

**METRO VANCOUVER REGIONAL DISTRICT  
WATER COMMITTEE**

**REGULAR MEETING**

**March 11, 2021**

**9:00 am**

**28<sup>th</sup> Floor Boardroom, 4730 Kingsway, Burnaby, British Columbia**

**A G E N D A<sup>1</sup>**

**1. ADOPTION OF THE AGENDA**

**1.1 March 11, 2021 Regular Meeting Agenda**

That the Water Committee adopt the agenda for its regular meeting scheduled for March 11, 2021 as circulated.

**2. ADOPTION OF THE MINUTES**

**2.1 February 11, 2021 Regular Meeting Minutes**

That the Water Committee adopt the minutes of its regular meeting held February 11, 2021 as circulated.

**3. DELEGATIONS**

**4. INVITED PRESENTATIONS**

**5. REPORTS FROM COMMITTEE OR STAFF**

**5.1 GVWD Electrical Energy Use, Generation and Management**

That the Water Committee receive for information the report dated March 3, 2021 titled "GVWD Electrical Energy Use, Generation and Management".

**5.2 Corrosion Control Program: Copper Pipes Protection**

That the GVWD Board receive for information the report dated February 25, 2021, titled "Corrosion Control Program: Copper Pipes Protection".

**5.3 Drinking Water Management Plan Update**

That the Water Committee receive for information the report dated February 22, 2021, titled "Drinking Water Management Plan Update".

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<sup>1</sup> Note: Recommendation is shown under each item, where applicable.

**5.4 Capital Funding Redirection for Water Services Projects**

That the GVWD Board approve the addition of seven Water Services projects to the 2021 Capital Budget, totaling \$5.3 million, to be funded from existing approved cash flow.

**5.5 Manager's Report**

That the Water Committee receive for information the report dated February 25, 2021 titled "Manager's Report".

**6. INFORMATION ITEMS**

**6.1 Major Project Delivery Governance Update**

**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 March 11, 2021 pursuant to the *Community Charter* provisions, Section 90 (1) (g) 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:  
(g) litigation or potential litigation affecting the regional district."

**10. ADJOURNMENT/CONCLUSION**

That the Water Committee adjourn/conclude its regular meeting of March 11, 2021.

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Membership:

Brodie, Malcolm (C) – Richmond

Elford, Doug (VC) – Surrey

Asmundson, Brent – Coquitlam

Baird, Ken - Tsawwassen First Nation

Bell, Don - North Vancouver City

Bligh, Rebecca – Vancouver

Clark, Carolina – Belcarra

Dingwall, Bill - Pitt Meadows

Guichon, Alicia - Delta

Keithley, Joe – Burnaby

Martin, Gayle - Langley City

Svensden, 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 9:02 a.m. on Thursday, February 11, 2021 in the 28<sup>th</sup> Floor Boardroom, 4730 Kingsway, Burnaby, British Columbia.

**MEMBERS PRESENT:**

Chair, Mayor Malcolm Brodie\*, Richmond  
Vice Chair, Councillor Doug Elford\*, Surrey  
Chief Ken Baird\*, Tsawwassen  
Councillor Don Bell\*, North Vancouver City  
Councillor Rebecca Bligh\*, Vancouver  
Councillor Carolina Clark\*, Belcarra  
Mayor Bill Dingwall\*, Pitt Meadows  
Councillor Alicia Guichon\*, Delta  
Councillor Joe Keithley\*, Burnaby  
Councillor Gayle Martin\*, Langley City (arrived at 9:11 a.m.)  
Councillor Ryan Svendsen\*, Maple Ridge  
Mayor Rob Vagramov\*, Port Moody

**MEMBERS ABSENT:**

Councillor Brent Asmundson, Coquitlam

**STAFF PRESENT:**

Marilyn Towill, General Manager, Water Services  
Jerry W. Dobrovlny, Chief Administrative Officer  
Amelia White, Legislative Services Coordinator, Board and Information Services

**1. ADOPTION OF THE AGENDA**

**1.1 February 11, 2021 Regular Meeting Agenda**

**It was MOVED and SECONDED**

That the Water Committee adopt the agenda for its regular meeting scheduled for February 11, 2021 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 January 21, 2021 Regular Meeting Minutes**

**It was MOVED and SECONDED**

That the Water Committee adopt the minutes of its regular meeting held January 21, 2021 as circulated.

**CARRIED**

**3. DELEGATIONS**

No items presented.

**4. INVITED PRESENTATIONS**

No items presented.

**5. REPORTS FROM COMMITTEE OR STAFF**

**5.1 Manager's Report**

Report dated January 19, 2021, from Marilyn Towill, General Manager, Water Services, providing members with an update on the Tsawwassen First Nations drinking water samples processed by the MV laboratory and the industrial water usage in the City of Vancouver.

**It was MOVED and SECONDED**

That the Water Committee receive for information the report dated January 19, 2021 titled "Manager's Report".

**CARRIED**

**6. INFORMATION ITEMS**

**6.1 Climate 2050 Discussion Paper on Water and Wastewater Infrastructure**

Members were provided a presentation on how water and wastewater infrastructure will be incorporated into the development of *Climate 2050*.

9:11 a.m. Councillor Gayle Martin arrived at the meeting.

**It was MOVED and SECONDED**

That the Water Committee receive for information the report dated January 29, 2021 titled "*Climate 2050* Discussion Paper on Water and Wastewater Infrastructure".

**CARRIED**

Presentation material titled "Water and Wastewater Infrastructure Paper" is retained with the February 11, 2021 Water Committee agenda.

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 February 11, 2021 pursuant to the *Community Charter* provisions, Section 90 (1) (e), (g) and (i) 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;
- (g) litigation or potential litigation affecting the regional district; and
- (i) the receipt of advice that is subject to solicitor-client privilege, including communications necessary for that purpose.”

**CARRIED**

10. **ADJOURNMENT/CONCLUSION**

**It was MOVED and SECONDED**

That the Water Committee adjourn its regular meeting of February 11, 2021.

**CARRIED**

(Time: 9:14 a.m.)

