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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

METRO VANCOUVER REGIONAL DISTRICT
SOLID WASTE AND RECYCLING INDUSTRY ADVISORY COMMITTEE

Tuesday, November 4, 2025
2:30 pm – 4:30 pm
Zoom Teleconference

A G E N D A

1. AGENDA

1.1 November 4, 2025 Meeting Agenda — 2:35 – 2:40 pm

2. MINUTES

2.1 September 9, 2025 Meeting Minutes
2.2 October 7, 2025 Meeting Notes — 2:40 – 2:45 pm

3. REPORTS AND ITEMS FOR DISCUSSION

3.1 SWMP: Metrics and Targets — 2:45 – 3:40 pm
For plenary discussion – primary metrics and targets
For small group discussion – secondary metrics
Designated Speaker: Terry Fulton, Senior Project Engineer, Solid Waste Services

3.2 2026 IAC Draft Work Plan Development — 3:40 – 4:10 pm
For input/feedback – Plenary discussion
Designated Speaker: Lori Bryan
What are some potential topics the committee could focus on in 2026?

4. OTHER BUSINESS — 4:10 – 4:20 pm

4.1 Zero Waste Committee and Other Updates
For information
Designated Speaker: Paul Henderson, General Manager, Solid Waste Services

4.2 IAC 2026 Draft Meeting Dates

5. INFORMATION ITEMS

5.1 Regional Waste Flows — 4:20 – 4:25 pm
5.2 2025 IAC Work Plan
5.3 Greenhouse Gas Emissions from Disposal*

5.4 Solid Waste Management Plan - Options Analysis Update (November 6, 2025 Zero Waste Committee report)
5.5 Disposal Cost Comparison Details (October Manager's Report excerpt)
5.6 Solid Waste Management Plan Update Draft Recycling and Waste Centre Strategic Approach
5.7 Solid Waste Management Plan Update Draft Regulatory Strategic Approach

**Previously included in October agenda.*

Committee Co-Chairs:
Director Craig Hodge, Zero Waste Committee Vice-Chair
Lori Bryan, Executive Director, Waste Management Association of BC

Membership:

Abrams, Izzie – Waste Connections of Canada
Agassiz, Sam – West Coast Reduction Ltd.
Bryan, Lori – Waste Management Association of BC
Collins, James – Tymac Launch Service Ltd.
Crawford, Jeremy – Waste Control Services
Furtado, Glen – Cement Association of Canada
Hankins, Grant – Canada Minibins.com Ltd.
JansenVandoorn, Josh – Anaconda Systems Ltd.
Janzen, Tessa – Recycle BC
Johnson, Gord – Northstar
Johnston, Kurt – CleanStart Property Services
Kaminski, Jamie – HSR Zero Waste
Kawakami, Sean – Convertus Canada Ltd.
Kheyrandish, Ataollah – Richmond Steel Recycling
Kiani, Aiden – Lock-Block Ltd.
Lannin, Mike – Super Save Group
MacNeil, Patrick – Wescan Disposal Ltd.
MacFarlane, Angus – Growing City
Mallari, Achilles – Sierra Waste Services Ltd.
McRae, Ralph – Revolution Infrastructure Inc.
Millman, David – Waste Management of Canada Corp.
Moucachen, Maya – Merlin Plastics
Muir, Wesley – Veolia North America (Canada)
Pantazopoulos, Dimitri – Waste Connections of Canada
Punja, Rustam – Geocycle Canada Inc.
Prasad, Shad – Cascade Recovery +
Skei, Dayton – Evergen Infrastructure Corp.
Skoropada, Lorne – Ridge Meadows Recycling Society
Sigmund, Sandy – Encorp Pacific Canada, Return-It
Van Beusekom, Brent – product Care Association
Vargas, Pinky - Republic Services
Von Stefenelli, Nicole – Urban Impact Recycling Ltd.
Zarbl, Michael - Major Appliance Recycling Roundtable

METRO VANCOUVER REGIONAL DISTRICT
SOLID WASTE AND RECYCLING INDUSTRY ADVISORY COMMITTEE MEETING

Minutes of the Solid Waste and Recycling Industry Advisory Committee Meeting held virtually at 2:30 p.m. on Tuesday, September 9, 2025.

MEMBERS PRESENT:

Craig Hodge, Director, Zero Waste Committee (Co-Chair)
MacNeil, Patrick – Wescan Disposal Ltd. (Acting Co-Chair)
Crawford, Jeremy – Waste Control Services
Collins, James – Tymac Launch Service Ltd.
Hankins, Grant – Canada Minibins.com Ltd.
Johnston, Kurt – CleanStart Property Services
Kaminski, Jamie – HSR Zero Waste
Kawakami, Sean – Convertus Canada Ltd.
Kheyrandish, Ataollah – Richmond Steel Recycling
Kiani, Aiden – Lock-Block Ltd
Lannin, Mike – Super Save Group
MacFarlane, Angus – Growing City
Mallari, Achilles – Sierra Waste Services Ltd.
Moucachen, Maya – Merlin Plastics
Muir, Wesley – Veolia North America (Canada)
Pantazopoulos, Dimitri – Waste Connections of Canada
Prasad, Shad – Cascades Recovery +
Punja, Rustam – Geocycle Canada Inc.
Sigmund, Sandy – Encorp Pacific Canada, Return-It
Skei, Dayton – Evergen Infrastructure Corp.
Stefenelli, Nicole – Urban Impact Recycling Ltd.
Skoropada, Lorne – Ridge Meadows Recycling Society
Van Beusekom, Brent – Product Care Association
Vargas, Pinky – Republic Services
Zarbl, Michael – Major Appliance Recycling Roundtable

MEMBERS ABSENT:

Bryan, Lori, Executive Director, Waste Management Association of BC (Co-Chair)
Abrams, Izzie – Waste Connections of Canada
Agassiz, Sam – West Coast Reduction Ltd.
Dietrich, Christian – Ecowaste Industries
Furtado, Glen – Cement Association of Canada
Johnson, Gord – Northstar
JansenVandoorn, Josh – Anaconda Systems
Janzen, Tessa – Recycle BC
Millman, David – Waste Management of Canada Corp.
McRae, Ralph – Revolution Infrastructure Inc.

METRO VANCOUVER AND CITY OF VANCOUVER STAFF:
Chris Chong, Multimedia, Metro Vancouver
Terry Fulton, Senior Project Engineer, Metro Vancouver
Paul Henderson, General Manager, Metro Vancouver
Allen Jensen, Senior Project Engineer, Metro Vancouver
Samantha Joy, Engagement Specialist, Metro Vancouver
Stephanie Liu, Manager, Community Engagement, Metro Vancouver
Zeenia Mizan, Program Assistant, Metro Vancouver
Karen Storry, Senior Project Engineer, Metro Vancouver
Chris Underwood, Division Manger SW Planning, Metro Vancouver

GUESTS:
Peter Fassbender, Solid Waste Management Plan Independent Consultation and Engagement Panel Member
Komal Fatima, Solid Waste Management Plan Independent Consultation and Engagement Panel Member
Lindsay Seidel-Wassenaar, Stantec
Nathalie Marble, Stantec

PREPARATION OF MINUTES: Priya Kullar, Raincoast Ventures Ltd.

