metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

METRO VANCOUVER REGIONAL DISTRICT
WATER COMMITTEE

REGULAR MEETING

Thursday, October 6, 2022
9:15 am
Meeting conducted electronically pursuant to the Procedure Bylaw
28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia
Webstream available at http://www.metrovancouver.org

A G E N D A[1]

1. ADOPTION OF THE AGENDA

1.1 October 6, 2022 Regular Meeting Agenda
That the Water Committee adopt the agenda for its regular meeting scheduled for October 6, 2022 as circulated.

2. ADOPTION OF THE MINUTES

2.1 September 7, 2022 Regular Meeting Minutes *pg. 4*
That the Water Committee adopt the minutes of its regular meeting held September 7, 2022 as circulated.

3. DELEGATIONS

4. INVITED PRESENTATIONS

5. REPORTS FROM COMMITTEE OR STAFF

5.1 2023 – 2027 Financial Plan – Consolidated Overview
Verbal Update
Designated speakers: Jerry W. Dobrovolny, Chief Administrative Officer and Dean Rear, Chief Financial Officer/General Manager Financial Services

5.2 2023 - 2027 Financial Plan – Water Services *pg. 9*
That the Water Committee endorse the 2023 - 2027 Financial Plan for Water Services as presented in the report dated September 27, 2022, titled "2023 - 2027 Financial Plan – Water Services", and forward it to the Metro Vancouver Board Budget Workshop on October 19, 2022 for consideration.

[1] *Note: Recommendation is shown under each item, where applicable.*

5.3 Development Cost Charge Review Process and Rate Bylaw *pg. 44*

That the GVWD Board:

a) approve the implementation of Development Cost Charge rates and a Development Cost Charge Waiver or reduction for not-for-profit rental housing, as proposed in the report dated September 22, 2022 titled "Development Cost Charge Review Process and Rate Bylaw", and endorse the inclusion of interest costs directly related to those activities that are approved by the Inspector of Municipalities in the Development Cost Charge program;
b) give first, second, and third reading to the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022*;
c) give first, second, and third reading to the *Greater Vancouver Water District Water Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256, 2022* and
d) direct staff to forward the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022* to the Inspector of Municipalities for approval.

5.4 2022 Update on Water Sustainability Innovation Fund Projects *pg. 67*

That the Water Committee receive for information the report dated September 8, 2022, titled "2022 Update on Water Sustainability Innovation Fund Projects".

5.5 Summer 2022 Water Supply Performance *pg. 75*

That the Water Committee receive for information the report dated September 27, 2022, titled "Summer 2022 Water Supply Performance".

5.6 2022 Lawn Watering Communications, We Love Water Campaign, and Water Wagon Results *pg. 79*

That the Water Committee receive for information the report dated September 22, 2022, titled "2022 Lawn Watering Communications, We Love Water Campaign, and Water Wagon Results".

5.7 Award of Phase B, Construction and Commissioning Engineering Services for Coquitlam Main No. 4 – South Section *pg. 88*

That the GVWD Board:

a) approve award of Phase B, Construction and Commissioning Services, in the amount of up to $6,950,902 (exclusive of taxes) to the Phase A consultant, CH2M Hill Canada Limited, for the Coquitlam Main No. 4 - South Section, subject to final review by the Commissioner; and
b) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.

5.8 GVWD Capital Program Expenditure Update to August 31, 2022 *pg. 93*

That the Water Committee receive for information the report dated September 27, 2022, titled "GVWD Capital Program Expenditure Update to August 31, 2022".

5.9 Compensation Practices Related to Metro Vancouver's Delivery of Projects *pg. 107*

That the GVS&DD and GVWD Boards receive for information the report dated September 28, 2022, titled "Compensation Practices Related to Metro Vancouver's Delivery of Projects".

5.10 Manager's Report *pg. 111*

That the Water Committee receive for information the report dated September 28, 2022 titled "Manager's Report".

6. INFORMATION ITEMS

7. OTHER BUSINESS

8. BUSINESS ARISING FROM DELEGATIONS

9. 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 regular meeting scheduled for October 6, 2022 pursuant to the *Community Charter* provisions, Section 90 (1) (e) as follows:

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

(e) the acquisition, disposition or expropriation of land or improvements, if the board or committee considers that disclosure could reasonably be expected to harm the interests of the regional district."

10. ADJOURNMENT/CONCLUSION

That the Water Committee adjourn/conclude its regular meeting of October 6, 2022.

Membership:

Brodie, Malcolm (C) – Richmond
Elford, Doug (VC) – Surrey
Asmundson, Brent – Coquitlam
Bell, Don – North Vancouver City
Bligh, Rebecca – Vancouver
Dingwall, Bill – Pitt Meadows
Guichon, Alicia – Delta
Keithley, Joe – Burnaby
Martin, Gayle – Langley City
Ross, Jamie – Belcarra
Svendsen, Ryan – Maple Ridge
Vagramov, Rob – Port Moody

METRO VANCOUVER REGIONAL DISTRICT
WATER COMMITTEE

Minutes of the Regular Meeting of the Metro Vancouver Regional District (MVRD) Water Committee held at 9:16 a.m. on Wednesday, September 7, 2022 in the 28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:
Chair, Mayor Malcolm Brodie*, Richmond
Vice Chair, Councillor Doug Elford*, Surrey
Councillor Brent Asmundson*, Coquitlam
Councillor Don Bell*, North Vancouver City
Mayor Bill Dingwall*, Pitt Meadows
Councillor Joe Keithley*, Burnaby
Councillor Gayle Martin*, Langley City
Mayor Rob Vagramov*, Port Moody (arrived at 9:21 a.m.)

MEMBERS ABSENT:
Councillor Rebecca Bligh, Vancouver
Councillor Alicia Guichon, Delta
Mayor Jamie Ross, Belcarra
Councillor Ryan Svendsen, Maple Ridge

STAFF PRESENT:
Marilyn Towill, General Manager, Water Services
Rapinder Khaira, Legislative Services Coordinator, Board and Information Services

OPENING REMARKS
Chair Brodie addressed the recent passing of Chief Ken Baird from the Tsawwassen First Nation, noting his contributions to Metro Vancouver as well as the Tsawwassen First Nation community.

1. ADOPTION OF THE AGENDA

1.1 September 7, 2022 Regular Meeting Agenda

It was MOVED and SECONDED
That the Water Committee adopt the agenda for its regular meeting scheduled for September 7, 2022 as circulated.

CARRIED

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

2. ADOPTION OF THE MINUTES

2.1 July 6, 2022 Regular Meeting Minutes

It was MOVED and SECONDED
That the Water Committee adopt the minutes of its regular meeting held July 6, 2022 as circulated.

CARRIED

2.2 July 20, 2022 Special Joint Meeting Minutes

It was MOVED and SECONDED
That the Water committee adopt the minutes of its special joint meeting held July 20, 2022.

CARRIED

3. DELEGATIONS

No items presented.

4. INVITED PRESENTATIONS

No items presented.

5. REPORTS FROM COMMITTEE OR STAFF

5.1 Award of Contract Resulting from Request for Proposal (RFP) No. 22-074: Consulting Engineering Services for Cape Horn Pump Station No. 3

Report dated August 4, 2022, from Goran Oljaca, Director, Engineering and Construction, Water Services and Roy Moulder, Director, Procurement, Procurement and Real Estate Services presenting the GVWD Board with the results of RFP No. 22-074: Consulting Engineering Services for Cape Horn Pump Station No. 3 and recommending an award of the contract for Phase A work to Stantec Consulting Ltd.

It was MOVED and SECONDED
That the GVWD Board:

a) authorize an increase of the budget for the Detailed Design phase of the Cape Horn Pump Station No. 3 (CHPS3) project in the amount of $4,000,000 from known savings on other projects, bringing the revised total budget for this phase of the project to $9,600,000; and
b) approve award of a contract for the Detailed Design services (Phase A) in the amount of up to $7,566,020 (exclusive of taxes) to Stantec Consulting Ltd. resulting from Request for Proposal (RFP) No. 22-074: Consulting Engineering Services for Cape Horn Pump Station No. 3, subject to final review by the Commissioner; and

c) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.

CARRIED

5.2 Award of Contract Resulting from Request for Proposal (RFP) No. 22-197: Kennedy Newton Main – Phase 3 Scott Road Section

Report dated August 4, 2022, from Roy Moulder, Director, Procurement, Procurement and Real Estate Services and Goran Oljaca, Director, Engineering and Construction, Water Services presenting the GVWD Board with the results of RFP No. 22-197: Kennedy Newton Main – Phase 3 Scott Road Section and recommending award of the contract to Matcon.

9:21 a.m. Mayor Vagramov arrived at the meeting.

Discussion ensued regarding the rationale of recommending awarding the contract to the highest bidder.

Request of Staff

Staff were requested to report back, in advance of the September 23, 2022 GVWD Board meeting, with a summary of the rationale for recommending the award of contract to the highest bidder.

It was MOVED and SECONDED

That the GVWD Board:

a) approve the award of a contract in the amount of $10,286,500. (exclusive of taxes) to Matcon Civil Constructors Inc. resulting from RFP No. 22-197: Kennedy Newton Main - Phase 3 Scott Road Section, subject to final review by the Commissioner; and

b) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.

CARRIED

5.3 Award of Contract Resulting from Request for Proposal (RFP) No. 21-306: Supply and Delivery of Sodium Carbonate for Coquitlam Water Treatment Plant

Report dated August 24, 2022, from Roy Moulder, Director, Procurement, Procurement and Real Estate Services and Andrew de Boer, Director (Acting), Operations and Maintenance, Water Services presenting the GVWD Board with results of RFP No. 21-306: Supply and Delivery of Sodium Carbonate to Coquitlam Water Treatment Plant and recommending award of the contract to Brenntag Canada Inc.

It was MOVED and SECONDED

That the GVWD Board:

a) approve award of a contract in an amount of up to $6,863,300 (exclusive of taxes) to Brenntag Canada Inc., for an initial 3-year term, resulting from Request for Proposal (RFP) No. 21-306: Supply and Delivery of Sodium Carbonate to Coquitlam Water Treatment Plant, subject to final review by the Commissioner; and
b) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.

CARRIED

5.4 Coquitlam River Watershed Roundtable - Contribution Agreement 2023-2026

Report dated August 24, 2022, from Jesse Montgomery, Division Manager, Environment, seeking the GVWD Board's approval for renewal of a Contribution Agreement with the Watershed Watch Salmon Society.

It was MOVED and SECONDED

That the GVWD Board approve the Contribution Agreement between the Greater Vancouver Water District and the Watershed Watch Salmon Society for a four-year term and annual contribution of $34,000 plus 3% per year, commencing on January 1, 2023 and ending on December 31, 2026.

CARRIED

5.5 Manager's Report

Report dated August 30, 2022, from Marilyn Towill, General Manager, Water Services, providing the Water Committee with an update on the Beneficial Use Update for Drinking Water Treatment Residuals, Capilano Hydropower Generation and Downstream Fish Passage Project, Coquitlam Lake Water Supply Project, Fleetwood Reservoir, Kennedy Newton Main Construction and Grouse Mountain Tree Removal for New Gondola System.

A verbal updated was provided regarding a recommendation for a request for bylaw notice authority going to the GVS&DD and GVWD Board through the Finance Committee.

It was MOVED and SECONDED

That the Water Committee receive for information the report dated August 30, 2022 titled "Manager's Report".

CARRIED

6. INFORMATION ITEMS

No items presented.

7. OTHER BUSINESS

No items presented.

8. BUSINESS ARISING FROM DELEGATIONS

No items presented.

9. RESOLUTION TO CLOSE MEETING

It was MOVED and SECONDED

That the Water Committee close its regular meeting scheduled for September 7, 2022 pursuant to the *Community Charter* provisions, Section 90 (1) (d) and (e) as follows:

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

(d) the security of the property of the regional district; and

(e) the acquisition, disposition or expropriation of land or improvements, if the board or committee considers that disclosure could reasonably be expected to harm the interests of the regional district."

CARRIED

10. ADJOURNMENT/CONCLUSION

It was MOVED and SECONDED

That the Water Committee adjourn its regular meeting of September 7, 2022.

CARRIED

(Time: 9:48 a.m.)

_____ _____

Rapinder Khaira, Malcolm Brodie, Chair
Legislative Services Coordinator

55052823 FINAL

To: Water Committee

From: Marilyn Towill, General Manager, Water Services

Date: September 27, 2022 Meeting Date: October 6, 2022

Subject: **2023 - 2027 Financial Plan – Water Services**

RECOMMENDATION

That the Water Committee endorse the 2023 - 2027 Financial Plan for Water Services as presented in the report dated September 27, 2022, titled "2023 - 2027 Financial Plan – Water Services", and forward it to the Metro Vancouver Board Budget Workshop on October 19, 2022 for consideration.

EXECUTIVE SUMMARY

The 2023 - 2027 Metro Vancouver Financial Plan has been prepared following direction received at the April 14, 2022 Metro Vancouver Board Budget Workshop. This has resulted in a plan that maintains the goals and objectives of Metro Vancouver while removing the use of financial levers that were put in place during the COVID-19 pandemic. Further, this budget represents a pause to assess the implications of the rapidly evolving macro economic environment, impacts of water conservation efforts on growth capital project timing, and to undertake strategic planning with the incoming Board of Directors. The increase in Metro Vancouver's overall consolidated household impact for 2023 is projected to be 4.5%, down from the 10.1% projected for 2023 in the prior financial planning cycle.

In 2023, the average water rate will increase by 2.8% to $0.8676 per cubic metre (/m3) (2022 average water rate: $0.8444/m3). This represents a $2 (1.4%) increase in the cost to the average regional household to $177, which is less than the $183 forecasted for 2023 in the prior year budget.

Metro Vancouver, through the GVWD, continues to provide a reliable source of uninterrupted, clean, safe drinking water to support the growing region and its economic prosperity. Growing demand for drinking water, system resilience, and infrastructure maintenance are met through robust, proactive capital and operating programs supported by long term planning and monitoring.

PURPOSE

To present the 2023 - 2027 Financial Plan for Water Waste Services for consideration by the Committee.

BACKGROUND

Metro Vancouver's annual budget process includes the development of detailed annual budgets and the updating of five-year financial plans for each of the four Metro Vancouver legal entities (Metro Vancouver Regional District, Metro Vancouver Housing Corporation, Greater Vancouver Water District, and Greater Vancouver Sewerage and Drainage District).

On April 14, 2022 a Metro Vancouver Board Budget Workshop was held with the objective to seek direction for the preparation of the 2023 - 2027 Financial Plan. The workshop outlined the principles that guide the work of Metro Vancouver as an organization, the current 2022 - 2026 Financial Plan,

the implications of the COVID-19 pandemic, the tools that can be used to make budget adjustments, and a proposed approach for the 2023 - 2027 Financial Plan.

Given the challenges being observed coming out of the COVID-19 pandemic, this budget represents a pause for Metro Vancouver and focuses on maintaining the existing goals and objectives of Metro Vancouver and Water Services. Staff will undertake strategic planning with the incoming Board of Directors, confirm current plans under this leadership, and assess the implications of the rapidly evolving macro environment and impacts of water conservation efforts on growth capital project timing.

Key highlights of the overall Metro Vancouver 2023 proposed budget are as follows:

- A reduction of $22 million of the total 2023 Metro Vancouver proposed operating budget compared to that previously projected for 2023
- Maintained or increased contribution to capital and reserves for key functions
- Reduced capital cash flow for 2023 and 2024
- Real reduction of HHI, $33 less that that previously projected for 2023

This report focuses on the Water Services function and presents the 2023 annual budget and the updated five-year plan for the years 2023 to 2027 for Committee consideration.

WATER SERVICES PROGRAM

The Water Services function comprises 18 member municipalities, one electoral area and one treaty First Nation within Metro Vancouver, serving a population of approximately 2.7 million. Drinking water is collected from within three protected mountain water supply areas covering approximately 60,000 hectares. The system itself comprises six mountain storage lakes, seven dams, two major water treatment facilities, over 520 km of large diameter transmission mains, 27 storage reservoirs, 19 pump stations, and eight rechlorination stations. The system treats and distributes an average of 1.0 billion litres of water per day with summer time peak demands increasing to over 1.5 billion litres per day.

Water Services initiatives planned over the next five years are guided by direction provided in the *Board Strategic Plan* and in the *2011 Drinking Water Management Plan*, specifically:

Board Strategic Plan:

- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.

Drinking Water Management Plan:

- Provide clean, safe drinking water
- Ensure the sustainable use of water resources
- Ensure the efficient supply of water

Metro Vancouver also recognizes the history of Indigenous Peoples and aims to build meaningful and enduring relationships with First Nations. As part of its work, Water Services is committed to engaging First Nation communities through information sharing, consultation and ongoing communication.

The region's population continues to grow and with it total water demand. Anticipated impacts of climate change will also put pressure on the regional water supply. Metro Vancouver is taking a two-pronged approach to planning for the future: the first is to continue promoting water conservation through various plans and campaigns to reduce demand for drinking water. The second is ensuring adequate water supply and appropriate infrastructure are in place.

WORK PLAN PERFORMANCE INDICATORS

High level performance indicators have been developed across the organization to evaluate trends, determine key actions for the coming year, and to assist in long-term planning. The 2023 Work Plans for Water Services are presented in this report. Within the Water Services Work Plans, 29 performance indicators have been developed and are being tracked. These include:

- Peak per capita water use
- Progress on major and minor capital projects
- Volume of water treated and delivered
- Energy use per unit volume of water treated
- Compliance with treatment operating permit criteria
- Water transmission system leak repairs
- Water samples collected and analyzed

CONTINUOUS IMPROVEMENT

Water Services continues to explore, evaluate and implement continuous improvement opportunities. The department identified numerous opportunities in 2022 and has made progress on many including:

- Continued to increase in-house Project Management and Field Quality Control/Assurance, thereby reducing reliance on external consultants and reducing costs
- Completed the 2021 Water Services State of the Assets Report which provided a current summary of the asset inventory, condition, replacement value, and forecast long-term investment needs
- Initiated moving pipe storage from the U.S. to a local space resulting in $800,000 in cost savings ($400,000 / year) and improved resiliency with repair materials being readily available (expected to be complete by end of 2022)
- Incorporated Lean Six Sigma methodology to standardize business practices with an initial focus on safety to reduce lost time incidents by improving the investigation and reporting process
- Completed upgrades and enhancements of the Port Mann water supply corridor to increase supply capacity from the Coquitlam water supply source and strengthen resiliency

For 2023, some opportunities for continuous improvement have been carried forward from 2022 and new ones have been added including:

- Updating the regional water transmission model to improve growth and resilience planning as well as providing short term forecasting to support daily operations and maintenance
- Developing a drinking water stress index to facilitate planning for a resilient water supply system during climate change stresses such as drought
- Continue building standard Lean processes, methods and tools to guide WS organizational development and improve business processes
- Formalizing a valve exercising and inspection program
- Optimizing Coquitlam Water Treatment Plant ozone system resulting in cumulative $250,000/ year ($25,000 from a 2023 project) reduction in electricity and oxygen costs, and 27,000 kg CO2e per year (10,000 kg from a 2023 project)
- Developing and implementing an ISO 14001 compliant Environmental Management System to improve environmental performance resulting in reduced environmental and regulatory risks and less reportable environmental incidents
- Completing the implementation of Building Information Modeling (BIM) Phase I, to enable greater utilization of collaborative 3D design methods and design conflicts management

2023 BUDGET AND 2023 - 2027 FINANCIAL PLAN

The five-year financial plans for this cycle have been updated to address five central themes identified by the Metro Vancouver Board in its Strategic Plan to guide the development of plans and budgets. The five themes are as follows:

- Financial Sustainability
- Environmental Sustainability
- System Stewardship
- Regulatory and Legislative Environment
- Regional Growth

Each Metro Vancouver function has Annual Work Plans that include strategic directions, performance indicators and key actions to guide the work for the coming year. Each function also has a "What's Happening" summary that highlights the program highlights for the next five years.

The 2023 - 2027 Water Services Financial Plan is included as Attachment 1. The 2023 Annual Work Plans for Water Services presented in this report are included in Attachment 3 and the "What's Happening" highlights for the years 2023 - 2027 are included in Attachment 4.

Operating Budget Highlights

The Water Services operating budget is separated into operating programs and funding required to support the expanding capital program (debt service and contribution to capital). In the previous budget cycle it was proposed that the budget would increase by $13.2 million to $351.6 million for 2023. It is now proposed to increase by $4.1 million in 2023 for a total budget of $342.5 million (Attachment 1). This increase can be attributed to core operating fund increases ($3.1 million); and increases to allocated programs ($1.3 million). Capital and debt servicing decreases helped to offset the increases (-$0.3 million) for the net increase of $4.1 million.

The 2023 financial plan includes increased water sales revenues of approximately $9.0 million, based on higher summer rates ($1.0927/m3) for June through September and the lower rate of $0.7119/m3 applying for the rest of the year (equating to an overall average water rate of $0.8676/m3 compared to 2022 forecast for 2023 of $0.8958/m3). The differential rates are intended to incentivize conservation efforts in the region and to assist in reducing long term pressures on the Capital Budget.

The 2023 operating budget includes the following key actions:

- Continue collaboration with GVWD members to strengthen regional drinking water conservation and enforcement, reducing pressures on infrastructure development to support population growth
- Host the opening of the Watershed Learning Center, a multi-use public educational and office building, in the Lower Seymour Conservation Reserve
- Complete the next Dam Safety Review for Cleveland Dam in accordance with the provincial Dam Safety Regulations which require Dam Safety Reviews at 7-year intervals for extreme consequence dams
- Conduct a Canadian Association of Laboratory Accreditation audit required for continued operation of the Metro Vancouver laboratory

Highlights of contracts and consulting assignments anticipated to be undertaken in 2023 to respond to work plan requirements within the operating budget include the following:

- Updates to Drinking Water Management Plan and continue the Drinking Water Conservation Plan Summer Support program
- Asset condition assessments
- Development and implementation of an ISO 14001 compliant Environmental Management System in collaboration with Liquid Waste Services
- Reservoir Limnology Program to monitor the chemical, physical and biological parameters of the Capilano, Seymour and Coquitlam source water supply
- Tree assessments and site treatments associated with the Water Services Hazard Tree Program

Capital Budget Highlights

The 2023-2027 Capital Plan (Attachment 2) includes $399.9 million for 2023 and a total of $2.7 billion over the five years, with an average of $539.3 million per year. There are 145 projects on the five-year plan and the largest nine projects make up 64% of the capital spending.

The capital program is funded by a combination of long-term debt, reserves, contributions from the operating budget, external (interagency) contributions and projected, future development cost charges (DCCs) funding growth.

Capital program expenditures over the next five years are largely driven by system expansion to meet the needs of a growing population, upgrades to improve system resiliency, maintenance of aging infrastructure and opportunities to reduce life-cycle costs for services and/or achieve Board goals such as climate change mitigation. Highlights of capital projects planned or ongoing for 2023 include the following:

- Commence construction: Coquitlam Water Main, Annacis Water Supply Tunnel, Capilano Raw Water Pump Station Back-up Power, Newton Pump Station No. 2, and Stanley Park Water Supply Tunnel

- Continue construction: Kennedy Newton Main, Fleetwood Reservoir, and Second Narrows Water Supply Tunnel

Throughout the capital planning process, staff diligently reviewed project schedules to ensure efficient project timing, deliverability and scope. This exercise was performed in preparing the Water 2023 - 2027 Capital Plan and resulted in the deferral of $311 million in capital expenditures into future years.

Reserve Funds
The application of reserve funding in Water Services comes from the Sustainability Innovation Fund and the Laboratory Equipment reserves. In 2023, the financial plan includes $1,490,000 in funding from the Water Sustainability Innovation Fund for several sustainability project initiatives approved by the Board being undertaken and $96,000 from the Laboratory Equipment Reserve for equipment purchases. The 2023 - 2027 Projected Reserves for Water Services is included in Attachment 5.

APPROVAL PROCESS
The proposed 2023 - 2027 Financial Plan and Annual Work Plan is presented for consideration and endorsement before being forwarded to the Board for consideration.

The next steps of the process are the 2023 - 2027 Financial Plan and Annual Work Plan will be presented for consideration at the Metro Vancouver Board Budget Workshop on October 19, 2022.

The Board will consider adoption of the 2023 Budget and endorsement of the 2023 - 2027 Financial Plan on October 28, 2022.

ALTERNATIVES
1. That the Water Committee endorse the 2023 - 2027 Financial Plan for Water Services as presented in the report dated September 27, 2022, titled "2023 - 2027 Financial Plan – Water Services", and forward it to the Metro Vancouver Board Budget Workshop on October 19, 2022 for consideration; and

2. That the Water Committee make recommendations and endorse an amended 2023 - 2027 Financial Plan for Water Services and forward the amended Financial Plan to the Metro Vancouver Board Budget Workshop on October 19, 2022 for consideration.

FINANCIAL IMPLICATIONS
If the Greater Vancouver Water District Board approves the 2023 Budget and endorses the Five-Year Financial Plan for Water Services, as presented under Alternative 1, in 2023, with the increase applied 100% to the Water Rate for June to September, the projected Water Rates would be $1.0927/m3 for June through September and remain at $0.7119/m3 for January through May and October through December (average water rate of $0.8676/m3 compared to 2022 forecast for 2023 of $0.8958/m3). Revenue from the sale of water is projected to increase by $9.0 million (2.7%) to $338.3 million which will generate the majority of the $342.5 million in total revenue required to offset projected expenditures. The increase in the average water rate represents a $2 increase in the annual cost to the average regional household to $177 which is less than the $183 forecasted for 2023 in the prior year budget. The application of the proposed increase for 2023 to the peak water rate does not have bearing on the budget or the financial plan.

Over the term of the five-year plan, the blended water rate is projected to increase by an average of $0.1073/m3 with water sales increasing by an average of $43.9 million per year to provide the required revenue to offset projected expenditures. It is anticipated that the annual cost to the average regional household over the next five years will rise from $177 in 2023 to $270 in 2027 representing an average annual increase of $19. Future budgets will be adjusted based on the success of conservation efforts across the region.

SUMMARY / CONCLUSION

The 2023 Budget and Five-Year Financial Plan for Water Services have been prepared following direction received at the April 14, 2022 Metro Vancouver Board Budget Workshop and to respond to direction provided in the *Board Strategic Plan* and to support the 2011 *Drinking Water Management Plan*. It is presented to Committee and Board members to provide overview information on activities and financial impacts for the years 2023 to 2027 for Water Services.

The presentation of the 2023 budget and five-year financial plan for Water Services provides the opportunity for Metro Vancouver to share with its member jurisdictions the proposed capital projects and operating programs, and the financial impact of these projects, over the next five years. The financial plan illustrates how Metro Vancouver proposes to pay for Water investments, notwithstanding additional successes in regional water conservation efforts, that will be required to maintain our assets and to respond to our region's growing population. It is intended to be used as a guiding document for member jurisdictions in the development of their five-year financial plans and includes projections on household impact to demonstrate how the plan will remain affordable for Metro Vancouver residents while keeping pace with our critical infrastructure requirements.

Staff recommend endorsing the 2023 - 2027 Financial Plan and Annual Work Plans for Water Services as presented under Alternative 1.