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Amelia White,  
Legislative Services Coordinator

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Malcolm Brodie, Chair

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To: Water Committee

From: Terry Hui, Division Manager, Technical Support Services, Water Services  
 Paul Kohl, Director, Operations and Maintenance, Water Services

Date: March 3, 2021 Meeting Date: March 11, 2021

Subject: **GVWD Electrical Energy Use, Generation and Management**

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### RECOMMENDATION

That the Water Committee receive for information the report dated March 3, 2021 titled “GVWD Electrical Energy Use, Generation and Management”.

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### EXECUTIVE SUMMARY

The GVWD Electrical Energy Use, Generation and Management report outlines electrical energy use by the water utility, energy generation and energy management projects. GVWD avoids electricity purchases of between \$400,000 to \$600,000 annually by generating electrical energy at four facilities. Energy management projects completed since 2015 provide an additional estimated annual savings of 2.7 GWh or \$180,000.

### PURPOSE

To provide the Water Committee with information on the water utility electricity use, generation, and energy management.

### BACKGROUND

Metro Vancouver’s water system includes an extensive network of reservoirs, pumping stations, and large diameter water transmission mains. Metro Vancouver delivers water from three elevated source lakes: Capilano, Seymour, and Coquitlam. For a large part of the year and for a large portion of the region, gravity conveys water through transmission mains to the treatment plants, pump stations and peaking reservoirs which then supply municipal distribution systems.

Even with the benefit of gravity, additional energy is needed for the treatment and transmission of drinking water. Over the last five years, approximately 90% of total energy used by Metro Vancouver’s water system for the treatment and transmission of drinking water was electrical energy. In 2020, Water Services purchased approximately \$3.7M in electricity from external producers. Metro Vancouver’s *Corporate Energy Management Policy* outlines ongoing commitments to carbon neutrality and fiscal responsibility and also highlights the importance of reducing energy use, where feasible.

### ENERGY GENERATION

The natural topography of the region provides opportunities to harness energy from surplus pressure available in the water system. Energy is generated at four water facilities.

1. The Capilano Energy Recovery Facility (CERF) is the largest generation facility in the water utility. CERF receives treated water from the Seymour Capilano Filtration Plant by gravity and surplus pressure is used to drive a water-driven turbine to generate electricity. The electricity generated is used to partially offset the electrical energy requirements of the Capilano Raw Water Pump Station, the largest pumping facility in the water utility. Since CERF started operations in 2016, it has generated 28.1 GWh of electricity, which has avoided electricity purchases of \$1.4M. In 2020, CERF generated 6.7 GWh or \$340,000 in avoided electricity purchases.
2. The Cleveland Dam Pump House uses gravity flow from the Capilano Mains to drive eight water-driven pumps which supply drinking water to Districts of North Vancouver and West Vancouver. The water-driven pumps offset all electricity needed to pump this water. Installed in the 1950's this pump house has been supplying water to the region for nearly seven decades without the need to purchase electricity for pumping. In 2020, the Cleveland Dam Pump House pumped the equivalent electrical energy requirement of 0.8 GWh or \$57,000 in avoided electricity purchases.
3. Cleveland Dam Turbine, located at the Cleveland Dam Pump House, provides water from Capilano Lake to the Capilano Fish Hatchery which is eventually discharged to Capilano River via the fish ladder. The water with excess pressure is used to drive the turbine to generate electricity. The turbine is the primary provider of electricity needs at the Cleveland Dam for lighting and valve operations. In 2020, the Cleveland Dam Turbine generated 0.7 GWh or \$53,000 in avoided electricity purchases.
4. Seymour Falls Turbine, installed in the late 1950's, is located at the Seymour Falls Dam and water from Seymour Lake by gravity is used to drive the turbine to generate electricity. The turbine is the primary provider of electricity needs at the Seymour Falls Dam for lighting and valve operations. As there is no access to other electrical power producers, the turbine also supplies electricity to the Seymour River Hatchery for their operations. In 2020, the Seymour Falls Turbine generated 0.4 GWh or \$44,000 in avoided electricity purchases.

In 2020, the total amount of electrical energy generated by the four facilities was 8.6 GWh, which avoids electricity purchases of approximately \$494,000.

### **ENERGY MANAGEMENT PROJECTS**

In the last six years, Water Services has completed a number of equipment upgrades and process automation improvements that provide ongoing annual electrical energy savings of 2.7 GWh or \$180,000.

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1 gigawatt hour (GWh) = 1,000,000 kilowatt hours (kWh)

Table 1 – WS Energy Management Projects

Year	Facility	Project	Annual Electricity Savings (kWh)	Annual Electricity Savings (\$)
2015	Seymour Capilano Filtration Plant	EcoRay UV Lamps Phase 2	52,900	\$4,655
	Seymour Capilano Filtration Plant	Coagulant Mixing Control	69,000	\$6,072
2016	Seymour Capilano Filtration Plant	UV Revalidation	104,000	\$9,152
2017	Seymour Capilano Filtration Plant	Outdoor Lighting Upgrade	149,441	\$13,151
	Seymour Capilano Filtration Plant	HVAC Control Improvements	316,377	\$27,841
2018	Seymour Capilano Filtration Plant	Lime Mixer Blower Shutdown	152,638	\$13,432
	Coquitlam Water Treatment Plant	Minimum Ozone Dose Reduction	121,977	\$11,100
2019	Port Mann North and South Valve Chambers	Heating Energy Reduction	183,000	\$24,705
2020	Seymour Capilano Filtration Plant	LED Interior Lighting Upgrade	800,000	\$70,400
TOTAL			2,700,254	\$180,508

In 2020, Water Services upgraded interior lighting at Seymour Capilano Filtration Plant to LED technology. The LED interior lighting upgrade project provides an annual energy savings of 0.8 GWh or \$70,000.

Continuous improvements in energy savings projects and optimization projects have been a motivation for staff at the Coquitlam Water Treatment Plant as they are currently looking for innovative ways to reduce operating costs while maintaining high standards for drinking water quality. Operations staff have been working with the Energy Management team to examine historical operating data to optimize and reduce periods when excess ozone is being added to the process beyond what is required for water quality. This commitment to continuous improvement contributes to keeping greenhouse gas emissions for the water utility steady.

**ALTERNATIVES**

This is an information report; no alternatives are presented.