METRO VANCOUVER REGIONAL DISTRICT
SOLID WASTE AND RECYCLING INDUSTRY ADVISORY COMMITTEE

Tuesday, September 9, 2025
2:30 pm – 4:30 pm
Zoom Teleconference

A G E N D A

1. AGENDA

1.1 September 9, 2025 Meeting Agenda

2. MINUTES

2.1 June 10, 2025 Meeting Minutes

3. REPORTS AND ITEMS FOR DISCUSSION

3.1 Draft Solid Waste Management Plan Outline

For information

Designated speaker: Terry Fulton, Senior Project Engineer, Solid Waste Services

3.2 SWMP Update: Residual Waste Management Options Study

For plenary discussion

Designated speaker: Paul Henderson, General Manager, Solid Waste Services Nathalie Marble, Team Lead, Senior Solid Waste Engineer, Stantec

3.3 SWMP Update: Strategies and Rubric

For plenary discussion

Designated speaker: Karen Storry, Senior Engineer, Solid Waste Services and Stephanie Liu, Manager, Community Engagement

***4.* OTHER BUSINESS**

4.1 Zero Waste Committee and Other Updates

For information

Designated Speaker: Paul Henderson, General Manager, Solid Waste Services

5. NEXT STEPS

5.1 Vancouver Landfill Tour

For information

Designated Speaker: Paul Henderson, General Manager, Solid Waste Services

5.2 Solid Waste Management Plan Update – October and November Meetings
For information
Designated speaker: Director Hodge, IAC Co-Chair

6. **INFORMATION ITEMS**

6.1 Regional Waste Flows

6.2 Correspondence from HSR Zero Waste

6.3 2025 IAC Work Plan

MEETING MINUTES

Co-Chair Craig Hodge called the meeting to order at 2:35 p.m. and welcomed attendees to the Solid Waste and Recycling Industry Advisory Committee meeting. Housekeeping reminders were provided, including that the meeting was being live-streamed and would be posted to the IAC webpage.

Co-Chair Hodge advised that changes are being made to the meetings, in response to feedback from the Industry Advisory Committee members. The Agenda will now include proposed timeframes for each item to support meeting facilitation. If more time is required, there is an option to continue the discussion at a future meeting or schedule a special meeting for continued discussion. It was noted that these timeframes are suggestions and are not intended to limit the discussions with the Industry Advisory Committee members.

Additionally, two members from the Solid Waste Management Plan Independent Consultation and Engagement Panel are observing this meeting to improve the panel's understanding of the feedback and viewpoints expressed during committee meetings, and how this feedback is being considered by staff. The Engagement Panel was established to ensure the engagement process for the solid waste management plan update is transparent, inclusive, and informed with diverse perspectives during all phases of the project. Peter Fassbender and Komal Fatima introduced themselves and reiterated their role as panel members to ensure all voices are heard.

It was noted that Peter Fassbender and Komal Fatima were appointed by the GVS&DD Board to the Engagement Panel. Their role is to provide guidance on the engagement process. Co-Chair Hodge advised that Engagement Panel members were invited in response to concerns expressed by Industry Advisory Committee members about engagement.

Co-Chair Hodge requested a volunteer to act as Co-Chair during their absence from part of the meeting. Patrick MacNeil, Wescan Disposal Ltd., volunteered and was supported by a consensus.

1. AGENDA

1.1 September 9, 2025, Meeting Agenda

Co-Chair Hodge reviewed the September 9, 2025, meeting agenda. No additions were made.

2. MINUTES

2.1 June 10, 2025, Meeting Minutes

Co-Chair Hodge called for any additions or changes to the Minutes of the June 10, 2025, Industry Advisory Committee meeting. No additions or changes were made.

3. REPORTS AND ITEMS FOR DISCUSSION

3.1 Draft Solid Waste Management Plan Outline

Terry Fulton, Senior Project Engineer, Solid Waste Services, Metro Vancouver, shared a presentation titled "Draft Solid Waste Management Plan Outline" and informed that ideas shared in the Idea Generation phase were considered, and the next step included developing options for strategies and actions. The table of contents shows the potential sections for the solid waste management plan.

Terry Fulton spoke to various components and advised that the vision, guiding principles, and goals were completed. Potential strategies and actions are being developed in consideration of feedback from the idea generation phase, and will be shared on September 18. Potential metrics and targets will be shared in November 2025. Additional sections in the solid waste management plan include overview, strategic approach, planning implementation, glossary, and maps. There are also three related strategic approaches (regulatory, recycling and waste centres, and residual management options).

The draft plan outline has been provided to the Industry Advisory Committee for feedback. When the draft plan is developed, there will be opportunities to provide additional comments and feedback.

Co-Chair Hodge invited members to share related questions and/or comments. The following questions and comments (Q/C) and *responses* (*R*) were captured:

Q/C: It seems like the solid waste management plan is set for Metro Vancouver, and the Industry Advisory Committee members' input regarding infrastructure is not getting through. There was a recent application to BC Hydro for an extension of the electricity purchase agreement for the Waste-to-Energy Facility. This topic was not brought to the Industry Advisory Committee. We want to ensure everyone is working in good faith and bringing all considerations to the table for discussion. Additionally, a federal grant was recently awarded for the Waste-to-Energy Facility District Energy project, but the money could have gone towards something else, and other grants could have been applied for, for projects that do not involve having the Waste-to-Energy Facility continue operating long-term. The Industry Advisory Committee is investing a lot of energy and time, and there needs to be greater transparency. These decisions lock us in before we actually finalize a solid waste management plan.

R: *The existing Metro Vancouver solid waste system continues to operate while we update the plan. The Waste-to-Energy Facility produces 21 MW of electricity, and with the electricity purchase agreement expiring, Metro Vancouver entered into a new agreement for sale of the electricity. The Metro Vancouver Board position is that the Waste-to-Energy Facility is a long-term waste management facility for the region.*

Q/C: Metro Vancouver brings different items to the Industry Advisory Committee, and this was never raised. The Industry Advisory Committee is here to provide information and guidance from industry experts, yet decisions are made without hearing from us.

R: It is important to differentiate between long-term planning and operational elements. The BC Hydro agreement is part of the ongoing operations of the facility.

Q/C: One option would have been an interim agreement while the solid waste management plan is being updated. People passionately support this work, and it is starting to feel like a waste of effort. The focus should be on forward thinking and not backwards thinking.

Q/C: The intent of the Industry Advisory Committee was supposed to go beyond the solid waste management plan update, into the implementation stage. We receive many presentations on mundane and uncontroversial topics, that are backwards looking, and few conversations about controversial subjects looking to the future that members of this committee will have opinions on.

Co-Chair Hodge thanked everyone for their comments.

3.2 SWMP Update: Residual Waste Management Options Study

Paul Henderson, General Manager, Metro Vancouver, shared a presentation titled, "SWMP Update: Residual Waste Management Options Study", and highlighted the purpose and connection to the solid waste management plan, which includes:

- Understanding the current national and international practices for managing residual waste
- Identifying the economic and regulatory drivers, successes, and challenges that have led to the residual waste management option for each region
- Developing technical criteria for potential incorporation into the solid waste management plan to assist with decision-making if new residual waste disposal capacity is required in the future.

