that amount. • If 26% to 50% of drinking water volume is metered, target to increase to 1.5 times that amount. • If 51% to 75% of drinking water volume is metered, target to increase to 1.2 times that amount. • If more than 76% of drinking water volume is metered, target to increase to 1.1 times that amount.
	3. Metro Vancouver will support residential water metering by providing implementation guidance and standardized communication for members.
2.0 Reduce Drinking Water Use through Active Conservation	1. Continue to develop region-wide drinking water conservation engagement programs.
	2. Demonstrate and promote water use efficiency within regional/municipal facilities.
	3. Work together to conserve drinking water by reducing base drinking water demand.
	4. Work together to conserve drinking water by reducing seasonal demand.

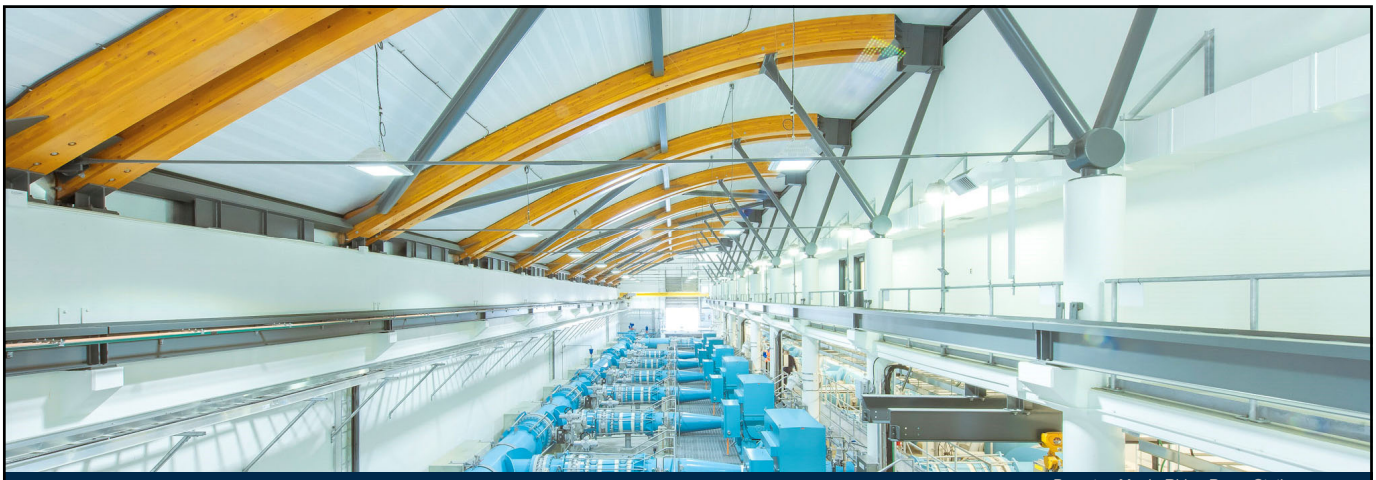
	5. Explore the use of water rates that promote conservation, such as tiered and seasonal pricing.
	6. Implement leakage reduction programs.
	7. Progress a region-wide drinking water conservation program for the ICI and agriculture sectors.
3.0 Increase Operational Efficiency	1. Continue to assess cost efficiencies in operational and capital budgets.
	2. Advance automation of the treatment and transmission system.
	3. Maximize beneficial use of drinking water treatment residuals and investigate alternative residuals handling methods.
	4. Continue optimizing operations of the treatment transmission systems.
	5. Advance metering on municipal connections to the Metro Vancouver transmission system.
	6. Continue to develop a more integrated relationship between members and Metro Vancouver to efficiently deliver high-quality water to the region.
4.0 Continue Advancing the Recovery and Reuse of Non-Potable Water	1. Support the adoption of non-potable water systems and use through advocacy, education, and research.
	2. Explore opportunities and partnerships with member jurisdictions and First Nations to increase adoption of non-potable water use within their communities.

Priority Area: Greenhouse Gas Emissions Reduction and Environmental Protection

Strategies	Actions
1.0 Reduce GHG Emissions and Implement Energy Efficiency Measures	1. Adopt comprehensive methods for GHG accounting in alignment with Metro Vancouver standards to support emissions reduction planning and improve performance measures.
	2. Approach energy resilience in a manner that feasibly minimizes impacts to the climate and environment.
	3. Prioritize the adoption of electric and fuel cell electric fleet vehicles and consider alternative fuel choices for transportation assets.
	4. Maximize energy recovery and optimize energy efficiency in the regional water system and utility operations.
	5. Implement low carbon procurement and construction practices to reduce embodied emissions and prioritize sustainable solutions.
2.0 Advance Ecological Health and Environmental Stewardship Across Metro Vancouver Lands	1. Use capital infrastructure projects as an opportunity to improve ecological health and sequester carbon.
	2. Support ecological health through ecological enhancement initiatives and integrated management of natural assets.
	3. Pursue opportunities to collaborate with local First Nations on initiatives related to ecological health and environmental protection.
3.0 Support Healthy Fish Populations in the Capilano, Seymour, and Coquitlam River Systems	1. Increase high-quality fish habitat and support for migration, rearing and spawning for fish species native to the Capilano, Seymour, and Coquitlam River systems.
	2. Manage environmental flows to minimize impacts on fish habitat and spawning.
4.0 Minimize the Environmental Impacts of Leaks and Spills	1. Reduce releases to the environment from new and existing infrastructure, equipment, and operations.
	2. Continue to build resilience through the Environmental Management System.

Priority Area: Operational Workforce Development

Strategies	Actions
1.0 Pursue regional youth recruitment opportunities	1. Promote career awareness and education opportunities for high school students.
	2. Engage First Nations youth to share career and education opportunities
	3. Develop a communications toolkit to target various youth audiences for recruitment.
2.0 Collaborate with key industry advocates and training providers	1. Advocate to post-secondary institutions for creation or expansion of water operations education programs.
	2. Work with industry advocates to increase awareness of career opportunities.
3.0 Enhance career development opportunities for existing Metro Vancouver operators	1. Collaborate to create a career growth and succession plan.
	2. Support continuing education.
	3. Encourage networking opportunities.



Barnston Maple Ridge Pump Station

Drinking Water Management Plan Update

STRATEGIES AND ACTIONS

Linda Parkinson
Director - Policy, Planning & Analysis, Water Services

Water Committee Meeting, June 11, 2025
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IMPORTANCE OF THE DRINKING WATER MANAGEMENT PLAN (DWMP)

- Provides the region with a strategic framework
- Fosters regional collaboration between MV and member jurisdictions
- Guides long-term investment and decision-making
- Establishes a consistent and collaborative approach to regional policy development
- Addresses urgent and emerging challenges

CHALLENGES DRIVING THE DWMP

Rapid population growth

Approximately 4 million people will live in the Metro Vancouver region by 2042.

Climate change impacts

Preparing for longer, hotter summers, and more frequent drought conditions.

Earthquakes

Ensuring the region is ready for seismic events of all sizes.

VISION & GUIDING PRINCIPLES

Vision

Deliver world class drinking water in a reliable and environmentally sensitive manner to meet the needs of a growing region

Draft Guiding Principles

Draft Goals

Goal 1
Provide high-quality drinking water

Goal 2
Provide uninterrupted drinking water service

Goal 3
Manage the drinking water system in a cost-effective way

Goal 4
Manage water to protect and enhance the environment for all

Goal 5
Develop and attract a skilled workforce to manage drinking water region-wide

Priority Areas

- Resilient water system
- Water supply quantity and quality
- Greenhouse gas emissions reduction and environmental protection
- Conservation and efficiency
- Operational workforce development

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PROPOSED STRATEGIES

- Advance planning and designing for resilience to natural hazards and climate change impacts
- Respond and recover from emergencies
- Proactively manage existing infrastructure

PROPOSED STRATEGIES

- Prepare for water quality changes due to climate change and natural hazards
- Protect and manage water quality
- Prepare for future drinking water demands

PROPOSED STRATEGIES

- Reduce GHG emissions and implement energy efficiency measures across projects, facilities, and operations
- Advance ecological health and environmental stewardship across Metro Vancouver lands
- Support healthy fish populations in the Capilano, Seymour, and Coquitlam River systems
- Minimize the environmental impacts of leaks and spills

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PROPOSED STRATEGIES

- Advance residential water metering
- Reduce drinking water use through active conservation
- Continue advancing the recovery and reuse of non-potable water
- Increase operational efficiency

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PROPOSED STRATEGIES

- Pursue regional youth recruitment opportunities
- Collaborate with key industry advocates and training providers
- Enhance career development opportunities for existing Metro Vancouver operators

NEXT STEPS

Item	Timeline
Phase 2 public engagement	July to September 2025
Water Committee Workshop	**Q4 2025**
Finalize plan	Q4 2025
Final review with REAC WSC and REAC	Q1 2026
WC and GVWD Board endorsement	Q1 2026


Thank you
Second Narrows Water Supply Tunnel Construction

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

From: Ian Manning, Director, Dam Safety, Water Services

Date: May 27, 2025 Meeting Date: June 11, 2025

Subject: **2024 GVWD Dam Safety Program Annual Update**

RECOMMENDATION

That the Water Committee receive for information the report dated May 27, 2025, titled "2024 GVWD Dam Safety Program Annual Update".