Attachments:

1. 2023 - 2027 Water Services Financial Plan
2. 2023 - 2027 Water Services Capital Budget Summary
3. 2023 Water Services Work Plans
4. 2023 - 2027 "What's Happening"
5. 2023 - 2027 Projected Reserves – Water Services

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GREATER VANCOUVER WATER DISTRICT
WATER SERVICES
2023 BUDGET REVIEW
2023-2027 FINANCIAL PLAN

	2022 BUDGET	2023 BUDGET	% CHANGE	2024 FORECAST	% CHANGE	2025 FORECAST	% CHANGE	2026 FORECAST	% CHANGE	2027 FORECAST	% CHANGE
REVENUES											
Water Sales	$ 329,365,517	$ 338,337,102	2.7%	$ 373,205,406	10.3%	$ 425,239,222	13.9%	$ 480,853,802	13.1%	$ 548,965,816	14.2%
Other External Revenues	1,657,055	2,576,682		2,706,891		2,663,076		2,672,578		2,392,238	
Transfer from Sustainability Innovation Fund Reserves	3,916,070	1,490,000		725,000		75,000		-		-	
Transfer from Reserves	3,496,000	96,000		96,000		96,000		96,000		96,000	
TOTAL REVENUES	**$ 338,434,642**	**$ 342,499,784**	**1.2%**	**$ 376,733,297**	**10.0%**	**$ 428,073,298**	**13.6%**	**$ 483,622,380**	**13.0%**	**$ 551,454,054**	**14.0%**
EXPENDITURES											
Operating Programs:											
Policy Planning and Analysis											
Contribution to Sustainability Innovation Reserve	$ 723,000	$ 723,000		$ 723,000		$ 723,000		$ 723,000		$ 723,000	
Research and Innovation	588,445	514,855		537,577		561,764		587,540		615,224	
Utility Modeling and Data Analytics	2,101,727	2,083,847		2,693,060		2,863,999		2,829,698		2,918,821	
Utility Policy and Planning	3,154,654	3,070,575		2,558,490		1,698,999		1,625,097		1,657,206	
	6,567,826	6,392,277	(2.7%)	6,512,127	1.9%	5,847,762	(10.2%)	5,765,335	(1.4%)	5,914,251	2.6%
Engineering and Construction											
Minor Capital Projects	9,416,652	9,992,975		10,342,345		10,623,538		10,900,666		11,229,806	
Infrastructure Operations Support	2,025,714	2,304,108		2,815,558		2,873,052		3,046,133		3,260,934	
Dispatch	131,424	133,312		137,874		141,816		145,600		149,488	
	11,573,790	12,430,395	7.4%	13,295,777	7.0%	13,638,406	2.6%	14,092,399	3.3%	14,640,228	3.9%
Shared and Support Services											
Engineers in Training	434,233	377,784		388,896		399,333		410,023		421,005	
Business & Shared Services Support	732,088	1,520,112		1,700,026		1,749,675		1,961,787		2,015,721	
Shared & Utility Services	1,026,571	183,271		188,878		194,071		199,335		204,743	
Minor Capital Projects	1,016,387	885,627		916,590		941,511		966,071		995,241	
Records Management	111,408	112,920		116,566		119,855		123,128		126,489	
	3,320,687	3,079,714	(7.3%)	3,310,956	7.5%	3,404,445	2.8%	3,660,344	7.5%	3,763,199	2.8%
Watershed and Environmental Management											
Watershed and Environmental Management	13,135,271	13,323,399		13,577,381		13,835,132		14,331,110		14,921,712	
	13,135,271	13,323,399	1.4%	13,577,381	1.9%	13,835,132	1.9%	14,331,110	3.6%	14,921,712	4.1%
Operations and Maintenance											
Drinking Water Residuals	1,108,925	1,260,654		1,331,660		1,356,109		1,399,487		1,444,494	
Lake City Operations	966,185	1,027,080		1,112,994		1,195,418		1,228,508		1,333,682	
Maintenance	9,263,780	9,372,262		10,227,768		10,633,552		11,244,100		11,883,489	
SCADA Control Systems	5,873,474	6,075,523		6,460,171		6,622,264		6,967,950		7,440,712	
Secondary Disinfection	1,225,831	1,251,732		1,332,709		1,413,696		1,499,626		1,546,793	
Seymour Capilano Filtration Plant	9,895,748	10,713,657		11,266,433		11,707,881		12,285,173		12,757,625	
Coquitlam Water Treatment Plant	6,973,765	7,070,138		7,526,625		8,043,870		8,591,485		9,043,026	
Energy Management	210,569	138,594		180,065		186,023		192,140		198,429	
Utility Voice Radio	122,467	103,802		111,026		114,013		116,486		122,382	
Water Supply	21,171,403	21,394,770		22,508,375		23,389,569		24,330,926		25,139,860	
	56,812,147	58,408,212	2.8%	62,057,826	6.2%	64,662,395	4.2%	67,855,881	4.9%	70,910,492	4.5%
Interagency Projects and Quality Control											
Drinking Water Quality Control	2,964,943	3,150,929		3,105,215		3,273,173		3,452,949		3,521,060	
Interagency Projects	562,330	581,688		796,542		816,372		853,997		874,905	
	3,527,273	3,732,617	5.8%	3,901,757	4.5%	4,089,545	4.8%	4,306,946	5.3%	4,395,965	2.1%
Administration and Department Support	2,126,039	2,701,727	27.1%	2,787,276	3.2%	2,865,045	2.8%	2,942,787	2.7%	3,022,649	2.7%
Communications Program	448,360	508,879	13.5%	524,146	3.0%	539,871	3.0%	556,066	3.0%	572,748	3.0%
Allocation of Centralized Support Costs	29,040,339	30,462,293	4.9%	30,923,491	1.5%	31,102,718	0.6%	31,738,492	2.0%	32,264,526	1.7%
Total Operating Programs	126,551,732	131,039,513	3.5%	136,890,737	4.5%	139,985,319	2.3%	145,249,360	3.8%	150,405,770	3.6%
Allocation of Project Delivery Cost	3,939,069	3,810,519	(3.3%)	4,143,816	8.7%	4,381,476	5.7%	4,525,808	3.3%	4,571,565	1.0%
Debt Service	84,174,697	83,880,609	(0.3%)	95,255,172	13.6%	119,859,145	25.8%	141,754,796	18.3%	172,060,238	21.4%
Contribution to Capital	123,769,144	123,769,143	0.0%	140,443,572	13.5%	163,847,358	16.7%	192,092,416	17.2%	224,416,481	16.8%
TOTAL EXPENDITURES	**$ 338,434,642**	**$ 342,499,784**	**1.2%**	**$ 376,733,297**	**10.0%**	**$ 428,073,298**	**13.6%**	**$ 483,622,380**	**13.0%**	**$ 551,454,054**	**14.0%**
Blended Water Rate ($/m3)	$ 0.8444	$ 0.8676	2.8%	$ 0.9456	9.0%	$ 1.0764	13.8%	$ 1.2140	12.8%	$ 1.3811	13.8%

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	CAPITAL BUDGET FOR APPROVAL	2023 CAPITAL CASH FLOW	2024 CAPITAL CASH FLOW	2025 CAPITAL CASH FLOW	2026 CAPITAL CASH FLOW	2027 CAPITAL CASH FLOW	2023 TO 2027 TOTAL CAPITAL CASH FLOW	ACTIVE PHASE	PRIMARY DRIVER
CAPITAL EXPENDUTURES									
Water Mains									
Angus Drive Main	$ 30,700,000	$ 50,000	$ -	$ -	$ -	$ -	$ 50,000	Construction	Growth
Annacis Main No. 2 - Queensborough Crossover Improvement	1,200,000	150,000	50,000	-	-	-	200,000	Construction	Maintenance
Annacis Main No. 2 and Barnston Island Main Online Chlorine and pH Analyzers	750,000	500,000	-	-	-	-	500,000	Construction	Upgrade
Annacis Main No. 3 Annieville Channel Crossing Scour Protection	850,000	400,000	-	-	-	-	400,000	Construction	Maintenance
Annacis Main No. 3 BHP Potash Facility Pipe Protection	600,000	200,000	200,000	200,000	-	-	600,000	Construction	Maintenance
Annacis Main No. 5 (North)	69,100,000	600,000	16,750,000	15,750,000	10,000,000	4,900,000	48,000,000	Construction	Growth
Annacis Main No. 5 (South)	12,350,000	300,000	-	1,000,000	14,000,000	14,000,000	29,300,000	Construction	Growth
Annacis Water Supply Tunnel*	482,100,000	74,600,000	80,000,000	65,000,000	50,000,000	51,000,000	320,600,000	Construction	Growth
Boundary Road Main No. 2 & No. 3 Decommissioning	1,250,000	50,000	-	-	-	-	50,000	Construction	Maintenance
Burnaby Mountain Main No. 2	600,000	300,000	600,000	600,000	2,600,000	5,000,000	9,100,000	Design	Maintenance
Cambie-Richmond Water Supply Tunnel*	62,800,000	5,500,000	5,500,000	10,000,000	13,000,000	16,500,000	50,500,000	Design	Resilience
Central Park Main No. 2 (10th Ave to Westburnco)	4,750,000	1,460,000	3,300,000	11,000,000	6,000,000	5,600,000	27,360,000	Construction	Maintenance
Central Park Main No. 2 (Patterson to 10th Ave)	109,100,000	7,100,000	15,500,000	14,000,000	10,000,000	4,000,000	50,600,000	Construction	Maintenance
Clayton Langley Main No. 2	1,900,000	600,000	700,000	200,000	3,000,000	9,000,000	13,500,000	Design	Resilience
Coquitlam Water Main*	293,700,000	64,000,000	116,700,000	134,000,000	159,000,000	156,000,000	629,700,000	Multiple	Growth
Douglas Road Main No. 2 (Flow Meter 169) Replacement	2,000,000	750,000	750,000	-	-	-	1,500,000	Construction	Maintenance
Douglas Road Main No. 2 (Vancouver Heights Section)	21,450,000	600,000	700,000	-	-	-	1,300,000	Construction	Maintenance
Douglas Road Main No. 2 Still Creek	60,000,000	10,250,000	8,000,000	5,000,000	9,400,000	-	32,650,000	Construction	Maintenance
Douglas Road Main Protection	1,500,000	790,000	510,000	150,000	-	-	1,450,000	Construction	Maintenance
Haney Main No. 4 (West Section)	1,900,000	900,000	1,650,000	1,200,000	7,550,000	16,850,000	28,150,000	Multiple	Growth
Haney Water Supply Tunnel*	25,250,000	2,000,000	2,500,000	6,000,000	16,000,000	27,500,000	54,000,000	DEFINITION	Resilience
Improvements to Capilano Mains No. 4 and 5	1,700,000	750,000	750,000	-	-	-	1,500,000	Construction	Maintenance
Kennedy Newton Main	140,450,000	19,300,000	21,000,000	10,000,000	10,000,000	9,500,000	69,800,000	Construction	Growth
Lulu Island - Delta Main - Scour Protection Phase 2	3,550,000	10,000	10,000	2,600,000	890,000	20,000	3,530,000	Construction	Maintenance
Lulu-Delta Water Supply Tunnel*	5,000,000	500,000	1,500,000	5,000,000	5,500,000	54,500,000	67,000,000	DEFINITION	Maintenance
Lynn Valley Road Main, Seymour Main No. 3 & Seymour Main No. 4 Aerial Crossings Rehab	4,200,000	1,930,000	2,270,000	-	-	-	4,200,000	Construction	Maintenance
Maple Ridge Main West Lining Repairs	3,500,000	500,000	1,500,000	1,300,000	-	-	3,300,000	Construction	Maintenance
Newton Reservoir Connection	850,000	450,000	1,100,000	2,500,000	5,000,000	6,000,000	15,050,000	Design	Growth
Palisade Outlet Works Rehabilitation	400,000	400,000	800,000	5,000,000	3,000,000	2,000,000	11,200,000	Design	Maintenance
Port Mann Main No. 2 (South)	33,600,000	550,000	-	-	-	-	550,000	Multiple	Growth
Port Mann No. 1 South Section Decommissioning	850,000	750,000	-	-	-	-	750,000	Construction	Maintenance
Port Moody Main No. 1 Christmas Way Relocation	2,350,000	450,000	-	-	-	-	450,000	Construction	Maintenance
Port Moody Main No. 3 Dewdney Trunk Rd Relocation	2,700,000	50,000	-	-	-	-	50,000	Construction	Maintenance
Port Moody Main No. 3 Scott Creek Section	2,450,000	800,000	3,400,000	12,000,000	12,500,000	-	28,700,000	Design	Maintenance
Queensborough Main Royal Avenue Relocation	7,500,000	2,200,000	2,200,000	750,000	-	-	5,150,000	Construction	Maintenance
Rehabilitation of AN2 on Queensborough Bridge	3,850,000	850,000	470,000	-	-	-	1,320,000	Construction	Maintenance
Relocation and Protection for MOTI Expansion Project Broadway	8,900,000	1,600,000	580,000	575,000	575,000	-	3,330,000	Construction	Maintenance
Relocation and Protection for MOTI George Massey Crossing Replacement	450,000	25,000	-	-	700,000	700,000	1,425,000	Design	Maintenance
Relocation and Protection for Translink Expansion Project Surrey Langley SkyTrain	600,000	50,000	2,025,000	2,525,000	525,000	525,000	5,650,000	Design	Maintenance
Sapperton Main No. 1 New Line Valve and Chamber	3,850,000	500,000	1,000,000	-	-	-	1,500,000	Construction	Upgrade
Sapperton Main No. 2 North Road Relocation and Protection	6,500,000	2,650,000	-	-	-	-	2,650,000	Construction	Maintenance
Scour Protection Assessments and Construction General	4,000,000	800,000	150,000	1,000,000	-	650,000	2,600,000	Construction	Resilience
Second Narrows Crossing 1 & 2 (Burrard Inlet Crossing Removal)*	2,000,000	750,000	1,000,000	1,200,000	12,000,000	12,000,000	26,950,000	Design	Maintenance
Second Narrows Water Supply Tunnel*	468,550,000	40,000,000	30,000,000	20,000,000	45,000,000	600,000	135,600,000	Construction	Resilience
Seymour Main No. 2 Joint Improvements	3,300,000	1,000,000	750,000	1,000,000	1,000,000	-	3,750,000	Construction	Resilience

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	CAPITAL BUDGET FOR APPROVAL	2023 CAPITAL CASH FLOW	2024 CAPITAL CASH FLOW	2025 CAPITAL CASH FLOW	2026 CAPITAL CASH FLOW	2027 CAPITAL CASH FLOW	2023 TO 2027 TOTAL CAPITAL CASH FLOW	ACTIVE PHASE	PRIMARY DRIVER
Seymour Main No. 5 III (North)	7,900,000	500,000	-	-	100,000	500,000	1,100,000	Design	Resilience
South Delta Main No. 1 - Ferry Road Check Valve Replacement	600,000	100,000	-	-	-	-	100,000	Construction	Maintenance
South Surrey Main No. 1 Nickomekl Dam Relocation	7,100,000	400,000	3,600,000	2,100,000	1,000,000	-	7,100,000	Construction	Maintenance
South Surrey Main No. 2	2,000,000	800,000	900,000	2,000,000	5,000,000	6,900,000	15,600,000	Design	Growth
South Surrey Main No. 2 Nickomekl Dam Prebuild	2,000,000	500,000	1,000,000	500,000	-	-	2,000,000	Construction	Growth
South Surrey Supply Main (Serpentine River) Bridge Support Modification	1,350,000	250,000	-	-	-	-	250,000	Construction	Maintenance
Stanley Park Water Supply Tunnel*	340,000,000	7,400,000	33,000,000	42,000,000	55,000,000	50,000,000	187,400,000	Construction	Maintenance
Tilbury Junction Chamber Valves Replacement with Actuators	5,600,000	200,000	-	-	-	-	200,000	Construction	Upgrade
Tilbury Main North Fraser Way Valve Addition	3,100,000	1,000,000	1,500,000	-	-	-	2,500,000	Construction	Maintenance
Water Chamber Improvements and Repairs	2,000,000	205,000	205,000	200,000	-	-	610,000	Construction	Maintenance
Water Meter Upgrades	22,400,000	2,450,000	2,500,000	2,500,000	2,500,000	2,400,000	12,350,000	Construction	Upgrade
Water Optimization - Flow Meters (Non-billing) Phase 1	-	-	1,500,000	2,000,000	3,000,000	4,000,000	10,500,000	Not Started	Upgrade
Water Optimization - Flow Meters (Non-billing) Phase 2	3,000,000	250,000	1,500,000	750,000	2,000,000	3,000,000	7,500,000	Design	Upgrade
Water Optimization - Instrumentation	1,500,000	600,000	2,150,000	2,500,000	2,500,000	2,500,000	10,250,000	Design	Upgrade
Water Optimization Automation & Instrumentation	9,550,000	900,000	-	-	-	-	900,000	Construction	Upgrade
Whalley Kennedy Main No. 2	2,900,000	300,000	1,300,000	2,000,000	2,000,000	2,000,000	7,600,000	Design	Growth
Whalley Main	31,800,000	50,000	-	-	-	-	50,000	Construction	Growth
Total Water Mains	**$ 2,337,750,000**	**$ 263,870,000**	**$ 373,070,000**	**$ 386,100,000**	**$ 470,340,000**	**$ 468,145,000**	**$ 1,961,525,000**		
Pump Stations									
Barnston/Maple Ridge Pump Station - Back-up Power	14,000,000	8,100,000	-	-	500,000	2,100,000	10,700,000	Construction	Resilience
Burnaby Mountain Pump Station No. 2	1,300,000	100,000	900,000	1,000,000	700,000	9,000,000	11,700,000	Design	Maintenance
Cape Horn Pump Station No. 3	29,050,000	1,600,000	4,500,000	5,100,000	5,000,000	17,000,000	33,200,000	Design	Growth
Capilano Raw Water Pump Station - Back-up Power	55,000,000	18,000,000	16,050,000	2,000,000	-	-	36,050,000	Construction	Resilience
Capilano Raw Water Pump Station Bypass PRV Upgrades	3,200,000	1,600,000	700,000	-	-	-	2,300,000	Construction	Maintenance
Central Park WPS Starters Replacement	11,000,000	2,550,000	5,400,000	1,000,000	-	-	8,950,000	Construction	Maintenance
Grandview Pump Station Improvements	3,500,000	1,550,000	500,000	-	-	-	2,050,000	Construction	Resilience
Newton Pump Station No. 2	72,550,000	11,100,000	21,000,000	12,400,000	2,000,000	3,000,000	49,500,000	Construction	Growth
Pebble Hill Pump Station Seismic Upgrade	-	-	150,000	650,000	1,000,000	-	1,800,000	Not Started	Resilience
Westburnco Pump Station - Back-up Power	24,500,000	250,000	1,500,000	7,050,000	6,500,000	4,800,000	20,100,000	Construction	Resilience
Westburnco Pump Station No. 2 VFD Replacements	2,550,000	700,000	-	-	-	-	700,000	Construction	Maintenance
Total Pump Stations	**$ 216,650,000**	**$ 45,550,000**	**$ 50,700,000**	**$ 29,200,000**	**$ 15,700,000**	**$ 35,900,000**	**$ 177,050,000**		
Reservoirs									
Burnaby Mountain Tank No. 2	3,350,000	450,000	950,000	1,200,000	500,000	7,000,000	10,100,000	Design	Resilience
Burnaby Mountain Tank No. 3	3,400,000	650,000	1,200,000	1,200,000	450,000	7,000,000	10,500,000	Design	Resilience
Cape Horn Reservoir Condition Assessment and Structural Repair	500,000	150,000	250,000	1,300,000	-	-	1,700,000	Design	Maintenance
Capilano Energy Recovery Facility 66" PRV Replacement	-	-	1,450,000	50,000	3,500,000	2,000,000	7,000,000	Not Started	Maintenance
Capilano Energy Recovery Facility Operational Upgrades	1,800,000	300,000	750,000	450,000	300,000	-	1,800,000	Construction	Maintenance
Central Park Reservoir Structural Improvements	-	-	100,000	200,000	1,300,000	500,000	2,100,000	Not Started	Maintenance
Clayton Reservoir	25,750,000	50,000	-	-	-	-	50,000	Construction	Resilience
Dechlorination for Reservoir Overflow and Underdrain Discharges	2,700,000	1,700,000	300,000	-	-	-	2,000,000	Construction	Maintenance
Fleetwood Reservoir	56,550,000	17,000,000	13,000,000	9,650,000	-	-	39,650,000	Construction	Growth
Grandview Reservoir Unit No. 2	-	-	400,000	800,000	1,400,000	1,000,000	3,600,000	Not Started	Growth
Hellings Tank No. 2	43,900,000	9,000,000	11,500,000	9,000,000	7,650,000	-	37,150,000	Construction	Growth
Kersland Reservoir No. 1 Structural Improvements	5,500,000	500,000	-	-	-	-	500,000	Construction	Maintenance
Pebble Hill Reservoir No. 3 Seismic Upgrade	500,000	50,000	-	-	-	5,000,000	5,050,000	Design	Resilience
Pebble Hill Reservoir Seismic Upgrade	12,350,000	2,600,000	2,600,000	-	-	-	5,200,000	Construction	Resilience

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Reservoir Isolation Valve Automation	6,450,000	1,050,000	1,500,000	1,250,000	1,150,000	-	4,950,000	Construction	Resilience
Reservoir Sampling Kiosks - Multi Location	500,000	350,000	650,000	300,000	-	-	1,300,000	Design	Upgrade
Reservoir Structural Preliminary Assessments	3,200,000	500,000	1,200,000	1,500,000	-	-	3,200,000	Definition	Maintenance
Sasamat Reservoir Refurbishment	400,000	150,000	650,000	700,000	-	-	1,500,000	Design	Maintenance
Sunnyside Reservoir Units 1 and 2 Seismic Upgrade	8,000,000	100,000	2,000,000	7,200,000	1,000,000	-	10,300,000	Construction	Resilience
Vancouver Heights System Resiliency Improvements	2,500,000	700,000	1,000,000	500,000	-	-	2,200,000	Construction	Resilience
Total Reservoirs	**$ 177,350,000**	**$ 35,300,000**	**$ 39,500,000**	**$ 35,300,000**	**$ 17,250,000**	**$ 22,500,000**	**$ 149,850,000**		
Treatment Plants									
Coquitlam Intake Tower Seismic Upgrade	2,500,000	250,000	250,000	5,000,000	14,000,000	5,000,000	24,500,000	Design	Resilience
Coquitlam Lake Water Supply*	160,750,000	15,000,000	16,000,000	30,000,000	50,000,000	108,000,000	219,000,000	Multiple	Growth
Critical Control Sites - Back-Up Power	-	-	200,000	300,000	400,000	500,000	1,400,000	Not Started	Resilience
CWTP CO2 System Improvements	-	-	500,000	1,750,000	1,500,000	-	3,750,000	Not Started	Maintenance
CWTP Mobile Disinfection System	750,000	400,000	1,350,000	1,000,000	-	-	2,750,000	Design	Upgrade
CWTP Ozone Back-up Power	-	-	500,000	1,450,000	4,000,000	1,500,000	7,450,000	Not Started	Resilience
CWTP Ozone Generation Upgrades for Units 2 & 3	7,500,000	2,050,000	50,000	-	-	-	2,100,000	Construction	Upgrade
CWTP Ozone Sidestream Pipe Heat Trace and Insulation	900,000	50,000	-	-	-	-	50,000	Construction	Maintenance
CWTP Ozone Sidestream Pump VFD Replacement	1,400,000	490,000	300,000	-	-	-	790,000	Construction	Maintenance
CWTP Temporary Water Supply	2,000,000	1,300,000	250,000	-	-	-	1,550,000	Construction	Maintenance
Online Chlorine and pH Analyzers	2,500,000	400,000	1,400,000	1,200,000	1,500,000	1,500,000	6,000,000	Multiple	Upgrade
SCFP Additional Pre-Treatment	-	-	-	-	1,000,000	7,300,000	8,300,000	Not Started	Upgrade
SCFP Centralized Compressed Air System	1,900,000	1,225,000	250,000	-	-	-	1,475,000	Construction	Maintenance
SCFP Clearwell Baffle Replacement	600,000	250,000	1,350,000	500,000	-	1,000,000	3,100,000	Multiple	Maintenance
SCFP Clearwell Membrane Replacement	600,000	200,000	600,000	800,000	5,700,000	5,500,000	12,800,000	Design	Maintenance
SCFP Floc Tank Baffle Replacement and Ladder Installation to Improve Accessibility	800,000	700,000	100,000	6,000,000	2,000,000	1,000,000	9,800,000	Design	Maintenance
SCFP OMC Building Expansion	800,000	300,000	250,000	1,550,000	500,000	-	2,600,000	Design	Maintenance
SCFP Polymer System Upgrade	4,650,000	700,000	-	-	-	-	700,000	Construction	Maintenance
SCFP SCADA/ICS Controller Replacement	1,400,000	700,000	700,000	-	-	-	1,400,000	Design	Maintenance
Total Treatment Plants	**$ 189,050,000**	**$ 24,015,000**	**$ 24,050,000**	**$ 49,550,000**	**$ 80,600,000**	**$ 131,300,000**	**$ 309,515,000**		
Others									
Beach Yard Facility - Site Redevelopment	-	-	-	500,000	1,000,000	1,500,000	3,000,000	Not Started	Maintenance
Capilano Hydropower	4,250,000	-	-	-	1,750,000	2,000,000	3,750,000	Design	Opportunity
Capilano Mid-Lake Debris Boom	750,000	50,000	-	-	-	-	50,000	Construction	Resilience
Capilano Raw Water Pump Station VFD Upgrades	1,800,000	1,800,000	500,000	-	-	-	2,300,000	Construction	Maintenance
Capilano Reservoir and Seymour Reservoir Dam Safety Boom Replacement	3,700,000	3,050,000	500,000	-	-	-	3,550,000	Construction	Maintenance
Capilano Reservoir Boat Wharf	850,000	100,000	-	-	-	-	100,000	Construction	Resilience
Capilano Watershed Bridge Replacements - Crown Creek and Capilano River	-	-	-	-	95,000	200,000	295,000	Not Started	Maintenance
Capilano Watershed Security Gatehouse	4,700,000	2,950,000	400,000	-	-	-	3,350,000	Construction	Maintenance
CLD & SFD Fasteners Replacement & Coating Repairs	2,350,000	350,000	-	-	-	-	350,000	Construction	Maintenance
Cleveland Dam - Lower Outlet HBV Rehabilitation	4,900,000	200,000	1,000,000	-	-	-	1,200,000	Construction	Maintenance
Cleveland Dam Drumgate Seal Replacement	300,000	-	500,000	500,000	-	-	1,000,000	Design	Maintenance
Cleveland Dam East Abutment Additional GV Series Pump Wells	750,000	50,000	-	-	-	-	50,000	Construction	Upgrade
Cleveland Dam Lower Outlet Trashrack Replacement and Debris Removal	-	-	-	-	500,000	500,000	1,000,000	Not Started	Maintenance
Cleveland Dam Power Resiliency Improvements	1,700,000	1,300,000	250,000	-	-	-	1,550,000	Construction	Resilience
Cleveland Dam Public Warning System and Enhancements	10,000,000	2,000,000	2,000,000	3,000,000	-	-	7,000,000	Construction	Maintenance
Cleveland Dam Seismic Stability Evaluation	800,000	400,000	-	-	-	-	400,000	Design	Resilience
Cleveland Dam Spillway Resurfacing	-	-	-	-	400,000	1,000,000	1,400,000	Not Started	Maintenance

GREATER VANCOUVER WATER DISTRICT
CAPITAL PORTFOLIO
WATER SERVICES
2023 CAPITAL BUDGET AND 2023-2027 CAPITAL PLAN

	CAPITAL BUDGET FOR APPROVAL	2023 CAPITAL CASH FLOW	2024 CAPITAL CASH FLOW	2025 CAPITAL CASH FLOW	2026 CAPITAL CASH FLOW	2027 CAPITAL CASH FLOW	2023 TO 2027 TOTAL CAPITAL CASH FLOW	ACTIVE PHASE	PRIMARY DRIVER
Facilities O&M Documentation Development	2,000,000	500,000	1,000,000	500,000	-	-	2,000,000	Design	Resilience
Lake City HVAC Upgrade	900,000	900,000	200,000	-	-	-	1,100,000	Construction	Resilience
Lower Seymour Conservation Reserve Learning Lodge Replacement	5,050,000	50,000	-	-	-	-	50,000	Construction	Upgrade
Microbiology Laboratory Expansion	-	-	150,000	200,000	1,400,000	3,000,000	4,750,000	Not Started	Maintenance
Newton Rechlorination Station No. 2	-	-	400,000	900,000	1,900,000	1,500,000	4,700,000	Not Started	Maintenance
Pitt River Rechlorination Station Reconstruction	-	-	-	500,000	1,000,000	1,500,000	3,000,000	Not Started	Maintenance
Rechlorination Station SHS Storage Tank Replacement	1,200,000	250,000	-	-	-	-	250,000	Construction	Maintenance
Rechlorination Station Upgrades	5,000,000	2,050,000	1,500,000	1,000,000	6,000,000	6,000,000	16,550,000	Design	Maintenance
Rice Lake Dams Rehabilitation	3,000,000	600,000	1,200,000	600,000	600,000	-	3,000,000	Construction	Maintenance
Scour Protection - General	2,000,000	100,000	-	-	-	-	100,000	Construction	Maintenance
Seymour Falls Boat Wharf	800,000	50,000	-	-	-	-	50,000	Construction	Resilience
Seymour Falls Dam Public Warning System	10,000,000	500,000	2,500,000	4,000,000	3,000,000	-	10,000,000	Construction	Maintenance
Seymour Falls Dam Seismic Stability Assessment	1,800,000	800,000	1,000,000	1,000,000	1,000,000	2,500,000	6,300,000	Definition	Resilience
Seymour Lake Debris Boom	800,000	50,000	-	-	-	-	50,000	Construction	Resilience
Seymour Reservoir Mid-Lake Debris Boom	2,300,000	100,000	-	-	-	-	100,000	Construction	Resilience
South Fraser Works Yard	71,000,000	13,000,000	2,500,000	500,000	-	-	16,000,000	Design	Maintenance
Total Others	**$ 142,700,000**	**$ 31,200,000**	**$ 15,600,000**	**$ 13,200,000**	**$ 18,645,000**	**$ 19,700,000**	**$ 98,345,000**		
TOTAL CAPITAL EXPENDITURES	**$ 3,063,500,000**	**$ 399,935,000**	**$ 502,920,000**	**$ 513,350,000**	**$ 602,535,000**	**$ 677,545,000**	**$ 2,696,285,000**		
CAPITAL FUNDING									
New External Borrowing	$ 1,697,307,000	$ 262,605,000	$ 290,360,000	$ 255,840,000	$ 321,645,000	$ 363,405,000	$ 1,493,855,000		
DCCs	346,812,000	-	60,030,000	81,870,000	80,840,000	82,500,000	305,240,000		
Contribution to Capital	959,594,000	123,770,000	140,440,000	163,850,000	192,090,000	224,420,000	844,570,000		
Reserve	28,405,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	25,000,000		
External Funding - Interagency	31,382,000	8,560,000	7,090,000	6,790,000	2,960,000	2,220,000	27,620,000		
Total	**$ 3,063,500,000**	**$ 399,935,000**	**$ 502,920,000**	**$ 513,350,000**	**$ 602,535,000**	**$ 677,545,000**	**$ 2,696,285,000**		
SUMMARY BY DRIVER									
Growth	$ 1,466,250,000	$ 216,100,000	$ 306,800,000	$ 300,900,000	$ 328,600,000	$ 396,150,000	$ 1,548,550,000		
Maintenance	781,100,000	86,685,000	113,570,000	134,700,000	151,085,000	168,545,000	654,585,000		
Resilience	748,200,000	88,450,000	70,450,000	67,500,000	108,600,000	90,150,000	425,150,000		
Upgrade	63,700,000	8,700,000	12,100,000	10,250,000	12,500,000	20,700,000	64,250,000		
Opportunity	4,250,000	-	-	-	1,750,000	2,000,000	3,750,000		
Total	**$ 3,063,500,000**	**$ 399,935,000**	**$ 502,920,000**	**$ 513,350,000**	**$ 602,535,000**	**$ 677,545,000**	**$ 2,696,285,000**		

* Project is part of Metro Vancouver's formal stage gate framework. Detailed project report will be brought forward as part of the stage gate review process.