The review was completed by Stantec Consulting Ltd., and the study was focused on Canada, the United States, the European Union (with a focus on Scandinavian countries and Germany), Australia, and Japan. The two main residual waste management approaches that have been adopted across the five countries/regions are mass burn waste-to-energy and landfilling. There are thousands of mass burn waste-to-energy facilities worldwide, and alternative technologies have not demonstrated commercial-scale viability.

The findings of the study stated that in the United States, Canada, and Australia, only a small proportion (20%, 3% and 2% of the residual waste, respectively) is managed through waste-to-energy, with mass burn waste-to-energy systems accounting for almost all installed waste-to-energy capacity. Landfilling is used to manage the rest of the residual waste in those countries. Countries like Japan, Sweden, and Germany treat most of their residual waste in

mass burn waste-to-energy facilities, with landfilling being used for less than 1% of the municipal solid waste generated in some areas.

Key drivers to the selected approach to managing residual waste include land availability, landfill tipping fees, transportation logistics, policy and regulatory framework, public perception, energy prices/availability, and incentives.

Draft technical criteria for evaluating residual waste management options were shared.

Acting Co-Chair Patrick MacNeil invited members to share related questions and/or comments. The following questions and comments (Q/C) and *responses* (*R*) were captured:

Q/C: When considering incineration and landfill, it's not an either-or conversation. Incineration is a pretreatment process, but you still need a landfill for the ash. There other pretreatments available to stabilize the material that don't release toxins (contrary to incineration), before the material is landfilled.

R: The report provided in the package will offer additional details on the study, and we are open to feedback. The study is not about landfill or waste-to-energy vs. reducing waste – it is recognizing that within the expected term of the updated plan, as hard as we work to reduce waste there is still material to be disposed of, and as a result we need to consider options.

Q/C: Just want to emphasize that an incinerator is not a replacement for landfills, as incineration still requires landfills. It is also important to know reasons for pre-treatment – for example you can pre-treat to stabilize it so it doesn't create toxins, or pre-treat it to reduce the volume and create energy, while still creating a by-product that is a toxin. You need to weigh those effects. These are the types of conversations this group should be involved in.

R: Metro Vancouver is looking for feedback, and the goal is to have a technical analysis of options.

Q/C: After the Industry Advisory Committee reads the study, what would happen if we decided that incineration is not an appropriate option? Will Metro Vancouver be willing to change their perspective and direction on this?

R: The goal is to ensure the Board has all the accurate and available information to make an informed decision. There are examples where feedback from this committee and others have assisted in the information we provide the Board. An example is the in the recent Zero Waste Committee agenda where we provided cost comparisons between waste-to-energy, landfill, and remote landfill.

Q/C: Is Belkorp's new landfill included in that comparison?

R: *We have three contracts – with GFL, Republic, and Waste Management, as a result of competitive procurement processes. The GFL contract is using the Campbell Hill Landfill in Cache Creek and the costing is incorporated in the information was provided to the Zero Waste Committee.*

Q/C: Is there an analysis on the carbon footprint of the various options?

R: *There was an information item included in the September Public/Technical Advisory Committee agenda that provides information on the carbon footprint related to garbage currently being disposed of. This can be shared with the Industry Advisory Committee. The study shows that greenhouse gas implications are important and need to be considered in deciding options for any particular community.*

Q/C: Is there an analysis on incinerators that have opened and closed within the last 20 years? What is the trend?

R: *Yes, the report notes that in the United States, there were many waste-to-energy facilities opened in the 1980s to the early 1990s. Currently, there are fewer facilities than 10 years ago. However, the decline in overall capacity, measured by energy production, is not as dramatic as the reduction in number of facilities. This is because while some facilities closed down, other facilities were upgraded or expanded.*

Q/C: Are there considerations for risks related to cost, since incinerators require waste while we are looking to reduce waste?

R: *Waste-to-energy carries high initial capital cost, which is a consideration. The study notes this.*

Q/C: What is the outcome of this study?

R: *The goal is to outline the different criteria to consider, if new capacity is required over the term of the solid waste management plan. Any future decision on additional capacity would require further discussion and engagement at that time.*

Q/C: Have there been considerations for the impact of risk to taxpayers, in comparison to letting industry decide what the best and most competitive approach is?

R: *The study is only focused on technology options.*

Q/C: Did this study look into the risk of potential future changes in air quality standards set by the Ministry? Or if there is a malfunction that causes an impact to the region, and the associated liabilities? What if the facility cannot operate due to not meeting future standards of air quality or testing.

R: This would fall under the environmental considerations identified in the study, that are part of a future decision making process.

Q/C: Would it be possible to get an update on the complaints related to the Burnaby incinerator and toxic ash?

R: There is a nearby property owner who has concerns about material accumulating on their rooftop. Metro Vancouver is working directly with the owner and is confident that the material they are observing is not from the facility. However, we are working with a third-party consultant on a study to investigate, and the results of that study will be shared publicly.

Q/C: Is Metro Vancouver looking into other properties in the same area to see if there are similar issues? The level of contamination seems to be high. Will the study determine where the materials are coming from?

R: Metro Vancouver is looking more broadly than just the one warehouse. The purpose of the study is to determine whether the observed particulates are coming from the Waste-to-Energy Facility. The question on what the source is if it's not from the facility, is a much broader question, and not a subject of the study.

Q/C: Metro Vancouver is also responsible for air quality in the region.

Q/C: Is there soil testing in the area?

R: There was soil and plant testing from 1987 to 1992 as part of the initial development of the facility, to test whether the facility had an impact. There was a decision made by a multi-jurisdictional overarching committee that concluded it was not necessary to continue with the testing. Since then, the focus has been on emission and ambient air monitoring.

Q/C: In recent news, some waste from a facility was being dumped on an unauthorized site in the Fraser Valley. Would like to get some information on that.

R: With respect to the story on organics in the Fraser Valley – it's not a Metro Vancouver facility but we can see what information we can provide. We don't have any other information at this time.

3.3 SWMP Update: Strategies and Rubric

Karen Storry, Senior Project Engineer, Metro Vancouver, shared a presentation titled, "SWMP Update: Strategies and Rubric" and highlighted that all ideas were consolidated and measured against criteria. It was noted that some ideas that did not align with the vision, guiding principles, or direction for the Metro Vancouver Board were flagged as not recommended.

On September 18, 2025, the draft strategies, action options, and supporting materials will be published and shared with Industry Advisory Committee members for their feedback, which will be organized by hierarchy level and strategy. Industry Advisory Committee members are invited to review this information prior to the October 7, 2025 meeting, where a fulsome discussion will take place. There will also be additional opportunities to provide feedback outside of that meeting.