EXECUTIVE SUMMARY

The GVWD owns and operates seven dams that are regulated by the Ministry of Water, Land and Resource Stewardship – Dam Safety Section, five of which are regional drinking water supply dams and two of which store water for ecological and recreational purposes. The GVWD Dam Safety Program is compliant with the requirements outlined in the provincial Dam Safety Regulation (BC Regulation 40/2016; amended by Regulation 32/2023) for the water supply dams. There were no unsafe or unacceptable conditions identified from the check and review activities carried out in 2024, including comprehensive third-party Dam Safety Reviews, routine surveillance, monitoring, or formal dam inspections.

In 2024, progress continued with the newly established Water Services Dam Safety division in providing centralized dam safety support for all Metro Vancouver dam owner departments. Regulatory compliance and engagement with internal and external partners remained a key focus, with efforts to identify, prioritize and initiate activities and projects associated with the corporate dam portfolio.

PURPOSE

To provide the Water Committee with an annual update on dam safety activities associated with the Cleveland, Seymour Falls, Palisade, Burwell, Loch Lomond, Rice Lake North, and Rice Lake South dams.

BACKGROUND

The Water Services (WS) Dam Safety division monitors and reviews the performance of seven GVWD dams, including five water supply dams, to ensure they remain safe and reliable for the continued supply of drinking water. The dam safety program supports the goals and initiatives of the Board Strategic Plan and Drinking Water Management Plan through its contribution to the long-term resilience of the regional drinking water system.

GVWD DAMS

Cleveland Dam and Seymour Falls Dam

Cleveland Dam is a 92-meter-high concrete gravity dam that impounds Capilano Reservoir. Seymour Falls Dam is a 30-meter-high composite concrete and earthfill dam that impounds Seymour Reservoir. Both dams include discharge outlets to release water downstream to their respective rivers, as well as water supply intakes to convey water for treatment at the Seymour Capilano Filtration Plant. The reservoir areas upstream of the dams are kept clear of debris with a series of booms that float on the reservoir surface preventing the passage of large debris towards the dams and associated intakes.

Alpine Lake Dams

The three Alpine Lake Dams (Palisade, Burwell, and Loch Lomond dams) are located within the Capilano and Seymour watersheds and range in height from 5.8 m to 8.2 m. Palisade and Burwell Dams are rockfill dams with concrete slabs on their crests and upstream faces, while Loch Lomond Dam is a vertical-face concrete dam. All three Alpine Lake Dams include spillways and discharge outlets that allow for the release of water to their respective downstream reservoirs. Palisade Lake discharges to the Capilano Reservoir, while Burwell and Loch Lomond Lakes discharge to the Seymour Reservoir. The alpine lakes are primarily used to augment the summertime storage capacity of the two downstream water supply reservoirs.

Rice Lake Dams

The two Rice Lake Dams are located at the north and south ends of Rice Lake within the Lower Seymour Conservation Reserve (LSCR) in North Vancouver. Metro Vancouver operates and maintains the LSCR primarily for future water supply potential as well as to conserve its ecological and recreational value. The Rice Lake North Dam is a 5.5-meter-high earthfill dam and includes an overflow spillway, and the Rice Lake South Dam is a 7.5-meter-high earthfill dam. The Rice Lake Dams were constructed in the late 1950s to provide a supplemental drinking water supply for the City of North Vancouver. The function of Rice Lake as a drinking water supply ceased in the 1980s and it has since been used for recreational purposes including public walking trails, a floating dock, and fishing.

COMPLIANCE WITH BC DAM SAFETY REGULATION

Cleveland Dam and Seymour Falls Dam are classified as “extreme” consequence dams according to the provincial Dam Safety Regulation. The three Alpine Lake Dams are classified as “significant” consequence dams while the two Rice Lake Dams were accepted by the Provincial Dam Safety Officer as “very high” consequence dams in early 2024.

The following work was completed in 2024 to ensure continued compliance with the Dam Safety Regulation:

- Weekly site surveillance, at a minimum, was carried out at Cleveland and Seymour Falls Dams.
- Weekly site surveillance was carried out at the Rice Lake Dams.

- Monthly site surveillance is typically required at significant consequence dams, unless otherwise specified in the Operation, Maintenance, and Surveillance (OMS) Manual. Given their remote locations and winter helicopter access restrictions, the Alpine Lake Dams were periodically inspected by staff in accordance with their OMS Manuals between late May and October.

- Semi-annual formal inspections were completed for Cleveland Dam and Seymour Falls Dam. Annual formal inspections were completed for the Alpine Lake Dams and Rice Lake Dams.

- Annual test operation of mechanical, electrical, and communications components was completed for all water supply dams where applicable. There are currently no mechanical, electrical, or communications components at the Rice Lake Dams.

- Cleveland Dam and Seymour Falls Dam instrumentation readings were collected at various intervals, ranging from daily to annually. Data from instrumentation at the Rice Lake Dams as well as Alpine Lake Dams was collected daily. Geotechnical and lake level instrumentation data is reviewed by staff daily (Monday – Friday) through an automated data acquisition system.

- Annual review of contact information in the Dam Emergency Plan (DEP) is required, and if necessary, revision and submission to the Provincial Dam Safety Officer. The internal and external contact information for Cleveland Dam, Seymour Falls Dam, and the Alpine Lake Dams were reviewed in late 2024 and resubmitted to the Dam Safety Officer as part of DEP revisions in early 2025.

- At a minimum, the OMS Manual and DEP for “extreme” and “very high” consequence dams must be reviewed every seven years and revised and reported to the Dam Safety Officer, if necessary. A revised Cleveland Dam OMS manual was issued in July 2023. Revisions to the Seymour Falls Dam OMS manual were ongoing in 2024 and the updated manual was issued in February 2025. Revisions to the DEP’s for Cleveland Dam and Seymour Falls Dam were also issued in February 2025. Various engagement activities were ongoing in 2024 to improve emergency coordination with all Cleveland Dam and Seymour Falls Dam external DEP plan holders. The first formal OMS manual for Rice Lake Dams was issued in February 2025. DEP development for the Rice Lake Dams was ongoing in 2024.

- At a minimum, the OMS Manual and DEP for "significant” consequence dams must be reviewed and revised every 10 years and reported to the Dam Safety Officer, if necessary. The Alpine Lake Dam OMS manuals were last revised in 2016, and the DEPs were last updated in 2020. Revisions to the Alpine Lake Dam DEPs were ongoing in 2024.

- A formal Dam Safety Review (DSR) must be carried out, with the report submitted to the Dam Safety Officer every seven years for “extreme” consequence dams, and every 10 years for “very high” consequence dams. The last DSR for Cleveland Dam commenced in 2023 and was completed in 2024. No unsafe or unacceptable conditions in relation to the design, construction, or operation were identified. The last DSR for Seymour Falls Dam commenced in 2021, with a final report issued in 2024. The final report concluded that Seymour Falls Dam is reasonably safe, operated safely, maintained in a safe condition, and that surveillance is adequate to detect any developing safety problems. A formal DSR for the Rice Lake Dams is

planned for 2026, following the completion of planned additional seismic and stability assessments.