WATER SERVICES
Policy, Planning and Analysis

Description of Services

Water Services provides safe drinking water to the Metro Vancouver region through the Greater Vancouver Water District. The Policy, Planning and Analysis division provides policy development and coordination; infrastructure analysis and planning; development and implementation of the Drinking Water Management Plan (DWMP); leads regional water conservation efforts through the Drinking Water Conservation Plan (DWCP); implementation of key components of the Joint Water Use Plan (JWUP) for the Capilano and Seymour Watersheds; supports the water metering network; ensures QA/QC on water billing and issues monthly bills; and leads the implementation of projects identified in the Water Supply Outlook 2120.

Strategic Directions and High-Level Goals

Board Strategic Plan

- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.
- Encourage innovation in the delivery of Metro Vancouver services that will contribute to the region’s resilience and prosperity through clean technology and circular economy solutions.

Drinking Water Management Plan

- Goal 1 - Provide clean, safe drinking water
- Goal 2 - Ensure the sustainable use of water resources
- Goal 3 - Ensure the efficient supply of water

Performance Indicators

Indicator	Historical and/or Industry Benchmark	Current Performance	2023 Performance Objective
Peak day per capita water use (litres/c/day)	MV 5-year average (2017 - 2021): 642 2017: 621 2018: 667 2019: 577 2020: 602 2021: 664	2022 Objective: 583	592*
Average day per capita water use (litres/c/day)	MV 5-year average (2017-2021): 420 2017: 440 2018: 434 2019: 424 2020: 403 2021: 399	2022 Objective: 402	374**

* Based on a 5-year trend (2016 – 2020). The heat dome in 2021 resulted in a much higher peak day demand and significantly increased the peak day performance objective. If the 2021 data was not included the 5-year average would be 626 (not 642) Liters/c/day. Although such heat domes are considered to be rare events, they are expected to occur more frequently due to climate change.
** Based on a 5-year trend (2017 – 2021)

2023 Key Actions

Utility Planning and Policy

- Complete a feasibility study to optimize energy use in the transmission system.
- Review potential forever chemicals in WTP waste products and recommend handling process to reduce the potential for their release into the environment.
- Continue analysis on regional equity and affordability of drinking water.
- Continue to collaborate with GVWD members to implement the new Region-wide Guide for Enforcement of Metro Vancouver's *Drinking Water Conservation Plan*.
- Continue development of an updated *Drinking Water Management Plan* through engagement processes.
- Continue to implement the *Joint Water Use Plan* for the Capilano and Seymour Watersheds, including coordination of monitoring and reporting to the regulatory agencies.
- Complete analysis on the impacts of the changing industrial landscape in the region and the impacts on the water system demands.
- Complete project on the potential presence of micro plastics in Metro Vancouver watersheds
- Continue to develop water conservation methods to potentially defer growth related projects.
- Continue the development Drinking Water Stress Index.
- In partnership with Liquid Waste, develop the Climate 2050 Infrastructure Roadmap.

Water System Modelling and Data Analytics

- Develop the new Regional Water Transmission Hydraulic Model as the foundation of the Corporation's smart water system (Digital Twin).
- Develop hydrological models for the Capilano and Seymour watersheds.
- Develop a new Peak Day Demand Methodology for the water transmission system design.
- Continue to provide system planning and analysis support to O&M, E&C, and PDE projects.
- Continue the Capital Water Meter Upgrades Program.
- Continue the water demand forecasting process for Finance and rate updates.

WATER SERVICES
Engineering and Construction

Description of Services
Water Services provides safe drinking water to the Metro Vancouver region through the Greater Vancouver Water District. The Engineering and Construction division provides delivery of core water infrastructure projects, including water mains, reservoirs, pump stations and water treatment facilities and also provides shared construction and dispatch services.

Strategic Directions and High Level Goals Supported
Board Strategic Plan
- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.

Drinking Water Management Plan
- Goal 1 - Provide clean, safe drinking water
- Goal 2 - Ensure the sustainable use of water resources
- Goal 3 - Ensure the efficient supply of water

Performance Indicators

Indicator	Historical and/or Industry Benchmark	Current Performance	2023 Performance Objective
Percent of GVWD Capital Program Expenditures Achieved:	3 yr average (2019 – 2021): 73% 2019: 105% 2020: 63% 2021: 50%	(as of August 2022) YTD: 42% Objective: 85%	85%

Indicator	Historical and/or Industry Benchmark	Current Performance	2023 Performance Objective
Percent of Minor Capital Program Expenditures Achieved:	3 yr average (2019 – 2021): 90% 2019: 116% 2020: 57% 2021: 98%	(as of August 2022) YTD: 57% Objective: 95%	95%
Percent of project complete:		(as of August 2022)	
Kennedy Newton Main (Phase 3) – Construction	n/a	0%	30%
Annacis Main No. 5 (North) – Design	n/a	40%	100%
Capilano Raw Water Pump Station Backup Power – Construction	n/a	15%	55%
Fleetwood Reservoir plus Feeder Main – Construction	n/a	15%	60%
Pebble Hill Reservoir Seismic upgrade Units 1 & 2 - Construction	n/a	50%	100%
Central Park Main No. 2 (Phase 2) – Construction	n/a	0%	30%
Douglas Road Main No. 2 (Still Creek Section) – Construction	n/a	50%	95%
Cape Horn Pump Station No. 3 – Design	n/a	30%	60%

2023 Key Actions

- Commence construction of Kennedy-Newton Main (Phase 3).
- Complete design of Annacis Main No. 5 (North).
- Continue construction of Capilano Raw Water Pump Station Backup Power.
- Continue construction of Fleetwood Reservoir plus Feeder Main.
- Complete construction of Pebble Hill Reservoir Seismic Upgrade Units 1 & 2.
- Commence construction of Central Park Main No. 2 (Phase 2).
- Continue construction of Douglas Road Main No. 2 (Still Creek Section).
- Continue design of Cape Horn Pump Station No. 3.

WATER SERVICES
Shared and Support Services

Description of Services

Water Services provides safe drinking water to the Metro Vancouver region through the Greater Vancouver Water District. Shared and Support Services (SSS) provides: Survey, Inspection and Drafting Services to WS, LWS and PDE departments through its Shared Utility Services (SUS) Division; oversees shared WS Maintenance services as provided by LWS to WS; provides Administrative Support services to WS; operates the Regional GPS program; and provides oversight and coordination to WS on business planning, financial management, capital planning, emergency planning/response, asset management, performance management and continuous improvement, and utility benchmarking, in collaboration with Finance, PDE and Corporate Safety and Emergency Management.

Strategic Directions and High-Level Goals Supported

Board Strategic Plan

- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.

Drinking Water Management Plan

- Goal 1 - Provide clean, safe drinking water
- Goal 2 - Ensure the sustainable use of water resources
- Goal 3 - Ensure the efficient supply of water

Performance Indicators

S&SS supports the KPIs identified in O&M and E&C Work Plans.

Indicator	Historical and/or Industry Benchmark	Current Performance (as of Aug 2022)	2023 Performance Objective
Continuous improvement savings ($/yr)	2021: $15,000	$0	$100,000
Continuous improvement safety – time loss incidents	2021: 8	4	0
Continuous improvement safety - injuries	2021: 34	9	0
Number of operational (level 1) condition assessments completed	2021: 14*	32	150+
Number of expert (level 2) condition assessments completed	2021: 15	4	14

*Note: other condition assessments were completed but not formally tracked. The significant increase in 2023 is partially due to improve records.

2023 Key Actions

- Continue to build Lean processes and tools based on DMAIC principles (Define- Measure-Analyze-Improve-Control) in order to guide WS organizational development.
- Introduce Lean methods to business planning and budgeting process.
- Continue to reduce lost time incidents by improving the investigation and reporting process.
- Improve knowledge of WS asset condition to enable improved data-driven decision making and sustain our service level targets. Example initiatives:
    - Strengthen field staff condition assessment program by standardizing practices.
    - Expand the water main condition assessment program using new technology to assess infrastructure that is difficult to access.
    - Implement a formalized valve inspection and exercising program.
- Complete the implementation of Building Information Modeling (BIM) Phase I, enabling greater utility of collaborative 3D design and design conflicts management. Prepare next phase of the multi-year program, based on approved action plan arising at the end of Phase I.
    - Develop and implement KPI and associated targets with WS, LWS and PDE for tracking reduced design and or change orders costs (capital projects), as a result of implementing 3D design reviews process/tools.
- Pilot at least two applications of the earthquake early warning system within the Water Supply system.
- Develop and Implement an Integrated Emergency Management / Response Practice for Water Services.
- Improve field, mobile access to engineering drawings and tablet use for construction quality assurance inspections.
- Implement engineering drawings digital workflows and dashboard for status reporting of drawings lifecycle status.

REGIONAL GLOBAL POSITIONING SYSTEM

Description of Services

Regional Global Positioning System is a Metro Vancouver Regional District function established to provide an accurate and consistent engineering survey standard in the Metro Vancouver region. Through a High Precision Network (HPN) of approximately 350 survey control monuments, five (5) Active Control Points (ACPs), and a real-time broadcast service of Global Navigation Satellite Systems (GNSS) data, local government and private users (the latter for a fee) are able to efficiently locate and layout various infrastructure and related works, such as water and sewer lines, reservoirs, roadways, trails, rights-of-way, bathymetric surveys, and topography. By pooling resources, local governments are able to reduce their individual costs for maintaining a high-accuracy geospatial reference system while also ensuring consistent survey standards are maintained in the region.

Strategic Directions and High Level Goals Supported

Board Strategic Plan

- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.
- Continue to engage with members on processes and initiatives that contribute to an effective and well-functioning organization.
- Enhance relationships between Metro Vancouver and other orders of government, First Nations, adjacent regional districts and key stakeholders.

Performance Indicators

Indicator	Historical and/or Industry Benchmark	Current Performance (2022)	2023 Performance Objective
Percent of service uptime (business hours, 8am – 4pm, M-F): • Real-time service to mobile surveyors	MV 3-year average (2019-2021): 99% 2019 99% 2020 99% 2021 99%	99%	99%
Percent of service uptime (24 x 7, 365 days / year): Post-mission data availability through Provincial portal	MV 3-year average (2018-2020): 99% 2019 99% 2020 99% 2021 99%	99%	99%

2023 Key Actions

- With local government partners, continue the development implementation of the action plan for the long term (10-15 years) maintenance and enhancement of the High Precision Network (HPN) of control monuments and the Active Control Point (ACP) system, in accordance with the 2019-2023 GPS Program Strategic Plan.
- With local government partners, look for opportunities for further innovation and continuous improvement to enhance the utility of the HPN and ACPs for geo-spatial referencing applications.

Water Services
Watersheds & Environment

Description of Services

Water Services provides safe drinking water to the Metro Vancouver region through the Greater Vancouver Water District. The Watersheds & Environment Division protects and maintains 60,000 hectares of GVWD watershed lands and associated infrastructure surrounding the three primary source reservoirs of Capilano, Seymour and Coquitlam. The division also oversees the Environmental Management System and various environmental programs and initiatives for the Water Services utility. Technical and field staff in this area undertake a breadth of work ranging from collection of reservoir and potable water samples, fisheries management, environmental protection and updating and watershed management activities including security, road and infrastructure maintenance, fire protection and public education on the region's water supply.

Strategic Directions and High Level Goals Supported

Board Strategic Plan

- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.

Drinking Water Management Plan

- Goal 1 - Provide clean, safe drinking water
- Goal 2 - Ensure the sustainable use of water resources

Performance Indicators

Indicator	Historical and/or Industry Benchmark	Current Performance	2023 Performance Objective
Annual participants in water education tours and K-12 school programs conducted in person and virtually.	MV 3-year average (2019-2021): 6,195 2019: 5,904 2020: 3,802 2021: 8,880	2022 YTD (August): 5,050 Objective 6,000	6,000
Number of water samples collected from the GVWD transmission system, six municipal distribution systems, and Parks sites.	MV 3-year average (2019-2021): 17,902 2019: 18,760 2020: 17,870 2021: 17,077	2022 YTD (August): 10,859 Objective 14, 000	14, 000
Number of days the water supply areas are in high or extreme fire hazard *Objective will equal 3 year average	MV 3-year average (2019-2021): 29 2019: 24 2020: 12 2021: 52	2022 YTD (August): 14 Objective: 29*	29*

2023 Key Actions

- Officially open the Watershed Learning Centre in the Lower Seymour Conservation Reserve.
- Complete replacement of the dam safety booms in Capilano and Seymour Reservoirs.
- Develop wildfire fuel management plans for water supply lands interface zones through the Wildfire Strategic Partners Working Group.
- Submit updated Crown Land (Watershed) Management Plan to the Province.
- Complete preparation required to seek ISO Certification of the GVWD Environmental Management System in 2024.

WATER SERVICES
Operations and Maintenance

Description of Services
Water Services delivers clean, safe drinking water to the Metro Vancouver region through the Greater Vancouver Water District.

The Operations and Maintenance (O&M) division provides management of the source water reservoirs and dams, treatment of source water, operation and control of the water transmission system, secondary disinfection of treated water and maintenance of associated supporting infrastructure (works yards, communications systems, and control systems). The division closely collaborates with shared services which provides maintenance of all water treatment and transmission infrastructure, and management and disposal of water treatment residuals.

The nature of O&M's work involves close collaboration with other Water Services divisions to ensure the safe, efficient and cost effective operation of the water system. In addition, the O&M teams provide support from design through commissioning for major and minor capital projects.

Strategic Directions and High Level Goals Supported
Board Strategic Plan
- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.

Drinking Water Management Plan
- Goal 1 – Provide clean, safe drinking water
- Goal 2 – Ensure the sustainable use of water resources
- Goal 3 – Ensure the efficient supply of water

Performance Indicators

Indicator	Historical and/or Industry Benchmark	Current Performance	2023 Performance Objective
Annual volume of drinking water treated, delivered (in million litres)	MV 3-year average (2019-21): 384,614 2019: 383,400 2020: 378,734 2021: 392,000	2022 Jan - May: 142,555 Objective: 389,000	389,000
Energy use in the treatment and delivery of drinking water (amount of gigajoules (GJ) used per ML of water)	MV 3-year average (2019-21): 0.50 2019: 0.53 2020: 0.44 2021: 0.54	Rolling Average May/21 – April/22 0.54 Objective: 0.50	0.50
Compliance with treatment operating permit criteria	MV 3-year average (2019-21): 100% 2019: 100% 2020: 100% 2021: 100%	2022 Jan - May: 100% Objective: 100%	100%
Number of leak repairs in water transmission system piping per 100 kilometers of pipe[1]	MV 3-year average (2019-21): 2.73 2019: 4.08 2020: 2.25 2021: 1.87	2022 YTD June: 1.15 Objective: < 3.1	< 3.0
Number of remote monitoring and control points to ensure system resiliency	MV 3-year average (2019-21): 31,272 2019: 30,687 2020: 31,382 2021: 31,746	2022 YTD June: 31,831 Objective: 32,300	32,600

Note 1: AWWA Partnership for Safe Water Distribution System Optimization Program goal: 9 breaks/100 km/year

2023 Key Actions

- Cybersecurity Audit – working with external consultants, this project will provide auditing and review of current application of technologies, processes and controls to protect the SCADA/CDACS systems, communications networks, and data from the risk of cyber-attacks.
- Operations and Maintenance GHG Reduction – in collaboration with Fleet Services, we will evaluate the fleet vehicles, and where feasible, reduce the fleet size and transition to hybrid/electric vehicles, in order to reduce GHG.
- Operations and Maintenance New Lockout Procedure – update the lockout procedures to reflect the requirements outlined in the new Lockout Standard, which is currently being developed by Corporate Safety. Will also require migrating the lockout procedures into the new management system that is being procured by the IT Department.
- Increase Field Accessibility to Information – provide staff with the equipment required to access information (e.g. EAM, GIS, PeopleSoft, etc.) while in the field, including tablets, smart phones and laptops. Will involve the development of applications and processes to improve record management, efficiency, encourage more informed and organized work, and transition from paper to digital data collection.
- Haney Main No. 3 Valve Assessment and Replacement Program – work with E&C and Corporate Safety to assess the Haney Main No. 3 (at Woodland Drive) valves that are critical to system operation/future work, and replace valves that are identified as problematic. A comprehensive assessment of removed valves will be performed with visual inspection, leak testing at Beach Yard, material testing, etc.

WATER SERVICES
Interagency Projects and Quality Control

Description of Services
Water Services provides clean, safe drinking water to the Metro Vancouver region through the Greater Vancouver Water District. The Interagency Projects and Quality Control division provides the coordination of major interagency projects impacting Metro Vancouver's water utility infrastructure. The Division is responsible for ensuring federal guidelines and provincial regulatory standards for the region's drinking water are met and liaising with local health authorities for Water Services. Quality Control is performed by technical and scientific staff undertaking a breadth of activities including field support, laboratory analysis of drinking water for Metro Vancouver and member jurisdictions, as well as system water quality data review, ensuring compliance with quality control standards for the region's drinking water.

Strategic Directions and High Level Goals Supported
Board Strategic Plan
- Maintain Metro Vancouver's world-class water system that provides clean, safe drinking water and ensure its capacity to meet future needs.
- Ensure the long-term resilience of the regional drinking water system to withstand natural hazards, climate change and other significant disruptions.
- Develop and implement financial plans and policies that reflect a commitment to sound financial management and long-term planning, in consideration of current and future ratepayers.
- Strengthen awareness and engagement with the public, members, other orders of government, and key stakeholders on a range of initiatives that will ensure the delivery of clean, safe drinking water, now and into the future.

Drinking Water Management Plan
- Goal 1 - Provide clean, safe drinking water
- Goal 2 - Ensure the sustainable use of water resources
- Goal 3 - Ensure the efficient supply of water

Performance Indicators

Indicator	Historical and/or Industry Benchmark	Current Performance	2023 Performance Objective
Number of water tests completed on samples collected from the GVWD and member jurisdiction water systems	MV 3-year average (2019-2021): 167,234 2019: 161,465 2020: 161,564 2021: 178,675	2022 YTD Aug 31: 111,888 Projected 2022: 162,000	168,000
Number of samples collected from the GVWD system that were positive for *E.coli* bacteria	MV 3-year average (2019-2021): 0 2019: 0 2020: 0 2021: 0	2022 YTD Aug 31: 0 Projected 2022: 0	0*
Percent of Samples Positive for Total Coliform bacteria in the GVWD system	MV 3-year average (2019-2021): 0.2% 2019: 0.2% 2020: 0.4% 2021: 0.2%	2022 YTD Aug 31: 0.2% Projected 2022: <10%	<10%*
Number of major interagency projects coordinated	MV 3-year average (2019-2021): 11 2019: 10 2020: 10 2021: 12	2022 YTD Aug 31: 14 Projected 2022: 12	14

*Based on BC Water Quality Standards for Potable Water

2023 Key Actions

- Continue coordination of interagency work for key projects such as the DFO Capilano River Salmon Hatchery, MOTI Broadway Subway, and TransLink Operations and Maintenance Centre 4 (OMC4)
- Update the *Water Quality Monitoring and Reporting Plan* (WQMRP) utilized by Metro Vancouver, Regional Health Authorities and Member Jurisdictions.
- Complete a review of GVWD water quality sampling locations to assess the need for additional installations to ensure the continued integrity of the water quality monitoring system.
- Coordinate the bi-annual audit by the Canadian Association of Laboratory Accreditation (CALA) required for the continued operation of the Water Services Laboratories.
- Continue to install improved in-system reservoir sampling equipment at high priority reservoir sites.
- Initiate design and installation of Phase 1 of additional online chlorine analyzers to assess real-time water quality.

2023 to 2027 – WHAT'S HAPPENING

Below is a summary of the significant initiatives to be undertaken by Water Services over the next five years. Includes water-related projects managed by the Project Delivery Department.

Initiative	Description	Theme
2023		
Dam Safety Review for Cleveland Dam	Complete the next Dam Safety Review for Cleveland Dam in accordance with the provincial Dam Safety Regulations.	Regulatory and Legislative Environment
Coquitlam Water Treatment Plant Control System Upgrade	Programming and design to upgrade the controls at the Coquitlam Water Treatment Plant Ozone Generation, Corrosion Control, and Chlorination facilities.	System Stewardship
Coquitlam Water Treatment Plant Feasibility Study for On-site Oxygen Generation and Recovery	Conduct study to evaluate options to produce liquid oxygen (LOX) on site and incorporate an oxygen recovery system. Potential benefits are savings on LOX, minimized GHG emissions and improved efficiency of LOX usage.	Financial Sustainability
Drinking Water Management Plan Update	Technical analysis to support the next iteration of the Drinking Water Management Plan. Includes engagement with stakeholders, partners, and other levels of governments.	Regional growth and System Stewardship
Drinking Water Stress Index	Develop a drinking water stress index to help communicate the stress on our water system from drought to the public.	System stewardship
Hydraulic and Hydrologic Models Update	Update the models for our water system and incorporate predictive analysis for short term forecasting and transparent performance tracking.	System Stewardship
New Watershed Center - Opening	Host opening of the new Watershed Center, a multi-use public educational and office building in the Lower Seymour Conservation Reserve	System Stewardship & Environmental Sustainability
Dam Safety Booms in Seymour and Capilano Reservoirs Replacement	Both dam safety booms are approaching end of life and are due for replacement. These booms prevent debris from entering the dam spillways and provide a physical barrier for boat operations.	System Stewardship & Environmental Sustainability

Canadian Association of Laboratory Accreditation (CALA)	Conduct a national laboratory accreditation audit required for continued operation of the Metro Vancouver laboratory (continues every two years).	Regulatory and Legislative Environment
Water Quality Monitoring and Reporting Plan (WQMRP) Update	Update the current plan in partnership of our member jurisdictions and regional health authorities.	Regulatory and Legislative Environment
Lake City Laboratory Upgrade	Initiate conceptual design for the Metro Vancouver Microbiology Laboratory upgrade at the Lake City Operations Centre.	Regulatory and Legislative Environment
Transmission System Online Chlorine Analyzers Additions	Begin a multi-year program to install additional online chlorine analyzers within the transmission system to provide real time chlorine residual data. (continues to 2026)	System Stewardship
Capilano Raw Water PS Backup Power Facility - Construction	Commence construction of the Capilano Raw Water PS Backup Power Facility, providing backup power to 4 x 2,000 HP pumps during power outages.	System Stewardship
Newton Pump Station No. 2 - Construction	Commence construction of the Newton Pump Station No. 2, required to meet growing water demand in the City of Surrey.	Regional Growth
Kennedy Newton Main	Continue construction of Kennedy Newton Main, required to meet growing water demand in the City of Surrey, includes approximately 9 kilometers of 1800mm diameter steel water main between the Kennedy and Newton Reservoirs.	Regional Growth
Building Information Modeling (BIM) Phase I implementation	Complete implementation of standards, protocols and training for 3D design processes for Utilities, in collaboration with WS, LWS, PDE PMO and Corporate Digital Strategy	System Stewardship & Environmental Sustainability
Formal Valve Exercising and Inspection Program	Implement a formalized valve exercising and inspection program to extend asset lifespan, improve asset condition knowledge and enable data-driven decision making regarding valve replacement.	System Stewardship
Stanley Park Water Supply Tunnel – Construction	Commence Construction of the 1.4 km long water supply tunnel under Stanley Park	System Stewardship
Annacis Water Supply Tunnel - Construction	Commence Construction of a 2.3 km long water supply tunnel under the Fraser River	Regional Growth

Coquitlam Water Main– Construction	Commence Construction of Coquitlam Water Main. Will be completed via multiple project phases. Estimated to be completed by 2030. Timeline of construction kick-off for key sections: 2023 – South Section (Robson Drive to Guildford Way) 2024 – Central Section 2024 - Cape Horn Section 2025 – Tunnel Section (Guildford Way to Dewdney Trunk Road) 2025 – Cape Horn Section (Southernmost)	Regional Growth
2024		
Dam Safety Review for Rice Lake Dams	Carry out scheduled dam safety review for Rice Lake Dams	Regulatory and Legislative Environment
Smart Water Initiative	Proceed with incorporating and upgrading systems with digital devices to improve monitoring and data gathering across the Water Utility. This will improve real time performance monitoring and continuous improvement capabilities.	System Stewardship
Facility Master Plan for Water Supply System	Proceed with the development of the facility master plan to identify longer term capital projects to address growth	System Stewardship
BC Hydro Coquitlam Water Use Plan Update	Participate in BC Hydro's review and update of the Coquitlam Water Use Plan	Environmental Sustainability
Westburnco PS Backup Power – Design & Construction	Complete design and construction of Westburnco PS No. 1 & No. 2 Backup Power, as part of ongoing program to provide backup power for key infrastructure to address power outages and major storm events.	System Stewardship
Fleetwood Reservoir - Construction	Complete construction of Fleetwood Reservoir, a 13.6 ML Reservoir, and 1.1 km feeder main that will increase water supply to meet growing demand in the City of Surrey.	Regional Growth

Douglas Road Main No. 2 (Still Creek Section) - Construction	Complete Douglas Road Main No. 2 (Still Creek Section), the last remaining 2.5km section (1.5m diameter steel pipe) to be installed for the overall Douglas Road Main No.2 watermain project.	System Stewardship
Annacis Main No. 5 (North) - Construction	Commence construction of Annacis Main No. 5 (North), required to convey water from the existing system within the City of Burnaby to the north shaft of the Annacis Water Supply Tunnel in the City of New Westminster. The project consists of 2.5 km of 1.8 m diameter steel watermain.	Regional Growth
Lulu-Delta Tunnel – Preliminary Design	Commence preliminary design of new water supply tunnel under the Fraser River.	System Stewardship
Coquitlam Lake Water Supply – Preliminary Design	Commence preliminary design of intake, tunnel and treatment plant	Regional Growth
Environmental Management System	Complete ISO 14001 certification process for the water utilities Environmental Management System.	Environmental Sustainability & Regulatory and Legislative Environment
Building Information Modeling (BIM) Phases II-III Implementation (multi-year program)	Phases II-III will enable field based connections with broader corporate systems such as GIS, EAM, engineering drawings, RFI work flow systems and 3D models to optimize infrastructure management work flows. Execution to continue through 2025 with completion date in 2026.	System Stewardship & Environmental Sustainability
2025		
CWTP Ozone Backup Power - Construction	Ongoing program to provide backup power for key infrastructure so it will operate during power outages and major storm events.	System Stewardship
North Shore Works Yard - Planning	Plan for redevelopment of Beach Yard Works Yard, after Second Narrows Water Supply Tunnel project completion.	System Stewardship
Drinking Water Management Plan	Update the Drinking Water Management Plan	System Stewardship

Enhanced Water Quality Assurance Audit (EWQA)	Conduct a provincial laboratory accreditation audit required for continued operation of the Metro Vancouver Microbiology laboratory.	Regulatory and Legislative Environment
Cape Horn Pump Station No. 3 - Construction	Commence construction of Cape Horn Pump Station No. 3, required to meet growing water demand south of the Fraser River. The new pump station will be located at the existing pump station site and will include full back-up power redundancy.	Regional Growth
Annacis Main No. 5 (South) - Construction	Commence construction of Annacis Main No. 5 (South), required to convey water from the south shaft of the Annacis Water Supply Tunnel to the Kennedy Reservoir in the City of Surrey. The project consists of 3 km of 1.8 m diameter steel watermain.	Regional Growth
Dam Safety Review for Alpine Lake Dams	Carry out next dam safety reviews for Palisade, Burwell and Loch Lomond Dams	Regulatory and Legislative Environment
2026		
Newton Pump Station No. 2 - Construction	Complete construction of the replacement Newton Pump Station No. 2, required to meet growing water demand in the City of Surrey.	Regional Growth
Kennedy-Newton Main - Construction	Complete construction of the Kennedy-Newton Main, required to convey water from the Kennedy Reservoir to the Newton Reservoir in the City of Surrey. The project consists of 9 km of 1.8 m diameter steel watermain.	Regional Growth
Building Information Modeling (BIM) Phases II-III Implementation (continued)	Continuation of multi-year Phase II-III program	System Stewardship & Environmental Sustainability
Haney Water Supply Tunnel – Preliminary Design	Commence preliminary design of new water tunnel under the Pitt River.	System Stewardship
Second Narrows Water Supply Tunnel	Commissioning new infrastructure related to new water tunnel beneath Burrard Inlet.	System Stewardship
2027		
Annacis Main No. 5 (North and South) - Construction	Commissioning of Annacis Main No. 5 (North and South), required to convey water from the existing system within the City of Burnaby, through the Annacis Water Supply Tunnel to the Kennedy Reservoir in the City of Surrey. The project consists of 5.5 km of 1.8 m diameter steel watermain.	Regional Growth

Central Park Main No. 2 - Construction	Commissioning of Central Park Main No. 2, required to replace the existing Central Park Main in the City of Burnaby which has been in service since 1931 and is nearing the end of its service life. The proposed 7.0 km-long CPM2 will enhance system reliability and provide increased capacity to meet future water demands.	System Stewardship
Building Information Modeling (BIM) Phases II-III Implementation (continued)	Complete implementation of multi-year Phase II-III program	System Stewardship & Environmental Sustainability
Coquitlam Lake Water Supply	Commence construction of early site preparation work for intake, tunnel and treatment plant	Regional Growth

METRO VANCOUVER DISTRICTS
2023-2027 PROJECTED RESERVES - WATER

OPERATING RESERVES

	2022 ENDING BALANCE	2023 OPENING BALANCE	CONTRIBUTION	WITHDRAWALS	INTEREST	2023 ENDING BALANCE	2024 ENDING BALANCE	2025 ENDING BALANCE	2026 ENDING BALANCE	2027 ENDING BALANCE
Water Services	$ 25,740,386	$ 25,740,386	$ -	$ -	$ 514,808	$ 26,255,194	$ 26,780,298	$ 27,315,903	$ 27,862,222	$ 28,419,466

STATUTORY RESERVES

	2022 ENDING BALANCE	2023 OPENING BALANCE	CONTRIBUTION	WITHDRAWALS	INTEREST	2023 ENDING BALANCE	2024 ENDING BALANCE	2025 ENDING BALANCE	2026 ENDING BALANCE	2027 ENDING BALANCE
Water Services										
Water Laboratory Equipment Reserve	$ 703,468	$ 703,468	$ -	$ (96,000)	$ 13,109	$ 620,577	$ 536,029	$ 449,789	$ 361,825	$ 272,101
Water Sustainability Innovation Fund Reserve	14,416,988	14,416,988	723,000	(1,490,000)	280,670	13,930,658	14,207,251	15,145,876	16,179,024	17,232,834
Total	**$ 15,120,456**	**$ 15,120,456**	**$ 723,000**	**$ (1,586,000)**	**$ 293,779**	**$ 14,551,235**	**$ 14,743,280**	**$ 15,595,665**	**$ 16,540,849**	**$ 17,504,936**

To: Water Committee

From: Joe Sass, Director, Financial Planning, Finance Services

Date: September 22, 2022 Meeting Date: October 6, 2022

Subject: **Development Cost Charge Review Process and Rate Bylaw**

RECOMMENDATION

That the GVWD Board:

a) approve the implementation of Development Cost Charge rates and a Development Cost Charge Waiver or reduction for not-for-profit rental housing, as proposed in the report dated September 22, 2022 titled "Development Cost Charge Review Process and Rate Bylaw", and endorse the inclusion of interest costs directly related to those activities that are approved by the Inspector of Municipalities in the Development Cost Charge program;
b) give first, second, and third reading to the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022*;
c) give first, second, and third reading to the *Greater Vancouver Water District Water Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256, 2022* and
d) direct staff to forward the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022* to the Inspector of Municipalities for approval.

