

**GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT (GVS&DD)
BOARD OF DIRECTORS****REGULAR BOARD MEETING****Friday, November 26, 2021****9:00 A.M.****28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia**[Membership and Votes](#)**A G E N D A¹****A. ADOPTION OF THE AGENDA****1. November 26, 2021 Regular Meeting Agenda**

That the GVS&DD Board adopt the agenda for its regular meeting scheduled for November 26, 2021 as circulated.

B. ADOPTION OF THE MINUTES**1. October 29, 2021 Regular Meeting Minutes**

That the GVS&DD Board adopt the minutes for its regular meeting held October 29, 2021 as circulated.

*pg. 7***C. DELEGATIONS****D. INVITED PRESENTATIONS****E. CONSENT AGENDA**

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

1. LIQUID WASTE COMMITTEE REPORTS**1.1 Procurement Model for Regional Biosolids Drying Facility**

That the GVS&DD Board endorse Design-Build-Operate as the procurement model for implementation of the regional biosolids drying facility.

pg. 14

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

- 1.2 Proposed Capital Investment for Sapperton District Sewer Heat Recovery Project** *pg. 18*
That the GVS&DD Board:
- a) authorize expenditures up to \$18 million for the Sapperton District Sewer Heat Recovery project, as presented in the report dated October 26, 2021, titled “Proposed Capital Investment for Sapperton District Sewer Heat Recovery Project”, and
 - b) direct staff to enter into contract negotiations with the City of New Westminster for the sale of sewer heat.
- 1.3 Award of Contract for Phase A, Resulting from RFP No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters – Detailed Design and Construction Engineering Services** *pg. 25*
That the GVS&DD Board:
- a) approve the award of a contract for an amount of up to \$24,801,041 (exclusive of taxes) to Brown and Caldwell Consultants Canada Ltd. for Phase A, Preliminary and Detailed Design Services resulting from Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters, 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.
- 1.4 Award of Contract Resulting from RFP No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters – Construction Control and Safety Coordination and Project Management and Technical Support Services** *pg. 29*
That the GVS&DD Board:
- a) approve the award of a contract for an amount of up to \$17,802,757 (exclusive of taxes) to CDM Smith Canada ULC, resulting from Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters for the Construction Control and Safety Coordination and the Project Management and Technical Support Services work scopes, 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.

1.5 Award of Contract Resulting from Request for Proposal No. 20-345: Construction Services for the Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 Trenchless Section *pg. 34*

That the GVS&DD Board:

- a) approve award of a contract for an amount up to \$62,942,479.02 (exclusive of taxes) to Pomerleau Bessac Infrastructure resulting from Request for Proposal No. 20-345: Construction Services for the Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 Trenchless 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. FINANCE AND INTERGOVERNMENT COMMITTEE REPORTS

2.1 Iona Island Wastewater Treatment Plant Projects – Revised Design Concept *pg. 39*

That the GVS&DD Board: endorse the revised design concept for the Iona Island Wastewater Treatment Plant projects, as presented in the report dated October 29, 2021 titled “Iona Island Wastewater Treatment Plant Projects – Revised Design Concept”; and direct staff to finalize the project definition report for Board approval in March 2022; and direct staff to host a joint meeting between the GVS&DD Board, Finance and Intergovernment Committee, the Mayors Committee, the Liquid Waste Committee and Regional Parks Committee, including representatives from the Vancouver Sewerage Area and other advisory bodies, on the Iona Island Wastewater Treatment Plant Project to fully consider and receive information on the project including the costs.

3. ZERO WASTE COMMITTEE REPORTS

3.1 Report from Solid Waste Management Plan Independent Consultation and Engagement Panel *pg. 101*

That the GVS&DD Board receive for information the report dated November 9, 2021, titled “Report from Solid Waste Management Plan Independent Consultation and Engagement Panel”.

3.2 Solid Waste Management Plan Engagement *pg. 107*

That the GVS&DD Board approve the solid waste management plan public engagement program as outlined in the report dated November 8, 2021, titled “Solid Waste Management Plan Engagement”.

- 3.3 Solid Waste Management Plan Public/Technical Advisory Committee** *pg. 133*
That the GVS&DD Board approve the terms of reference for the solid waste management plan public/technical advisory committee with the following key elements:
- i. a single public/technical advisory committee;
 - ii. a broad list of potential sectors/interests with representatives to be included in the committee;
 - iii. personal characteristics to be used to recommend committee members to the GVS&DD Board;
 - iv. a call for applications for committee members, with targeted recruitment of individuals from typically underrepresented or equity-denied communities; and
 - v. Chair and vice-chair positions to be Zero Waste Committee members.
- 3.4 Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws** *pg. 147*
That the GVS&DD Board:
- a) approve the following regionally harmonized approach to municipal single-use item reduction bylaws:
 - i. ban on plastic checkout bags with prescribed minimum fees for recycled paper bags and reusable bags;
 - ii. ban on polystyrene foam service ware containers;
 - iii. ban on plastic drinking straws not required for medical and accessibility needs with alternatives such as paper drinking straws provided only on request by the customer;
 - iv. ban on plastic stir sticks with all other utensils provided only on request by the customer; and
 - b) write the Minister of Environment and Climate Change Strategy requesting that municipalities be authorized to require businesses to charge prescribed minimum fees for single-use cups.
- 3.5 Waste-to-Energy Facility – Primary Economizer Replacement** *pg. 162*
That the GVS&DD Board authorize:
- a) an amendment to the existing contract with Covanta Burnaby Renewable Energy, ULC for the primary economizer replacement project at the Metro Vancouver Waste-to-Energy Facility in an amount of up to \$5,436,568.00 (including PST, but excluding GST), subject to the final review by the Commissioner; and
 - b) the Commissioner and Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.
- 3.6 Waste-to-Energy Facility Biosolids Processing System** *pg. 165*
That the GVS&DD Board authorize:
- a) the construction of a biosolids processing system for the Waste-to-Energy Facility at a cost of up to \$22 million; and
 - b) the Commissioner and Corporate Office to execute any necessary documents.

F. ITEMS REMOVED FROM THE CONSENT AGENDA

G. REPORTS NOT INCLUDED IN CONSENT AGENDA

H. MOTIONS FOR WHICH NOTICE HAS BEEN GIVEN

1. Coordinated Review and Environmental Management of the Fraser River Estuary and Salish Sea *pg. 169*

Director Harvie provided the following Notice of Motion on September 24, 2021, which was subsequently deferred on October 29, 2021 for consideration at the November 26, 2021 GVS&DD Board Meeting:

WHEREAS the Fraser River Estuary Management Program and the Burrard Inlet Environmental Action Program were discontinued on March 1, 2013;

AND WHEREAS since that time there has not been a coordinated approach to the environmental management of the Fraser River and Salish Sea;

AND WHEREAS there have been a number of major projects recently approved or proposed that will affect the Fraser River and Salish Sea including the Trans Mountain Pipeline Expansion, Roberts Bank Terminal 2, Tilbury Marine Jetty and Vancouver Airport Fuel Delivery Project, among others;

AND WHEREAS local governments within Metro Vancouver and Indigenous Groups have expressed ongoing concerns regarding environmental impacts of these projects, including those related to increased marine traffic and the overall cumulative effects on the Salish Sea and Fraser River estuary;

THEREFORE BE IT RESOLVED that the federal government be requested to establish an independent body to lead a coordinated approach to environmental management and project review within the Fraser River estuary and Salish Sea with a mandate to conduct a regional impact assessment and to develop a long-term environmental management plan to guide further conservation efforts and sustainable development in the region.

I. OTHER BUSINESS

1. GVS&DD Board Committee Information Items and Delegation Summaries *pg. 170*

J. BUSINESS ARISING FROM DELEGATIONS

K. RESOLUTION TO CLOSE MEETING

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

That the GVS&DD Board close its regular meeting scheduled for November 26, 2021 pursuant to the *Community Charter* provisions, Section 90 (1) (a) as follows:

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

- (a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the regional district or another position appointed by the regional district.”

L. RISE AND REPORT (Items Released from Closed Meeting)

M. ADJOURNMENT/CONCLUSION

That the GVS&DD Board adjourn/conclude its regular meeting of November 26, 2021.

**GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT
BOARD OF DIRECTORS**

Minutes of the Regular Meeting of the Greater Vancouver Sewerage and Drainage District (GVS&DD) Board of Directors held at 3:09 p.m. on Friday, October 29, 2021 in the 28th Floor Boardroom, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:

Burnaby, Chair, Director Sav Dhaliwal
North Vancouver City, Vice Chair Director
Linda Buchanan*
Anmore, Director John McEwen*
Burnaby, Director Pietro Calendino*
Burnaby, Director Mike Hurley*
Coquitlam, Director Craig Hodge
Coquitlam, Director Richard Stewart*
Delta, Director George Harvie*
Delta, Director Dylan Kruger*
Electoral Area A, Director Jen McCutcheon*
Langley City, Director Gayle Martin*
Langley Township, Director Jack Froese*
Langley Township, Director Kim Richter*
Maple Ridge, Director Mike Morden*
North Vancouver District, Director Lisa Muri*
Pitt Meadows, Director Bill Dingwall*
Port Coquitlam, Director Brad West*
Port Moody, Director Rob Vagramov*

Richmond, Director Malcolm Brodie*
Richmond, Director Harold Steves*
Surrey, Director Linda Annis*
Surrey, Director Doug Elford*
Surrey, Director Laurie Guerra*
Surrey, Director Doug McCallum*
Surrey, Director Mandeep Nagra*
Surrey, Director Allison Patton*
Vancouver, Director Christine Boyle*
Vancouver, Director Adriane Carr*
Vancouver, Director Melissa De Genova*
Vancouver, Director Lisa Dominato*
Vancouver, Alternate Director Pete Fry* for
Kennedy Stewart
Vancouver, Director Colleen Hardwick*
Vancouver, Director Michael Wiebe*
West Vancouver, Director Mary-Ann Booth*
White Rock, Director Darryl Walker*
Commissioner Jerry W. Dobrovolsky
(Non-voting member)

MEMBERS ABSENT:

New Westminster, Director Jonathan Côté

STAFF PRESENT:

Chris Plagnol, Corporate Officer
Amelia White, Legislative Services Supervisor, Board and Information Services

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

A. ADOPTION OF THE AGENDA

1. October 29, 2021 Regular Meeting Agenda

It was MOVED and SECONDED

That the GVS&DD Board:

- a) amend the agenda for its regular meeting scheduled for October 29, 2021 by deferring Item H1. Coordinated Review and Environmental Management of the Fraser River Estuary and Salish Sea to the November 26, 2021 GVS&DD Board meeting; and
- b) adopt the agenda as amended.

CARRIED

B. ADOPTION OF THE MINUTES

1. September 24, 2021 Regular Meeting Minutes

It was MOVED and SECONDED

That the GVS&DD Board adopt the minutes for its regular meeting held September 24, 2021 as circulated.

CARRIED

2. October 15, 2021 Special Meeting Minutes

It was MOVED and SECONDED

That the GVS&DD Board adopt the minutes for the special meeting held October 15, 2021 as circulated.

CARRIED

3. October 20, 2021 Regular Joint Board Meeting Minutes

It was MOVED and SECONDED

That the GVS&DD Board adopt the minutes for the regular joint meeting of the MVRD, MVHC, GVWD and GVS&DD Boards held October 20, 2021 as circulated.

CARRIED

C. DELEGATIONS

No items presented.

D. INVITED PRESENTATIONS

No items presented.

E. CONSENT AGENDA

It was MOVED and SECONDED

That the GVS&DD Board adopt the recommendations presented in the following items as presented in the October 29, 2021 GVS&DD Board Consent Agenda:

- 1.1 Board Appointments and Rescindments of Bylaw Enforcement Officers
- 2.1 Board Appointment of Solid Waste Bylaw Enforcement Officers

CARRIED

The items and recommendations referred to above area as follows:

1.1 Board Appointments and Rescindments of Bylaw Enforcement Officers

Report dated September 20, 2021 from Ray Robb, Division Manager, Environmental Regulation and Enforcement, Parks and Environment, seeking the GVS&DD Board's approval to appoint and rescind appointments of Metro Vancouver and City of Vancouver employees as Board-designated municipal sewage control officers.

Recommendation:

That the GVS&DD Board:

- a) pursuant to the *Greater Vancouver Sewerage and Drainage District Sewer Use Bylaw* and the *Environmental Management Act*:
 - i. appoint Metro Vancouver employees Eugene Lee, Toby Gritten and Matt Brinkworth as municipal sewage control officers;
 - ii. appoint City of Vancouver employees Jason Koepke and Ze Chen Liu as municipal sewage control officers;
 - iii. rescind the appointments of former Metro Vancouver employees Corey Pinder and Rick Laird as municipal sewage control officers; and
 - iv. rescind the appointment of former City of Vancouver employee Linda Kwan as a municipal sewage control officer.
- b) pursuant to Section 28 of the *Offence Act* for the purpose of serving summons for alleged violations under the *Greater Vancouver Sewerage and Drainage District Sewer Use Bylaw*:
 - i. appoint Metro Vancouver employees Eugene Lee, Toby Gritten and Matt Brinkworth;
 - ii. appoint City of Vancouver employees Jason Koepke and Ze Chen Liu;
 - iii. rescind the appointments of former Metro Vancouver employees Corey Pinder and Rick Laird; and
 - iv. rescind the appointment of former City of Vancouver employee Linda Kwan.

Adopted on Consent

2.1 Board Appointment of Solid Waste Bylaw Enforcement Officers

Report dated September 10, 2021 from Ray Robb, Division Manager, Environmental Regulation and Enforcement, Parks and Environment, seeking the

GVS&DD Board's approval to appoint four Metro Vancouver employees and rescind two former employees as GVS&DD Board designated officers.

Recommendation:

That the GVS&DD Board:

- a) pursuant to the *Greater Vancouver Sewerage and Drainage District Municipal Solid Waste and Recyclable Material Regulatory Bylaw No. 181, 1996* and the *Environmental Management Act* appoint Metro Vancouver employees Matt Brinkworth, Toby Gritten, Rei Van, and Eugene Lee as officers; and
- b) pursuant to the *Offence Act* appoint Matt Brinkworth, Toby Gritten, Rei Van, and Eugene Lee for the purpose of serving summons under Section 28 of the *Offence Act* for alleged violations under the *Greater Vancouver Sewerage and Drainage District Municipal Solid Waste and Recyclable Material Regulatory Bylaw No. 181, 1996*; and
- c) pursuant to the *Greater Vancouver Sewerage and Drainage District Municipal Solid Waste and Recyclable Material Regulatory Bylaw No. 181, 1996* and the *Environmental Management Act* rescind the appointment of Rick Laird as Deputy Solid Waste Manager; and Corey Pinder as officer.

Adopted on Consent

F. ITEMS REMOVED FROM THE CONSENT AGENDA

No items presented.

G. REPORTS NOT INCLUDED IN CONSENT AGENDA

1.1 GVS&DD Tipping Fee and Solid Waste Disposal Regulation Amendment Bylaw No. 350, 2021

Report dated October 8, 2021 from Allen Jensen, Project Engineer, Solid Waste Services, seeking GVS&DD Board's approval to amend the Tipping Fee Bylaw.

It was MOVED and SECONDED

That the GVS&DD Board:

- a) approve the following amendments to the Tipping Fee Bylaw effective January 1, 2022:
 - I. increase garbage tipping fees by \$4 per tonne to:
 - Municipal garbage \$121
 - Up to .99 tonne \$155
 - 1 to 7.99 tonnes \$133
 - 8 tonnes and over \$107
 - II. reduce the threshold for the large load tipping fee from 9 tonnes to 8 tonnes;
 - III. increase the generator levy by \$6 per tonne to \$54 per tonne;
 - IV. increase the following rates by approximately 2%:
 - i. special handle waste to \$255 per tonne

- ii. source-separated organic waste, green waste, and clean wood to \$102 per tonne
 - iii. surcharge for loads containing banned materials to \$66 per load
- V. new recycling fee titled “Municipal Organics” with a fee of \$108 per tonne;
- VI. deletion of apportionment of recycling depot costs provisions as per the recycling depot funding strategy; and
- VII. terminology updates and the addition of the Central Surrey Recycling and Waste Centre.
- b) give first, second and third reading to *Greater Vancouver Sewerage and Drainage District Tipping Fee and Solid Waste Disposal Regulation Amendment Bylaw No. 350, 2021*; and

CARRIED

It was MOVED and SECONDED

That the GVS&DD Board pass and finally adopt *Greater Vancouver Sewerage and Drainage District Tipping Fee and Solid Waste Disposal Regulation Amendment Bylaw No. 350, 2021*.

CARRIED

2.1 GVS&DD 2022 Budget and 2022 - 2026 Financial Plan

Report dated October 20, 2021 from Dean Rear, General Manager, Financial Services/Chief Financial Officer, seeking the GVS&DD Board’s approval of the 2022 GVS&DD Annual Budget for Liquid Waste and Solid Waste Services and endorsing the GVS&DD 2022 – 2026 Financial Plan.

It was MOVED and SECONDED

That the GVS&DD Board:

- a) approve the 2022 Annual Budget and endorse the 2022 - 2026 Financial Plan as shown in Attachment 1 of the report dated October 20, 2021, titled “GVS&DD 2022 Budget and 2022 – 2026 Financial Plan”, in the following schedules:
 - Revenue and Expenditure Summary
 - Liquid Waste Services
 - Capital Portfolio – Liquid Waste Services
 - Solid Waste Services
 - Capital Portfolio – Solid Waste Services; and
- b) approve the 2022 Reserve Applications as shown in Attachment 2 of the report dated October 20, 2021, titled “GVS&DD 2022 Budget and 2022 - 2026 Financial Plan”.
- c) endorse amendments to the Cost Apportionment Bylaw to enable the division of the GVS&DD levy into separate dry and wet weather components and issue a separate requisition for each component.

CARRIED

H. MOTIONS FOR WHICH NOTICE HAS BEEN GIVEN

1. Coordinated Review and Environmental Management of the Fraser River Estuary and Salish Sea

Pursuant to Item 1.1 of the agenda, this item was deferred to the November 26, 2021 GVS&DD Board meeting.

I. OTHER BUSINESS

1. GVS&DD Board Committee Information Items and Delegation Summaries

It was MOVED and SECONDED

That the GVS&DD Board receive for information the GVS&DD Board Committee Information Items and Delegations Summaries, dated October 29, 2021.

CARRIED

J. BUSINESS ARISING FROM DELEGATIONS

No items presented.

K. RESOLUTION TO CLOSE MEETING

It was MOVED and SECONDED

That the GVS&DD Board close its regular meeting scheduled for October 29, 2021 pursuant to the *Community Charter* provisions, Section 90 (1) (e) and (g) as follows:

“90 (1) A part of a board 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; and
- (g) litigation or potential litigation affecting the regional district.”

CARRIED

L. RISE AND REPORT (Items Released from Closed Meeting)

No items presented.

M. ADJOURNMENT/CONCLUSION

It was MOVED and SECONDED

That the GVS&DD Board adjourn its regular meeting of October 29, 2021.

CARRIED

(Time: 3:15 p.m.)

CERTIFIED CORRECT

Chris Plagnol, Corporate Officer

Sav Dhaliwal, Chair

48778334 FINAL

To: Liquid Waste Committee

From: Lillian Zaremba, Program Manager, Utility Residuals Management, Liquid Waste Services

Date: October 25, 2021 Meeting Date: November 4, 2021

Subject: **Procurement Model for Regional Biosolids Drying Facility**

RECOMMENDATION

That the GVS&DD Board endorse Design-Build-Operate as the procurement model for implementation of the regional biosolids drying facility.

EXECUTIVE SUMMARY

Metro Vancouver is mandated to use liquid waste as a resource and recover nutrients and energy from biosolids. A biosolids drying facility has been identified as the most viable and cost-effective option to diversify beneficial use markets for the growing quantities of biosolids that will be generated in the region. Dried biosolids pellets can be used either as fuel to replace coal in cement kilns or as an ingredient in blended fertilizer products. A value-for-money analysis compared three procurement models for the regional biosolids drying facility. The analysis concluded that Design-Build-Operate procurement has the lowest cost, with 13% savings compared to Design-Bid-Build. Third-party operation of the dryer is consistent with current Metro Vancouver practices for biosolids and offers benefits including: having operations expertise at the design stage, incentivizing consistent quality of the product, experienced operators avoiding process upsets, and experience with marketing and sales.

PURPOSE

This report recommends a procurement model for implementation of a regional biosolids drying facility that will allow for continued beneficial use of growing quantities of biosolids through the recovery of energy and nutrients.

BACKGROUND

The *Integrated Liquid Waste and Resource Management Plan* directs Metro Vancouver to use liquid waste as a resource and recover nutrients and energy from biosolids. New options for biosolids management are required because the annual biosolids production in the region is projected to increase substantially. A biosolids drying facility has been identified as the most viable and cost-effective option to diversify beneficial use markets for the growing quantities of biosolids that will be generated in the region. At its October 4, 2019, meeting, the GVS&DD Board endorsed biosolids drying as a biosolids management option and directed staff to report back to the Board with the recommended procurement model for implementation of a regional biosolids drying facility. A value-for-money analysis that compared different procurement models has been completed.

REGIONAL BIOSOLIDS DRYING FACILITY

Metro Vancouver's five wastewater treatment plants (WWTPs) currently generate 55,000 bulk tonnes of biosolids annually, which are beneficially used through land application. The quantity of biosolids generated by the region will increase substantially due to upcoming WWTP upgrades from primary to secondary treatment, along with increases due to population growth. The annual quantity is expected to grow to over 90,000 tonnes per year by 2022 and over 150,000 tonnes per year by 2050. It is unlikely that Metro Vancouver can secure sufficient new land application projects to beneficially use the entire additional quantity of biosolids. Land application projects are vulnerable to fluctuations in customer markets and public concern.

Diversification of resource recovery options and beneficial use markets will reduce the costs and risks of managing growing quantities of biosolids. Through a series of studies to investigate options for recovering energy from biosolids, a biosolids drying facility was identified as the most viable and cost-effective option. The regional biosolids drying facility will be built at either Annacis Island WWTP or Northwest Langley WWTP; a siting study to evaluate the two locations is in progress. The facility will receive biosolids from Metro Vancouver WWTPs and will produce dried biosolids that can be used either as a fuel to replace coal in cement kilns or as an ingredient in blended fertilizer products. Either of these two markets could use the entire quantity of dried biosolids produced by a facility with capacity of 75,000 bulk tonnes per year.

The biosolids drying facility would complement the existing land application program. Land applications of biosolids recovers valuable nutrients, builds healthy soils and sequesters carbon. The biosolids drying facility allows for recovery of energy or nutrients, which both fulfill the direction of the *Integrated Liquid Waste and Resource Management Plan*. Using dried biosolids as fuel in cement kilns displaces fossil fuels and reduces regional greenhouse gas emissions. Using dried biosolids as an ingredient in blended fertilizer is an alternative to mining phosphate, a non-renewable resource, and avoids the greenhouse gas emissions associated with conventional fertilizer production. Metro Vancouver is also proposing to process biosolids at the Waste-to-Energy Facility on a contingency basis if land application sites become unavailable. Processing biosolids at the Waste-to-Energy Facility does not impact the business case for the development of the regional biosolids drying facility.

Procurement options

A value-for-money analysis compared three procurement models for the regional biosolids drying facility: the base case of Design-Bid-Build (DBB), and the alternatives Design-Build-Finance-Operate-Maintain (DBFOM), and Design-Build-Operate (which also includes maintenance, but is commonly shortened to "DBO").

- DBB: GVS&DD would first contract with a consulting engineer to develop the detailed design and specifications, then tender the construction through a pre-qualified tender process. GVS&DD staff would operate the facility.
- DBFOM: GVS&DD would contract with a consulting engineer (the "owner's engineer") to develop a performance specification and run an RFQ/RFP procurement process to secure a single entity to design, build, operate and maintain the facility as well as provide financing that would not be fully repaid by GVS&DD until the end of the operating/maintenance period.

- **DBO:** GVS&DD would contract with an owner's engineer to develop a performance specification and run an RFQ/RFP procurement process to secure a single entity to design, build, operate and maintain the facility.

In all cases, Metro Vancouver would own the facility. Each of the three models has different costs for procurement, design, construction, operation, financing, retained risks, and transferred risks. The value-for-money analysis quantified these costs and risks to determine which model offers the lowest all-in cost to GVS&DD. DBFOM offered the most comprehensive risk transfer, but cost savings would be only 2 to 3% compared to DBB, depending on the amount of private financing. The analysis concluded that DBO has the lowest cost: 13% less than DBB, equivalent to savings of \$41M compared to DBB. The primary driver for the DBO savings is the integrated design-build process, which has lower costs and reduced capital risk. The benefits of DBO would likely be even greater, since the assessment did not capture further risk reductions from having an experienced third-party firm operate the dryer.

Metro Vancouver has had success using the DBO model. The Waste-to-Energy Facility is a Metro Vancouver owned asset that was procured using DBO and is being operated by a third party. Other examples recently procured using models other than DBB include the North Shore WWTP Conveyance project, which used Design-Build-Finance (DBF), and the Iona Island WWTP Biosolids Dewatering Facility, which was constructed using Design-Build (DB).

Benefits of third-party operation

Operation of a biosolids drying facility is not a core function of wastewater treatment. Currently, dewatered biosolids are not handled by Metro Vancouver after production: third-party haulers remove the biosolids from Metro Vancouver WWTPs for transport to third-party sites where third-party contractors apply biosolids to land or process biosolids into soil products that are then marketed by a third party. Transferring the biosolids to a third party to produce dried biosolids pellets is consistent with current Metro Vancouver practices.

Having an experienced operator as part of the DBO design team would ensure that the dryer is designed to meet the quality requirements of the final product. For example, the blended fertilizer market is very sensitive to parameters like pellet size, hardness and nutrient content. Conversations with other municipalities that operate dryers indicate that fine-tuning the dryer to manufacture a product that meets the quality requirements is not trivial and any early mistakes could sour potential customers to the product. An experienced operator on the DBO team would avoid process upsets while starting up the dryer. A DBO contract could be structured with appropriate incentives and penalties so that the third-party operator, who is also responsible for marketing the product, would be motivated to ensure consistent quality of the dried product.

The blended fertilizer market comprises over 60 potential customers throughout southern British Columbia and northern Washington state. The dried biosolids pellets would need to meet applicable regulations for biosolids and fertilizers in the jurisdictions where it is being marketed. It will take a considerable investment to appropriately brand the product, connect with potential customers, confirm that the product meets regulatory requirements, and price it appropriately to maximize the value. These activities are outside the core business and experience of Metro Vancouver's liquid waste function. The DBO model would tap into experienced operators and marketers, and allows

Metro Vancouver to transfer the risks associated with producing and selling the dried product to a third party.

Using a third party to operate the dryer would not displace any current staff positions within Metro Vancouver. WWTP staff will continue to be responsible for producing dewatered biosolids, which would then be transported to the drying facility for processing by the third party. Operations and maintenance of the dryer are very different from WWTP operations and maintenance. Metro Vancouver does not currently have operations or maintenance personnel with experience suitable for biosolids drying equipment. A drying facility requires special training and carries unique safety risks that can be managed by an experienced operator.

ALTERNATIVES

1. That the GVS&DD Board endorse Design-Build-Operate as the procurement model for implementation of the regional biosolids drying facility.
2. That the Liquid Waste Committee receive for information the report dated October 25, 2021, titled "Procurement Model for Regional Biosolids Drying Facility" and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

If the Board approves Alternative 1, the biosolids drying facility will be implemented as a Design-Build-Operate project. The estimated total project cost is \$337.7 million. Biosolids drying is expected to have a lower lifecycle cost than other biosolids management options, thereby resulting in a net reduction in overall household impact.

Under Alternative 2, if further steps towards implementing a regional drying facility are not initiated, additional biosolids quantities will be sent out of province for landfill disposal if sufficient beneficial use land application projects cannot be secured. The cost of landfill disposal is higher than both the cost of land application and the lifecycle cost of a new biosolids drying facility.

OTHER IMPLICATIONS

Using dried biosolids pellets as a fuel in local cement kilns will result in regional greenhouse gas emission reductions. Using dried biosolids pellets as an ingredient in blended fertilizer avoids greenhouse gas emissions associated with conventional fertilizer production.

CONCLUSION

New options are needed to ensure beneficial use of growing quantities of biosolids in the region. The GVS&DD Board has endorsed biosolids drying as a biosolids management option. A value-for-money analysis compared procurement models for a regional biosolids drying facility. Design-Build-Operate procurement would have the lowest cost. Third-party operation of the dryer offers additional benefits. Staff recommend Alternative 1, endorsing Design-Build-Operate as the procurement model for a regional biosolids drying facility.

To: Liquid Waste Committee

From: Jeff Carmichael, Division Manager, Business Development, Liquid Waste Services

Date: October 26, 2021 Meeting Date: November 4, 2021

Subject: **Proposed Capital Investment for Sapperton District Sewer Heat Recovery Project**

RECOMMENDATION

That the GVS&DD Board:

- a) authorize expenditures up to \$18 million for the Sapperton District Sewer Heat Recovery project, as presented in the report dated October 26, 2021, titled “Proposed Capital Investment for Sapperton District Sewer Heat Recovery Project”, and
 - b) direct staff to enter into contract negotiations with the City of New Westminster for the sale of sewer heat.
-

EXECUTIVE SUMMARY

Metro Vancouver has the opportunity to reduce greenhouse gas (GHG) emissions by building sewer heat recovery facilities to support municipal district energy systems. Metro Vancouver’s *Climate 2050* strategy (Reference 1) includes a target to achieve a 45% reduction in regional GHG emissions by 2030, from 2010 levels. Sewer heat recovery facilities will provide renewable, fossil fuel-free heat extracted from sewage to residents and businesses in the region. There is enough excess heat in the liquid waste collection system to heat 700 high rise buildings throughout the region. Several sewer heat recovery projects are under development or assessment.

The project will reduce GHG emissions, contributing to the *Climate 2050 Strategy*, as guided by the *Liquid Waste Heat Recovery Policy*. The investment will be capped at \$18 million, which is based on the value of the anticipated GHG reductions over the life of the project. Actual project costs are expected to be within the range of \$4M to \$14M depending on the level of investment and asset ownership by Metro Vancouver. Metro Vancouver will receive carbon credits based on relative costs incurred by both parties, which will contribute toward Metro Vancouver’s goal of carbon neutrality.

PURPOSE

To present to the Liquid Waste Committee for consideration by the GVS&DD Board, a recommendation to authorize expenditure for the Sapperton District Sewer Heat Recovery project, which will recover heat from the New Westminster Interceptor and make it available to the City of New Westminster’s Sapperton District energy system, and to seek authorization to negotiate a contract with New Westminster for the operation of equipment and sale of sewer heat from the project.

BACKGROUND

Several plans and policies provide the foundation for the recommendations in this report.

The *Integrated Liquid Waste and Resource Management Plan* (Reference 2) includes the goal to use liquid waste as a resource, and commitments to evaluate opportunities to expand the recovery of energy from the liquid waste system, and to implement projects based on business case evaluations for such projects.

The *Liquid Waste Heat Recovery Policy* (Reference 3) enables waste heat from the liquid waste system to be used by municipalities and other external parties. It also provides guidelines for GVS&DD financial contributions to such projects, which require capital funding by municipalities and potentially by Metro Vancouver. GVS&DD is capable of contributing to both regional and corporate GHG emission reduction targets by capturing unused heat from sewage and making it available to municipalities and private parties for use, replacing fossil fuel combustion.

The *Carbon Price Policy* (Reference 4) establishes a price on GHG emissions, and directs staff to incorporate that value into life cycle cost analyses for projects.

The *Climate 2050* Strategy vision is that Metro Vancouver demonstrate bold leadership in responding to climate change. It commits to achieving a carbon-neutral region by 2050, with an interim target of reducing GHG emissions by 45% from 2010 levels by 2030.

On March 26, 2021, the GVS&DD Board approved an amendment to the *Cost Apportionment Bylaw 283* (Reference 5), to allocate heat recovery project investments using Tier III cost apportionment (100% regional). At the same meeting, the GVS&DD Board approved an amendment to the *Liquid Waste Heat Recovery Policy* (Reference 6), which expanded the scope of allowed investments to include sewer heat projects as well as wastewater treatment plant based effluent heat projects. The amendment allows the Board to consider approving capital contributions to sewer heat recovery projects to support collaborative district energy projects.

In collaboration with the City of New Westminster, a proposed sewer heat recovery project has been developed to provide recovered heat to the Sapperton District energy system, and a capital investment proposal to support the project has been created.

BUSINESS CASE FOR THERMAL ENERGY PURCHASE AGREEMENT

Several sewer heat recovery projects are under development or assessment. A number of future capital investment proposals are anticipated over the next several years.

The City of New Westminster has proposed the development of district energy systems that will serve the Sapperton District and the Royal Columbian Hospital. The system will use heat recovered from sewage to meet most heating needs, displacing natural gas use by existing customers.

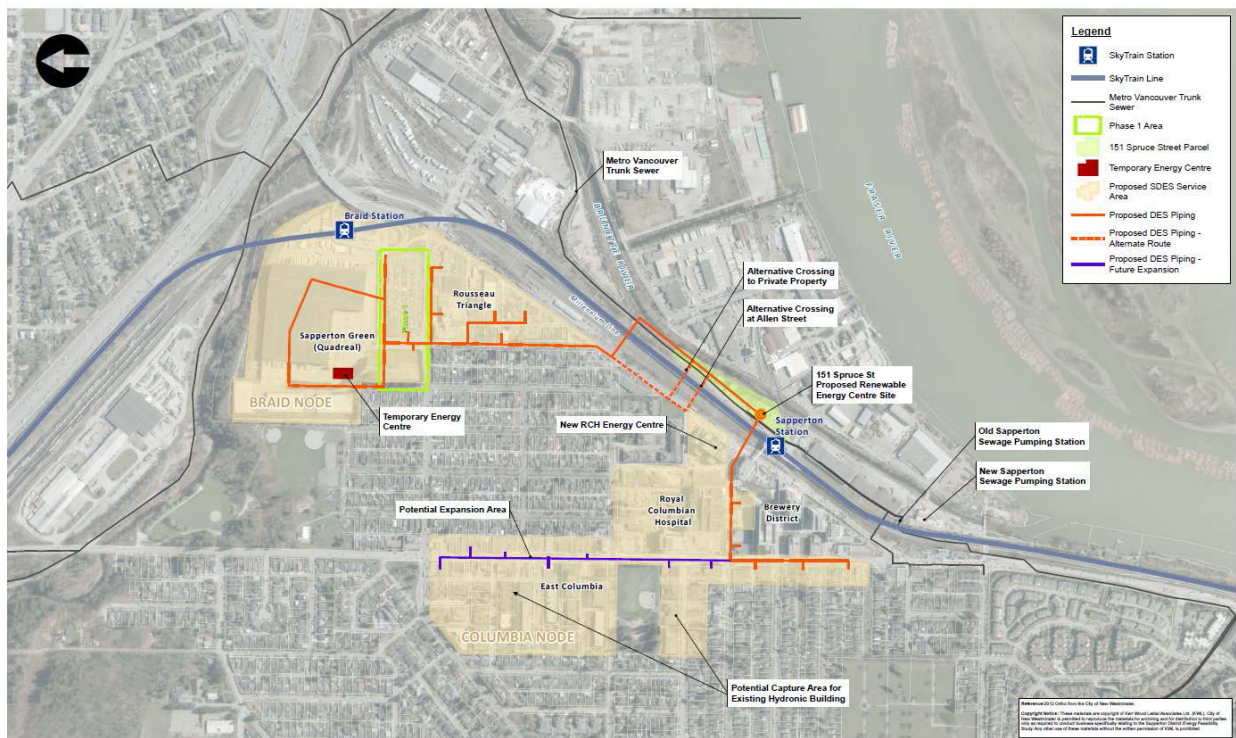
Figure 1 shows a schematic of the proposed service area and the location of the proposed sewer heat recovery facility.

The proposed sewer heat recovery facility will be constructed on a municipally-owned site. Connections will be established to the New Westminster Interceptor. Heat will be extracted from the

sewage and the sewage returned to the sewer main. Equipment is required to extract heat from the sewage.

It is proposed that GVS&DD make a capital investment for supporting equipment. The investment will be capped at \$18 million, which is based on the value of the anticipated GHG reductions over the life of the project. Actual project costs are expected to be within the range of \$4M to \$14M depending on the level of investment and asset ownership by Metro Vancouver. Additionally, Metro Vancouver's investment will not be the primary funding source for the project: it is estimated that this investment will provide approximately 20 percent of the total capital cost of this district energy system. In exchange, Metro Vancouver will receive carbon credits based on relative costs incurred by both parties, which will contribute toward Metro Vancouver's goal of carbon neutrality.

Figure 1. Proposed Sapperton area District Energy Systems and Sewer Heat Recovery Project



This opportunity was evaluated using life-cycle cost analysis methods, including application of the *Carbon Price Policy*, and determined that it would be a cost-effective project. Energy source options were evaluated by the City of New Westminister, and it was determined that sewer heat-sourced energy is competitive with other clean energy sources, and is a lower risk long-term energy source than some sources (like biomass).

Capital costs will be allocated by GVS&DD using Tier III cost apportionment, as a wastewater resource recovery project that will reduce GHG emissions regionally. New Westminister will acquire heat from GVS&DD for a fee that fully recovers ongoing operation and maintenance costs for the infrastructure. Table 1 summarizes the costs and benefits of the project.

Table 1. Business Case Summary

Item	GVS&DD	New Westminster
District energy system estimated capital costs	(\$4 to \$14 million)	(\$64 million)
Spending authority requested	\$18 million	
Operating costs	(\$900,000) / yr	tbd
Revenues	\$900,000 / yr	tbd, based on rate structure
Benefits from GHG reductions (as per Carbon Price Policy)	\$18 million	
Net benefit to GVS&DD	Positive \$4 to \$14 million	

The project is anticipated to reduce GHG emissions by 172,000 tonnes over the life of the project. GHG reductions, which are valued as benefits as per the *Carbon Price Policy*, are expected to generate \$18 million in benefits. GHG reductions at this location are voluntary, and may be transferred to other parties as credits. Metro Vancouver will receive some credits, as per *Liquid Waste Heat Recovery Policy* guidelines. Terms of Reference for the proposed contract, including GHG reduction allocations, are outlined in Attachment 1.

Project Risks and Risk Mitigation Strategies

Given the long-term commitment and relatively large capital investment for the development of a district energy system, there are inherent risks. Key risks and mitigation strategies are listed in Attachment 2.

ALTERNATIVES

1. That the GVS&DD Board:
 - a) authorize expenditures up to \$18 million for the Sapperton District Sewer Heat Recovery project, as presented in the report dated October 26, 2021, titled “Proposed Capital Investment for Sapperton District Sewer Heat Recovery Project”, and
 - b) direct staff to enter into contract negotiations with the City of New Westminster for the sale of sewer heat.
2. That the GVS&DD Board receive for information the report dated October 26, 2021, titled “Proposed Capital Investment for Sapperton District Sewer Heat Recovery Project” and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

If the Board approves Alternative 1, GVS&DD will authorize expenditures up to \$18 million for the project. The investment by Metro Vancouver is expected to fall within the range of \$4M to \$14M

and will be capped at \$18M based on the application of the *Carbon Price Policy*. Metro Vancouver will receive carbon credits based on relative costs incurred by both parties, which will contribute toward Metro Vancouver's goal of carbon neutrality. Costs will be recovered from GVS&DD members under Tier III cost apportionment (100% regional allocation). The household financial impact will be less than \$1 per household per year.