- A formal DSR is not required for "significant" consequence dams. To be proactive, a DSR was carried out for the Alpine Lake Dams in 2012, with results indicating that the dams are being operated and maintained in a satisfactory manner.

- Formal dam audits are carried out by the provincial Dam Safety Officer every five years for "extreme" and "very high" consequence dams, and every 10 years for "significant" consequence dams. The last formal dam audits were carried out at Cleveland Dam and Seymour Falls Dam in 2020. The audits noted the safety incident that occurred at Cleveland Dam on October 1, 2020. No other significant concerns or comments were provided.

RICE LAKE DAMS ACTIVITIES

In a 2021 review of the regulatory and maintenance requirements for the Rice Lake North and South dams, staff identified the need for a hydrotechnical and geotechnical assessment, as well as a comprehensive review of their failure consequence classifications under the BC Dam Safety Regulation. Activities in 2022 and 2023 included site investigations, stability analysis, spillway capacity assessment, and flood and dam breach modelling. Following completion of the work, a written notice was submitted to the provincial Dam Safety Officer for proposed dam failure consequence classifications of "very high" for both dams, which was accepted in March 2024.

The review also identified the need for a new provincial water license that better reflects Rice Lake's function as a water storage facility for ecological and recreational purposes, and a water license application was submitted in October 2023. Following a request by WS Dam Safety in 2024, the Ministry of Water, Land and Resource Stewardship agreed to expedite the application process. Receipt of a new water license remains pending.

Following public engagement efforts in 2022 and 2023, vegetation management around the dams and trial removal of tree root wads were carried out in late 2023. Although full removal of the remaining root wads was planned for 2024, the project was paused due to difficulties in sourcing suitable backfill materials. The geotechnical consultant was asked to complete a Potential Failure Modes Analysis and prepare a technical memo outlining options to address the backfill requirements. The outcome was a decision to pause root removal efforts and begin planning for detailed seismic and stability assessments, which have been recommended from the previous hydrotechnical and geotechnical assessments.

CLEVELAND DAM SAFETY ENHANCEMENTS

The Cleveland Dam Safety Enhancements program was initiated in 2021 and involves the identification and management of various initiatives to improve the safety and reliability of the dam. Highlights of the safety enhancements program in 2024 include:

- Meetings with the Dam Safety Advisory Panel, which comprises external technical experts, to discuss improvements to the operations and maintenance of Cleveland Dam and the dam spillway gate, as well as issues involving public safety around dams.

- Installation of new monitoring equipment for the spillway gate position and related safety systems are expected in fall 2025, following design work completed in 2023.
- Continued progress on the preliminary studies needed for detailed design of the permanent Capilano Public Warning System. These studies included a river-users study, river hydraulic and hazard modelling, and an updated public safety risk assessment which were completed in 2024. Construction is expected to begin in 2026.
- The Cleveland Dam Safety Enhancements Program will continue in 2025, with the design and construction of site-specific safety features including the permanent public warning system.

TRANSITION TO A CENTRALIZED CORPORATE DAM SAFETY PROGRAM

Metro Vancouver has taken significant steps to strengthen dam safety management across the organization, through the development of an interim Corporate Dam Safety Policy and a framework for a centralized support model to oversee dam safety activities across all departments with dam assets.

The Interim Corporate Dam Safety Policy was approved in 2022 and serves as a foundational document providing the requirements and accountabilities that govern the safe operation and maintenance of Metro Vancouver dams. In December 2024, the policy was updated to reflect changes in staffing, recent changes to the regulatory landscape, and to clarify key definitions and terminology.

Implementation of the centralized dam safety program began in 2023 with the creation of a dedicated Dam Safety division within Water Services. In 2024, WS Dam Safety began providing formal support to all Metro Vancouver dam owner departments, which include Water Services, Liquid Waste Services, Solid Waste Services, and Regional Parks.

DAM ASSET CONDITION

The five drinking water supply dams and two Rice Lake Dams are regularly maintained and upgraded to ensure they remain in good operating condition and to extend their service life. Issues are identified through surveillance, inspections, assessments, and independent expert reviews. Improvement projects are prioritized and incorporated into GVWD's operating and capital financial planning process.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

There are no financial implications arising from this report. The cost of routine surveillance, monitoring, and inspection activities form part of the Water Services annual operating budget, and financial contributions are in place to support the centralized management of dam safety activities on behalf of all dam owner departments.

CONCLUSION

The GVWD Dam Safety Program is compliant with the requirements of the provincial Dam Safety Regulation for the water supply dams. No significant concerns were identified by the GVWD dam safety team or dam surveillance consultant from the 2024 routine surveillance, monitoring, and formal dam inspections.

ATTACHMENT

1. Photos of the GVWD Water Supply Dams and other GVWD Dams.

REFERENCE

1. *Dam Safety Regulation*, BC Reg 40/2016
https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/40_2016

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Cleveland Dam

Seymour Falls Dam

Burwell Dam

Loch Lomond Dam

Palisade Dam

Rice Lake North Dam

Rice Lake South Dam

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

From: Linda Parkinson, Director, Policy, Planning, and Analysis, Water Services
Nermine Tawfik, Program Manager, Policy, Planning, and Analysis, Water Services

Date: May 23, 2025 Meeting Date: June 11, 2025

Subject: **2025 Update on Water Sustainability Innovation Fund Projects**

RECOMMENDATION
That the GVWD Board receive for information the report dated May 23, 2025, titled "2025 Update on Water Sustainability Innovation Fund Projects".

EXECUTIVE SUMMARY
Last year Metro Vancouver celebrated the 100th anniversary of the Greater Vancouver Water District. It took incredible innovation, collaboration, and foresight to achieve the safe, reliable, world-class system that we enjoy today. Ongoing innovation supports the reliable supply of high-quality drinking water to the growing region. This report provides an update on 19 projects that were approved for funding between 2018 and 2024 under the Water Sustainability Innovation Fund.

Projects funded by the Sustainability Innovation Fund support regional sustainability, protect the environment, advance resilience, and continuously improve service delivery by allowing Metro Vancouver to explore and implement innovative approaches, and respond to emerging issues and evolving best practices. The projects outlined in this report advance these objectives through assessing contaminants of emerging concern including microplastics, water supply monitoring and information management, greywater reuse, earthquake early warning systems, digitizing and updating existing hydrological and hydraulic analytical processes, and water quality management.

The last update was presented in July 2023. Since then, of the 19 projects in this report, two have been completed, one is on hold, and 16 are in various stages of progress.

PURPOSE
To provide an update on projects funded under the Water Sustainability Innovation Fund that are in progress or have been completed since the last update.

BACKGROUND
The Sustainability Innovation Fund program (Reference 1) supports regional sustainability and drives continuous improvement in the delivery of Metro Vancouver services by reducing emissions, protecting the environment, and advancing resilience. The Regional District, Water, and Liquid Waste Sustainability Innovation Funds have been in place since October 29, 2004, when the GVRD, GVWD, and GVS&DD Boards, respectively, approved their creation. In 2014, policies to guide and manage the Sustainability Innovation Funds were adopted by the respective Boards, with amendments in 2016 and 2021. The policies require updates on the deliverables, outcomes, and

measurable benefits of the projects that have received funding. Projects funded wholly or in part by the Sustainability Innovation Fund program have been undertaken by Metro Vancouver in coordination with project partners since 2015.

Annually, Metro Vancouver staff submit applications for project funding, which are approved by the respective Standing Committees and Boards. The amount dispersed from the Sustainability Innovation Funds in any year is at the discretion of the respective Boards and depends on the merit of proposals submitted. Additionally, projects may amplify the financial contributions from the Sustainability Innovation Fund by leveraging external funding through partnerships, such as with the region's academic institutions or other research and funding organizations.

At its February 21, 2025 meeting, the MVRD Board re-affirmed support for the Sustainability Innovation Fund program. The GVWD Board is responsible for overseeing the Water Sustainability Innovation Fund and reviewing and approving funding for projects from the Water Services function. The Water Committee is responsible for reviewing Water Sustainability Innovation Fund applications that fall within its Terms of Reference, making approval recommendations to the GVWD Board and receiving updates on projects that are in progress or recently completed.