EXECUTIVE SUMMARY

Engagement on the development of a Development Cost Charge (DCC) for the Greater Vancouver Water District took place in spring and summer 2022 with development industry, member jurisdictions, First Nations, and the public in which feedback and comments were received and addressed. 105 people from industry and member jurisdictions participated in engagement sessions. Key feedback received throughout the engagement activities was the need for a phased approach, early and often engagement, as well as some member jurisdictions requested the inclusion of interest costs in the determination of the DCC rates. In response, Metro Vancouver is proposing to maintain the 50% assist factor and the inclusion of interest costs associated with the financing of growth capital in the DCC rates. In addition, Metro Vancouver is committed to a proactive engagement process for any future DCC updates. It is recommended that the GVWD Board approve the implementation of the DCC rates and the DCC bylaw and direct staff to forward the DCC bylaw to the Inspector of Municipalities for approval. Once the bylaw is approved by the Inspector of Municipalities, staff will bring back the bylaw for final adoption by the GVWD Board.

PURPOSE

The purpose of this report is to provide an update on the GVWD Development Cost Charge (DCC) rate review, summarize feedback from engagement, and recommend the Board give three readings to *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022* so it can be forwarded to the Inspector of Municipalities for consideration as well as give three readings to the

Greater Vancouver Water District Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256, 2022.

BACKGROUND

As part of the *2019–2022 Board Strategic Plan*, the Metro Vancouver Board is committed to pursuing the adoption of water DCCs with the purpose of ensuring new development in the region fund or partially fund the cost of water infrastructure expansion required to service that development. The concept of Metro Vancouver funding the growth portion of its regional water infrastructure through DCCs has been encouraged by most board members for several years.

While Metro Vancouver has operated a liquid waste DCC program of the Greater Vancouver Sewerage and Drainage District (GVS&DD) since 1997, there has never been a water DCC program in place, as the GVWD Act does not allow for the collection of DCCs. However, provincial staff recently reviewed historical interpretations and found that a different approach to legislative authority is possible through the *Local Government Act*.

As part of the plan to implement a water development cost charge (DCC), a Program review was initiated in 2020. A set of proposed DCC rates in principle was brought forward in July 2021 for consideration by the Water Committee. At that time the Water Committee did not endorse the rates proposed, and staff were instructed to reconsider the proposed rates as the large assist factor did not adhere to the direction for growth in the region to pay for required growth in the water system. Staff subsequently reported back to the Water Committee in April 2022 with additional rate options and an engagement plan.

On April 29, 2022, the GVWD Board passed the following resolution:

> That the GVWD Board:
> *a) direct staff to proceed with engagement on the proposed implementation of a water DCC program as described in the report dated March 3, 2022, titled "Engagement Plan and Proposed Rates for Water DCC Program Implementation"; and*
>
> *b) direct staff to proceed with engagement on the proposed implementation of the water DCC program with rates determined using a 50% assist factor.*

This report summarizes the feedback provided from the consultation and engagement sessions and presents a proposed bylaw to establish the DCC rates.

CONSULTATION AND ENGAGEMENT PROCESSES

In early 2022, a dedicated webpage was launched providing information on updates to the DCC program, the review process, and the proposed rates as well as newsletters were sent to the development industry with an invitation to complete feedback and attend the webinars. Visitors to the website were able to register for the mailing list to receive additional DCC updates and staff reached out to interested parties to discuss a format for consultations that would best suit their members. Engagement opportunities were promoted on social media and in e-newsletters. Information on the water DCC and the engagement process was provided to staff of member jurisdictions through four regional advisory committees.

Meetings targeting the development industry and the public were held on June 3 and June 6, 2022. A special meeting with staff from member jurisdictions was held on June 20. In addition, individual meetings were held with four First Nations. All meetings were virtual and at each meeting, Metro Vancouver representatives from the Finance and Water Services Departments explained the proposed DCC program and answered questions from those in attendance.

There were 105 participants to seven engagement sessions, representing the development industry, First Nations, the public, and member jurisdictions. Each session began with a presentation summarizing regional growth, the capital projects planned to address growth, the proposed rates, and the review process. This was followed by a question and answer period where attendees inquired on topics of interest to them. With a diverse group of attendees, there were a wide variety of questions and concerns.

In addition, staff used Civil Space, an online engagement platform, to host a project feedback form where people could provide input online, and received 52 submissions (which may have been unique participants or from participants of the webinars). The key issues identified and discussed are summarized into the basic themes as set out below.

SUMMARY OF FEEDBACK

Interest	How We're Responding
Water DCC and assist factor	**What we heard:** There is general support of a water DCC based on the concept that growth should pay for growth. This was true in the meetings and in the feedback form. Over 70% of the respondents to the feedback form expressed moderate to strong support for this concept. **How we're responding:** Implementing a water DCC to support growth in the region to pay for required growth in the water system.
Financial Impact	**What we heard:** Many in the development industry and member jurisdictions expressed concern about the cumulative impact of rate increases of the various DCCs. The development industry indicated that there have been increases to municipal, TransLink, and Metro Vancouver DCCs, as well as increases in community amenity charges and additional building code requirements. The development industry expressed that although each rate increase in itself may not be significant, the cumulative financial burden on developers is substantial. A few member jurisdictions expressed concerns about how Metro Vancouver's proposed water DCCs would impact their ability to raise their own DCCs sufficiently to have growth pay for growth.

	How we're responding: Anticipating these concerns, Metro Vancouver staff commissioned an industry capacity analysis in 2021 to assess the impact of the proposed DCC rates on development industry and concluded the capacity to absorb more DCCs existed but varied by subregion. Furthermore, staff indicated that the GVWD Board had recommended a 50% assist factor in response to regional growth and that servicing the associated growth its mandate. The DCC charge strives to support the principle of "growth paying for growth". Should the DCC's not be sufficient, water rates will have to be increased to pay for growth infrastructure.
Early and Often Engagement	**What we heard:** Within the development industry there was overall consensus that early notice of potential DCC rate increases would be helpful. This would help developers to accommodate the rate increases in their plans and financial analyses, as it is much more difficult to manage an increase in costs after sites have been purchased and financing arranged. The development industry requested to be notified as soon as possible of any proposed rate increases and to be included in the consultations on the future phasing of the assist factor from 50% down to 1%. **How we're responding:** Metro Vancouver is committed to being proactive in providing early communication and consistent engagement with the development industry when there are updates to the DCCs in the future.
Administration of New Water DCC	**What we heard:** There were questions and concerns from the member jurisdictions about providing enough communication to be able to accommodate the collection of the new Water DCC rates as the member jurisdictions collect DCCs on behalf of Metro Vancouver. There was a request to provide communication materials and a mechanism to coordinate the timing of any changes which would simplify the administrative burden necessary for the municipal staff that collect the charges. The challenge will be coordinating timing with member jurisdictions that are updating the DCC rates. **How we're responding:** Metro Vancouver staff committed to providing communication materials and a point of contact to ensure that the implementation of the new Water DCC is consistent.
Development Cost Charge Waiver or Reduction	**What we heard:** The issue of a waiver or reduction in the water DCC was raised at the public meetings and was included in the feedback form. There was interest in whether this was being considered and which kind of developments would be eligible for

	a waiver or reduction. The response to the question on the feedback form indicated strong support, 84%, for both not-for-profit rental housing and private development of not-for-profit rental housing projects receiving a waiver or reduction in DCCs. The value of providing private development of not-for-profit rental housing projects with a waiver or reduction was raised in both meetings with the development industry. **How we're responding:** With respect to affordable housing, staff have drafted an affordable housing waiver bylaw (attachment 2) for the GVWD DCC rates, which is consistent with the current GVS&DD waiver bylaw. Housing Policy and Planning is currently examining the waivers and reductions and will assess whether adjustments to the bylaws will be required in the future.

First Nation Engagement

In response to requests, staff organized meetings with four First Nations as well as responded to written correspondence from four First Nations. A common concern was whether a regional water DCC will apply to new developments on First Nation lands; except for the treaty First Nation, there is no impact. However, for the First Nations who engaged in the process there are outstanding issues about how a water DCC will affect other real estate activities. In this regard, the issues raised were how a water DCC, in the context of other DCCs applied in the region, would affect the costs of these developments.

Other issues raised related to the consultation on new water infrastructure projects as well as the expressed hope that indigenous businesses can participate in the business opportunities associated with new infrastructure projects. More generally the underlying concern is how the strategic priorities of Metro Vancouver align with the vision and aspirations of the First Nations in the region. Staff are committed to continue to work with First Nations on DCC related questions and issues.

BYLAWs

The Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022 (Attachment 1) has been structured with the following:

- The rates are as approved by the GVWD Board in April 2022, and as presented through the stakeholder consultation and First Nation engagement processes;
- The proposed effective date is January 1, 2023.

The *Greater Vancouver Water District Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256, 2022* (Attachment 2) has been structured with the following:

- The definitions for eligibility for application within the bylaw;
- The proposed effective date is January 1, 2023.

ALTERNATIVES

1. That the GVWD Board:
   a) approve the implementation of Development Cost Charge rates and Development Cost Charge Waiver or reduction for Not-for-Profit Rental Housing, as proposed in the report dated

September 22, 2022 titled "Development Cost Charge Review Process and Rate Bylaw", and endorse the inclusion of interest costs directly related to those activities that are approved by the Inspector of Municipalities in the Development Cost Charge program;

b) give first, second and third reading to the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022*
c) give first, second and third reading to the *Greater Vancouver Water District Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256,* 2022; and
d) direct staff to forward the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022* to the Inspector of Municipalities for approval.

2. That the Water Committee receive for information the report dated September 22, 2022 titled "Development Cost Charge Review Process and Rate Bylaw" and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

If the Water Committee endorses Alternative 1, the report will be forwarded to the GVWD Board for approval. The DCC program will generate funding which will be allocated to the completion of the water infrastructure necessary to meet the needs of growth in the region.

If the Water Committee does not endorse Alternative 1, further analysis may be required to determine the resulting financial impacts. Delays in implementation of a DCC program for GVWD will likely result in increased water rates to cover costs of growth related infrastructure.

CONCLUSION

Following the GVWD Board direction, an engagement process was undertaken to gather feedback on the proposed creation of a water DCC program. Engagement sessions were held in May and June 2022. A total of 105 people attended the sessions representing the development industry, member jurisdictions, First Nations, and the public. Key feedback included potential impact on housing affordability, a desire for early engagement once the bylaw changes come into effect, a need for regional coordination, and consideration of the impact on First Nations.

Based on the feedback received, it is recommended that the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022* and the *Greater Vancouver Water District Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256, 2022* be given three readings and that staff be directed to forward it to the Inspector of Municipalities for approval. Staff recommend Alternative 1.

Attachments

1. Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022
2. Greater Vancouver Water District Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256, 2022

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GREATER VANCOUVER WATER DISTRICT
BYLAW NO. 257, 2022
A Bylaw to impose Development Cost Charges

WHEREAS:

A. Pursuant to the *Local Government Act* ("the Act"), the Greater Vancouver Water District ("the GVWD"), as a greater board, may, by bylaw, impose development cost charges on every person who obtains approval of a subdivision or a building permit authorizing the construction, alteration or extension of a building or structure from a Member Municipality;

B. Development cost charges provide funds to assist the GVWD in paying capital costs including interest costs directly related to those activities that are approved by the Inspector of Municipalities to be included as capital cost, incurred to provide, construct, alter or expand water facilities to service, directly or indirectly, the development for which the charge is being imposed;

C. Pursuant to the Act, development cost charges are not payable in certain circumstances and the GVWD may waive or reduce development cost charges for eligible developments;

D. Member Municipalities collect the development cost charges imposed under this Bylaw and remit them to the GVWD;

E. In setting development cost charges under this Bylaw, the GVWD has considered:

(a) future land use patterns and development;
(b) the phasing of works and services;
(c) the provision of park land described in an official community plan;
(d) how development designed to result in a low environmental impact may affect the capital costs of infrastructure referred to in sections 559(2) and (3) of the Act;
(e) whether the charges are excessive in relation to the capital cost of prevailing standards of service in the municipality or regional district;
(f) whether the charges will, in the municipality or regional district,
    (i) deter development,
    (ii) discourage the construction of reasonably priced housing or the provision of reasonably priced serviced land, or
    (iii) discourage development designed to result in a low environmental impact.

NOW THEREFORE the Board of the Greater Vancouver Water District enacts as follows:

1.0 Citation

1.1 The official citation of this bylaw is "Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022". This bylaw may be cited as the "GVWD Development Cost Charge Bylaw".

2.0 Schedule

2.1 The following Schedule is attached to and forms part of the bylaw:
Schedule "A", GVWD Development Cost Charge Rates;

3.0 Definitions

3.1 In this Bylaw:

"Apartment Dwelling Unit" means a Dwelling Unit in a building or structure that consists or may consist of two or more storeys and contains or may contain four or more Dwelling Units, whereby the building or structure has a principal exterior entrance used in common for access to the Dwelling Units. Apartment Dwelling Unit does not include Dwelling Units that are Townhouse Dwelling Units;

"Building Permit" means any permit required by a Member Municipality that authorizes the construction, alteration or extension of a building or structure;

"Combination Development" means any Development that comprises two or more of the following uses:

(a) Apartment Dwelling Unit;

(b) Residential Dwelling Unit;

(c) Townhouse Dwelling Unit; and

(d) Non-Residential Use;

"*Community Charter*" means the *Community Charter*, SBC 2003, c. 26;

"Development" means:

(a) a Subdivision; or

(b) the construction, alteration or extension of a building or structure for which a Building Permit is obtained;

"Dwelling Unit" means one or more rooms comprising a self-contained unit that is used or intended to be used for living and sleeping purposes and for which are
provided cooking facilities, or the facilities for installation of cooking facilities, and one or more bathrooms having a sink or wash-basin, a water closet, and a shower or bath;

"Effective Date" means the date this bylaw comes into force and takes effect;

"Floor Area" means:

(a) the floor area of the building or structure (measured from the outside edge of all exterior walls of the building or structure), less the number of square feet of the floor area of the building or structure that is used or is intended to be used for the parking of motor vehicles and the storage of bicycles; or

(b) in the case of an alteration or extension of less than the entire building or structure, the portion of the building or structure to which the Building Permit applies (measured from the outside edge of any exterior walls in such portion of the building or structure), less the number of square feet of the floor area of the building or structure that is used or is intended to be used for the parking of motor vehicles and the storage of bicycles;

"Greater Vancouver Water District" or "GVWD" means the Greater Vancouver Water District which is incorporated pursuant to the *Greater Vancouver Water District Act, SBC 1924, c. 22;*

"Land Title Act" means the *Land Title Act*, RSBC 1996, c.250;

"Laneway House" has the definition ascribed to such term in the bylaws of the Member Municipality where the laneway house is located, or, in the absence of such a definition, means a detached building or structure containing one Dwelling Unit and constructed in the yard of a site on which is situate a Single Family Residential Dwelling;

"Local Government Act" means the *Local Government Act*, RSBC 1996, c. 323;

"Member Municipality" means a municipality that is a member of the GVWD;

"Minister" means the member of the Executive Council appointed under the Constitution Act charged by order of the Lieutenant Governor in Council with the administration of the Local Government Act;

"Municipal Charges" means development cost charges imposed by a Member Municipality under either the *Local Government Act, Community Charter* or the *Vancouver Charter*;

"Non-Residential Use" means any building or structure or any portion of any building or structure that is not Apartment Dwelling Unit, Residential Dwelling Unit or Townhouse Dwelling Unity but for greater certainty, does not include any portion of any Residential Use building or structure that is not part of a Dwelling Unit and is used or is intended to be used solely for the purpose of gaining access to and from Dwelling Units, solely for the maintenance of the building or structure or solely by the occupants of the Dwelling Units in the building or structure;

"Parcel" means any lot, block or other area in which land is held or into which it is legally subdivided and for greater certainty, without limiting the foregoing, including a strata lot under the *Strata Property Act*;

"Rate Schedule" means the schedule of development cost charge rates that is attached as Schedule A to this Bylaw;

"Rent" means money paid or agreed to be paid, or value or a right given or agreed to be given, by or on behalf of a tenant to a landlord in return for the right to rent a Dwelling Unit, for the use of common areas and for services or facilities and includes any and all strata fees, regardless of whether such fees are paid directly to the landlord, but does not include any of the following:

(a) a security deposit;

(b) a pet damage deposit;

(c) a fee prescribed under section 97 (2) (k) of the *Residential Tenancy Act*;

"Residential Dwelling Unit" means a Dwelling Unit in a building or structure that contains or may contain up to three Dwelling Units;

"Residential Tenancy Act" means the *Residential Tenancy Act*, SBC 2002, c. 78;

"Residential Use" means Apartment Dwelling Unit, Residential Dwelling Unit and Townhouse Dwelling Unit;

"Secondary Suite" has the definition ascribed to such term in the bylaws of the Member Municipality where the secondary suite is located, or, in the absence of such a definition, means the smaller Dwelling Unit contained within a Single Family Residential Dwelling;

"Single Family Residential Dwelling" means a detached building or structure that contains one principal Dwelling Unit and may contain one smaller Dwelling Unit; **"**

"Strata Property Act" means the *Strata Property Act*, SBC 1998, c. 43;

"Subdivision" includes a division of land into two or more Parcels, whether by plan, apt descriptive words or otherwise under the *Land Title Act* or the *Strata Property Act*, the consolidation of two or more Parcels of land, and phased strata plans;

"Townhouse Dwelling Unit" means a Dwelling Unit in a building or structure that contains or may contain four or more Dwelling Units, whereby each Dwelling Unit has a direct exterior entrance;

"Vancouver Charter" means the *Vancouver Charter*, SBC 1953, c. 55;

"Water Facility" means any work, service or plant of the GVWD for acquiring, supplying, or distributing water;

4.0 Development Cost Charges

4.1 **Application of Development Cost Charges**. Subject to section 4.4, every person who obtains:

(a) approval of a Subdivision from a Member Municipality; or

(b) a Building Permit from a Member Municipality;

must pay the applicable development cost charges set out in this Bylaw to that Member Municipality on behalf of the GVWD prior to the approval of the Subdivision or the issuance of the Building Permit.

4.2 **No Exemption**. Without limiting the generality of section 4.1, a Building Permit in section 4.1(b) includes a permit authorizing the construction, alteration or extension of any building or structure that will, after the construction, alteration, or extension, contain one or more Dwelling Units and be put to no other use than Residential Use in those Dwelling Units.

4.3 **Secondary Suites**. Notwithstanding anything to the contrary contained in this Bylaw, development cost charges are not payable under this Bylaw for the construction, alteration or extension of one Secondary Suite in a Single Family Residential Dwelling or for the construction, alteration or extension of a Laneway House.

4.4 **Exemptions from Development Cost Charges**. Development cost charges are not payable under this Bylaw if:

(a) the Development is not and will not be capable of being serviced by a Water Facility of the GVWD or by a Water Facility of a Member Municipality that is connected to a Water Facility of the GVWD;

(b) the Development will not impose new capital cost burdens on the GVWD;

(c) a development cost charge has previously been paid for the same Development unless, as a result of further Development, new capital cost burdens will be imposed on the GVWD;

(d) the Building Permit authorizes the construction, alteration or extension of a building or structure or part of a building or structure that is, or will be, after the construction, alteration or extension, exempt from taxation under subsection 220(1)(h) of the *Community Charter*;

(e) the value of the work authorized by the Building Permit does not exceed $50,000 or such other amount which the Minister may prescribe by regulation; or

(f) the Building Permit authorizes the construction, alteration or extension of self-contained Dwelling Units in a building in which:

(i) each Dwelling Unit is no larger in area than 29 square metres [312.153 square feet]; and

(ii) each Dwelling Unit is to be put to no use other than Residential Use in those Dwelling Units.

4.5 **Calculation of Development Cost Charges**. Development cost charges imposed under this Bylaw will be calculated in accordance with the rates set out in the Rate Schedule. The rates set out in the Rate Schedule may be different in relation to one or more of the following:

(a) different zones or different defined or specified areas;

(b) different uses;

(c) different capital costs as they relate to different classes of Development; or

(d) different sizes or different numbers of lots or units in a Development.

4.6 **Combination Development.** Without restricting the generality of section 4.5, the development cost charges for a Combination Development will be calculated separately for the portion of the Combination Development attributable to each of Apartment Dwelling Unit, Residential Dwelling Unit, Townhouse Dwelling Unit and Non-Residential Use and will be the sum of the development cost charges for each such use, calculated according to the Rate Schedule.

4.7 **Payment, Collection and Remittance of Development Cost Charges**. Development cost charges imposed under this Bylaw must be paid to the Member Municipality of the GVWD approving the Subdivision or issuing the Building Permit, as the case may be, as follows:

(a) at the same time as any Municipal Charges as may be levied on the Development under a bylaw of the Member Municipality are payable to the Member Municipality; or

(b) if no Municipal Charges will be levied on the Development under a bylaw of the Member Municipality, as follows:

(i) where an application is made only for Subdivision, prior to the issuance of the approval of the Subdivision by the Member Municipality; or

(ii) where an application is made only for a Building Permit or for both Subdivision and for a Building Permit, prior to the issuance of the Building Permit by the Member Municipality.

4.8 **Payment of Development Cost Charges by Instalments**. The development cost charges imposed under this Bylaw may not be paid by instalments unless a regulation under subsection 559(5) of the *Local Government Act* applies to the Development and authorizes the payment of development cost charges in instalments.

5.0 Collection and Remittance of Development Cost Charges

5.1 **Collection of Development Cost Charges by Member Municipalities**. Each Member Municipality must:

(a) collect the development cost charges imposed on a Development under this Bylaw; and

(b) not issue approval of a Subdivision or issue a Building Permit for any Development unless the development cost charges imposed under this Bylaw have been paid in accordance with Part 4.0.

5.2 **Separate Account.** Each Member Municipality must establish and maintain a separate account for the development cost charge monies collected under this Bylaw and deposit and hold these monies in that separate account, in trust for the GVWD, until the monies are remitted to the GVWD under section 5.3

5.3 **Remittance of Development Cost Charges by Municipalities**. Each Member Municipality, within 30 days after June 30 and December 31 of each year, must remit to the GVWD the total amount of development cost charges collected by the Member Municipality under this Bylaw during the six-month period previous to such date, or an amount equal to such development cost charges if the Member Municipality did not collect development cost charges under this Bylaw, together with the statement referred to in section 5.4.

5.4 **Statements.** Each Member Municipality must provide statements to the GVWD, pursuant to section 5.3, for every six-month period comprising January 1 to June 30 and July 1 to December 31, setting out:

(a) the number and type of use of all Residential Use Parcels or Dwelling Units on which development cost charges were levied by it under this Bylaw;

(b) the aggregate floor area of all Non-Residential Use buildings or structures on which development cost charges were levied by it under this Bylaw (calculated in accordance with the Rate Schedule);

(c) the legal description and civic address of each Parcel on which development cost charges were levied by it under this Bylaw, whether such development cost charges were levied in respect of a Subdivision or a Building Permit;

(d) the date and amount of each payment of development cost charges levied by it under this Bylaw and where section 4.8 applies to permit development cost charges levied under this Bylaw to be paid by instalments, the amount of instalment payments remaining to be paid to it and the dates for payment of such remaining instalments;

(e) the total amount of all development cost charges levied by it under this Bylaw and the total amount of all remaining instalment payments;

(f) the number, legal description, civic address and type of use of all Parcels in respect of which Subdivisions were approved where no development cost charges were levied by it under this Bylaw; and

(g) the number and type of use of all Dwelling Units and the aggregate floor area of all Non-Residential Use buildings or structures (calculated in accordance with the Rate Schedule) in respect of which Building Permits were required where no development cost charges were levied by it under this Bylaw.

5.5 **Failure to Remit Development Cost Charges**. If a Member Municipality fails, for any reason, to collect any development cost charges payable under this Bylaw or to remit to the GVWD any development cost charges collected by it, the Member Municipality must pay to the GVWD on demand an amount equal to the development cost charges that the Member Municipality should have collected or remitted under this Bylaw.

6.0 Severability

6.1 If a portion of this Bylaw is held to be invalid it shall be severed and the remainder of the Bylaw shall remain in effect.

7.0 Effective Date

7.1 This bylaw will come into effect on January 1, 2023.

Read a first time this _____ day of _____, _____.

Read a second time this _____ day of _____, _____.

Read a third time this _____ day of _____, _____.

Approved by the Inspector of Municipalities this _____ day of _____, _____.

Passed and finally adopted this _____ day of _____, _____.

_____
Sav Dhaliwal, Chair

_____
Chris Plagnol, Corporate Officer

Schedule A

GVWD DEVELOPMENT COST CHARGE RATES

	Description	Rate
1.	Residential Dwelling Unit	$6,692 per Dwelling Unit
2.	Townhouse Dwelling Unit	$5,696 per Dwelling Unit
3.	Apartment Dwelling Unit	$4,261 per Dwelling Unit
4.	Non-Residential Use	$3.39 multiplied by the number of square feet of Floor Area

GREATER VANCOUVER WATER DISTRICT
BYLAW NO. 256, 2022
A Bylaw to Establish a Waiver or Reduction of Development Cost Charges for Not-for-Profit Rental Housing

WHEREAS:

A. Pursuant to subsections 563(1) of the *Local Government Act*, RSBC 1996, c.323, the Greater Vancouver Water District, as a greater board, may, by bylaw, waive or reduce a development cost charge imposed by bylaw pursuant to section 559 of the *Local Government Act, RSBC, 1996, c.323* for an "eligible development"; and

B. It is deemed desirable to establish eligibility requirements and conditions for a waiver or reduction of development cost charges for not-for-profit rental housing, including affordable rental housing and student housing.

NOW THEREFORE the Board of the Greater Vancouver Water District enacts as follows:

1.0 Citation

1.1 The official citation of this bylaw is “Greater Vancouver Water District Development Cost Charge Waiver or Reduction for Not-for-Profit Rental Housing Bylaw No. 256, 2022”. This bylaw may be cited as “GVWD Development Cost Charge Rental Housing Bylaw.”