OTHER IMPLICATIONS

The City of New Westminster and Metro Vancouver may be required to seek approval or exemption for the system from the British Columbia Utilities Commission. This can be accomplished with existing staff and at minimal cost.

CONCLUSION

In the *Climate 2050* strategy, Metro Vancouver has committed to reduce GHG emissions by 45% by 2030 compared to 2010 levels, and be a carbon neutral region by 2050. Metro Vancouver has the potential and opportunity to take action on climate change to reduce greenhouse gas emissions by enabling the provision of capital funding for new facilities that will provide renewable, fossil fuel-free heat extracted from sewage to residents and businesses in the region.

Several projects are currently under development and further potential exists. A proposed sewer heat recovery project has been developed in collaboration with the City of New Westminster, which will provide clean, renewable energy to the Sapperton district energy system. Metro Vancouver will make a capital investment of up to \$18 million for necessary sewer heat extraction infrastructure. All ongoing operation and maintenance costs will be borne by the district energy system owner. The benefits of the reduced GHG emissions from the proposed project are \$18 million, so the project has a positive business case. Staff recommend Alternative 1.

Attachments

1. City of New Westminster Thermal Energy Purchase Agreement Terms of Reference
2. Risk Matrix

References

1. [Climate 2050](#)
2. [Integrated Liquid Waste and Resource Management Plan](#)
3. [Liquid Waste Heat Recovery Policy](#)
4. [Carbon Price Policy](#)
5. "Tier III Cost Apportionment Bylaw Amendments", report dated March 11, 2021
6. ["Liquid Waste Heat Recovery Policy Amendments to Expand Opportunities for Sewer Heat Recovery"](#), report dated March 2, 2021

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CITY OF NEW WESTMINSTER THERMAL ENERGY PURCHASE AGREEMENT TERMS OF REFERENCE

The terms of reference below between the Greater Vancouver Sewerage and Drainage District (GVS&DD) and the City of New Westminster (CNW) reflect the current intent of the parties in drafting a detailed Agreement for the sale of thermal energy from GVS&DD to CNW.

Preamble	
Contract Term	Initial term of 20 years from service commencement. Expected service commencement Jan 1, 2025 Charges to begin when GVS&DD infrastructure is completed and commissioned.
Renewal Provisions	Option to renew on mutual agreement. Renewal to be confirmed a minimum of 3 years before end of initial term.
Energy Delivery Location	GVS&DD will deliver energy within the Sapperton District Energy Centre ("SDEC"), scheduled to be located at 151 Spruce Street. GVS&DD will own and operate the heat exchanger and supporting infrastructure within the SDEC facility.
Subscribed Capacity	New Westminster intends to seek delivery of 12 MW of delivered thermal energy capacity.
Charges	New Westminster's charges will be designed to recover all costs incurred by GVS&DD for operation and maintenance of the heat exchanger and supporting infrastructure.
Allocation of GHG Emissions Reductions	GVS&DD will receive some GHG credits, as per the Liquid Waste Heat Recovery Policy, which states: <ul style="list-style-type: none"> • Carbon allocation will be on the basis of relative financial contributions. • Transferred credits to be retained by GVS&DD until carbon neutrality achieved in a given year. • Excess credits to be passed to member jurisdictions, based on capital contribution to the portfolio of heat recovery emission reduction projects.

Terms will also be established concerning items including: termination or default by either party, scheduled outages, insurance, reporting, cooperation and coordination mechanisms, and dispute resolution mechanisms.

RISK MATRIX

Risk	Description	Mitigation Strategy
Capital Cost Risk	Overall costs are a key risk for any capital project.	The GVS&DD infrastructure capacity and the corresponding purchase will be structured to contain contingency of 50% to ensure that actual cost is less than budget.
New Westminster Utility Risk	New Westminster may not choose to proceed with development of the Sapperton District Energy system.	The purchase agreement will be structured such that GVS&DD's capital investment will only proceed if commitments are in place for development of the system.
Regulatory Risk	Expected GHG emission reductions are based on current regulatory requirements in New Westminster. If those requirements change in the future, there is some risk that GHG credits available in the future will diminish.	The purchase agreement will front load GHG emission credit transfers to GVS&DD, minimizing credit transfers further into the future when requirement change risk is more significant.

To: Liquid Waste Committee

From: Roy Moulder, Director, Purchasing and Risk Management, Financial Services
Kenneth Hui, Division Manager, Engineering, Design and Construction, Liquid Waste Services

Date: October 26, 2021 Meeting Date: November 4, 2021

Subject: **Award of Contract for Phase A, Resulting from RFP No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters – Detailed Design and Construction Engineering Services**

RECOMMENDATION

That the GVS&DD Board:

- a) approve the award of a contract for an amount of up to \$24,801,041 (exclusive of taxes) to Brown and Caldwell Consultants Canada Ltd. for Phase A, Preliminary and Detailed Design Services resulting from Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters, 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

A Request for Proposal (RFP) No. 20-358 was issued to four pre-qualified consultants for Engineering Services for Annacis Island Wastewater Treatment Plant (AIWWTP) Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters. It closed on February 26, 2021. The RFP included three separate work scopes, for Design Services, Construction Coordination and for Project Management Services. The latter two are addressed under separate cover. The Design Services include three separate phases – namely Preliminary and Detailed Design, Services during Construction, and Services Post Construction. Brown and Caldwell Consultants Canada Ltd. was ranked highest and bid the lowest fee for the Design Services. It is recommended that the GVS&DD Board authorize the Commissioner and the Corporate Officer to award and execute a contract for Phase A (namely the Preliminary and Detailed Design) of the Design Services with Brown and Caldwell in an amount of up to \$24,801,041 (exclusive of taxes). Board approval to award subsequent phases of work will be sought at a later date.

PURPOSE

This report is to advise the GVS&DD Board of the results of RFP No. 20-358: Engineering Services for AIWWTP Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters and to recommend award of the contract for Phase A of the Design Services work scope in an amount of up to \$24,801,041 (exclusive of taxes) to Brown and Caldwell Consultants Canada Ltd.

BACKGROUND

Pursuant to the *GVS&DD Officers and Delegation Bylaw No. 284, 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 GVS&DD Board of Directors.

This report is being brought forward to the Liquid Waste Committee to consider a recommendation to the GVS&DD Board to authorize the award of Phase A (Preliminary and Detailed Design) of the Detailed Design and Construction Engineering Services (Design Services) work scope from RFP No. 20-358, Engineering Services for AIWWTP Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters.

PROJECT DESCRIPTION

The AIWWTP provides secondary treatment for approximately 1.2 million people in Metro Vancouver. At present, the facility treats about 175 billion litres of wastewater each year. The treated water is then released into the Fraser River. To accommodate growth, the facility is undergoing an expansion (the Stage 5 project) which will increase its capacity to serve 1.5 million people.

As a result of Request for Qualifications No. 20-012 that was publicly advertised on Metro Vancouver's and BC Bid websites, four experienced firms were shortlisted and invited to respond to RFP No. 20-358 which closed on February 26, 2021. RFP No. 20-358 has the following three scopes of work that will be awarded separately:

- Detailed Design and Construction Engineering Services (the Design Services), which includes provision of professional engineering to design the works and act as the Engineer of Record through the design and construction phases of the project.
- Construction Control and Safety Coordination (the Construction Coordination work scope) which will provide professional consulting engineering from 2021 through 2026 for the coordination of all active construction contracts on site at AIWWTP, including: construction management third party advice and claims mitigation, overall multi-project construction schedule creation and maintenance, and safety coordination in co-shared areas. This is the subject of a separate report.
- Project Management Technical Services (Project Management) which will provide independent design review including, quality assurance services, project management support and provide a full-time Project Engineer based in the Corporation facility to assist the Corporation during both the design and the construction phases. This is the subject of a separate report.

All four firms submitted proposals for the Design Services, and are listed in alphabetical order as follows:

Table 1: Proponent Submission Pricing

Proponent	Total Proposed Fee (exclusive of taxes) for the Design work scope
AECOM	\$54,134,527
Brown and Caldwell	\$47,024,407
CDM Smith	\$52,541,824
Jacobs	\$54,672,792

The technical component of RFP No. 20-358 was evaluated by staff from Liquid Waste Services. The financial component was evaluated by staff from Liquid Waste Services and confirmed by staff from the Purchasing and Risk Management Division. Brown and Caldwell Consultants Canada Ltd. was identified as the highest overall ranked proponent for the Design Services in both the technical and financial components.

This contract for the Design Services is intended to be awarded separately in three phases:

- Phase A – Preliminary and detailed design services
- Phase B – Construction engineering services
- Phase C – Post-Construction engineering services

At this time only Phase A (base scope of services and selected provisional items) is being awarded. The award of Phases B and C are subject to future assessment. Phase B may be split between Engineer of Record services and a third party construction management firm; a decision will be made before award of Phase B.

Following identification of the highest ranked proposal, negotiations for Phase A scope ensued as allowed for in the RFP. Several items resulting from the negotiations are proposed to be included in the contract at this time. The additional work includes both base scope and provisional scope included as risk mitigation efforts and opportunistic improvements to the plant systems. Changes in Corporation direction for engineering projects have also resulted in additional scope being incorporated through negotiations. These items have a negotiated price of \$2,641,001 (exclusive of taxes), resulting in a total recommended contract price of \$24,801,041.

The proposal submitted by Brown and Caldwell contemplates additional phases of work with an overall estimated contract value of \$51,713,922 (exclusive of taxes). It is expected that subsequent phases of work will be awarded to Brown and Caldwell subject to satisfactory completion of Phase A at which time the total cost and details of the subsequent Phases B and C of the work will be finalized. Award of further phases will require GVS&DD Board approval pursuant to the provisions of the Policy.

ALTERNATIVES

1. That the GVS&DD Board:
 - a) approve the award of a contract for an amount of up to \$24,801,041 (exclusive of taxes) to Brown and Caldwell Consultants Canada Ltd. for Phase A, Preliminary and Detailed Design Services, resulting from Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters for the Detailed Design and Construction Engineering Services subject to final review by the Commissioner, 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 GVS&DD Board not award Phase A, Preliminary and Detailed Design Services work scopes of Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters, and direct staff to report back to the GVS&DD Board with options for an alternate course of action.

FINANCIAL IMPLICATIONS

If the GVS&DD Board approves Alternative 1, a contract will be awarded to Brown and Caldwell Consultants Canada Ltd., in the amount of up to \$24,801,041 (exclusive of taxes) to complete Phase A, Preliminary and Detailed Design Services (base scope and selected provisional items). Brown and Caldwell Consultants Canada Ltd., is the highest overall ranked proponent based on the evaluation criteria established in the RFP with the lowest cost proposal. There are sufficient funds in the project budget for this award.

If the GVS&DD Board chooses not to proceed with Alternative 1, staff will need further direction in relation to the project. Alternative 2 will result in delays to the project schedule that will impact the ability to meet the region's sewerage needs.

CONCLUSION

Request for Proposal No. 20-358 was issued for Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters. It included three separate work scopes: Detailed Design and Construction Engineering Services, Construction Control and Safety Coordination, and Project Management Technical Services. Brown and Caldwell Consultants Canada Ltd., has been identified as the overall highest ranked proponent based on the evaluation criteria established in the RFP with the lowest cost proposal for the Detailed Design and Construction Engineering Services work scopes.

It is recommended that the GVS&DD Board authorize the Commissioner and the Corporate Officer to award and execute a contract for Phase A, Preliminary and Detailed Design Services (base scope and selected provisional items) with Brown and Caldwell Consultants Canada Ltd., in the amount of up to \$24,801,041 (excluding taxes).

To: Liquid Waste Committee

From: Roy Moulder, Director, Purchasing and Risk Management, Financial Services
Kenneth Hui, Division Manager, Engineering, Design and Construction, Liquid Waste Services

Date: October 22, 2021 Meeting Date: November 4, 2021

Subject: **Award of Contract Resulting from RFP No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters – Construction Control and Safety Coordination and Project Management and Technical Support Services**

RECOMMENDATION

That the GVS&DD Board:

- a) approve the award of a contract for an amount of up to \$17,802,757 (exclusive of taxes) to CDM Smith Canada ULC, resulting from Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters for the Construction Control and Safety Coordination and the Project Management and Technical Support Services work scopes, 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

A Request for Proposal (RFP) No. 20-358 was issued to four pre-qualified consultants for Engineering Services for Annacis Island Wastewater Treatment Plant (AIWWTP) Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters. It closed on February 26, 2021. The RFP included three separate work scopes, for Design Services, Construction Control and Safety Coordination (Construction Coordination) and Project Management and Technical Support (Project Management). The Design Services are addressed under separate cover. CDM Smith Canada ULC was ranked highest overall for both Construction Coordination and Project Management scopes of services. It is recommended that the GVS&DD Board authorize the Commissioner and the Corporate Officer to award and execute a contract with CDM Smith Canada ULC in an amount of up to \$17,802,757 (exclusive of taxes) for the Construction Coordination and Project Management work scopes. By awarding both work packages to CDM Smith, a cost reduction of \$274,880 is realized.

PURPOSE

This report is to advise the GVS&DD Board of the results of RFP No. 20-358: Engineering Services for AIWWTP Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters, and to recommend award of the contract for the Construction Coordination and Project Management work scopes in an amount of up to \$17,802,757 (exclusive of taxes) to CDM Smith Canada ULC.

BACKGROUND

Pursuant to the *GVS&DD Officers and Delegation Bylaw No. 284, 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 GVS&DD Board of Directors.

This report is being brought forward to the Liquid Waste Committee to consider a recommendation to the GVS&DD Board to authorize the award of the Construction Coordination and Project Management work scopes from RFP No. 20-358: Engineering Services for AIWWTP Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters.

PROJECT DESCRIPTION

The AIWWTP provides secondary treatment for approximately 1.2 million people in Metro Vancouver. At present, the facility treats about 175 billion litres of wastewater each year. The treated water is then released into the Fraser River. To accommodate growth, the facility is undergoing an expansion (the Stage 5 project) which will increase its capacity to serve 1.5 million people.

As a result of Request for Qualifications No. 20-012 that was publicly advertised on Metro Vancouver's and BC Bid websites, four experienced firms were shortlisted and invited to respond to RFP No. 20-358 which closed on February 26, 2021. RFP No. 20-358 has the following three scopes of work that will be awarded separately:

- Detailed Design and Construction Engineering Services (the Design Services), which includes provision of professional engineering to design the works and act as the Engineer of Record through the design and construction phases of the project, the award of which is the subject of a separate report.
- Construction Control and Safety Coordination (Construction Coordination) which will provide professional consulting engineering from 2021 through 2026 for the coordination of all active construction contracts on site at AIWWTP, including: construction management third party advice and claims mitigation, overall multi-project construction schedule creation and maintenance, and safety coordination in co-shared areas. Third party Construction Engineering Services for the Stage 5 A506 Gravity Thickener Expansion construction project (RFP No. 20-002) is also included in this element.
- Project Management Technical Services (Project Management) which will provide independent design review including, quality assurance services, project management support and provide a full-time Project Engineer based in the Corporation facility to assist the Corporation during both the design and the construction phases.

The successful proponent for the Design Services contract is not eligible for either the Construction Coordination contract nor the Project Management contract. The remaining three firms' proposals were listed in alphabetical order as follows:

Table 1: Construction Coordination Proponent Submission Pricing

Proponent	Total Proposed Fee (exclusive of taxes)
AECOM Canada Ltd.	\$10,165,976
CDM Smith Canada ULC	\$11,892,520
CH2M Hill Canada Limited	\$11,223,522

Table 2: Project Management Proponent Submission Pricing

Proponent	Total Proposed Fee (exclusive of taxes)
AECOM Canada Ltd.	\$5,952,979
CDM Smith Canada ULC	\$6,151,382
CH2M Hill Canada Limited	\$6,122,271

The technical component of RFP No. 20-358 was evaluated by staff from Liquid Waste Services. The financial component was evaluated by staff from the Purchasing and Risk Management Division. CDM Smith Canada ULC was identified as the highest overall ranked proponent for both Construction Coordination and Project Management scopes of service for the following key factors:

- Understanding – Very clear understanding of the scope of work and the needs of Metro Vancouver. The team identified by CDM Smith Canada ULC were appropriately staffed and hours were appropriate for the roles. i.e., the Construction Management Advisor (CMA) role is a very key role for MV and CDM Smith Canada ULC identified significantly more hours for this role.
- The person proposed in the CMA role brings 50+ years of experience in utility capital improvement projects, wastewater treatment plant upgrades and sewer overflow / sanitary overflow infrastructure programs.
- The person identified as the Deputy CMA brings 24 years of experience, and most recently provided project management services on the Annacis Stage 5 Main Contract.
- The safety coordinator, who has previously provided service to Metro Vancouver, has been an asset in evaluating and providing guidance on safety concerns especially with respect to confined spaces.
- The construction coordination team – Have demonstrated proactive coordination effort, central point of information and coordination between O&M and all MV on-site projects, proactively alert potential impact of one project on another project among MV Project Managers. The team worked closely with plant staff to ensure impact of construction to plant operations is minimized.

CDM Smith Canada ULC have previously provided similar Construction Coordination services during Phase 1 of the AIWWTP Stage 5 expansion, and performed very well. They have also provided exceptional service as the Engineer of Record on the AIWWTP Outfall project.

Following identification of the highest ranked Construction Coordination proposal, negotiations ensued as allowed for in the RFP. As a result of the negotiations relating to the development of a Construction Management Plan for RFP 20-002, A506 Gravity Thickener Expansion construction project, the Construction Coordination hours were increased. These changes increased the Construction Coordination proposed fee by \$33,735, bringing the negotiated Construction Coordination recommended award amount to \$11,926,255 (exclusive of taxes).

Following identification of the highest ranked Project Management proposal, negotiations ensued as allowed for in the RFP. As a result of the negotiations relating to the combining of the Construction Coordination and Project Management contracts, Project Management hours were reduced. These changes decreased the Project Management proposed fee by \$274,880, bringing the negotiated Project Management recommended award amount to \$5,876,502 (exclusive of taxes).

The resulting recommended award value for both Construction Coordination and Project Management scopes of services is \$17,802,757 (exclusive of taxes).

ALTERNATIVES

1. That the GVS&DD Board:
 - a) approve the award of a contract for an amount of up to \$17,802,757 (exclusive of taxes) to CDM Smith Canada ULC, resulting from Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters for the Construction Control and Safety Coordination and the Project Management and Technical Support Services work scopes, 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 GVS&DD Board not award the Construction Control and Safety Coordination and Project Management and Technical Services work scopes of Request for Proposal No. 20-358: Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters, and direct staff to report back to the GVS&DD Board with options for an alternate course of action.

FINANCIAL IMPLICATIONS

If the GVS&DD Board approves Alternative 1, a contract will be awarded to CDM Smith Canada ULC, in the amount of up to \$17,802,757 (exclusive of taxes). CDM Smith Canada ULC, is the highest overall ranked proponent based on the evaluation criteria established in the RFP. There are sufficient funds in the project budget for this award.

If the GVS&DD Board chooses not to proceed with Alternative 1, staff will need further direction in relation to the project. Alternative 2 will result in delays to the project schedule that will impact the ability to meet the region's sewerage needs.

CONCLUSION

Request for Proposal No. 20-358 was issued for Engineering Services for Annacis Island Wastewater Treatment Plant Stage 5 Expansion Trickling Filter Pump Station and Trickling Filters. It included three separate work scope: Detailed Design and Construction Engineering Services, Construction Control and Safety Coordination, and Project Management and Technical Services. The work scope, Detailed Design and Construction Engineering Services, will be brought forward to the Board under a separate recommendation report. CDM Smith Canada ULC has been identified as the overall highest ranked proponent based on the evaluation criteria established in the RFP for the Construction Control and Safety Coordination and the Project Management and Technical Services work scopes.

It is recommended that the GVS&DD Board authorize the Commissioner and the Corporate Officer to award and execute a contract with CDM Smith Canada ULC in the amount of up to \$17,802,757 (excluding taxes) for those two work scopes.

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To: Liquid Waste Committee

From: Roy Moulder, Director, Purchasing and Risk Management, Financial Services
Jugoslav Bajkin, Division Manager, Collection Systems, Engineering, Design and Construction, Liquid Waste Services

Date: October 29, 2021 Meeting Date: November 4, 2021

Subject: **Award of Contract Resulting from Request for Proposal No. 20-345: Construction Services for the Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 Trenchless Section**

RECOMMENDATION

That the GVS&DD Board:

- a) approve award of a contract for an amount up to \$62,942,479.02 (exclusive of taxes) to Pomerleau Bessac Infrastructure resulting from Request for Proposal No. 20-345: Construction Services for the Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 Trenchless 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.
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EXECUTIVE SUMMARY

The Burnaby Lake North Interceptor No. 2 Project consists of supply and installation of approximately 2.9 kilometers of 2.1 meter diameter plastic-lined reinforced concrete sewer pipe, installed by microtunneling, and ancillary works. The Pomerleau Bessac Infrastructure (Pomerleau) submission was the strongest technical submission. They have a thorough and comprehensive workplan and understanding of the issues and challenges, and an exemplary team who are more than capable of successfully delivering this project. Pomerleau are currently completing the AIWWTP Outfall project, and have shown themselves to be a responsible and responsive contractor. They have been a collaborative partner who proactively addressed the project challenges. It is recommended that the GVS&DD Board authorize the Commissioner and the Corporate Officer to award and execute a contract for the work to Pomerleau in an amount of up to \$62,942,479.02 (exclusive of taxes).

PURPOSE

This report is to advise the GVS&DD Board of the results of Request for Proposal (RFP) No. 20-345: Construction Services for the Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 Trenchless Section, and to recommend award of the contract in an amount of \$62,942,479.02 (exclusive of taxes) to Pomerleau Bessac Infrastructure (Pomerleau).

BACKGROUND

Pursuant to the *GVS&DD Officers and Delegation Bylaw No. 284, 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 GVS&DD Board of Directors.

This report is being brought forward to the Liquid Waste Committee to consider a recommendation to the GVS&DD Board to authorize the award of a contract for the construction of Burnaby Lake North Interceptor No. 2 – Winston St Ph. 2 – Trenchless Section.

PROJECT DESCRIPTION

The Burnaby Lake North Interceptor No. 2 sewer pipe will be located in North Burnaby spanning from east of Springer Avenue at Lougheed Highway to south of Government Road on Cariboo Road. Growth in the area has required sewer capacity upgrades of the existing Burnaby Lake North Interceptor. The upgrade of this sewer has been divided into the four Stages shown on the Attachment, namely:

- Stage 1 - Sperling Section
- Stage 2 - Winston Street Section – Open Cut
- Stage 3 - Winston Street Section – Tunneled, and
- Stage 4 - Cariboo Section

The Sperling Section construction was completed in 2016. The Winston Street Section – Open Cut is nearly complete. The Winston Street Section – Tunneled, is the subject of this report. The Cariboo Section is currently in the planning stages.

This contract consists of supply and installation of approximately 2.9 kilometers of 2.1 meter diameter plastic-lined reinforced concrete sewer pipe, installed by microtunneling. Ancillary work includes the supply and installation of 56 m of open cut sewer, drop manholes, tee manholes and concrete chambers. The installation of the sewer pipe also includes design and installation of ground improvement, dewatering, design and installation of temporary shafts for launch and reception of the tunneling equipment, relocation of conflicting utilities, site restoration, clean-up and landscaping, and geotechnical engineering analysis

A total of five proposals were received. The proposals were evaluated on technical merit (60%) and financial criteria (40%). The technical portion of the proposals were evaluated on three (3) main items:

1. Firm qualifications and past experience as demonstrated in detailed descriptions of 5 past projects of similar pipe diameter, installation methods and soil conditions.
2. Key personnel that will work on the project.
3. Project construction methodology/work plan.

The following table lists the results, in alphabetical order, of the submissions to RFP No. 20-345:

Proponent	Proposal Fee (exclusive of taxes)
Clearway Construction Inc.	\$ 55,503,787.85
Michels Canada Co.	\$ 51,340,873.50
Pomerleau Bessac Infrastructure	\$ 62,942,479.02
Shanghai Construction Group	\$ 65,806,666.00
Ward & Burke Microtunneling Ltd.	\$ 65,997,829.00

The Pomerleau submission was the strongest technical submission. Their proposal clearly demonstrated that the firm and the proposed key personnel have more than exemplary relevant experience to successfully complete the project, and their proposed construction methodology indicated they have the best understanding of the project and its challenges. Pomerleau are currently working on the AIWWTP Outfall construction and the Golden Ears Forcemain – Fraser River Crossing, and they have a long history of working with Metro Vancouver. On the AIWWTP Outfall project, Pomerleau have demonstrated a commitment to working together to collaboratively address issues in a timely fashion, and that project is being delivered on budget and on schedule.

The Pomerleau submission included some items to be clarified and two value engineering cost proposals that required some negotiations prior to award, as allowed for in the RFP. The negotiations with Pomerleau involved several meetings. The negotiation meetings resulted in identification of two cost reduction measures and some ongoing discussions about some of the terms and conditions. These latter items are still under negotiation, but are not expected to have an upward impact on either costs or the contemplated award.

ALTERNATIVES

1. That the GVS&DD Board:
 - a) approve award of a contract for an amount up to \$62,942,479.02 (exclusive of taxes) to Pomerleau Bessac Infrastructure resulting from Request for Proposal No. 20-345: Construction Services for the Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 Trenchless 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 GVS&DD Board terminate Request for Proposal No. 20-345: Construction Services for the Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 Trenchless Section and direct staff to report back to the GVS&DD Board with options for an alternate course of action.

FINANCIAL IMPLICATIONS

If the GVS&DD Board approves Alternative 1, a contract will be awarded to the highest ranked proposal, Pomerleau, in the amount of up to \$62,942,479.02 (exclusive of taxes), pending resolution of the outstanding non-financial negotiation items.

If the GVS&DD Board chooses not to proceed with Alternative 1, staff will need further direction in relation to the project. Alternative 2 will prevent the project from being completed.

CONCLUSION

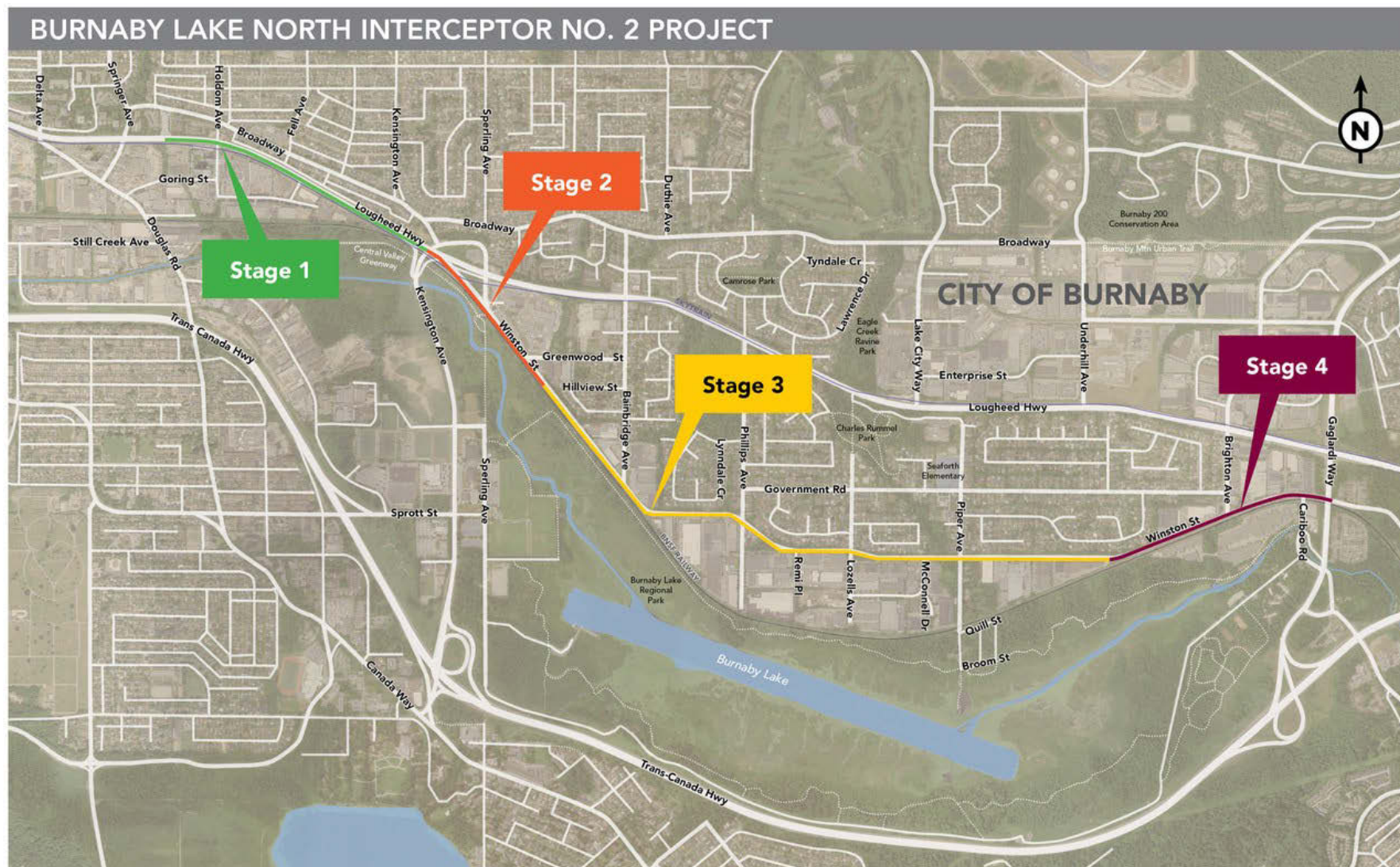
Request for Proposal No. 20-345 was issued for the construction of the, Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 - Trenchless Section. Pomerleau Bessac Infrastructure was confirmed as having the highest ranked proposal. It is recommended that the GVS&DD Board authorize the Commissioner and the Corporate Officer to award and execute a contract with Pomerleau in the amount of up to \$62,942,479.02 (exclusive of taxes).

The construction of Burnaby Lake North Interceptor No. 2 – Winston St Phase 2 - Trenchless Section is a critical connection required to enhance sewer capacity in the City of Burnaby.

Attachment

Burnaby Lake North Interceptor No. 2 Project

47516585



To: GVS&DD Board of Directors

From: Finance and Intergovernment Committee

Date: November 15, 2021 Meeting Date: November 26, 2021

Subject: **Iona Island Wastewater Treatment Plant Projects – Revised Design Concept**

FINANCE AND INTERGOVERNMENT COMMITTEE RECOMMENDATION

That the GVS&DD Board: endorse the revised design concept for the Iona Island Wastewater Treatment Plant projects, as presented in the report dated October 29, 2021 titled “Iona Island Wastewater Treatment Plant Projects – Revised Design Concept”; and direct staff to finalize the project definition report for Board approval in March 2022; and direct staff to host a joint meeting between the GVS&DD Board, Finance and Intergovernment Committee, the Mayors Committee, the Liquid Waste Committee and Regional Parks Committee, including representatives from the Vancouver Sewerage Area and other advisory bodies, on the Iona Island Wastewater Treatment Plant Project to fully consider and receive information on the project including the costs.

At its November 10, 2021 meeting, the Finance and Intergovernment Committee considered the attached report titled “Iona Island Wastewater Treatment Plant Projects – Revised Design Concept”, dated October 29, 2021.

Members requested a joint meeting of GVS&DD Board, a select few standing committees and stakeholders be scheduled, to fully consider and receive information from staff on the Iona Island Wastewater Treatment Plant Project. Should the GVS&DD Board approve the amended recommendation, the joint meeting would ideally occur in late January of 2022, before the final Project Definition Report is presented to the Committees and the GVS&DD Board. The Committee subsequently amended the recommendation as presented above in underline style.

This matter is now before the Board for its consideration.

Attachment

“Iona Island Wastewater Treatment Plant Projects – Revised Design Concept”, dated October 29, 2021

47383533

To: Liquid Waste Committee
Finance and Intergovernment Committee

From: Brett Young, Director, Major Projects, Project Delivery

Date: October 29, 2021 Meeting Dates: November 4, 2021 and November 10, 2021

Subject: **Iona Island Wastewater Treatment Plant Projects – Revised Design Concept**

RECOMMENDATION

That the GVS&DD Board endorse the revised design concept for the Iona Island Wastewater Treatment Plant projects, as presented in the report dated October 29, 2021 titled “Iona Island Wastewater Treatment Plant Projects – Revised Design Concept”; and direct staff to finalize the project definition report for Board approval in March 2022.

EXECUTIVE SUMMARY

Staff recommend a revised design concept for the Iona Island Wastewater Treatment Plant (IIWWTP) projects that includes the flexibility of implementing one of two proven secondary treatment process technologies, Membrane Bioreactor or Aerobic Granular Sludge. These secondary treatment technologies have a more compact footprint and provide a potential capital cost savings of ~10% relative to the earlier design concept. The revised design concept also addresses solids handling concerns while improving on constructability challenges and offering the potential for a reduced construction duration. There are no material changes to the ecological restoration projects, resource recovery opportunities or intended Iona Beach Regional Park uses.

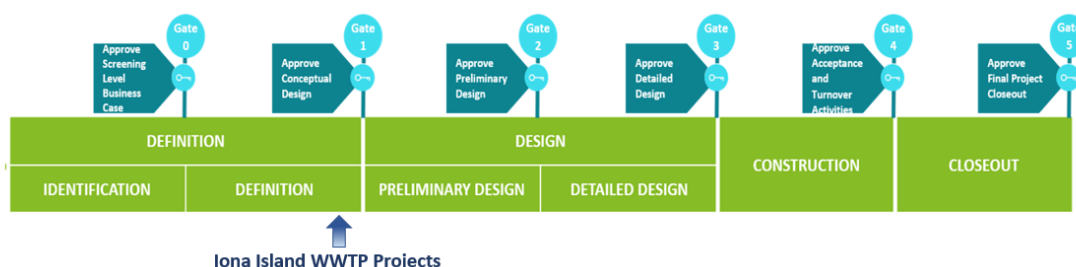
This recommendation was informed by input from an external expert panel and engagement with member jurisdictions, key stakeholders, the public and First Nations. Member jurisdiction staff remain interested in and concerned about household rate impacts from this major capital project.

Further evaluation will be done to refine the design, and validate expected performance and costs for the IIWWTP upgrade, and additional information will be presented with the final conceptual design and project definition report to committees and Board in March 2022.

PURPOSE

To present the revised design concept for the Iona Island Wastewater Treatment Plant projects for Board endorsement, so that staff can finalize the project definition report for Board approval in March 2022. This represents Gate 1 in Metro Vancouver’s *Stage Gate Approval Process* (Figure 1).

Figure 1: Iona Island Wastewater Treatment Plant projects reaching stage gate 1.



BACKGROUND

At its July 30, 2021 meeting, an information report (Reference 1) was presented to the GVS&DD Board that identified a number of challenges to the earlier design concept. These challenges all contributed to higher estimated capital costs than originally anticipated and impacts to the schedule forecasting that the secondary treatment upgrade would be completed in approximately 2034, which is four years later than the regulatory deadline.

The information report presented preliminary cost and schedule information and identified steps underway to address the challenges. These steps included engaging an external expert panel, additional value engineering, and evaluation of options recommended to reduce costs or increase value. Staff also noted Metro Vancouver would engage member jurisdictions, key stakeholders, the public and First Nations on any revised aspects of the projects.

The July 2021 report also noted that staff would report back to the Board in November 2021 with recommended changes to the earlier design concept to address the challenges and seek Board endorsement of a revised design concept to enable staff to finalize the project definition.

ADDRESSING THE CHALLENGES

Challenge Review by External Expert Panel

An external panel of global experts undertook a value engineering exercise in June and July 2021 to challenge the earlier design concept and identify potential cost-saving and value-added opportunities. This process was led by technical specialists who have not been involved in the process to date with expertise in:

- wastewater treatment process design;
- operations and maintenance of large-scale municipal wastewater plants;
- geotechnical engineering, ground improvements and seismic design;
- landscape architecture and ecological restoration projects; and,
- constructability and the successful delivery of large infrastructure projects.

The external expert panel was given a broad mandate to review not only the challenges identified by the project team, but to also identify any other potential concerns with the earlier design concept, and to recommend opportunities to improve the value of the projects in terms of improved operations, reduced cost of construction, and lower total costs of ownership.

Expert Panel Recommendations

As part of the Challenge Review process, the expert panel made a total of 35 recommendations in the following three focus areas:

- wastewater treatment plant process design;
- ecological, community/park integration, and resource recovery; and
- construction considerations.

Many of the recommendations were consistent with value-engineering opportunities identified by the project and consultant teams.

A number of the recommendations, in particular those related to construction considerations and ecological, community and park integration, are applicable to later stages of the projects beyond the current project definition phase and will be further assessed at that time.

To address the cost and other challenges identified in the July 2021 Board report, the expert panel made specific recommendations related to:

1. wastewater treatment process design options, including technologies with more compact footprints to offset the high costs of ground improvements; and,
2. further characterization of site geology and additional seismic design modelling to refine ground improvement cost estimates.

Additional seismic modelling is being done as part of the next steps to finalize the project definition report.

Recommendations related to wastewater treatment process options were further evaluated. As part of a structured decision making process, and in consultation with the expert panel, a short-list of three technology options was developed for further detailed evaluation against the earlier design concept.

Review and Evaluation of Options

The short-listed technology options selected for detailed evaluation were:

- Option 1: Base Case (July 2020 Board-endorsed design concept, Reference 2)
- Option 1A: Modified Base Case
- Option 2: Membrane Bioreactor
- Option 3: Aerobic Granular Sludge

All of these are proven technologies for secondary level treatment of municipal wastewater and were considered earlier in the project definition.

Preliminary layouts to address the challenges were developed for each option with a focus on maintaining traditional views for the Musqueam Indian Band and the goal of providing a net gain in quality land for Iona Island Beach Regional Park. Park land gain would be achieved through conversion of existing lagoons to wetland habitat and other proposed ecological restoration projects. Important elements of the projects related to resource recovery opportunities, the ecological restoration projects and intended park uses are not materially different for any of the options.