4. OTHER BUSINESS

4.1 Zero Waste Committee and Other Updates

Paul Henderson shared a presentation titled, "Zero Waste Committee and Other Updates", which highlighted the following:

- Multi-family waste reduction initiatives
- Site preparation for the Waste-to-Energy Facility District Energy System starting soon
- With respect to the turnaround cul-de-sac on Riverbend Drive, a new turnaround was built ahead of this (partially on the waste energy site)
- Programs and policies for waste reduction at public events, and encouraging reusables to reduce waste
- The Extended Producer Responsibility Action Plan – Province has advised they are not intending to bring mattresses and foundations to the EPR program this year. Metro Vancouver will continue to advocate for the importance of including mattresses and foundations.
- Second annual Smart Waste Program report is published.
- Solid Waste Climate 2050 Primer is published – shows total greenhouse gas emissions related to disposal of waste in the region, and current programs working to reduce those emissions.
- Langley and North Surrey recycling depots – construction is expected to begin in 2026
- Metro Vancouver's analysis does not show significant impacts on the solid waste system of the tariffs.

5. NEXT STEPS

5.1 Vancouver Landfill Tour

Samantha Joy, Engagement Specialist, Metro Vancouver, stated that the Vancouver Landfill tour will take place on September 18, 2025. Members participating in the tour will meet at the Annacis Research Centre (1400 Lindsey Place, Delta). All participants should wear long pants and long sleeves, and sturdy footwear is a requirement.

5.2 Solid Waste Management Plan Update – October and November Meetings

Samantha Joy advised that the next in-person meeting will be on October 7, 2025, and the next virtual meeting will be on November 4, 2025.

6. INFORMATION ITEMS

6.1 Regional Waste Flows

6.2 Correspondence from HSR Zero Waste

6.3 2025 IAC Work Plan

ADJOURNMENT

The Solid Waste and Recycling Industry Advisory Committee meeting adjourned at 3:53 p.m.

Solid Waste Management Plan Options Analysis – Potential Strategies and Actions Review

October 7, 2025
Meeting Notes

A Solid Waste and Recycling Industry Advisory Committee meeting was scheduled for October 7, 2025, in person, at Metro Vancouver Offices (4515 Central Boulevard, Burnaby). The meeting did not have quorum so the meeting was considered a workshop with participation from members of the Solid Waste and Recycling Industry Advisory Committee (Industry Advisory Committee). Feedback from the workshop will be shared with the Industry Advisory Committee.

Two members of the Solid Waste Management Plan Consultation and Engagement Panel were observing the session: Celena Benndorf and Komal Fatima. The Engagement Panel was established to ensure the engagement process for the Solid Waste Management Plan was transparent, inclusive, and informed with diverse perspectives throughout all phases of the project.

MEMBERS PRESENT:

Craig Hodge, Director, Zero Waste Committee (Co-Chair)
Charles, Terry – Northstar Clean Technologies (alternate for Gord Johnson)
Crawford, Jeremy – Waste Control Services
Collins, James – Tymac Launch Service Ltd.
Janzen, Tessa – Recycle BC
Kaminski, Jamie – HSR Zero Waste
Kiani, Aiden – Lock-Block Ltd
Lannin, Mike – Super Save Group
MacFarlane, Angus – Growing City
Mallari, Achilles – Sierra Waste Services Ltd.
Pantazopoulos, Dimitri – Waste Connections of Canada
Prasad, Shad – Cascades Recovery +
Punja, Rustam – Geocycle Canada Inc.
Vargas, Pinky – Republic Services

METRO VANCOUVER STAFF:

Brooke Atkinson, Senior Engagement Specialist, Metro Vancouver
Terry Fulton, Senior Project Engineer, Metro Vancouver
Allen Jensen, Senior Project Engineer, Metro Vancouver
Stephanie Liu, Manager, Community Engagement, Metro Vancouver
Zeenia Mizan, Program Assistant, Metro Vancouver
Paul Henderson, General Manager, Metro Vancouver
Karen Storry, Senior Project Engineer, Metro Vancouver
Chris Underwood, Division Manger SW Planning, Metro Vancouver
Lynne Vidler, Lead Senior Engineer, Metro Vancouver

GUESTS:

Celen Benndorf, Panel Member
Komal Fatima, Panel Member
Corey Magee, Republic Services, Observer

PREPARATION OF NOTES:

Priya Kullar, Raincoast Ventures Ltd.

PLENARY DISCUSSION ON ACTIONS UNDER RECOVER, AND IDEAS STAFF CONSIDER UNADVISABLE

Paul Henderson, General Manager, Metro Vancouver, shared information about actions under 'Recover', as well as the draft summary of ideas that staff consider unadvisable.

Paul Henderson invited members to share related questions and/or comments. The following questions and comments (Q/C) and *responses* (*R*) were captured:

Q/C: Clarity is needed on what wood is considered "unsuitable" for reuse or recycling/composting. Are we only talking about painted or treated materials that cannot be composted?

R: *Manufactured wood products and dimensional lumber, if not recycled, are currently being used as a fuel source. Clean wood (untreated) may be used as fuel if there is insufficient processing capacity for composting.*

Q/C: The text on the slide refers to "unsuitable for reuse or recycling" and dimensional lumber could technically be composted. We should clarify the language if we are actually talking about wood that is beyond what can be managed at processing facilities.

R: Agree that a clarification would make sense.

Q/C: Consideration should be given to how we can build composting capacity.

Q/C: A significant amount of laminate flooring has glue, and that should not be burned because it can become toxic.

Q/C: Metro Vancouver has not shared provided sufficient detailed information sufficient to understand the costs of various disposal options.

R: *At the last Zero Waste Committee meeting, a report contained a summary of costs related to the Waste-to-Energy Facility, Vancouver Landfill, and contingency disposal at remote landfills. The next Zero Waste Committee meeting is Thursday, October 9, 2025, and the agenda contains additional information with more detail on the breakdown of the costs. This information can be shared with the Industry Advisory Committee afterwards.*

Q/C: There were a number of ideas that have been identified as considered unadvisable by staff, but it was not discussed with the Industry Advisory Committee. For example: "replace source separation programs with mixed-waste collection and sorting programs" was marked as unadvisable, but we have not seen fulsome information shared with the Industry Advisory Committee comparing mixed waste processing with source separation programs.

R: *We have observed over the years the challenges associated with mixed waste processing facilities. There is additional information in the Residuals Management Options Review report that was provided to the committee.*

Q/C: The ideas considered unadvisable by staff – this is ideological and irrational, specifically around privatization. There are no activities that cannot be performed privately, and everyone is being told this is not an option to explore, simply because Metro Vancouver exists. The private sector could provide services with appropriate regulation in place.

R: *Metro Vancouver has repeated requested that committee members share information demonstrating other systems / models that have performed well compared to our region and achieved higher recycling rates.*

Q/C: Performance is a subjective measure. The reality is that the private sector can achieve the same performance, particularly with regulation in place that imposes the same rules, and the private sector would assume all associated risks, but Metro Vancouver is not letting this happen. The system would be more robust if run by the private sector compared to the public sector. Metro Vancouver should have considered and researched privately run systems, and not suggest that it is up to committee members who participate on a volunteer basis to provide that information.

POTENTIAL STRATEGIES AND ACTIONS FEEDBACK SESSION

Terry Fulton, Senior Project Engineer, Solid Waste Services, Metro Vancouver, shared a presentation titled "Potential Strategies and Actions" and informed that the ideas generated in the Idea Phase were reviewed and consolidated, noting that some ideas are considered inadvisable by staff. The purpose of the small group discussion is to help identify what strategies and actions should be prioritized for inclusion in the solid waste management plan.