From 2015 to 2024, the Fund has made contributions to a total of 32 projects. Of these, 12 projects have been completed, three have been discontinued, one is on hold, and 16 are in progress.

STATUS OF WATER SUSTAINABILITY INNOVATION FUND PROJECTS – 2025 UPDATE

Since the last update in July 2023, this report provides an update on the 19 Water projects that are in various stages of progress or that have not yet been reported as complete or discontinued.

Table 1 provides budgetary information and the status of projects, grouped by their year of approval.

Among the 16 projects shown as "In Progress", six (*) are expected to be completed by the end of 2025. For "In Progress" projects with zero spending as of March 31, expenditures are expected to increase over the next 12 months. These projects have had their scope revised, within the project objectives, to accommodate regulatory changes, technology or innovation advancements, or to align with progress and outcomes on closely related projects. The estimated expenditure reflects reserve withdrawals as of March 31, and can be lower than the approved budget on project completion.

The Financial Implications section below provides a further explanation of the budget. The detailed status, outcomes, and decisions on each project can be found in Attachment 1.

Table 1 - Summary of Water Sustainability Innovation Fund Projects – 2025 Update

Project	Total Funding Approved	Estimated Spent (as of March 31, 2025)	Status
2018 Approval Year			
Greywater Reuse and Rainwater Harvesting Demonstration	$350,000	$311,400	**Complete**
2019 Approval Year			
Treating Emerging Contaminants at the Seymour Capilano Filtration Plant	$300,000	$179,400	In Progress*
2020 Approval Year			
UV Transmittance Analyzers for Continuous Monitoring of Disinfection By-Products	$500,000	$110,400	In Progress*
Enhancing the Data Processing of the Water Flow Metering Network	$180,000	$170,500	**Complete**
2021 Approval Year			
Building Information Modeling (BIM): Transforming Utilities Information Management	$800,000	$437,100	In Progress
Microplastics Study in Source Waters and Water Treatment	$150,000	$0	In Progress
Visual Documentation of Key Water Services Infrastructure	$700,000	$0	In Progress
2022 Approval Year			
10-year Salmon Enhancement Action Plan	$180,000	$118,900	In Progress*
Hydrological Models for the Capilano and Seymour Watersheds	$750,000	$312,000	In Progress
Digital Transformation of Water Transmission System Planning & Analysis	$950,000	$286,800	In Progress
Feasibility Study to Optimize Transmission System Energy Use	$350,000	$0	On Hold
Regional Equity and Affordability of Drinking Water	$550,000	$20,000	In Progress
New Technology for the Determination of Enterococci in Recreational Water to Enhance Public Safety	$200,000	$193,700	In Progress*
2023 Approval Year			
Next Generation Snowpack Monitoring – Phase 3	$450,000	$296,300	In Progress*

* Indicates projects expected to be complete by the end of 2025.

Project	Total Funding Approved	Estimated Spent (as of March 31, 2025)	Status
Studying the Preliminary Feasibility of Green Hydrogen Production from Hydropower at Cleveland Dam (Green Hydrogen Project)	$250,000	$238,100	In Progress*
Evaluation of Biofiltration at the Seymour Capilano Filtration Plant	$300,000	$19,400	In Progress
Reducing Oxygen Use and Increasing Resiliency at the Coquitlam Water Treatment Plant	$150,000	$25,600	In Progress
Building the Next Generation of Seasonal Water Supply & Demand Planning	$550,000	$0	In Progress
2024 Approval Year			
Expansion of the Earthquake Early Warning (EEW) & Structural Health Monitoring (SHM) Systems	$1,000,000	$0	In Progress
TOTAL	$8,660,000	$2,719,600	

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

FINANCIAL IMPLICATIONS
The projects summarized in this report received funding from the Water Sustainability Innovation Fund as approved by the GVWD Board between 2018 and 2024. Disbursals of funds were made in accordance with the Policy that governs the use and management of the Fund. Table 1 above outlines the funding approved and the estimated amount spent to March 31, 2025, for each project.

As of December 31, 2024, the estimated reserve balance of the Water Sustainability Innovation Fund was $10.3 million. Over the next three years, approximately $7.8 million in Board-approved funding is committed toward currently in-progress projects across Water Services. Any unspent funds from completed or discontinued projects are maintained in the Water Sustainability Innovation Fund Reserve. To date, projects have been completed at or below the approved budget.

CONCLUSION
This report provides an update on 19 projects funded under the Water Sustainability Innovation Fund between 2018 and 2024 that are currently in-progress or have been completed or discontinued since the last update to the designated Standing Committee. The project topics range from assessing contaminants of emerging concern including microplastics and disinfection by-products to water supply monitoring and information management, greywater reuse, earthquake early warning systems, digitizing and updating existing hydrological and hydraulic analytical processes, and water quality management. The results and findings from these projects will be used to drive continuous improvement in the delivery of Metro Vancouver's services.

ATTACHMENT

1. 2025 Status Update on Current Water Sustainability Innovation Fund Projects

REFERENCE

1. Metro Vancouver. (2025). *Sustainability Innovation Fund*. Retrieved from https://metrovancouver.org/about-us/sustainability-innovation-fund

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2025 Status Update on Current Water Sustainability Innovation Fund Projects

2018 APPROVAL YEAR
Greywater Reuse and Rainwater Harvesting Demonstration

Status: Complete
Years: 2018 – 2024

Metro Vancouver has undertaken an initiative to support the uptake of these non-potable water systems at individual buildings in the region. This project advanced non-potable water uses through research, education, capacity building, and by convening relevant stakeholders into a process to identify and address barriers to the broader adoption of these systems. Due to pandemic restrictions, the demonstration activity was removed from the project scope. This project is also referred to as the *Non-Potable Water Project* in other reports to the Water Committee.

Outcomes to Date

- The *Non-Potable Water Systems: A Guidebook for the Metro Vancouver Region* and the *Non-Potable Water Systems: Companion Document* were developed in collaboration with subject matter experts and are completed. These documents provide insight, guidance, and resources specific to the Metro Vancouver region for those involved in planning, designing, installing, operating, and maintaining buildings with non-potable water systems.
    - The guidebook leads the audience from planning through to the operations of building-scale non-potable water systems and includes topics such as regulation, policy, logistical feasibility, and design process recommendations alongside case studies and lessons learned.
    - The companion document provides additional technical information, including technical design and performance monitoring guidance.
- The *Overcoming Barriers to Non-Potable Water Use in the Metro Vancouver Region* (key findings document) is also completed and identifies the primary barriers to broader regional adoption and sustainable implementation of non-potable water systems. To help address these barriers, the document makes ten recommendations framed by six main categories: regulation and its application; post-occupancy management and oversight; public policy and business casing; institutional and industry capacity; monitoring and evaluation; and ongoing engagement.
- A Non-Potable Water Working Group was formed for the project, comprising representatives from provincial government ministries, member jurisdictions, health authorities, professional organizations, educational institutions, and industry. At the conclusion of the project, the Group were provided with communication packages for further distribution, utilizing the budget of the cancelled demonstration activity.
- Outcomes and deliverables have been promoted widely, including an article in the March 2024 Regional Planning Bulletin, a presentation to BC Housing, and a presentation at the BC Water & Waste Association (BCWWA) annual conference at the end of April 2024. The project's key deliverables are complete, and the Water Committee was updated at its June 14, 2023, meeting. The project scope was officially completed in March 2024. In partnership with stakeholders, staff will pursue other engagement opportunities where feasible.

2019 APPROVAL YEAR

Treating Emerging Contaminants at the Seymour Capilano Filtration Plant

Status: In Progress (expect completion in 2025)

In two phases, this project utilizes consulting engineering services to assess and study current and future emerging contaminants at the Seymour Capilano Filtration Plant (SCFP). In Phase 1, a desktop literature survey was used to develop a detailed understanding of future contaminants in source water, assess existing treatment processes, and evaluate best practices to manage emerging contaminants of concern. Phase 2, originally proposed to undertake pilot testing on a selection of the highest-risk contaminants, now has a revised scope to develop conceptual designs of treatment options.