2.0 Definitions

2.1 In this Bylaw:

“Apartment Dwelling Unit” means a Dwelling Unit in a building or structure that consists or may consist of two or more storeys and contains or may contain four or more Dwelling Units, whereby the building or structure has a principal exterior entrance used in common for access to the Dwelling Units. Apartment Dwelling Unit does not include Dwelling Units that are Townhouse Dwelling Units;

“BC Housing” means the British Columbia Housing Management Commission;

“Building Permit” means any permit required by a Member Municipality that authorizes the construction, alteration or extension of a building or structure;

“CMHC” means Canada Mortgage and Housing Corporation;

“Combination Development” means any Development that comprises two or more of the following uses:

(a) Apartment Dwelling Unit;

(b) Residential Dwelling Unit;
(c) Townhouse Dwelling Unit; and
(d) Non-Residential Use;

"Development" means:

(a) a Subdivision; or
(b) the construction, alteration or extension of a building or structure for which a Building Permit is obtained;

but does not include:

(c) an adjacent, separately titled parcel;

"Development Cost Charge" means a development cost charge payable by a registered owner to a Member Municipality on behalf of GVWD, pursuant to *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022*;

"Dwelling Unit" means one or more rooms comprising a self-contained unit that is used or intended to be used for living and sleeping purposes and for which are provided cooking facilities, or the facilities for installation of cooking facilities, and one or more bathrooms having a sink or wash-basin, a water closet, and a shower or bath;

"Effective Date" means the date this Bylaw comes into force and takes effect;

"Eligibility Criteria" means criteria established by a Not-for-Profit Society, BC Housing, CMHC, a Non-Profit Municipal Housing Corporation or a Registered Charity or any authorized designate of the foregoing entities, used to determine eligibility of a person to occupy a dwelling unit within a Not-for-Profit Rental Housing development;

"Greater Vancouver Water District" or "GVWD" means the Greater Vancouver Water District which is incorporated pursuant to the *Greater Vancouver Water District Act*, SBC 1924, c. 22;

"Group Home" means staffed residential housing for those with a level of disability that requires continual assistance to complete daily tasks of living (such as taking medication, dressing or bathing);

"Member Municipality" means a municipality that is a member of the GVWD;

"Non-Residential Use" means any building or structure or any portion of any building or structure that is not Apartment Dwelling Unit, Residential Dwelling Unit or Townhouse Dwelling Unit but for greater certainty, does not include any portion of any Residential Use building or structure that is not part of a Dwelling Unit and is used or is intended to be used solely for the purpose of gaining access to and from Dwelling Units, solely for the maintenance of the building or structure or solely by the occupants of the Dwelling Units in the building or structure;

"Not-for-Profit Rental Housing" means:

(a) **"Not-for-Profit Affordable Rental Housing"** which means Residential Use Development, Combination Development or Supportive Living Housing comprising housing that is:

(i) Owned, leased or otherwise held by a Not-for-Profit Society, BC Housing, CMHC, a Non-Profit Municipal Housing Corporation or a Registered Charity at the time of any application for, or issuance of, a waiver of Development Cost Charges;
(ii) Operated as rental housing for people who meet Eligibility Criteria; and
(iii) Governed by the terms of an agreement and/or covenant with the Province of British Columbia, BC Housing, CMHC or a municipality regarding the operation of the housing and stipulating how the Dwelling Units will be occupied and managed;

but not including:

(i) a community care facility under the *Community Care and Assisted Living Act*, SBC 2002, c. 75;
(ii) a continuing care facility under the *Continuing Care Act*, RSBC 1996, c. 70;
(iii) a public or private hospital under the *Hospital Act*, RSBC 1996, c. 200;
(iv) a Provincial mental health facility, an observation unit or a psychiatric unit designated under the *Mental Health Act*, RSBC 1996, c. 288; or
(v) a housing based health facility that provides hospitality support services and personal health care; and

(b) **"Not-for-Profit Student Housing"** which means Residential Use Development or Combination Development that is:

(i) Owned and operated by a Post-Secondary Institution at the time of any application for, or issuance of, a reduction of Development Cost Charges;
(ii) Purpose built to provide rental housing for students attending that institution;
(iii) Operated on a cost recovery basis; and
(iv) Governed by the terms of a covenant with the Greater Vancouver Water District confirming the use of the Development is restricted for a period of 60 years to the purpose of providing rental housing for students attending that institution, that the housing will be operated by the Post-Secondary Institution or its designated agent, and will be operated on a cost recovery basis;

"Not-for-Profit Society" means a society registered under the *Societies Act*, SBC 2015, c. 18, in respect of which:

(a) The society's bylaws or constitution's stated purpose is to provide affordable housing for low (or low and moderate) income households, or another similar purpose consistent with the type of services being provided;
(b) The society's bylaws provide that the society's directors may not be remunerated in any capacity, nor may the directors serve as employees;

(c) The society's bylaws provide that upon dissolution or wind up of the society, the society's assets will be disposed to an organization(s) with a similar not-for-profit purpose of providing affordable housing;
(d) Items addressed in subsections (a), (b) and (c) must be unalterable or otherwise restricted in accordance with the applicable legislation or regulation, or require the prior written consent of GVWD to alter; and
(e) The society's rules of conduct must be in accordance with the society's purposes and applicable legislation;

"Non-Profit Municipal Housing Corporation" means a non-profit housing corporation established at the initiative of a municipality or regional district;

"On-Site Support Services" means services to support independent daily living that are physically offered in the building's office or common areas, and include but are not limited to:

(a) Health and mental health services;
(b) Health and community support referrals;
(c) Addiction services;
(d) Employment and education services;
(e) Job and life skills training;
(f) Assistance with meal preparation or housekeeping; and
(g) Counselling and outreach services;

but not including personal continual assistance services such as bathing, dressing or medication assistance, as offered in a Group Home;

"Post-Secondary Institution" means a college, university, special purpose university or institution as enabled pursuant to the *College and Institute Act*, RSBC 1996, c. 52;

"Registered Charity" means a charitable foundation or a charitable organization as defined in the *Income Tax Act,* R.S.C. 1985, c. 1**;**

(a) The registered charity's bylaws or constitution's stated purpose is to provide affordable housing for low (or low and moderate) income households, or another similar purpose consistent with the type of services being provided;
(b) The registered charity's bylaws provide that the society's directors may not be remunerated in any capacity, nor may the directors serve as employees;
(c) The registered charity's bylaws provide that upon dissolution or wind up of the society, the society's assets will be disposed to an organization(s) with a similar charitable purpose;
(d) Items addressed in subsections (a), (b) and (c) must be unalterable or otherwise restricted in accordance with the applicable legislation or regulation, or require the prior written consent of GVWD to alter; and
(e) The registered charity's rules of conduct must be in accordance with the charity's purposes and applicable legislation;

"Rent" means money paid or agreed to be paid, or value or a right given or agreed to be given, by or on behalf of a tenant to a landlord in return for the right to rent a Dwelling Unit, for the use of common areas and for services or facilities and includes any and all strata fees, regardless of whether such fees are paid directly to the landlord, but does not include any of the following:

(a) a security deposit;
(b) a pet damage deposit;
(c) a fee prescribed under section 97 (2) (k) of the *Residential Tenancy Act,* SBC 2002, c. 78;

"Residential Dwelling Unit" means a Dwelling Unit in a building or structure that contains or may contain up to three Dwelling Units;

"Residential Use" means Apartment Dwelling Unit, Residential Dwelling Unit or Townhouse Dwelling Unit**;**

"Subdivision" includes a division of land into two or more Parcels, whether by plan, apt descriptive words or otherwise under the *Land Title Act,* RSBC 1996, c. 250 or the *Strata Property Act*, SBC 1998, c. 43, the consolidation of two or more Parcels of land, and phased strata plans;

"Supportive Living Housing" means housing, not including a Group Home, that integrates Dwelling Units for persons who were previously homeless or who are at risk of homelessness, who may also

(a) have a mental illness;
(b) have or be recovering from drug or alcohol addictions; or
(c) experience other barriers to housing;

with On-Site Support Services that are available to the residents of the Dwelling Units, where occupancy is not restricted to less than 90 days;

"Townhouse Dwelling Unit" means a Dwelling Unit in a building or structure that contains or may contain four or more Dwelling Units, whereby each Dwelling Unit has a direct exterior entrance.

2.2 **Same Meaning.** Terms defined in the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022*, or incorporated by reference into that Bylaw have the same meaning in this Bylaw.

2.3 **References to an Enactment Include Its Amendments.** References in this Bylaw to an enactment include the enactment as it may be amended or replaced from time to time.

3.0 Waiver or Reduction of Development Cost Charges

3.1 **Waiver of Development Cost Charges for Eligible Not-for-Profit Affordable Rental Housing Development.** Notwithstanding section 4.1 of the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022*, and subject to section 3.3 of this Bylaw, the GVWD will, for the following eligible development, waive to the applicable Member Municipality on behalf of the Not-for-Profit Society, BC Housing, CMHC, Non-Profit Municipal Housing Corporation or Registered Charity that is the registered owner at the time of the application for and issuance of a waiver of Development Cost Charges, Development Cost Charges that are otherwise payable:

(a) All Dwelling Units within a Not-for-Profit Affordable Rental Housing Development, if at least thirty percent of the Dwelling Units are to be occupied by households with incomes at or below housing income limits for the corresponding size of housing unit, as set out in the current "Housing Income Limits" (HILs) table published by the BC Housing, or equivalent publication; or

(b) Only those Dwelling Units within a Not-for-Profit Affordable Rental Housing Development that are to be occupied by households with incomes at or below housing income limits for the corresponding size of housing unit, as set out in the current HILs table, or equivalent publication, if less than thirty percent of all of the Dwelling Units are to be occupied by such households.

3.2 **Reduction of Development Cost Charges for Eligible Not-for-Profit Student Housing Development.** Notwithstanding section 4.1 of the *Greater Vancouver Water District Development Cost Charge Bylaw No. 257, 2022*, and subject to section 3.3 of this Bylaw, the GVWD will, for the following eligible development, for a Post-Secondary Institution that is the registered owner at the time of the application for and issuance of a reduction of Development Cost Charges, reduce by 50% the Development Cost Charges that are otherwise payable for:

(a) All Dwelling Units within a Not-for-Profit Student Housing Development that are to be occupied by students attending the Post-Secondary Institution.

3.3 No waiver pursuant to section 3.1 and no reduction pursuant to section 3.2 shall be granted unless a registered owner's application for a waiver or a reduction of Development Cost Charges in respect of Dwelling Units in a Not-for-Profit Rental Housing Development has been submitted to, and approved by the GVWD as fulfilling all of this Bylaw's eligibility requirements and conditions for a waiver or a reduction of Development Cost Charges.

4.0 Record Keeping and Reporting

4.1 **Statements.** Each Member Municipality must provide statements to GVWD, for every 12-month period comprising January 1 to December 31, and this will include:

(a) the registered owner or lessee; and

(b) number and type of use

of all Dwelling Units (calculated in accordance with the Rate Schedule set out in the *Greater Vancouver Water District Development Cost Charge Bylaw, No. 257, 2022*) in respect of which building permits were required where Development Cost Charges were waived or reduced under this Bylaw;

4.2 **Reports.** GVWD staff will report annually to the GVWD Board of Directors, and any time upon the request of the Board, the number and cost of GVWD Development Cost Charge waivers or reductions granted under this Bylaw.

5.0 Severability

5.1 If a portion of this Bylaw is held to be invalid it shall be severed and the remainder of the Bylaw shall remain in effect.

6.0 Effective Date

6.1 This bylaw will come into effect on January 1, 2023.

Read a first time this _____ day of _____, _____.

Read a second time this _____ day of _____, _____.

Read a third time this _____ day of _____, _____.

Approved by the Inspector of Municipalities this _____ day of _____, _____.

Passed and finally adopted this _____ day of _____, _____.

_____
Sav Dhaliwal, Chair

_____
Chris Plagnol, Corporate Officer

metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

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

Date: September 8, 2022 Meeting Date: October 6, 2022

Subject: **2022 Update on Water Sustainability Innovation Fund Projects**

RECOMMENDATION

That the Water Committee receive for information the report dated September 8, 2022, titled "2022 Update on Water Sustainability Innovation Fund Projects".

At their meeting of July 8, 2022, the Climate Action Committee received for information the attached report titled "2022 Update on Water Sustainability Innovation Fund Projects". The report provides an update on 10 projects funded under the Water Sustainability Innovation Fund and approved for funding in 2018 through to 2021. The projects are described further in the attached report.

Attachment

2022 Update on Water Sustainability Innovation Fund Projects report to July 8, 2022 Climate Action Committee *(49394517)*

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Climate Action Committee

From: Aby Sharma, Director (Acting), Policy, Planning and Analysis
Water Services Department

Date: June 13, 2022 Meeting Date: July 8, 2022

Subject: **2022 Update on Water Sustainability Innovation Fund Projects**

RECOMMENDATION
That the Climate Action Committee receive for information the report dated June 13, 2022, titled "2022 Update on Water Sustainability Innovation Fund Projects."

EXECUTIVE SUMMARY
This report provides an update on 10 projects that were approved for funding in 2018 through to 2021 under the Water Sustainability Innovation Fund. Descriptions of the 10 projects are included in the attachment. The projects range from assessment of emerging contaminants of concern, microplastics, disinfection by-products; to monitoring and information management; to greywater reuse; to earthquake early warning systems.

PURPOSE
This report provides an update on projects funded under the Water Sustainability Innovation Fund.

BACKGROUND
The Water Sustainability Innovation Fund was created by the Board in 2004 to provide financial support to Water Utility projects that contribute to the region's sustainability. The GVWD Board adopted the *Water Sustainability Innovation Fund Policy* on June 27, 2014, with further amendments in 2016 and 2021, to guide the use and management of the Fund. The policy requires that the Climate Action Committee be updated on an annual basis on the deliverables, outcomes and measurable benefits of the projects receiving funding.

This report presents an update on projects that have not yet been reported as complete to the Climate Action Committee, including status, amount spent, and project outcomes.

STATUS OF SUSTAINABILITY INNOVATION PROJECTS (APPROVAL YEARS: 2018 – 2021)

The table below provides information on the status of each project. Additional details are provided in the attachment.

Project	Approval Year	Amount Approved	Status
Greywater Reuse and Rainwater Harvesting Demonstration	2018	$350,000	In progress
Treating Emerging Contaminants at the Seymour Capilano Filtration Plant	2019	$300,000	In progress
UV Transmittance Analyzers for Continuous Monitoring of Disinfection By-Products	2020	$500,000	In progress
Earthquake Early Warning and Strategic Response System Pilot	2020	$270,000	In progress
Enhancing the Data Processing of the Water Flow Metering Network	2020	$180,000	In progress
Building Information Modeling (BIM): Transforming Utilities Information Management	2021	$800,000	In progress
Microplastics Study in Source Waters and Water Treatment	2021	$150,000	Delayed
Next Generation Snowpack Monitoring – Phase 2	2021	$400,000	In progress
Visual Documentation of Key Water Services Infrastructure	2021	$700,000	On hold
ICI Sector Migration – Impact on Water Services	2021	$150,000	On hold

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The projects summarized in this report had funding approved by the Board from 2018-2021. The disbursals of funds were made in accordance with the *Water Sustainability Innovation Fund Policy* that governs the use and management of the Fund.

The table below outlines the funding approved and the amount spent to date for each project. Any unspent funds for completed projects remain in the Water Sustainability Innovation Fund reserve.

Project	Total Amount of Funding Approved	Amount Spent (as of June 1, 2022)
2018 Approval Year		
Greywater Reuse and Rainwater Harvesting Demonstration	$350,000	$267,340
2019 Approval Year		
Treating Emerging Contaminants at the Seymour Capilano Filtration Plant	$300,000	$131,425
2020 Approval Year		
UV Transmittance Analyzers for Continuous Monitoring of Disinfection By-Products	$500,000	$35,289
Earthquake Early Warning and Strategic Response System Pilot	$270,000	$199,389
Enhancing the Data Processing of the Water Flow Metering Network	$180,000	$112,570
2021 Approval Year		
Building Information Modeling (BIM): Transforming Utilities Information Management	$800,000	$131,839
Microplastics Study in Source Waters and Water Treatment	$150,000	$0
Next Generation Snowpack Monitoring – Phase 2	$400,000	$205,000
Visual Documentation of Key Water Services Infrastructure	$700,000	$0
ICI Sector migration – Impact on Water Services	$150,000	$0

The balance in the Water Sustainability Innovation Fund at December 31, 2021 was $14.3 million.

CONCLUSION

This report presented an update on 10 projects funded under the Water Sustainability Innovation Fund. The Fund was created by the Board in 2004 to provide financial support to Water Utility projects that contribute to the region's sustainability.

Attachment

2022 Update on Water Sustainability Innovation Fund Projects

49394517

metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

2022 UPDATE ON WATER SUSTAINABILITY INNOVATION FUND PROJECTS

Greywater Reuse and Rainwater Harvesting Demonstration: In Progress
Metro Vancouver has undertaken an initiative to support the uptake of these non-potable water systems at individual buildings in the region. The project aims to advance non-potable water use 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.

Outcomes to date:

- A non-potable water systems guidebook and companion document were published in June 2022. The guidebook includes case studies, lessons learned, the non-potable water regulatory environment, and recommendations for the planning, design, implementation, and operation and maintenance of non-potable water systems. The companion document covers the technical aspects of planning, design, and implementation of non-potable water systems.
- The roadmap is planned for completion in September 2022. It identifies the barriers to broader adoption of non-potable water systems in the region and outlines the opportunities to address them.

The key deliverables of the project will be completed by the end of 2022.

Treating Emerging Contaminants at the Seymour Capilano Filtration Plant: In Progress
Consulting engineering services are required to assess and study current and future emerging contaminants to Seymour Capilano Filtration Plant (SCFP). The project comprises two phases. The Phase 1 literature survey includes a desktop study to develop a detailed understanding of future contaminants in source water, an assessment of existing treatment processes, and evaluating best practices to manage emerging contaminants of concern. Phase 2 will undertake pilot testing on a selection of the highest risk contaminants.

Outcomes to date:

- The consultant is close to completing Phase 1 and the last two technical memoranda are being reviewed.
- Phase 1 will define the treatment objectives and operating conditions at the SCFP to effectively treat emerging contaminants.

The project team will evaluate the results of Phase 1 and the treatability assessment report to decide whether to proceed with Phase 2, which is scheduled to commence in October 2022.

UV Transmittance Analyzers for Continuous Monitoring of Disinfection By-Products: In Progress
Consulting engineering services are required to evaluate the use of multi-spectrum UV visible analyzers for continuous monitoring of disinfection by-products (DBPs) at the Coquitlam Water Treatment Plant (CWTP) and at various locations in the transmission system. Data collected using the UV visible analyzers may 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 water

transmission system. Phase 1 includes a literature survey and desktop analysis that requires the collection of data over a full year.

Outcomes to date:

- The consultant is continuing the evaluation of the use of multi-spectrum UV visible analyzers for continuous monitoring of DBPs.
- Three technical memoranda are being reviewed:
  - Literature Review
  - Desktop UV Visible Equipment Evaluation
  - UV Visible Data Collection and Test Plan

The project team will evaluate the results of Phase 1 in fall 2023. A decision will then be made on whether to proceed with Phase 2, a pilot project to design and install in-line instrumentation at selected locations to monitor DBPs.

Earthquake Early Warning and Strategic Response System Pilot: In Progress

Consulting engineering services are required to plan, design, install, test, and commission an earthquake early warning system at critical Metro Vancouver sites. The project commenced in January 2021 and the first installations were completed in April 2022.

Outcomes to date:

- An earthquake early warning pilot system has been installed at three sites (Seymour Capilano Filtration Plant, Coquitlam Water Treatment Plant and Lake City Operations Centre) and is now undergoing a test period.
- The system has been showing success in the early stages of the test period. The system is designed to sound alarms, giving seconds to tens of seconds of warning to staff and operators. Staff can then seek to duck, cover and hold and/or exit vulnerable spaces.

Once fully tested and commissioned in fall 2022, the project team will examine and test the utilization of the warnings for any automated actions. These actions could help secure vulnerable aspects of the water supply system while increasing safety and resiliency across the region. The system pilot project is expected to be complete by end of 2023.

Enhancing the Data Processing of the Water Flow Metering Network: In Progress

This project will evaluate and develop artificial intelligence software solutions that use artificial neural networks to enhance the data processing of the water flow metering network. This project will involve setting up a software system, analyzing historic data from the flow metering network, generating forecasts and comparing them with live data, and reporting unexpected trends to staff for further investigation.

Outcomes to date:

- The vendor demonstrated the product at an off-site installation in March 2022 and Metro Vancouver was able to complete initial testing.
- The vendor-led factory acceptance test sessions of the selected software were completed satisfactorily.

- On-site installation in the test environment was completed in April 2022.

The consultant is currently working on completion of on-site production environment and integration with the Metro Vancouver database. The project is on schedule for completion by the end of September 2022.

Building Information Modeling (BIM): Transforming Utilities Information Management: In Progress
Consulting engineering services are required to explore and advance the potential of BIM for Metro Vancouver utilities. 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 to proceed.

Outcomes to Date:
- Consultant was hired in fall 2021.
- The consultant is working with the Metro Vancouver team to develop policies, standards, and owner requirements.

Phase 1 is expected to be complete mid-2023 with the policies, standards, templates and procedures completed and successful piloting of BIM 3D tools, staff training, and organizational process improvements. Future applications for Phases 2 and 3 will be made to the Water Sustainability Innovation Fund to continue the advancement of BIM into utility functions. Phase 2 will 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 including the Digital Twin Hydraulic model.

Microplastics Study in Source Waters and Water Treatment: Delayed
This study will 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 train at both drinking water treatment plants.

The long-term objective of this project is to provide Metro Vancouver and member municipalities with additional information on microplastics within the drinking water treatment and transmission system. The project also aims to develop a foundation for further microplastic study within the drinking water treatment and transmission systems as well as within other departments such as Liquid Waste Services.

The project is resuming with procurement in the summer of 2022, as the scope had to be revisited with new research information.

Next Generation Snowpack Monitoring – Phase 2: In Progress
This project involves reviewing and applying new technologies to measure snow in the watersheds and to quantify the amount of stored water in the seasonal snowpack. Phase 1 began in 2019 and was completed by 2021, when Phase 2 was approved.

Outcomes to date:

- The project team completed five fixed-wing aerial LiDAR snow depth surveys and two surveys using remotely piloted aerial systems (RPAS, or drones) in 2021, and two additional aerial LiDAR surveys so far in 2022.
- Extensive field validation work has been completed to determine the accuracy of remotely sensed geospatial snow products, and to determine potential sources of error. Aerial LiDAR and RPAS photogrammetry have shown promising results.
- Optical and Synthetic Aperture Radar (SAR) satellites are now being used operationally to determine the snow covered extent over the water supply areas. This imagery is currently being processed and analyzed by Metro Vancouver staff.

The project is on schedule for completion by end of 2022. The Metro Vancouver team is beginning to work with a consultant to use satellite imagery and machine learning/artificial intelligence algorithms to produce weekly snow depth, snow water equivalent, wet snow extent, and soil moisture maps of the water supply areas. A potential Phase 3 project is being considered.

Visual Documentation of Key Water Services Infrastructure: On Hold

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 services, including:

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

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

This project is on hold. It is expected that the outcomes of the Building Information Modeling (BIM) project will better inform the scope and requirements of this project.

Industrial, Commercial, and Institutional (ICI) Sector Migration – Impact on Water Services: On Hold

Changes in land use patterns and rising land value have driven industry and other businesses to move to more cost-effective areas within and outside the region. In 2017, the ICI sector was estimated to account for 40% of total water demand. The relocation of the ICI sector has the potential to shift water demand in the region. This project will estimate future ICI water demand and how this may impact water system servicing infrastructure.

This project will resume in fall 2022 when the latest 2021 census data has been analyzed by Metro Vancouver Regional Planning and following the Board's acceptance of Metro 2050 Regional Growth Strategy which will be considered in July 2022.

To: Water Committee

From: Linda Parkinson, Director, Planning Policy and Analysis, Water Services
Paul Kohl, Director, Operations and Maintenance, Water Services

Date: September 27, 2022 Meeting Date: October 6, 2022

Subject: **Summer 2022 Water Supply Performance**

RECOMMENDATION

That the Water Committee receive for information the report dated September 27, 2022, titled "Summer 2022 Water Supply Performance".

EXECUTIVE SUMMARY

The water supply system performed well during the high demand period of 2022. The spring and the early part of the summer were cooler and wetter than normal, allowing for the snowpack to last later into the summer. This set the stage for the availability of sufficient source water storage to meet regional demands through to the end of the summer, despite a warm and dry August.

The updated Drinking Water Conservation Plan (DWCP) which was approved by the GVWD Board in October 2021 and published in November for implementation in 2022, started on May 1 for Stage 1. Metro Vancouver and member jurisdictions must continue to focus on conservation initiatives, as any sustained decrease in per capita consumption will positively impact both system planning and operation.

PURPOSE

To provide the Committee with an overview of water use and water supply system performance during the high demand season of 2022.

BACKGROUND

The water supply update for summer 2022 provided at the April 6, 2022 Water Committee meeting included a summary of the state of source water supply, past trends in water use, and an update on the plans for operating the source reservoirs and water system during the summer and fall of 2022. At the July 6, 2022 meeting, the Water Committee also received a water supply update in the Manager's Report, including the status of available storage in the GVWD source reservoirs.

As per the Committee's 2022 Work Plan, this report provides an overview of the performance of the regional water supply system during the summer of 2022.

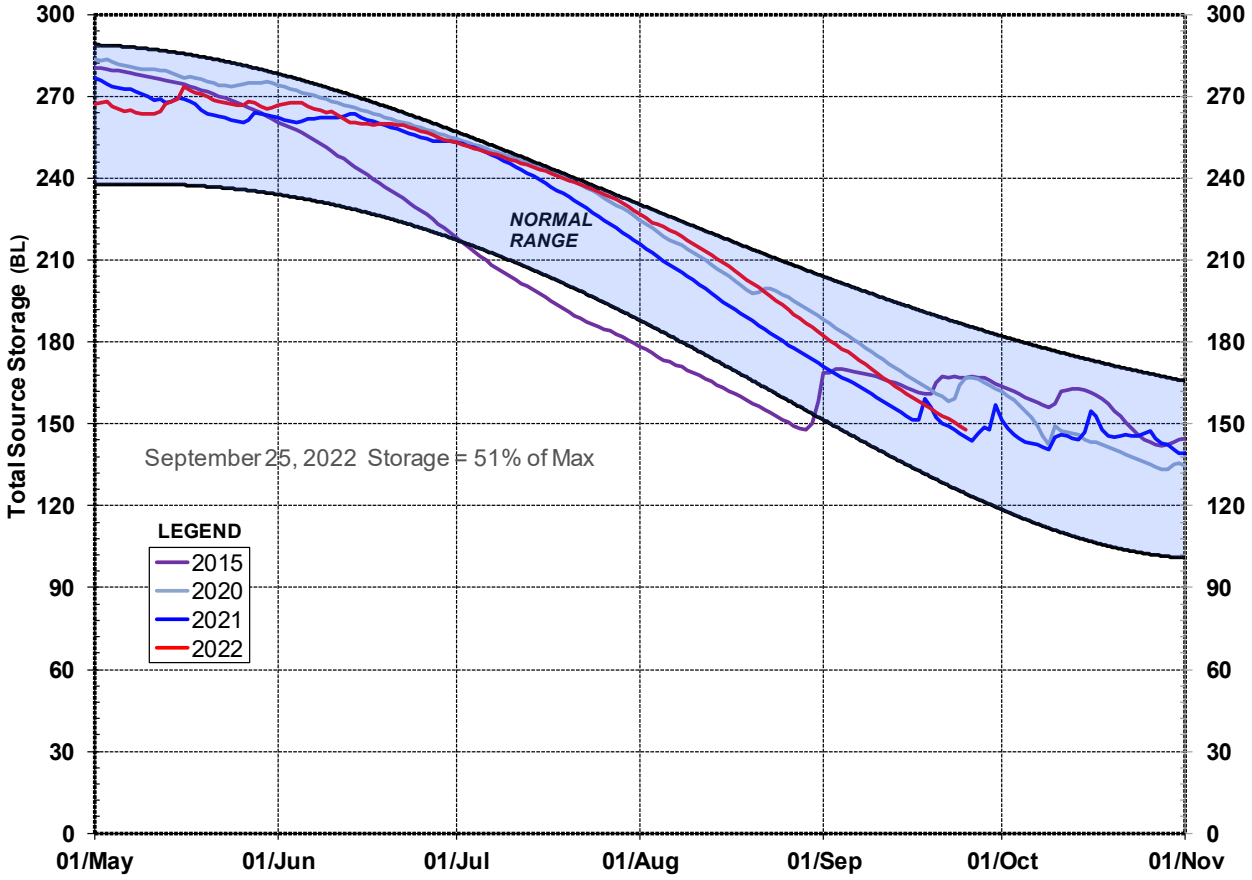
2022 SUMMER WATER DEMANDS AND STORAGE LEVELS

The Metro Vancouver region experienced an above average snowpack this past winter combined with a cool and wet spring. The source reservoirs were proactively managed through the spring and early summer to capture the incoming streamflow to ensure Capilano and Seymour Reservoirs reached their respective full pool elevations on July 8, 2022, and June 19, 2022, respectively. The winter and spring climatic conditions resulted in extended freshet inflows to the reservoirs, producing

a later than usual initial reservoir drawdown on July 23. This year, due to lower early summer consumption compared to 2021 and high inflows, the Palisade Lake dam was not opened. However, Loch Lomond and Burwell Lakes were opened on August 25 to supplement natural inflows into Seymour Lake.

Figure 1 shows that through the high demand period when demands typically increase above 1.0 BL/day, the total source storage levels were maintained within the normal range. The high volume of storage at the beginning of summer can be attributed to the larger than normal snowpack and a cooler and wetter spring. Overall system demands, river inflows and system storage were closely monitored, and all three source reservoirs were managed to maintain a reliable water supply for the region.

Figure 1 - Total Source Storage for Metro Vancouver Usage (Incl. Coquitlam Lake)



As shown in Figure 2, the peak day consumption in the summer of 2022 was 1.59 billion litres/day, recorded on Saturday, July 30. The 2022 peak day consumption was observed in late July, which is consistent with the previous year's peak day demands. The 2021 peak day consumption in June of 2021 (1.80 BL/d on Sunday, June 27) was unusually early. The early 2021 peak day in June can be attributed to the heat dome that occurred towards the end of the month, the peak day demand in 2022 was 12% lower than in 2021. The daily demands through 2022 were consistently lower than 2021 prior to mid-august. The late season increase in demands in 2022 can be attributed to the warm and dry end to the summer that the region experienced.