**FINANCIAL IMPLICATIONS**

The GVWD generates 8 to 10 GWh of electricity annually which results in avoided electricity purchases of \$400,000 to \$600,000. Energy Management projects completed since 2015 provide estimated annual savings of 2.7 GWh or \$180,000.

**CONCLUSION**

The water utility is committed to the *Corporate Energy Management Policy*, ensuring targets and key performance indicators are developed and tracked. The water utility takes advantage of the region’s natural topography to avoid pumping and to generate energy. Additionally, equipment upgrades and process automation improvements throughout the utility contribute to continuous improvement and ongoing electrical energy savings.

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1 gigawatt hour (GWh) = 1,000,000 kilowatt hours (kWh)

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To: Water Committee

From: Inder Singh, Director, Interagency Projects and Quality Control, Water Services

Date: February 25, 2021 Meeting Date: March 11, 2021

Subject: **Corrosion Control Program: Copper Pipes Protection**

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### **RECOMMENDATION**

That the GVWD Board receive for information the report dated February 25, 2021, titled “Corrosion Control Program: Copper Pipes Protection”.

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### **EXECUTIVE SUMMARY**

The Greater Vancouver Water District (GVWD) drinking water supply is naturally low in pH, resulting in accelerated corrosion of building plumbing systems, including copper piping, brass fixtures, and similar appurtenances. With the completion of the major water treatment infrastructure upgrades, further pH and alkalinity adjustments can be made for water entering the transmission system. This will help reduce leaks in pipes caused by copper corrosion and preserve the lifespan of pipes and hot water tanks.

The pH and alkalinity adjustments are planned for Spring 2021, and the new target levels will be 8.3 to 8.5 for pH and 20.0 mg/L as calcium carbonate (CaCO<sub>3</sub>) for alkalinity. These changes will have no impact the water’s taste or smell, and assures continued compliance with the *Guidelines for Canadian Drinking Water Quality*. A communication plan is being implemented to provide notification of these changes to key end-users that may be impacted.

### **PURPOSE**

To provide the Water Committee an update on the status of Metro Vancouver’s corrosion control program and public notification process.

### **BACKGROUND**

Metro Vancouver provides clean, safe drinking water to a regional population of about 2.7 million. Water Services maintains a network of watershed reservoirs, dams, treatment facilities, pump stations, rechlorination stations, in-system reservoirs and a transmission network that provides water to 18 member municipalities, one Electoral Area, and one Treaty First Nation, who then provide direct service to end-users.

Metro Vancouver source water originates from rainfall and snowmelt that is captured in reservoirs which contain little to no calcium or magnesium based minerals, thereby classifying the water as soft. The average source water pH (unadjusted) ranges from 6.5 to 6.8 with an alkalinity ranging from 2.0 to 5.0 mg/L as CaCO<sub>3</sub>. Without treatment, the source water pH range is below the minimal operational level of 7.0 defined under the Guidelines for Canadian Drinking Water Quality (GCDWQ).

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Water from the Capilano and Seymour water supplies is combined for treatment at the SFCP, which began treating Seymour water in December 2009 and Capilano water in April 2015 following completion of the Twin-Tunnels.

Recently completed upgrades at the CWTP now permit further corrosion control water quality adjustments to be made to the Coquitlam source water. Up until this point, implementation of a region-wide corrosion control adjustment to the final target levels was not practical due to the potential for fluctuating water quality parameters within the transmission system and potential end-user impacts. Partial increases in pH and alkalinity have been implemented over the past 20 years to provide interim corrosion control benefits and compliance with the GCDWQ. Currently, both plants provide treated water with a pH ranging from 7.5 to 7.8 and alkalinity ranging from 9.0 to 11.0 mg/L as CaCO<sub>3</sub>.

### **IMPLEMENTATION PLAN**

Having reaffirmed previous consulting engineering assessment recommendations and with completion of the remaining treatment facility upgrades, full implementation of corrosion control adjustments can now proceed. The proposed pH and alkalinity adjustments to the targeted levels have also been compared to best practices followed by other major utilities and 'lessons-learned' have been gathered and reviewed. Monitoring of background water quality parameters is underway to help assess the effectiveness of the water chemistry changes.

The proposed adjustment to pH may impact some facilities such as health care and research centres, breweries, and aquariums. To ensure those facilities have an opportunity to adjust their systems, if required, Metro Vancouver will inform potentially impacted facilities two months prior to increasing the pH. A communication strategy targeting key end-users has been developed with input from regional health authorities and local governments. An update on this corrosion control initiative was provided to the REAC Water Subcommittee on November 10, 2020 and jointly to the Vancouver Coastal Health and Fraser Health Authorities on November 24, 2020, and REAC on December 4, 2020.

The purpose of the communication plan is to provide adequate notification to potentially sensitive end-users, such that they may implement any required process changes to their current systems in advance of the regional pH and alkalinity adjustments. The following are the key end-users that have currently been identified:

- Hospitals including dialysis centres;
- Health care units;
- Research centres at post-secondary institutions;
- Aquariums and aquarium stores;
- Fermentation operations including breweries;
- Bakeries;
- Boiler operators; and
- Pool and spa operators.

The attached fact sheet titled 'Corrosion Control Program: Copper Pipes Protection' will be made available to the public for additional information. Information pertaining to the corrosion control program will also be available on Metro Vancouver's website.

#### **ALTERNATIVES**

This is an information report; no alternatives are presented.

#### **FINANCIAL IMPLICATIONS**

The cost of implementing the final corrosion control adjustments has been incorporated into the 2021 and future operational budgets. Associated primarily with increased chemical usage, the annual corrosion control program budget has been increased by approximately \$2 million for a new total of \$3.4 million for 2021. This program is expected to have significant economic benefits to home owners and businesses in increasing the longevity of their building plumbing systems, while ensuring the water remains safe to drink.

#### **CONCLUSION**

The GVWD water supply is naturally low in pH and alkalinity and requires treatment to mitigate against its potentially corrosive effects on metallic pipes and plumbing fittings. Copper piping in premise plumbing is particularly susceptible. With completion of the latest water treatment system upgrades at the Coquitlam source, region-wide pH and alkalinity adjustment to final target levels of 8.3 to 8.5 and 20 mg/L as calcium carbonate, respectively, can now be implemented. These changes will have no impact the water's taste or smell, and assures continued compliance with the *Guidelines for Canadian Drinking Water Quality*.