Outcomes to Date

- Phase 1 was completed in Q1 2023, with two successful workshops and final technical memorandums on Literature Survey and Treatability Assessment. These reports assessed the risks of different emerging contaminants on treatment operations at the SCFP, and to source and drinking water quality. The assessments helped determine the plant's ability to treat the highest-risk contaminants, mainly those from natural watershed disturbances.
- The recommendations from Phase 1 included potential facility improvements, operational enhancements, and capital improvements to manage these risks with several treatment strategies.
- Phase 2 began in early 2024 with a revised scope. Two technical memos have been developed with recommendations for treatment strategies and options for the SCFP.
- A technical workshop is scheduled in May 2025 to help select treatment options and facility improvements.

Conceptual designs for the selected treatment options will then be developed with cost estimates. After some delays, the project is back on track to be completed in Q4 2025.

2020 APPROVAL YEAR

UV Transmittance Analyzers for Continuous Monitoring of Disinfection By-Products

Status: In Progress (expect completion in 2025)

Through consulting engineering services, this stage-gated two-phase project is evaluating and utilizing multi-spectrum UV visible analyzers for continuous monitoring of disinfection by-products (DBPs) at the Coquitlam Water Treatment Plant (CWTP) and, if needed, at various locations in the transmission system.

Phase 1 included a literature survey and desktop analysis of the data collected over one year. Data collected using the UV visible analyzers were expected to enable the implementation of DBP prediction models to optimize sodium hypochlorite and ozone dosages at CWTP and thereby minimize the formation of DBPs in the drinking water transmission system.

Outcomes to Date

- The consultant completed the evaluation of the multi-spectrum UV visible analyzers, and an instrument was selected, procured and installed at the CWTP in Q2 2023.
- The project team reviewed the original scope and deliverables and updated the original data collection and implementation plan.
- A data collection program including continuous monitoring and testing was completed from Q4 2023 and through 2024.
- Three technical memorandums have been completed to date for the literature review, equipment evaluation and the preliminary data review.
- A workshop was held in March 2025 to outline the results and findings.

The data collection program has resulted in a substantial and complex data set that the current consultant will not be able to analyze further. Specialized research utilizing advanced statistical and analytical approaches are now required to derive better insights from the data set for operational value. Staff have begun discussions with academia to scope this research through operational budgets.

The consultant will provide a final report for Phase 1 in June, and a decision to end this SIF project is expected in early Q3 2025.

Enhancing the Data Processing of the Water Flow Metering Network
Status: Complete
Years: 2020 – 2023

This project evaluated and developed artificial intelligence software solutions that use artificial neural networks to enhance the data processing of the water flow metering network. This project developed and operationalized a software system that analyzes historical consumption data from the flow metering network and uses weather forecasts to generate water consumption forecasts. The software system helps staff compare these consumption forecasts with the actual data, and identify and replace meter reading anomalies, thus improving billing efficiencies.

Outcomes to Date

- The application went through a series of demonstrations and offsite testing in early 2022, including factory acceptance tests.
- The on-site installation in the test environment on Metro Vancouver servers was completed in April 2022.
- The on-site calibration and user acceptance testing continued through May 2023, and the application went live for the first time in June 2023.
- Licensing arrangements were worked out by September 2023 for full operational use.
- Staff have been trained, and the final calibration was completed in December 2023.

The software system is now operational and used for reporting within Water Services. The project scope is completed.

2021 APPROVAL YEAR

Building Information Modeling (BIM): Transforming Utilities Information Management

Status: In Progress

This project is exploring and advancing the potential of Building Information Modeling (BIM) for Metro Vancouver utilities using consulting engineering services. An earlier review of BIM and its benefits for utilities showed tangible efficiencies and cost reductions over the long term. The project will be completed in three phases, each stage gated for review and approval.

Outcomes to Date

- Consulting engineering services for Phase 1 were procured in 2021.
- Standards and processes development and adoption are 100 per cent complete.
- Initial training of Metro Vancouver staff on the use of BIM tools was completed.
- Consulting community awareness on new standards and processes was also completed.
- Project teams have already started utilizing these new Metro Vancouver BIM standards for major projects such as the Northwest Langley and Iona Island Wastewater Treatment Plant Upgrades projects.

The consultant's contract for Phase 1 is completed and the internal team is now reviewing Phase 2 requirements, including identifying elements of Phase 2 that may be brought forward to better aligning the BIM requirements with projects utilizing the new BIM standards. This includes work undertaken under the *Visual Documentation of Key Water Services Infrastructure* project (WSIF 2021).

Phase 2 is proposed to support construction management, commissioning, operations, and maintenance activities. The final Phase 3 will pilot the integration of BIM with Enterprise Asset Management, GIS, and other corporate systems.

Microplastics Study in Source Waters and Water Treatment

Status: In Progress

This study was proposed to evaluate the presence and concentration of microplastics in Metro Vancouver's source waters (Capilano, Seymour, and Coquitlam), treatment residuals from the Seymour Capilano Filtration Plant, and within the water treatment process at both drinking water treatment plants. The secure watersheds are not expected to provide adequate evidence, and the results would likely be inconclusive without comparison with other utilities. The [WSIF 2019] project "*Treating Emerging Contaminants at the Seymour Capilano Filtration Plant*" did not identify microplastics as a concern for Metro Vancouver.

The project scope has been revised several times as new research and regulatory information became available. Since 2021, sampling and testing methodologies and polymer characterization technologies have reached an acceptable standard across this developing field of research. Due to potential sensitivity, evolving practices, and limited industry expertise in this area, a subject matter expert has been engaged via the Water Research Foundation to provide advisory and scientific support to the project team. The study scope is now expanding to include distribution systems.

Outcomes to Date

- A tailored collaboration proposal was successful with the Water Research Foundation in Q4 2024.
- Three other North American utilities with varying drinking water sources and treatment systems are participating. The expectation is that Metro Vancouver's protected system will act as the experimental control and provide reliable baseline results that will be comparable to the findings from those other systems.
- The tailored collaboration project will leverage close to US $200,000 of external funding and utilize innovative and leading-edge research, methods and subject expertise from the University of Toronto Drinking Water Research Group.
- An agreement with the Water Research Foundation is in the final stages of negotiations and the study is expected to start in Q2 2025.

Several other North America utilities have expressed interest in participating in this study, which could potentially inform standard and regulatory development in years to come. The outcomes of will provide valuable information for Metro Vancouver to make critical decisions in the future with the strategic and operational goal of ensuring a reliable and safe drinking water supply. The project is expected to conclude in Q3 2027.

Visual Documentation of Key Water Services Infrastructure
Status: In Progress

This project aims to create a visual database of critical components of Metro Vancouver's drinking water infrastructure, including dams and water treatment plants. The visual database would result in a potential number of new and innovative services, including:

- 360° site walk-throughs that allow for remote management and visualization.
- Measurable 2D and 3D images that document existing conditions; and
- Accurate and representative floorplans of scanned infrastructure.

Having an accurate inventory of Metro Vancouver's infrastructure is crucial to effectively managing assets and making informed decisions about future development.

This project was contingent on developed BIM standards and supporting infrastructure. The start-up had been delayed ensuring strategic alignment and value and avoid duplication and rework. With the required elements now in place from the *Building Information Modeling (BIM)* Phase 1 (WSIF 2021) project, work will now proceed to implement the elements required to build the 3D environment.

Specifically, the project aims to create a visual database, a Common Data Environment (CDE), of some of Metro Vancouver's key pieces of drinking water infrastructure, including dams and water treatment plants that can be utilized to improve access to information, better decision making and improve services provided to the region. The CDE will result in a potential number of benefits by hosting 3D virtual models of both existing and proposed infrastructures. By establishing the CDE, this project will look at improving capabilities of the organization, including providing access to visual tools for collaboration during projects and maintenance activities, easy access to facility

information remotely, and added capability to conduct the in-house laser scanning works for existing facilities.

The target completion for this project is now set for mid-2027.

2022 APPROVAL YEAR

10-year Salmon Enhancement Action Plan

Status: In Progress (expect completion in 2025)

The project scope was to develop a Metro Vancouver 10-year Salmon Enhancement Action Plan that provided a consolidated list of potential salmon enhancement activities that could be implemented to maximize salmon populations and increase salmon viability in areas impacted by Metro Vancouver operations as opportunities allowed. This project included First Nations participation from the start to shape the scope and direction of the plan. Metro Vancouver members and salmon-focused agencies and organizations were also engaged.