It was noted that the full list of potential strategies and actions is published on the website, and a feedback form is available for comments until October 31, 2025.

Stephanie Liu, Program Manager, Solid Waste Community Engagement, provided instructions for the small group breakout activity. Industry Advisory Committee members were invited to select topics they wanted to discuss and provide feedback on. A Metro Vancouver staff member facilitated discussions at each table and took notes. It was noted that the activity would help prioritize the different potential strategies and actions, and if elements were missing, members were encouraged to highlight these to the facilitators.

After the small group discussion, participants were encouraged to share any information that was highlighted during the breakout activity. No comments were shared.

Notes from the small group discussion are included as **Attachment 1**. All feedback will be tracked and considered as the strategies and actions are further refined before the solid waste management plan is drafted. Some highlights from the feedback are presented below.

Topic	Industry Advisory Committee Comments
Regulation and Incentives	• Incentives are preferred as opposed to regulations • Regulations should consider impact on businesses and affordability overall • Caution related to a potential hauler incentive program to help their customers reduce waste – there are limitations to the tools available to haulers to be able to participate. • Emphasis on ensuring markets exist before introducing new disposal bans, and the need for clear criteria and rationale
Recycling / Composting	• Include zoning and permitting considerations in the action about facilitating siting of private sector recycling activities • Metro Vancouver to support recycling markets through procurement policies and potential regulatory requirements for recycled content (e.g. concrete, compost) • Support for expanding Extended Producer Responsibility programs, with a focus on low-impact packaging and direct collection of materials like flexible plastic and foam, while acknowledging implementation challenges
Implementation, Education, and Outreach	• Support for education for strata corporations. • Identified where efficiencies could be realized, such as strategic use of AI to provide information to residents. • Identified practical challenges related to some of the potential actions such as collecting data on residential waste reduction efforts, in person education for residents, or improving recyclability of paper products like coffee cups. • More examples and guidance are needed to support commercial and institutional reuse/refill initiatives • Industry would benefit from Metro Vancouver produced resources showing waste destinations and processing methods, which could also enhance resident participation • Recommendations to streamline recycling databases and improve existing digital tools rather than creating new ones • Litter and clean-up efforts are too focused on disposal – need to focus more upstream
General	• Suggestions to combine certain actions that are related to avoid repetition • Actions should be more specific and actionable

IAC Discussion/Feedback on SWMP Draft Outline and Residual Waste Management Options Review

Information on the solid waste management plan draft outline and residual waste management options review was included in the September 9, 2025, Industry Advisory Committee meeting package. Participants were invited to provide additional feedback regarding these two items. No comments were shared.

Zero Waste Committee and Other Updates

Paul Henderson, General Manager, Solid Waste Services, shared a presentation titled, "Zero Waste Committee and Other Updates," which highlighted the following:

- Upcoming October 9, 2025, Zero Waste Committee agenda items, including 5-year Financial Plan and 2026 Tipping Fees (increasing by $7 per tonne)
- Proposed tipping fee of $7 per tonne (aligns with last year's projection)
- Two proceedings are ongoing related to the British Columbia Utilities Commission including the Waste-to-Energy Facility Electricity Purchase Agreement renewal and the Waste-to-Energy Facility District Energy System.
- In September 2025, the Ministry of Environment and Parks issued an updated Operational Certificate for the Waste-to-Energy Facility, including requirement for a series of studies and proposed draft revised discharge limits by September 2026.

Attachments

1. Small Group Discussion Notes – Potential Strategies and Actions Feedback Session

SOLID WASTE AND RECYCLING INDUSTRY ADVISORY COMMITTEE

Potential Strategies and Actions Feedback Session

October 7, 2025 – 1:00 pm to 4:00 pm

In-Person Meeting

Metro Vancouver Head Office
28 Floor, 2809 Conference Room

Feedback Summary

6 Table Groups:

- Rethink
- Reduce
- Reuse (food and built environment)
- Reuse (reuse, refill, repair)
- Recycle (education)
- Recycle (infrastructure and programs)

RETHINK

Round 1

Number of Participants: 3

Fist of 5

Action ID	Total Score
ID001	13
ID003	12
ID090	12
ID002	10

Action ID	Total Score
ID005	8

Discussion

Action ID and brief description	Comments / Feedback
ID001	• What is considered compostable is a key policy piece to work on • Consistent regulation for recycled material is important
ID090	• Eliminate food waste would be positive • Need to make sure there are no liability implications with respect to donating food. • Making it a requirement to donate food could help. • Need to paint a picture of what this looks like as it is unclear what this means.

	• The implementation of regulation is key. The approach needs to keep the cost for government and business down.
ID003	• No comments
ID004	• No comments
ID005	• Concern that the administration cost would result in a need to increase taxes. • This could have the biggest impact if done correctly without increasing cost for government and business. • Prefer incentives instead of regulations. • If we want to put in regulations, we need to make sure they allow the industry to make money, or a least not lose money. • Concerns about the impact of regulation on the cost of housing. • Suggestion that it would better to increase the cost of C&D disposal to encourage diversion of construction and demolition waste.

REDUCE

Round 1

Number of Participants: 5

Strategy: 2.2 Support residents adopting waste prevention habits

Fist of 5

Action ID	Total Score
ID104	17
ID080	11
ID081	11

Discussion

Action ID and brief description	Comments / Feedback
ID080	• Comment that the practicality is difficult – how do you gather the data to then get a scorecard for people? • Hard to do on a personal level where it's the most beneficial. Easy to get data collectively but that's not as effective.
ID104	• Important for strata's to know what they're supposed to be doing.

ID081	• Good idea but not sure how many people would show up. • Should go to schools – especially upper high school to show them what to do. Grade 10-12. • Hard to tell a 30-year-old what to recycle. Start them young. • Make it more targeted – not general but more targeted like schools. • Could create AI strategies for answering questions firsthand instead of hiring people to do this. • Must be intuitive. We don't have to use people / do in -person. Use other methods. • We can have this action, but it shouldn't be in person.

Round 2

Number of Participants: 5

Strategy: **2.4** Disposal Bans

Fist of 5

Action ID	Total Score
ID107	4
ID106	13
ID105	18

Discussion

Action ID and brief description	Comments / Feedback
ID107	• Does the fine actually help to divert waste or does it just increase revenue to Metro Vancouver? • It's not going to change behaviour because you have several customers and buildings in one load – it will be impossible to find out where the one clear bag came from. • What happens after the fine – do we then remove the recyclable item and divert it? • The disposal bans are most effective for small customers who are bringing in their own materials. However, those customers are a large percentage of customers but a small percentage of the waste.
ID106	• Good idea but depends on implementation and what those incentives look like. • There are limitations in technologies that would assist haulers to participate. • For example: cameras – way to scan baled cardboard and plastics to see moisture content, density, etc. • I don't need Metro Vancouver to give incentives to me to have a broader list of services to provide to customers. I do that on my own as that is good for business.

	• Who could be against incentives.
ID105	• Low support for this action. • It only works if there is somewhere to recycle these materials • If there's a market for it, I'm 100% for this. • We can't create a ban just because we don't think it should go in a landfill – but it needs to be able to go to higher and better use, or it's hazardous in the waste. Don't ban just for the sake of banning it. We need a rationale. Need to include these criteria in the action – i.e. at what point would you introduce a disposal ban (currently the action doesn't specify) • Also consider whether materials are problematic in landfill or not. Materials that are not as problematic should be lower priority for adding as a ban. • Add "Continue to" at the front of the action, to say that it's something that is already happening now.