Prior to making the water chemistry adjustments planned for Spring 2021, an advance notification will be provided to key end-users that may be affected. This will provide end-users an opportunity to make any necessary process changes, should they be required.

#### **Attachment**

"Corrosion Control Program: Copper Pipes Protection", dated February 2021 (42580682)

43582203

# Corrosion Control Program: Copper Pipes Protection



FEBRUARY 2021

## Improving our drinking water quality and protecting against corrosion of copper pipes

### Project Overview

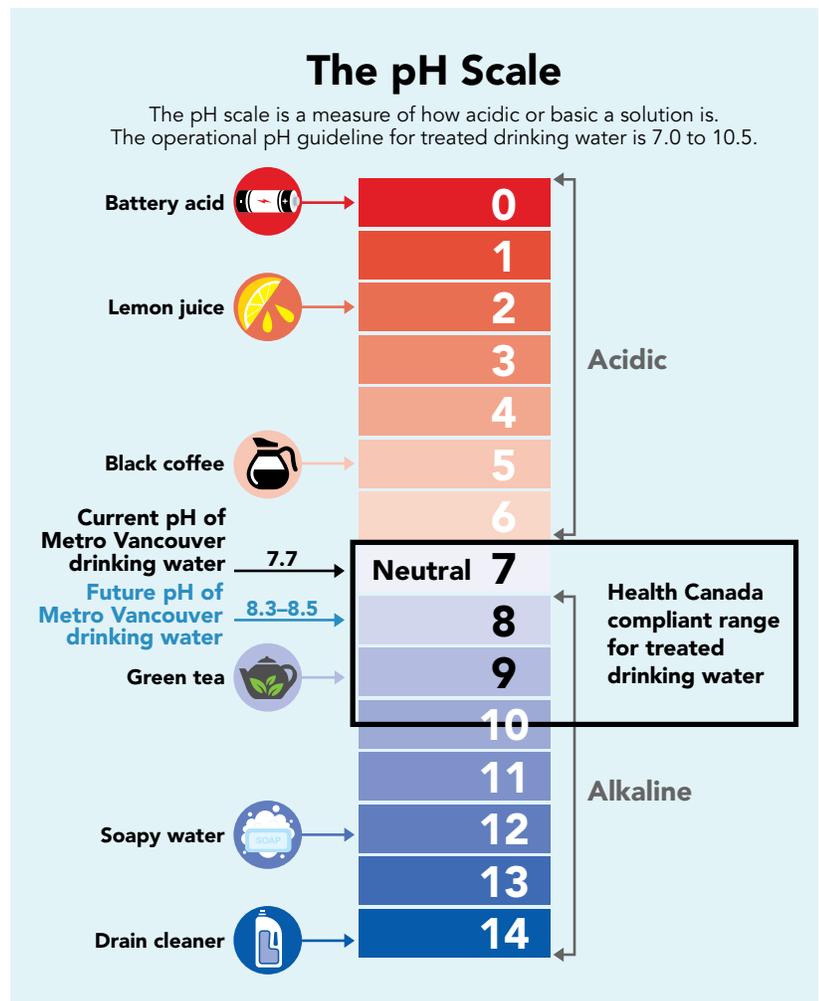
To protect copper pipes and hot water tanks in buildings, Metro Vancouver is planning to increase the pH of the region’s drinking water through the use of natural minerals. This increase will:

- 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;
- Help preserve the lifespan of pipes and hot water tanks; and
- Reduce green stains on tubs, sinks, and grout.

Metro Vancouver currently delivers water with a pH of 7.7, which is compliant with Health Canada’s Guidelines for Canadian Drinking Water Quality, which range from 7 to 10.5.

Increasing the pH to a target range of 8.3 to 8.5 will make the water less corrosive. To help improve the stability of the target pH level in the water transmission and distribution pipes, the alkalinity will be doubled to about 20 mg/L (expressed as calcium carbonate) using natural minerals. Alkalinity is a measure of the buffering capacity of the water to neutralize acids and bases to help maintain a stable pH level. These changes might prompt some water users such as health care facilities and breweries to adjust and calibrate their operations to the change in pH and alkalinity.

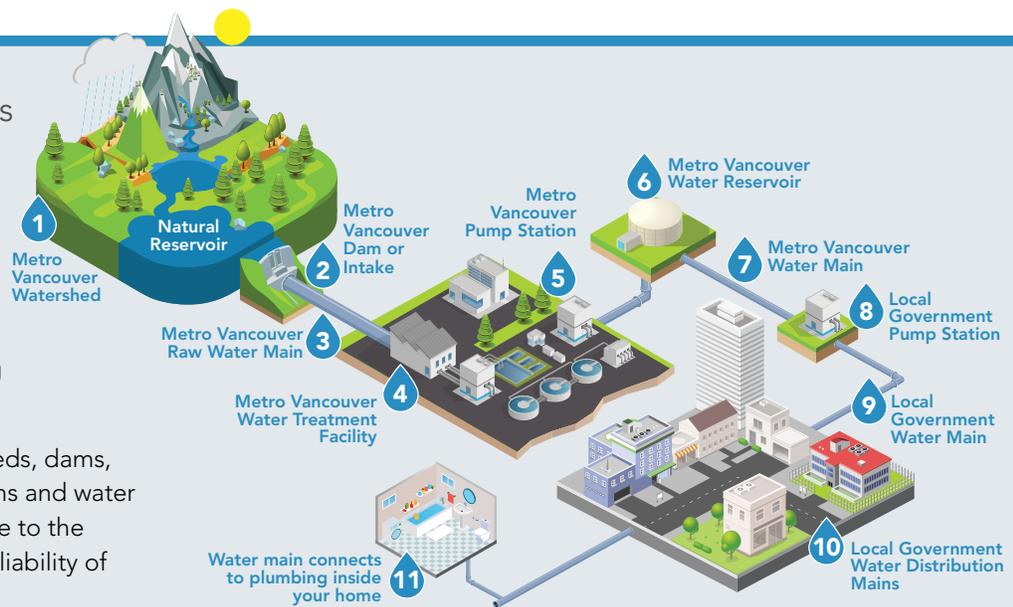
Metro Vancouver will continue to deliver high quality drinking water throughout the region that tastes and smells the same.