Table 1: Summary of key advantages, disadvantages, and trade-offs for IIWWTP project options

Option	Advantages	Disadvantages
1 – July 2020 Design Concept	<ul style="list-style-type: none"> • Layout of WWTP facilities all within GVS&DD owned lands • Familiar to MV operations with migration path to advanced technologies in future 	<ul style="list-style-type: none"> • Interim trucking of sludge to other WWTPs for ~7-year period • Challenges related to constructability and contract packaging flexibility
1A – Modified Base Case	<ul style="list-style-type: none"> • Eliminates need for interim sludge handling by constructing new digestion capacity concurrent with liquid treatment upgrades 	<ul style="list-style-type: none"> • Footprint encroaches significantly onto park land; ecologically fragmenting parkland

Option	Advantages	Disadvantages
	<ul style="list-style-type: none"> Reduces challenges with constructability and contract packaging flexibility 	<ul style="list-style-type: none"> Largest footprint with increased ground improvement costs
2 – Membrane Bioreactor	<ul style="list-style-type: none"> Most compact secondary treatment footprint option with limited impact on MV park land Addresses solids handling and constructability challenges 	<ul style="list-style-type: none"> Option with highest energy demand and higher O&M costs Regular replacement of membranes required every 10 to 12 years
3 – Aerobic Granular Sludge	<ul style="list-style-type: none"> Leading technology with lower O&M costs gaining traction and adoption globally Addresses solids handling and constructability challenges 	<ul style="list-style-type: none"> Limited number of working installations at similar scale and complexity Proprietary technology with only single supplier in the market

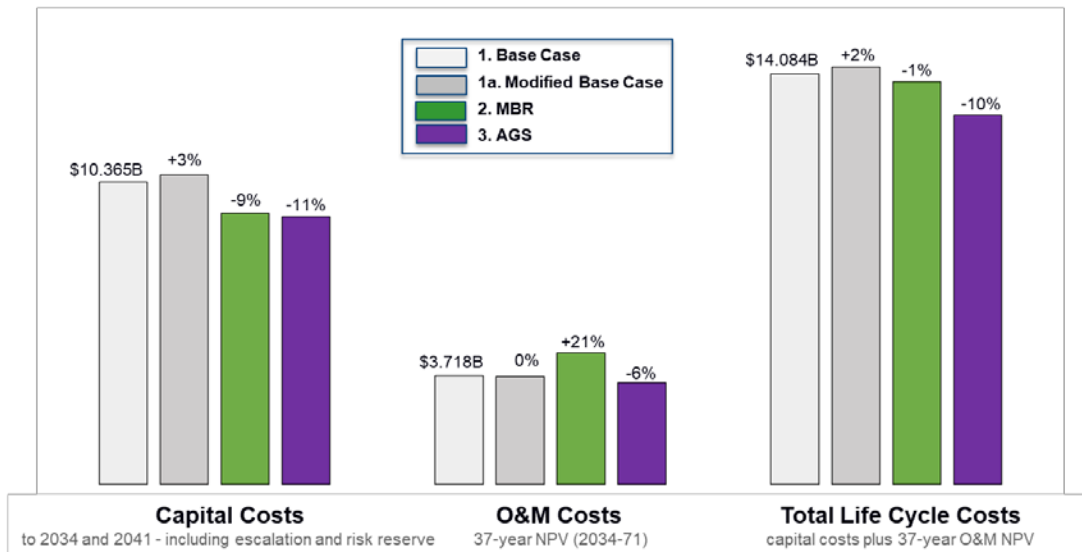
More detailed results from the evaluation of the options is provided in the following section.

RESULTS OF OPTIONS EVALUATION

Preliminary Cost Comparison

Capital and O&M cost estimates (Class 4) were developed, using Metro Vancouver's *Best Practice Project Estimating Framework*, for the three options and compared to Class 3 cost estimates for the base case (July 2020 design concept) as shown in the following figure. This figure is for the initial projects only and does not include costs of future upgrades or expansions.

Figure 2: Preliminary cost comparisons of options being evaluated



Key points from the above figure are:

- Both options involving more compact footprint secondary treatment technologies provide a potential reduction in capital costs of approximately 9% to 11%, due primarily to lower ground improvement costs.
- The higher O&M costs for the Membrane Bioreactor option offset some of the capital cost savings resulting in only a relatively marginal potential reduction (estimated at 1%) in total life-cycle costs.
- Both capital and O&M costs are lower for the Aerobic Granular Sludge option compared to the Base Case with a potential savings of about 10% in life-cycle costs.

Table 2 below summarizes how the options address each of the challenges identified and other key criteria. This is different from the summary table presented earlier at the time of the Board endorsement of the July 2020 design concept and includes the following changes:

- The first part of the table shows how each option compares in addressing the challenges identified with the earlier design concept (base case).
- The second part of the table shows other key issues where (i) certain criteria from the earlier table have been omitted where these are similar for the options considered, and (ii) new criteria specific to these options have been added where outcomes vary and illustrate some of the trade-offs in the decision process.

Table 2: Addressing the challenges and other key criteria

Summary Evaluation Criteria	Option 1 Base Case	Option 1A Modified Base Case	Option 2 MBR	Option 3 AGS
Addressing the Challenges				
Capital costs	Higher	Higher	Medium	Medium
Operations & maintenance costs	Medium	Medium	Higher	Lower
Total project life cycle costs (2034-71)	Medium	Medium	Medium	Medium
Potential to mitigate regulatory compliance delay	Lower	Lower	Medium	Medium
Avoidance of costs/risks re interim solids handling	Lower	Higher	Higher	Higher
Improve constructability and contract flexibility	Lower	Medium	Medium	Medium
Other Criteria and Trade-Offs				
GHG emissions from operations	Medium	Medium	Higher	Lower
Net gain in regional park land area	Higher	Medium	Higher	Higher
Layout extends to undisturbed east park lands	Lower	Higher	Medium	Medium
Risk of delay related to land tenure issues	Lower	Medium	Medium	Medium
Transition to year-round Nitrogen (nutrient) removal	Medium	Medium	Higher	Medium
Proven at similar scale; multiple technology vendors	Higher	Higher	Medium	Lower

REVISED DESIGN CONCEPT

To address the challenges identified, a revised design concept is recommended for the upgrading of the IWWTP that involves:

- A modified layout of the treatment plant allowing for concurrent construction of the additional digester capacity, which avoids the need for trucking sludge solids to other regional treatment facilities and also mitigates some of the constructability challenges.
- The flexibility of implementing either the Membrane Bioreactor or the Aerobic Granular Sludge secondary treatment technologies. These more compact technology footprints offer the potential for significant capital cost savings of approximately 10% relative to the earlier design concept while also offsetting the impacts of the above footprint changes.

The revised design concept will meet all goals and objectives set at the start of the project definition, including tertiary level treatment and upgraded odour control systems. The opportunities for resource recovery remain and the ecological restoration projects are unchanged from the earlier design concept.

The project definition report will be completed with the flexibility of selecting either the Membrane Bioreactor or Aerobic Granular Sludge secondary treatment technologies subject to further evaluation during the preliminary design phase.

The upgrade of the IWWTP will be the largest capital project ever undertaken by Metro Vancouver and additional due diligence is warranted to ensure the most cost-effective project is implemented. These due diligence steps will include:

- undertaking pilot testing of both the Membrane Bioreactor and Aerobic Granular Sludge technologies, as was planned for the earlier design concept; and
- further advancing technical and commercial discussions with potential vendors.

These steps will help to further refine the design, as well as the expected performance and costs of the wastewater treatment process at the scale of the IWWTP upgrade. Pilot testing is frequently undertaken for large and complex wastewater treatment projects and was also done for Metro Vancouver's Seymour-Capilano Filtration Plant in the 2000s. This will not impact overall project schedule provided that priority delivery tasks (including initiating pilot testing) continue as planned.

IMPACTS TO REGIONAL PARK AND LAND TENURE CHANGES

To address the challenges identified, including providing space on site for the concurrent construction of the additional solids handling facilities, the proposed footprint of the plant includes a limited extension (approximately 3 hectares) into Metro Vancouver Regional District (MVRD) park land. Necessary land tenure changes will be facilitated through a land transfer between MVRD and GVS&DD, which will be subject to decisions by both Boards in 2022. Staff are working closely to develop an agreement that ensures a net gain in quality park land on the island. The land tenure transfer also requires provincial approval, which will include Indigenous Nation and public engagement. More information on the process will be brought forward in reports to MVRD and GVS&DD in 2022.

The limited use of park land to facilitate the layout changes will be more than offset by land tenure changes that would result in a much larger area being transferred to the regional park, including

approximately 18 hectares from GVS&DD, through conversion of existing lagoons to wetland habitat and other proposed ecological restoration projects.

There is a risk of delay to the project should land tenure not be resolved in a timely manner. In this case, layout of the upgraded treatment plant would need to be modified to construct part of the facilities on lands to the west of the existing treatment plant, potentially impacting Musqueam's desired view corridors.

PUBLIC AND FIRST NATIONS ENGAGEMENT

Engagement Activity

Further to extensive project definition engagement activities between June 2018 and February 2021, Metro Vancouver conducted engagement with member jurisdictions, the public, key stakeholders, and First Nations from July 30 to October 22, 2021. Staff provided updates and sought feedback on aspects of the projects that could, based on the work undertaken to address the challenges, result in revisions to the design concept that was presented during previous project engagement.

Engagement topics included:

- project cost and schedule estimates for the earlier design concept; and
- treatment technology and plant footprint for the earlier Board-endorsed design concept and three other short-listed technology options.

Table 3: Engagement activities by audience

Audience	Engagement Activity	Date(s)
Member jurisdiction staff	Update presentations at Vancouver Sewerage Area meetings	September 14, 2021 October 12, 2021
	Presentation to City of Vancouver Corporate Leadership Team	October 7, 2021
	Presentations to Regional Engineers Advisory Committee (REAC), Regional Finance Advisory Committee (RFAC), and Regional Administrators Advisory Committee (RAAC)	September 16, 2021 (REAC and RAAC only) October 18, 2021
First Nations	Project update letter including offer to meet	August 24, 2021
	Engagement letter with discussion guide and offer to meet	September 27, 2021
Musqueam Indian Band	Staff to staff meeting	July 30, 2021 September 14, 2021
	Project update letter	August 24, 2021
	Engagement letter with discussion guide with offer to meet	September 27, 2021
Public engagement	Online public comment period (39 participants)	September 27 to October 22, 2021
	Online community meetings (55 participants)	October 12 and 14, 2021
Key stakeholders	Meeting with Vancouver Airport Authority (YVR)	September 22, 2021
	Meeting with Deering Island Homeowners Society	September 24, 2021
	Meeting with Georgia Strait Alliance	September 29, 2021
	Meeting with Vancouver Fraser Port Authority	October 4, 2021
	Meeting with birders and naturalists	October 18, 2021

Meetings with the other groups and agencies also took place during this period to discuss regulatory issues and potential funding opportunities: Environment and Climate Change Canada; Infrastructure Canada; Canadian Infrastructure Bank; federal members of parliament; BC Ministry of Environment and Climate Change Strategy; BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development; BC Ministry of Transportation and Infrastructure; and BC Ministry of Municipal Affairs.

The methods used to promote public engagement and further details on activities are provided in an engagement summary (Attachment 1).

Engagement Feedback

Feedback was provided to Metro Vancouver during meetings, via the online public comment period, and in 13 separate submissions. All feedback received during the engagement period is provided in the engagement summary.

Table 4: Key issues raised during fall 2021 engagement, with Metro Vancouver staff responses

Audience	Key comments/questions/issues	Metro Vancouver (MV) response
Member jurisdiction staff and public audiences	Concern expressed with potential impacts to household rates; interest in receiving further information on these impacts when available.	At the July 30, 2021 Board meeting, staff presented preliminary household rate impacts for the July 2020 design concept. Estimated rate impacts for the revised design concept cannot be updated until cost estimates, schedule, and cash flows are further refined – this information will be presented to committees and Board in March 2022 with the final conceptual design and project definition report. Based on the evaluation to date, the revised design concept provides a potential capital cost savings of ~10% relative to the earlier design concept.
Musqueam Indian Band staff	Concern that Metro Vancouver's (MV's) Iona Island Wastewater Treatment Plant history video doesn't speak to the negative impacts the treatment plant has had on the Musqueam community. Also noted an opportunity to highlight how Musqueam and MV have moved from a place of no consultation, to the immersive and collaborative work being done today.	Comments noted. MV removed the video from the project website and provided the script to Musqueam staff to obtain feedback and integrate revised collaborative content into a revised video.
	Interest in MV sharing a preliminary permit review with Musqueam to help them identify and analyze permits of interest.	MV will share a preliminary permit framework for Musqueam's review.
Public and community members	Desire for higher level of treatment.	The revised design concept includes tertiary level wastewater treatment, exceeding regulatory requirements and providing adaptability to incorporate future advancements in treatment technology.

Audience	Key comments/questions/issues	Metro Vancouver (MV) response
	Preference indicated for Membrane Bioreactor secondary treatment technology in several submissions following public meetings.	This is one of two treatment technologies that will be studied further.
	Desire for increased communications regarding the projects and for MV to share updates regarding cost estimates and schedule.	In September 2021, MV commenced a quarterly email newsletter to provide regular project updates. Refined cost estimates and schedules will be presented to committees and Board in March 2022 as part of the conceptual design and project definition report. The revised design provides a potential capital cost savings of ~10% relative to the earlier design concept and the potential for a reduced construction duration.
	Desire to protect and enhance Iona Island's ecology and habitat for birds and fish.	This is a primary goal of the ecological restoration projects.
Deering Island Homeowners Society	Concern with the proposed location of the materials transport barge berth related to noise and visual impacts.	Concern noted. MV has explored other locations and has determined them infeasible from a property, permitting, and scheduling perspective. Barge berth operations will be restricted to 12 hours a day. MV will continue to provide updates to Deering Island residents including information on permitting requirements.
Georgia Strait Alliance / Obabika	Interest in learning more about the two alternate technologies evaluated as options to the July 2020 design concept.	MV provided responses to technical questions from Georgia Strait Alliance regarding the two alternate technologies in the September 29, 2021 meeting and provided further information in a follow up email.
	Concern with missing 2030 regulatory deadline for secondary treatment, and that secondary and tertiary treatment will not be in effect until 2034.	Concern noted. The revised design concept provides the potential for a reduced construction duration and MV is proceeding with priority delivery tasks immediately to mitigate further schedule impacts.
Birders and naturalists	Desire to limit plant footprint encroachment into MV Parks land.	MV is committed to a net gain in MV Parks land.
	Desire to ensure protection of birds and bird habitat throughout construction and operation of the IWWTP.	Protection of bird habitat is one of the key objectives of the ecological restoration projects, and the impact of construction activities on wildlife and habitat will be mitigated where possible.
	Concern with dewatering of the sewage lagoons and potential for altering island ecological function; desire for detailed assessment of bird diversity / abundance within and around lagoons before commencing dewatering; desire for monitoring programs for lagoons	Lagoon dewatering is needed as a priority to maintain construction schedule. MV will work with birder groups during preliminary design to limit and mitigate the impacts to birds and their habitat, wherever possible. MV is committed to a net gain in MV Parks land, including the creation of

Audience	Key comments/questions/issues	Metro Vancouver (MV) response
	and adjacent habitat before, during, and after construction.	freshwater habitat as part of the ecological restoration projects.
Vancouver Airport Authority (YVR)	Appreciation for MV's acknowledgement of YVR's concerns surrounding bird habitat and aviation safety. Desire to continue working together to ensure that YVR's concerns are addressed.	Comment noted. MV will contact YVR regarding ongoing engagement through participation in the Technical Advisory Panel for the ecological restoration projects.
	Interest in understanding MV's project schedule and priority delivery activities to assist with YVR's planning and delivery of its planned projects in the coming years.	MV will continue to meet with YVR on a regular basis to share information as the projects progress.
Vancouver Fraser Port Authority (VFPA)	Interest in understanding if Iona Island was the only site considered for this development, given the identified complexities and associated estimated costs.	Other locations for the upgrade were studied in 2008/09 but deemed unfavourable for cost, property, permitting and environmental reasons. This was further validated when project definition resumed in 2018 and as part of recent challenge review and value engineering exercises.
	Interest expressed in being involved in the Technical Advisory Panel for the ecological restoration projects.	MV will contact YVR regarding participation in the Technical Advisory Panel for the ecological restoration projects.

An engagement report documenting feedback received since the start of project definition engagement in June 2018 will be provided with the project definition report in March 2022. The report will include how Metro Vancouver is integrating and/or taking action on feedback received to inform the design of the plant and ecological projects.

Further engagement is planned for the preliminary design phase that will follow project definition. Additional engagement activities will be undertaken, as required, to support ongoing priority delivery tasks and related permitting requirements.

NEXT STEPS

Following Board endorsement of the revised design concept, staff will refine the conceptual design, including budget and expected rate impacts, and finalize the project definition report for presentation to committees and Board in March 2022.

ALTERNATIVES

1. That the GVS&DD Board endorse the revised design concept for the Iona Island Wastewater Treatment Plant projects, as presented in the report dated October 29, 2021 titled "Iona Island Wastewater Treatment Plant Projects – Revised Design Concept"; and direct staff to finalize the project definition report for Board approval.
2. That the Board receive for information the report dated October 29, 2021 titled "Iona Island Wastewater Treatment Plant Projects – Revised Design Concept" and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

The revised design concept does not impact the Phase 1 budget (2022 to 2026) and provides a potential capital cost savings of approximately 10% for the overall project.

At the July 30, 2021 Board meeting, staff presented preliminary household rate impacts for the July 2020 design concept. Rate impacts for the revised design concept will be updated once cost estimates, schedule, and cash flows are further refined. This information will be presented to committees and Board in March 2022 with the final conceptual design and project definition report.

OTHER IMPLICATIONS

The preliminary schedule for the July 2020 design concept shows secondary treatment operational in 2034, four years past the regulatory deadline for compliance. The revised design concept has the potential to accelerate the construction schedule by one to two years, to be confirmed in the final project definition report.

CONCLUSION

Staff recommend a revised design concept for the Iona Island Wastewater Treatment Plant projects incorporating a different secondary treatment technology that requires less land and provides a potential capital cost savings of approximately 10% relative to the earlier design concept. The revised concept includes the flexibility of selecting one of two proven secondary treatment process technologies, Membrane Bioreactor or Aerobic Granular Sludge during the preliminary design phase, when further evaluation will be done to refine the design and validate the expected performance and costs of the IIWWTP upgrade.

The revised design concept addresses solids handling concerns while improving on the constructability challenges. It also offers the potential for a reduced construction duration due to the smaller size of the treatment facilities. There are no material changes to the ecological restoration projects or resource recovery opportunities.

During engagement on the options being evaluated, member jurisdiction staff reiterated their interest in, and concern with, expected household rate impacts from this major capital project. This information will be presented with the final conceptual design and project definition report to committees and Board in March 2022. Staff recommend Alternative 1.

Attachment

Engagement Summary: Iona Island Wastewater Treatment Plant Projects – July 30 to October 22, 2021

References

1. [“Iona Island Wastewater Treatment Plant Projects – Project Definition Update”](#), report dated June 23, 2021
2. [“Iona Island Wastewater Treatment Plant Project Design Concept”](#), report dated June 23, 2020



Iona Island Wastewater Treatment Plant Projects

Engagement Summary

July 30 to October 22, 2021

October 25, 2021

48530673

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Appendix A - Stakeholder and Community Feedback (Meetings and Correspondence)

Appendix B - Online Public Comment Period Feedback

Appendix C - First Nation Feedback

1. Purpose

This report provides a summary of engagement activities and feedback received for the Iona Island Wastewater Treatment Plant (IIWWTP) projects from July 30 to October 22, 2021.

2. Summer/Fall 2021 Engagement Period

To address the identified challenges with the July 2020 design concept that were presented in the July 30, 2021 project definition update to the GVS&DD Board, the project team has been working to refine the design and develop a revised design concept.

To inform this work, Metro Vancouver conducted engagement with member jurisdictions, key stakeholders, the public, and First Nations in late summer and early fall 2021. Staff provided updates and sought feedback on aspects of the projects that could, based on the work to refine the design, result in revisions to the design concept that was presented during previous project engagement.

Engagement topics included:

- project cost and schedule estimates for the July 2020 design concept; and
- treatment technology and plant footprint for the July 2020 design concept and three alternate short listed technology options.

Engagement activities conducted and key feedback received are outlined in the subsequent sections by audience.

3. Previous Project Definition Engagement

The summer/fall 2021 engagement period followed extensive IIWWTP project definition engagement activities between June 2018 and February 2021.

In early 2022, a full report of stakeholder, public, and First Nation feedback received since summer 2018 will be provided to committees and the GVS&DD Board for consideration along with the final Project Definition Report. For reference, a summary of IIWWTP Projects engagement between 2018 and early 2021 is provided in the graphic below.



Figure 1: Summary of IIWWTP Projects engagement activities, from 2018 to early 2021.

4. Summary of Audiences and Activities

The following engagement activities, by audience, took place between July 30 to October 22, 2021:

Vancouver Sewerage Area (VSA) Member Jurisdictions

Members:

- City of Vancouver
- City of Richmond
- City of Burnaby
- University Endowment Lands (UEL)
- University of British Columbia (UBC)

Activities:

- Update presentations at VSA meetings: September 14 and October 12, 2021
- Presentation to City of Vancouver Corporate Leadership Team: October 7, 2021
- Presentations to:
 - Regional Administrators Advisory Council (RAAC) and Regional Engineers Advisory Council (REAC): September 16, 2021
 - RAAC, REAC, and Regional Finance Advisory Council (RFAC): October 18, 2021

Key Stakeholders

Organizations and Groups:

- Birders and naturalists
- Deering Island Homeowners Society
- Georgia Strait Alliance / Obabika
- Vancouver Airport Authority (YVR)
- Vancouver Fraser Port Authority (VFPA)

Activities:

- Virtual meeting with YVR: September 22, 2021
- Virtual meeting with Deering Island Homeowners Society: September 24, 2021
- Virtual meeting with Georgia Strait Alliance and Obabika: September 29, 2021
- Virtual meeting with VFPA: October 4, 2021
- Online webinar with birders and naturalists: October 18, 2021 (17 attendees)

Community Engagement

Groups:

- Residents and businesses in proximity to Iona Island (approx. 4,350 addresses)
- Subscribers to project email list (approx. 1,600 contacts)
- Iona Beach Regional Park visitors
- Community members and general public

Activities:

- Online community meeting (webinar format): October 12, 2021 (34 attendees)
- Online community meeting (webinar format): October 14, 2021 (21 attendees)
- Online public comment period: September 27 to October 22, 2021 (39 participants)
- Correspondence received to project inbox: July 30 to October 22, 2021 (13 letters and messages)

Additional details on each of these audiences, associated engagement activities, and input received can be found in Section 5: Stakeholder and Community Feedback.

First Nations

First Nations and Tribal Councils:

- Musqueam Indian Band
- Tsleil-Waututh Nation
- Cowichan Tribes
- Halalt First Nation
- Lake Cowichan First Nation
- Lyackson First Nation
- Penelakut Tribe
- Seabird Island Band
- Shxw'ow'hamel First Nation
- Skawahlook First Nation
- Soowahlie First Nation
- Sto:lo Nation
- Sto:lo Tribal Council
- Stz'uminus First Nation

Activities:

- Staff to staff virtual meeting with Musqueam Indian Band: July 30, 2021
- Project update letter to each First Nation and Tribal Council including offer to meet: August 24, 2021
- Staff to staff virtual meeting with Musqueam Indian Band: September 14, 2021
- Engagement letter and discussion guide to each First Nation and Tribal Council including offer to meet: September 27, 2021

Additional details on First Nation engagement, associated engagement activities, and input received can be found in Section 6: First Nation Feedback.

Meetings with Senior Government Agencies

Meetings with the following also took place during the summer/fall 2021 engagement period to discuss regulatory issues and potential funding opportunities: Environment and Climate Change Canada; Infrastructure Canada; Canadian Infrastructure Bank; federal members of parliament; BC Ministry of Environment and Climate Change Strategy; BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development; BC Ministry of Transportation and Infrastructure; and, BC Ministry of Municipal Affairs.

Communications and Promotions

The following communication tools were used to provide an update about the project and invite participation in the summer/fall 2021 engagement period:

- Reached out via email, mail and phone to key stakeholder groups to organize meetings to discuss project.
- Emails to Musqueam Indian Band to provide updates and organize meetings to discuss project.
- 28 letters sent to 14 First Nations, including offers to meet to discuss the project.
- Rack cards delivered via Canada Post and by hand to over 4,350 residents and businesses located near the project, inviting participation in:
 - the online public comment period (September 27 to October 22, 2021); and
 - the online community meetings (October 12 and 14, 2021).

Rack cards were also provided to the UEL Administration Office.

- Three bulk emails sent to subscribers to project email list (over 1,600 subscribers as of October 2021):
 - September 10, 2021 – Community newsletter including notice of upcoming engagement
 - September 27, 2021 – Invitation to participate in September and October 2021 public engagement opportunities, including meetings and public comment period
 - October 8, 2021 – Reminder of upcoming online community meetings and invitation to participate in both meetings and public comment period
- Six newspaper advertisements placed in Burnaby Now, Richmond News, and Vancouver is Awesome to promote the public comment period and online community meetings.
- Web advertising on the webpages of The Ubysey (UBC Student Newspaper), Burnaby Now, Richmond News, and Vancouver is Awesome, to promote the public comment period and online community meetings.
- Six social media posts, with over 45,000 impressions
- Sign posted at Iona Beach Regional Park to promote the public comment period and online community meetings.
- Updates posted to the Iona Island Wastewater Treatment Plant Project [webpage](#) (3,374 page views between July 30 and October 22, 2021)

5. Stakeholder and Community Feedback

Engagement activities and key feedback received are reported below for each audience. Feedback was collected through meeting notes, virtual meeting transcripts, online questionnaires, and correspondence. A record of all feedback received is provided in the attached appendices:

- Appendix A: Stakeholder and Community Feedback (Meetings and Correspondence)
- Appendix B: Online Public Comment Period Feedback

Staff responses to feedback provided in the period covered by this summary, as well as all feedback that has been received since the start of engagement activities in 2018 will be provided as part of the final engagement summary report that will be presented to committees and the GVS&DD Board for consideration along with the Project Definition Report in early 2022.

Member Jurisdictions

City of Richmond, City of Vancouver, City of Burnaby, UEL, UBC

Engagement Activities:

September 14, 2021	Update presentation at VSA meeting
September 16, 2021	Update presentations to: <ul style="list-style-type: none"> • RAAC • REAC
October 7, 2021	Presentation to City of Vancouver Corporate Leadership Team
October 12, 2021	Update presentation at VSA meeting

October 18, 2021

Update presentations to:

- RAAC
- REAC
- RFAC

Key feedback received:

- Concerns expressed regarding potential impacts to household rates.
- Interest in receiving further information on these impacts when available.

Key Stakeholder Groups

Metro Vancouver met virtually with five key stakeholder groups:

Vancouver Airport Authority (YVR)

Engagement Activity:

September 22, 2021

Virtual engagement meeting with representatives from YVR

Key feedback received:

- Appreciation for Metro Vancouver's acknowledgement of YVR's concerns surrounding bird habitat and aviation safety. Desire to continue working together to ensure that YVR's concerns are addressed because increased bird abundance and specifically snow geese, pose one of the highest risks to aviation safety.
- Interest in understanding Metro Vancouver's project schedule and priority delivery activities to assist with YVR's planning and delivery of its planned projects in the coming years.
- Interest in potential opportunities for Musqueam, Metro Vancouver and YVR to work together and share information as the project moves forward.
- Interest in participating in the Technical Advisory Panel for the ecological restoration projects.
- Interest in how the different technology options could change the work already underway with YVR as it relates to the utilities underneath Ferguson Road, traffic, and staging impacts.
- Interest in what work Metro Vancouver has done to learn how the causeway breach could impact flows in the middle arm and through the blind channel. Desire to understand how the causeway breach could impact flows of water further upstream.
- Interest in whether storm surges are being considered in Metro Vancouver's foreshore modelling.
- Interest in the scope of the effluent heat recovery feasibility study.

Deering Island Homeowners Society

Engagement Activity:

September 24, 2021

Virtual engagement meeting with Deering Island Homeowners Society representative

Key feedback received:

- Concern that the proposed location of the materials transport barge berth will cause visual impacts and a significant amount of industrial noise near Deering Island's residential area.
- Interest in whether the project team looked at other potential barge berth location sites.
- Comment that Metro Vancouver should consider placing the barge berth further west.
- Comment that the Fraser River area near Deering Island is typically noisy due to airplane and marine traffic, and becomes noisier at nighttime due to the frequency of barges. A barge berth could bring more industrial noise to the area.
- Interest in understanding what happens if the Iona Wastewater Treatment Plant project becomes too expensive for the ratepayers to fund.
- Commenter expressed surprise at the length of the project schedule and concern with potential cost escalation due to the 20-year project timeline.
- Interest in understanding whether all of the proposed treatment options are meant to accommodate the solids handling.
- Comment that Deering Island Homeowners Society supports this important environmental project overall.

Georgia Strait Alliance (GSA) and Obabika

Engagement Activity:

September 29, 2021	Virtual engagement meeting with representatives from Georgia Strait Alliance and Obabika
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Key feedback received:

- Interest in learning more about the two alternate technologies being evaluated as options to the July 2020 design concept.
- Concern expressed regarding missing the 2030 regulatory deadline for secondary treatment and that secondary and tertiary treatment will not be in effect until 2034.
- Interest in understanding what occurred following the approval of the Liquid Waste Management Plan in 2011 and Metro Vancouver's commitment to focus efforts on the Lions Gate and Iona Island treatment plants, and how this relates to the current situation where the IIWWTP upgrade is going to take more time than is legally required.
- Interest in whether Metro Vancouver has received approval from the federal government to go past the 2030 regulatory deadline and why there were 18 months of delays for the indicative design to be brought to the Board.
- Interest in understanding whether ratepayers will be solely responsible for covering the total 6.7-billion-dollar cost or if there are other anticipated funding streams.
- Interest in whether the proposed treatment options remove toxins such as pharmaceuticals.
- Interest in understanding how Indigenous knowledge has been integrated into the ecological restoration project planning so far.

- Comment that a lot of GSA's concerns over the last 18 months have been addressed in this project definition update. Appreciation expressed for the time Metro Vancouver has taken to provide the project definition update, the opportunity to have a direct conversation, and for Metro Vancouver's openness and honesty about various aspects of this project. Comment that it is clear now that GSA is a little more aligned than previously thought.
- Comment that GSA believes that we all want the IWWTP to be as good as it can possibly be to reduce pollution in the Salish Sea.
- Offer extended by GSA to help Metro Vancouver in any way they can with regards to discussions with senior government agencies regarding funding for the IWWTP projects.

Vancouver Fraser Port Authority (VFPA)

Engagement activity:

October 4, 2021	Virtual engagement meeting with representatives from VFPA
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Key feedback received:

- Interest in understanding if Iona Island was the only site considered for this development, given the identified complexities and associated estimated costs.
- Interest in being involved in the Technical Advisory Panel for the ecological restoration projects.
- Interest in understanding when households across the region can expect to see impacts to rates.

Birders and Naturalists

Given the ecological significance of Iona Island and the Fraser River estuary, Metro Vancouver is engaging with interested birders and naturalists representing many different groups including:

- | | |
|---|-----------------------------|
| • Birds Canada | • Nature Trust of BC |
| • City of Vancouver | • Nature Vancouver |
| • Delta Naturalists | • Stewardship Centre for BC |
| • Ducks Unlimited | • WildResearch |
| • Environment and Climate Change Canada | • Wild Trust of BC |
| • Nature Canada | • Vancouver Whale Watch |

Engagement Activities:

October 18, 2021	Virtual engagement meeting with birders and naturalists
October 22, 2021	Submission of letter with additional comments from 13 representatives of local bird conservation and research groups

Key feedback received:

- Desire to limit plant footprint encroachment into Metro Vancouver park land.
- Desire to ensure protection of birds and bird habitat throughout construction and operation of the IWWTP into the future.

- Concern expressed regarding the dewatering of the sewage lagoons and potential for altering the island’s ecological function. Desire for detailed assessment of bird diversity and abundance within and around the lagoons before commencing dewatering.
- Desire for Metro Vancouver to develop well designed monitoring programs for the sewage lagoons and adjacent habitats before any activities occur that could potentially alter the ecological function of the island, including monitoring activities before, during, and after construction. Desire for Metro Vancouver to engage with the local wildlife community to help co-develop and implement monitoring and research.
- Comment that the sewage lagoons play a vital in supporting avian diversity on Iona Island—which is home to 285 observed species, the highest recorded diversity of birds in all of British Columbia.
- Comment that the island is an important natural asset that warrants the utmost attention during the development of the project.
- Desire for bird-friendly building design standards to be incorporated into facility and building design, including glass and lighting standards. Interest in learning more about the ecological restoration projects, the technical requirements being incorporated into their design, and what their effects will be on the future ecology of the area.

Public

Community Engagement

Engagement Activities:

July 30 to October 22, 2021	Correspondence received to project inbox (13 letters and messages), including submissions from: <ul style="list-style-type: none"> • Fraser Riverkeeper • West Southlands Residents Association
September 27 to October 22, 2021	Online public comment period (39 participants)
October 12 and 14, 2021	Online community meetings (55 participants)

Key feedback received:

- Desire for higher level of wastewater treatment expressed.
- Preference indicated for Membrane Bioreactor (MBR) secondary treatment technology in several submissions following public meetings.
- Desire for increased communications regarding the projects and for Metro Vancouver to share updates regarding cost estimates and schedule.
- Desire to protect and enhance Iona Island's ecology and habitat for birds and fish. General support expressed for ecological restoration projects.
- Concern expressed regarding missing the 2030 regulatory deadline for secondary treatment, and secondary and tertiary treatment coming into effect in 2034.
- Concern regarding the continued discharge of primary treated effluent into the Salish Sea. Desire for tertiary treatment to be implemented as soon as possible—and no later than 2034—for the health of the surrounding environment.
- Concern expressed about the high cost estimate for the project and that the challenges associated with the increased costs were not addressed earlier.
- Concern expressed regarding impacts to ratepayers. Desire for project to produce the best result while considering impact to households.
- Desire for First Nation engagement and action towards reconciliation. Interest in learning First Nations' perspectives on the project.
- Desire for the true value of the natural environment and the existing debt to nature to be considered when considering project costs and benefits.
- Comment that it is challenging for an individual without technical training or knowledge in the field to make informed comments about wastewater treatment process technologies.
- Interest in understanding if Metro Vancouver has looked into relocating the treatment plant to a different location, especially given current cost estimate.
- Concern expressed regarding the impact of microplastic and microfiber pollution. Desire for the treatment technology selected to address this issue.
- Concern expressed regarding impacts of construction activities, the loss of the existing sludge lagoons, and increased park user access to currently restricted areas of the park on bird populations at Iona Island.
- Interest in the scope of the modelling, studies and investigations being done to inform the projects, and whether lands on the north shore of the North Arm of the Fraser will be included.
- Interest whether Metro Vancouver is considering the energy efficiency and carbon costs of the different technology options.
- Concern expressed regarding the impacts of climate change and sea level rise on Iona Island and the IWWTP and interest in understanding how Metro Vancouver is addressing this issue.
- Desire for Metro Vancouver to demonstrate leadership in the areas of wastewater treatment and environmental action.

See Appendix A: Stakeholder and Community Feedback (Meetings and Correspondence) and Appendix B: Online Public Comment Period Feedback for a list of all feedback received from the audiences listed above.

6. First Nation Feedback

First Nations engagement activities and key feedback received are reported below. Feedback was collected through meeting notes, virtual meeting transcripts, correspondence. A record of all feedback received is provided in the attached Appendix C: First Nation Feedback.

In line with Metro Vancouver's Information Sharing Process, Metro Vancouver has reached out to 14 First Nations and Tribal Councils on the IWWTP Projects:

- Musqueam Indian Band
- Tsleil-Waututh Nation
- Cowichan Tribes
- Halalt First Nation
- Lake Cowichan First Nation
- Lyackson First Nation
- Penelakut Tribe
- Seabird Island Band
- Shxw'ow'hamel First Nation
- Skawahlook First Nation
- Soowahlie First Nation
- Sto:lo Nation
- Sto:lo Tribal Council
- Stz'uminus First Nation

Building on previous correspondence about the projects extending back to November 2018, the following letters were sent to each First Nation or Tribal Council during the late summer to early fall 2021 engagement period:

August 24, 2021	<p>Project update letter</p> <p><i>Purpose:</i></p> <ul style="list-style-type: none">• Notify of the July 30, 2021 Project Definition Update to the GVS&DD Board, identified challenges, and next steps• Provide updates on the priority delivery activities and the status of project permit applications• Offer to meet regarding the projects and provide a point of contact for further discussion
September 27, 2021	<p>Engagement letter</p> <p><i>Purpose:</i></p> <ul style="list-style-type: none">• Invite First Nations and Tribal Councils to share their feedback• Provide a discussion guide with information about the engagement topics included in the current engagement period• Offer to meet regarding the projects and provide a point of contact for further discussion

Metro Vancouver did not receive responses to the correspondence listed above from First Nations or Tribal Councils within the allocated time period, and only Musqueam Indian Band was available to actively engage (see details of engagement activities below). As noted earlier, a full report of First Nation feedback received since the start of IWWTP engagement will be provided to the GVS&DD committees and Board for consideration along with the final Project Definition Report.

Musqueam Indian Band

As part of ongoing collaboration and engagement with Musqueam Indian Band, feedback was provided through staff to staff virtual meetings with the project team.

Engagement Activities:

June 30, 2021	Staff to staff virtual meeting – Provided an update regarding ongoing priority activities, permits and approvals, the identified challenges with the July 2020 design concept and subsequent work to refine the design, and upcoming engagement.
September 14, 2021	Staff to staff virtual meeting – Provided a project update and sought feedback on the July 2020 design concept, subsequent challenges identified, proposed treatment options being evaluated, and priority delivery activities.

Key feedback received:

- Concern expressed that Metro Vancouver’s IIWWTP history video doesn’t speak to the negative impacts the treatment plant has had on the Musqueam community. Also noted an opportunity to highlight how Musqueam and Metro Vancouver have moved from a place of no consultation, to the immersive and collaborative work being done today.
- Interest in Metro Vancouver sharing a preliminary permit review with Musqueam to help them identify and analyze permits of interest.
- Interest in how changes to the design concept will impact Musqueam views.
- Interest in understanding what the driver of the increased footprint option is versus the other treatment options.

7. Next Steps

An engagement summary documenting feedback received since the start of engagement in June 2018, as well as staff responses, will be provided to committees and the GVS&DD Board with the Project Definition Report in early 2022.

Further engagement is planned for the design phase that will follow project definition. Additional engagement activities will be undertaken, as required, to support ongoing priority delivery tasks and related permitting requirements.

Appendix A - Stakeholder and Community Feedback (Meetings and Correspondence)

The following table details all feedback received from stakeholders and members of the public through engagement meetings and correspondence during the July 30 to October 22, 2021 engagement period.