Figure 2 - Metro Vancouver Daily System Consumption Comparison 2021 and 2022

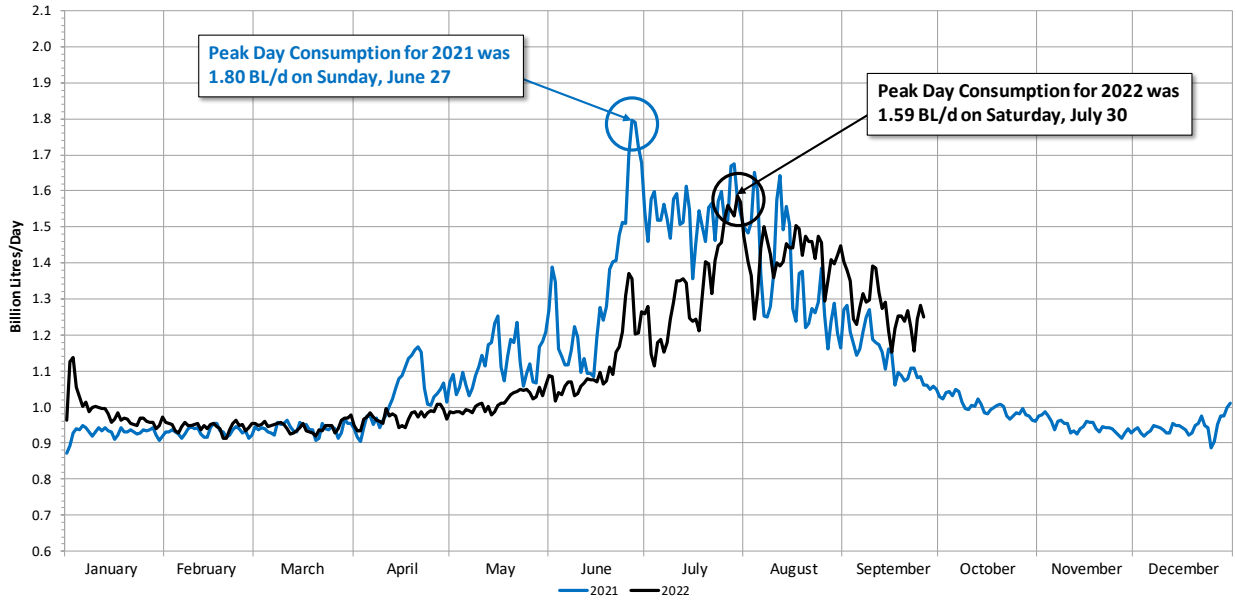
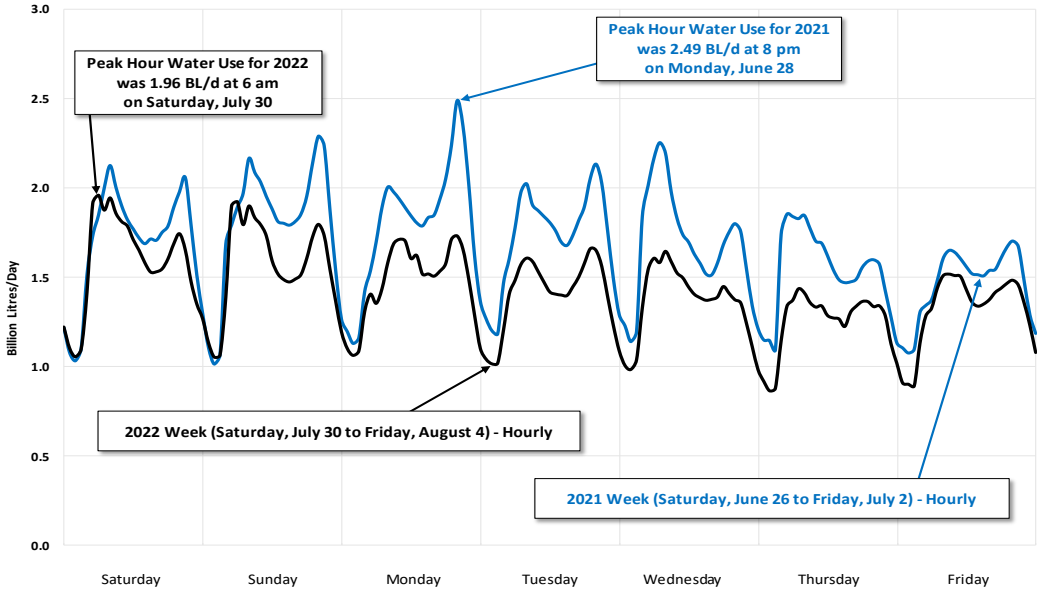


Figure 3 compares hourly water use during the week when the peak day occurred in summer 2021 (Saturday, June 26 to Friday, July 2) to the week when the peak day occurred in summer 2022 (Saturday, July 30 to Friday, August 4). During a warm and dry period at the end of July this year, the peak hour occurred at 6 am on Saturday, July 30, a lawn watering day. However, the peak hour in 2021 was on a non-lawn watering day.

The peak hour water use was 21% lower in 2022 than 2021; this could be attributed to several factors, including the changes to the DWCP and the cooler-than-normal spring and early summer. In 2021, the peak hour demand was 2.49 BL/d compared to 1.96 BL/d in 2022.

Figure 3 - Comparison of 2022 and 2021 Hourly Water Use



BENEFITS OF WATER CONSERVATION MEASURES

To help reduce summer water demands, Metro Vancouver implemented updates to the DWCP in 2021, which decreased the allowable residential and non-residential lawn watering days from two days per week to one day per week during Stage 1. The updated DWCP for Stage 1 allows for residential lawn watering on either Saturday or Sunday mornings.

Water use on Mondays through Fridays in 2022 was reduced, as lawn watering by residential users is no longer permitted on these days. These reductions were accompanied by higher usage on Saturdays and Sundays. Water conservation campaigns implemented by Metro Vancouver and member jurisdictions continue to support peak water use reductions.

Metro Vancouver sizes transmission water infrastructure and manages source supplies to ensure that design peak day demand can reliably be provided to member jurisdictions at designated supply points. Peak period water use is very dependent on summer weather conditions, being higher in years with periods of relatively hot, dry weather, such as 2018 and 2021, and lower in years with more average temperatures and precipitation, such as 2017 and 2020. The success of water conservation measures will continue to be an essential factor in determining future system needs. Sustained per capita water use reductions over the coming years will potentially allow deferral of large capital investments required to meet the projected drinking water needs of a growing region and positively impact operations.

ALTERNATIVES

This is an information report; no alternatives are presented.

FINANCIAL IMPLICATIONS

Revenues from water sales to the end of August are 2.9% below budget.

CONCLUSION

Total source storage for Metro Vancouver water usage began the summer in the normal range and was sufficient to provide adequate supply through the summer season as expected and discussed in the Water Committee report dated March 28, 2022, titled “Water Supply Update for Summer 2022”. As the summer progressed, reservoir inflows and source storage declined, as anticipated; however, the total water storage volume remained within the normal range. Water use through the spring and early summer of 2022 was below average. Peak water use occurred at the end of July, which is consistent with prior years other than 2021, when the peak use occurred earlier in the season due to the heat dome. The water supply system performed without significant stress over the 2022 summer season.

Summer 2022 was the first time the updated DWCP was implemented. Sustained per capita water use reductions over the coming years will potentially defer large capital investments required to meet the needs of a growing region and positively impact operations.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

From: Larina Lopez, Division Manager, Corporate Communications
Amy Weiss, External Relations Project Coordinator

Date: September 22, 2022 Meeting Date: October 6, 2022

Subject: **2022 Lawn Watering Communications, We Love Water Campaign, and Water Wagon Results**

RECOMMENDATION

That the Water Committee receive for information the report dated September 22, 2022, titled "2022 Lawn Watering Communications, We Love Water Campaign, and Water Wagon Results".

EXECUTIVE SUMMARY

Metro Vancouver undertakes several communications initiatives annually to ensure water resources are used efficiently throughout the region. Key initiatives in 2022 included:

- Communication of the updated region-wide lawn watering regulations as per the updated Drinking Water Conservation Plan (DWCP)
- Promotion of water conservation through our annual regional *We Love Water* communications campaign
- Relaunch of the Water Wagon program post-COVID-19

The promotional strategy for these initiatives included broad reach through a mix of television, radio, print, and outdoor advertising, as well as targeted and weather-triggered digital tactics, direct mail to residents and stakeholders, and social media posts. In total, broadcast and digital promotions delivered over 46.5 million with an additional 69 million impressions from earned media with an ad equivalent value of $610,540. The Water Wagon program resulted in 55,525 water bottle refills and 3,830 engagements with residents about water conservation and quality.

PURPOSE

To update the Committee on regional communications to support the 2022 watering regulations, the regional water conservation campaign, and the Water Wagon program.

BACKGROUND

Metro Vancouver undertakes several communications initiatives annually to help the public understand the importance of their role in ensuring water resources are conserved and efficiently used throughout the region. Communication of the region-wide watering regulations supports the Drinking Water Conservation Plan, which helps manage the use of drinking water during periods of high demand and largely impacts the watering of lawns and landscapes. A regional communications campaign – *We Love Water* – increases awareness of Metro Vancouver's water sources, system, and the need for residential water conservation, while providing residents with advice and tips for using less water around their homes. The Water Wagon program promotes the use of tap water and reduces instances of single-use water bottles at community events while providing conservation education opportunities with residents across the region.

WATER CONSERVATION COMMUNICATIONS

Communication Approach and Timing

Metro Vancouver's water conservation communication works to expand public awareness of our water sources, infrastructure, the quality of Metro Vancouver's drinking water, and the importance of not wasting it. Promotion of the regional watering regulations and the *We Love Water* conservation campaign incorporates consistent branding, imagery, and messaging. Now in its seventh year, this year's campaign focused on water infrastructure and outdoor conservation opportunities, which aligned with communication of the updated DWCP and the resources available on the Grow Green website.

Metro Vancouver promoted the regional watering regulations in advance of the May 1 implementation date and will continue until the regulations' October 15 end date. Metro Vancouver collaborated with GVWD members to determine the most effective messaging and methods for consistently communicating the regulations in 2022.

Metro Vancouver promoted the regional *We Love Water* conservation campaign from May 16 to September 4, 2022. Promotions were primarily directed towards single-family dwelling residents, as they are most likely to engage in the outdoor water uses that contribute to higher seasonal water demand. The campaign began with an emphasis on water infrastructure awareness through both existing and new content that incorporated broader outdoor water conservation and education messaging during the drier summer months. By first educating residents about where their drinking water comes from and the amount of work it takes to reach their taps, the campaign was better equipped to encourage residents to reduce their outdoor water use.

Promotional Strategy

Metro Vancouver generated awareness about the watering regulations, the regional water sources and system, and the importance of outdoor conservation through the following activities:

- A direct mail postcard on the updated regulations and water conservation, sent to all single-family and multi-family homes with lawns across the region
- A media release prior to the May 1 activation date which received significant coverage
- Television commercials, conservation messaging, and sponsored weather updates on Global BC, as well as campaign content on the station's webpage and social media channels
- Radio commercials and sponsored weather updates
- Weather-triggered and static digital billboards on major traffic routes throughout Metro Vancouver
- Targeted social media advertising and an organic social media advisory
- YouTube video advertising, weather forecast-activated online banner advertising, and search engine advertising targeting users' interests (e.g., gardening, lawns, car washing) to encourage conservation
- PNE promotions included interactive displays and games with full-time staffing by the Tap Water Team who engaged residents in meaningful conversations

Examples of communication materials and promotions to support the watering regulations and the *We Love Water* conservation campaign are included in the Attachments.

Metro Vancouver Member Engagement

Metro Vancouver made communication materials available to all GVWD members for display and distribution through localized opportunities. Items included social media content and co-branded and translated assets

like posters and rack cards, as well as digital billboards and custom banners for overpass display upon request. Members used these materials consistently and widely, and broad participation amplified public awareness of both the watering regulations and the conservation campaign.

Evaluation

The campaign was evaluated through various indicators and tracking methods described below.

Website Traffic

- The welovewater.ca website received 22,800 page views during the 3.5-month duration of the 2022 conservation campaign.
- Metro Vancouver's lawn watering regulations webpage received an additional 15,600 page views between April and September. This is 60% higher than 2021, and likely due to the increased media coverage and comprehensive communications plan of the new regulations.

Television and Radio

- Global BC television and online channels featured the campaign, which were viewed an estimated 4.1 million times, with final data available in mid-October.
- PSAs ran on 14 additional television networks, targeted to the Metro Vancouver region. These spots aired 19,358 times.
- The campaign spots featured on four radio stations, and were heard 8.4 million times.

Digital Media

- YouTube advertising was seen 3.4 million times. Over 53% of the ads that could be skipped were viewed to completion, exceeding industry benchmarks.
- Social media (Facebook, Instagram, and Twitter) posts were viewed 7.6 million times, by over 642,000 Metro Vancouver residents.
- Online banner ads were viewed 1.5 million times, with weather-triggered advertising reaching residents when water conservation was most relevant.
- Google Search delivered over 25,000 clicks, which exceeded predictions.

Print

- A direct mail postcard detailing the watering regulations and other outdoor conservation opportunities was delivered to 561,000 single-family homes throughout the region.

Out-of-Home

- Water conservation messaging featured on 10 digital billboards located on major traffic routes throughout Metro Vancouver.
- The billboard ads were seen 21.5 million times, over double the reach of previous years.

Earned Media

- Print/online audience reach: 36,638,317
- Print/online ad value equivalent: $338,900
- Broadcast audience reach/impressions: 33,219,212
- Broadcast ad value equivalent: $271,640

Post-Campaign Survey

A post-campaign survey was conducted in September 2022 following completion of the We Love Water Campaign. Results include:

- Campaign recall amongst our target audience of homeowners/dwellers with lawns was 43%, with top tactics being TV, direct mail, and social media.
- 42% of those who saw the advertising talked about it with others, indicating that the campaign message was shared by the audience.
- These recall rates are significantly higher than the industry standard for a campaign of this type and are comparable or higher than 2020 recall.

WATER WAGON PROGRAM

This was the tenth summer of operations for the Water Wagon after a two-year hiatus due to COVID-19. As a key element of Metro Vancouver's water conservation communications, the program uses education to change behaviour on the use of tap water over bottled water. The objectives of the Water Wagon outreach program are to:

- Highlight the region's water sources, quality, and the need for water conservation
- Support related Metro Vancouver programs, including the regional water conservation campaign and the regional watering regulations
- Encourage tap water over bottled water
- Safely and effectively provide tap water at regionally representative events

The Water Wagon was at 38 community events across 8 municipalities between May 27 and September 6, including 15 event days at the PNE. Messaging encouraging attendees to bring re-usable bottles to events was posted to Metro Vancouver's social media accounts and provided to member communications staff to post in advance of events in their municipality where the Water Wagon would be present. The Water Wagon filled 55,525 water bottled and the Tap Water Team had 3,830 engagements with residents.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The 2022 budget for watering regulations communications, the regional We Love Water campaign, and the Water Wagon program was $417,790. These costs were included in the 2022 Water Services Communications Program Budget managed by the External Relations Department.

CONCLUSION

Metro Vancouver communicated the updated lawn watering regulations prior to the May 1 activation date via advertising across the region, media engagement, and a range of promotional materials distributed to GVWD members for public education and enforcement. Now in its seventh year, the regional water conservation campaign entered market in mid-May, with an emphasis on water infrastructure and outdoor conservation. Campaign advertising appeared in a variety of news media, on digital billboards throughout the region, on social media and digital platforms, and through opportunities secured by GVWD members.

The Water Wagon continues to provide significant opportunities for outreach and resident engagement around the water conservation campaign and the use of tap water over bottled water. In 2022, the Water

Wagon visited 8 member jurisdictions over 38 event days, including 15 days at the PNE, resulting in a reduction of single-use water bottles across events, and 3,830 engagements with residents across the region.

Attachments

1. 2022 Water Conservation Communication Material Examples
2. 2022 Water Wagon Program Snapshots and Event Schedule

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2022 Water Conservation Communication Material Examples

Flyer mailed to 560,000 single-family homes.

Example of spots featured on the Global News BC 'Where We Live' segment and a prime evening news editorial segment with an added value of $6900 at no cost to Metro Vancouver.

Example of The Weather Network online banner takeover.

Member jurisdiction collaborative social media post promoting the updated watering regulations.

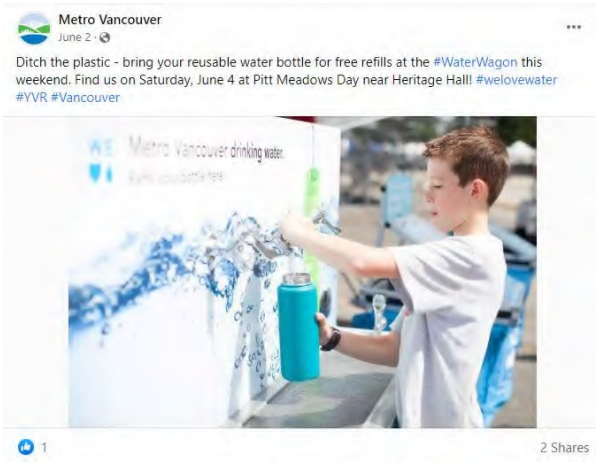
Digital billboard at Alex Fraser Bridge, one of eleven on major traffic routes.

Digital ads promoting outdoor water conservation.

Co-branded digital billboard in partnership with the City of New Westminster.

2022 Water Wagon Program Snapshots and Event Schedule

Event snapshots of the Water Wagon team in action at the PNE and other community events.



Social media posts promoting the Water Wagon at upcoming municipal community events.

2022 Event Schedule

Date	Event Name	Member Jurisdiction	Event Days
May 27-29	Ladner May Days	Delta	3
June 4	Pitt Meadows Day	Pitt Meadows	1
June 11	Surrey Car Free Day	Surrey	1
June 18	Community Day	Langley City	1
June 19	North Delta Family Day Festival	Delta	1
June 21	National Indigenous Peoples Day	New Westminster	1
June 24-26	Concord Dragon Boat Festival	Vancouver	3
June 30	Tour de Concord	Vancouver	1
July 1	Maple Ridge Canada Day	Maple Ridge	1
July 2	VSO Symphony at Sunset	Vancouver	1
July 9	Khatsahlano Street Party	Vancouver	1
July 16	Boundary Bay Air Show	Delta	1
July 23-24	Surrey Fusion Festival	Surrey	2
July 29	Pride at the Pier	North Vancouver	1
August 1	Tsawwassen Sun Festival	Delta	1
August 6	New West Car Free Day	New Westminster	1
August 13	Fruit Beer Festival Swangard	Burnaby	1
August 14	Delta Community Animal Expo	Delta	1
August 20-September 5	Fair at the PNE	Vancouver	15
		TOTAL	**38**

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

From: Roy Moulder, Director, Procurement, Procurement and Real Estate Services
Bob Cheng, Director, Major Projects, Project Delivery

Date: September 27, 2022 Meeting Date: October 6, 2022

Subject: **Award of Phase B, Construction and Commissioning Engineering Services for Coquitlam Main No. 4 – South Section**

RECOMMENDATION

That the GVWD Board:

a) approve award of Phase B, Construction and Commissioning Services, in the amount of up to $6,950,902 (exclusive of taxes) to the Phase A consultant, CH2M Hill Canada Limited, for the Coquitlam Main No. 4 - South Section, subject to final review by the Commissioner; and
b) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.

EXECUTIVE SUMMARY

To meet the growing demand for drinking water in the region, a critical infrastructure, Coquitlam Main No. 4, is to be constructed in the City of Coquitlam. The overall Coquitlam Main No. 4 project consists of four phases: Central Section, South Section, Tunnel Section, and Cape Horn Section. The South Section will be constructed first. The overall project needs to be constructed and commissioned by 2029 to support increased reliability for delivery of drinking water to the southern and eastern areas of the region.

Phase A, Detailed Design Services for the South Section was previously awarded to CH2M Hill Canada Limited in September 2018, through Request for Proposal No. 18-101. The Detailed Design for the South Section has since been completed. CH2M Hill was the highest ranked proponent during the initial evaluation and have performed satisfactorily through the Phase A scope. Therefore, it is optimal to continue their services through Phase B. In order to support construction, Phase B, Construction and Commissioning Engineering Services for the South Section is now being recommended for award to CH2M Hill Canada Limited in the amount of up to $6,950,902 (exclusive of taxes). Total value of this contract after the award of Phase B will be $17,836,735 (exclusive of taxes).

PURPOSE

This report is to request authorization by the GVWD Board to award Phase B, Construction and Commissioning Engineering Services for the South Section of Coquitlam Main No. 4 in the amount up to $6,950,902 (exclusive of taxes) to CH2M Hill Canada Limited.

BACKGROUND

Pursuant to the *GVWD Officers and Delegation Bylaw No. 247, 2014 (Bylaw)* and the *Procurement and Real Property Contracting Authority Policy (Policy)*, procurement contracts which exceed a value

of $5 million require the approval of the GVWD Board of Directors. Further, the Policy states that contracting authority for multi-phase contracts is determined based on the anticipated total value of the services to be provided over all phases, exclusive of taxes.

This report is being brought forward to the Water Committee to consider a recommendation to the GVWD Board to authorize award of Phase B, Construction and Commissioning Engineering Services for Coquitlam Main No. 4 – South Section.

PROJECT DESCIPTION

A key goal in the 2015 to 2018 *Board Strategic Plan* is to develop and secure additional long term water supply capacity from the Coquitlam source. In order to meet the region's projected drinking water supply needs and keep pace with regional population growth, an upgrade to the Coquitlam transmission mains is required by 2029 to avoid impacting delivery of water to the southern and eastern areas of the region.

As shown in the Attachment, water from the Coquitlam Reservoir is conveyed to the Cape Horn Pump Station and Reservoir on Mariner Way in the City of Coquitlam, through multiple large diameter water mains. Coquitlam Main No. 4, comprised of four sections, namely Central, South, Tunnel and Cape Horn, is approximately 12 km in total length, and will provide additional transmission capacity through this corridor.

Request for Proposal (RFP) No. 18-101: Coquitlam Main No. 4 – South and Cape Horn Sections – Detailed Design, Construction and Commissioning Consulting Engineering Services was issued in 2018.

Award of Phase A, Detailed Design Services for Coquitlam Main No. 4 – South Section was previously approved by the Board in the amount $4,900,495 (exclusive of taxes) and awarded to CH2M Hill Canada Limited in September 2018. The report, dated August 29, 2018, advised that the award of Phase B, Construction and Commissioning Engineering Services, would be subject to negotiations, satisfactory performance and completion of Phase A work, and further authorization from the Board.

Award of Phase A, Detailed Design Services for Coquitlam Main No. 4 – Cape Horn Section was previously approved by the Board in the amount $5,044,525 (exclusive of taxes) and awarded to CH2M Hill Canada Limited in January 2019.

Detailed Design of the South Section has since been completed successfully, and it is anticipated that construction would begin in early 2023 and as such, Board authorization for award of Phase B work for this section is required.

The Phase B, Construction and Commissioning Engineering Services fee for Coquitlam Main No. 4 – South Section was originally estimated at $5,236,059 (exclusive of taxes) at the time of Phase A award to CH2M Hill Canada Limited. The current fee proposed for Phase B has been recently negotiated with CH2M Hill Canada Limited and is now estimated to be a total of $6,950,902 (exclusive of taxes). The increase in cost is attributed to:

- Longer duration of construction due to the size and complexity of the project as determined during detailed design.
- Additional effort in geotechnical inspection and monitoring over the original anticipated effort, to ensure protection of existing Metro Vancouver water mains in close proximity to the Coquitlam Main No. 4.
- Additional archeological monitoring based on better understanding of requirements from First Nations and the Provincial Archeology Branch.
- Additional site inspection due to multiple simultaneous working crews required to meet project schedule.
- Consumer Price Index (CPI) adjustments. As per the terms of RFP No. 18-101, charge out rates are eligible for adjustment once a year beginning in year three, based on CPI.

Total value of this contract with CH2M Hill Canada Limited will be $17,836,735 with the award of Phase B, which includes $4,900,495 and $5305,075 for Phase A Detailed Design Services for Coquitlam Main No. 4 – South Section and Cape Horn Section, $680,263 in change orders, and $6,950,902 for this contract.

Fee Breakdown	Original Proposed Fee	Revised Fees (to date)	
Phase A - Detailed Design South Section (Board approved Sept 2018)	$4,900,495	$4,900,495	
Phase A - Detailed Design Cape Horn Section (Board approved May 2020)	$5,044,525	$5,305,075	
Change Orders	$0	$680,263	
Phase B - Construction Engineering and Commissioning Services South Section	$5,236,059	$6,950,902	
Awarded to Date:	**$15,181,079**	**$17,836,735**	
Phase B - Construction Engineering and Commissioning Services Cape Horn Section	$5,263,695	$5,263,695	*
Anticipated Fee Totals:	**$20,444,774**	**$23,100,430**	
* Phase B for the Cape Horn Section has not been awarded. The original proposed fee is used as a placeholder until an award has been made.			

ALTERNATIVES

1. That the GVWD Board:
   a) approve award of Phase B, Construction and Commissioning Services, in the amount of up to $6,950,902 (exclusive of taxes) to the Phase A consultant, CH2M Hill Canada Limited, for the Coquitlam Main No. 4 – South Section, subject to final review by the Commissioner; and
   b) authorize the Commissioner and the Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.

2. That the GVWD Board not approve award of Phase B, Construction and Commissioning Engineering Services for the South Section of Coquitlam Main No. 4, and direct staff to report back to the GVWD Board with options for an alternate course of action.

FINANCIAL IMPLICATIONS

If the GVWD Board approves Alternative 1, Construction and Commissioning Engineering Services for the South Section of Coquitlam Main No. 4 in the amount of up to $6,950,902 (exclusive of taxes), it will be awarded to CH2M Hill Canada Limited. This amount is within the allocated budget for consulting engineering in the construction phase.

The GVWD Board has the choice to not proceed with Alternative 1, but staff will need further direction in relation to the project. Alternative 2 will result in delays to the project schedule that may

impact the ability to meet the region's drinking water supply needs, particularly in the southern and eastern areas of the region, and the schedule for the City of Coquitlam's Pipeline Road Upgrade Project.

CONCLUSION

Coquitlam Main No. 4, consisting of the Central, South, Tunnel, and Cape Horn Section will provide additional transmission capacity from the Coquitlam source and needs to be constructed and commissioned by 2029 to avoid impacting delivery of drinking water to the southern and eastern areas of the region.

Phase A, Detailed Design Services for Coquitlam Main No. 4 – South Section has been successfully completed by CH2M Hill Canada Limited. Construction of the South Section project is anticipated to commence in early 2023 with award of a construction contract to the successful proponent anticipated later this year. Phase B, Construction and Commissioning Engineering Services is required to support the construction stage of the project.

It is recommended the GVWD Board authorize the Commissioner and the Corporate Officer to award and execute the amended contract for an amount of up to $6,950,902 (exclusive of taxes) to CH2M Hill Canada Limited for Phase B, Construction and Commissioning Engineering Services for Coquitlam Main No. 4 – South Section.

Attachment

Coquitlam Main No. 4 – Overview Map

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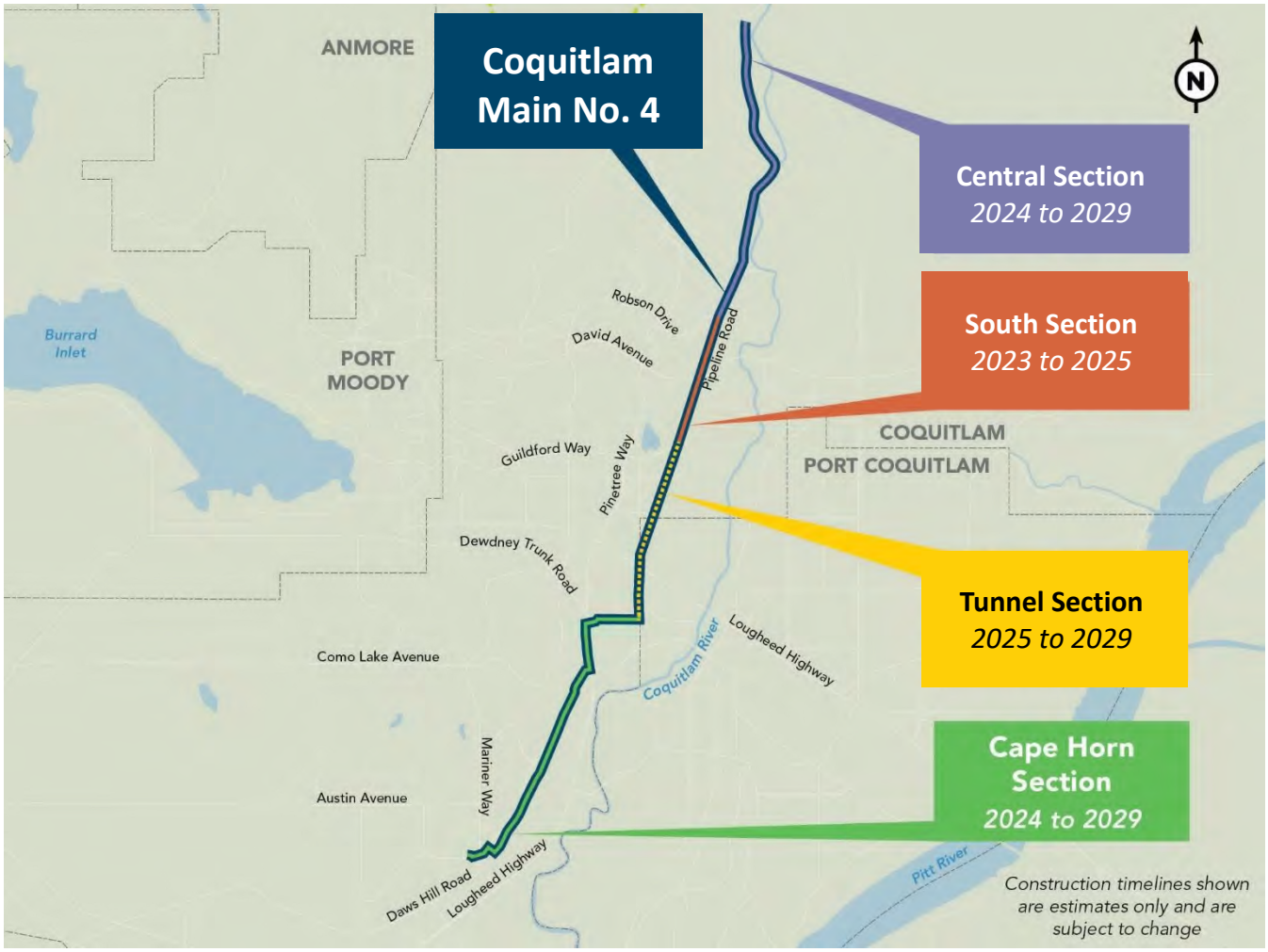
Coquitlam Main No. 4 – Overview Map



To: Water Committee

From: Goran Oljaca, Director, Engineering and Construction, Water Services

Date: September 27, 2022 Meeting Date: October 6, 2022

Subject: **GVWD Capital Program Expenditure Update to August 31, 2022**

RECOMMENDATION

That the Water Committee receive for information the report dated September 27, 2022, titled "GVWD Capital Program Expenditure Update to August 31, 2022".