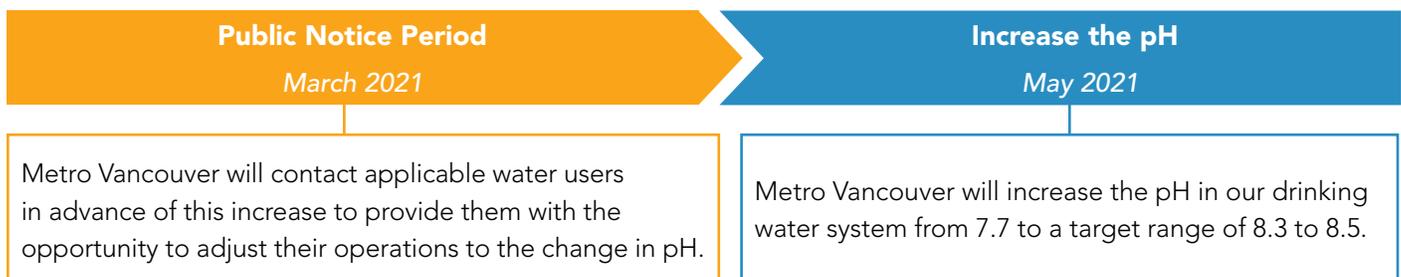
## Metro Vancouver Water Services

Metro Vancouver provides a reliable source of safe, high quality drinking water to the region. This includes acquiring and maintaining supply, as well as treating, testing and delivering water to local governments. In turn, local governments are responsible for conveying water to residents and businesses.

Metro Vancouver uses a system of watersheds, dams, treatment facilities, reservoirs, pump stations and water mains. Upgrades are constantly being made to the water system to maintain the quality and reliability of clean safe drinking water to the region.



## Project Timeline



Metro Vancouver is committed to the continuous improvement of drinking water quality. The Corrosion Control Program began in the 1990s and involves several steps to reduce pipe corrosion. This upcoming change in pH is an important step in this long-term program to improve water quality and reduce pipe corrosion through the addition of natural minerals to our drinking water.

### COVID-19 and Delivery of Essential Services

Metro Vancouver continues to closely monitor developments regarding COVID-19 and our paramount commitment is to maintain essential services to the region while protecting the health and safety of our employees, contractors, residents and businesses. Metro Vancouver's construction projects are key components in ensuring the ongoing delivery of essential services as defined by the Province of BC. Metro Vancouver follows the guidance of the Provincial Health Officer and is taking all necessary measures to ensure our work sites remain safe and healthy.

### Contacting Metro Vancouver

Metro Vancouver Information Centre:  
**604-432-6200** (Monday to Friday from 8 AM to 4:30 PM)  
[icentre@metrovancouver.org](mailto:icentre@metrovancouver.org) (Please include 'Corrosion Control Project' in the subject line)

**metrovancouver**  
Together we make our region strong

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To: Water Committee

From: Lucas Pitts, Acting Director, Policy, Planning and Analysis, Water Services

Date: February 22, 2021 Meeting Date: March 11, 2021

Subject: **Drinking Water Management Plan Update**

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**RECOMMENDATION**

That the Water Committee receive for information the report dated February 22, 2021, titled “Drinking Water Management Plan Update”.

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**EXECUTIVE SUMMARY**

The Drinking Water Management Plan (DWMP) sets the direction for Greater Vancouver Water District (GVWD) staff and will help guide Water Services strategic decision making in a defensible and transparent way. It has been almost 10 years since the DWMP was updated and a current update is needed to reflect the evolution of our regional drinking water system and how it will adapt to future challenges such as population growth, financial constraints, and climate change impacts. Unlike the previous versions of the DWMP, Metro Vancouver is working to produce a set of measurable outcomes and benefits that will make the plan more effective and efficient. Water Services and Liquid Waste Services will develop a “One Water” approach, uniting the management of all water in the form of drinking water, stormwater, and wastewater, in areas where synergies and overlap exist. The plan is scheduled for development over three years for endorsement by the Board.

**PURPOSE**

To provide the Water Committee with information regarding the ongoing update to the Drinking Water Management Plan.

**BACKGROUND**

The Drinking Water Management Plan (DWMP) is the guiding document for Metro Vancouver providing strategic direction and establishing priorities for drinking water initiatives. It is being updated to provide a clear vision for the GVWD future with a number of measurable goals. The first DWMP was approved by the GVWD in 2005 to provide “direction and priority for drinking water initiatives in a sustainable region”. The plan was updated in 2007 to incorporate watershed management goals and strategies. It was then updated again in 2011 to reflect the Board’s strategic direction and the Sustainable Region Initiative, an overarching action plan that tied a suite of Metro Vancouver management plans together to achieve a long-term sustainable vision for the region.

All versions of the DWMP maintained the same three high-level goals and each of these goals contained a set of strategies and actions:

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

Those goals, strategies, and actions largely reflect operational work or planned capital projects with no defined goalposts or performance targets beyond planned projects. While this approach served a purpose in the past, for this update Metro Vancouver is proposing a more actionable and forward-looking management plan.

## **DRINKING WATER MANAGEMENT PLAN UPDATE PROCESS AND CONSIDERATIONS**

### **Themes of the DWMP Update**

Unlike in the previous versions of the DWMP, staff plan to develop and include measurable outcomes and benefits that will make the plan more effective and efficient. Overall the plan will act as a resource guide to aid decision making in a defensible and transparent way. This update may consider many themes that were not reflected in the last update, including resiliency and equity, economic prosperity, continuous improvement, accountability, asset management and renewal, climate change, One Water opportunities, and reconciliation.

### **“One Water” Opportunities**

The DWMP and the Integrated Liquid Waste and Resource Management Plan (ILWRMP) will be developed over the same time period, allowing for the plans to be developed concurrently. Drinking water, wastewater, and stormwater have traditionally been separated into independent silos and managed as separate resources. A “One Water” approach shifts away from these separate silos and moves towards an integrated management approach.

The “One Water” approach allows for a more sustainable and inclusive way to turn challenges into opportunities with initiatives such as water reuse, energy, green infrastructure, and innovative ways to optimize planning for operations and finances. Staff will identify priorities, strategies, and actions shared by both plans to work towards efficient, resilient, and sustainable water and wastewater systems.