Appendix A: Stakeholder and Community Feedback (Meetings and Correspondence)
July 30 to October 22, 2021

#	Date	Source	Question/Comment/Issue
1	30-Jul-21	Email	Will there be any work done on the section that dissects McCleery golf?
2	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	Are any of the proposed treatment options favoured at this point?
3	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	As MV works through these different considerations to the shift in technology, what upstream impacts do you see shifting that could change the work already underway with YVR as it relates to the utilities underneath Ferguson, traffic and most of the staging impacts? Will those ongoing conversations have to be adjusted or accommodated based on what moves forward?
4	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	Noting the IWWTP projects schedule constraints between now and 2023, how can YVR get ahead of the work YVR needs to undertake to streamline upcoming project activities planned by both YVR and MV?
5	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	YVR appreciates Metro Vancouver's acknowledgement of YVR's concerns surrounding bird habitat and aviation risk. YVR and Metro Vancouver need to continue working together to ensure that YVR's habitat enhancement concerns are addressed because increased bird abundance and specifically snow geese, pose one of the highest risks to aviation safety.
6	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	YVR expressed interest in learning more about the Technical Advisory Panel as information becomes available.
7	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	Has MV done any work to understand how the causeway breach could impact flows in the middle arm, and flows through the blind channel? YVR wants to understand how the causeway breach could impact flows of water further upstream.
8	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	YVR is interested to know if storm surges are being considered in MV's foreshore modelling?
9	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	YVR expressed interest in potential opportunities for Musqueam, Metro Vancouver and YVR to work together and share information as the project moves forward.
10	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	Does MV anticipate that the procured engineering support services, brought on to confirm routing, could encounter changes to the Ferguson road project currently in design?
11	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	What is the scope of the effluent heat recovery feasibility study?
12	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	Which First Nations are you looking to engage with on the IWWTP project definition update?
13	22-Sep-21	Meeting with Vancouver Airport Authority (YVR)	YVR appreciates the opportunity to review the Project Definition update and continue this work together. YVR will connect with staff internally and provide feedback and input on the Project Definition update.

Appendix A: Stakeholder and Community Feedback (Meetings and Correspondence)
July 30 to October 22, 2021

#	Date	Source	Question/Comment/Issue
14	24-Sep-21	Meeting with Deering Island Homeowners Society	Having worked on a number of treatment plant projects, I've never seen a schedule this long.
15	24-Sep-21	Meeting with Deering Island Homeowners Society	Wasn't the schedule of the Annacis Island Wastewater Treatment Plant much shorter?
16	24-Sep-21	Meeting with Deering Island Homeowners Society	Normally if a project happens over a 20-year time, the present day project cost estimate is going to escalate.
17	24-Sep-21	Meeting with Deering Island Homeowners Society	What if the Iona Wastewater Treatment Plant project becomes too expensive for the ratepayers to fund?
18	24-Sep-21	Meeting with Deering Island Homeowners Society	Are all of these proposed treatment options meant to accommodate the solids handling?
19	24-Sep-21	Meeting with Deering Island Homeowners Society	Has the project team looked at other potential barge berth location sites?
20	24-Sep-21	Meeting with Deering Island Homeowners Society	The proposed barge berth location is located directly across from Deering Island and will cause a significant amount of industrial noise near Deering Island's residential area. MV should consider placing the barge berth further west, for example in front of Wreck Beach.
21	24-Sep-21	Meeting with Deering Island Homeowners Society	Noted that the Fraser River area near Deering Island is typically noisy due to airplane and marine traffic. At nighttime this area becomes even more noisy due to the frequency of barges. Believes the addition of a barge berth will bring more industrial noise to the area.
22	24-Sep-21	Meeting with Deering Island Homeowners Society	Deering Island Homeowners Society appreciates MV for taking the time to meet and review the Project Definition Update. Deering Island supports this important environmental project overall. Deering Island Homeowners Society advised MV that the Deering Island Homeowners Society would hold an annual general meeting in October.
23	28-Sep-21	Comment on MV Facebook Post	Let's hope they do a better job than the contractors building the new treatment plant in North Van. Two years behind and millions over budget.
24	28-Sep-21	Comment on MV Facebook Post	Looking so much better.
25	28-Sep-21	Comment on MV Facebook Post	Did a school tour of that facility back in the 1960s, it was world class back then. Any upgrades to control effluent discharges to the environment is money well spent.
26	28-Sep-21	Comment on MV Facebook Post	It's about time; it's a disgrace of what Vancouver and BC in general, do when it comes to water treatment yet always act environmentally friendly and green...

Appendix A: Stakeholder and Community Feedback (Meetings and Correspondence)
July 30 to October 22, 2021

#	Date	Source	Question/Comment/Issue
27	28-Sep-21	Comment on MV Facebook Post	Nice beaches out there [at Iona] and a good hike along the spit. Lots of birds.
28	28-Sep-21	Comment on MV Regional Parks Facebook Post	I hope the upgrade will improve the water quality of Fraser river and Vancouver shoreline!
29	28-Sep-21	Comment on MV Regional Parks Facebook Post	<p>Methan capture, refinement and resale.</p> <p>Dry sludge treated and used for nutrients for non-food trees and plants.</p> <p>Ammonia extracted & refined for use in window cleaner.</p> <p>Urea extratracted and used for D.E.F. or diesel exhaust fluid.</p>
30	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	GSA is seeking clarity on how the 4% resource recovery costs will be allocated (included in the cost estimate pie chart on slide 8 of the IWWTP – Project Definition Update presentation)?
31	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	What is the dollar amount associated with tertiary upgrades as opposed to secondary upgrades?
32	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Are the ratepayers solely responsible for covering the total 6.7 billion dollar cost or are there other anticipated funding streams?
33	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Request for further elaboration on the combined sewer premium cost. Will this extend the timing of plant construction?
34	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Will tertiary treatment be operational at the same time as secondary treatment in 2034?
35	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	The 2034 date is deeply concerning to GSA and caught GSA by surprise because no indication of this risk was communicated prior to the July 2021 board report.
36	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	GSA is interested in understanding what occurred following the approval of the Liquid Waste Management Plan in 2011 and MV's commitment to focus efforts on the Lions Gate and Iona Island Treatment plants. What happened in those preliminary years and why are we suddenly looking at a plant that's going to be taking more time than is legally required?
37	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Could the Iona Island Wastewater Treatment Plant project have been started earlier?
38	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Has MV received approval from the federal government to go past the 2030 regulatory deadline?

Appendix A: Stakeholder and Community Feedback (Meetings and Correspondence)
July 30 to October 22, 2021

#	Date	Source	Question/Comment/Issue
39	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Will the digesters be built in 2041, as was indicated in the IIWWTP July 2021 board report?
40	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	How would all of these treatment plant technologies be used at a changing scale during a high rainfall event? Would there be certain efficacies associated with different technologies during a higher rainfall?
41	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Understands that the fundamental difference between 'tertiary 1' versus 'tertiary 2' would be the sludge activated BNR with the nutrient removal scenario. This type of treatment, used in Kelowna, allows for substantial removal of toxins of high concern. Is that accounted for in this process and is there a different technology that can achieve the same result?
42	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Do the proposed treatment options remove toxins such as pharmaceuticals?
43	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Note that the technologies could change, based on what is needed to address the compound of concern at the time. For example, antidepressants are a big concern in Europe. Could specific technologies target toxins of that nature?
44	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Which wastewater treatment technology doesn't require primary treatment as a separate stage?
45	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	If the AGS option does seem reasonable for our region, would that mean the primary treatment upgrade would not have to happen?
46	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	GSA recognizes that construction projects always take longer than planned, but sees opportunities to explore time savings. Does MV think there may be opportunities to save some time?
47	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Interest in how Indigenous knowledge has been integrated into the ecological restoration project planning so far.
48	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	GSA interested in understanding why there were 18 months of delays for the indicative design to be brought to the Board.
49	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Had MV brought a recommended July 2020 concept to the Board in early 2021, would that have included the new proposed technologies or are these technologies a new addition? Were these PDR delays to the Board associated with ground truthing the various phases and construction realities?

Appendix A: Stakeholder and Community Feedback (Meetings and Correspondence)
July 30 to October 22, 2021

#	Date	Source	Question/Comment/Issue
50	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Noted that a lot of GSAs concerns over the last 18 months have been addressed in this project definition update. Appreciates the time MV has taken to provide the project definition update and appreciates the opportunity to have a direct conversation. It's clear now that GSA is a little more aligned than previously thought. Appreciates MVs openness and honesty about various aspects of this project. GSA was alarmed by the Board report released in July 2021 and felt as though it came out of nowhere, given the fact that GSA wasn't notified about the challenges MV was facing.
51	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	Feel like this meeting has been in the spirit of what GSA hopes MV can go forward with because GSA believes that we all want the IWWTP to be as good as it can possibly be to reduce pollution in the Salish Sea. GSA expressed thanks for MVs contributions at today's meeting and looks forward to working with MV.
52	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	When does the public comment period questionnaire start and end? Does the questionnaire include specific questions or does it provide opportunity for comments?
53	29-Sep-21	Meeting with Georgia Strait Alliance and Obabika	GSA indicated that they would offer to help MV in any way they could. GSA knows that there have been ongoing discussions with government agencies around IWWTP funding. GSA explained that every time GSA has had opportunities to meet with different levels of government around funding, GSA raises the issue of funding the IWWTP and presses them to come to the table. GSA will continue to request the federal and provincial government to help fund the IWWTP projects and alleviate the Board's funding concerns.
54	30-Sep-21	Email	<p>Re: "Treatment plant technology":</p> <p>As the upgrade project proceeds, please foreground the need to filter/capture microplastics/microfibres. We also hope that there would be public education and outreach on this crucial issue.</p> <p>See the link to a recent New York Times article we found relevant. (Also happens to reference Vancouver).</p> <p>https://www.nytimes.com/2021/09/28/science/microfiber-pollution-svalbard.html?action=click&module=Well&pgtype=Homepage&section=Science</p>

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#	Date	Source	Question/Comment/Issue
55	4-Oct-21	Meeting with Vancouver Fraser Port Authority	In regards to the household costs, when will ratepayers across the region expect to see the additional costs? Is it once the IWWTP construction project is complete or is it prior to the construction of the IWWTP?
56	4-Oct-21	Meeting with Vancouver Fraser Port Authority	Given the costly price tag, was this the only site considered for this development with this number of complexities?
57	4-Oct-21	Meeting with Vancouver Fraser Port Authority	VFPA is interested in being involved in the Technical Advisory Panel and learning more about the ecological restoration projects. VFPA is particularly interested in topics around sediment reuse and sand ecosystem restoration work.
58	4-Oct-21	Meeting with Vancouver Fraser Port Authority	Will MV present all of the proposed treatment plant concepts to the public at the upcoming community meetings?
59	8-Oct-21	Comment on MV Facebook Post	To what extent are these lagoons protected from higher tides expected due to climate change?
60	8-Oct-21	Comment on MV Facebook Post	The entire facility is being built basically at sea level facing rising tides, storm surge and increasing flood risk from the Fraser, it would be nice to hear how Metro Vancouver is addressing that.
61	8-Oct-21	Comment on MV Facebook Post	About time. Quick to tax and slow to fix.
62	12-Oct-21	Online Community Meeting	Given the huge extra cost, has there been any thoughts to relocate the project?
63	12-Oct-21	Online Community Meeting	There was discussion of the cost of seismic upgrades. Has there been specific consideration of the costs of sea level rise and climate change?
64	12-Oct-21	Online Community Meeting	Thank you for the presentation. Can you please talk about the impacts of the 4 year delay from the regulatory deadline?
65	12-Oct-21	Online Community Meeting	Will the plant be out of compliance of the regulatory deadline of secondary treatment for 4 years according to this timeline? What will be the impacts of being non-compliant?
66	12-Oct-21	Online Community Meeting	Has an independent estimate and risk quantification review been done outside the project team?
67	12-Oct-21	Online Community Meeting	How much confidence is there on the current 10.4 billion estimate?
68	12-Oct-21	Online Community Meeting	What is the additional cost of choosing the world class tertiary treatment process I pointed out is being used at the Orange Country California treatment plant, compared to the lower quality tertiary treatment process now used at the Brightwater treatment plant that Metro Van has indicated they are considering?
69	12-Oct-21	Online Community Meeting	If there is only one supplier with AGS, how do you negotiate with the supplier if you already have decided to use that technology?

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#	Date	Source	Question/Comment/Issue
70	12-Oct-21	Online Community Meeting	Is there e.coli and bacteria sampling in the salish sea (beyond Iona beach) as part of baseline sampling?
71	12-Oct-21	Online Community Meeting	The images we're seeing show paths between all of the pond areas. We know that birds currently use the inner ponds where access is restricted much more than the outer ponds, particularly at high tide. Would you consider eliminating some of the paths to provide birds with more refuge areas away from people and (especially) dogs?
72	12-Oct-21	Online Community Meeting	I applaud Metro Vancouver for being so conscious of the environment and its importance.
73	12-Oct-21	Online Community Meeting	Is the impact on the shoreline on other side of the North arm of the Fraser being considered/investigated?
74	12-Oct-21	Online Community Meeting	Unfortunately, too many dog owners do not respect posted signs
75	12-Oct-21	Online Community Meeting	What kind of baseline bird surveys is Metro Vancouver collecting right now? Season(s), group of species, survey type, etc.
76	12-Oct-21	Online Community Meeting	Is there going to be any funding available to allow studies by NGOs and student groups of wildlife at the plant in the future?
77	12-Oct-21	Online Community Meeting	Thank you. I did not hear any surveys done for landbirds. Will MV consider surveys for landbirds too given Iona is an important stopover site for a great diversity of migratory landbirds?
78	12-Oct-21	Online Community Meeting	I understand there was plans to place a bridge on the causeway. What is the timing on that structure?
79	12-Oct-21	Online Community Meeting	Does the treatment technology need to be decided before the final project definition can be done?
80	12-Oct-21	Online Community Meeting	Has there been planning consideration to ensure there is sufficient habitat for migratory birds during construction?
81	12-Oct-21	Online Community Meeting	One of your ecological priorities is to "Improve Water Quality" in the Salish Sea and the Federal Government has jurisdiction over marine waters, including protecting the threatened Orca populations. Therefore could you appeal to their desire to enhance public perception of their Orca-protection efforts? That might convince them to contribute the additional cost of implementing world-class tertiary treatment, in order to ensure the highest ecological purity of the outfall being discharged into the Orca's habitat.
82	12-Oct-21	Online Community Meeting	A great presentation. All topics well defined and look forward to future discussions
83	12-Oct-21	Online Community Meeting	Thank you for the presentation. Much appreciated.
84	14-Oct-21	Online Community Meeting	Why is dewatering taking so long?

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#	Date	Source	Question/Comment/Issue
85	14-Oct-21	Online Community Meeting	Has a construction firm been selected for any of these phases yet? Do have to worry about what happened on the Lionsgate stop?
86	14-Oct-21	Online Community Meeting	What is the final effluent quality for the proposed disc filter system in terms of TSS, BOD and COD?
87	14-Oct-21	Online Community Meeting	Who is currently the general contractor on the project?
88	14-Oct-21	Online Community Meeting	What is the population estimate for 2100 being used for the design?
89	14-Oct-21	Online Community Meeting	Can you explain the process you will use to determine which design option will ultimately be selected? (What criteria are used)?
90	14-Oct-21	Online Community Meeting	What's the capital, O & M and lifecycle cost differences among these four options?
91	14-Oct-21	Online Community Meeting	Do you include a cost of carbon in the review of options?
92	14-Oct-21	Online Community Meeting	Which technology is considered financially feasible?
93	14-Oct-21	Online Community Meeting	I work in ecological restoration and marsh conservation. I have worked in the marsh alongside the Iona Island causeway and Sea Island so this issue is close to my heart. Is there any chance that Metro Van will backtrack on the commitment to upgrade to tertiary treatment?
94	14-Oct-21	Online Community Meeting	Is the aerobic granular technology confined to one supplier because of a patent? And, if so when does that expire?
95	14-Oct-21	Online Community Meeting	Will contractors be able to propose alternative consolidation methods to speed up the ground improvement works?
96	14-Oct-21	Online Community Meeting	Given what has recently occurred with the North Shore wastewater treatment plant, how will this shape how you will procure services to deliver the Iona wastewater treatment program?
97	14-Oct-21	Online Community Meeting	Do the people on the panel risk having a conflict of interest if their company ends up on the short list for some of the contracts?
98	14-Oct-21	Online Community Meeting	A graph earlier showed the ecological projects starting in 2023. Are jetty breaches and invasive species removal not already ongoing, or are these not MV related?
99	14-Oct-21	Online Community Meeting	I take my 9ft boat all the way around Sea Island monthly at over 50km a round trip. Does Metro Van have any water lots that can have log storage removed to restore habitats?
100	14-Oct-21	Online Community Meeting	What happens to the log booms currently in some of the reclamation areas?
101	14-Oct-21	Online Community Meeting	Will the breach under the outfall pipe be accessible at high tide or at some other tide stage?

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#	Date	Source	Question/Comment/Issue
102	14-Oct-21	Online Community Meeting	Has an evaluation been conducted on how ecological changes will affect the size and species? For example Brant Geese versus Sandpiper, and their literal impact with aircraft at YVR?
103	14-Oct-21	Online Community Meeting	I'm really excited about the proposals to connect all the channels that used to be there!
104	14-Oct-21	Online Community Meeting	What is the sea level rise assumption for 2100?
105	14-Oct-21	Email from West Southlands Residents Association	<p>I am sending this email on behalf of the West Southlands Residents Association, a neighbourhood across the Fraser from the Iona Island water treatment plant. Although not bordering the Fraser, residents are often on the walkways adjacent to the river.</p> <p>I would like to find out where the barge berth for transportation of construction materials is to be built and whether it is expected to have an impact on the north shore of the Fraser. I have been unable to find anything on the website to clarify the plans.</p> <p>Also, have any studies related to the ecological work include consideration of the impact on the north shore of the Fraser?</p>
106	15-Oct-21	Email from West Southlands Residents Association	West Southlands Residents Association has a long-standing interest in Fraser River -related issues including the shoreline. Many homes are in the flood plain and in recent years have seen the impact of water level rise on their properties, especially during King tides in December and January.
107	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	I'm not able to attend the October 18th Birders and Naturalists meeting, so I've completed the online questionnaire and put my thoughts in writing, in hopes that writing my thoughts will help to emphasize my concerns and will be a help in your zoom discussion.
108	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	Panels state that cost estimates have been developed and updated to take into consideration the challenges mentioned in the previous two panels. I am saddened that the expert engineers who worked on this project design over the past three years, did not already take these factors into account. I am saddened that "constructability" (access challenges and construction in a limited workspace) and "ground improvements" were not fully recognized earlier on in the design phase.

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#	Date	Source	Question/Comment/Issue
109	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	Under Project Overview, one of the bullets about the design states: “Withstand an earthquake and sea level rise”. Early during the initial public meeting phase, the question was raised as to whether it makes economic sense to locate the plant on Iona Island, given that location’s elevation is so very close to current sea level, as well as earthquake stability issues. I recall the response was that other sites had been considered, but none would work. How thorough was this consideration of other possible locations? What portion of the current cost estimate is to cover earthquake stability and sea level rise, given this location on a floodplain island of the Fraser River estuary?
110	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	On the panel titled “What success looks like”, the list is excellent, but one important point is missing. The point that is missing is the aim to: Enhance and sustain the varied natural habitats of Iona Beach Regional Park. These natural habitats include its upland sand dune, shrub and deciduous trees, its intertidal wetlands, and its freshwater ponds and marshes. Yes, there is a bullet which states, to enhance the visitor experience, but what is missing is a statement about the natural habitat. Yes, there is mention of other important nature considerations, such as water quality, salmon, killer whales and marine environment, but there should be a specific statement about the natural habitats of Iona Island Regional Park.
111	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	The terrestrial ecosystems and bird habitat are mentioned in the next panel, that is, the panel titled: “About the July 2020 Board-Endorsed Design Concept – Ecological Restoration Projects”. However, enhancement and sustaining the varied natural habitats of the park should be mentioned in the proceeding panel (“What Success looks like”). As a side note on the topic of natural habitats of the park and consideration of visitor experience and overall environmental well being, it is worth noting that this constitutes only a very small portion of the overall cost of the project – the budget estimate is only 3% for “Ecological Restoration & Community Amenities”.

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112	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	The last statement of the panel on “Ecological Restoral Projects” is misleading. That statement reads: “No modifications to the ecological restoration projects are being considered or evaluated as part of a revised design concept.” Surely this statement is misleading when Design Concept 1a (Modified Base Case) states that more parkland will be used for construction of the facility. If parkland is reduced in size, then this surely will impact the park visitor experience and/or the ability to sustain and enhance the natural habitats of the park.
113	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	Regarding the statement about schedule constraints and that the project would not be completed until about four years after the federal government’s regulatory deadline – should this not be immediately discussed with the responsible federal government staff? There is not much that the public can comment on this scheduling issue and how to resolve.
114	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	The total estimated project costs in 2021 dollars of \$6.7 million and what this amounts to for the Vancouver Sewerage Area households does appear high compared to other Metro Vancouver sewerage areas. How much of the additional cost is due to necessary earthquake proofing and building to withstand sea level rise? Have other locations for the treatment plant been considered?
115	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	In considering overall costs, it should be appreciated that when we discharge our human waste into the ocean, it must be done to full tertiary treatment standard. In accounting dollars, we should calculate the debt owing to nature over the many previous decades of discharging sewerage that had received only basic treatment into the Salish Sea. Has anyone calculated that long term debt to nature?
116	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	Regarding the external panel of subject matter experts who have reviewed the three revised design options presented in subsequent panels – what is the basis for choosing a redesign? Will it be the cheapest cost, measured only in immediate construction costs and not including debt to nature and/or loss of long-term park benefits to nature, including humans? Will the recommendation/decision be made only on which option can be completed by 2030? Those factors are not always included in the Pros and Cons. That is for the panel on Option 1: Base Case, it does not mention under Cons, the high cost and expected completion date of 2034.

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#	Date	Source	Question/Comment/Issue
117	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	Regarding Design Option 1a: Modified Base Case (July 2020 Board-endorsed design concept with use of additional land), it states, "Footprint encroaches onto Metro Vancouver Parks Land". This does not fit with the statement in an earlier panel that the design options under consideration have "no change to ecological enhancement plan". If more parkland will be used, this surely will impact the park visitor experience and/or the ability to sustain and enhance the natural habitats of the park.
118	17-Oct-21	Email in advance of October 18 Birders and Naturalists Meeting	Regarding Option 2 (Membrane Biological Reactor) and Option 3 (Aerobic Granular Sludge), I do not have the required knowledge in sewerage treatment to provide to comment. I assume this is why Metro Vancouver enlisted the help of the external panel. Will the details of their report be public, together with the names of the panel members?
119	18-Oct-21	Meeting with Birders and Naturalists	Are there plans to use eco-friendly alternative concrete that uses less energy to produce and produces less CO2?
120	18-Oct-21	Meeting with Birders and Naturalists	How much of the \$400-500 household costs goes to capital costs and how much is operational?
121	18-Oct-21	Meeting with Birders and Naturalists	What happens to the methane gas?
122	18-Oct-21	Meeting with Birders and Naturalists	Does the water, that is currently ejected into the Salish Sea, still make its way there with all of the options you have mentioned? if not, is the pipe decommissioned?
123	18-Oct-21	Meeting with Birders and Naturalists	Can MV please provide the consequence table developed as part of the structured decisions making process?
124	18-Oct-21	Meeting with Birders and Naturalists	As we see the cost go up at this site, do other alternative sites become feasible or is Iona Island the only option on the table?
125	18-Oct-21	Meeting with Birders and Naturalists	What mitigation is proposed for encroachment in the park lands?
126	18-Oct-21	Meeting with Birders and Naturalists	Since the proposed treatment plant footprint encroachment could result in the loss of parkland, and understanding any loss of parkland would be traded for parkland somewhere else, shouldn't any mitigation for lost land, due to encroachment, be added to the budget?
127	18-Oct-21	Meeting with Birders and Naturalists	Based on the budget and the pie chart, there is \$312,000,000 for community amenities and ecological restoration. Is this all planned for this site (or around it)?
128	18-Oct-21	Meeting with Birders and Naturalists	How are offsets being calculated and where will those offsets be invested? And is there a no net loss approach being utilized in this project?
129	18-Oct-21	Meeting with Birders and Naturalists	Will the ponds be independent of the sewage operation?

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#	Date	Source	Question/Comment/Issue
130	18-Oct-21	Meeting with Birders and Naturalists	With regards to the foreshore work, has MV included a requirement to explore shorebird use and biofilm productivity on the foreshore mudflats?
131	18-Oct-21	Meeting with Birders and Naturalists	With dewatering of the lagoon being imminent, is there a baseline report being prepared on bird use of the lagoons that will be available for review and comment prior to dewatering?
132	18-Oct-21	Meeting with Birders and Naturalists	Will there be fenced off areas for semi public access and more importantly quiet areas for birds?
133	18-Oct-21	Meeting with Birders and Naturalists	Has any consideration been given to incorporating Bird Friendly Building Design as outlined in the Standards Council of Canada?
134	18-Oct-21	Meeting with Birders and Naturalists	Given the areas rich avian diversity, MV should consider bird friendly glass and lighting can be incorporated into future building designs. There is some recent research out of UBC across the river on rather significant numbers of birth deaths resulting from window/building collisions.
135	18-Oct-21	Meeting with Birders and Naturalists	What has the response from YVR been regarding creating bird habitat near the airport? How will their concerns affect the restoration plans?
136	18-Oct-21	Meeting with Birders and Naturalists	With different ecological values of those losses versus proposed swaps for parkland to have this net gain and no net-loss approach (appreciating that is one of MV's guiding principles), can MV indicate where that land swap might occur to understand the differences between those kinds of ecological integrities? Intent is to understand the net gain.
137	18-Oct-21	Meeting with Birders and Naturalists	Comment acknowledging that the IWWTP projects is a great project and the related restoration projects will be wonderful.
138	18-Oct-21	Meeting with Birders and Naturalists	When MV opens up the causeway it will change the flow of the water in the North Arm. Have you looked at the upstream effects?
139	18-Oct-21	Meeting with Birders and Naturalists	Considering that sea level rise in the next century, could rise as much as one metre, how does that affect all the ecological restoration? Since the Iona Island vegetation is very sensitive to tidal flows, how does MV keep ahead of all that work within the plans?
140	18-Oct-21	Meeting with Birders and Naturalists	Could MV look at the ponds and the upland areas in the long-term, thinking about allowing the salt marsh to move up into those areas?
141	18-Oct-21	Meeting with Birders and Naturalists	What surveys have been done so far and which ones are you're planning on doing in the near future?

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#	Date	Source	Question/Comment/Issue
142	18-Oct-21	Meeting with Birders and Naturalists	<p>Will MV be looking at other metrics beyond exploring the number of birds and species?</p> <p>Noted that current research using 10-year banding data sets have been showing interesting results. The patterns of fat gain for migratory birds is an important source for migratory birds to migrate long distances. Research shows that Iona Island is acting as a very important stopover site for these migratory birds.</p> <p>Expressed interest in understanding future metrics related to whether the restoration projects maintain its importance in terms of fueling migratory birds.</p>
143	18-Oct-21	Meeting with Birders and Naturalists	Is it possible to get a map showing the areas that will be lost in the proposed areas for land swaps, to increase the net gain of parkland at some point?
144	18-Oct-21	Meeting with Birders and Naturalists	Is there any discussion of looking at increasing park size elsewhere, as opposed to Iona Island itself? Expressed concern about MV increasing park size and incorporating more mundane land that's perhaps more covered in invasive compared with quality habitat that could perhaps be acquired elsewhere.
145	18-Oct-21	Meeting with Birders and Naturalists	Has any consideration been given to the living dykes project at Boundary Bay and possibly incorporating some of those methods into this project?
146	18-Oct-21	Meeting with Birders and Naturalists	Inquired about Board approval and additional engagement opportunities.
147	18-Oct-21	Meeting with Birders and Naturalists	These proposed design concepts will undoubtedly have some pretty substantial ramifications for Wild Research's programs. At what point in time will there be opportunities for more discussion?
148	18-Oct-21	Email	Will there be another Birders and Naturalists meeting during the engagement period or if there would be a chance to review what was said?
149	20-Oct-21	Telephone inquiry to Metro Vancouver Information Centre	Request to view videos or listen to recordings regarding the Iona Island Wastewater Treatment Plant projects.
150	22-Oct-21	Email from West Southlands Residents Association	Is a timetable available for construction of the barge berth ?
151	22-Oct-21	Letter submission from Fraser Riverkeeper	Fraser Riverkeeper has been working to compel Metro Vancouver to upgrade the Iona Island Wastewater Treatment Plant since 2007. The plant upgrade is a once-in-a-lifetime opportunity to invest in the health of the Salish Sea and adjacent communities.

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#	Date	Source	Question/Comment/Issue
152	22-Oct-21	Letter submission from Fraser Riverkeeper	We were encouraged by Metro Vancouver's announcement last year that the Iona Island Wastewater Treatment Plant, after 57 years of functioning as a rudimentary primary treatment facility, would be upgraded to a tertiary plant. Now is the time to ensure federal regulatory standards are adhered to and timelines are met, as the Wastewater Systems Effluent Regulations require a minimum of secondary treatment of municipal wastewater treatment plants by 2030.
153	22-Oct-21	Letter submission from Fraser Riverkeeper	Fraser Riverkeeper has been pushing for a true tertiary treatment system, complete with the most protective technologies to best protect our communities, since learning of those plans. Fraser Riverkeeper submitted comments in October 2020 in support of a true tertiary plant upgrade with the potential to be truly protective of water quality and fish habitat.
154	22-Oct-21	Letter submission from Fraser Riverkeeper	<p>Metro Vancouver is missing the 2030 regulatory deadline by four years and must avoid any further delay:</p> <p>Metro Vancouver has announced that its committed timeline is four years after the 2030 regulatory deadline for secondary treatment. The federal government requires secondary treatment at all wastewater treatment plants by 2030, but this won't happen at Iona until 2034. The project is also not expected to be fully complete until 2042. While it is encouraging that Metro Vancouver is committing to what it states is tertiary treatment, the delay in adhering to the federal deadline by four years is disappointing.</p> <p>Further delays must be avoided as discharges of deleterious substances into fish-bearing habitat further damages the health of the Salish Sea with each passing day. The primary treated sewage released into the Georgia Strait impacts water quality in vital salmon and orca habitat. Metro Vancouver must commit to implement true tertiary treatment with the best available technology as soon as possible, ensuring that the adjacent habitat built with the plant will benefit the wildlife whose habitat is impacted by longer delays in tertiary.</p>

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#	Date	Source	Question/Comment/Issue
155	22-Oct-21	Letter submission from Fraser Riverkeeper	<p>Membrane Biological Reactor, Technology Option 2, the standard tertiary system technology utilized around the globe, should be incorporated into the design:</p> <p>Metro Vancouver should ensure the most protective and effective of tertiary treatment methods are adopted to protect the Salish Sea and its inhabitants. The decision should be made to prevent the largest quantity of harmful toxins like nitrogen, ammonia, metals, and microplastics from polluting the Salish Sea. Technology Option 2, the Membrane Biological Reactor, represents the most protective option and would boost the Iona Island Treatment Plant to one that is true tertiary, using technology that filters out as many toxins as possible, ensuring that the receiving environment is not endangered.</p>
156	22-Oct-21	Letter submission from Fraser Riverkeeper	<p>In the Spirit of Transparency, Metro Vancouver should maintain and honour the Public's Right to Know around Budget Modifications:</p> <p>Costs for the planned rebuild of Iona's aging wastewater treatment plant have ballooned more than five times since 2019. The new facility was still on target for its \$1.9 billion as recently as 2019. However, a July 2020 report noted that estimate did "not reflect the preliminary design activity since 2018. The list of issues causing delays were not fully taken into consideration when the design concept for the new facility was presented to – and endorsed by – the Metro Vancouver board in July 2020. While it is understandable that unforeseen circumstances arise in the most challenging of projects, the new estimate of \$10.4 billion is a monumental increase. Moving forward, Metro Vancouver must work to ensure transparency regarding the challenges that lead to any future cost overruns as soon as they encounter them.</p>

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#	Date	Source	Question/Comment/Issue
157	22-Oct-21	Letter submission from Fraser Riverkeeper	<p>Metro Vancouver is Leading the Way:</p> <p>While this issue is directly impacting Vancouver, cities across the country look to Vancouver as a leader in environmental action. Its decisions will influence other municipalities facing these or similar choices. Metro Vancouver has the opportunity to be a leader in sewage treatment, and inspire municipalities with smaller populations, budgets, and publicity to take progressive steps to ensure the cleanest water possible. Moving forward with a true tertiary system that is the most protective of marine habitat will set the standard by which other Canadian municipalities can emulate and strive for.</p>
158	22-Oct-21	Letter submission from Fraser Riverkeeper	<p>Our team recognizes the great measures and effort the Metro Vancouver team has undertaken to proceed with this work against the backdrop of the serious challenges presented by the global COVID-19 pandemic. We sincerely thank you for your time and hard work on this Project and for continuing to hear from a broad range of interest groups in your public consultation process.</p>
159	22-Oct-21	Letter submission from Birder and Naturalist Community	<p>Since the start of community consultations in January 2019, the birding community has participated and consistently indicated to MetroVancouver Liquid Waste Services staff the importance of the sewage lagoons and adjacent habitats at Iona Island to avian biodiversity. The birding community has highlighted, on multiple occasions, to MetroVancouver staff that with 285 observed species Iona Island has the highest recorded diversity of birds in all of British Columbia. It is an important natural asset that warrants the utmost attention during the development of this project.</p>
160	22-Oct-21	Letter submission from Birder and Naturalist Community	<p>During the engagement process, MV staff have been informed the sewage lagoons play a vital role in supporting avian diversity and that monitoring of bird populations at Iona Island should occur prior to any major project activities getting underway.</p>

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#	Date	Source	Question/Comment/Issue
161	22-Oct-21	Letter submission from Birder and Naturalist Community	Despite our efforts to explain the ecological significance of the island, we have learned from MetroVancouver Liquid Waste Services staff and supporting consultants that one of the first steps in the Iona Island Wastewater Treatment Plant upgrade, the de-watering of the sewage lagoons, appears to already be underway. It is our understanding that these activities are occurring without a detailed assessment of bird diversity and abundance within and around the lagoons. The process of de-watering and eventual infilling of the sewage lagoons will drastically alter food availabilities and foraging options to the avifauna utilizing the island. It also remains unclear how these landscape level changes are going to be mitigated during the development process given the lifespan of this project.
162	22-Oct-21	Letter submission from Birder and Naturalist Community	Without pre-disturbance monitoring and data collection, it will be impossible for MetroVancouver to determine what impacts and changes in bird diversity, abundance and condition have occurred, and whether restoration efforts have been successful. We would like to see MetroVancouver develop and implement a set of studies focusing on the pre-, during and post-treatment monitoring.
163	22-Oct-21	Letter submission from Birder and Naturalist Community	MetroVancouver has indicated during the engagement process that it is committed to a “not net loss” approach and we commend this vision; however we believe it is important for MV to begin the process of impact assessment as early as possible to ensure it has sufficient pre-development data in hand, to allow staff to reasonably determine both positive and negative outcomes of these activities. To date, the birding community has not been made aware of any plans for such a study.
164	22-Oct-21	Letter submission from Birder and Naturalist Community	During the engagement process, park staff informed the birding community that it was undertaking BC Coastal Waterbird Surveys as a means of allowing staff to gain greater insights into the temporal shifts in waterbird presence on lagoons and ponds. While this may indeed be of some value, there appears to be a lack of discussion relating to quantifying the impacts of this project on migratory and non-migratory landbirds which have been shown to rely on Iona for the important development of fat reserves during migration.

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#	Date	Source	Question/Comment/Issue
165	22-Oct-21	Letter submission from Birder and Naturalist Community	In order to meet the standards of acceptable research design, it is essential that MetroVancouver develop well designed monitoring programs of the sewage lagoons and adjacent habitats before any activities occur that could potentially alter the ecological function of the island. A failure to implement pre-treatment surveys undermines the ability to reach accurate conclusions about potential impacts on avian biodiversity that may be required during latter permitting stages of the project.
166	22-Oct-21	Letter submission from Birder and Naturalist Community	Given the proposed duration of this project, it is entirely possible that the regulatory process might change over the next decade. Greater demonstrations of ethical and responsible development will likely increase through time and we propose that the implementation of a strong monitoring program will only help to further public trust in our regional government.
167	22-Oct-21	Letter submission from Birder and Naturalist Community	Recognizing the significance of the area to wildlife in this province within the local birding community there exists a wealth of expertise and knowledge that we are willing to contribute to a program from MetroVancouver to monitor and analyse data on the avian community at Iona Island. As a community, we respectfully request MetroVancouver re engage with the local wildlife community to help codevelop and implement a research and monitoring program that will provide MetroVancouver with the data required to assess the impact their projects on the bird life at Iona Island. We the co-signed are available to meet with MetroVancouver and discuss a detailed research and monitoring strategy.
168	22-Oct-21	Email accompanying letter submission from Birder and Naturalist Community	Thank you for organizing the October 18th update on the proposed Iona Island Wastewater Treatment Plant. It was helpful to learn how the proposed project is progressing. Just as helpful was learning where things have not progressed, including the level of avian baseline monitoring. Since the October 18th meeting a number of leaders in the bird conservation community have connected with one another and shared concerns around the level of baseline information being used to inform the Iona Island Wastewater Treatment Plant project activities.
169	22-Oct-21	Email accompanying letter submission from Birder and Naturalist Community	Collectively those that have added their names to the attached letter believe more baseline data needs to be collected and analysed before any further activities associated with the upgrade are undertaken. Please find attached a shared letter expressing our concerns and an offer to engage in further dialogue about how to implement required research and monitoring.

Appendix B - Online Public Comment Period Feedback

The following table details all feedback received through the online public comment period questionnaire between September 27 and October 22, 2021.

July 2020 Board-endorsed design concept

QUESTION 1

Do you have any comments about the project cost estimate and schedule as presented in the panels?