REUSE
(food and built environment)

Round 1 and 2
Number of Participants: 0

- No participants at this table during small groups on both rounds

REUSE
(reuse, refill, repair)

Round 1
Number of Participants: 2

Strategy: 4.5 Make recycling easier and more effective by reducing confusion and improving convenience

Fist of 5

Action ID	Total Score
ID051	3
ID084	0
ID054	4
ID050	4

Action ID	Total Score
ID053	4
ID056	2
ID055	3
ID165	4

Discussion

Action ID and brief description	Comments / Feedback
In general – Strategy 3.4	• What kind of success are third party reuse agencies having? What examples can you point to make it easy to understand the programs and approach. • Need more public education about reuse opportunities.
ID084	• Not clear what it means – need more information. • Provide examples, how would this actually work?
ID056	• Has it been successful, is it gaining any traction? Would like to see the metrics about how the existing program has worked. • Having the opportunity to salvage on site may increase uptake (e.g. success of city-wide garage sale events– community has the opportunity to pick up used items from their neighbours before the city comes to pick it up.) • Clearer messaging and promotion of the existing reuse days needed. • Make sure there are easy places to take materials they are no longer using.
ID053	• Really interesting concept – longer life model (like reusable glass bottles) is desirable. • Could be tied to ID050 – schools and universities would be a good place to launch pilot programs. Youth might be more enthusiastic about a pilot, passionate sustainability advocates. • Control is important to ensure a successful program.
ID054	• Having one spot with re-use businesses together might help with uptake – communal collection place.

RECYCLE
(education)

Round 1

Number of Participants: 2

Strategy: 4.7 Increase transparency of what happens to materials from recycling and green bin programs

Fist of 5

Action ID	Total Score
ID159	12
ID156	9
ID157	7
ID158	5

Discussion

Action ID and brief description	Comments / Feedback
ID 159	• Specify what materials this action is referring to (compostable vs. bottles) • Educate the residents and customers on what efforts are being made to divert materials from landfills • Currently industry businesses spend a lot of time researching materials and where they go so that they can create communications for their customers to build confidence • Would be nice for Metro to put this together for industry to use • Consider including items like cooking oil and parmesan cheese (products that come off cruise ships) • Fibre disposal industry – gets the wrong materials all the time (e.g. raw meat) • Consumers seem to think it's just easier to pass on the responsibility to industry rather than doing their own diligence to find out where to properly dispose of materials • Education could be helpful to reduce the confusion and reduce the mentality that it is easier to just put on the industry to deal with, which ends up being costly for industry
ID156	• Change language to specify if it's "which" organizations or "how" organizations are handling materials • Would this action call out each organization? Or just in general have a type of material and how it is generally handled in the system? • Could include "which" and "how" to expand on this action
ID157	• This action is only for very specific audiences like school tours or NGO's – not as applicable for industry
ID158	• Focus more on making the current databases less confusing for the users • There is a lot of redundancy and deficiencies in the current databases (Waste Wizard and Recyclepedia) • Would be best to focus on making ONE app that does it all and has all materials where they go and what happens to them after (lifecycle process)

Round 2

Number of Participants: 2

Strategy: 4.5 Make recycling easier and more effective by reducing confusion and improving convenience

Fist of 5

Action ID	Total Score
ID136	5
ID135	5
ID142	5
ID134	5

Action ID	Total Score
ID132	4
ID138	4.5
ID131	3
ID140	3

Action ID	Total Score
ID137	3

Discussion

Action ID and brief description	Comments / Feedback
ID136	• Standardizing materials will make it easier, but does this action mean doing this by collaborating with EPR programs with signage for accepted materials and education? • Consider creating a potential working group for EPR program leads and Metro Vancouver to collaborate on to ensure consistency ○ Does something like this working group already exist? Is there a working group for the Regional Districts that exists to discuss EPR programs?
ID135	• This feels like a very high-level action, whereas action ID 142/131/135 seem to be the actual actions to take to make this action happen of providing clear, consistent guidelines on what can and cannot be recycled • Consider combining into one action that encapsulates the objective (clear and consistent guidelines, and the tangible ways to do that)
ID142	• Integrate this action with the Waste Wizard if possible, should be easy enough to add these layers of accessibility to the existing Waste Wizard to improve it • Encourage all existing apps to include accessibility options and multilingual instructions in QR Codes rather than creating a new app which could get lost in how many currently exists
ID134	• Combine this action with 135/136 to bundle the objective of providing clear guidelines and centralizing information sources
ID132	• This action could include multi-family residents easily by having a recycling champion on each building, or working with property managers to include the encouragement through signage in the building • The success of each multi-family building being a champion could build community around being a green conscious building • How do we tackle this in single family homes? How could a reward system work for them?

ID138	• Make this action most effective by having the residents in the building be the ones to educate others on how to use the recycling room correctly • Added space will be very valuable in the future as more bins are potentially added to some municipalities (i.e. flexible plastics in Vancouver) – will need more room
ID131	• Consider having more EPR programs in place before this action can exist and be effective in the system • Accessibility to textile recycling will increase if there are end markets for the materials and EPR programs that help with this
ID140	• Update action to have more clear language around what access requirements mean in this action • Specify what type of knowledge sharing, or how to best implement knowledge sharing between Metro Vancouver, members, and industry
ID133	• Combine this action with 135 so it outlines the objective of this action better and the customizable tools to be the way to achieve it • Could shorten the list of actions by doing this

RECYCLE
(infrastructure and programs)

Round 1

Number of Participants: 5

Strategy: 4.1 Promote design for recyclability and the use of recycled content in products and packaging

Fist of 5

Action ID	Total Score
ID109	11/25
ID110	13/20
ID111	23/25
ID112	12/20
ID113	9/25

Discussion

Action ID and brief description	Comments / Feedback
ID109	• There is a lot of industry greenwashing and this action would help address this.

	• Why just coffee cups -- e.g. Tetra Pak and milk containers are missing • Very difficult to implement. • No clear definition of recycling. • Consumers have a difficult time properly grading plastics.
ID111	• Lead by example. • Should include concrete and others, don't limit to compost. • Should include supporting regulation for the purpose of incrementally increasing the amount of recycled material, based on a percentage.
ID113	• How effective can Metro Vancouver be with this given the broad market. • Should be more focus on education. • This is beyond the scope of Metro Vancouver's responsibility. But should focus on advocacy. • Should focus more on regulation. e.g. a minimum percentage recycled content • Advocate senior government for supporting regulation. • Be realistic – Metro Vancouver is only one player.

Strategy: 4.2 Enhance EPR programs

Fist of 5

Action ID	Total Score
ID117	19/25
ID119	13/25
ID120	20/25
ID121	23/25

Discussion

Action ID and brief description	Comments / Feedback
ID119	• It's challenging. • Only worthwhile if there is market demand. • Should focus on alternatives to foam and plastic packing materials instead. e.g. shredded cardboard
ID120	• An inherent problem with EPR programs is that they are too downstream.
ID125	• Worthwhile to ensure these materials stay out of municipal solid waste.