### **DWMP Update Approach**

Based on work completed by staff to date, it is anticipated that a three-phase process over approximately three years will be required to complete the review and update of the DWMP. An engagement strategy is currently being developed and the work in 2021 is anticipated to include internal engagement and engagement with Regional Engineers Advisory Committee (REAC) and Regional Engineers Advisory Committee Water Subcommittee (REAC WSC). Technical work will focus on identifying preliminary DWMP visions, goals, and strategies. Updates to the Water Committee are scheduled annually with the next update occurring prior to public engagement (anticipated during the first half of 2022). The final DWMP is anticipated to be complete in 2024.

### **Collaborative Approach**

Through this update process, the aim will be to collaboratively set measurable goals as a region. The GVWD is planning to build increased accountability for the goals and actions into the plan and our member jurisdictions will be an important part of the process.

A key gap already identified is the lack of measurable goals and accountability for both Metro Vancouver as well as member jurisdictions.

### **ALTERNATIVES**

This is an information report; no alternatives are presented.

### **FINANCIAL IMPLICATIONS**

This is an information report. No financial implications are presented.

### **CONCLUSION**

Metro Vancouver has initiated a review and update of the 2011 *Drinking Water Management Plan*. Water Services will work collaboratively with Liquid Waste Services during the DWMP update to incorporate a “One Water” approach that supports the integration of water management within the organization. The final DWMP is anticipated to be completed in 2024.

### **References**

[Drinking Water Management Plan \(2011\)](#)

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To: GVWD Board of Directors

From: Goran Oljaca, Director, Engineering and Construction, Water Services  
Heidi Walsh, Director, Watershed and Environmental Management, Water Services

Date: March 2, 2021 Meeting Date: March 11, 2021

Subject: **Capital Funding Redirection for Water Services Projects**

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**RECOMMENDATION**

That the GVWD Board approve the addition of seven Water Services projects to the 2021 Capital Budget, totaling \$5.3 million, to be funded from existing approved cash flow.

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**EXECUTIVE SUMMARY**

Water Services has identified seven projects, which were approved in previous capital budgets by the Board, but not captured in the 2021 Capital Budget. Water Services has also identified two projects approved in the 2021 Capital Budget experiencing delays that will result in spending shortfalls adequate to cover the identified cash flow deficiencies from the seven additions. It is recommended that the GVWD Board authorize the addition of the seven projects to the 2021 Capital Budget, which will be funded from within the currently approved 2021 cash flow envelope.

Approaching the Board for approval to add unfunded projects and redirect funds from projects experiencing delays is a new approach to improve transparency in the capital budgeting process. This method will allow project completion without the need to request additional funds.

**PURPOSE**

Water Services requires GVWD Board authorization for all spending changes associated with capital budget projects. This request is to add seven unfunded projects to the 2021 capital project list and redirect funds from projects approved in the 2021 Capital Budget that are experiencing delays. All projects requested to be added were approved in previous capital budget processes.

**BACKGROUND**

GVWD Board authorization is required for all changes to capital budget project list and spending. This report seeks approval from the Board to use unspent funds from the 2021 Capital Budget to fund previously approved projects that were not captured in the 2021 Capital Budget. All changes will be managed within the current 2021 approved Capital Budget.

Water Services has identified seven projects not completed during 2020 due to various delays which occurred after the 2021 budgeting process concluded. As a result, these project do not have cash flow extended through the 2021 budget cycle. The seven projects are listed in Table 1 on the following page.

**Table 1: 2020 Capital Projects Requiring Cash Flow in 2021.**

<b>Category</b>	<b>Project</b>	<b>Required Cash Flow</b>
Infrastructure Growth	Angus Drive Main	\$500,000
Infrastructure Resilience	Clayton Reservoir	\$1,800,000
Infrastructure Resilience	Capilano Mid-Lake Debris Boom	\$700,000
Infrastructure Resilience	Capilano Reservoir Boat Wharf	\$700,000
Infrastructure Resilience	Seymour Falls Boat Wharf	\$700,000
Infrastructure Resilience	Seymour Lake Debris Boom	\$500,000
Infrastructure Upgrade	Haney Main No. 2 Valve Chamber Upgrade	\$400,000
	<b>TOTAL</b>	<b>\$5,300,000</b>

Both the Clayton Reservoir and Haney Main projects encountered construction coordination delays with the host municipality. Completion of the Angus Drive Main experienced COVID related supply chain delays for corrosion control materials and application expertise. Construction of the Debris Booms and Boat Wharves was delayed due to engineering concerns raised during the tendering process. All delay issues have been addressed and these projects are ready to move ahead in 2021.

Following approval of the GVWD 2021 Capital Budget, two 2021 approved projects have experienced delays significant enough to free up the cash flow required to allow the seven identified projects to proceed to completion. Construction of the Fleetwood Reservoir within the City of Surrey has been delayed due to properties issues and building code revisions, and construction of the Capilano Raw Water Back-up Power project has experienced development permit delays associated with contaminated soil discovered during the design phase. Unspent funds associated with these delays will adequately cover the \$5.3 million in cash flow required for the seven projects listed in Table 1.

**ALTERNATIVES**

1. That the GVWD Board approve the addition of seven Water Services projects to the 2021 Capital Budget, totaling \$5.3 million, to be funded from existing approved cash flow.
2. That the GVWD Board direct staff to pause the seven unfunded projects and apply for capital funding in the 2022 budget cycle.

Staff recommend Alternative 1.

**FINANCIAL IMPLICATIONS**

Funding approved in the 2021 Capital Budget will be redirected between projects and thus no cash flow increases are being requested.

**CONCLUSION**

Water Services has identified seven projects approved in previous capital budgets by the Board, but not captured in the 2021 Capital Budget. Water Services has also identified two projects approved in the 2021 Capital Budget experiencing delays that will result in spending shortfalls adequate to cover the identified cash flow needs of the seven projects. It is recommended to redirect the funds from the 2021 approved projects to the seven capital projects to allow their completion.

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To: Water Committee

From: Marilyn Towill, General Manager, Water Services

Date: February 25, 2021 Meeting Date: March 11, 2021

Subject: **Manager's Report**

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### **RECOMMENDATION**

That the Water Committee receive for information the report dated February 25, 2021 titled "Manager's Report".