#	Date	Response
1	22-Oct-21	no
2	22-Oct-21	<p>IF there's a cost to delay --apart from ecological/water quality costs--is it factored in here? ie if option x can come online faster, will it avoid costly govt penalties, thus offsetting higher operating costs? WOUld like to see that in the 'alternatives' info.</p> <p>Are there 'just around the corner' technologies that were not examined, that might be now considered given things are already delayed? I realize that costs in design & extends timeline, unless faster to build...</p>
3	21-Oct-21	<p>I have concerns about the water sewage costs being ramped up to a 5 year budget instead of spread over 10 years to a more modest yearly increase.</p> <p>66 percent increase is too much to ask of Metro Vancouver residents !</p>
4	20-Oct-21	no
5	20-Oct-21	This is definitely a case where it does not do to be "penny-wise and pound-foolish." I know making the proper investments now will be most beneficial in the long run.
6	20-Oct-21	Can under estimating population growth vs over estimating affect future development opportunities.
7	18-Oct-21	Nothing specific
8	17-Oct-21	<p>I am saddened that the expert engineers who worked on this project design over the past three years, did not already take these factors into account. I am saddened that “constructability” (access challenges and construction in a limited workspace) and “ground improvements” were not fully recognized earlier on in the design phase.</p> <p>Under Project Overview, one of the bullets about the design states: "Withstand an earthquake and sea level rise". Early during the initial public meeting phase, the question was raised as to whether it makes economic sense to locate the plant on Iona Island, given that location's elevation is so very close to current sea level, as well as earthquake stability issues. I recall the response was that other sites had been considered, but none would work. How thorough was this consideration of other possible locations? What portion of the current cost estimate is to cover earthquake stability and sea level rise, given this location on a floodplain island of the Fraser River estuary?</p> <p>The total estimated project costs in 2021 dollars of \$6.7 million and what this amounts to for the Vancouver Sewerage Area households does appear high compared to other Metro Vancouver sewerage areas. How much of the additional cost is due to necessary earthquake proofing and building to withstand sea level rise? Have other locations for the treatment plant been considered?</p> <p>In considering overall costs, it should be appreciated that when we discharge our human waste into the ocean, it must be done to full tertiary treatment standard. In accounting dollars, we should calculate the debt owing to nature over the many previous decades of discharging sewerage that had received only basic treatment into the Salish Sea. Has anyone calculated that long term debt to nature?</p> <p>Regarding the statement about schedule constraints and that the project would not be completed until about four years after the federal government's regulatory deadline – should this not be immediately discussed with the responsible federal government staff? There is not much that the public can comment on this scheduling issue and how to resolve.</p>

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9	15-Oct-21	Missing the federal deadline by four years is disappointing, it could have been avoided and the delay further damages the health of the Salish Sea. However, the region can still make things right by implementing tertiary treatment by 2034, or sooner, as they are promising.
10	13-Oct-21	It's very disappointing that you missed the federal deadline by 4 years, causing further damages to the health of the Salish Sea. I hope that you can complete the tertiary treatment ahead of 2034.
11	13-Oct-21	One comment is that a "design build" concept should not be used. This type of contract increases the risk of project delays and cost over runs. Even if it delays the start of construction, the project should have the design completed before construction contracts are awarded.
12	13-Oct-21	Who has been selected as the General Contractor? or who are on the short list?
13	12-Oct-21	It is not clear why initial estimate was so much lower than current estimate of costs. Where the challenges unanticipated in the initial estim? did materials or labour costs rise more than anticipated? Did all these "challenges" catch the estimators by surprise?
14	12-Oct-21	No
15	10-Oct-21	<p>I understand that the cost of this project is great, but would like to argue that nature is not infinite. In other words, climate change is in full effect and we must protect wild environments with urgency rather than shuffling around dates, money and time.</p> <p>The delays on this project are indicative of a lack of concern and a lack of upholding the human and non-human right to a healthy environment.</p> <p>Iona Island Wastewater Treatment Plant should be upgraded to tertiary treatment by 2030 to 1) reduce senseless human pollution in the Salish Sea, 2) protect migrating salmon of the Fraser River and 3) set an example for municipal projects that are morally good and effective for pristine ecological habitat.</p>
16	10-Oct-21	Missing the federal deadline by four years is disappointing, it could have been avoided and the delay further damages the health of the Salish Sea. However, the region can still make things right by implementing tertiary treatment by 2034, or sooner, as promised.
17	9-Oct-21	It is shocking and disappointing to learn that the federal deadline for this project has been missed by 4 years. The cost has increased exponentially in that time. However, better late than never. We MUST do this project because we need to restore the Fraser Estuary as much as possible - it is one of the most important biodiversity areas in all of Canada - salmon, birds, orca and more depend on this area. Many people depend on this area for their livelihood too. Marshes also store carbon so we must ensure this continues to fight the climate emergency. Cost must be of secondary importance! We must spend the money on projects like these now or nothing else will matter in the future - it will be too late!
18	9-Oct-21	Missing the federal deadline by four years is disappointing, it could have been avoided and the delay further damages the health of the Salish Sea. However, the region can still make things right by implementing tertiary treatment by 2034, or sooner.
19	9-Oct-21	Imagine this project will take several stages. I am not familiar with the costs, but it is necessary step to protect and preserve the Georgia Strait habitat and all its surroundings.
20	9-Oct-21	I am very disappointed that the project schedule will miss the federally mandated 2030 deadline. The cost estimate will, of course reflect the civil construction industry increases due to the excessive delay in starting this project.

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21	9-Oct-21	The most important consideration is the prevention of non-tertiary treated sewage being flowed into the Salish SeaNo
22	9-Oct-21	most people can understand the costs can vary in a project of this complexity and I think it would've been more helpful if the reasons and background to why some of the costs increased so much and been explained in an ongoing and timely manner.
23	9-Oct-21	Yes, implementing tertiary treatment by 2034 or sooner is imperative for the health of the Salish Sea and the entire ecosystem in this region, an incredibly important habitat for salmon, orcas, birds, and other wildlife. Do not delay any longer.
24	9-Oct-21	Unfortunate we will miss 2030 deadline
25	9-Oct-21	Disappointed that the federal deadline is being missed. That is 4 extra years of unnecessary pollution going into the Salish Sea.
26	5-Oct-21	It has to be done. We don't need a cadillac but we need the best result without millions on minor improvements
27	4-Oct-21	What are the repercussions for not completing the upgrades by the 2030 deadline?
28	2-Oct-21	In all these issues, there should be a clear outline by the First Nations with their perspective, given the City will have included them as they are directly impacted, as they were impacted in the first Iona Plant project. before any comment by me as a lay person, and not living adjacent to it< i would expect the First Nations stated views to be included first, and then shared in this city overview etc. so we are fully informed, as part of the appropriate way to move forward!!!!
29	1-Oct-21	No. Seems like a long time to get this built, but I lack knowledge/expertise in this area.

July 2020 Board-endorsed design concept

QUESTION 2

Do you have any comments about the ecological restoration projects? (No modifications to the ecological restoration projects are being considered or evaluated as part of any revised design concept.)

#	Date	Response
30	22-Oct-21	no
31	22-Oct-21	What is the situation with trucking sludge to other locations? it must cost? is it just moving a problem material to future/elsewhere? Is, or might there be in future, recovery potential in it?
32	22-Oct-21	Consider the birds and their habitat when you are making decisions
33	21-Oct-21	no
34	20-Oct-21	I have not been able to access the materials, e.g. a map o that indicates the changes to the area. Would you send them to me? My concerns are that this is an Important Birding Area and a critical habitat for birds. What is being done to protect this natural area?
35	20-Oct-21	no
36	20-Oct-21	I would like you to please prioritize being as energy-efficient as possible, and - where compatible with the above - keep the enroachment on parks as small as possible. Energy efficiency, however, must be priority number one.
37	20-Oct-21	Seems the quality of the outflow could be enhanced to the point of restoring the ability for human consumption of the areas shellfish as well as recreational water safety.
38	18-Oct-21	My main concern is that bird habitat is maintained. It can be a difficult thing to create. I'm pleased to see tidal function being restored in areas by breaching causeways, etc. I suggest a viewing "tower" is not a great idea. Birds do not respond well to having high structures above habitats and people up there. All birds can be viewed well from ground level. Please review consideration of this addition to the grounds.
39	17-Oct-21	The terrestrial ecosystems and bird habitat are mentioned in the panel titled: "About the July 2020 Board-Endorsed Design Concept – Ecological Restoration Projects". However, enhancement and sustaining the varied natural habitats of the park should be mentioned in the proceeding panel ("What Success looks like"). As a side note on the topic of natural habitats of the park and consideration of visitor experience and overall environmental well being, it is worth noting that this constitutes only a very small portion of the overall cost of the project – the budget estimate is only 3% for "Ecological Restoration & Community Amenities". The last statement of the panel on "Ecological Restoral Projects" is misleading. That statement reads: " <i>No modifications to the ecological restoration projects are being considered or evaluated as part of a revised design concept.</i> " Surely this statement is misleading when Design Concept 1a (Modified Base Case) states that more parkland will be used for construction of the facility. If parkland is reduced in size, then this surely will impact the park visitor experience and/or the ability to sustain and enhance the natural habitats of the park.
40	13-Oct-21	MORE IS BETTER, we have a lot of past sins to make up for.
41	13-Oct-21	What part does the First Nations have in this Project?
42	12-Oct-21	It is not clear from information that I have found whether the impact on the opposite shoreline, along the north arm of the Fraser, has been included in evaluations and monitoring.
43	12-Oct-21	No
44	10-Oct-21	I respect that Iona Beach and Regional Park have been redesigned in the past 20 years to benefit hundreds migratory birds. However, the jetty disturbs marine mammal and fish movement; it also represents a graveyard for what was once an abundant crustacean habitat.

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45	10-Oct-21	Is there going to actually be an improvement in the new ecology by destroying the existing one other than what's needed for plant expansion.?
46	9-Oct-21	Sorry, I am not familiar with the plan. I will try and find out the details on line (I Imagine..) I live on Vancouver Island, so I am nor sure if I could be a "valuable custommer" . I will inform myself so that I can give you betttter answers, Thank you
47	9-Oct-21	All reasonable steps should be taken to restore the natural ecosystems.
48	9-Oct-21	i'm just glad ecological restoration projects were included
49	9-Oct-21	why wasn't this planned to be completed earlier than later, why isn't this upgrade to the plant a high high priority?
50	6-Oct-21	sounds like a good plan
51	5-Oct-21	The point here is sewage treatment not environmental enhancements
52	4-Oct-21	While any improvement to the ecological value of the treatment site can be considered positive, was such an extensive proposal required? The environmental gain will be seen in the receiving environment and the water quality discharge.
53	2-Oct-21	<i>See above: "In all these issues, there shpuld be a clear outline by the First Nations with their prespective, given the City will have included them as they are directly impacted, as they were impacted in the first Iona Plant project. before any comment by me as a lay person, and not living adjacent to it< i would expect the First Nations stated views to be included first, and then shared in this city overview etc. so we are fully imformed, as part of the approppriate way to move forward!!!!"</i>
54	1-Oct-21	Agree with need for ecological restoration in lower Fraser River.

Treatment plant technology options and layouts being evaluated

QUESTION 3

Do you have any comments about Technology Option 1 (Base Case - July 2020 design concept)?

#	Date	Response
55	22-Oct-21	no
56	21-Oct-21	no
57	20-Oct-21	no
58	20-Oct-21	This seems the best best.
59	20-Oct-21	Better than previous plans. Does this adequately satisfy the regions desire, hopes and expectations towards a non-septic non-toxic discharge into our waterways?
60	17-Oct-21	The estimated cost does seem high, but in considering overall costs, it should be appreciated that when we discharge our human waste into the ocean, it must be done to full tertiary treatment standard. In accounting dollars, we should calculate the debt owing to nature over the many previous decades of discharging sewerage that had received only basic treatment into the Salish Sea. Has anyone calculated that long term debt to nature?
61	13-Oct-21	We need a true tertiary system. Some of the choices presented do not qualify. Please consider the Membrane Biological Reactor or option 2.
62	13-Oct-21	Not enough knowledge to comment on technology but trucking seems like a reasonable option to have a simple process all on Metro lands. Also, resource recovery and provisions to deal with chemicals of emerging concern would be nice. However, once tertiary is in place these can be added later if the plant is "future proofed" for these. They will be needed in the future.
63	13-Oct-21	Which is the most cost effective technology
64	12-Oct-21	This seems reasonable
65	10-Oct-21	We want a true tertiary system. Some of the choices being presented, however, are not truly tertiary. The Standard tertiary system technology around the globe, and the one that is the best option, is Membrane Biological Reactor or Technology option 2.
66	9-Oct-21	Please avoid this one.
67	9-Oct-21	Ditto: "Sorry, I am not familiar with the plan. I will try and find out the details on line (I Imagine..) I live on Vancouver Island, so I am nor sure if I could be a "valuable custommer" . I will inform myself so that I can give you bettter answers, Thank you "
68	9-Oct-21	Regardless of the technology chosen, the critical issue is to achieve true tertiary treatment as soon as possible, and in any case, no later than 2034.
69	9-Oct-21	No go
70	9-Oct-21	truly tertiary?
71	4-Oct-21	Where is the information on the net effectiveness/ improvement on water quality for each of the treatment options?
72	2-Oct-21	See above: <i>"In all these issues, there shpuld be a clear outline by the First Nations with their prespective, given the City will have included them as they are directly impacted, as they were impacted in the first Iona Plant project. before any comment by me as a lay person, and not living adjacent to it< i would expect the First Nations stated views to be included first, and then shared in this city overview etc. so we are fully informed, as part of the appropriate way to move forward!!!!"</i>

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QUESTION 4

Do you have any comments about Technology Option 1a (Modified Base Case)?

#	Date	Response
73	22-Oct-21	no
74	21-Oct-21	no, Best use to meet the requirements
75	20-Oct-21	no
76	20-Oct-21	Moving towards a higher quality tertiary processing ASAP is the objective, without overloading the system with under estimates of population growth impacts.
77	17-Oct-21	Regarding Design Option 1a: Modified Base Case (July 2020 Board-endorsed design concept with use of additional land), it states, "Footprint encroaches onto Metro Vancouver Parks Land". This does not fit with the statement in an earlier panel that the design options under consideration have "no change to ecological enhancement plan". If more parkland will be used, this surely will impact the park visitor experience and/or the ability to sustain and enhance the natural habitats of the park. The plant redesign and development should not encroach further on parkland.
78	13-Oct-21	Not enough knowledge to comment.
79	12-Oct-21	This seems unreasonable to permanently expand the plant size and encroach on Park Land to alleviate 6-years of temporary trucking.
80	9-Oct-21	Please avoid this one.
81	9-Oct-21	Ditto: "Sorry, I am not familiar with the plan. I will try and find out the details on line (I Imagine..) I live on Vancouver Island, so I am not sure if I could be a "valuable customer" . I will inform myself so that I can give you better answers, Thank you "
82	9-Oct-21	Regardless of the technology chosen, the critical issue is to achieve true tertiary treatment as soon as possible, and in any case, no later than 2034.
83	9-Oct-21	Good option
84	9-Oct-21	truly tertiary?
85	2-Oct-21	See above: <i>"In all these issues, there should be a clear outline by the First Nations with their perspective, given the City will have included them as they are directly impacted, as they were impacted in the first Iona Plant project. before any comment by me as a lay person, and not living adjacent to it i would expect the First Nations stated views to be included first, and then shared in this city overview etc. so we are fully informed, as part of the appropriate way to move forward!!!!"</i>

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QUESTION 5

Do you have any comments about Technology Option 2 (Membrane Biological Reactor)?

#	Date	Response
86	22-Oct-21	no
87	21-Oct-21	no
88	20-Oct-21	Suggest applying the Xogen technology, viewed at https://www.youtube.com/watch?v=2vJZn3Avf70 for additional features engaging this technology.
89	20-Oct-21	I like this one the least.
90	20-Oct-21	<p>Besides being very expensive, locked into supply materials, high maintenance and power requirements, its purposes are apparent. Other techniques may also assist greater clarification and reduction of SS and BOD in a shorter time frame.</p> <p>The Xogen system (xogen.ca) and its branching technologies may reduce the time and degree of solids collection within a compact land space. Though I have neither lock nor stock in the company, engaging its unique technology would be a boon to BC's longevity and well-being, while also visualizing our energy transformation future, preserving petroleum resources for purposes other than combustion.(tinyurl.com/khjk67wz)</p> <p>If some requests to them for piloting such a system, our budgets etc, savings may be found with reduced retention times required, if this process contributes its share of clarification and 'biological reform' eliminating toxic product discharges.</p>
91	17-Oct-21	Regarding Option 2 (Membrane Biological Reactor) and Option 3 (Aerobic Granular Sludge), I do not have the required knowledge in sewerage treatment to provide to comment. I assume this is why Metro Vancouver enlisted the help of the external panel. Will the details of their report be public, together with the names of the panel members?
92	15-Oct-21	I want a true tertiary system. Some of the choices being presented, however, are not truly tertiary. The Standard tertiary system technology around the globe, and the one I think is the best option, is Membrane Biological Reactor or Technology option 2.
93	13-Oct-21	This is the best.
94	13-Oct-21	Not enough knowledge to comment.
95	12-Oct-21	MBR technology is fairly established but I know there are lots of replacements more frequent than 10-years.
96	10-Oct-21	Membrane Biological Reactor or Technology option 2 should be implemented by 2030.
97	9-Oct-21	Technology option 2 is the best option. I realize that this technological piece is very complicated AND that a true tertiary system is critical for the project to be effective to preventing undertreated sewage from entering the waters and further polluting the surrounding ecosystems. We want to be able to swim in our oceans while we stay healthy as do marine creatures.
98	9-Oct-21	It is better to have a true tertiary system, but otherwise this is the best option out of all the options.
99	9-Oct-21	Where do I find the details about the Member Biological Reactor??
100	9-Oct-21	Regardless of the technology chosen, the critical issue is to achieve true tertiary treatment as soon as possible, and in any case, no later than 2034.
101	9-Oct-21	No go

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102	9-Oct-21	Tertiary treatment is ultimately so important and I think Technology Options 2 or 3 would be the best way to go.
103	9-Oct-21	TheStandardtertiary system technology around the globe, and the one I think is the best option, is Membrane Biological Reactor or Technology option 2.
104	9-Oct-21	I believe this is the best option
105	9-Oct-21	reactor? Not earth friendly
106	2-Oct-21	See above: <i>"In all these issues, there shpuld be a clear outline by the First Nations with their prespective, given the City will have included them as they are directly impacted, as they were impacted in the first Iona Plant project. before any comment by me as a lay person, and not living adjacent to it< i would expect the First Nations stated views to be included first, and then shared in this city overview etc. so we are fully imformed, as part of the approppriate way to move forward!!!!"</i>

Treatment plant technology options and layouts being evaluated

QUESTION 6

Do you have any comments about Technology Option 3 (Aerobic Granular Sludge)?

#	Date	Response
107	22-Oct-21	no
108	21-Oct-21	no
109	20-Oct-21	seems okay
110	20-Oct-21	Seems appropriate and well developed.
111	17-Oct-21	Regarding Option 2 (Membrane Biological Reactor) and Option 3 (Aerobic Granular Sludge), I do not have the required knowledge in sewerage treatment to provide to comment. I assume this is why Metro Vancouver enlisted the help of the external panel. Will the details of their report be public, together with the names of the panel members?
112	13-Oct-21	Not enough knowledge to comment.
113	12-Oct-21	I understand this is an emerging technology but has had lots of research done in BC.
114	9-Oct-21	Please avoid this one.
115	9-Oct-21	I will have to look up the details, before being able to answer this question.
116	9-Oct-21	Regardless of the technology chosen, the critical issue is to achieve true tertiary treatment as soon as possible, and in any case, no later than 2034.
117	9-Oct-21	Best option
118	2-Oct-21	See above: <i>"In all these issues, there should be a clear outline by the First Nations with their perspective, given the City will have included them as they are directly impacted, as they were impacted in the first Iona Plant project. before any comment by me as a lay person, and not living adjacent to it< i would expect the First Nations stated views to be included first, and then shared in this city overview etc. so we are fully informed, as part of the appropriate way to move forward!!!!"</i>

General

QUESTION 7

Do you have any other comments about the Iona Island Wastewater Treatment Plant Projects?

#	Date	Response
119	22-Oct-21	What is done with the sludge and dry waste solids. Could they be transported by empty coal trains to interior locations for soil blending, use for forests and agriland development.
120	22-Oct-21	<p>I assume whichever design is selected WILL be capable of removing very small-scale plastic particles? Wish there was included a bit of info on capabilities of options altho I realize it's likely very technical.</p> <p>Is there any attempt to coordinate chosen technologies across the whole lower mainland, or even great area [pacific NW, or western Canada]--maybe can't, because of differing challenges. Seems if there's parallel systems, might be easier to get or train qualified people? or fix problems?</p> <p>I don't have any expertise to comment on the various options, but wow it seems there's quite a variety. Isn't there some way to rank them, apart from specific (& necessary) local considerations, in sense of world-wide current or best or emerging practices?</p>
121	21-Oct-21	keep the improvement costs down by spreading it over 10 years ,not 5 years .
122	20-Oct-21	As mentioned suggest finding a place to engage Xogen to verify its benefits.
123	20-Oct-21	Thank you for all your work on this project.
124	20-Oct-21	<p>Dilution is still not a solution to pollution.</p> <p>The technologies we decide to apply in small or great proportion, have the intrinsic abilities to transform both the energy and viable recirculation of the planets resources.</p> <p>The air quality the facilities produce and the treated sewage outflow characteristics determine the health of the sea and shores, healthy people, better land use value and civilization coexisting with close access to vibrant nature, often the reasons for populaton growth.</p>
125	18-Oct-21	I am keen to see the best possible treatment of wastewater for the area on environmental and human health grounds. I do not have opinions on the technology.
126	17-Oct-21	Regarding the external panel of subject matter experts who have reviewed the three revised design options presented in subsequent panels – what is the basis for choosing a redesign? Will it be the cheapest cost, measured only in immediate construction costs and not including debt to nature and/or loss of long-term park benefits to nature, including humans? Will the recommendation/decision be made only on which option can be completed by 2030? Those factors are not always included in the Pros and Cons. That is for the panel on Option 1: Base Case, it does not mention under Cons, the high cost and expected completion date of 2034.
127	15-Oct-21	<p>It is essential that we have true tertiary treatment ASAP to protect the Salish Sea that so many species as risk depend on, including endangered Southern Resident Killer Whales.</p> <p>The lack of communication and honesty from Metro Vancouver to the community has created distrust around the project. The region should communicate any changes to budgeting and timelines any other complications with stakeholders and the public as soon as they encounter them. The community is an important part of creating a strong plan for the region, and that begins by open communication from Metro Vancouver.</p>

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128	13-Oct-21	<p>Communication to the community should be improved, particularly to changes in budgeting and timelines.</p> <p>The health of the Salish Sea is important to me and many other residents of BC. We can not be a climate leader, or a green community while raw sewage is being pumped into our sea.</p> <p>Please ensure that this project is completed well (with a true tertiary system) and as soon as possible.</p>
129	13-Oct-21	Thanks for making the effort to include tertiary and this consultation process. We look forward to the day when Metro Vancouver is NOT the waste water villain of developed world.
130	12-Oct-21	No
131	10-Oct-21	<p>While I am not an expert regarding any of the issues presented here, I live on this planet and am very concerned with preserving its habitability for all living things. (I also believe that we humans have not come close to understanding our connectedness with all living things. Who would ever have thought that trees communicate with each other???)</p> <p>Just as we have seen that the caribou can not survive when their habitat is degraded and the salmon populations are diminished when their complex habitat needs are destroyed, we, too, need to protect a healthy environment for humans to thrive in.</p> <p>So it would be my wish that finances not be a consideration in developing this facility; the recent election campaign made it clear that we have enough money to provide such 'common good' services. We simply have to make those with the resources pay whatever their 'fair share' requires; they have certainly benefitted more than most from being, in one way or another, a member of this community. This is simply a question of political will.</p>
132	10-Oct-21	<p>Primary treatment at IWWTP is irresponsible in that it pollutes pristine ecological habitat of the Salish Sea.</p> <p>Note: I live in Vancouver, on unceded Musqueam territory.</p>
133	10-Oct-21	The lack of communication and honesty from Metro Vancouver to the community has created distrust around the project. The region should communicate any changes to budgeting and timelines any other complications with stakeholders and the public as soon as they encounter them. The community is an important part of creating a strong plan for the region, and that begins by open communication from Metro Vancouver.
134	9-Oct-21	Communication between Metro Vancouver and its citizens is very important. Metro Vancouver needs to inform us of the reasons why this project is badly needed and be transparent about the delays, cost overages, etc. as soon as they occur. We need the public to be on-side with this project and be willing to pay for it. Your messaging must show courage and leadership - tell the public this is the only way to keep our community and ecosystems healthy. Remind them that we all rely on clean water, air and food to survive so we must take care of nature or else we will not only kill off the plants and animals but also ourselves. Remind them that you are undertaking this project for the sake of each of them and their children/youth.
135	9-Oct-21	The lack of communication and honesty to the community has created distrust around the project. The region should communicate any changes to budgeting and timelines any other complications with stakeholders, the public, and local First Nations as soon as they encounter them. The community is an important part of creating a strong plan for the region, and that begins by open communication.
136	9-Oct-21	Ditto: <i>"I will have to look up the details, before being able to answer this question"</i>

Appendix B: Online Public Comment Period Feedback
September 27 to October 22, 2021

137	9-Oct-21	Project principals must do a better job of communication with the local community, the public and other stakeholders as the project evolves. The continued flow of under-treated effluent into the Salish Sea if unacceptable.
138	9-Oct-21	Should meet the Federal time line or ASAP thereafter.
139	9-Oct-21	There should be an absolute commitment to the completion of the projects by 2034. The date has already been pushed 4 years further than it should be .
140	9-Oct-21	Better communication and transparency please! The region should communicate any changes to budgeting and timelines any other complications with stakeholders and the public as soon as they encounter them. The Salish Sea is critical habitat for numerous endangered and declining species that have cultural importance to Indigenous peoples on the coast and up the Fraser riverbed - if Metro Vancouver is committed to true reconciliation, you will implement the best treatment technologies available at the quickest possible timeline.
141	9-Oct-21	please commit to open, transparent full communications on plans, budgets and schedules. I want to see a full tertiary treatment system.
142	9-Oct-21	lagged time line completion date
143	9-Oct-21	I am not sure which option is best.... not a specialist. But it is important for it to be a true tertiary wastewater treatment.
144	5-Oct-21	Produce the best result while remembering that we taxpayers see our government costs going up faster than incomes. Be resonable. We, the taxpayer, have no rational ability to comment on the best option.
145	2-Oct-21	In all these issues, there shuld be a clear outline by the First Nations with their prespective, given the City will have included them as they are directly impacted, as they were impacted in the first Iona Plant project. before any comment by me as a lay person, and not living adjacent to it< i would expect the First Nations stated views to be included first, and then shared in this city overview etc. so we are fully imformed, as part of the appropriate way to move forward!!!!
146	1-Oct-21	It's very hard for a non-expert member of the public (like myself) to make informed comments on wastewater technologies with which we are unfamiliar.
147	28-Sep-21	this project will be detrimental to the migratory shorebirds that use this place to roost and feed. With endless construction noise and the loss of the precious sewage lagoons turning into duck ponds we will be losing a precious treasure pls reconsider
148	28-Sep-21	When the project is running - I hope that the public can be given performance data and environmental impact assessment data

Appendix C - First Nation Feedback

The following table details all First Nation feedback received during the July 30 to October 22, 2021 engagement period.

Appendix C: First Nations Feedback
July 30 to October 22, 2021

Musqueam Indian Band			
#	Date	Source	Question/Comment/Issue
1	30-Jul-21	Project update meeting with Musqueam Indian Band Staff	How will the proposed design changes impact views to Musqueam?
2	30-Jul-21	Project update meeting with Musqueam Indian Band Staff	What is the driver of the increased footprint option versus the other treatment options?
3	30-Jul-21	Project update meeting with Musqueam Indian Band Staff	<p><i>In response to Metro Vancouver interest in inviting Musqueam staff to participate in the regulatory working group:</i></p> <p>Musqueam staff will need to confirm this with their colleagues, but expect interest. This was discussed previously as a means to help resolve timing and other issues tied to permitting.</p>
4	30-Jul-21	Project update meeting with Musqueam Indian Band Staff	<p><i>In response to Metro Vancouver invitation to Musqueam staff to meet in early September to engage on aspects of the existing IWWTP design concept that could potentially be revised:</i></p> <p>Agreed to meet and confirmed September 14 as the meeting date.</p> <p>Asked Metro Vancouver to structure the September 14 meeting format to accommodate Musqueam staff who can only attend one-half of the two-hour meeting.</p>
5	14-Sep-21	Project Definition Update Engagement Meeting with Musqueam Indian Band (Staff to Staff)	Who is the audience for the "History of Iona Island Wastewater Treatment Plant" video?
6	14-Sep-21	Project Definition Update Engagement Meeting with Musqueam Indian Band (Staff to Staff)	The "History of Iona Island Wastewater Treatment Plant" video doesn't include any content related to the significant negative human health impacts the treatment plant had on Musqueam people. Metro Vancouver should explore opportunities to include voices from the Musqueam community directly impacted by the treatment plant's history.

Appendix C: First Nations Feedback
July 30 to October 22, 2021

Musqueam Indian Band			
#	Date	Source	Question/Comment/Issue
7	14-Sep-21	Project Definition Update Engagement Meeting with Musqueam Indian Band (Staff to Staff)	Agrees with concerns about the "History of Iona Island Wastewater Treatment Plant" video voiced by Musqueam staff. Appreciates the video and sees opportunity to build on the story by spotlighting how Musqueam and Metro Vancouver (Metro Vancouver) have moved from a place of no consultation, to the immersive and collaborative work being done today. Sees opportunity to emphasize how the relationship between Musqueam and Metro Vancouver has progressed.
8	14-Sep-21	Project Definition Update Engagement Meeting with Musqueam Indian Band (Staff to Staff)	When is Metro Vancouver expecting to have the Project Definition Report approved?
9	14-Sep-21	Project Definition Update Engagement Meeting with Musqueam Indian Band (Staff to Staff)	Appreciates Metro Vancouver's commitment to share permits early on in the permitting process. Supports the idea of Metro Vancouver sharing a preliminary permit review with Musqueam to help them identify and analyze permits of interest.
10	14-Sep-21	Project Definition Update Engagement Meeting with Musqueam Indian Band (Staff to Staff)	Is the acquisition of eastern Iona island for the new treatment plant options complicated?

To: Zero Waste Committee

From: Sarah Evanetz, Division Manager, Strategy and Stakeholder Relations, Solid Waste Services

Date: November 9, 2021 Meeting Date: November 17, 2021

Subject: **Report from Solid Waste Management Plan Independent Consultation and Engagement Panel**

RECOMMENDATION

That the GVS&DD Board receive for information the report dated November 9, 2021, titled “Report from Solid Waste Management Plan Independent Consultation and Engagement Panel”.

Report from Solid Waste Management Plan Independent Consultation and Engagement Panel

The attached report from the Solid Waste Management Plan Independent Consultation and Engagement Panel provides an evaluation of the pre-engagement work and responds to staff’s proposed public engagement program.

The Solid Waste Management Plan Independent Consultation and Engagement Panel, established by the GVS&DD Board, was formed in 2020 to act as an independent, third party advising staff and the Board on consultation and engagement. This is the panel’s first report to the Board.

Attachment

“Welcome to Metro Vancouver’s Independent Consultation & Engagement Panel!”, dated, November 9, 2021 (*Orbit # 49066962*)

Welcome to Metro Vancouver's Independent Consultation & Engagement Panel!

The Solid Waste Management Plan Independent Consultation and Engagement Panel ("Independent Panel") was established to act as an independent, third party to provide advice and recommendations to staff and the Board on issues related to development of an updated solid waste management plan.

Why an Independent Panel?

The update to the plan, which was first created in 2011, is a statutory requirement by the Ministry of Environment and Climate Change Strategy. While the Ministry requires a number of advisory committees and processes as part of the update, the decision to include an Independent Panel is over and above those requirements. It responds to the Board's desire to ensure that engagement for the updated plan is comprehensive, robust and responds to their emerging engagement priorities including greater engagement with Indigenous Nations and with specific communities which historically have been underrepresented or equity-denied.

Who is on the Independent Panel?

The Independent Panel was established by the Board in July 2020 and officially appointed by the Board Chair in October 2020. We have four members with a wide breadth of experience in government and engagement. These are Cheryl Brooks, Veronika Bylicki, Peter Fassbender and Andrea Reimer (Chair). Director Jack Froese, Chair of the Zero Waste Committee, acts as a liaison to the Independent Panel.

What does the Independent Panel do?

The scope of work defined in the Independent Panel's [Terms of Reference](#) state that we will advise staff and report out to the Board on engagement during all phases of the solid waste management plan development to ensure consultation is robust and adequate, and feedback is solicited from a variety of interested parties and stakeholders.

To accomplish this, over the course of the past 13 months we have had 11 Independent Panel meetings that covered a wide range of issues and discussions including:

- getting up to speed on waste management in the region,
- providing advice on overarching principles, objectives and methods of engagement,
- providing ongoing advice in the development and implementation of pre-engagement, engagement with First Nations and engagement with communities that have historically been underrepresented or equity-denied,
- providing connections we respectively had to stakeholders in a variety of communities, especially those that are traditionally not well-represented in engagement on Metro Vancouver policy development, and
- acting as a sounding board for approaches to establishing advisory committees mandated by the Ministry of Environment and Climate Change.

In addition to these meetings, we have held two sessions for stakeholders to meet with us directly and presented at two Zero Waste Committee meetings. On behalf of the Independent Panel, the Chair also participated in a Metro Vancouver presentation at the FVRD meeting in May 2021 and has met with Metro Vancouver's Chair of Indigenous Relations and relevant staff to navigate emerging issues related to engagement and the implementation of the provincial *Declaration on the Rights of Indigenous Peoples Act (DRIPA)*.

What is this report for?

This report to the Zero Waste Committee is our first formal report out to the Board and is intended to provide both our evaluation of the pre-engagement work as well as a response to staff's proposed engagement program. Because many of the themes we would like to highlight echo in both of these areas we have decided to structure our report into two sections: (1) What we endorse, and (2) What needs further consideration.

1. What we Endorse

a. Metro Vancouver Staff

We have all been very impressed with the effort that staff put in to both their work with the Independent Panel and the work with stakeholders, communities of interest and Indigenous Nations in the pre-engagement phase and subsequent development of the plan. Despite the substantial engagement challenges presented by COVID, as well as evolving public expectations for engagement, at every step staff have been respectful and clearly are invested in the goals of greatly expanding the audiences and quality of engagement. They have been responsive to our input as well as proactive in seeking it on a wide array of issues that intersect the plan. By being at their best, they have supported the Independent Panel members and everyone else involved in the process to be most effective.

b. The Culture of the Independent Panel

The Independent Panel represents a broad range of experiences, geography, professional backgrounds. In general, differences can create challenges in developing a working relationship that leverages the best of each member of a group. However, we have only found our differences to be strengths that allow us an almost 360 degree view of issues and, more importantly, the ability to identify where we don't have that full perspective. One of the key reasons for this cohesiveness is a shared sense of striving for excellence and a shared responsibility to help create an updated plan that is the result of a meaningful engagement process. Our measure of success is how people feel at the end of the process. Accordingly, each interaction should be the result of thought, care and pushing beyond the traditional approaches which have often left at least some people feeling unheard.

c. Inclusion: No One Left Behind

From the beginning of the Independent Panel's work, we have been guided by the principle of broad inclusion. This is both as a result of the mandate from the Board in regards to underrepresented and equity-denied groups and also from specific areas of expertise that the Independent Panel brings to our work. It manifests in an expanded focus in three areas:

- right relations with Indigenous Nations and people,
- expanding the audiences beyond traditionally engaged institutions and communities, and
- increasing the quality of engagement in order that stakeholders in past processes have a better experience in this one.

While all three of these are a work in progress, through our expertise and networks we've been able to identify challenges and provide some guidance and access to networks to navigate pathways forward (see "What Needs Further Consideration" below).

d. Culture of Trying, Evaluating, Learning...and Trying Again

Throughout the last year we have seen a strong emphasis from staff on pushing this work into new areas. The true value of such an approach isn't the push itself - although that is a pre-requisite - but rather the tolerance for failure that comes along with that push and the commitment to learn from the failure to improve upon the program. We have seen this with staff time and again in both the development and implementation of the pre-engagement and the development of the engagement program itself.

Indeed, the Independent Panel had our own experiences with this. For example, we offered to meet directly with stakeholders as part of the pre-engagement process but miscalculated timing as a result of extra requirements in the online format and a misunderstanding about the total time available. Some stakeholders were upset by this so we offered everyone a chance to meet again. Two stakeholders took us up on this offer and it seemed to increase trust in the process that while we can't promise perfection we can promise to own up to mistakes and work with those impacted to mitigate any perceived harm.

e. Precedent-Setting

From the establishment of the Independent Panel, the development of the updated solid waste management plan represents a very different approach for Metro Vancouver and this has carried through the work over the past year including the extensive and thorough pre-engagement work, pro-active outreach, and deep work on developing an appropriate approach to engagement with Indigenous Nations and people. We recognize that by pushing boundaries there is a high potential to set precedents that have impacts much broader than just one updated plan. In our opinion, staff have been keenly aware of this and have worked with the Independent Panel and other staff and Directors at Metro Vancouver to ensure this is contemplated in the development and implementation of this engagement program. Our hope is that future engagement processes can learn from and build on the successes in this engagement program.

2. What Needs Further Consideration

a. More Engagement Means More Feedback

At a meta-level it's an important thing to consider that the increased commitment to inclusion, both through expanding audiences and also through expanding the transparency of the process for all audiences, means that there will be more challenges identified that need to be worked through. This

doesn't mean that you've created new challenges but rather that you've created a conduit for existing challenges to be resolved.

b. Better Support for Indigenous Engagement

Metro Vancouver has been evolving relationships with Indigenous Nations and people for a number of years. However, the historical approach to engagement on major plans such as the solid waste management plan has been passive at best and created a deficit that will take some time to overcome. Two key considerations will be:

- Directly increasing the capacity of Indigenous Nations and people to engage in the next phases of the plan.
- Understanding that the onus is on Metro Vancouver to make the engagement relevant to Indigenous Nations and people.

c. Anticipating the Future is a Big Shift

The common structure in government is to identify an existing problem and then spend time to develop a current approach to fix the problem. Independent Panel members have observed that in order for the updated plan to be truly successful it needs to be focused on the future, anticipating the demographic, economic, cultural and technological shifts it will be responding to in a time of massive change. Three key considerations in developing the updated plan will be:

- Incorporating accessible information about long term trends into the communication materials.
- Developing new strategies aimed at greatly increasing youth engagement in the development of the plan.
- Conscientiously innovating and expanding reach out to underrepresented and equity-denied communities.

d. Trust

It is likely not a surprise for the Board to hear that some key stakeholders have had historically challenging experiences with Metro Vancouver in relation to waste management policies. These stakeholders have responded positively to new engagement measures in the lead up to the plan including the creation of the Independent Panel, the ability to shape the form of engagement through pre-engagement, proactive outreach and invitation for bi-lateral meetings, and the establishment of advisory committees. At the same time a number of frustrations have been expressed about previous engagement and some solutions offered by the stakeholders that have these frustrations. Two of the more pressing ones to consider in implementing the engagement program:

- Information used in the development of the updated plan – both in outward facing engagement and with the Board – should be objective, timely, easy to access and provide a full view of options. In particular, in external and stakeholder communications information needs to be in plain language and translated when relevant.
- Timelines for feedback should allow for review of materials, any clarifying questions and account for meeting timelines in the cases where Metro Vancouver is looking for formally approved institutional feedback from a board or government.

e. Expanding Who Is Engaged Require New Approaches

We know the Board would like a focus on underrepresented and equity-denied groups and there was very little participation by members of these groups in the pre-engagement. This isn't bad news however – it just shows the limits of relying on the usual distribution channels and speaks to the need for new and novel tactics in the engagement program to ensure that these communities are reached. In addition to the considerations included in the sections above, we would invite the Board to consider:

- It's often the instinct of governments to increase avenues into an engagement process with the hope that it will expand audiences. However, often this gives those already engaged more opportunities...and potentially more frustration at a feeling that they must attend all these additional sessions. A stronger approach is to meet people from communities you are trying to reach where they are already at.
- The diverse range of media available in an online age gives good opportunity to target specific communities noting that per the bullet above, it won't work to expand into new media if you are simply expanding awareness of an invitation to a government-sponsored event that people from a given community are unlikely to attend.
- People coming from underrepresented and equity-denied groups are often economically disadvantaged. In these cases Metro Vancouver should consider providing financial support and/or resources to ensure that this is not the barrier to their participation.