Round 2

Number of Participants: 4

Strategy: 4.3 Encourage the development of new recycling infrastructure

Fist of 5

Action ID	Total Score
ID044	10/20
ID122	17/20
ID123	18/20
ID124	14/20

Discussion

Action ID and brief description	Comments / Feedback
ID044	• New industry needs support to catch up to existing established industries. • Need to strengthen definition of recycling. • Not an issue of government funding, issue of establishing the right priorities. i.e. where money is being spent is the issue • Need government funding to support the private sector's advertising and promotion of their initiatives. i.e. shift existing government funding to private sector • Should not rely on government funding. • This is a low priority.
ID123	• Should consider zoning and permitting.

Strategy: 4.8 Prevent litter and illegal dumping through public space recycling initiatives

Fist of 5

Action ID	Total Score
ID174	17/20
ID175	19/20
ID176	10/20
ID177	3/20
ID178	14/20

Discussion

Action ID and brief description	Comments / Feedback
ID175	• Don't include waste collection in these events. • "Significantly increase" • Based on performance metrics. • Continuous improvement. • "Explore" is vague, can this be more specific and actionable. • Missing actions: household hazardous waste and bulky items pickup days.
ID176	• What does "support" mean? e.g. funding? • Ineffective. • Too back end, need to focus on upstream.

Performance Metrics

Performance Metrics

Stantec

Prepared for:
Metro Vancouver

Date:
October 29, 2025

Prepared by:
Stantec and sonnevera

Project/File:
133800068

Stantec Consulting Ltd.

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Executive Summary

Metro Vancouver is updating its Solid Waste Management Plan (SWMP) to guide regional waste management over the next decade. As part of this process, Metro Vancouver commissioned Stantec and Sonnevera to conduct a review of current performance metrics and identify opportunities to enhance measurement and tracking across the waste hierarchy.

The review included an assessment of existing metrics, a jurisdictional scan of practices across North America, and engagement with committees, organizations, and municipalities. Interviews were conducted with seven jurisdictions and four organizations, and feedback was gathered from three Metro Vancouver advisory committees. Additional research was completed for jurisdictions not interviewed to ensure broad coverage of performance methodologies.

Metrics were assessed using criteria developed collaboratively with Metro Vancouver staff and with input from advisory committees, including specificity, data quality, accessibility, and alignment with regional goals. The review identified opportunities to strengthen consistency, transparency, and coverage, particularly for reuse and waste prevention activities.

Committee and stakeholder feedback emphasized the importance of metrics that are actionable, inclusive, and aligned with broader sustainability objectives. A consolidated list of metrics has been provided to support Metro Vancouver in selecting indicators to track progress on strategies and actions in the updated SWMP.

This report outlines the methodology, findings, and considerations for performance tracking and provides a foundation for Metro Vancouver to develop a robust and adaptable performance measurement framework.

Glossary

Term	Definition
Disposal (disposed waste)	Waste going to landfill or Waste-to-Energy
Performance indicators	Specific performance metrics that indicate progress toward a given target (e.g., recycling rate)
Performance measurement methodology	A standard or written methodology that can be followed to obtain or calculate a given performance metric
Performance metrics	Data that can be used to track progress (e.g., tonnes of waste recycled)
Performance targets	A measurable state that can be used to assess progress toward a goal (e.g., 80% reduction from 2010 waste generation levels)
Recycling	Refers to both recycling and composting
Recycling rate	Refers to the amount of waste materials diverted from disposal through recycling and composting, typically expressed as a percentage.

1 Background

Metro Vancouver has commissioned Stantec to support the development of an updated plan through a series of technical tasks and engagement support, to provide direction for solid waste management for the next decade. As part of updating Metro Vancouver's Solid Waste Management Plan, Metro Vancouver has identified the need to review current performance metrics to help inform the development of future metrics and targets.

In 2022, Metro Vancouver conducted a jurisdictional scan of recycling statistics and methodologies, including a comparison of recycling rates, materials included as "recycled", and performance metrics used from 12 other jurisdictions in Canada and the United States.

Metro Vancouver is looking to expand and improve its performance metrics and performance indicators as part of the SWMP update. Stantec assisted Metro Vancouver staff with engagement of various committees to refine the research scope for the performance metrics review. Stantec gathered feedback from three stakeholder groups: the Regional Engineers Advisory Committee (REAC) Solid Waste Subcommittee, Solid Waste Management Plan Public / Technical Advisory Committee (PTAC), and Solid Waste and Recycling Industry Advisory Committee (IAC).

1.1 Scope of Work

This memorandum (memo) provides the key findings resulting from Stantec's scope of work for performance metrics.

Stantec reviewed Metro Vancouver's current performance metrics and considered Metro Vancouver's work completed to date, which includes the jurisdictional scan of recycling. Stantec has identified areas relating to performance metrics that can be explored further.

The goal of the review was to identify opportunities to improve current solid waste performance metrics and indicators. These can relate to assumptions, data collection and analysis methods used for calculations, data transparency, accessibility, reliability, and accuracy. As part of the review, metrics were considered across all levels of the waste hierarchy, including circular economy indicators linked to "Rethink." In collaboration with Metro Vancouver, Stantec established boundaries for this work to focus specifically on waste-related circular economy metrics. While broader circular economy considerations are relevant, they represent a large field that is not the primary focus of this research.

Following the internal review, Stantec conducted an external jurisdictional and organizational review of performance metrics and key performance indicators. Further, Stantec interviewed interested parties from stakeholder committees, jurisdictions and organizations and compiled additional performance metrics (quantitative and qualitative) for consideration in development of metrics and targets for the updated Solid Waste Management Plan.

Based on Stantec's research finding and analysis, Stantec identified potential metrics to be used at a high-level to achieve the defined goals for the updated Solid Waste Management Plan. Of the list of potential additional performance metrics provided, Metro Vancouver will be able to identify suitable metrics to use for tracking progress for the strategies and actions identified.

1.2 Metro Vancouver's Solid Waste Vision and Guiding Principles

Metro Vancouver has developed a draft hierarchy to help guide the development and implementation of its updated solid waste management plan, with a commitment to prioritize actions higher in the hierarchy to support a circular approach and protect the environment. This hierarchy is shown below.