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#### **1. Climate 2050 Water and Wastewater Infrastructure Discussion Paper**

The February 23, 2021 Webinar recording is now available for viewing.

#### **2. Virtual Attendance at 2021 Standing Committee Events**

Participation at external events provides important learning and networking opportunities. The following event falls under the purview of the Water Committee and is included in the 2021 Leadership and Engagement budget. Only virtual attendance will be considered given travel restrictions under the COVID-19 pandemic.

- **AWWA Annual Conference (ACE 2021) (virtual session available)**  
**Place and Date: San Diego, California, June 13 – 16, 2021**  
Number of Attendees: 2

Foremost drinking water industry conference in the world that highlights the latest water technologies and includes a multitude of professional theme sessions held throughout the week. <https://www.awwa.org/ace>

Please notify the Committee Chair or Committee Manager as soon as possible, but no later than March 15, 2021, if you are interested in attending the above-noted event. As the funds for this event are budgeted in general government, the Finance and Intergovernment Committee will consider approval of the event, but final approval on attendance rests with the Board Chair.

#### **3. Work Plan**

##### **Attachment**

Water Committee 2021 Work Plan

##### **Reference**

[Climate 2050 Water and Wastewater Infrastructure Discussion Paper – February 23, 2021 Webinar recording](#)

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**Water Committee 2021  
Work Plan**

**Priorities**

<b>1st Quarter</b>	<b>Status</b>
Annual Energy Management Program Update	In progress
Capilano Hydropower Project Business Case Update	Pending
Corrosion Control Program – Copper Pipes Protection	In progress
Long Term Financial Plan	Pending
Residential Water Metering – Overview of Local Experience	Pending
Water Meter Replacement Program	Complete
Contract Approvals – Contracts > \$5 Million (as applicable)	Pending
Water Policies (as applicable)	Pending
<b>2nd Quarter</b>	
Coquitlam Lake Water Supply Project Update	Pending
Drinking Water Customer Information Guide	Pending
Drinking Water Management Plan Update	In progress
First Nation Engagement Updates	Pending
GVWD Water Quality Annual Report	Pending
Lawn Water Regulations Communication & Regional Water Conservation Campaign	Pending
Seymour Salmonid Society 2020 Annual Report	Pending
Status of GVWD Capital Expenditures	Pending
Water Services Wildfire Preparedness Update	Pending
Water Supply Update for Summer 2021	Pending
Water Use-by-Sector Report	Pending
Contract Approvals – Contracts > \$5 Million (as applicable)	Pending
Water Policies (as applicable)	Pending
<b>3rd Quarter</b>	
Annual Dam Safety Program Update	Pending
Status of GVWD Capital Expenditures	Pending
Quality Management System for Drinking Water Update	Pending
Contract Approvals – Contracts > \$5 Million (as applicable)	Pending
Water Policies (as applicable)	Pending
<b>4th Quarter</b>	
Annual Budget and 5-year Financial Plan – Water Services	Pending
Environmental Management Framework	Pending
Regional Water Conservation Campaign and Water Regulations Communications 2021	Pending
Regional Water Supply System Seismic Resiliency Study	Pending
Status of GVWD Capital Expenditures	Pending
Summer 2021 Water Supply Performance	Pending
Watershed Fisheries Initiatives Annual Update	Pending
Contract Approvals – Contracts > \$5 Million (as applicable)	Pending
Water Policies (as applicable)	Pending

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To: Water Committee

From: Cheryl Nelms, General Manager, Project Delivery

Date: February 22, 2021 Meeting Date: March 11, 2021

Subject: **Major Project Delivery Governance Update**

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The attached report dated February 1, 2021 titled, “Major Project Delivery Governance Update,” was considered by the Finance and Intergovernment Committee at its meeting of February 10, 2021, and by the Metro Vancouver Regional District Board at its meeting of February 26, 2021, and is presented to the Water Committee for its information only. A parallel report is being provided to the Liquid Waste Committee at its March 11, 2021 meeting.

**Attachment**

“Major Project Delivery Governance Update”, dated February 1, 2021

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To: Finance and Intergovernment Committee

From: Cheryl Nelms, General Manager, Project Delivery

Date: February 1, 2021 Meeting Date: February 10, 2021

Subject: **Major Project Delivery Governance Update**

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**RECOMMENDATION**

That the MVRD Board receive for information the report dated February 1, 2021, titled “Major Project Delivery Governance Update”.

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**EXECUTIVE SUMMARY**

Metro Vancouver plans for, and implements, significant capital infrastructure projects related to liquid waste and water services for the region. An external expert advisory committee is being established to provide independent advice related to the planning and implementation of major water and liquid waste capital projects. Committee members will have valuable and relevant business, governance and construction oversight experience to augment skills and experience held by Metro Vancouver staff. The input received from the committee will be advisory in nature.

**PURPOSE**

To provide a governance update for the delivery of Metro Vancouver’s major capital infrastructure projects and present the draft terms of reference for a new major project external expert advisory committee.

**BACKGROUND**

Metro Vancouver is in the process of planning for, and implementing, a number of significant capital infrastructure projects related to liquid waste and water services for the region. These projects represent a significant component of the capital expenditures for Metro Vancouver for the next several years.

To date, oversight of these projects has been undertaken by three MV Board standing committees: Liquid Waste, Water, and Finance and Intergovernment. Going forward, Finance and Intergovernment Committee will provide oversight of major capital projects on behalf of the MVRD Board to ensure integrated and coordinated oversight of these projects and related expenditures. This is reflected in Finance and Intergovernment Committee’s revised terms of reference (“Providing governance and oversight over key major projects”).

To assist management, committee and Board in implementing these projects an external expert advisory committee will be established.

**External Expert Advisory Committee**

Draft terms of reference for the external expert advisory committee have been prepared (Attachment 1).

The advisory committee will provide construction oversight experience to augment skills and experience that currently exist within Metro Vancouver management. On behalf of, and reporting to, the General Manager, Project Delivery, the advisory committee will provide advice related to the planning, project management, risk management, reporting, stakeholder engagement, and expenditures for Metro Vancouver's water and liquid waste capital infrastructure projects. The draft terms of reference (Attachment 1) outlines the advisory committee's functions and addresses meetings, commitment, remuneration, confidentiality and conflict of interest, and membership, including appointment process.