A final word

Thank you for the opportunity to provide this high level feedback to the Zero Waste Committee. We've enjoyed our work over the past year and been challenged (in a good way!) by the emerging complexities of engagement. As Metro Vancouver moves into the implementation phase of the plan we anticipate our role will shift somewhat into more of an oversight role and less hands on. However, as this is a bold experiment we are prepared to try, evaluate, learn, and try again to bring the best support we can to the process of building the next solid waste management plan.

To: Zero Waste Committee

From: Sarah Evanetz, Division Manager, Strategy and Stakeholder Relations, Solid Waste Services

Date: November 8, 2021 Meeting Date: November 17, 2021

Subject: **Solid Waste Management Plan Engagement**

RECOMMENDATION

That the GVS&DD Board approve the solid waste management plan public engagement program as outlined in the report dated November 8, 2021, titled “Solid Waste Management Plan Engagement”.

EXECUTIVE SUMMARY

Regional districts are required by the Province to develop plans for the management of municipal solid waste and recyclable materials. An updated solid waste management plan will guide our region’s policies and collective actions over the next decade and beyond, and engagement is critical to its success. The proposed public engagement program outlines:

- a transparent, inclusive, and responsive engagement
- equitable opportunities for Indigenous peoples, stakeholders, and communities of interest to participate and provide feedback
- methods to increase accessibility and engage underrepresented and equity-denied communities
- an expected timeframe of two to three years

While Indigenous peoples will be invited to participate in all public engagement activities, a separate Indigenous engagement strategy will be implemented. To deliver a robust engagement some new elements have been put in place including an Independent Consultation and Engagement Panel to guide the development and implementation of the public engagement program and a pre-engagement phase to help shape the engagement process.

PURPOSE

The purpose of this report is to seek GVS&DD Board (Board) approval of the public engagement approaches as outlined in this report and the attached solid waste management plan public engagement program.

BACKGROUND

In November of 2019, the Board authorized initiating a solid waste management plan update, as required by the provincial *Environmental Management Act* and according to the provincial guidance document *A Guide to Solid Waste Management Planning*. The current solid waste management plan is the *Integrated Solid Waste and Resource Management Plan* approved by the Minister of Environment in July 2011. The November 2019 report noted that an engagement plan would follow with details about the approach, audience, and timelines for the engagement process.

On July 3, 2020, the Board received for information the terms of reference for the Solid Waste Management Plan Independent Consultation and Engagement Panel (Engagement Panel) – a group of four engagement experts to guide the development and implementation of a robust and inclusive engagement process, including a pre-engagement phase. This Engagement Panel is a new initiative for Metro Vancouver, unique among regional governments, and goes beyond provincial engagement requirements.

On July 16, 2021, the Board received for information a report on pre-engagement results on the solid waste management plan update.

This report outlines proposed public and Indigenous engagement approaches for the update to the solid waste management plan, including an overview of the attached public engagement program.

INDIGENOUS AND PUBLIC ENGAGEMENT

The solid waste management plan is a long-term strategic plan that guides our region's policies and collective actions over the next decade and beyond. An updated plan will build on the strengths of the current plan, and identify opportunities for accelerated waste reduction and diversion while reducing greenhouse gases and promoting a circular economy. Indigenous and public engagement is critical to its success and Metro Vancouver is committed to a transparent, inclusive, and responsive engagement for the solid waste management plan update. Indigenous peoples, stakeholders, and communities of interest need equitable opportunities to participate and provide feedback into the engagement process. To deliver a robust engagement that goes beyond Metro Vancouver's typical process, exceeds provincial requirements, reaches equity-denied and underrepresented communities and addresses previous industry concerns about engagement, some new elements have been incorporated into this public engagement program. An Engagement Panel was formed to guide the development and implementation of the public engagement program, a pre-engagement phase was introduced to help shape the engagement process, and Metro Vancouver engaged on the development of provincially-mandated public and technical advisory committee(s).

The engagement approaches described in this report and the attached public engagement program reflect input from the pre-engagement process and discussions with the Engagement Panel, and member jurisdiction staff. A summary of how input and feedback received during pre-engagement has shaped the engagement approach is attached to the public engagement program.

Indigenous Engagement

Indigenous peoples¹ will be invited to participate in all public engagement activities. A separate Indigenous engagement strategy will help ensure a collaborative government-to-government engagement approach with Indigenous Nations whose territories include all or part of the Metro Vancouver region as well as a community engagement approach with urban Indigenous organizations, off-reserve and non-status First Nations, Métis and Inuit. The Indigenous engagement strategy is an evolving document that will leverage organization wide initiatives and respond to the interests of Indigenous Nations. Metro Vancouver aims to follow the principles of meaningful

¹ Indigenous peoples include Indigenous (First Nations, Métis and Inuit) Nations and Indigenous communities (including urban Indigenous organizations, off-reserve and non-status First Nations, Métis and Inuit).

engagement laid out in the *Declaration on the Rights of Indigenous Peoples Act*, as well as its own policies and commitments towards reconciliation and engagement.

Public Engagement Objectives, Guiding Principles and Approach

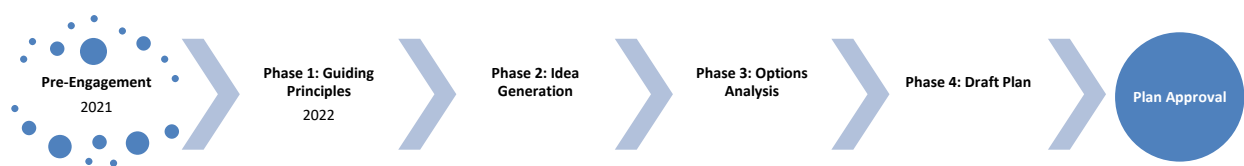
Metro Vancouver is committed to meaningful engagement in the development of all elements of an updated solid waste management plan. Metro Vancouver's approach will align with the spectrum of public participation from the International Association of Public Participation. Based on this approach, the engagement objectives are to:

- Guide the development of an updated solid waste management plan for consideration by the Metro Vancouver Board and Minister of Environment and Climate Change Strategy
- Learn about a broad range of perspectives from residents, communities of interest, and stakeholders and actively consider how the plan can integrate and respond to the learnings
- Foster an environment where a wide range of voices and perspectives are shared
- Facilitate a process of reciprocal learning where stakeholders and communities of interest can share their knowledge and experiences and learn about the benefits and challenges of the regional solid waste system and zero waste initiatives
- Strengthen and build collaborative relationships
- Come to understand perspectives, priorities, and desired outcomes of stakeholders and communities of interest for waste management across the region, with a specific effort to increase participation by diverse and equity-denied groups, such as youth, urban Indigenous communities, small and independent business owners, and people whose first language is not English

The public engagement program will follow the guiding principles of accountability, equity and diversity, inclusiveness, transparency and openness, commitment, and responsiveness and flexibility, which were adapted from Metro Vancouver's guiding principles for community engagement. The principles will be returned to and considered as the plan is developed to ensure ongoing integrity of the engagement.

Public Engagement Scope, Timeline and Phases

The solid waste management plan update process is expected to take two to three years over a phased approach with corresponding engagement. Timing is flexible to ensure maximum participation in a robust, transparent, and meaningful process. The scope of engagement has been identified for the overall public engagement program and will be tailored at each engagement phase. Establishing engagement parameters of what is in and out of scope for discussion allows for success in engagement planning and managing audience expectations.



The pre-engagement phase, completed this spring, sought feedback on engagement preferences and information required for informed participation. This early engagement effort was a step beyond Metro Vancouver's typical process and provincial requirements, and aimed to address previous concerns about engagement. Phase 1 engagement on guiding principles, planned for 2022, will invite dialogue around the fundamental values that will guide the plan vision and direction, and position the criteria to evaluate goals, strategies and actions. The principles set out in the BC Ministry of Environment and Climate Strategy's *A Guide to Solid Waste Management Planning* will serve as a foundation, and principles will be adapted and added to reflect our unique regional solid waste and recycling landscape. Details on engagement planned for subsequent phases will be shared as they are developed with Indigenous peoples, stakeholders, the public and communities of interest.

Public and Technical Advisory Committee

Metro Vancouver will form public and technical advisory committee(s), with sub-committees as required, to advise on plan development and report to staff and the Board. The public and technical advisory committee(s) could consist of a variety of representatives: industry, public community groups, and subject matter experts. The public engagement program will be reviewed with the public and technical advisory committee(s) at an early meeting and updated as needed throughout the plan update process. A separate report recommends structure and membership selection criteria for the public and technical advisory committee(s).

Public Engagement Methods, Audiences and Reporting

Metro Vancouver will strive to reach and involve the following audiences who may be impacted by or have an interest in the solid waste management plan development.

- Community, environmental and non-profit groups, non-governmental organizations, youth and students, schools
- Government and regulatory agencies, including Indigenous peoples in BC, provincial and federal governments, member jurisdictions, adjacent regional districts, crown corporations, airport and port authorities, and health authorities
- Industry and business associations, boards of trade and chambers of commerce, professional associations and academic institutions
- Metro Vancouver residents
- Small to medium sized businesses, innovators, employees within organizations, experts in industry and technology
- Waste and recycling industry, including small and large haulers, processors, extended producer responsibility programs, disposal facilities, and waste/recycling industry associations, binner community, reuse and repair organizations and the Metro Vancouver Solid Waste and Recycling Industry Advisory Committee
- Waste producers, including various sectors such as food service and industry, grocery, construction, tourism, office and property management, real estate, retail, residents, and educational institutions
- And others who may be interested

Special efforts will be made to include equity-denied or underrepresented groups not typically involved in Metro Vancouver solid waste processes, including youth, the binner's community, and non-English language speakers.

Metro Vancouver heard through pre-engagement that timely communication and early and continuous engagement opportunities are important. The following methods and channels may be deployed through the plan development based on the engagement objectives of each phase.

- | | |
|---|---|
| <ul style="list-style-type: none">• Collaboration with others to host third-party workshops and events, and amplify messages (e.g. RCBC, Binnings' Project, cultural and religious organizations)• Educational components (e.g. backgrounders, discussion guides)• Email notifications• Focus groups• Focused, sector- and topic-specific discussions; working groups• In-person meetings, including presentations and discussions at community meeting• Market research surveys• Meetings with Engagement Panel• Multiple language communications where possible and where it serves the audience• Online engagement platform | <ul style="list-style-type: none">• Online meetings• Open houses and workshops• Questionnaires (online or hard copy at community locations)• Press engagement• Printed materials or packages, to be used by individuals or groups to further engagement among their networks• Promotional materials tailored to different audiences, in a variety of media outlets• Social media• Public and technical advisory committee(s) meetings• Telephone polling where appropriate• Updates at existing committee meetings• Videos• Webinars• Website content |
|---|---|

Metro Vancouver will make efforts to collaborate with organizations and community groups to host or facilitate engagement events and amplify communications.

Feedback received through meetings, questionnaires, correspondences and other channels will be analyzed and documented. Following each phase of engagement, Metro Vancouver will report back through interim engagement summary reports to the Zero Waste Committee and Board, on the project webpage, and directly to organizations, community groups and committees involved. A final engagement report will accompany the updated solid waste management plan that will be submitted to the BC Minister of Environment and Climate Change Strategy for approval. The report will include details of the outreach and engagement undertaken, audiences involved and input and feedback gathered, including how feedback was considered and incorporated into the solid waste management plan, where possible.

ALTERNATIVES

1. That the GVS&DD Board approve the solid waste management plan public engagement program as outlined in the report dated November 8, 2021, titled “Solid Waste Management Plan Engagement”.
2. That the GVS&DD Board receive for information the report dated November 8, 2021, titled “Solid Waste Management Plan Engagement” and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

Activities related to planning for and implementing engagement on the update to the solid waste management plan are covered under the approved Solid Waste Services budget. There are no additional financial implications.

CONCLUSION

The solid waste management plan public engagement program summarized in this report outlines a transparent, inclusive and responsive engagement for the solid waste management plan update. The public engagement program includes engagement objectives, guiding principles, phases, methods, audiences, advisory committees and reporting mechanisms, and outlines equitable opportunities for Indigenous peoples, stakeholders and communities of interest to participate and provide feedback. While Indigenous peoples will be invited to participate in all public engagement activities, a separate Indigenous engagement strategy will help ensure a collaborative government-to-government engagement approach. Special efforts will also be made to include equity-denied or underrepresented groups not typically involved in Metro Vancouver solid waste processes. Indigenous and public engagement is critical to the success of an updated solid waste management plan. Staff recommend Alternative 1.

Attachment

Public Engagement Program, Metro Vancouver’s Solid Waste Management Plan Review and Update (Orbit # 40542169) <https://orbit.gvrd.bc.ca/orbit/llisapi.dll/app/nodes/40542169>

48022390

Public Engagement Program

Metro Vancouver's Solid Waste Management Plan Review and Update

Last updated October 27, 2021

40542169



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1. Introduction

Metro Vancouver is updating its solid waste management plan, building on the strengths of the current plan, and identifying opportunities for accelerated waste reduction and recycling while reducing greenhouse gases and promoting a circular economy. Metro Vancouver's current plan, the [*Integrated Solid Waste and Resource Management Plan*](#), approved by the BC Minister of Environment in July 2011, established goals and targets for waste reduction and the recovery of materials and energy from waste, and supporting strategies and actions for Metro Vancouver and its member jurisdictions.

An updated solid waste management plan will guide our region's policies and collective actions over the next decade and beyond and engagement is critical to its success. The plan update process is expected to take two to three years and will be supported by robust Indigenous and public engagement. Additional emphasis is put on increasing accessibility and engaging underrepresented and equity-denied communities. Metro Vancouver is committed to engaging audiences who may be impacted by or have an interest in the review and update of the solid waste management plan, and will seek input and feedback through a multi-phase engagement approach. This document, informed by a pre-engagement process (a summary of what we heard and what we're doing is included in appendix A), provides an overview of the public engagement program for the update of the solid waste management plan and contains the following elements:

- Guiding principles and objectives
- Phases, timeline and methods
- Key audiences
- Public/technical advisory committee
- Reporting

While Indigenous peoples¹ will be invited to participate in all public engagement activities, a separate draft Indigenous engagement strategy outlines a collaborative engagement approach. Metro Vancouver is guided by the principles of meaningful engagement laid out in the [*Declaration on the Rights of Indigenous Peoples Act*](#), as well as its own policies and commitments towards reconciliation and engagement.

Developing an Updated Solid Waste Management Plan

The Greater Vancouver Sewerage and Drainage District (GVS&DD) is one of four separate corporate legal entities commonly referred to collectively as Metro Vancouver. For the purposes of this document, Metro Vancouver will be used to describe the GVS&DD.

Metro Vancouver is committed to environmental stewardship and the desire to keep waste management affordable. Metro Vancouver's role in regional solid waste management includes recycling and waste reduction regulation and planning and the operation of a regional network of solid waste facilities.

¹ Indigenous peoples for the purpose of this strategy include Indigenous (First Nations, Métis and Inuit) Nations and Indigenous communities (including urban Indigenous organizations, off-reserve and non-status First Nations, Métis and Inuit).

Responsibilities include ensuring an effective regional regulatory framework, promoting waste reduction, improving reuse and recycling systems, and managing residual waste.

The Metro Vancouver Board of Directors, advised by the Zero Waste Committee, approves policies, bylaws, plans, programs, budgets and issues related to solid waste management, including monitoring the implementation of the *Integrated Solid Waste and Resource Management Plan*. The Board will provide oversight of the plan update process, before considering, endorsing, and submitting it to the BC Minister of Environment and Climate Change Strategy for approval.

The current *Integrated Solid Waste and Resource Management Plan* was endorsed by the Board and member jurisdictions prior to receiving provincial approval, subject to Ministerial conditions, in July 2011. Provincial guidelines recommend initiating a plan review on or before the 10-year anniversary of the current plan's approval. In November 2019, the Metro Vancouver Board authorized initiating an update of the solid waste management plan and notifying the public and Indigenous Nations.

An updated solid waste management plan will draw on opportunities for accelerated waste reduction and diversion, while reducing greenhouse gases and promoting a circular economy. Themes of resiliency, equity, collaboration, climate action, regional growth, innovation, financial sustainability, and system stewardship will be central to the process. The updated solid waste management plan will align and seek linkages with other plans and initiatives including the Canada-wide Strategy on Zero Plastic Waste, the Government of BC's CleanBC and Plastics Action Plans, member municipalities' waste reduction initiatives, adjacent regional district solid waste management plans, and Metro Vancouver's *Board Strategic Plan*, *Resilient Region Strategic Framework*, *Metro 2050*, *Climate 2050*, and *Clean Air Plan*.

Governing Legislation

The provincial [Environmental Management Act](#) outlines local government responsibilities for solid waste management and requires regional districts to develop plans for the management of municipal solid waste and recyclable materials that are subject to approval by the BC Minister of Environment and Climate Change Strategy.

In parallel, municipal governments often have their own bylaws on solid waste, typically for municipally provided recycling and waste services, fees and charges, and proper management of waste in residential and/or commercial settings within the municipality.

The provincial [Greater Vancouver Sewerage and Drainage District Act](#) governs the disposal of garbage and recyclables in Metro Vancouver, including the purchase, construction, operation, maintenance, and administration of facilities for the disposal of all types of waste.

The provincial document [A Guide to Solid Waste Management Planning](#) provides guidance on amending and renewing solid waste management plans, including the planning and consultation processes, which have been incorporated into this public engagement program:

- Initiate the planning process
- Set the plan direction
- Evaluate options
- Prepare and adopt the plan

Before approving an updated plan, the BC Minister of Environment and Climate Change Strategy must be satisfied that there has been adequate public review and engagement during the development of the solid waste management plan. Following Board endorsement, Metro Vancouver will submit an engagement summary and draft updated solid waste management plan to the Minister for consideration.

2. Guiding Principles and Objectives of Engagement

Metro Vancouver is committed to a transparent and inclusive engagement for the update to a new solid waste management plan. To ensure such a process, stakeholders and communities of interest need to have equitable opportunities to participate and provide feedback into the engagement process. To deliver a robust engagement process that goes beyond Metro Vancouver's typical process, exceeds provincial requirements, and addresses previous industry concerns about engagement, a pre-engagement phase was introduced to help shape the engagement process. In addition, an Independent Consultation and Engagement Panel (Engagement Panel) was formed to guide development and implementation of engagement, and Metro Vancouver engaged on the development of a provincially-required public and technical advisory committee(s). A separate Indigenous engagement strategy will outline a separate, collaborative approach with Indigenous peoples, which will take place concurrent with public engagement.

Solid Waste Management Plan Independent Consultation and Engagement Panel

An [Engagement Panel](#), made up of four independent, third-party engagement experts selected by the Metro Vancouver Board Chair, was formed in 2020 to provide advice and recommendations to staff and the Board on engagement. The Engagement Panel reviews and advises on the development and implementation of the public engagement program, and will report to the Board on engagement during all phases of the solid waste management plan development to ensure engagement is robust and adequately solicits feedback from a variety of communities of interest and stakeholders. The panel has played a key role in the development of this engagement plan. Throughout engagement on the solid waste management plan update, opportunities will be created for stakeholders and communities of interest to present to the Engagement Panel to provide feedback on the engagement process.

Guiding Principles of Engagement

The public engagement program will be informed by best practices and regulatory requirements, and will reflect the following guiding principles based upon and adapted from Metro Vancouver's Board Policy on Public Engagement.

Accountability

Metro Vancouver will uphold the commitments it makes to the public and demonstrate that the results and outcomes of the engagement process are consistent with the approved plans for engagement.

Equity and Diversity

Metro Vancouver will implement an accessible and inclusive engagement process that considers equity and diversity at its core and encourages participation by equity-denied groups².

² Equity is the fair distribution of opportunity, privilege and resources to meet the needs of all people, regardless of age, ability, gender, income, education level, culture, geographic location or background. Equity recognizes that services and resources can also be distributed based on need. Adopting an equity-centered approach ensures that

Inclusiveness

Metro Vancouver will make its best efforts to reach, involve and hear from those who are impacted. Plain language will be used in engagement materials and the public engagement program will be designed to promote personal connection, trust and active listening. The public engagement program will include components of education so that audiences have sufficient knowledge of the subject matter to provide meaningful feedback.

Transparency and Openness

Metro Vancouver will provide clear and timely information, and communicate decision-making processes, procedures and constraints clearly. The public engagement program will be open to the ideas of all Metro Vancouver residents and others, with consideration for perspectives and audiences that are not always engaged.

Commitment

Metro Vancouver, within its ability and work plans, allocates sufficient resources for effective engagement.

Responsiveness and Flexibility

Metro Vancouver seeks to understand and be receptive to the public's input. Throughout the engagement process, Metro Vancouver will be flexible to adapt and adjust engagement approaches as new information or perspectives are presented.

The guiding principles are foundational to the engagement approach and will be referenced at each phase and reflected upon following each engagement phase.

Engagement Objectives

Metro Vancouver engages at levels in a [*spectrum of public participation*](#) adapted from the International Association of Public Participation. For the solid waste management plan, Metro Vancouver is committed to the consult/involve levels of engagement to obtain input and feedback on analysis, issues, alternatives and decisions, and ensure aspirations and concerns are considered and understood during the plan development. Based on the consult/involve levels of engagement, the objectives of the engagement are to:

- Guide the development of an updated solid waste management plan for consideration by the Metro Vancouver Board and Minister of Environment and Climate Change Strategy
- Learn about a broad range of perspectives from residents, communities of interest, and stakeholders and actively consider how the plan can integrate and respond to the learnings
- Foster an environment where a wide range of voices and perspectives are shared
- Facilitate a process of reciprocal learning where stakeholders and communities of interest can share their knowledge and experiences and learn about the benefits and challenges of the regional solid waste system and zero waste initiatives
- Strengthen and build collaborative relationships

equity-denied groups are not disproportionately impacted by Metro Vancouver operations and that initiatives within Metro Vancouver's mandate have the opportunity to contribute to the advancement of equity in the region.

Solid Waste Management Plan Public Engagement Program | 4

- Come to understand perspectives, priorities and desired outcomes of stakeholders and communities of interest for waste management across the region, with a specific effort to increase participation by diverse and equity-denied groups, such as youth, urban Indigenous communities, small and independent business owners, and non-English language speakers

Engagement Approach

Based on pre-engagement feedback, the phases of engagement will be developed with the following approaches and considerations in mind:

- Early, continuous and iterative engagement and feedback opportunities
- Clearly defined engagement purpose and expectations, including what elements of the plan are open for discussion/consideration
- Respect for time required of busy stakeholders to provide feedback, and sufficient time allowed
- Transparency on how input is used to come to a final decision
- Fair, collaborative tone for engagement that fosters active listening with an open mind, without pre-determined outcomes
- Strategies to increase accessibility and engage underrepresented and equity-denied communities
- Review of baseline regional recycling and waste data and measurement methodologies

A summary of how input and feedback received during pre-engagement has shaped the engagement approach is provided in Appendix A.

Engagement Parameters

It is important to establish the scope of engagement, both what is in and what is out of scope, in order to be able to plan the engagement successfully and to manage expectations.

The scope of this engagement includes the following parameters:

- The solid waste management plan will build on the strengths of the current plan, and identify opportunities for accelerated waste reduction and recycling while reducing greenhouse gases and promoting a circular economy. Alignment with provincial and federal regulation and legislation, and municipal authority will be considered in the plan development.
- The public engagement program will provide opportunities for informed and meaningful engagement with governments, including government agencies, waste and recycling industry, waste producers, businesses, communities of interest, equity-denied and underrepresented groups, and Metro Vancouver residents to guide updates to the plan.

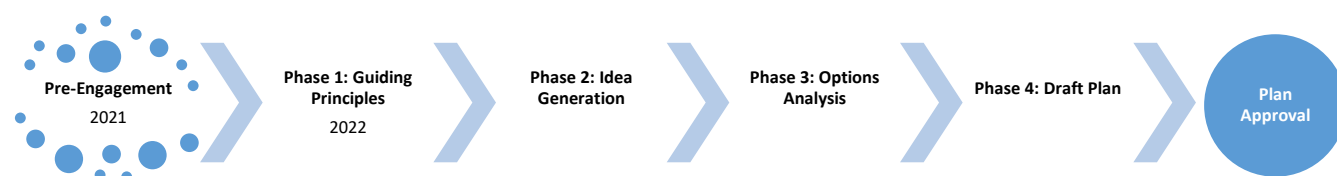
3. Engagement Phases, Timeline and Methods

The public engagement program includes a phased approach that is iterative and flexible. The public engagement program will provide participants with ample opportunity to access sound and impartial information, engage in discussions with Metro Vancouver, and provide input for consideration by Metro Vancouver staff and the Board to help shape subsequent phases of engagement and ultimately the updated solid waste management plan itself. Information on the engagement process and opportunities to provide input will be posted on the Metro Vancouver website as it becomes available. Meetings, feedback forms/questionnaires, correspondence and delegations to the Engagement Panel and Zero Waste Committee will be used as mechanisms to receive feedback on the solid waste management plan

and the engagement process. The public engagement program is flexible and will consider additional interests and issues that emerge during the solid waste management plan review and update.

Due to the ongoing COVID-19 pandemic, all engagement approaches will comply with public health guidelines. Metro Vancouver aims to leverage digital platforms to reach out to more audiences than traditionally possible with in-person meetings and events.

The proposed phases of engagement are outlined below, followed by objectives and methods for pre-engagement (complete) and Phase 1 (in development). Timing is flexible to ensure maximum participation in a robust, transparent, and meaningful process.



Methods

The following are potential methods of outreach and engagement that may be used during any of the phases of engagement and will be adjusted based on the objectives of each phase of engagement:

Engagement	Outreach
<ul style="list-style-type: none"> • Collaboration with others to host third-party workshops and events, and amplify messages (e.g. RCBC, Binners' Project, cultural and religious organizations) • Focus groups • Focused, sector- and topic-specific discussions; working groups • In-person meetings, including presentations and discussions at community meeting • Market research surveys • Meetings with the Engagement Panel • Online engagement platform – includes options for multiple languages and visual web accessibility tools • Online meetings • Open houses and workshops • Questionnaires (online or hard copy at community locations) • Public/technical advisory committee meetings 	<ul style="list-style-type: none"> • Educational components (e.g. backgrounders, discussion guides) • Email notifications • Multiple language communications where possible and where it serves the audience • Press engagement • Printed materials or packages, to be used by individuals or groups to further engagement among their networks • Promotional materials tailored to different audiences, in a variety of media outlets • Social media • Videos • Website content

- Telephone polling where appropriate
- Updates at existing committee meeting
- Webinars

Through pre-engagement, Metro Vancouver learned from stakeholders that continual communication — often and through a variety of channels — promotes transparency. It was also suggested to work with others to host or facilitate engagement events and amplify communications.

A communications plan has been developed for the solid waste management plan public engagement program, detailing the specific communications tactics required to deliver on each phase of engagement.

Pre-Engagement (public April 27 – June 28, 2021; Indigenous April 27 – July 2, 2021)

- *Description:* Pre-engagement solicits feedback on preferred engagement approaches and asks what people need to know to meaningfully participate. This occurs before formal engagement begins.
- *Objectives:* Understand key stakeholder groups' preferred communication channels, methods of participation, key information required, and what is needed to make participation easier. Gain insights from stakeholders and communities of interest on how the process can be designed to reach equity-denied groups.
- *Notification and Methods Used:*
 - Email and letter notifications advising that engagement on updated solid waste management plan will begin soon
 - Website content
 - Online questionnaire
 - One-on-one online meetings with interested parties and stakeholder groups
 - Opportunities for stakeholders to present to the Engagement Panel
 - Online workshops and presentations
 - Social media platforms

A full summary of the pre-engagement phase and results is included in the Zero Waste Committee report dated July 16, 2021, titled “Pre-Engagement Results – Solid Waste Management Plan Update”.

Engagement on Public and Technical Advisory Committee(s) (July 23 – September 15, 2021):

- *Description:* Metro Vancouver engaged on the structure and membership criteria prior to drafting the public and technical advisory committee(s) terms of reference. Note that engagement with Indigenous peoples is expected to be coordinated through a separate, collaborative process.
- *Objective:* Receive feedback on the structure, sectors/interests represented, and membership selection criteria for the public and technical advisory committee(s). This information was considered in drafting the terms of reference for the committee(s) (Appendix B).
- *Methods:*
 - Email notification
 - Online questionnaire
 - Invite written comments

Phase 1: Plan Guiding Principles Engagement (Mid-2022)

- *Description:* Guiding principles for the updated solid waste management plan (different from the engagement guiding principles described earlier in this report) reflect fundamental values that guide plan development and implementation. They will cut across all or most goals, strategies, and actions and can be translated into criteria to help evaluate goals, strategies, and/or actions. The BC Ministry of Environment and Climate Strategy's *A Guide to Solid Waste Management Planning* provides eight provincial principles for solid waste management for regional districts to incorporate in the development of their solid waste management plan, to be supplemented with other locally relevant guiding principles.
- *Objective:* Understand the fundamental values of the public, stakeholders and communities of interest to help guide the solid waste management plan development and establish the overarching vision and direction.
- *Potential Methods:*
 - Joint Zero Waste and Climate Action Committee workshop
 - Public/technical advisory committee meetings
 - Online or in-person workshops consisting of presentations, interactive exercises and feedback sessions with all levels of government and stakeholders. May be hosted in collaboration with others (e.g. Recycling Council of British Columbia, Binners' Project, religious and cultural organizations, industry associations)
 - Webinars, presentations and videos
 - Opportunities for stakeholders to present to the Engagement Panel
 - Website content
 - Online questionnaires or feedback forms
 - Additional methods to increase accessibility and engage underrepresented and equity-denied communities

Details for these subsequent phases will follow as they are developed with stakeholders, the public, and communities of interest.

Phase 2: Idea Generation Engagement (Late 2022)

Phase 3: Options Analysis Engagement (Mid-2023)

Phase 4: Engagement on Draft Plan (Early 2024)

After plan approval: Continued engagement during plan implementation (2024 onward)

The public engagement program is an iterative document and will be adapted and updated with each engagement phase as the solid waste management plan is developed.

4. Audiences

The following audiences have been identified who may be impacted by or have an interest in the review and update of the solid waste management plan and will be engaged to provide feedback during all phases of engagement:

- Community, environmental and non-profit groups, non-governmental organizations, youth and students, schools

- Government and regulatory agencies, including Indigenous peoples in BC, provincial and federal governments, member jurisdictions, adjacent regional districts, crown corporations, airport and port authorities, and health authorities
- Industry and business associations, boards of trade and chambers of commerce, professional associations and academic institutions
- Metro Vancouver residents
- Small to medium businesses, innovators, employees within organizations, experts in industry and technology
- Waste and recycling industry, including small and large haulers, processors, extended producer responsibility programs, disposal facilities, and waste/recycling industry associations, binner community, reuse/repair organizations and the Metro Vancouver Solid Waste and Recycling Industry Advisory Committee
- Waste producers, including various sectors such as food service and industry, grocery, construction, tourism, office and property management, real estate, retail, residents, and educational institutions
- And others who may be interested

Metro Vancouver has developed and regularly updates a database that includes contact information of individuals and organizations who fall within the categories described above. The public can also sign up to a number of solid waste newsletters and project notification lists, including one for the solid waste management plan update.

Metro Vancouver will strive to facilitate dialogue between jurisdictions and stakeholders with different perspectives and responsibilities, to allow parties to gain a better understanding of other perspectives and discuss interconnected systems and possible partnerships that can support zero waste, environmental health, and circular economy goals.

To reach and involve equity-denied or underrepresented groups not typically involved in Metro Vancouver solid waste processes, specifically youth, the binner's community, and non-English language speakers, efforts will be made to ensure opportunities for meaningful engagement. Possible methods, by group, to deliver this include:

- Youth – Tailor questionnaires, social media and campaigns; partner with influencers, leverage existing communities, communication channels and places of gathering; collaborate with prominent groups
- Binner's community – Collaborate with the Binner's Project to access existing networks and communications channels
- Non-English language speakers – Translate important materials, offer interpretation services, target media promotions

In addition, engagement will be designed to encourage more equal participation geographically across the region. Possible methods to achieve this include:

- Target social media promotions to each jurisdiction individually as the target market
- Host events in strategic geographic locations

- Partner with municipalities to reach out to stakeholders in their respective communities and draw on established networks and relationships
- Work with local community based groups to host small engagement events across the region; or prepare information packages for those local groups to consider at their existing meetings

Indigenous Engagement

While Indigenous peoples will be invited to participate in all public engagement activities, a separate draft Indigenous engagement strategy outlines a collaborative government-to-government engagement approach with Indigenous Nations whose territories include all or part of the Metro Vancouver region as well as a community engagement approach with urban Indigenous organizations, off-reserve and non-status First Nations, Métis and Inuit.

The Indigenous engagement strategy for the solid waste management plan update reflects Metro Vancouver's commitment to engaging with Indigenous Nations who claim Aboriginal rights in the region, and Indigenous communities. Metro Vancouver aims to follow the principles of meaningful engagement laid out in the *Declaration on the Rights of Indigenous Peoples Act*, as well as its own policies and commitments towards reconciliation and engagement. Metro Vancouver will seek to create diverse and multiple engagement opportunities, to ensure that Metro Vancouver and Indigenous peoples can have a meaningful dialogue on the review and update of the solid waste management plan.

5. Public/ Technical Advisory Committee

The BC Ministry of Environment and Climate Change Strategy's *A Guide to Solid Waste Management Planning* recommends establishing public and technical advisory committee(s) to assist with the planning process and ensure that diverse views are represented. Metro Vancouver will form a public/technical advisory committee, with subcommittees formed as required based on discussions with the committee, to advise on plan development and report to staff and the Zero Waste Committee. The committee will consist of a variety of representatives: industry, public community groups, and subject matter experts. A Zero Waste Committee member will participate in committee meetings and act as a liaison to the Zero Waste Committee. The public engagement program will be reviewed with the public/technical advisory committee at an early meeting and updated as needed throughout the plan update process. In addition, the public/technical advisory committee will provide input during each stage of the solid waste management plan's development. Sectors and interests that may be represented on the committee, and personal qualities, perspectives and experiences of members are listed below. A terms of reference for the committee is provided in Appendix B.

Sectors/Interests Represented by Members

- Adjacent regional district elected official
- Agriculture
- Circular economy
- Construction and demolition industry
- Extended producer responsibility programs
- Food service
- Government agencies and health authorities
- Large waste generators (e.g. academic institutions, school boards, transportation hubs, entertainment sector)

- Multi-family residences (e.g. residents, landlords, property management associations)
- Non-governmental/non-profit organizations and environmental stewardship groups
- Organics processing
- Public members-at-large (e.g. youth, seniors, and multicultural, accessibility, and resident/community associations)
- Recycling industry
- Reduction/repair/refill industry
- Retail/grocery
- Small- and medium-sized businesses and business improvement associations, chambers of commerce, boards of trade
- Tourism and hospitality
- Waste industry
- Workers/unions

Personal Qualities, Perspectives and Experience

- Demonstrates community/committee involvement and the ability to work collaboratively with others (e.g. openness to different/opposing views)
- Demonstrates personal commitment to zero waste/circular economy goals, sustainability, and climate action
- Demonstrates the ability to advance innovation
- Experienced with waste, waste reduction, and recycling (i.e. lived experience, technical expertise, or both)
- Belongs to a community that is typically underrepresented (e.g. women, LGBTQ2S+, Indigenous persons, immigrants, visible minority, persons with disabilities, youth, etc.)
- Represents the interests/perspectives of a group of people/sector

6. Reporting

Metro Vancouver documents feedback received during engagement processes through meeting summaries, online comments, feedback forms, questionnaires and correspondence (emails and letters to Metro Vancouver elected officials and staff). Metro Vancouver will use various methods to report back to audiences about how their input has been considered, including:

- Interim engagement summary reports to the Zero Waste Committee and Board, including documents tracking the issues, comments, and questions raised during engagement and the corresponding Metro Vancouver responses
- Regular updates to the project web page
- Responses to feedback received

A summary of feedback gathered through the engagement process will accompany the updated solid waste management plan that will be submitted to the BC Ministry of Environment and Climate Change Strategy for approval. The engagement summary will include:

- A summary of all engagement activities and results, including copies of notifications, advertisements, web content, reports, and meeting summary notes
- Identification of feedback raised during the engagement process

- Metro Vancouver responses to feedback received and how it is being addressed or incorporated in the draft updated solid waste management plan
- Copies of all original written feedback received during the engagement process

Feedback Summary of What We Heard and What We're Doing

The following summary table shows how input and feedback shared during pre-engagement was considered and incorporated into the engagement approach.

What We Heard	What We're Doing
Provide early, continuous, iterative engagement, and more notifications	Timely, ongoing and evolving engagement opportunities will consider the preferred channels to receive information and provide feedback shared in pre-engagement
Respect the time required of busy stakeholders	Thoughtful and efficient opportunities to engage online, and in person when safe to do so, will accommodate a variety of engagement preferences and limitations
Clearly define engagement purpose, expectations, and what issues are 'on the table'	A clear scope and objectives of engagement will outline what is up for discussion at each engagement phase
Ensure transparency on how input was used and reasons for decisions	Timely and transparent reporting back will show how input and feedback affected the decision at each engagement phase
Listen, have an open mind, be fair and collaborative	A fair, collaborative tone for engagement will promote active listening and foster trust, without pre-determined outcomes
Work with partners to host/facilitate engagement events, and amplify/distribute communications	Collaborative relationships formed and strengthened with community groups and organizations will reach and involve their communities, including those not typically engaged
Create space for stakeholders with different interests to hear from each other, gain understanding of different perspectives, and form partnerships; also facilitate focused, sector-specific discussions	An engagement environment of reciprocal learning where a wide range of voices, perspectives and interests are shared, as well as focused, sector-specific discussions, will lead to sustainable decisions
Appreciation for the initial pre-engagement phase, and establishment of the Engagement Panel	A public engagement program guided by the Engagement Panel and informed by input and feedback gathered during pre-engagement will demonstrate continued responsiveness to feedback
Involve equity-denied communities, industry experts, innovators, small to medium businesses, small haulers and small processing facilities, and associations (industry, tourism, building, business improvement)	A plan to reach and involve a broad and diverse audience will ensure all potentially affected by or interested in a decision are heard, including equity-denied communities (youth, urban Indigenous, binners community, non-English language speakers)

Provide information on current solid waste management in the region, the previous solid waste management plan, details on how solid waste is handled in other jurisdictions, and a range of additional topics	Sufficient, clear and sound information provided during engagement will enable informed and meaningful participation
Consider translation and use of graphics, although English language communication is sufficient at this time	A variety of methods (e.g. translation, interpretation, connect via cultural organizations) to reach and involve non-English language speakers will support an equal opportunity to participate, within our ability
Metro Vancouver did not hear distinctly from certain sectors during pre-engagement, such as cultural associations, non-English language speakers, resident community associations, food service, and construction and demolition	Methods to reach and engage these sectors beyond what was offered during pre-engagement will be explored to ensure engagement opportunities are appealing and effective

Solid Waste Management Plan

Public/Technical Advisory Committee

Terms of Reference

November 17, 2021

1. PURPOSE

Over the next two to three years, Metro Vancouver will engage with governments (including Indigenous Nations), government agencies, waste and recycling industry representatives, waste producers, businesses, communities of interest, and Metro Vancouver residents to review and update the current [Integrated Solid Waste and Resource Management Plan](#) (2011). The updated solid waste management plan will build on the strengths of the current plan and identify opportunities for accelerated waste reduction and diversion, while reducing greenhouse gases and promoting a circular economy.