Outcomes to Date

- Engagement workshops with First Nations, MV members and salmon-focused organizations were completed.
- The consultant team, with assistance from internal project team members, compiled workshop results and categorized the input broadly into areas within and outside of Metro Vancouver's scope of operations.
- Project deliverables and scope were reduced to meet budget, and project wrap-up is underway.

A project summary memo accompanying in-scope and out-of-scope opportunities is being finalized and will be circulated to Metro Vancouver staff for use as a resource to ensure salmon enhancement and restoration opportunities are incorporated in future capital project planning. This project is expected to conclude in Q2 2025.

Hydrological Models for the Capilano and Seymour Watersheds

Status: In Progress

This project is utilizing specialized consulting engineering services and embracing the latest in data science and model development to build and calibrate integrated in-house hydrological models for Metro Vancouver's watersheds, and to advance the management of our valuable water resource.

These models will help predict reservoir inflows, make forecasts with real-time data, support source water supply planning, effectively monitor long-term climate change scenarios, and inform major decisions about the watersheds. These in-house models will increase the productivity and efficiency of watershed management and hydrological analysis functions, while integrating various water source-side functionalities, operations, forecasting, and reporting requirements. Initially the project was focused on the Capilano and Seymour Watersheds.

Outcomes to Date

- The Coquitlam watershed has been added to the scope within the approved budget, and a Non-Disclosure Agreement was executed with BC Hydro to share their reservoir operation data.
- The selected modelling software was used for building the semi-distributed hydrological models for the three watersheds. Model calibration and validation are underway.
- The consultant has provided Technical Memos with climate change-induced future flows using the updated models for reservoir inflows forecast up to and including 2055 and 2085.
- A Hydrological advisor has been hired to provide guidance on building an inflow forecasting model for Capilano and the Seymour reservoirs using these new hydrological models and specialized software. The plan is to also update and integrate BC Hydro's existing forecasting model for Coquitlam, with these two new models, and develop a single forecasting platform.

A technical workshop on "Inflow Forecasting System Development" is planned for Q2 2025 and will inform the integration objectives. The project will now update the hydrological models of all three Metro Vancouver watersheds and is expected to be completed in late Q4 2026.

Digital Transformation of Water Transmission System Planning & Analysis
Status: In Progress

This project is developing an up-to-date water transmission model using the newly adopted software InfoWater Pro to address existing models' deficiencies and ensure that the new hydraulic model meets and exceeds current industry standards for infrastructure planning and operations decision support. This project will deliver two critical components needed to establish the Smart Water Network in two phases:

- Phase 1 – the Regional Water Transmission Model and
- Phase 2 – a Data Analysis Platform (DAP).

Outcomes to Date

- The consultant has completed Phase 1, and the development of the Regional Water Transmission Model with the steady state and extended period simulation calibration.
- The final report for Phase 1 has been delivered.

Phase 1 of the project was completed in Q1 2025. The outcomes will inform the *Feasibility Study to Optimize Transmission System Energy Use* project, approved in 2022 (WSIF 2022) currently on hold.

In Phase 2, a Data Analysis Platform was to be deployed and integrated with the transmission model developed in Phase 1 to analyze data, predict system performance, and develop patterns, KPIs, and dashboards, improving accuracy and decision-making on a daily, mid-term, and long-term basis. Due to IT department's resource constraints, Phase 2 is currently on hold and will be reviewed in late 2025.

Feasibility Study to Optimize Transmission System Energy Use
Status: On Hold

Consultant engineering services are required for this two-phased project. Phase 1 will investigate options to reduce MV's purchase of electricity from BC Hydro and overall energy consumption by optimizing the operational processes of the water transmission system. Phase 2 will investigate alternative lower-carbon energy sources to power high-energy-demand operations and develop the business case for the development of these innovative solutions.

This project is on hold and will resume when the *Digital Transformation of Water Transmission System Planning & Analysis project* (WSIF 2022) has progressed, and the water transmission model is completed. The scope of services will be reassessed when the project resumes to ensure the most up-to-date and relevant information is being considered to achieve the project outcomes.

Regional Equity and Affordability of Drinking Water
Status: In Progress

This project supports the goal of ensuring that the regional drinking water supply remains sustainable, equitable, and affordable amid the challenges of rising utility and household costs, a post-pandemic recovery, and climate and demographic changes. The project aims to identify opportunities related to local affordability and equity of drinking water services.

<u>Outcomes to Date</u>

- A consultant was engaged to carry out an environmental scan and provide recommendations for further consideration in scope development. This work was completed in December 2023.
- Based on the recommendations and from direct requests from the Regional Engineers Advisory Committee – Water Sub-Committee members, a “Member Water Rate Structure Affordability Study” has been developed and scoped. The Study will investigate the following:
    - Existing retail water rate structures, policies and processes, water billing and collection efficacy, affordability practices and policies, income-related demographic and household data, and identifying common issues, trends, gaps and areas for improvement.
    - Issues of water equity and/ or affordability at the member level and whether an assistance policy or program is needed for low- and fixed-income households.
    - Case studies of similar jurisdictions with affordability programs in place to learn best practices, lessons learned and recommend affordability programs for further consideration by members.

The Study is now in the procurement stage and a consultant is expected to being work in Q2 with a completion estimated in early Q4 2025. Based on the Study’s recommendations, further studies or engagement activities may be required

New Technology for the Determination of Enterococci in Recreational Water to Enhance Public Safety
Status: In Progress (expect completion in 2025)

This project was initially titled *New Technology for the Determination of E. coli in Recreational Water to Enhance Public Safety* and was approved in February 2022. The 2022 Health Canada draft guidelines for Recreational Water Quality now include the qPCR method for Enterococci. The project was focused on method development for *Enterococci* rather than *Escherichia coli* (*E. coli*). The project title has been amended to *New Technology for the Determination of Enterococci in Recreational Water to Enhance Public Safety*.

Outcomes to Date

- The British Columbia Centre for Disease Control (BCCDC) was sole sourced to evaluate, test, verify, and optimize the new molecular testing methods.
- The BCCDC completed the literature review, detailed method development, and method optimization studies.
- A sampling and analysis plan was developed for 2024, and trials were completed between April and September.
- The project was staged over two years and the BCCDC has provided a final report.

Staff are considering further data analysis which will inform future operational requirements and integration. The project is expected to be completed by Q4 2025.

2023 APPROVAL YEAR
Next Generation Snowpack Monitoring – Phase 3
Status: In Progress (expect completion in 2025)

This project will operationalize the tools and analytical methods developed during the research and development completed in Phases 1 and 2 in the Metro Vancouver snowpack monitoring program. The aim is to produce validated LiDAR-derived snow depth and snow water equivalent (SWE) products with increasing accuracy within one week of data acquisition.

Outcomes to Date

- Three LiDAR snow surveys were completed in 2023 in the Seymour watershed.
- A LiDAR-drone survey of the Loch Lomond basin in the Seymour watershed has been completed.
- A three-year contract with a consultant was signed for 2023 to 2026 for satellite snow monitoring.
- Three new snow sensors have been installed at weather stations to validate the remote sensing data. One snow scale for measuring snow water equivalent and two additional radar snow depth sensors have been installed. The sensors eliminate the helicopter trips previously needed for field validation.
- In March 2024, one LiDAR survey has been completed. Data from this survey will improve the accuracy of snow and climate outlook reports for spring. A second LiDAR survey is planned for mid to late April.

The project continues to use and enhance the innovative and comprehensive approach to snow monitoring with new sources of snow data while reducing program emissions. Data generated from the program will be integrated into new hydrological models (*2022 WSIF Hydrological Modelling project*) to improve and refine current products like reservoir stop-spill predictions, alpine lake refill models, and snowmelt runoff forecasts. The data will also assist the upgraded DSS model (*WSIF 2023 project*) and improve the climate change models and climate change outlooks. The project also aims to produce detailed snow maps of the water supply areas, which can be used for education and communication purposes.

Phase 3 of the Next Generation Snowpack Monitoring project is on track to be completed by Q4 2025.