EXECUTIVE SUMMARY

The capital expenditure reporting process as approved by the Board provides for regular status reports on capital expenditures three times per year. This report includes both the overall capital program for the water utility with a multi-year view of capital projects and the actual capital spending for the 2022 fiscal year to August 31, 2022 in comparison to the prorated annual capital cash flow. In 2022, the annual capital expenditures for GVWD are $200.3 million to date compared to a prorated annual capital cash flow of $314.2 million.

Forecasted expenditures for the current water utility capital program remain within the approved budgets through to completion.

PURPOSE

To report on the status of the GVWD capital program and financial performance for the 2022 fiscal year to August 31, 2022.

BACKGROUND

The capital expenditure reporting process, as approved by the Board, provides for regular status reports on capital expenditures with interim reports sent to the Water, Liquid Waste, Zero Waste, and Performance and Audit Committees, in July and October, with a final year-end report to the Committees and the Boards in April of each year.

The series of three reports for 2022 looks at both the overall capital program for the water utility with a multi-year view of capital projects and the actual capital spending for the 2022 fiscal year to August 31, 2022 in comparison to the prorated annual capital cash flow.

2022 CAPITAL EXPENDITURES

Capital Program Funding

The capital spending for the water utility is funded through the water operating budget by a combination of contribution to capital (pay-as-you-go funding) and debt service costs (principal and interest payments). As a result, the annual impact on the ratepayers is significantly less than the level of budgeted capital expenditures.

Overall Capital Program

The overall capital program for the water utility includes capital projects which require multiple years to complete. These projects are broken down into various phases such as project definition, pre-design, detailed design and construction. With the completion of each phase, more information is learned for the appropriate costing of subsequent phases.

It is expected that the capital spending on all GVWD capital projects completed in 2022, or ongoing at some point in 2022, will be over the estimated total project cost by approximately $638.3 million, or 6.2% of total estimated cost.

Table 1 in Attachment 1 provides a summary of GVWD capital expenditures for both ongoing and completed projects. Completed Projects include a summary of actual spending compared to the Board approved spending limits, while the Ongoing Projects include a summary of projected spending to completion compared to Board approved spending limits. With the rare exception, projects tend to complete with actual spending below the approved limits.

Attachment 2 provides the details behind the summary information including specific capital projects, summary financial information and notes where required. Attachment 3 provides additional project status information for some of the key projects included in Table 1 – Attachment 1.

2022 Capital Program Process

The Metro Vancouver financial planning process includes Board approval of both an annual Operating Budget (operations, contribution to capital and debt service) and an annual Capital Cash Flow for the planned capital infrastructure projects. The annual Capital Cash Flow is comprised of the projected spending for a list of capital projects either continuing or to be started within the calendar year.

In 2022, capital expenditures for GVWD are $200.3 million to August 31, 2022 compared to a prorated annual Capital Cash Flow of $314.2 million. The total annual Capital Cash Flow for 2022 is $471.3 million.

Forecasted expenditures for the current GVWD capital program remain within the annual Capital Cash Flow approved for 2022.

Table 2 in Attachment 1 provides a summary of the 2022 actual capital spending to August 31, 2022 compared to the Board approved annual Capital Cash Flow.

Capital Program Impacts from COVID-19

During these unprecedented times of health and economic uncertainty, all departments have been expected to monitor the impacts of the pandemic on their operations. This includes capital program expenditures.

Overall, the impact to the water utility's capital program has largely been schedule related, with some notable impacts to project expenditures confirmed to date. Staff are monitoring impacts on their projects regularly. Some impacts to project schedules or expenditures are included under the respective project section of Attachment 3.

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

FINANCIAL IMPLICATIONS
Capital expenditures are funded internally (pay-as-you-go) and through debt service costs (interest and principal payments). As capital expenditures are incurred, short term financing is secured and converted twice per year to long term debt through the Municipal Finance Authority.

CONCLUSION
Forecasted expenditures for the current GVWD capital program remain within the annual Capital Cash Flow approved for 2022.

Attachments
1. Capital Expenditure Summary – Water Capital Projects
2. Capital Project Update – August 31, 2022
3. GVWD Capital Project Status Information

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ATTACHMENT 1

Metro Vancouver

Capital Expenditure Summary
Water Capital Projects
As of August 31, 2022

Table 1 – Capital Program Summary by Status – Water Total

Water Total	Estimated Total Project Cost As of Oct 2021	Up to date Estimated Total Project Cost	Variance
Ongoing	$ 9,341,466,000	$ 9,930,550,000	$ (589,084,000)
Completed	28,600,000	28,600,000	-
Not Started	963,150,000	1,012,350,000	(49,200,000)
Cancelled	-	-	-
	$ 10,333,216,000	**$ 10,971,500,000**	**$ (638,284,000)**

Table 2 – August 2022 Capital Spending Summary

Water Total	2022 Cash Flow	Actual Expenditures to August 31, 2022	% of Annual Cash Flow
Water Mains	$ 333,800,000	$ 140,521,535	42%
Pump Stations	39,050,000	2,161,216	6%
Reservoirs	44,004,000	10,054,805	23%
Treatment Plants	22,025,000	1,246,835	6%
Others	32,394,000	46,269,085	143%
	$ 471,273,000	**$ 200,253,476**	**42%**

Metro Vancouver

Water Services - Capital Project Update

As of August 31, 2022

ATTACHMENT 2

Definition → Preliminary Design → Detailed Design → Construction

Project Name	Primary Driver	Project Location	Years (2022-2026 Capital Plan: 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031)	Approved Capital Budget	Estimated Total Project Cost	% Complete	Comment
Water Mains							
Angus Drive Main	Growth	Vancouver		30,700,000	30,700,000	89%	
Annacis Main No. 2 - Queensborough Crossover Improvement	Maintenance	New Westminster		900,000	1,200,000	0%	Likely not required. MOTI may not relocate Queensborough Main.
Annacis Main No. 2 and Barnston Island Main Online Chlorine and pH Analyzers	Upgrade	Regional		750,000	750,000	1%	
Annacis Main No. 3 Annieville Channel Crossing Scour Protection	Maintenance	Surrey		850,000	850,000	36%	
Annacis Main No. 3 BHP Potash Facility Pipe Protection	Maintenance	Surrey		600,000	600,000	0%	
Annacis Main No. 5 (North)	Growth	New Westminster		60,600,000	60,600,000	2%	
Annacis Main No. 5 (South)	Growth	Surrey		11,100,000	56,900,000	17%	
Boundary Road Main No. 2 & No. 3 Decommissioning	Maintenance	Burnaby		1,500,000	1,500,000	100%	Project completed under budget.
Burnaby Mountain Main No. 2	Maintenance	Burnaby		-	10,500,000	0%	
Central Park Main No. 2 (10th Ave to Westburnco)	Maintenance	Burnaby		2,750,000	28,350,000	1%	
Central Park Main No. 2 (Patterson to 10th Ave)	Maintenance	Burnaby		91,900,000	91,900,000	41%	
Clayton Langley Main No. 2	Resilience	Surrey		700,000	16,900,000	1%	
Douglas Road Main No. 2 - Kincaid Section	Maintenance	Burnaby		12,300,000	9,800,000	100%	Scope reduction
Douglas Road Main No. 2 (Flow Meter 169) Replacement	Maintenance	Burnaby		1,000,000	1,000,000	3%	
Douglas Road Main No. 2 (Vancouver Heights Section)	Maintenance	Burnaby		21,486,000	21,486,000	95%	Tie-ins delayed due to scheduling conflicts.
Douglas Road Main No. 2 Still Creek	Maintenance	Burnaby		63,100,000	60,000,000	48%	Installation costs came in under budget.
Douglas Road Main Protection	Maintenance	Burnaby		1,500,000	1,500,000	1%	
First Narrows Tunnel Isolation Chamber Improvements	Maintenance	Dist of North Van		7,000,000	4,600,000	99%	Costs to complete came in under budget.
Haney Main No. 4 (West Section)	Growth	Port Coquitlam		1,900,000	115,150,000	1%	
Improvements to Capilano Mains No. 4 and 5	Maintenance	Dist of North Van		1,700,000	1,700,000	6%	
Kennedy Newton Main	Growth	Surrey		122,300,000	122,300,000	53%	
Lulu Island - Delta Main - Scour Protection Phase 2	Maintenance	Richmond		3,550,000	3,550,000	0%	
Maple Ridge Main West Lining Repairs	Maintenance	Maple Ridge		3,500,000	3,500,000	7%	
Newton Reservoir Connection	Growth	Surrey		-	27,050,000	0%	
Online Chlorine Monitoring Stations	Upgrade	Regional		-	4,150,000	0%	
Port Mann Main No. 2 (South)	Growth	Surrey		36,800,000	33,800,000	98%	Installation costs came in under budget.
Port Mann No. 1 South Section Decommissioning	Maintenance	Coq/Surrey		200,000	850,000	0%	
Port Moody Main No. 1 Christmas Way Relocation	Maintenance	Coquitlam		2,350,000	2,350,000	0%	
Port Moody Main No. 3 Dewdney Trunk Rd Relocation	Maintenance	Coquitlam		2,700,000	2,700,000	95%	IPQC - 3rd party owned project - % complete is based on estimated physical progress, not expenditures
Port Moody Main No. 3 Scott Creek Section	Maintenance	Coquitlam		1,000,000	12,000,000	4%	
Queensborough Main Royal Avenue Relocation	Maintenance	New Westminster		7,500,000	7,500,000	20%	IPQC - Pattullo Bridge replacement project owned by MoTI. % complete is based on estimated physical progress, not expenditures
Rehabilitation of AN2 on Queensborough Bridge	Maintenance	New West/Delta		2,500,000	2,500,000	34%	
Relocation and Protection for MOTI Expansion Project Broadway	Maintenance	Vancouver		8,900,000	8,900,000	1%	
Relocation and Protection for MOTI George Massey Crossing Replacement	Maintenance	Delta/Richmond		450,000	2,450,000	0%	IPQC - MoTI owned Fraser River Tunnel Project
Relocation and Protection for Translink Expansion Project Surrey Langley SkyTrain	Maintenance	Surrey		600,000	6,600,000	0%	
Sapperton Main No. 1 New Line Valve and Chamber	Upgrade	New Westminster		3,800,000	3,800,000	31%	

Metro Vancouver

Water Services - Capital Project Update

As of August 31, 2022

ATTACHMENT 2

Definition | Preliminary Design | Detailed Design | Construction

Project Name	Primary Driver	Project Location	Years	Approved Capital Budget	Estimated Total Project Cost	% Complete	Comment
			2022-2026 Capital Plan 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031				
Sapperton Main No. 2 North Road Relocation and Protection	Maintenance	Coquitlam		6,500,000	6,500,000	0%	
Scour Protection Assessments and Construction General	Resilience	Regional		4,000,000	4,000,000	24%	
Seymour Main No. 2 Joint Improvements	Resilience	Dist of North Van		3,252,000	5,252,000	16%	
Seymour Main No. 5 III (North)	Resilience	Dist of North Van		8,000,000	236,900,000	3%	
South Delta Main No. 1 - 28 Ave to 34B Ave	Upgrade	Delta		22,650,000	21,650,000	100%	Cost to complete came in under budget.
South Delta Main No. 1 - Ferry Road Check Valve Replacement	Maintenance	Delta		600,000	600,000	37%	
South Delta Mains - 28 Ave Crossover	Upgrade	Delta		10,500,000	10,500,000	100%	
South Surrey Main No. 1 Nickomekl Dam Relocation	Maintenance	Surrey		7,100,000	7,100,000	0%	Project delayed by City of Surrey.
South Surrey Main No. 2	Growth	Surrey		2,000,000	143,700,000	1%	
South Surrey Main No. 2 Nickomekl Dam Prebuild	Growth	Surrey		2,000,000	2,000,000	0%	
South Surrey Supply Main (Serpentine River) Bridge Support Modification	Maintenance	Surrey		1,350,000	1,350,000	20%	
Tilbury Junction Chamber Valves Replacement with Actuators	Upgrade	Richmond		5,600,000	5,600,000	82%	Tie-ins delayed due to railway permitting requirements.
Tilbury Main North Fraser Way Valve Addition	Maintenance	Burnaby		3,100,000	3,100,000	14%	
Water Chamber Improvements and Repairs	Maintenance	Burnaby		2,000,000	2,000,000	6%	
Water Meter Upgrades	Upgrade	Regional		22,400,000	22,400,000	37%	
Water Optimization - Flow Meters (Non-billing) Phase 1	Upgrade	Regional		-	16,500,000	0%	
Water Optimization - Flow Meters (Non-billing) Phase 2	Upgrade	Regional		3,000,000	19,500,000	0%	
Water Optimization - Instrumentation	Upgrade	Regional		1,500,000	11,400,000	0%	
Water Optimization Automation & Instrumentation	Upgrade	Regional		9,550,000	9,550,000	87%	
Whalley Kennedy Main No. 2	Growth	Surrey		-	96,000,000	0%	
Whalley Main	Growth	Surrey		31,800,000	31,800,000	96%	
Total Water Mains				**655,388,000**	**1,417,388,000**		
Pump Stations							
Barnston/Maple Ridge Pump Station - Back-up Power	Resilience	Pitt Meadows		14,000,000	20,600,000	3%	Delayed due to property selection.
Burnaby Mountain Pump Station No. 2	Maintenance	Burnaby		1,300,000	21,000,000	1%	Scope of work under review.
Cape Horn Pump Station No. 3	Growth	Coquitlam		6,800,000	182,900,000	1%	Increase in scope of work.
Capilano Raw Water Pump Station - Back-up Power	Resilience	Dist of North Van		42,000,000	42,000,000	36%	
Capilano Raw Water Pump Station Bypass PRV Upgrades	Maintenance	Dist of North Van		1,700,000	1,700,000	6%	
Central Park WPS Starters Replacement	Maintenance	Burnaby		8,000,000	8,000,000	22%	Delayed due to re-zoning.
Grandview Pump Station Improvements	Resilience	Surrey		2,600,000	2,600,000	18%	
Newton Pump Station No. 2	Growth	Surrey		50,500,000	58,800,000	9%	Installation costs higher than budgeted.
Pebble Hill Pump Station Seismic Upgrade	Resilience	Delta		-	1,800,000	0%	
Westburnco Pump Station - Back-up Power	Resilience	New Westminster		23,500,000	23,500,000	6%	
Westburnco Pump Station No. 2 VFD Replacements	Maintenance	New Westminster		2,550,000	2,550,000	15%	
Total Pump Stations				**152,950,000**	**365,450,000**		
Reservoirs							
Burnaby Mountain Tank No. 2	Resilience	Burnaby		3,350,000	21,650,000	1%	
Burnaby Mountain Tank No. 3	Resilience	Burnaby		3,400,000	21,400,000	1%	
Cape Horn Reservoir Condition Assessment and Structural Repair	Maintenance	Coquitlam		-	1,700,000	0%	

Metro Vancouver

Water Services - Capital Project Update

As of August 31, 2022

ATTACHMENT 2

Definition | Preliminary Design | Detailed Design | Construction

Project Name	Primary Driver	Project Location	Years	Approved Capital Budget	Estimated Total Project Cost	% Complete	Comment
			2022-2026 Capital Plan 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031				
Capilano Energy Recovery Facility 66" PRV Replacement	Maintenance	City of North Van		-	7,000,000	0%	
Central Park Reservoir Structural Improvements	Maintenance	Burnaby		-	2,100,000	0%	
Clayton Reservoir	Resilience	Surrey		27,600,000	27,600,000	99%	
Dechlorination for Reservoir Overflow and Underdrain Discharges	Maintenance	Burnaby		2,700,000	2,700,000	2%	
Fleetwood Reservoir	Growth	Surrey		56,367,000	56,367,000	17%	
Grandview Reservoir Unit No. 2	Growth	Surrey		-	26,000,000	0%	
Hellings Tank No. 2	Growth	Delta		43,911,000	43,911,000	14%	
Kersland Reservoir No. 1 Structural Improvements	Maintenance	Vancouver		6,250,000	6,250,000	85%	
Little Mountain Reservoir Roof Upgrades	Maintenance	Vancouver		3,450,000	3,450,000	100%	
Pebble Hill Reservoir No. 3 Seismic Upgrade	Resilience	Delta		500,000	9,500,000	4%	
Pebble Hill Reservoir Seismic Upgrade	Resilience	Delta		13,600,000	13,600,000	50%	
Reservoir Isolation Valve Automation	Resilience	Regional		6,450,000	6,450,000	19%	
Reservoir Sampling Kiosks - Multi Location	Upgrade	Regional		-	1,300,000	0%	
Sunnyside Reservoir Units 1 and 2 Seismic Upgrade	Resilience	Surrey		9,100,000	19,300,000	50%	
Vancouver Heights System Resiliency Improvements	Resilience	Burnaby		500,000	1,500,000	4%	
Whalley Reservoir Condition Assessment and Repairs	Maintenance	Surrey		2,500,000	2,500,000	100%	
Total Reservoirs				**179,678,000**	**274,278,000**		
Treatment Plants							
Coquitlam Intake Tower Seismic Upgrade	Resilience	Coquitlam		2,000,000	26,000,000	7%	
Critical Control Sites - Back-Up Power	Resilience	Regional		-	1,800,000	0%	
CWTP CO2 System Improvements	Maintenance	Coq/P.Coq		-	3,750,000	0%	
CWTP Mobile Disinfection System	Upgrade	Regional		-	2,750,000	0%	
CWTP Ozone Back-up Power	Resilience	Coquitlam		-	7,450,000	0%	
CWTP Ozone Generation Upgrades for Units 2 & 3	Upgrade	Coquitlam		7,000,000	7,000,000	80%	Delay due to operational requirements.
CWTP Ozone Sidestream Pipe Heat Trace and Insulation	Maintenance	Coquitlam		900,000	900,000	6%	
CWTP Ozone Sidestream Pump VFD Replacement	Maintenance	Coquitlam		1,400,000	1,400,000	7%	
CWTP Temporary Water Supply	Maintenance	Coq/P.Coq		500,000	2,000,000	0%	
Online Chlorine and pH Analyzers	Upgrade	Regional		-	6,000,000	0%	
SCFP Additional Pre-Treatment	Upgrade	Dist of North Van		-	130,000,000	0%	
SCFP Centralized Compressed Air System	Maintenance	Dist of North Van		900,000	900,000	9%	
SCFP Clearwell Baffle Replacement	Maintenance	Dist of North Van		-	12,300,000	0%	
SCFP Clearwell Membrane Replacement	Maintenance	Dist of North Van		-	17,400,000	0%	
SCFP OMC Building Expansion	Maintenance	Dist of North Van		150,000	2,650,000	5%	
SCFP Polymer System Upgrade	Maintenance	Dist of North Van		4,650,000	4,650,000	16%	
SCFP SCADA/ICS Controller Upgrade	Maintenance	Burnaby		-	1,400,000	0%	
Total Treatment Plants				**17,500,000**	**228,350,000**		
Others							
Beach Yard Facility - Site Redevelopment	Maintenance	Dist of North Van		-	45,500,000	0%	
Burwell Alpine Reservoir Valve Improvements	Upgrade	Electoral Area A		650,000	650,000	96%	
Capilano Hydropower	Opportunity	Dist of North Van		4,250,000	156,250,000	1%	Project currently on hold.

Metro Vancouver

Water Services - Capital Project Update

As of August 31, 2022

Definition → Preliminary Design → Detailed Design → Construction

Project Name	Primary Driver	Project Location	Years	Approved Capital Budget	Estimated Total Project Cost	% Complete	Comment
			2022-2026 Capital Plan 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031				
Capilano Mid-Lake Debris Boom	Resilience	Dist of North Van		750,000	750,000	13%	
Capilano Reservoir and Seymour Reservoir Dam Safety Boom Replacement	Maintenance	Dist of North Van		200,000	3,700,000	0%	
Capilano Reservoir Boat Wharf	Resilience	Dist of North Van		850,000	850,000	13%	
Capilano Watershed Bridge Replacements - Crown Creek and Capilano River	Maintenance	Dist of North Van		-	1,300,000	0%	
Capilano Watershed Security Gatehouse	Maintenance	Dist of North Van		3,350,000	3,350,000	23%	
CLD & SFD Fasteners Replacement & Coating Repairs	Maintenance	Dist of North Van		2,100,000	2,100,000	83%	
Cleveland Dam - Lower Outlet HBV Rehabilitation	Maintenance	Dist of North Van		4,900,000	4,900,000	75%	
Cleveland Dam Drumgate Seal Replacement	Maintenance	Dist of North Van		250,000	1,250,000	22%	
Cleveland Dam East Abutment Additional GV Series Pump Wells	Upgrade	Dist of North Van		750,000	750,000	93%	
Cleveland Dam Lower Outlet Trashrack Replacement and Debris Removal	Maintenance	Dist of North Van		-	7,700,000	0%	
Cleveland Dam Power Resiliency Improvements	Resilience	Dist of North Van		1,700,000	1,700,000	3%	
Cleveland Dam Public Warning System and Enhancements	Maintenance	Dist of North Van		10,000,000	10,000,000	10%	
Cleveland Dam Seismic Stability Evaluation	Resilience	Dist of North Van		800,000	800,000	0%	This project phase to start in 2022 after completion of the CLD Canyon
Cleveland Dam Spillway Resurfacing	Maintenance	Dist of North Van		-	7,800,000	0%	
Lower Seymour Conservation Reserve Learning Lodge Replacement	Upgrade	Dist of North Van		5,000,000	5,000,000	35%	
Newton Rechlorination Station No. 2	Maintenance	Surrey		-	5,000,000	0%	Project delayed to coordinate with Newton Pump Station Project.
Pitt River Rechlorination Station Reconstruction	Maintenance	Pitt Meadows		-	4,500,000	0%	
Rechlorination Station SHS Storage Tank Replacement	Maintenance	Regional		1,200,000	1,200,000	44%	
Rechlorination Station Upgrades	Maintenance	Regional		1,300,000	20,800,000	3%	
Scour Protection - General	Maintenance	Regional		2,000,000	2,000,000	93%	
Seymour Falls Boat Wharf	Resilience	Dist of North Van		800,000	800,000	17%	
Seymour Falls Dam Public Warning System	Maintenance	Dist of North Van		-	10,000,000	0%	
Seymour Falls Dam Seismic Stability Assessment	Resilience	Dist of North Van		1,800,000	1,800,000	0%	
Seymour Lake Debris Boom	Resilience	Dist of North Van		800,000	800,000	39%	
Seymour Reservoir Mid-Lake Debris Boom	Resilience	Dist of North Van		2,300,000	2,300,000	84%	
South Fraser Works Yard	Maintenance	Regional		32,000,000	71,000,000	74%	Property pricing higher than budgeted.
Total Others				**77,750,000**	**374,550,000**		
Grand Total Water Services				**1,083,266,000**	**2,660,016,000**		

* Progress status for each project will be presented in a future report.

Metro Vancouver

Water - Project Delivery - Capital Project Update

As of August 31, 2022

Project Name	Primary Driver	Project Location	Years	Approved Capital Budget	Estimated Total Project Cost	% Complete	Comment
			2022-2026 Capital Plan 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031				
Water Mains							
Annacis Water Supply Tunnel	Growth	New West/Surrey		488,000,000	488,000,000	17%	Construction started in April 2022
Cambie-Richmond Water Supply Tunnel	Resilience	Richmond/Van		55,250,000	640,250,000	5%	Conceptual design complete. Preliminary design to commence in late 2022
Coquitlam Water Main	Growth	Coquitlam		118,220,000	993,720,000	5%	Procurement delays
Haney Water Supply Tunnel	Resilience	P.Coq/P.Meadows		25,250,000	425,250,000	1%	Conceptual design/definition commenced in August 2022
Lulu-Delta Water Supply Tunnel	Maintenance	Richmond		-	405,000,000	0%	Early planning in progress. Conceptual design/definition to commence in 2023.
Second Narrows Crossing 1 & 2 (Burrard Inlet Crossing Removal)	Maintenance	Burnaby		2,000,000	27,000,000	0%	Planning/design to commence in late 2022, pending requirement from the Port of Vancouver (project may be deferred)
Second Narrows Water Supply Tunnel	Resilience	Burnaby/DNV		468,550,000	468,550,000	80%	Construction in progress, approx. 80% complete. On track to complete and in-service in 2025
Stanley Park Water Supply Tunnel	Maintenance	Vancouver		340,000,000	340,000,000	5%	Construction procurement to commence late 2022, with construction start late 2023. Delays for approval on compensation and land agreements with Park Board.
Total Water Mains				**1,497,270,000**	**3,787,770,000**		
Treatment Plants							
Coquitlam Lake Water Supply	Growth	Coquitlam		160,730,000	3,915,730,000	1%	Project construction is deferred to 2038 completion (approximately 5-year delay). Any additional deferral of construction is contingent on ongoing water conservation efforts
Total Treatment Plants				**160,730,000**	**3,915,730,000**		
Grand Total Water Services				**1,658,000,000**	**7,703,500,000**		

* Progress status for each project will be presented in a future report.

GVWD Capital Project Status Information

September 30, 2022

GREATER VANCOUVER WATER DISTRICT

Major GVWD capital projects are generally proceeding on schedule and within budget. The following capital program items and exceptions are highlighted:

Infrastructure Growth Program

- **Annacis Main No. 5 (Marine Crossing)** – A 2.3 km long, 4.5 metre diameter water supply tunnel is required under the Fraser River to meet growing water demand south of the Fraser and to provide increased system resiliency. The construction contract was awarded in late October 2021, and construction commenced in March 2022.

- **Annacis Main No. 5 (South)** – This project comprises approximately 3.0 km of 1.8 metre diameter steel pipe connecting the south shaft of the Annacis Water Supply Tunnel to the Kennedy Reservoir in the City of Surrey. Detailed design is nearing completion and is expected to be complete in December 2022.

- **Annacis Main No. 5 (North)** – This project comprises approximately 2.8 km of 1.8 metre diameter steel pipe connecting the north shaft of the Annacis Water Supply Tunnel in the City of New Westminster to the South Burnaby Main #2 in the City of Burnaby. Preliminary design has been completed, and detailed design is in progress and is expected to be complete by June 2023.

- **Cape Horn Pump Station No. 3** – Cape Horn Pump Station No. 3 with a back-up power system, will supplement the existing pump station No. 2 to deliver Coquitlam source water to meet growing demand in the areas south of the Fraser River. Preliminary design of the new station is now complete. Detailed design is anticipated to commence in late 2022.

- **Coquitlam Intake No. 2 (Coquitlam Lake Water Supply)** – A new intake, tunnel and treatment plant are proposed at the Coquitlam Reservoir to increase the regional supply from this source and meet growing future demand. A Value Engineering Optimization exercise, completed in early 2021, confirmed a preferred project option of a North Intake with Smaller Initial Filtration Treatment, which was endorsed by the Board. The Project Definition Report has been issued. The project is now in the permitting and regulatory phase, which will focus on engagement with First Nations, the City of Coquitlam, regulators and stakeholders. Phase 2 site investigations and treatment pilot testing are also anticipated to start in the second half of 2023 under this phase of work.

- **Coquitlam Main No. 4 (Coquitlam Water Main)** – This 12 km long steel water main, consisting of the Central, South, South Tunnel and Cape Horn Sections, will increase the transmission capacity from the Coquitlam source to the Cape Horn Pump Station and Reservoir in the City of Coquitlam. This project is required to address capacity constraints in the existing Coquitlam transmission system and also provide additional transmission capacity for the Coquitlam Intake No. 2. Detailed design of the Central and Cape Horn Sections continues. Preliminary design of the South Tunnel Section is

anticipated to be completed in 2023. The Request for Proposal for the construction of the South Section has been issued, with construction scheduled to commence in mid-2023.