The purpose of the solid waste management plan public/technical advisory committee (committee) is to provide a forum for contribution from individuals from a range of backgrounds to inform the review and update of the solid waste management plan. The purpose of these terms of reference is to describe role of the committee.

2. TIMEFRAME

The committee will exist for the duration of the solid waste management plan update process.

3. SCOPE OF WORK

The committee will receive and review information, and advise on topics related to the development of the solid waste management plan. Committee members will be invited to pose questions, engage in discussion, and provide comments for consideration as the plan is developed. Potential topics for engagement with the committee include the circular economy, waste reduction and recycling, greenhouse gas emissions reduction, residuals management, asset and risk management, innovation, resilience, affordability, and collaboration and engagement.

Representatives of the 10 local Indigenous Nations will be invited to observe committee meetings at their preference. A separate Indigenous engagement strategy will help ensure a collaborative government-to-government engagement approach with Indigenous Nations whose territories include all or part of the Metro Vancouver region as well as a community engagement approach with urban Indigenous organizations, off-reserve and non-status First Nations, Métis and Inuit.

4. MEMBERSHIP

The committee will be composed of members representing a diversity of sectors and interests, who bring a variety of personal qualities, perspectives, and experiences to solid waste and recycling issues.

The following is a list of sectors/interests that could be represented by committee members:

- Adjacent regional district elected official
- Agriculture
- Circular economy

- Construction and demolition
- Extended producer responsibility programs
- Food service
- Government agencies and health authorities
- Large waste generators (e.g. academic institutions, school boards, transportation hubs, entertainment sector)
- Multi-family residences (e.g. residents, landlords, property management associations)
- Non-governmental/non-profit organizations and environmental stewardship groups
- Organics processing
- Public members-at-large (e.g. youth, seniors, and multicultural, accessibility, and resident/community associations)
- Recycling industry
- Reduction/repair/refill industry
- Retail/grocery
- Small- and medium-sized businesses, and business improvement associations, chambers of commerce, boards of trade
- Tourism and hospitality
- Waste industry
- Workers/unions

The following is a list of possible desired personal qualities, perspectives and experience of committee members:

- Demonstrates community/committee involvement and the ability to work collaboratively with others (e.g. openness to different/opposing views)
- Demonstrates personal commitment to zero waste, circular economy goals, sustainability, and climate action
- Demonstrates the ability to advance innovation
- Experienced with waste, waste reduction and recycling (i.e. lived experience, technical expertise, or both)
- Belongs to a community that is typically underrepresented (e.g. women, LGBTQ2S+, Indigenous persons, immigrants, visible minority, persons with disabilities, youth, etc.)
- Represents the interests/perspectives of a group of people/sector

5. SELECTION PROCESS

Membership will last the duration of the solid waste management plan update process. Committee members should be prepared to participate through the full term.

Committee members with the exception of the chair and vice-chair will be filled through a call for applications. Potential committee members who belong to typically underrepresented or equity-denied communities will be identified through targeted recruitment, with support mechanisms put in place to lower barriers to participation.

The call for applications will be promoted publically, and shared with our member jurisdictions and partners. Potential committee members will be asked to specify their sector/interest during the call for applications and an individual could identify more than one sector/interest. Not all sectors/interests will necessarily be represented on the committee, and more than one individual could be selected to represent a sector/interest. Following receipt of applications, the applicants will be evaluated based on

the personal characteristics outlined in the above section on membership. Recommendations for members will be reviewed by the Independent Consultation and Engagement Panel in advance of the recommendations being considered by the Zero Waste Committee and Board in closed meetings, before being released to the public.

6. CHAIRS

The committee chair and vice-chair will be members of the Zero Waste Committee, recommended by the Board Chair and selected by the Board in a closed meeting.

7. ADVISORY ROLE OF COMMITTEE

The role of the committee is advisory to Metro Vancouver. No votes will be held to determine the group's position on issues or recommendations to Metro Vancouver. Where consensus exists, it will be noted; minority opinions will be considered to have merit and will be noted.

8. MEETINGS

- a. Meetings will be held approximately 4–6 times per year for the duration of the solid waste management plan update process.
- b. The meeting dates and times will be determined by the chair and vice-chair in consultation with committee members, and will be scheduled at intervals relevant for the solid waste management plan development.
- c. The chair and vice-chair will work with Metro Vancouver staff to draft meeting agendas and coordinate meeting materials, which will be circulated to the committee in advance of meetings.
- d. The meetings will be structured to encourage dialogue and collaboration on relevant issues within the constraints of the planned agendas.
- e. Meeting minutes and action trackers will be kept for each meeting. Minutes shall not reflect the names of individual speakers or their stance on issues; rather, they shall reflect the issues discussed, significant points of view on the issues and the resolutions or actions to be taken.
- f. Meetings will be held virtually or at Metro Vancouver offices located at 4515 Central Boulevard in Burnaby, British Columbia. If unable to attend a meeting in person, a member may participate via teleconference or videoconference.
- g. A meeting quorum will be 50%+1 of active members.
- h. Meetings will be open to any individual who wishes to observe the discussions either in person or through teleconference or videoconference, although only committee members will be provided standing to participate in the discussion. Non-members may request an opportunity to present to the committee through two weeks' advance written submission for consideration by the chair and vice-chair.
- i. Metro Vancouver staff are not members of the committee, but will attend meetings to provide information on various topics, respond to questions etc.
- j. The committee may invite groups and subject matter experts to present and provide advice and feedback on specific agenda items, at the discretion of the chair and vice-chair.
- k. All committee agendas will be published and publicly available in advance of meetings, and presentations and meetings minutes posted thereafter on Metro Vancouver's website.
- l. Metro Vancouver will coordinate the venue and meeting logistics, invitations, notetaker, refreshments, and all requests received for the committee.
- m. Committee members may be reimbursed by Metro Vancouver for reasonable, out-of-pocket expenses associated with participating in meetings.

9. WORK PLAN

An annual work plan for the committee will be developed by Metro Vancouver staff based on deliverables in the solid waste management plan development. The work plan will be reviewed annually by the committee, and will guide development of meeting agendas.

10. CODE OF CONDUCT

This code is intended to serve as a framework to guide the spirit and intent of how members are expected to deliver on the committee's purpose and objectives in an ethical and respectful manner.

- a. *Respect and Collaboration*: Discussions and debates shall take place in an atmosphere of mutual respect and solutions-oriented collaboration, recognizing the value of different perspectives and seeking to understand the interests and needs of all affected parties.
- b. *Transparency*: It is expected that all members speak honestly and transparently, engaging in good-faith dialogue and sharing information openly to encourage fact-based dialogue.
- c. *Treatment of other Members*: Members have a duty to treat other members with respect during committee meetings. Specifically, members have a duty to avoid:
 - disrupting meetings by making continual interruptions or whispered asides
 - making offensive or abusive remarks directed at other members
 - impugning the motives of other members or supporting staff
 - ignoring the legitimate direction of the chair or vice-chair

Members who object to the behaviour of another member as identified in this code of conduct are asked to identify their concerns immediately to the committee chair and vice-chair. A member whose behavior repeatedly does not meet the code of conduct requirements may be asked to resign or be removed from the committee by the chair or vice-chair.

11. MEMBERSHIP RESIGNATION

Members wishing to resign from committee membership should provide written notice of their intent to resign, including the effective date of their resignation, addressed to the committee chair and vice-chair.

12. BUDGET AND RESOURCES

Funding for general meetings is provided by Metro Vancouver. Any additional funding for special projects or studies is subject to Metro Vancouver approval.

13. MEDIA PROTOCOL

Media requests will be directed to Metro Vancouver's media relations team. Individual members will not speak on behalf of the committee, unless it has been discussed and approved by the committee chair and vice-chair in advance.

The committee chair and vice-chair will be the chief spokespeople on behalf of the committee. For high profile issues, the role of spokesperson rests with the Board chair, vice-chair or the chair of the Zero Waste Committee. On technical matters or in cases where an initiative is still at the staff proposal level, a senior staff member is the appropriate chief spokesperson.

14. DECLARING CONFLICT OF INTEREST

Committee and subcommittee members must declare any conflicts of interest, real or perceived, at the outset of the process or as soon as it becomes known to the member.

To: Zero Waste Committee

From: Sandy Young, Public Engagement Coordinator, Strategy and Stakeholder Relations,
Solid Waste Services

Date: November 9, 2021 Meeting Date: November 17, 2021

Subject: **Solid Waste Management Plan Public/Technical Advisory Committee**

RECOMMENDATION

That the GVS&DD Board approve the terms of reference for the solid waste management plan public/technical advisory committee with the following key elements:

- i. a single public/technical advisory committee;
- ii. a broad list of potential sectors/interests with representatives to be included in the committee;
- iii. personal characteristics to be used to recommend committee members to the GVS&DD Board;
- iv. a call for applications for committee members, with targeted recruitment of individuals from typically underrepresented or equity-denied communities; and
- v. Chair and vice-chair positions to be Zero Waste Committee members.

EXECUTIVE SUMMARY

The provincial guideline for the development of solid waste management plans requires either a combined technical and public advisory committee or separate committees. To maximize transparency and strengthen the process, Metro Vancouver engaged via a questionnaire on the structure of the committee(s), sectors/interests represented on the committee(s), and desired personal characteristics of committee members. Staff recommend a single committee be formed to simplify communications and enhance engagement. Additional sectors/interests and personal characteristics beyond those originally proposed were added considering engagement feedback. The criteria will be used to evaluate potential candidates. Committee member positions will be filled through a call for applications, with targeted recruitment of individuals from typically underrepresented or equity-denied communities. The committee chair and vice-chair will be Zero Waste Committee members. Recommendations for committee members will be reviewed by the Independent Consultation and Engagement Panel prior to consideration by the Zero Waste Committee and GVS&DD Board in a closed meeting.

PURPOSE

The purpose of this report is to seek GVS&DD Board (Board) approval of the proposed solid waste management plan public/technical advisory committee structure and desired characteristics of members.

BACKGROUND

In November of 2019, the Board authorized initiating an update of the regional solid waste management plan. In July 2021, a report to the Zero Waste Committee on the solid waste management plan pre-engagement results outlined plans to engage on the structure and composition of the provincially required solid waste management plan public and technical advisory committee(s). The July report included a list of potential sectors/interests as well as personal characteristics for engagement. This report describes the engagement feedback and provides recommendations for the structure and composition of the public/technical advisory committee.

PUBLIC/ TECHNICAL ADVISORY COMMITTEE

The solid waste management plan public/technical advisory committee is a critical component in the development of a solid waste management plan.

According to the Province of B.C.'s *Guide to Solid Waste Management Planning*:

The role of the advisory committees is to advise the regional district on matters pertaining to solid waste management planning, typically including but not limited to the design and implementation of the consultation process, the development of guiding principles, terms of reference for any planning studies, review of reports from each planning step and the draft plan.

The public/technical advisory committee will be in place for the duration of the solid waste management plan development.

Engagement Feedback

Consistent with Metro Vancouver's efforts to be fully transparent and consider as many perspectives as possible throughout the solid waste management plan development, engagement on the structure and membership selection criteria of the public and technical advisory committee(s) was initiated following receipt of the pre-engagement feedback by the Zero Waste Committee.

A questionnaire, open from July 23 to September 15, 2021, sought feedback on whether there be a single combined committee or separate public and technical committees, what sectors and interests should be represented by members, and what personal qualities and experience members should have. Written submissions were also invited in addition to or instead of completing the questionnaire.

A total of 76 respondents provided 184 responses to four open-ended questions. No separate written feedback was received. The questions posed in the questionnaire as well as a summary of feedback is included as Attachment 1. Questionnaire feedback was shared with the Independent Consultation and Engagement Panel for discussion.

Committee Structure

Questionnaire respondents were divided on whether one or two committees is preferred. Thirty-eight respondents preferred a single committee and 37 preferred two committees. One respondent did not answer the question. Feedback suggested a single committee would promote knowledge and information sharing, collaboration, and hearing diverse perspectives. Feedback also indicated two

committees would ensure public considerations are not overshadowed by technical discussions, leverage particular expertise, and potentially include more voices in the committee(s) structure.

The Independent Consultation and Engagement Panel also considered the question of one or two committees. Similar to questionnaire feedback, Independent Consultation and Engagement Panel members had diverse opinions on whether one or two committees is appropriate, but noted that either structure could work if effective and timely processes for communication and collaboration were established.

Under one or two committees, subcommittees to examine specific topics will be important to the success of the process.

Sectors/Interest Represented on the Committee

Questionnaire respondents suggested additional sectors/interests be added to the list proposed during engagement. Additions to the list of potential sectors/interests, **bolded** below, were made based on the frequency the suggestion appeared and gaps identified through the feedback. No sectors/interests have been removed, although multiple respondents suggested removing adjacent regional district elected official as a sector/interest, and excluding waste industry lobbyists.

The following is a list of sectors/interests that could be represented by committee members:

- Adjacent regional district elected official
- **Agriculture**
- Circular economy
- Construction and demolition
- Extended producer responsibility programs
- Food service
- Government agencies and health authorities
- Large waste generators (e.g. academic institutions, **school boards**, transportation hubs, entertainment sector)
- Multi-family residences (**e.g. residents, landlords, property management associations**)
- Non-governmental/non-profit organizations and environmental stewardship groups
- **Organics processing**
- Public members-at-large (e.g. youth, seniors, and multicultural, accessibility, and resident/community associations)
- Recycling industry
- **Reduction/repair/refill industry**
- Retail/grocery
- Small- and medium-sized businesses **and business improvement associations, chambers of commerce, boards of trade**
- **Tourism and hospitality**
- Waste industry
- **Workers/unions**

Qualities, Perspectives and Experience of Members

Questionnaire respondents suggested some additions to the personal characteristics proposed during engagement. Additions to the proposed list of desired qualities, perspective and experience of members, bolded below, were added based on gaps identified through the feedback. Some respondents suggested omitting the criterion of belonging to a community that is typically underrepresented, and representing the interests/perspectives of a group of people/sector.

The following is a list of possible desired personal qualities, perspectives and experience of committee members:

- Demonstrates community/committee involvement and the ability to work collaboratively with others (**e.g. openness to different/opposing views**)
- Demonstrates personal commitment to zero waste, circular economy goals, **sustainability, and climate action**
- Demonstrates the ability to advance innovation
- Experienced with waste, **waste reduction** and recycling (i.e. lived experience, technical expertise, or both)
- Belongs to a community that is typically underrepresented (e.g. women, LGBTQ2S+, Indigenous persons, immigrants, visible minority, persons with disabilities, youth, etc.)
- Represents the interests/perspectives of a group of people/sector

Participation of Equity-Denied Communities

To advance equity and inclusion in the committee, potential committee members who belong to typically underrepresented or equity-denied communities will be identified through targeted recruitment, with support mechanisms put in place to lower barriers to participation.

Chair and Vice-Chair

The committee chair and vice-chair will be members of the Zero Waste Committee, recommended by the Board chair and selected by the Board in a closed meeting.

Indigenous Nations Participation

A collaborative government-to-government engagement approach with Indigenous Nations whose territories include all or part of the Metro Vancouver region as well as a community engagement approach with urban Indigenous organizations, off-reserve and non-status First Nations, Métis and Inuit, will be coordinated through a separate Indigenous engagement strategy. Representatives of the 10 local First Nations will be invited to observe meetings of the committee at their preference.

Terms of Reference

The draft terms of reference for the committee is included as Attachment 2. The terms of reference outlines the structure and membership of the committee as described in this report, as well as information on elements such as the advisory role, work plan, and meetings.

Committee Application Process

Committee member positions will be filled through a call for applications. Potential committee members will be asked to specify their sector/interest during the call for applications and an

individual could identify more than one sector/interest. Not all sectors/interests will necessarily be represented on the committee, and more than one individual could be selected to represent a sector/interest. Following receipt of applications, the applicants will be ranked based on the personal characteristics outlined in this report. Recommendations for members will be reviewed by the Independent Consultation and Engagement Panel in advance of the recommendations being considered by the Zero Waste Committee and Board in closed meetings.

ALTERNATIVES

1. That the GVS&DD Board approve the terms of reference for the solid waste management plan public/technical advisory committee with the following key elements:
 - i. a single public/technical advisory committee;
 - ii. a broad list of potential sectors/interests with representatives to be included in the committee;
 - iii. personal characteristics to be used to recommend committee members to the GVS&DD Board;
 - iv. a call for applications for committee members, with targeted recruitment of individuals from typically underrepresented or equity-denied communities; and
 - v. Chair and vice-chair positions to be Zero Waste Committee members.
2. That the GVS&DD Board receive for information the report dated November 9, 2021, titled "Solid Waste Management Plan Public/Technical Advisory Committee" and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

Funding for general meeting and secretariat expenses can be carried out within the approved Solid Waste Services budget.

CONCLUSION

Provincial guidelines require the formation of a combined public and technical advisory committee or separate committees to inform the development of solid waste management plans. To surpass the typical process and exceed provincial requirement, Metro Vancouver engaged on the draft committee structure and desired personal characteristics of members. Following consideration of feedback received through a questionnaire and the Independent Consultation and Engagement Panel, staff recommend a single committee to simplify communications and enhance engagement. Proposed sectors/interests and personal qualities, perspectives and experience presented during engagement have been supplemented following the engagement process. Individual committee members will be selected by the Board in a closed meeting following recommendations for committee members made by staff and reviewed by the Independent Consultation and Engagement Panel.

Attachments (*Orbit #48766917*)

1. Feedback Summary of What We Heard and What We're Doing
2. Solid Waste Management Plan Public/Technical Advisory Committee Terms of Reference

Feedback Summary of What We Heard and What We're Doing

The following summary table shows how feedback shared on the public and technical advisory committee(s) structure and personal characteristics was considered and incorporated into the membership criteria.

What We Heard	What We're Doing
Committee Structure <ul style="list-style-type: none"> 38 respondents prefer a single overarching committee; 23 open-ended question responses were received from these respondents 37 respondents prefer separate committees; 21 open-ended question responses were received from these respondents Feedback suggested a single committee would promote knowledge and information sharing, collaboration, and hearing diverse perspectives Feedback suggested two committees would ensure public considerations are not overshadowed by technical discussions, leverage particular expertise, and potentially include more voices in the committee(s) structure Under one or two committees, regular meetings and subcommittees are supported Independent Consultation and Engagement Panel members had diverse opinions on if one or two committees is appropriate 	<p>Staff recommend a single committee be formed to simplify communications and enhance engagement. As suggested in the feedback, a single committee would promote knowledge transfer, collaboration, and sharing of diverse perspectives. Subcommittees will be formed to examine specific topics.</p>
Sectors/Interests Represented by Members <ul style="list-style-type: none"> 59 open-ended question responses were received relating to the proposed list of specific sectors/interests Respondents expressed confirmation for six of the criterion Respondents suggested 10 criterion be removed; this included multiple respondents suggesting to remove adjacent regional district elected officials, and exclude waste industry lobbyists Nearly 10% of respondents who answered the question were satisfied with the proposed list of sectors/interests 	<p>Eight additions to the proposed list of sectors/interests, bolded below, were made based on the frequency the suggestion appeared and gaps identified through the feedback:</p> <ul style="list-style-type: none"> Agriculture Large waste generators (e.g. academic institutions, school boards, transportation hubs, entertainment sector) Multi-family residences (e.g. residents, landlords, property management associations) Organics processing Reduction/repair/refill industry Small- and medium-sized businesses and business improvement associations, chambers of commerce, boards of trade Tourism and hospitality

	<ul style="list-style-type: none"> • Workers/unions <p>No omissions of sectors/interests were made based on the feedback.</p>
<p>Personal Qualities, Perspectives and Experience</p> <ul style="list-style-type: none"> • 41 open-ended question responses were received relating to the proposed list of personal qualities/perspectives/experience • Respondents expressed confirmation for two of the criterion • Respondents suggested two of the criterion be removed; this included multiple respondents suggesting to remove the criterion of belonging to a community that is typically underrepresented, and representing the interests/perspectives of a group of people/sector • Nearly one quarter of respondents who answered the question were satisfied with the proposed list of qualities/perspectives/experience 	<p>Three additions to the proposed list of desired qualities, perspective and experience of members, bolded below, were made based on gaps identified through the feedback:</p> <ul style="list-style-type: none"> • Demonstrates community/committee involvement and the ability to work collaboratively with others (e.g. openness to different/opposing views) • Demonstrates personal commitment to zero waste, circular economy goals, sustainability, and climate action • Experienced with waste, waste reduction and recycling (i.e. lived experience, technical expertise or both) <p>No omissions of qualities/perspectives/experience were made based on the feedback.</p>
<p>Other Considerations</p> <ul style="list-style-type: none"> • 40 open-ended question responses were received relating to other considerations for the public and technical advisory committee(s) • Responses included suggestions such as clear communication to committee members on if/how their advice was considered and/or incorporated 	<p>Feedback will be considered as the public/technical advisory committee and terms of reference are reviewed, and incorporated where feasible.</p>

The following are the questionnaire questions, followed by a summary of responses. Numbers in parenthesis represent the number of responses containing the summarized feedback, beyond one.

1. Committees Structure

<p><i>Questions: What is your preference for the committee(s) structure?</i></p> <ol style="list-style-type: none"> <i>Single overarching committee</i> <i>Separate public and technical committees</i> <p><i>What, if anything, would you like to tell us about the committee(s) structure?</i></p>
<p>38 respondents prefer a single overarching committee. 23 open-ended question responses were received from these respondents (some responses included multiple ideas):</p> <ul style="list-style-type: none"> • If separate, committees should inform each other and meet regularly (4) • A single committee allows knowledge sharing and joint decision making (3) • A single committee is more effective toward consensus/solutions (3) • A single committee is better for communication, trust, relationships, and information sharing (2) • A single committee is better for the public members to understand technical matters

- A single committee with subcommittees is preferred
- Larger committees are less efficient
- Separate committees may conflict
- Subcommittees should develop proposals for the committee
- The committee and subcommittee should meet together
- The committee should hear presentations from experts
- The structure depends on size
- Other comments related to sectors/areas of interest (8)

37 respondents prefer separate committees. 21 open-ended question responses were received from these respondents:

- Area of interest/sector-specific subcommittees will be effective (4)
- Technical and public members will have separate perspectives (3)
- Technical experts should advise the public (3)
- Technical matters should be handled by experts (3)
- Separate committees allow for enhanced dialogue/deliberation between committees
- Separate committees should meet
- Small, focused groups are preferred
- Technical and public members may have unbalanced technical expertise
- Other comments related to sectors/interests (4)

1 respondent did not answer

2. Sectors/Interests Represented by Members

Question: Below is an initial list of sectors/interests that could be represented by members of the advisory committee(s). Which sectors/interest, if any, should be added to or removed from this list?

- | | |
|---|---|
| • <i>Adjacent regional district elected official</i> | • <i>Non-governmental/non-profit organizations and environmental stewardship groups</i> |
| • <i>Circular economy</i> | • <i>Public members-at-large (e.g. youth, seniors, and multicultural, accessibility, and resident/community associations)</i> |
| • <i>Construction and demolition industry</i> | • <i>Recycling industry</i> |
| • <i>Extended producer responsibility programs</i> | • <i>Retail/grocery</i> |
| • <i>Food service</i> | • <i>Small- and medium-sized businesses</i> |
| • <i>Government agencies and health authorities</i> | • <i>Waste industry</i> |
| • <i>Large waste generators (e.g. academic institutions, transportation hubs, entertainment sector)</i> | |
| • <i>Multi-family residences</i> | |

59 open-ended question responses relate to the specific sectors/interests (some respondents commented on more than one sector/interest):

- *Adjacent regional district elected officials* (6): remove (5), add adjacent regional districts policy staff
- *Circular economy* (2): confirm, remove
- *Construction and demolition industry* (6): confirm; add: architects, builders, construction representative, developers, engineers
- *Extended producer responsibility programs*: remove
- *Food service*: add single-use item packaging companies

- *Government agencies and health authorities* (3): remove, remove health authorities; add port authority
- *Large waste generators (e.g. academic institutions, transportation hubs, entertainment sector)*: no feedback received
- *Multi-family residences* (5): add landlords (2), property management companies/associations (2), residents
- *Non-governmental/non-profit organizations and environmental stewardship groups* (2): remove, environment should have multiple representatives
- *Public members-at-large (e.g. youth, seniors, and multicultural, accessibility, and resident/community associations)* (8): confirm (3), community/residents associations (2), cultural segments, youth; remove
- *Recycling industry* (13): confirm, remove; add organics processing/composting (4), compostable packaging, food waste solution providers, organic waste/biosolids management, reclaimed wood industry, reduce/repair/refill, textile sorters/graders; limit representation
- *Retail/grocery*: remove
- *Small- and medium-sized businesses* (4): confirm; add businesses impacted by COVID-19, Chamber of Commerce, BIAs, Boards of Trade; remove
- *Waste industry* (27): confirm, remove; add workers/unions (16), incineration/energy producers (2), waste processors (2), biomedical waste, household hazardous waste, landfill, post-collection service providers; limit representation
- *Add other* (14): agricultural sector (4), Indigenous Nations (2), academics, design industry, industry associations, local economy, school boards, tourism and hospitality, water quality specialists, zero waste
- *Do not include/limit* (5): lobbyists (3), duplicate representation, lawyers and private industry
- *I am satisfied with the proposed list of sectors/interests* (5)
- *I cannot answer*

3. Personal Qualities, Perspectives and Experience

Question: Below is an initial list of personal qualities, perspectives and experiences of advisory committee members.

- | | |
|--|--|
| <ul style="list-style-type: none"> • <i>Demonstrates community/committee involvement and the ability to work collaboratively with others</i> • <i>Demonstrates personal commitment to zero waste/circular economy goals</i> • <i>Demonstrates the ability to advance innovation</i> | <ul style="list-style-type: none"> • <i>Experienced with waste and recycling (i.e. lived experience, technical expertise or both)</i> • <i>Belongs to a community that is typically underrepresented (e.g. women, LGBTQ2S+, Indigenous persons, immigrants, visible minority, persons with disabilities, youth etc.)</i> • <i>Represents the interests/perspectives of a group of people/sector</i> |
|--|--|

41 open-ended question responses relate to the personal qualities/perspectives/experience (some respondents commented on more than one criterion):

- *Belongs to a community that is typically underrepresented (e.g. women, LGBTQ2S+, Indigenous persons, immigrants, visible minority, persons with disabilities, youth etc.)* (9): remove (6), confirm youth, add BIPOC and diversity, prioritize
- *Experienced with waste and recycling (i.e. lived experience, technical expertise or both)* (3): confirm lived experience; add community member affected by disposal, experienced in waste reduction

- *Demonstrates community/committee involvement and the ability to work collaboratively with others* (2): add demonstrated ability to work collaboratively in multi-stakeholder environment and openness to different/opposing views, open-mindedness
- *Demonstrates the ability to advance innovation* (2): difficult to evaluate
- *Represents the interests/perspectives of a group of people/sector* (2): remove
- *Demonstrates personal commitment to zero waste/circular economy goals*: difficult to evaluate
- Add other (11): action-oriented, resourceful, practical, belongs to a community impacted by waste mismanagement, commitment to sustainability and climate change, desire to learn technical skills, expertise from other jurisdictions, holistic environmental and economic perspective, involvement with occupational health and safety, knowledge of regulatory environment and governance, social marketing and behavior change expertise
- I'm satisfied with the proposed list of qualities/perspectives/experience (9)
- Other comments related to sectors/interests (5)
- Other comment related to structure

4. Other Considerations

Question: What else, if anything, should Metro Vancouver consider when forming the advisory committee(s) for the solid waste management plan update?

40 open-ended question responses relate to other considerations for the public and technical advisory committee(s); a sampling of responses is as follows:

- Allow adequate time for committee members to explore, question and reach decisions
- An independent facilitator may be useful
- Bold actions and timelines needed
- Clarify ability of advisory committee to influence decisions by other teams/organizational bodies
- Committee members should be diverse and broad in scope
- Ensure output from committee(s) is available in multiple languages
- Feedback needed on if/how advice of advisory committee incorporated
- Provide education/onboarding for committee members new to solid waste
- Provide term of committee members, process for election of chair, and clarity on conflict of interest
- Trust must be built up after engagement challenges with previous plan

A record of all 184 open-ended question responses edited for consciences, clarity and confidentiality is available on request of Metro Vancouver staff.

Solid Waste Management Plan

Public/Technical Advisory Committee

Terms of Reference

November 17, 2021

1. PURPOSE

Over the next two to three years, Metro Vancouver will engage with governments (including Indigenous Nations), government agencies, waste and recycling industry representatives, waste producers, businesses, communities of interest, and Metro Vancouver residents to review and update the current [*Integrated Solid Waste and Resource Management Plan*](#) (2011). The updated solid waste management plan will build on the strengths of the current plan and identify opportunities for accelerated waste reduction and diversion, while reducing greenhouse gases and promoting a circular economy.

The purpose of the solid waste management plan public/technical advisory committee (committee) is to provide a forum for contribution from individuals from a range of backgrounds to inform the review and update of the solid waste management plan. The purpose of these terms of reference is to describe role of the committee.

2. TIMEFRAME

The committee will exist for the duration of the solid waste management plan update process.

3. SCOPE OF WORK

The committee will receive and review information, and advise on topics related to the development of the solid waste management plan. Committee members will be invited to pose questions, engage in discussion, and provide comments for consideration as the plan is developed. Potential topics for engagement with the committee include the circular economy, waste reduction and recycling, greenhouse gas emissions reduction, residuals management, asset and risk management, innovation, resilience, affordability, and collaboration and engagement.

Representatives of the 10 local Indigenous Nations will be invited to observe committee meetings at their preference. A separate Indigenous engagement strategy will help ensure a collaborative government-to-government engagement approach with Indigenous Nations whose territories include all or part of the Metro Vancouver region as well as a community engagement approach with urban Indigenous organizations, off-reserve and non-status First Nations, Métis and Inuit.

4. MEMBERSHIP

The committee will be composed of members representing a diversity of sectors and interests, who bring a variety of personal qualities, perspectives, and experiences to solid waste and recycling issues.

The following is a list of sectors/interests that could be represented by committee members:

- Adjacent regional district elected official
- Agriculture
- Circular economy

- Construction and demolition
- Extended producer responsibility programs
- Food service
- Government agencies and health authorities
- Large waste generators (e.g. academic institutions, school boards, transportation hubs, entertainment sector)
- Multi-family residences (e.g. residents, landlords, property management associations)
- Non-governmental/non-profit organizations and environmental stewardship groups
- Organics processing
- Public members-at-large (e.g. youth, seniors, and multicultural, accessibility, and resident/community associations)
- Recycling industry
- Reduction/repair/refill industry
- Retail/grocery
- Small- and medium-sized businesses, and business improvement associations, chambers of commerce, boards of trade
- Tourism and hospitality
- Waste industry
- Workers/unions

The following is a list of possible desired personal qualities, perspectives and experience of committee members:

- Demonstrates community/committee involvement and the ability to work collaboratively with others (e.g. openness to different/opposing views)
- Demonstrates personal commitment to zero waste, circular economy goals, sustainability, and climate action
- Demonstrates the ability to advance innovation
- Experienced with waste, waste reduction and recycling (i.e. lived experience, technical expertise, or both)
- Belongs to a community that is typically underrepresented (e.g. women, LGBTQ2S+, Indigenous persons, immigrants, visible minority, persons with disabilities, youth, etc.)
- Represents the interests/perspectives of a group of people/sector

5. SELECTION PROCESS

Membership will last the duration of the solid waste management plan update process. Committee members should be prepared to participate through the full term.

Committee members with the exception of the chair and vice-chair will be filled through a call for applications. Potential committee members who belong to typically underrepresented or equity-denied communities will be identified through targeted recruitment, with support mechanisms put in place to lower barriers to participation.

The call for applications will be promoted publically, and shared with our member jurisdictions and partners. Potential committee members will be asked to specify their sector/interest during the call for applications and an individual could identify more than one sector/interest. Not all sectors/interests will necessarily be represented on the committee, and more than one individual could be selected to represent a sector/interest. Following receipt of applications, the applicants will be evaluated based on

the personal characteristics outlined in the above section on membership. Recommendations for members will be reviewed by the Independent Consultation and Engagement Panel in advance of the recommendations being considered by the Zero Waste Committee and Board in closed meetings, before being released to the public.

6. CHAIRS

The committee chair and vice-chair will be members of the Zero Waste Committee, recommended by the Board Chair and selected by the Board in a closed meeting.

7. ADVISORY ROLE OF COMMITTEE

The role of the committee is advisory to Metro Vancouver. No votes will be held to determine the group's position on issues or recommendations to Metro Vancouver. Where consensus exists, it will be noted; minority opinions will be considered to have merit and will be noted.

8. MEETINGS

- a. Meetings will be held approximately 4–6 times per year for the duration of the solid waste management plan update process.
- b. The meeting dates and times will be determined by the chair and vice-chair in consultation with committee members, and will be scheduled at intervals relevant for the solid waste management plan development.
- c. The chair and vice-chair will work with Metro Vancouver staff to draft meeting agendas and coordinate meeting materials, which will be circulated to the committee in advance of meetings.
- d. The meetings will be structured to encourage dialogue and collaboration on relevant issues within the constraints of the planned agendas.
- e. Meeting minutes and action trackers will be kept for each meeting. Minutes shall not reflect the names of individual speakers or their stance on issues; rather, they shall reflect the issues discussed, significant points of view on the issues and the resolutions or actions to be taken.
- f. Meetings will be held virtually or at Metro Vancouver offices located at 4515 Central Boulevard in Burnaby, British Columbia. If unable to attend a meeting in person, a member may participate via teleconference or videoconference.
- g. A meeting quorum will be 50%+1 of active members.
- h. Meetings will be open to any individual who wishes to observe the discussions either in person or through teleconference or videoconference, although only committee members will be provided standing to participate in the discussion. Non-members may request an opportunity to present to the committee through two weeks' advance written submission for consideration by the chair and vice-chair.
- i. Metro Vancouver staff are not members of the committee, but will attend meetings to provide information on various topics, respond to questions etc.
- j. The committee may invite groups and subject matter experts to present and provide advice and feedback on specific agenda items, at the discretion of the chair and vice-chair.
- k. All committee agendas will be published and publicly available in advance of meetings, and presentations and meetings minutes posted thereafter on Metro Vancouver's website.
- l. Metro Vancouver will coordinate the venue and meeting logistics, invitations, notetaker, refreshments, and all requests received for the committee.
- m. Committee members may be reimbursed by Metro Vancouver for reasonable, out-of-pocket expenses associated with participating in meetings.

9. WORK PLAN

An annual work plan for the committee will be developed by Metro Vancouver staff based on deliverables in the solid waste management plan development. The work plan will be reviewed annually by the committee, and will guide development of meeting agendas.

10. CODE OF CONDUCT

This code is intended to serve as a framework to guide the spirit and intent of how members are expected to deliver on the committee's purpose and objectives in an ethical and respectful manner.

- a. *Respect and Collaboration*: Discussions and debates shall take place in an atmosphere of mutual respect and solutions-oriented collaboration, recognizing the value of different perspectives and seeking to understand the interests and needs of all affected parties.
- b. *Transparency*: It is expected that all members speak honestly and transparently, engaging in good-faith dialogue and sharing information openly to encourage fact-based dialogue.
- c. *Treatment of other Members*: Members have a duty to treat other members with respect during committee meetings. Specifically, members have a duty to avoid:
 - disrupting meetings by making continual interruptions or whispered asides
 - making offensive or abusive remarks directed at other members
 - impugning the motives of other members or supporting staff
 - ignoring the legitimate direction of the chair or vice-chair

Members who object to the behaviour of another member as identified in this code of conduct are asked to identify their concerns immediately to the committee chair and vice-chair. A member whose behavior repeatedly does not meet the code of conduct requirements may be asked to resign or be removed from the committee by the chair or vice-chair.

11. MEMBERSHIP RESIGNATION

Members wishing to resign from committee membership should provide written notice of their intent to resign, including the effective date of their resignation, addressed to the committee chair and vice-chair.

12. BUDGET AND RESOURCES

Funding for general meetings is provided by Metro Vancouver. Any additional funding for special projects or studies is subject to Metro Vancouver approval.

13. MEDIA PROTOCOL

Media requests will be directed to Metro Vancouver's media relations team. Individual members will not speak on behalf of the committee, unless it has been discussed and approved by the committee chair and vice-chair in advance.

The committee chair and vice-chair will be the chief spokespeople on behalf of the committee. For high profile issues, the role of spokesperson rests with the Board chair, vice-chair or the chair of the Zero Waste Committee. On technical matters or in cases where an initiative is still at the staff proposal level, a senior staff member is the appropriate chief spokesperson.

14. DECLARING CONFLICT OF INTEREST

Committee and subcommittee members must declare any conflicts of interest, real or perceived, at the outset of the process or as soon as it becomes known to the member.

To: GVS&DD Board

From: Karen Storry, Senior Engineer, Solid Waste Services

Date: November 9, 2021 Meeting Date: November 17, 2021

Subject: **Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws**

RECOMMENDATION

That the GVS&DD Board:

- a) approve the following regionally harmonized approach to municipal single-use item reduction bylaws:
 - i. ban on plastic checkout bags with prescribed minimum fees for recycled paper bags and reusable bags;
 - ii. ban on polystyrene foam service ware containers;
 - iii. ban on plastic drinking straws not required for medical and accessibility needs with alternatives such as paper drinking straws provided only on request by the customer;
 - iv. ban on plastic stir sticks with all other utensils provided only on request by the customer;and
- b) write the Minister of Environment and Climate Change Strategy requesting that municipalities be authorized to require businesses to charge prescribed minimum fees for single-use cups.

EXECUTIVE SUMMARY

A harmonized approach to single-use item reduction bylaws is important to reduce confusion for residents and improve efficiencies for businesses. A proposed regionally harmonized approach includes:

- bans on plastic checkout bags, stir sticks, drinking straws (except straws required for medical or accessibility needs), and foam service ware containers;
- minimum fees that the businesses keep for recycled paper bags and reusable bags;
- alternatives to plastic straws and all utensils only provided on a by-request basis; and
- reporting on the distribution of regulated bags on a by-request basis.

The regionally harmonized approach was developed through iterative engagement with member jurisdiction staff and industry stakeholders. Various revisions to the harmonized approach were made following feedback from municipal staff and industry. Both municipal staff and industry were supportive of a regionally harmonized approach.

Staff recommend that the GVS&DD Board write to the Minister of Environment and Climate Change Strategy requesting municipalities be authorized to require businesses charge a minimum fee for single-use cups, which the businesses would keep.

PURPOSE

The purpose of this report is to report back to the GVS&DD Board (Board) on a harmonized approach to municipal single-use item reduction bylaws.