Studying the Preliminary Feasibility of Green Hydrogen Production from Hydropower at Cleveland Dam (Green Hydrogen Project)
Status: In Progress (expect completion in 2025)

The Cleveland Dam Downstream Fish Passage and Hydropower Project (CLD Project 2021) investigated options for hydropower generation at Cleveland Dam (CLD) while improving downstream fish passage from Capilano Reservoir to Capilano River. The CLD Project 2021 did not identify a fiscally responsible end use for hydropower and considered the potential sale of power to BC Hydro only after 2030.

This project is carrying out a preliminary feasibility study of green hydrogen production using hydropower at Cleveland Dam (Green Hydrogen Project). It will investigate the production of hydrogen and oxygen via electrolysis at CLD using hydropower and explore their market potential in the region. Initial estimates indicate that the 50 GWh of potential hydropower at CLD could produce approximately 1,000 metric tonnes of hydrogen and 7,900 metric tonnes of oxygen annually.

Metro Vancouver will further its understanding of the potential sustainable end uses for hydropower power that can be produced at the CLD through this project.

<u>Outcomes to Date</u>

- A consultant has been working actively since the kick-off meeting was held in February 2024.
- Two of the three technical memos have been drafted and reviewed, and updates are expected in Q2 2025.
- A third memo detailing the benefits and challenges of hydrogen production using hydropower is 80% complete, with 20-year and 50-year return on investment periods as a consideration for further decisions.

The project is expected to be completed in late Q2 2025 with the delivery of the third technical memo and a final report.

Evaluation of Biofiltration at the Seymour Capilano Filtration Plant
Status: In Progress

This project is evaluating the implementation of biofiltration at Seymour Capilano Filtration Plant (SCFP) via desktop reviews and a full-scale biofiltration demonstration study. Biofiltration can potentially provide multiple benefits to drinking water treatment, including improved finished drinking water quality, improved filter operation, improved chlorine residual stability, reduced chemical costs, and reduced distribution flushing requirements. The project will be delivered in two stage-gated phases with Phase 1 evaluating the feasibility of biofiltration and test planning, and Phase 2 implementing a full-scale demonstration trial at the plant.

Outcomes to Date

- A subject matter expert identified by the Water Research Foundation has been contracted to provide research and scientific advisory support during the project. The expert has recent relevant experience in introducing biofiltration at a fully operational plant.
- Phase 1 is underway, and the selected engineering consultant has completed the literature review and data research.
- A desktop assessment on whether biofiltration is feasible at the SCFP is ongoing and a feasibility report is expected in Q3 2025.

Subject to the findings of the feasibility study, the consultant will develop a plan to implement full-scale biofiltration demonstration at the SCFP without impacting normal operations. Once approved, Phase 2 will implement the demonstration at the plant for a full year to help understand how a healthy level of bio-reaction can be achieved while balancing filtration and backwash requirements.

The project is expected to complete in Q4 2026 with recommendations for or against long-term biofiltration implementation at the SCFP.

Reducing Oxygen Use and Increasing Resiliency at the Coquitlam Water Treatment Plant
Status: In Progress

This project evaluates the application of on-site oxygen generation and oxygen recovery systems and considers how they may be best implemented at the CWTP. These commercially available technologies could help the CWTP reduce reliance on cross-border oxygen suppliers by generating oxygen on-site and recovering more oxygen from the treatment process for reuse. The resulting benefits could include increasing system resilience, reducing chemical use and operational costs, and reducing transportation emissions and supply chain vulnerabilities.

Outcomes to Date

- A consultant has been engaged, and a design-basis memo has been completed.
- A workshop to discuss research, early findings and design options is scheduled for Q2.

The consultant will then proceed with a detailed analysis and technical feasibility of the selected and recommended option and provide a final technical memo. The study will consider the technology maturity, effectiveness, operational complexity, life cycle costs (including ongoing

maintenance costs), and anticipated payback period using high-level cost estimates. The project is expected to be completed by Q1 2026.

Building the Next Generation of Seasonal Water Supply & Demand Planning
Status: In Progress

This project aims to update Metro Vancouver's Decision Support System (DSS) Model, to align with the current industry standards. The current Excel-based DSS Model monitors drinking water supply and demand through the annual high water demand period (May 1 and October 15). It utilizes historic worst-case conditions for demand and drought to project source water availability. The updated model is anticipated to refine this process to project water supply availability more accurately and apply the model's updated data sets, including temperature, rainfall, snowpack, demographic changes, lawn watering restrictions, and operational conditions.

As a second step, using the updated DSS Model outputs, a Drinking Water Stress Index (DWSI) is to be developed to inform the public of potential shortages through the high demand period. The DWSI will be on the Metro Vancouver website and notify members and the public if successive water restrictions need to be implemented earlier and be regularly updated through the high-demand period. Following extensive internal cross-functional and multi-divisional discussions, the project has been split into the two main components to run concurrently, instead of in tandem:

- Part 1: Updating the DSS model
- Part 2: Creation of DWSI – dashboard, decision tree etc.

<u>Outcomes to Date</u>

- Part 1: Updating the DSS model
  - A workshop was held in December 2024 to demonstrate the Coquitlam Source Water Supply Model that uses a specific software, and its operational benefits and integration opportunities with other models being developed.
  - A project charter has been drafted for review and approval.
  - A scope of work will be developed for procurement of a consultant in Q2.
- Part 2: Creation of DWSI
  - Staff have developed a public communication dashboard on Metro Vancouver’s Reservoir Levels and Water Use webpage, accessed via the Current Conditions menu.
  - The webpage includes an updated total source storage graph and the dashboard that shows the factors impacting the regional water supply during the high-demand period.
  - Focus-group testing is planned for summer and fall 2025 to review and update the webpage, its communication and message.
  - The dashboard lays the groundwork for the ultimate DWSI dashboard and public interface, which can be easily developed once Part 1 is completed.

2024 APPROVAL YEAR

Expansion of the Earthquake Early Warning (EEW) & Structural Health Monitoring (SHM) Systems
Status: In Progress

Building on the success of the "*Earthquake Early Warning (EEW) and Structural Health Monitoring (SHM) Pilot"* project (WSIF 2020), this expansion project aims to complete the regional coverage of the EEW network of sensors so as to add to the early warning capabilities, add the capability for EEW-generated automatic earthquake damage mitigation steps at other critical water facilities, and add SHM sensors at the Coquitlam Water Treatment Facility and the Lake City Operations Centre so as to enable immediate post-earthquake assessment of damage at these sites.

The expanded system will increase staff safety and allow certain automated actions to be operationalized to save water and mitigate damage. The expanded and more reliable EEW system will help increase overall resiliency of the water supply system.

<u>Outcomes to date</u>

- This project was approved in Q1 2024.
- Planning for the work was completed in Q2 / Q3 and the supporting vendor contract set up at the end of 2024.

The project is underway and is on track for final commissioning by end of 2026.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

From: Marilyn Towill, General Manager, Water Services

Date: June 4, 2025 Meeting Date: June 11, 2025

Subject: **Manager's Report**

RECOMMENDATION
That the Water Committee receive for information the report dated June 4, 2025, titled "Manager's Report".

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1. Provincial Grant Funding for Rice Lake Dams
Water Services has secured $300,000 in provincial grant funding through the Disaster Resilience and Innovation Funding (DRIF) program to carry out seismic hazard and stability assessments for the Rice Lake dams in North Vancouver. The Rice Lake North and South dams impound Rice Lake, which is used for recreation, public education, and natural habitat preservation. Rice Lake is a popular recreational area with walking trails that connect visitors with other trail networks of interest within the Lower Seymour Conservation Reserve.

The BC Dam Safety Regulation classifies dams into five consequence categories: Low, Significant, High, Very High, and Extreme, reflecting their theoretical worst-case impact to people, environmental and cultural values, infrastructure and economics. The Rice Lake dams are classified as Very High consequence, to reflect their location and surrounding recreational areas. The classification provides a basis for determining appropriate levels of assessments and risk management for the dams, as well as minimum frequencies of activities that include surveillance, inspection, testing and reviews.

In recent years, Water Services has completed hydrotechnical and geotechnical studies to assess the current condition and function of these structures. Based on recommendations from this work, the next phase of assessments (now supported by DRIF funding) will include targeted soil investigations and advanced computer modelling to determine how the dams would perform during a major earthquake.