The advice received from the external expert advisory committee will be advisory in nature. Final decision making on major capital projects rests with the MVRD Board. The relationship of the advisory committee to Board, committee and management is provided in Attachment 2: Major Project Governance Structure.

### **Technical Advisory Panel**

In addition to the overarching External Expert Advisory Committee, many projects will also establish a project specific Technical Advisory Panel, which typically consist of 3 to 5 broadly recognized engineering experts in their field, who provide independent expert opinions on challenging design and construction issues to the Metro Vancouver, resulting in better project outcomes. See Attachment 2.

### **ALTERNATIVES**

No alternatives are provided. This is an information report.

### **FINANCIAL IMPLICATIONS**

Remuneration to committee members will be allocated to major capital infrastructure projects.

### **CONCLUSION**

An external expert advisory committee is being established to provide independent advice related to the planning, project management, risk management, reporting, stakeholder engagement, and expenditures for Metro Vancouver's major water and liquid waste capital infrastructure projects. Draft terms of reference for this advisory committee have been prepared (Attachment 1). Committee members will have valuable and relevant business, governance and construction oversight experience. The draft terms of reference outline the advisory committee's role, functions and addresses meetings, commitment, remuneration, confidentiality and conflict of interest, and membership, including appointment process.

### **Attachments**

1. External Expert Advisory Committee Draft Terms of Reference
2. Major Project Governance Structure

## Terms of Reference

### Metro Vancouver Major Capital Projects External Expert Advisory Committee

#### Background

Metro Vancouver is in the process of planning for, and implementing, a number of significant capital infrastructure projects related to liquid waste and water services for the region. These projects will represent a significant component of the capital expenditures for Metro Vancouver for the next several years.

To date oversight of these projects has been undertaken by three different Metro Vancouver Board standing committees: Liquid Waste, Water, and Finance and Intergovernment. In order to ensure integrated and coordinated oversight of these projects and related expenditures, the Finance and Intergovernment Committee will provide oversight of major capital projects on behalf of the Board going forward.

To assist management to successfully implement these projects an External Expert Advisory Committee is being established. These Terms of Reference set out the roles, responsibilities and functions of the External Expert Advisory Committee (Advisory Committee).

#### Purpose

The purpose of the Advisory Committee is to provide impartial advice to assist Metro Vancouver management to successfully implement its major capital projects. The Advisory Committee will include members that have valuable relevant business insights and capital project oversight experience in key areas where there are currently gaps in that expertise within Metro Vancouver management.

#### Role of Advisory Committee members

Advisory Committee members will exercise their professional expertise and judgement to provide advice on the planning and implementation of projects in accordance with the vision and goals that the Board has established for its water and wastewater capital projects.

#### Functions

On behalf of, and reporting to, the General Manager, Project Delivery, the Advisory Committee will provide advice and guidance related to:

- planning, project management, site acquisition and expenditures for MV water and liquid waste capital infrastructure projects;
- development of a decision-making framework, business priorities and resource approval;
- performance measures and targets;
- appropriate project controls and reporting procedures;
- project scope, schedule and budget as projects proceed through planning, procurement and implementation phases, with particular attention to risk identification and risk management.
- resource requirements, including legal, financial or other advisory functions;

- resolution of material issues that may arise over the course of projects;
- reporting materials developed for the Finance and Intergovernment Committee and the Board;
- communication and engagement with project stakeholders;
- communication and engagement with local governments, including Indigenous governments.

### **Meetings**

The Advisory Committee will meet monthly or as required, but no less frequently than once in each calendar quarter. In addition, time may be required for site visits and community consultation meetings. Advisory Committee members are expected to prepare for and attend all advisory committee meetings.

The General Manager, Project Delivery will call Advisory Committee meetings and issue agendas. Where possible, agendas and background materials will be provided to members at least 48 hours prior to the meeting.

### **Commitment**

All Advisory Committee members should be fully committed to the success of the projects. They should be committed to the importance of sound governance within the advisory committee and be ready, willing and able to put in the required time to learn their role, get to know the projects and the stakeholders, prepare for meetings and participate fully as part of the Advisory Committee.

### **Diversity**

The Advisory Committee should be made up of individuals who, collectively, bring diverse views and perspectives to the issues at hand.

### **Confidentiality and Conflict of Interest**

Information that is provided to the Advisory Committee in confidence, or that is by its nature confidential, will be treated in confidence by members and not disclosed to third parties (including their own employer or any other organization with which the member has a relationship). The duty to maintain information in confidence continues after an Advisory Committee member ceases to be an Advisory Committee member.

Advisory Committee members will declare any relevant personal, academic, professional or business interests on an ongoing basis. The General Manager, Project Delivery shall be responsible for the management of any conflicts of interest. Advisory Committee members may be excluded from the Advisory Committee or from consideration of specific items in which they have an interest where this is necessary to avoid a conflict (real or perceived).

### **Membership**

Membership of the Advisory Committee will be determined by the General Manager, Project Delivery. The CAO will be an ex-officio member of the Advisory Committee.

The Advisory Committee will have no fewer than four (4) and no more than nine (9) members who as a group demonstrate the following skills and expertise:

- Unquestioned integrity
- Strategic, broad thinker
- Commercial judgement and sound business instinct and acumen
- Construction knowledge
- Extensive hands-on leadership of successful, large-scale public infrastructure projects
- Experience in financing projects of similar size and scope
- Deep experience in negotiating with project stakeholders, including contactors
- Project management
- Previous board experience and a strong understanding of governance
- Risk management
- Contract negotiations
- Genuine interest in the successful completion of projects and metro Vancouver
- Broadly recognized expert in their field
- Technical knowledge

### **Appointment of Advisory Committee Members**

The CAO will appoint members to the Advisory Committee based on technical and subject matter expertise.

### **Compensation**

Members of the Expert External Advisory Committee will be paid under contract based on their time spent on developing and providing advice to Metro Vancouver.

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# MAJOR PROJECT GOVERNANCE STRUCTURE



**LEGEND**

- Fiduciary (elected officials)
- Metro Vancouver staff
- Advisory (external)