BACKGROUND

In spring 2021, Metro Vancouver received letters from City of New Westminster, City of Delta and City of Coquitlam asking Metro Vancouver to lead the harmonization of municipal bylaws in the region. On May 28, 2021, the Board approved the following motion:

That the GVS&DD Board direct staff to collaborate with member jurisdictions, the B.C. Ministry of Environment and Climate Change Strategy and other stakeholders on the development of a standard for municipal single-use item reduction bylaws for the Board's consideration.

This report recommends an approach to municipal single-use item reduction bylaws and that the Board write the Minister of Environment and Climate Change Strategy requesting municipalities be authorized to require businesses charge a minimum fee for single-use cups.

HARMONIZED APPROACH TO MUNICIPAL SINGLE-USE ITEM REDUCTION BYLAWS

A harmonized regulatory approach for single-use items across the region benefits both residents and businesses. Metro Vancouver does not have the authority to regulate the sale or distribution of single-use items. The primary regulatory tool used in the region is municipal single-use item reduction bylaws.

Existing Single-Use Item Reduction Bylaws

A number of local communities have bylaws to reduce single-use items. In general, the bylaws are similar but not identical. Therefore, a regionally harmonized approach would help facilitate consistency between the municipal bylaws in the region. See Attachment 1 for a summary of existing and pending municipal single-use item bylaws.

Provincial Actions

The Minister of Environment and Climate Change Strategy signed *Ministerial Order No. M309-2021* (Ministerial Order) on July 26, 2021. This Ministerial Order allows local governments to enact certain single-use item reduction bylaws without seeking approval from the Minister of Environment and Climate Change Strategy. While the Ministerial Order allows for increased overall harmonization, municipalities may select different approaches for some items and provide different exemptions. Therefore, a regionally harmonized approach that aligns with the Ministerial Order will help reduce the potential for a patchwork of single-use item reduction bylaw requirements in the region.

On October 26, 2021, the Ministry of Environment and Climate Change Strategy announced updates to the provincial regulatory framework that will allow province-wide bans. The first phase of new regulations is expected in early 2023. A regional approach supports municipalities that want to enact bylaws in advance of province-wide regulations.

Input from Member Jurisdictions

Metro Vancouver hosted a member jurisdiction staff workshop on June 22, 2021, to review bylaw options. Workshop participants supported a regional approach including bans on plastic checkout bags, plastic stir sticks, plastic straws not required for medical or accessibility needs, and polystyrene

foam service ware containers. Most participants also supported additional measures to avoid simply swapping out banned plastic items for alternatives. These include providing utensils and alternatives to plastic straws only on request by the customer, and fees for recycled paper bags and reusable bags that the business keeps. Participants also suggested that a regionally harmonized approach should include exemptions and clarifications.

Following the workshop, a proposed harmonized approach to municipal single-use item reduction bylaws was developed and shared with member jurisdiction staff. Presentations on the approach were sequentially provided to the Municipal Waste Reduction Coordinators Committee, Regional Engineers Advisory Committee Solid Waste Subcommittee, Regional Engineers Advisory Committee, and Regional Administrators Advisory Committee. Revisions were made to the approach following feedback from those committees. There was general support for a harmonized approach at each of the staff committees.

A key update made following feedback from municipal staff was adding a requirement for businesses to keep records of the number of bags distributed, and the ability for municipalities to request data on the number of single-use bags distributed by businesses. This data would assist in understanding the extent of reduction in distribution of single-use bags over time, and would be based on financial data (fee data) that businesses typically collect and retain.

Some municipal staff suggested that a regional harmonized approach should go beyond what is allowed under the Ministerial Order, for instance, including a requirement for fees on single-use cups. Municipal bylaws with provisions not included in the Ministerial Order would require approval by the Minister of Environment and Climate Change Strategy, which at a minimum would delay implementation. Some municipal staff also suggested Metro Vancouver provide guidance on enforcement. Once municipal bylaws are in place, Metro Vancouver would work with municipalities to share information and support best enforcement practices.

Municipal staff requested that Metro Vancouver advocate for municipal authority to require prescribed minimum fees for single-use cups without specific Minister of Environment and Climate Change Strategy bylaw approval. Municipal staff suggested the Board write to the Minister of Environment and Climate Change Strategy to advance this request.

Feedback from Industry and Other Stakeholders

Metro Vancouver held a webinar on October 13, 2021, for industry and other stakeholders to provide input and feedback on the harmonized approach to municipal single-use item reduction bylaws. An online questionnaire was posted on the single-use items web page from September 28 – October 25, 2021 asking how the respondents' organization would be affected by regional harmonization, and if there was anything Metro Vancouver should consider when developing a regionally harmonized approach.

The majority of respondents supported the idea of a regionally harmonized approach. Common themes from the feedback included:

- support for harmonized approach to single-use items bylaws;
- request for clarification on current exemptions in existing bylaws;

- concerns over requirement for businesses to report the number of bags distributed;
- concerns that the proposed regional approach is not stringent enough and needs to include more items; and
- harmonizing fees on bags.

Reporting of bags distributed would be on an as-requested basis and with reporting based on the fees collected by the businesses.

Businesses asked for sufficient lead time to comply with bylaws. Under the Ministerial Order, a mandatory six-month minimum transition period following bylaw adoption is required prior to bylaw requirements taking affect.

Further modifications and clarifications to the proposed approach were made following feedback from industry and other stakeholders. For instance, one fee for single-use bags is included in the proposed approach rather than an initial lower fee increased after a transition period. Fee adjustments by retailers would result in costs each time the fees changed, for administration and reprogramming point of sale software.

Attachment 2 includes a summary of the input and feedback received from industry representatives and other stakeholders and Metro Vancouver’s response to the feedback received.

Proposed Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws

Table 1 summarizes the proposed regionally harmonized approach to municipal single-use item reduction bylaws, which is based on the following principles:

- existing single-use item reduction bylaws in the region;
- approaches allowable under the Ministerial Order; and
- input from member jurisdiction staff and stakeholders.

Table 1 Summary of the Proposed Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws

Approach		Items
Ban		Plastic bags, plastic straws (not required for medical or accessibility needs), plastic stir sticks, and polystyrene foam service ware containers
Minimum fees		\$0.25 for recycled paper bags, \$2.00 for reusable bags
Only on request by the customer		All utensils regardless of material, alternatives to plastic straws
Reporting		The number of recycled paper and reusable bag distributed in the past 12 months on an as-requested basis based on the value of fees collected

The proposed regional approach also includes definitions, exemptions, and scope clarifications. The proposed Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws is included in Attachment 3.

ALTERNATIVES

1. That the GVS&DD Board:
 - a) approve the following regionally harmonized approach to municipal single-use item reduction bylaws:
 - i. ban on plastic checkout bags with prescribed minimum fees for recycled paper bags and reusable bags;
 - ii. ban on polystyrene foam service ware containers;
 - iii. ban on plastic drinking straws not required for medical and accessibility needs with alternatives such as paper drinking straws provided only on request by the customer;
 - iv. ban on plastic stir sticks with all other utensils provided only on request by the customer; and
 - b) write the Minister of Environment and Climate Change Strategy requesting that municipalities be authorized to require businesses to charge prescribed minimum fees for single-use cups.
2. That the GVS&DD Board receive the report dated November 9, 2021, titled “Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws”, for information and provide staff with alternate direction on regionally harmonized approaches to single-use item reduction.

FINANCIAL IMPLICATIONS

Municipalities would ultimately be responsible for implementing bylaws within their communities. Metro Vancouver’s role of facilitating the harmonization of bylaws can be completed within the current Solid Waste Planning budget.

CONCLUSION

Metro Vancouver worked with member jurisdiction staff and industry stakeholders to develop a regionally harmonized approach to municipal single-use item reduction bylaws. Staff recommend the Board approve the attached harmonized approach for municipal single use item reduction bylaws.

Attachments (*Orbit #49096173*)

1. Summary of Existing Bylaws
2. Feedback Summary of What We Heard and What We’re Doing
3. Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws

References

1. [Ministerial Order M306-2021](#)

Summary of Existing Bylaws

Table 1 summarizes the proposed and adopted single-use item reduction bylaws in the region. It also includes a summary of other bylaws in B.C. considered in the development of the Regional Approach to Municipal Single-Use Item Reduction Bylaws. And it provides a summary of the regulations proposed by the Government of Canada.

Table 1 Summary of development of Regional Approach to Municipal Single-Use Item Reduction Bylaws

	Bags	Straws	Utensils	Cups	Containers
Government of Canada (Proposed)	Ban	Ban	Ban	Problematic Plastics Ban (Eg. Foam and Black Plastic)	Problematic Plastics Ban (Eg. Foam and Black Plastic)
Chilliwack	Ban + Fees	Ban	Plastics ban + By-Request Only for Alternatives	Foam Ban	Foam Ban
Delta	Ban + Fees			Foam Ban	Foam Ban
Esquimalt	Ban + Fees				
Nanaimo	Ban + Fees				
Port Moody	Ban + Fees	Ban	Stir Stick Ban	Foam Ban	Foam Ban
Richmond	Ban	Ban		Foam Ban	Foam Ban
Rosland	Ban + Fees				
Saanich	Ban + Fees				
Surrey	Ban + Fees + Required Reporting			Foam Ban	Foam Ban
Tofino	Ban + Fees	Ban		Foam Ban	Foam Ban
Ucluelet	Ban + Fees	Ban		Foam Ban	Foam Ban
Vancouver	Ban + Fees + Required Reporting	Ban*	By-Request Only	Foam Ban + Cup Fee + Cup Share Participation or Reporting of single-use cups	Foam Ban
Victoria	Ban + Fees				

*With an accessibility requirement: Flexible plastic straws, individually wrapped in paper, must be stocked by food vendors and provided to customers when requested.

Feedback Summary of What We Heard and What We're Doing

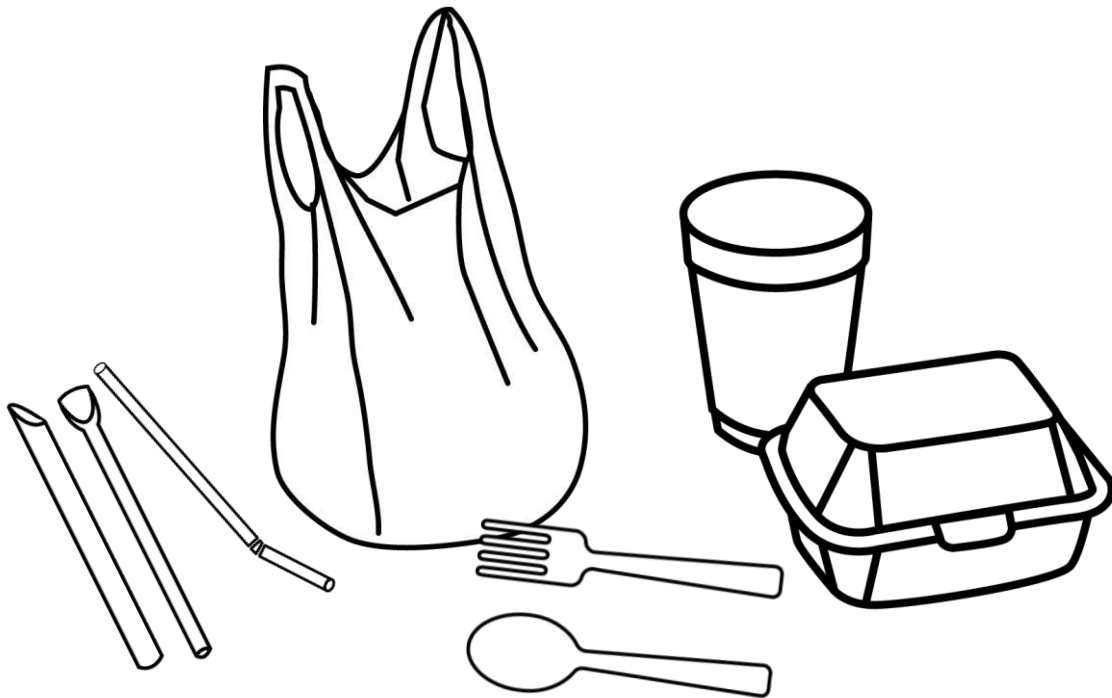
The following summary table shows how the input and feedback shared during the online questionnaire was considered for the harmonized approach.

What We Heard	What We're Doing
Support for idea of harmonized approach to single-use items bylaws (9)	Support noted and appreciated
Request for clarification on exemptions in bylaws (4): <ul style="list-style-type: none"> Clarity needed on if donations of used grocery bags are included in the bylaw for fees and reporting Preference to exempt garment bags 	Clarified that donations of used grocery bags are exempt from both fees and reporting under the Ministerial Order Added to list of out of scope items: <ul style="list-style-type: none"> single-use garment bags used to protect new garments during shipping; reusable garment bags used to protect items such as suits and dresses
Concerns over the ability to require businesses report the number of bags distributed (2): <ul style="list-style-type: none"> Reporting amounts of donated single-use items would be difficult for charitable organizations The 12-month reporting period is onerous and costly for businesses (especially after COVID-19 pandemic stressors) 	Clarified that reporting would be based on the value of fees collected for regulated bags and not donated bags Concerns on reporting requirements will be passed on to our members, we encourage alignment with the regional approach to simplify the reporting process
Implementation of standardized requirements will make it easier and faster for businesses and municipalities to adopt (2) A harmonized approach will help educate customers and create consistencies to eliminate confusion (2)	Feedback appreciated on harmonization to benefit residents and businesses in the region
The proposed regional approach is not stringent enough and needs to include more items (3): <ul style="list-style-type: none"> Suggestion to expand items on the banned list to include single-use plastic take out containers Bylaws need to include more items to reduce restaurant waste Concerns on the "self-serve" option not minimizing waste 	Feedback appreciated on which single-use items should be prioritized next and will be considered for future work
Quality and performance of products (4): <ul style="list-style-type: none"> Suggestion to make reusable bags more affordable Concerns about quality and performance of reusable straws and bags Suggestion to define what "fabric" means for reusable bags to make them out of recyclable materials so they don't end up in the landfill 	Working with City of Vancouver to share their Shopping Bag Bylaw Support Plan with member jurisdictions, aimed at minimize impacts on low income residents Looking to innovations that have addressed most performance issues for straws and bags Municipalities must align with the definition of "reusable bags" in <i>Ministerial Order M309-2021</i> for compliance
Harmonizing fees on bags (2): <ul style="list-style-type: none"> Suggestion to eliminate phased-in fees on paper and reusable bags 	Updated the regionally harmonized approach to exclude optional introductory period with lower fees for the first 12 months

<ul style="list-style-type: none"> • Having one fee across all member jurisdictions makes it more cost efficient for businesses and easier for customers to understand 	
<p>Resources for businesses (5):</p> <ul style="list-style-type: none"> • Advocating for lead-in periods to be a minimum of 26 weeks for all single-use items bylaws • Allow for education and training time for businesses to implement changes • Allow for businesses to go through current stock of single-use items • Alleviate financial stressors on businesses as much as possible • Support businesses to promote using reusable items 	<p>Ministerial Order requires that municipalities set a date that is at least 6 months after the date the bylaw is adopted by council</p> <p>Encourage member jurisdictions to engage with businesses to understand any temporary exemptions needed to address supply chain challenges</p> <p>Provide resources through the superhabits campaign to encourage residents to bring reusable items</p>

Numbers in brackets represent the number of responses containing the summarized feedback.

Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws



November 2021

Metro Vancouver Solid Waste Services

This Document is Not a Substitute for Legal Counsel

The regionally harmonized approach to municipal single-use item reduction bylaws outlined in this document does not, and is not intended to, constitute legal advice; instead, all information, content, and materials available in this document are for general informational purposes only. The regulation of single-use items is an evolving area. Information in this report may not constitute the most up-to-date legal or other information. Member jurisdictions should work with legal counsel to obtain advice with respect to the drafting and implementation of bylaws.

Introduction

A harmonized regulatory approach for single-use items across the region benefits both residents and businesses. Table 1 summarizes the regionally harmonized approach to municipal single-use item reduction bylaws. The overall goal of single-use item reduction bylaw approaches outlined in this document is to reduce single-use items overall. This means not just swapping single-use plastic items out for alternatives such as single-use paper and wood. The goal is to move up the waste hierarchy towards reusable, durable products. Therefore, where possible, approaches avoid swapping of one item for another.

Table 1 Summary of the Proposed Regionally Harmonized Approach to Municipal Single-Use Item Reduction Bylaws

Approach	Items
Ban	Plastic bags, plastic straws (not required for medical or accessibility needs), plastic stir sticks, and foam service ware containers
Minimum fees	\$0.25 for recycled paper bags, \$2.00 for reusable bags
Only on request by the customer	All utensils regardless of material, alternatives to plastic straws
Reporting	The number of recycled paper and reusable bags distributed in the past 12 months on an as-requested basis based on the fees collected

Definitions

“accessible straw” means a drinking straw made wholly of plastic that is not compostable or biodegradable, has a corrugated section that allows the straw to bend and maintain its position and is individually wrapped in paper;

“checkout bag” means a paper or plastic single-use supplementary bag;

“item” means the applicable of the following:

- (a) a bag;
- (b) a service ware container;
- (c) a utensil;
- (d) a drinking straw;

“plastic” includes compostable and biodegradable plastic;

“polystyrene foam”, when used in reference to an item, means an item made primarily of polystyrene foam;

“recycled paper bag” means a paper checkout bag that contains at least 40% recycled paper content, and has a reference printed on the outside of the bag to the applicable amount of recycled content with the word “recyclable”;

“reusable bag” means a bag that is designed and manufactured to be used and machine-washed at least 100 times;

“service ware container” means a container that is ordinarily provided for service of prepared food or beverages and includes a cup, plate, bowl, tray, carton or lidded container;

“single-use”, when used in reference to an item, means the item is provided for a single use or a short-term purpose;

“small paper bag” means a paper bag that is less than 15 cm by 20 cm when flat;


“stir stick” means an item that is designed and manufactured to stir beverages;

“supplementary”, when used in reference to an item, means an item that is provided to a customer by a business to facilitate the transport of a purchase from the business, or consumption of a product, including prepared food that is purchased for take-out or delivery;

“used bag” means a checkout bag or a reusable bag that has been previously used and is being reused;

“utensil” includes a spoon, fork, knife, chopstick or stir stick.

Checkout Bags

	Regionally Harmonized Approach to Reduce Single-Use Checkout Bags	
	<ul style="list-style-type: none">• Ban on plastic checkout bags• Prescribed fees (see Table 2) for recycled paper bags and reusable bags;• Reporting on the number of recycled paper and reusable bags distributed in the past 12 months on an as-requested basis based on the fees collected.	

Minimum Fee Levels

The minimum fees set out in Table 2 are to be kept by the businesses.

Table 2 Fees for checkout bag bylaws

	Item	Minimum Fee
Regionally harmonized minimum fee levels	Recycled Paper Bag	\$0.25
	Reusable Bag	\$2.00

The following bags are exempt from fees:

- used bags;
- small paper bags;
- recycled paper bags for privacy of prescription drugs and medical devices; and
- paper and reusable bags used to distribute items such as food and clothing to those in need.

Exemptions and Clarifications on Scope

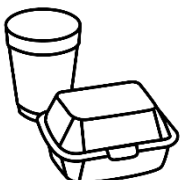
Exempt plastic checkout bags include:

- large bags used to protect linens, bedding or other similar large items.

The follow list of checkout-bag-like and plastic wrapping that are out of scope:

- package loose bulk items such as fruit, vegetables, nuts, grains, or candy;
- package loose small hardware items such as nails and bolts;
- contain or wrap frozen foods, meat, poultry, or fish, whether pre-packaged or not;
- wrap flowers or potted plants;
- protect prepared foods or bakery goods that are not pre-packaged;
- transport live fish;
- carry home belongings from a hospital or care facility;
- protect newspapers or other printed material intended to be left at the customer's residence or place of business;
- protect clothes after professional laundering or dry cleaning;
- plastic garment bags used to protect new garments during shipping; and
- reusable garment bags used to protect items such as suits and dresses.

Foam Service Ware Containers

	Regionally Harmonized Approach to Reduce Single-Use Service Ware Containers
	<ul style="list-style-type: none">• Ban on foam service ware containers

Exemptions and Clarifications on Scope

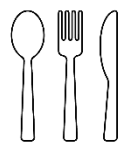
Foam service ware containers not included in the scope of food service ware containers include:

- Foam trays used for uncooked meat, poultry, seafood, or other food that requires further preparation are not part of the foam food service ware ban.
- Items packaged and sealed outside the jurisdiction of the bylaw.

Exemptions to banned foam service ware containers include:

- Hospital and care facilities under the Community Care and Assisted Living Act.
- The sale of single-use items that are sold as a product, ordinarily in sets of multiple item.

Utensils and Stir Sticks

	Regionally Harmonized Approach to Reduce Single-Use Utensils and Stir Sticks
	<ul style="list-style-type: none">• Ban on plastic stir sticks• Utensils (regardless of materials) available only on request by the customer.

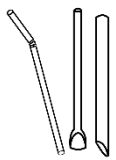
Exemptions and Clarifications on Scope

Self-serve stations are a form of only on request by the customer.

Exemptions to banned plastics stir sticks and utensils available only on request by the customer include:

- Hospital and care facilities under the Community Care and Assisted Living Act.
- The sale of single-use items that are sold as a product, ordinarily in sets of multiple item.

Drinking Straws

	Regionally Harmonized Approach to Reduce Single-Use Drinking Straws <ul style="list-style-type: none">• Ban on plastic drinking straws not required for accessibility and medical needs• Alternatives such as paper straws only provided by request
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Guidance Regarding Accessibility and Medical Needs

It is important that any restrictions on plastic drinking straws consider accessibility and medical needs by:

- clarifying in all communications that the plastic drinking straw ban does not apply to accessible straws required for accessibility or medical needs;
- explaining to stakeholders why these straws are needed and encouraging businesses to stock accessible straws for those that need them; and
- including persons with disabilities and medical needs in engagement activities.

Exemptions and Clarifications on Scope

Exemptions to banned plastic drinking straws not required for accessibility or medical needs include:

- Hospital and care facilities under the Community Care and Assisted Living Act.
- The sale of single-use items that are sold as a product, ordinarily in sets of multiple items.

To: Zero Waste Committee

From: Chris Allan, Director, Solid Waste Operations, Solid Waste Services
Roy Moulder, Director, Purchasing & Risk Management, Financial Services

Date: November 9, 2021 Meeting Date: November 17, 2021

Subject: **Waste-to-Energy Facility – Primary Economizer Replacement**

RECOMMENDATION

That the GVS&DD Board authorize:

- a) an amendment to the existing contract with Covanta Burnaby Renewable Energy, ULC for the primary economizer replacement project at the Metro Vancouver Waste-to-Energy Facility in an amount of up to \$5,436,568.00 (including PST, but excluding GST), subject to the final review by the Commissioner; and
 - b) the Commissioner and Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.
-

EXECUTIVE SUMMARY

The Metro Vancouver Waste-to-Energy Facility was commissioned in 1988 and consequently regular replacement of infrastructure is required for continued efficient operation of the facility. The primary economizers (key components of the energy recovery system) were installed in 2006 and their replacement is required to ensure the facility continues to maximize waste processing and power production, while minimizing downtime due to mechanical issues. Staff recommend amending the existing contract to include the primary economizer replacement project at a cost not to exceed \$5,436,568.00 (including PST, but excluding GST) to Covanta Burnaby Renewable Energy, ULC (Covanta). The existing agreement allows for Covanta to undertake maintenance and replacement work for the upkeep of the facility. The Covanta process meets the rigorous requirements of the Metro Vancouver procurement process and has resulted in a preferred proponent that provides best value to the corporation. Funding for the work is included in the Solid Waste Services 2022 capital budget.

PURPOSE

This report is to advise the Zero Waste Committee of the results of the competition undertaken by Covanta for the primary economizer replacement project at the Metro Vancouver Waste-to-Energy Facility and to recommend an amendment to the existing contract in an amount of up to \$5,436,568.00 (including PST, but excluding GST).

BACKGROUND

Pursuant to the *Officer and Delegation Bylaw No. 247, 2014* (Bylaw) and the *Procurement and Real Property Contracting Authority Policy* (Policy), procurement contracts which exceed a value of \$5,000,000 require the approval of the GVS&DD Board (Board). This report is being brought forward to consider a recommendation to the Board to authorize amendment of the existing contract with

Covanta for the replacement of the primary economizers. The primary economizers are part of the energy recovery system at the Waste-to-Energy Facility and the existing units require replacement.

PRIMARY ECONOMIZERS

The primary economizers are located in front of the air pollution control equipment and reduce the temperature of the flue gases before the gases enter the dry reactor used to control acid gases and mercury emissions. The existing primary economizers are 15 years old, and have reached the end of their operating life. This work was identified in the 2016 condition assessment performed by an independent consultant, and is included in the capital budget for the Waste-to-Energy Facility. The existing tubes are difficult to repair, and frequent failures are resulting in a loss of processing capacity at the Waste-to-Energy Facility. Over the past year, approximately 15% of the unscheduled downtime at the facility was due to tube leaks in the primary economizers. This has a direct impact on the waste processing capacity and electricity production of the facility.

As allowed for under the existing agreement, and to ensure uninterrupted operation of the Waste-to-Energy Facility, Covanta is best suited to manage the work, as construction work needs to be integrated with facility operations activities. In addition, as Covanta is responsible for the operation and maintenance of the installed works, there is greater accountability if Covanta acts as general contractor during construction. To ensure third parties procuring on behalf of Metro Vancouver and its legal entities adhere to the Policy, Covanta posted the project in two parts on BC Bid.

Proposals were received from the following companies:

<u>Design/Build</u>	<u>Removal/Installation</u>
Boiler Tube Company of America	Combustion Solutions Inc.
Combustion Solutions Inc.	
E-Tech Heat Recovery Systems	

The proposals for both design/build and removal/installation of the economizers were reviewed, and the preferred proponent, Combustion Solutions Inc., located in Squamish, BC, was selected. Combustion Solutions Inc. had the lowest priced bid for fabrication of the primary economizers, and was the only company to bid on installation of the new infrastructure. Selecting this proponent ensures best value for Metro Vancouver. The overall value of the work including Covanta's contract specified mark-up is \$5,436,568.00 (including PST, but excluding GST) for the project.

ALTERNATIVES

1. That the GVS&DD Board authorize:
 - a) an amendment to the existing contract with Covanta Burnaby Renewable Energy, ULC for the primary economizer replacement project at the Metro Vancouver Waste-to-Energy Facility in an amount of up to \$5,436,568.00 (including PST, but excluding GST), subject to the final review by the Commissioner; and
 - b) the Commissioner and Corporate Officer to execute the required documentation once the Commissioner is satisfied that the award should proceed.

2. That the Zero Waste Committee receive for information the report dated November 9, 2021, titled “Waste-to-Energy Facility Primary Economizer Replacement Project Contract Award” and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

If the Board approves Alternative 1, a contract amendment with Covanta will be issued for the primary economizer replacement project at a cost not to exceed \$5,436,568.00 (including PST, but excluding GST). Funding for this project exists in the approved 2022 capital budget.

The Board has the choice not to proceed with Alternative 1; however, staff will need further direction in relation to the project. If the primary economizer replacement project does not proceed, the availability of the Waste-to-Energy Facility would be impacted as the existing equipment has reached the end of its operating life.

CONCLUSION

The existing primary economizers (key components of the energy recovery system) have reached the end of their operating life. Staff recommend Alternative 1, amending the existing contract with Covanta Burnaby Renewable Energy, ULC to include the primary economizer replacement project in an amount of up to \$5,436,568.00 (including PST, but excluding GST), under the terms and conditions of existing Contract 98106. If Alternative 2 is selected, the reliability of the Waste-to-Energy Facility would be impacted by the necessity for ongoing repairs.

47776570

To: Zero Waste Committee

From: Sarah Wellman, Senior Engineer, Solid Waste Operations, Solid Waste Services
Lillian Zaremba, Program Manager, Utility Residuals Management, Liquid Waste Services

Date: November 9, 2021 Meeting Date: November 17, 2021

Subject: **Waste-to-Energy Facility Biosolids Processing System**

RECOMMENDATION

That the GVS&DD Board authorize:

- a) the construction of a biosolids processing system for the Waste-to-Energy Facility at a cost of up to \$22 million; and
 - b) the Commissioner and Corporate Office to execute any necessary documents.
-

EXECUTIVE SUMMARY

Using the Waste-to-Energy Facility to process up to 25,000 tonnes per year of biosolids will help diversify options for biosolids management as quantities increase with the development and upgrading of regional wastewater treatment plants. Managing biosolids at the Waste-to-Energy Facility will increase its processing capacity and electricity production, and improve operations.

Covanta, the Waste-to-Energy Facility operator, would construct the biosolids system to ensure coordination with facility operations. Covanta would use transparent procurement processes with oversight by Metro Vancouver. The capital and operating cost of processing biosolids will be paid by Liquid Waste Services on a cost recovery basis. The project capital cost, including biosolids management systems along with additional Waste-to-Energy Facility improvements to be completed in parallel, are up to \$22 million. The cost of managing biosolids at the Waste-to-Energy Facility is comparable to other options for biosolids management, and is included in the Liquid Waste and Solid Waste capital and operating financial plans.

PURPOSE

The purpose of this report is to seek GVS&DD Board (Board) approval to construct a biosolids processing system at the Waste-to-Energy Facility. A parallel information report was received for information by the Liquid Waste Committee at their November 4, 2021 meeting.

BACKGROUND

The *Integrated Liquid Waste and Resource Management Plan* directs Metro Vancouver to use liquid waste as a resource, and recover nutrients and energy from biosolids. New options for biosolids management are required because the annual biosolids production in the region is projected to increase from roughly 55,000 tonnes per year currently, to 100,000 tonnes per year in the next five years, and 150,000 tonnes per year by 2050. Land application of an additional 100,000 tonnes per year of biosolids would be challenging as land application projects are vulnerable to fluctuations in customer markets and public concern. On October 4, 2019, the Board endorsed biosolids drying as a

management option. The report dated September 13, 2019, titled “Biosolids Management Strategic Direction” also noted that Metro Vancouver was exploring the use of the Waste-to-Energy Facility to manage up to 25,000 tonnes per year of biosolids, and that processing of biosolids at the Waste-to-Energy Facility would not impact the business case for the development of a biosolids dryer.

BIOSOLIDS PROCESSING AT THE WASTE-TO-ENERGY FACILITY

Processing of biosolids at the Waste-to-Energy Facility would complement land application of biosolids and the planned regional biosolids drying facility. Land application recovers valuable nutrients, builds healthy soils, and sequesters carbon. The biosolids drying facility will recover energy and nutrients, which both fulfill the direction of the *Integrated Liquid Waste and Resource Management Plan*. Processing biosolids at the Waste-to-Energy Facility is slightly better than energy-neutral and has lower transportation emissions than disposal at distant landfills. The intent is to run the biosolids processing system at a minimum one-third capacity (8,500 tonnes per year) and to use the additional capacity of up to 25,000 tonnes per year as a contingency if biosolids land application sites become unavailable. Contingency use of the Waste-to-Energy Facility will avoid landfilling of biosolids, which is not a beneficial use, does not recover energy or nutrients, and results in greenhouse gas emissions.

Over the period 2017 to 2019, Metro Vancouver conducted testing of biosolids processing at the Waste-to-Energy Facility. Testing determined that up to 25,000 tonnes per year of biosolids can be processed at the Waste-to-Energy Facility (an increase of approximately 10% in overall facility capacity) with only minor impacts on waste quantities processed, and no impacts on air emissions or ash quality. Results of the testing program were submitted to the Ministry of Environment and Climate Change Strategy, and on March 31, 2021 the Ministry of Environment and Climate Change Strategy approved processing up to 25,000 tonnes per year of biosolids at the Waste-to-Energy Facility.

Process Details

Biosolids processing at the Waste-to-Energy Facility would involve the installation of storage tanks and appropriate pumping and conveyance infrastructure. Feed chute injectors have been installed already as part of replacement of the refuse feed chutes, work previously planned and now complete. With the injection of biosolids directly into the refuse feed chutes, there is no odour potential, and facility equipment, such as the refuse cranes, does not contact the biosolids, minimizing potential worker concerns. A similar system is in place at the waste-to-energy facility in Oahu, Hawaii, and has been operating successfully for a number of years with no odour complaints.

Capital and Operating Costs and Project Development

A third party engineering study estimated the capital costs of developing a biosolids processing system at the Waste-to-Energy Facility at \$19.8 million including contingency and escalation. Of the total cost, approximately \$16.4 million is dedicated equipment for the biosolids processing system and \$3.4 million is combustion air management upgrades that provide co-benefits to overall Waste-to-Energy Facility operations. On top of the \$19.8 million estimate, an additional \$2.2 million is included in the budget as supplemental contingency to ensure the project can be completed within budget.

The incremental operating cost to receive biosolids has been calculated at \$45 per tonne on top of capital costs. This includes labour, lost garbage processing capacity, ash management, and other operating and maintenance costs.

For projects that are integrated into the Waste-to-Energy Facility operations, such as the biosolids processing system, Metro Vancouver contracts with Covanta, the facility operator, to construct the project. Covanta undertakes procurement in a similar manner as Metro Vancouver, with opportunities advertised through BC Bid and proposals evaluated with the same level of rigor as Metro Vancouver. Metro Vancouver also engages third party engineering consultants to review proposed capital and operating costs to ensure they are reasonable.

As per the report dated September 13, 2019, titled “Biosolids Management Strategic Direction”, the cost of managing biosolids through land application and landfilling ranges from \$140 to \$160 per tonne. When the cost of carbon is included according to the *Carbon Price Policy*, those costs rise to \$155 to \$265 per tonne of biosolids. The effective cost of processing biosolids at the Waste-to-Energy Facility will depend on the amount of biosolids received at the facility, given the fixed capital costs. Based on a throughput ranging from 8,500 tonnes per year to 25,000 tonnes per year, the unit cost of processing biosolids is \$195 to \$100 per tonne, which is in a similar range as other options.

Benefits

The Waste-to-Energy Facility achieves several benefits from processing biosolids. Adding biosolids increases the overall utilization of the facility because the high moisture content of the biosolids means that five tonnes of added biosolids only reduces garbage processing capacity by one tonne. Recent decreases in the organics content in the municipal solid waste stream, due to the organics disposal ban and proportional relative increases in plastic content, have increased the energy value of the waste stream, reducing throughput for the facility. Electricity production at the Waste-to-Energy Facility is estimated to increase by 3% through the addition of biosolids. Pilot trials showed improvements in process controls with the addition of biosolids, as the consistent moisture content of the biosolids improves the overall consistency of the input materials to the facility.

The Waste-to-Energy Facility provides a local, reliable, low-risk and cost-effective option for managing biosolids. From a greenhouse gas perspective, the primary benefit of processing biosolids at the Waste-to-Energy Facility is reduced transportation emissions compared to trucking biosolids to distant landfills when disposal is required. For an input stream of up to ten percent biosolids at the Waste-to-Energy Facility, no supplemental natural gas is required to process the biosolids due to the high energy value of the municipal solid waste, resulting in no increase in greenhouse gas emissions at the facility. The 3% increase in electricity production from the addition of biosolids results in limited greenhouse gas benefits, as it is mainly displacing clean hydropower electricity. In the future, once heat recovery for district energy is in place at the Waste-to-Energy Facility, heat generated by the addition of biosolids would help displace natural gas use in district energy systems and reduce greenhouse gas emissions.

ALTERNATIVES

1. That the GVS&DD Board authorize:
 - a) the construction of a biosolids processing system for the Waste-to-Energy Facility at a cost of up to \$22 million; and
 - b) the Commissioner and Corporate Office to execute any necessary documents.
2. That the Zero Waste Committee receive for information the report dated November 9, 2021, titled “Waste-to-Energy Facility Biosolids Processing System” and provide alternate direction to staff.

FINANCIAL IMPLICATIONS

If the Board approves Alternative 1, Solid Waste Services will proceed with the construction of the biosolids processing system in the amount of up to \$22 million. Of the total \$22 million, approximately \$16.4 million would be funded as Liquid Waste Services Capital and \$5.6 million as Solid Waste Services Capital. Since the project would be undertaken by Solid Waste Services, the Liquid Waste Services portion of the cost would be fixed. Solid Waste Services would report back to the Board following detailed design if the expected costs for the project exceed \$22 million. The Board would have the option to cancel the project if expected costs exceeded \$22 million in accordance with the stage gate process being implemented across the organization. Funding for this project is included in the 2022–2026 5-Year Financial Plan.

If the Board approves Alternative 2 and the biosolids processing system is not implemented, the diversification of options to handle biosolids will be reduced, increasing the potential for landfill disposal of biosolids.

CONCLUSION

Engineering work is complete for a system to process biosolids at the Waste-to-Energy Facility. Implementing the project would provide capacity for up to 25,000 tonnes per year of biosolids to be managed locally and provides benefits to the operation of the Waste-to-Energy Facility. Staff recommend Alternative 1, proceeding with implementation of a biosolids processing system at the Waste-to-Energy Facility at a cost of up to \$22 million.

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NOTICE OF MOTION

Director Harvie provided the following Notice of Motion on September 24, 2021 for consideration at the October 29, 2021 GVS&DD Board Meeting:

Coordinated Review and Environmental Management of the Fraser River Estuary and Salish Sea

WHEREAS the Fraser River Estuary Management Program and the Burrard Inlet Environmental Action Program were discontinued on March 1, 2013;

AND WHEREAS since that time there has not been a coordinated approach to the environmental management of the Fraser River and Salish Sea;

AND WHEREAS there have been a number of major projects recently approved or proposed that will affect the Fraser River and Salish Sea including the Trans Mountain Pipeline Expansion, Roberts Bank Terminal 2, Tilbury Marine Jetty and Vancouver Airport Fuel Delivery Project, among others;

AND WHEREAS local governments within Metro Vancouver and Indigenous Groups have expressed ongoing concerns regarding environmental impacts of these projects, including those related to increased marine traffic and the overall cumulative effects on the Salish Sea and Fraser River estuary;

THEREFORE BE IT RESOLVED that the federal government be requested to establish an independent body to lead a coordinated approach to environmental management and project review within the Fraser River estuary and Salish Sea with a mandate to conduct a regional impact assessment and to develop a long-term environmental management plan to guide further conservation efforts and sustainable development in the region.

COMMITTEE INFORMATION ITEMS AND DELEGATION SUMMARIES

Greater Vancouver Sewerage and Drainage District
Board Meeting Date – Friday, November 26, 2021

This information item, listing recent information received by committee, is provided for the GVS&DD Board's information. Please access a complete PDF package [here](#).

Liquid Waste Committee – November 4, 2021*Delegation Summaries:*

No delegations presented

Information Items:

- 5.3 Waste-to-Energy Facility Biosolids Processing System
- 5.5 Integrated Liquid Waste and Resource Management Plan - Early Engagement and 2019-2020 Biennial Report Feedback

Zero Waste Committee – November 17, 2021*Delegation Summaries:*

No delegations presented

Information Items:

- 5.7 2020 Solid Waste and Recycling Annual Report
- 5.8 Ecowaste Landfill Agricultural Land Commission Application

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