This project reflects Metro Vancouver's ongoing commitment to dam safety by working to understand and reduce risks to people, the environment, and essential services as much as reasonably practicable. The findings from this phase of work will help determine whether any upgrades are needed to maintain public safety and long-term system resilience, while ensuring investments remain cost-effective and regionally responsible.

2. Coquitlam Water Main (Coquitlam Main No. 4) Project Update
Metro Vancouver is constructing the new Coquitlam Water Main to optimize the capacity of the existing Coquitlam system and to meet the growing demand for drinking water in the region. The Coquitlam Water Main is a key regional transmission main that will expand the capacity of the

Coquitlam source for the next 50 years to meet current and future demand for drinking water, in particular for member jurisdictions south of the Fraser River and to the east of the City of Coquitlam.

The new water main is approximately 12 kilometres long spanning from the north end of Pipeline Road to Mariner Way at Riverview Crescent, in the City of Coquitlam. The diameter of the new steel water main ranges from 2.3 to 3.5 metres. Construction of the water main is divided into four sections, namely, the Pipeline Road North Section, Robson to Guildford Section, City Centre Tunnel Section, and Cape Horn Section.

A pre-build section, Robson to Guildford Section, has been under construction since late 2023. To date, approximately 730 metres of 3.2-metre diameter steel pipe have been installed (See Figure 1). This section is anticipated to be completed by the second half of 2026. A second pre-build along Dewdney Trunk Road between Westwood Street and Lougheed Highway, under the Cape Horn Section, is anticipated to commence in the first half of 2026.

Figure 1. Coquitlam Water Main – Robson to Guildford Section pipe installation

Detailed design of the Pipeline Road North Section, City Centre Tunnel Section, and Cape Horn Sections is underway and is expected to be complete by the end of 2025. Staff will be bringing a

report in early 2026 to the Water Committee and GVWD Board to seek approval to advance the overall project to Stage Gate 3 (Construction).

3. Advancing Water Metering in the Region

As Metro Vancouver continues to grow, ensuring a reliable and sustainable drinking water supply will require a proactive and collaborative approach to conservation and efficiency. While substantial progress has been made in reducing per capita water demand through passive conservation measures, population growth is expected to outpace these gains, requiring more progressive conservation strategies.

Metro Vancouver is proposing a regionally coordinated effort to advance drinking water metering and conservation through the Drinking Water Management Plan update (see Report E1). The accompanying report titled "Drinking Water Management Plan Update - Proposed Strategies and Actions" lists the proposed metering and conservation strategies and actions. Those have been developed with member jurisdictions staff based on the outcomes of a recently completed study by Metro Vancouver called "Assessment of Drinking Water Conservation Potential".

The purpose of this study was to identify cost effective and efficient drinking water conservation measures that Metro Vancouver and its members can pursue to reduce drinking water demand in the region. The study found that the region can substantially reduce per capita demand over the next 30 years, if the region is universally metered by 2036 and adopts more progressive conservation measures, such as identifying and addressing system water losses as well as implementing conservation-oriented water rates. Through the study, a detailed analysis was conducted on the effectiveness of 18 water conservation measures including the quantification of water savings, members cost to implement the measure, and savings of not buying Metro Vancouver water. The four measures with the highest potential for savings all rely on universal metering, which is critical for effective implementation. Those four measures include:

1. system water losses
2. tiered rate conservation pricing
3. high efficiency toilet rebates
4. customer leak repair

Figure 1 below, shows the potential per capita demand reduction, over a 30-year timeline, through different programs using a combination of the different conservation measures, as follows:

- The orange line shows the potential reductions if we continue with existing passive conservation measures such as densification and updated plumbing codes, without additional metering programs.
- The purple line shows the potential reduction with additional conservation programs but without additional investment in metering.
- The navy line shows the impact of advanced metering with conservation, which is where significant improvements in per capita demand happen.

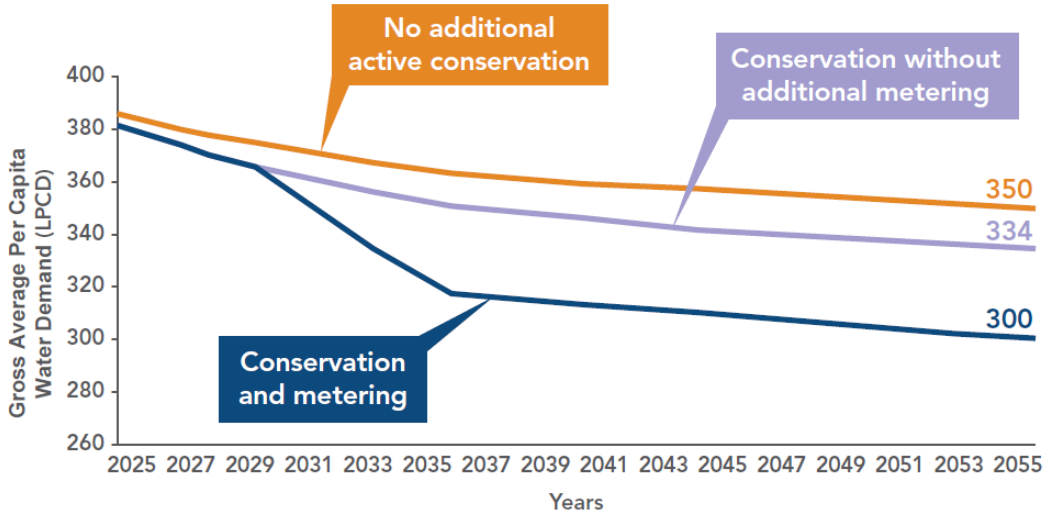

Figure 1: Regional Gross Average Per Capita Demand Forecast with Different Conservation Programs

The results reiterate the importance of water metering as an essential tool to effectively reduce drinking water demand in the region. Implementing universal water metering is not just a financial or operational decision, it is a necessary step in ensuring Metro Vancouver's and its members continue to supply the region with high-quality drinking water into the future.

4. 2025 Water Committee Work Plan

ATTACHMENT

1. 2025 Water Committee Work Plan

Water Committee 2025 Work Plan

Report Date: June 4, 2025

Priorities

1st Quarter	**Status**
Advancing Water Metering in the Region	In Progress
Water Supply Area Fisheries Initiatives Annual Update	Completed
Contract Approvals as per the *Procurement and Asset Disposal Authority* Policy	Completed
Transaction Approvals as per the *Real Estate Authority* Policy	Completed
Water Policies (as applicable)	Completed
2nd Quarter	
2024 Year End Financial Performance Results Review	Completed
Coquitlam Water Main Project Update	In Progress
GVWD 2024 Dam Safety Program Annual Update	In Progress
GVWD 2024 Water Supply System Annual Update	Completed
GVWD 2024 Water Quality Annual Report	Completed
Implications of Increased Population on Water Utility Planning	Pending
Water Supply Update for Summer 2025	Completed
Wildfire Preparedness Update	Completed
Contract Approvals as per the *Procurement and Asset Disposal Authority* Policy	In Progress
Transaction Approvals as per the *Real Estate Authority* Policy	In Progress
Water Policies (as applicable)	In Progress
3rd Quarter	
Drinking Water Customer Service Guide	Pending
GVWD Electrical Energy Use, Generation, and Management	Pending
Health Canada PFAS Guidelines	Pending
Palisade Lake: Outlet Works Rehabilitation	Pending
Water Supply Tunnels Projects Update	Pending
Contract Approvals as per the *Procurement and Asset Disposal Authority* Policy	Pending
Transaction Approvals as per the *Real Estate Authority* Policy	Pending
Water Policies (as applicable)	Pending
4th Quarter	
Coquitlam Lake Water Supply Project Update	Pending
Drinking Water Management Plan Update	Pending
GVWD Annual Budget and 5-Year Financial Plan	Pending
Water Communications and Public Outreach Results	Pending
Water Supply Performance for Summer 2025	Pending
Water Use by Sector Report	Pending
Contract Approvals as per the *Procurement and Asset Disposal Authority* Policy	Pending
Transaction Approvals as per the *Real Estate Authority* Policy	Pending
Water Policies (as applicable)	Pending

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