- **Fleetwood Reservoir** – Phase 1 of the Fleetwood Reservoir project includes a 13.6 ML reservoir, valve chamber, piping, access building and associated work located at Meagan Ann MacDougall Park in the City of Surrey. The Property Lease Agreement and a Coordinated Works Agreement to construct a portion of the city water main are complete. The Building Permit has been received and the Notice to Proceed was issued to Kenaidan Contracting Ltd. on August 24. Construction is scheduled to complete in Q4 of 2024.

- **Kennedy Newton Main** – This project comprises approximately 9.0 km of 1.8 metre diameter steel water main between the Kennedy Reservoir and the Newton Reservoir in the City of Surrey and is divided into 3 phases. Construction of Phase 1, between 72nd Avenue and 84th Avenue, is complete. Construction of Phase 2, between 72nd Avenue and Newton Reservoir is nearing completion. Due to the complexity of the work within Phase 3, the installation work has been divided into three separate sections. The construction for the first section (Scott Road) is expected to commence in fall 2022. The procurement for the remaining two sections will follow.

- **Newton Pump Station No. 2** – This project, located at 6287 128th Street in the City of Surrey, consists of replacing the existing Newton Pump Station and includes full back-up power redundancy, connections to existing and future infrastructure, and installation of new outlets to the existing Newton Reservoir. The detailed design is complete and the construction of the new reservoir outlets is underway with the main pump station construction planned to commence in mid-2023.

- **Hellings Tank No. 2** – The Hellings Tank No. 2 project involves the design and construction of an above ground 11.4 ML tank adjacent to the existing 4.3 ML Hellings Tank in Delta. Detailed design is complete and the construction tender closed on September 8, 2022. The lowest tender price exceeded the project budget and is under review.

<u>Infrastructure Maintenance Program</u>

- **Douglas Road Main No. 2 – Still Creek Section** - This project comprises approximately 2.5 km of 1.5 metre diameter steel pipe with trenchless crossings of Highway 1, Still Creek and the BNSF rail line. The Project is being constructed in three phases, with the North Open Cut Section and the Trenchless Crossing Section currently under construction. The North Open Cut is nearing completion and the Trenchless Crossing tunneling work is completed with watermain installation ongoing. Design of the South Open Cut Section is complete and will be tendered in the fall of 2022.

- **Douglas Road Main No. 2 – Vancouver Heights Section** - This project comprises approximately 2.0 km of 1.5 metre diameter steel pipe connecting the Vancouver Heights Reservoir to the Douglas Road Main No. 2 at Beta Avenue and Albert Street in the City of Burnaby. The installation construction contract is complete. Final tie-ins and commissioning are planned for fall 2022.

- **Central Park Main No. 2 – Patterson to 10th Ave** - This project comprises approximately 7.0 km of 1.2 metre diameter steel pipe connecting the Central Park Pump Station in Burnaby to the existing Central Park Main in New Westminster at 10th Avenue. The water main is divided into three phases with the 500 m long Maywood Pre-build completed in December 2020. Construction of Phase 1 of the project commenced in October 2020 with completion anticipated in fall 2022. Design of Phase 2 is underway and is expected to be complete in fall 2022.

- **Capilano Main No. 5 (Stanley Park Section)** – This 1.4 km long steel water main, in a tunnel, will replace the aged existing Capilano Main No. 4 through Stanley Park to meet growing water demand and provide increased system resiliency. Detailed design is essentially complete. Work to secure permits and land agreements is on-going. The procurement phase for construction has been delayed due to challenges in obtaining approvals from the Vancouver Park Board. Procurement is now scheduled to commence in Fall 2022 with construction anticipated to start in late 2023 or early 2024 if approvals from the Park Board can be obtained soon.

- **Capilano Reservoir and Seymour Reservoir Dam Safety Boom Replacement** – The aim of this project is to replace and upgrade the Dam Safety Booms for Seymour and Capilano Reservoirs. RFQ 22-304 closed in August for shortlisting contractors with boom design and construction experience. A contract for awarding design work for the boom systems is expected in Q4. In 2023 the goal is to issue a construction contract.

- **Capilano Watershed Security Gatehouse** – This project consists of constructing a new security gatehouse building near the entrance to the Capilano Water Supply Area. Design is complete and the project is currently out for tender which will close in November 2022. Construction is anticipated to start in Q2 of 2023 and complete by Q1 of 2025.

- **Central Park WPS Starters Replacement** – This project includes upgrades at the Central Park Water Pump Station. Upgrades include replacing the existing fixed speed pump drives with adjustable speed drives and soft start motor controllers. The existing electrical equipment will be relocated from the pump station to a new above ground electrical prefabricated building, and the HVAC and control systems will be upgraded as needed. Detailed design is anticipated to complete by Q3 of 2023.

- **Kersland Reservoir No. 1 Structural Improvements** – This project involves completing structural improvements to Unit 1 and installing a new balancing pipe between Unit 1 and Unit 2. Construction of the Unit 1 improvements were completed by Bennett Mechanical Ltd in August of 2022 and the balancing pipe is scheduled to be installed by Metro Vancouver forces during the winter of 2022/2023.

- **Rechlorination Upgrades** – This project is to upgrade the existing Cape Horn, Pitt River, and Clayton Rechlorination Stations. The required upgrades will include new buildings, modifications/additions of backup power systems, and replacement of existing process, mechanical and control systems. Preliminary design will start in the fall 2022.

- **SCFP Polymer System Upgrade** – This project consists of installing new dry polymer systems for the Filter Aid Polymer and Wash Water Recovery processes at the Seymour Capilano Filtration Plant. The design of the project is complete. Construction is anticipated to start in October 2022 and complete by Q1 of 2024.

<u>Infrastructure Resilience Program</u>

- **Second Narrows Water Supply Tunnel** – This project comprises a 1.1 km long, 6.5 metre diameter water supply tunnel under Burrard Inlet, between North Vancouver and Burnaby, to increase the reliability of supply in the event of a major earthquake and provide additional long-term supply capacity. Construction commenced in early 2019. Construction of the north and south shafts, tunnel

and installation of the three steel water mains inside the tunnel are complete. Construction of the north and south valve chambers is in progress. Overall construction is scheduled to be complete by late 2023, followed by site restoration and final tie-ins and commissioning in 2024 and 2025.

- **Capilano Raw Water Pump Station - Back-up Power** – This project consists of installing diesel generators to provide 8 MW of back-up power to the pump station. A portion of the equipment has already been delivered and the construction tender will close in November 2022.

- **Coquitlam Intake Tower Seismic Upgrade** – The Coquitlam Intake Tower is located in the southeast corner of the Coquitlam Reservoir. Constructed in 1913, the tower provides the GVWD its primary intake of water from Coquitlam Reservoir. The Tower is a 27 metre-high and 5.5 metre diameter unreinforced concrete structure, founded on bedrock. Detailed design of the seismic upgrade is 85% complete. Completion of detailed design is expected in Q4 of 2022. Due to coordination with BC Hydro work and water supply operations, construction will be completed over two winter periods 2024 to 2026.

- **Pebble Hill Reservoir No. 1, 2 and 3 Seismic Upgrade** – Pebble Hill Reservoir in south Delta is comprised of three units. Construction is scheduled to be completed in stages, taking only one unit out of service at any time. Construction of Unit 1 is complete. Unit 2 will commence in the fall of 2022 and finish in the summer of 2023. A separate tender will be issued for Unit 3 which is not expected to start until 2025.

- **Westburnco Pump Station – Back-up Power** – This project consists of installing diesel generators to provide 5 MW of back-up power to the pump station. Preliminary design was completed in 2019 and detailed design is on hold and will resume after the Capilano Raw Water Pump Station Backup Power tender has closed.

- **Cambie-Richmond Water Supply Tunnel** – This project comprises an approximately 1 km long 4.5 m diameter tunnel under the Fraser River between the City of Vancouver and the City of Richmond to increase the reliability of supply in the event of a major earthquake and provide additional long-term supply capacity. Conceptual design commenced in 2019 and is complete. Preliminary design is scheduled to commence later this year.

- **Clayton Langley Main No. 2** – This project will install an emergency direct connection to the City of Langley. The new main will connect the 192 St main to the City of Langley's distribution system. Preliminary design is scheduled to start in Fall 2022.

- **Grandview Pump Station Improvements** – This project is to increase the capacity and improve operations of the pump station by adding a 4th pump and by replacing the existing variable frequency drives. The HVAC system will also be replaced along with the transformer. Detailed Design is anticipated to be complete by the end of 2022.

- **Reservoir Isolation Valve Automation** –Identified key reservoir isolation valves are to be automated so that utility system controllers can remotely isolate all of the water storage reservoirs in an emergency. Currently, six (6) locations classified as initial priority locations with a total of eleven (11) manual valves to be automated. Design is complete, procurement of the valves is underway with the first isolation valves replacement planned for February 2023.

- **Scour Protection** – Post freshet bathymetric survey was completed and will be considered in the detailed design of the scour protection. Construction is expected in January 2023.

Infrastructure Upgrade Program

- **Cleveland Dam Public Warning System** – This project involves design and construction of a permanent public warning system along Capilano River, downstream of the Cleveland Dam. Design has commenced, and construction is planned to be complete by end of 2024.

- **Coquitlam Ozone Upgrade** – This project consists of upgrades to the ozone generators at the Coquitlam Water Treatment Plant. The generators for units 1, 2 and 3 have been replaced and units 1 and 2 are in service. Testing and commissioning of unit 3 is scheduled for Q4 2022. Completion of the upgrades to the ozone control system will follow.

- **Haney Water Supply Tunnel** – This project comprises an approximately 1 km long 4.5 m diameter tunnel under the Pitt River between the City of Port Coquitlam and the City of Pitt Meadows to increase the reliability of supply in the event of a major earthquake and provide additional long-term supply capacity. Conceptual design has recently commenced with preliminary design scheduled to commence in 2024.

- **Water Meter Upgrades** – Metro Vancouver has water meters monitoring the supply draw throughout their network at various municipal connection points. As the Corporation's water supply grows to meet the growing demands the existing meters require upgrading. The Corporation has created a program of thirty-seven (37) sites that require either a new water meter or an upgrade to the existing meter. 24 flow meter sites have design complete. 10 have been constructed/installed, 1 is under construction.

- **Water Optimization** – The Corporation installs various instrumentation devices and meters to monitor flows and pressures to verify performance within the water distribution network. The Corporation is installing additional flow and pressure meters at various locations to optimize, monitor performance, and eventually automate the network. Network-wide, one hundred forty three (143) locations for new meters and instrumentation have been identified under this program. 13 instrumentation devices have been constructed/installed and 49 are in the design phase.

metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Liquid Waste Committee and Water Committee

From: Cheryl Nelms, General Manager, Project Delivery

Date: September 28, 2022 Meeting Dates: October 5, 2022
October 6, 2022

Subject: **Compensation Practices Related to Metro Vancouver's Delivery of Projects**

RECOMMENDATION

That the GVS&DD and GVWD Boards receive for information the report dated September 28, 2022, titled "Compensation Practices Related to Metro Vancouver's Delivery of Projects".

EXECUTIVE SUMMARY

Metro Vancouver currently mitigates and compensates member jurisdictions for the impact of projects taking place within their jurisdiction through various means, which are generally negotiated on an ad-hoc basis. Mitigation and compensation for member jurisdictions may take the form of changes to a design resulting in higher project costs, addition of community amenities, upgrades to member's infrastructure, provision of resources to our members to handle increased workload resulting from our projects, as well as payment of fees for various permits, lost revenue, letters of credit, and other charges.

Metro Vancouver is currently reviewing practices underway with a goal to create a predictable, consistent and equitable approach to mitigating and compensating member jurisdictions for the impacts to their community during construction of region-serving infrastructure. Staff intend to bring back future reports that will recommend guiding principles and approaches to different forms of compensation.

PURPOSE

To provide the GVS&DD and GVWD Boards an overview of current practices used by Metro Vancouver when delivering projects, to either mitigate or compensate for the impacts to communities during construction.

BACKGROUND

Each year, Metro Vancouver delivers projects to ensure that the region has reliable access to clean drinking water, safe wastewater removal and treatment, and waste disposal and recycling. Additionally, Metro Vancouver develops regional parks for use by the public and builds housing to support low-income residents. The purpose of delivering these services on behalf of the members is to provide infrastructure at a scale that is more efficient than if each member or participant delivered the services separately. As a result, the services offer efficiencies that benefit all members. Members participate in the core services based on the understanding that not only will the benefits of the service be equitably shared amongst participants, but the impacts and costs of delivering those services are also equitably shared.

Construction, particularly the linear construction that is required to build or replace large regional water and sewer mains, has impact to communities through noise, dust, and traffic disruption.

Currently Metro Vancouver addresses impacts on a case-by-case basis. Addressing the impacts may be through mitigation and/or compensation, and are identified in collaboration with member jurisdictions within which the construction project is taking place.

Forms of mitigation can include changes to construction methodology. For example, choosing to do a tunneling method rather than open cut to reduce local community impacts, can significantly increase the cost of a project. Forms of compensation may include adding amenities (washrooms, trails), compensating for lost revenue or paying fees that Metro Vancouver may or may not be legally obligated to pay.

In 2018, the Board rescinded the existing Capital Projects Policy and recommended that Metro Vancouver staff work with staff advisory committees to develop a capital projects framework, which would capture the approach and process of how Metro Vancouver projects are planned, managed, constructed, and communicated. Since then, Metro Vancouver has been engaging with member jurisdictions through a Regional Engineers Advisory Committee (REAC) working group. In conversations with the working group, members have expressed interest in working collaboratively to reduce impacts of Metro Vancouver projects on the community, reduce impacts of Metro Vancouver projects on staff capacity, and address the impact of hosting Metro Vancouver facilities in their community. Various recommendations have been made by the group, and Metro Vancouver is now beginning a review of mitigation and compensation practices, as well as what types of costs should be considered compensation.

Metro Vancouver's intent is to develop predictable, consistent, and equitable approaches to mitigating construction impacts and compensating member jurisdictions for the impacts to their community during construction. This will allow Metro Vancouver to strengthen our relationships with member jurisdictions and the public. Specific objectives for this work include:

- Creating a more equitable and transparent project delivery process across all member jurisdictions
- Reducing project delivery timelines and costs
- Reducing overall impact on the region's ratepayers
- Addressing how members' permit processes and fees are applied to capital projects

The review will also take into consideration whether Metro Vancouver should or should not be participating in existing municipal payment frameworks used for developers.

AREAS OF MITIGATION AND COMPENSATION UNDER REVIEW

Statutory Rights of Way

Currently, statutory rights of way (SRW) are negotiated on a case-by-case basis with member jurisdictions and others when projects are underway. Increasingly, Metro Vancouver is being asked to pay current market value for land that has either been previously purchased in the public interest

or is an existing municipal asset. A full policy proposal will be brought forward to the Metro Vancouver Board in 2023 for consideration.

Community Amenities
Currently, Metro Vancouver works collaboratively with member jurisdictions to provide amenities in tandem with construction on a case-by-case basis. Examples include things such as water features, staircases, multi-use or bike paths, parking stalls, washrooms, park upgrades, public plazas, public art, and interpretive elements. These contributions can vary in cost and percentage of the project budget. Currently, there is no standard or limit set, and the extent of the provision is balanced with other project impacts as well as priorities in a local community.

Other Fees
Other types of fees that Metro Vancouver either pays or has been asked to pay in the course of delivering infrastructure include; Development Cost Charges (DCCs), Community Amenity Charges (CACs), payment in lieu of taxes, and permit fees (e.g. building permits, development permits, highway use permits, etc.).

The REAC working group has been discussing the appropriateness of these types of payments by Metro Vancouver to member jurisdictions. This feedback, along with Metro Vancouver's evaluation will inform the development of a guide that will reference considerations when levying fees on Metro Vancouver projects to help assess whether fees are applicable.

Compensation for Lost Revenue, Restoration of Damage, and Other
Metro Vancouver currently compensates members for any damage caused and restoration of disturbed areas and specific to temporary work areas, lost revenues (such as from parking lots), and additional items as may be negotiated between Metro Vancouver and its members.

Other Forms of Mitigation
Metro Vancouver also works closely with communities to design and deliver projects with low impact. On occasion, this mitigation can increase costs of a project by a significant amount. One example is Metro Vancouver agreeing to tunnel mains to reduce impacts on the community and traffic, which can increase project costs. These mitigation efforts will also be taken into consideration as how it adds into the overall mitigation and compensation costs that Metro Vancouver pays to deliver projects.

ADDITIONAL TOOLS UNDER DEVELOPMENT

Capital Projects Impact Assessment Tool
Metro Vancouver is evaluating the creation of an impact assessment tool that would allow the organization to evaluate more consistently and systematically the impacts of Metro Vancouver construction projects on the local communities and identify potential mitigation and/or compensation measures.

Capital Projects Guide

A Capital Projects Guide is under development with input from the REAC working group. The purpose of a Capital Projects Guide is to capture the approach and process of how Metro Vancouver projects are planned, managed, constructed, and communicated. This will help promote a transparent and consistent process that ensures all members and partners know what to expect. The guide will:

- Set expectations and improve communication between Metro Vancouver and its members.
- Document how Metro Vancouver plans and delivers its capital projects and the milestones for member input/participation.
- Facilitate a consistent and transparent process for the delivery and communication of capital projects within host member jurisdictions.

In addition to this forward looking work, Metro Vancouver staff continue to work with member jurisdictions to set up regular coordination meetings to talk about upcoming work, protocols, and collectively mitigate impacts of how Metro Vancouver projects intersect with work being delivered by that member jurisdiction.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The development of standardized, region-wide approaches to mitigation and compensation for projects undertaken in member jurisdictions would help to manage project costs, maintain project schedules, mitigate scope creep and change orders on construction projects, as well as ensure a transparent and equitable approach across all member jurisdictions.

CONCLUSION

Each year, Metro Vancouver delivers projects to ensure that the region has access to clean drinking water, safe wastewater removal and treatment, and waste disposal and recycling. Additionally, Metro Vancouver develops regional parks for use by the public and builds housing to support low-income residents. The purpose of delivering these services on behalf of the members is to provide infrastructure at a scale that is more efficient than if each member or participant delivered the services separately. As a result, the services offer efficiencies that benefit all members. Members participate in the core services based on the understanding that not only will the benefits of the service be equitably shared amongst participants, but the impacts and costs of delivering those services are also equitably shared.

Currently Metro Vancouver addresses project impacts on a case-by-case basis. The development of standardized, region-wide approaches to mitigation and compensation for projects happening in any member jurisdiction would help to manage project costs and schedule, and mitigate scope creep on design, or changes resulting in construction claims once construction has begun, as well as ensure a transparent and equitable approach across all member jurisdictions.

Staff will return to the Board with additional reports containing recommendations on guiding principles and approaches to different forms of compensation.

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metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Water Committee

From: Marilyn Towill, General Manager, Water Services

Date: September 27, 2022 Meeting Date: October 6, 2022

Subject: **Manager's Report**

RECOMMENDATION
That the Water Committee receive for information the report dated September 27, 2022 titled "Manager's Report".

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1. Watershed Fisheries Report – Annual Report

Annual fisheries initiatives in the Capilano, Seymour and Coquitlam River Watersheds are underway. Collaboration is ongoing with DFO's Capilano River Hatchery on adult fish transports upstream of the dam. GVWD's Capilano Smolt Trap and Truck Project captured 17,135 Coho Salmon and 225 Steelhead Trout upstream of the dam and transported them by truck to Burrard Inlet for release. Adult Steelhead Trout were transported upstream of Seymour Falls Dam this year for the first time in over 90 years, an important step toward restoration of wild fish populations in our region. A *Return of the Salmon* ceremony was held on the banks of the Seymour River in September with First Nations, fisheries management agencies and other funding partners and supporters in attendance to celebrate an increase in salmon returns following the rockslide which effectively blocked the lower Seymour River in 2014. GVWD continues to work with the Seymour Salmonid Society, fisheries management agencies, stakeholders and First Nations on area restoration efforts and has contributed in-kind resources to instream repairs on a Coho Salmon restoration site this summer. Sockeye Salmon restoration efforts remain an ongoing challenge in Coquitlam with very few, sporadic adult returns each year. GVWD is working with DFO, BC Hydro and kʷikʷəƛ̓əm / Kwikwetlem First Nation on the construction of a Sockeye Salmon Hatchery one kilometre downstream of the Coquitlam Dam. Coho Salmon will be transported into Cedar Creek, upstream of Coquitlam Dam, in October of this year. A report will be brought to Water committee in Q1 2023 to summarize 2022 GVWD fisheries management activities.

2. Water Conservation Influence on Capital Planning

The "Regional Water Conservation Impacts on Capital Planning" report was presented to the Water Committee in July 2021 where various options to reduce the region's per capita consumption were provided. These options included strengthening the Drinking Water Conservation Plan (DWCP), increased awareness and enforcement of Water Conservation Bylaws, conservation-oriented pricing structures, and water metering supported by behaviour change campaigns. Metro Vancouver's Water Services Department updated the DWCP in 2021 to further reduce water consumption during the high demand period in the summer. The updated DWCP was complemented with the Summer Support Program to assist member jurisdictions with education and enforcement of the new watering restrictions during the summer. Water

consumption data for the 2022 high demand period was collected and will be analyzed. However, at least two to three additional years of data is required to correlate potential demand reductions with water conservation efforts and identify how this may impact capital projects. Metro Vancouver will continue its collaborative efforts with member jurisdictions to achieve sustained and impactful reductions in the region's per capita consumption.

3. Corrosion Control Update

In June 2021, as a key element of the implementation of Metro Vancouver's Corrosion Control Program, Copper Pipes Protection, the pH of the drinking water was increased to a target range of 8.3 to 8.5, and alkalinity doubled to about 20 mg/L (expressed as calcium carbonate) using natural minerals. This change had the purpose to help:

- reduce the release of copper from pipes in buildings caused by low pH in the region's water
- reduce leaks in pipes caused by copper corrosion
- preserve the lifespan of pipes and hot water tanks
- reduce green stains on tubs, sinks, and grout

Enhanced system monitoring of corrosion control related water quality parameters began prior to the adjustments and is currently ongoing. Analysis of this data is in progress, with results to be presented in 2023. A preliminary review indicates the pH and alkalinity adjustments were successful in maintaining stable pH and alkalinity, at the new set-points, throughout the system.

4. Drinking Water Management Plan

The Drinking Water Management Plan (DWMP) is the guiding document for Metro Vancouver's drinking water utility, establishing priorities and setting the strategic direction for drinking water initiatives. Work on updating the plan began in late 2020 with the last progress update to the Water Committee in February 2021. Since that time, the first phase of work has been underway and has included a review of the 2011 DWMP, completion of a gap analysis, hosting of internal staff workshops, and development of a discussion guide summarizing the plan's proposed guiding principles, goals, and strategies. Engagement with the Regional Engineers Advisory Committee Water Subcommittee (REAC WSC) is currently underway with the first of three workshops held in May 2022. Two additional workshops with the REAC WSC are being planned, followed by engagement with the Regional Engineers Advisory Committee and Regional Administrators Advisory Committee in 2023. A report to the Water Committee and GVWD Board seeking endorsement of the DWMP framework and authorization to initiate public engagement is expected in Q2 2023 and a finalized DWMP is expected to be complete in 2024.

5. GVWD and Member Jurisdictions Water Use by Sector Report 1985 – 2021

The Greater Vancouver Water District (GVWD) and Member Jurisdiction Water Use by Sector Report (the "Report") presents water consumption information based on data provided by member jurisdictions. The Report relies on data provided by member jurisdictions and the timeliness, quality and accuracy of that data. The first edition of this report was completed in 1997, and the last edition was the ninth update and included data from 1985 to 2019.

Data processing and analysis work for the 2021 Report has been completed using the data provided by fifteen member jurisdictions (75%). As a complete data set from all member

jurisdictions is needed for reliable regional results, Metro Vancouver staff will continue to work with member jurisdiction staff to fill these data gaps, where possible. The plan is to bring forward the 2021 Report to REAC WSC, REAC and the Water Committee in 2023.

6. Water Tunneling

Water Services has a total of six major water supply tunnels and two large diameter water tunnels that are in various stages of design and construction. These tunnels are critical components of the water transmission system and are being designed to withstand major earthquakes, to protect against scour and third party impacts, and to meet projected water demands into the future.

Along with the recently completed Port Mann Water Supply Tunnel and one major tunnel in Liquid Waste Services underway, Water Services has the following projects currently under construction:

- The Second Narrows Water Supply Tunnel, a 1.1 km long, 6.5 metre diameter tunnel crossing of Burrard Inlet from North Vancouver to Burnaby which is scheduled to be completed in 2024
- The Annacis Water Supply Tunnel, a 2.3 km long, 4.5 metre diameter crossing of the Fraser River from New Westminster to Surrey which commenced earlier this year
- The Douglas Road Main No. 2, a 650 metre long, 1.8 metre diameter crossing of Still Creek, BNSF Railway, and Highway 1 in Burnaby, which has recently completed tunneling works
- The Newton Reservoir Outlet Tunneling, a 150 metre long, 2.1 metre diameter tunnel under the Newton Reservoir in Surrey, which has recently commenced

In addition, Water Services has a number of projects currently in the design phase including:

- The Stanley Park Water Supply Tunnel, a 1.4 km long tunnel scheduled to commence construction in late 2023 or 2024
- The Cambie-Richmond Water Supply Tunnel, a 1 km long tunnel of the Fraser River from Vancouver to Richmond, scheduled to commence preliminary design later this year
- The Haney Water Supply Tunnel, a 1 km long tunnel crossing of the Pitt River from Port Coquitlam to Pitt Meadows, which commenced conceptual design this year
- The Lulu Delta Water Supply Tunnel, a 1 km long crossing of the Fraser River from Richmond to Delta, scheduled to commence conceptual design in 2023

Once complete, these projects will significantly contribute to Metro Vancouver's goals to ensure that the transmission components of the water system are expanded and strengthened to allow the continued supply of safe, clean drinking water to the region's residents and businesses.

7. Coquitlam Water Main (Coquitlam Main No. 4)

The Coquitlam Water Main Project is a 12 km long steel water main, consisting of the Central, South, South Tunnel and Cape Horn Sections, which will increase the transmission capacity from the Coquitlam source to the Cape Horn Pump Station and Reservoir in the City of Coquitlam. This project is required to address capacity constraints in the existing Coquitlam transmission system and also provide additional transmission capacity for the future expansion of the Coquitlam source. Design of the Central, South Tunnel and Cape Horn Sections is underway. The Request for

Proposal for the construction of the South Section has been issued and is closing in November. A report to the Water Committee and GVWD Board seeking endorsement to award a contract for the construction of the South Section is expected in January 2023.

8. Long-term Financial Planning

The Long Term Financial Plan item which has been on the Water Committee work plan for 2022, has been set aside for this year. This initiative has been the subject of significant work throughout this year by Metro Vancouver in preparation for tackling it collectively at the Board level. This work will be a key topic with the new Board through the orientation and strategic planning work to be done in the first quarter of 2023.

9. Work Plan

Attachment

Water Committee 2022 Work Plan

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ATTACHMENT

Water Committee 2022 Work Plan

Priorities

1st Quarter	Status
Annual Energy Management Program Update	Complete
Capilano Hydropower Feasibility Study	Complete
Development Cost Charges (DCC) Update	Complete
Project Delivery Capital Portfolio Update	Complete
Quality Management System for Drinking Water Update	Complete
Regional Water Supply System Lifeline Study - Seismic Vulnerability Assessment	Complete
Whalley Main and Port Mann Main No. 2 Project Completion	Complete
Contract Approvals – Contracts > $5 Million (as applicable)	Complete
Water Policies (as applicable)	Complete
2nd Quarter	
BC Ministry of Health Guidelines for Water Systems	Complete
Contribution Agreement Annual Reports	Complete
Douglas Road Main No. 2 Construction Update	Complete
Drinking Water Conservation Program Update	Complete
Drinking Water Management Plan Update	In Progress
GVWD Water Quality Annual Report	Complete
Lawn Water Regulations Communication & Regional Water Conservation Campaign	Complete
Status of GVWD Capital Expenditures	Complete
Temporary Water Supply Points for Members	Complete
Water Conservation: Influence On Capital Planning	Complete
Water Meter Replacement Program	Complete
Water Services Wildfire Preparedness Update	Complete
Water Supply Update for Summer 2022	Complete
Water Tunneling Projects Update	In Progress
Contract Approvals – Contracts > $5 Million (as applicable)	Complete
Water Policies (as applicable)	Complete
3rd Quarter	
Annual Dam Safety Program Update	Complete
Capital Projects Permitting Best Practices Guide	In Progress
Coquitlam Main No. 4 Update	In Progress
Coquitlam River Watershed Roundtable – Contribution Agreement 2023-2025	Complete
Kennedy Newton Main Construction Update	Complete
Status of GVWD Capital Expenditures	Complete
Contract Approvals – Contracts > $5 Million (as applicable)	Complete
Water Policies (as applicable)	Complete
4th Quarter	
Annual Budget and 5-year Financial Plan – Water Services	In Progress
Corrosion Control Program Monitoring Update	In Progress
Coquitlam Lake Water Supply Project Update	Complete
Fleetwood Reservoir Construction Update	Complete

Long Term Financial Plan	In Progress
Regional Water Conservation Campaign and Water Regulations Communications 2022	In Progress
Status of GVWD Capital Expenditures	In Progress
Summer 2022 Water Supply Performance	In Progress
Water Use-by-Sector Report	In Progress
Watershed Fisheries Initiatives Annual Update	In Progress
Contract Approvals – Contracts > $5 Million (as applicable)	In Progress
Water Policies (as applicable)	In Progress