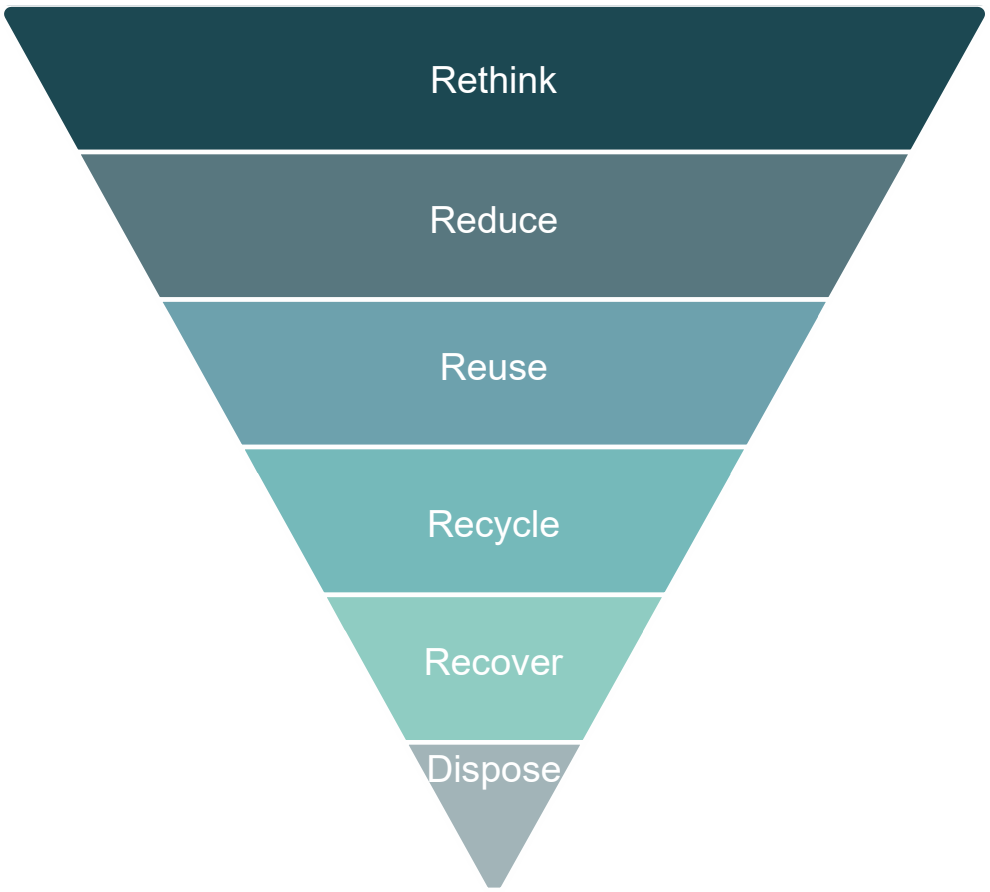

Figure 1: Metro Vancouver's Waste Hierarchy

Metro Vancouver has developed a new vision, along with guiding principles for the solid waste management plan update.

> **Vision**
>
> **"A thriving region where nothing is wasted and resources are valued."**

Figure 2: The vision and guiding principles for the updated solid waste management plan.

2 Current Performance Metrics

The currently approved Integrated Solid Waste and Resource Management Plan[i] (ISWRMP) from 2010 outlines four goals and targets for waste management as well as performance measures/metrics. The four goals identified in the ISWRMP are:

- Goal 1: Minimize waste generation.
- Goal 2: Maximize reuse, recycling, and materials recovery.
- Goal 3: Recover energy from the waste stream after material recycling.
- Goal 4: Dispose of all remaining waste in landfill, after material recycling and energy recovery.

2.1 Performance Targets

The ISWRMP includes two primary performance targets. The first target is for the Metro Vancouver region to reduce the quantity of waste generated per capita to 90% or less of 2010 volumes by 2020.[1] The second target is to increase the regional recycling rate[2] from an average of 55% in 2010 to a minimum of 70% by 2015, with an aspirational target of 80% by 2020.

[1] Calculated on a rolling 5 year average.
[2] The ISWRMP refers to the "diversion rate" while Metro Vancouver has more recently used the term "recycling rate".

80%
Integrated Solid Waste and Resources Management Plan 2020 recycling target

65%
2023 recycling rate

4.5%
Per capita disposal rate decrease from 2022 to 2023.

26%
Per capita disposal rate decrease from 2011 to 2023.

The progress against these targets is reported in Metro Vancouver's annual and biennial reports[3], which also outline activities, campaigns, and programs conducted each year that are guided by the ISWRMP. The reports summarize the amount of waste recycled and disposed, using various performance metrics. Waste recycled includes material quantities separated into 14 material categories, including materials recycled through all 19 Extended Producer Responsibility (EPR)[4] programs based on data provided by the organizations responsible for those programs. Waste disposed consists of waste going to Metro Vancouver's Waste-to-Energy Facility, the Vancouver Landfill, and contingency landfills.

In 2023, Metro Vancouver reported that 65% of total waste in the region (2,393,360 tonnes) was recycled and 35% (1,269,643 tonnes) was sent for energy recovery at the Waste-to-Energy Facility or landfilled. Metro Vancouver also achieved an estimated 4.5% decrease in per capita disposal rate from 2022 to 2023 and a 26% decrease from 2011, when the current solid waste management plan was approved (to 2023). This 26% decrease in per capita disposal rate from 2011 to 2023 indicates that Metro Vancouver has surpassed the ISWRMP target of reducing waste generated per capita to 90% or less of 2010 volumes by 2020.

The 2023 annual report describes waste collected and processed for four sectors: multi-family, single-family, commercial/institutional, and construction/demolition. Sector performance is reported through use of metrics including tonnes recycled, tonnes disposed, recycling rate (%), and disposal in tonnes/capita and tonnes/household. These are calculated based on available information and assumptions which are provided in the annual reports.

Error! Reference source not found. presents the ISWRMP's sector-specific recycling targets and the 2 023 reported recycling rate.

Table 1. ISWRMP Recycling Targets and 2023 Recycling Rates[5]

ISWRMP Recycling Targets	2023 Recycling Rate
▪ 30% Multi-family	▪ 34% Multi-family
▪ 65% Single-family	▪ 62% Single-family
▪ 70% Institutional, commercial and industrial	▪ 50% Commercial/Institutional
▪ 80% Construction and Demolition	▪ 81% Construction and Demolition

[3] Available via URL: https://metrovancouver.org/services/solid-waste/reports-resources
[4] EPR programs, also called product stewardship programs, are industry managed and designed to make producers and consumers responsible for regulated products and packaging throughout their life cycles.
[5] The ISWRMP refers to the Institutional, commercial and Industrial sector while Metro Vancouver is now referring to the Commercial/Institutional sector.

The 2023 annual report also goes into detail on customer use of Metro Vancouver solid waste facilities, reuse estimates (not included in recycling rate calculations), comparison to previous years, methodology for calculating and estimating tonnages, and sources of data.

2.2 Key Performance Metrics

Metro Vancouver currently tracks solid waste performance using a set of core metrics that reflect waste generation, disposal, recycling and reuse[6].

The following list provides a more detailed look into the key performance metrics for solid waste management:

- Waste generation: total annual tonnes recycled plus disposed and expressed on a per-capita basis when described as Waste Generation Rate, total and by sector.
- Waste disposal: total annual tonnes disposed and expressed on a per-capita and per household basis when described as Waste Disposal Rate, total and by sector. Other disposal metrics include:
    - Tonnes dropped off at recycling and waste centres.
    - Waste-to-Energy Facility:
        - Percent of regions' garbage sent to the Waste-to-Energy Facility.
        - Number of homes powered by Waste-to-Energy Facility.
- Energy produced by Waste-to-Energy Facility.
- Recycling: total annual tonnes recycled and as a percentage of waste generation when described as Recycling Rate, total and by sector. Other recycling related metrics include:
    - Tonnes of recycled materials by category.
        - Tonnes of materials dropped off at recycling and waste centres.
- Services: number of annual regional recycling and waste centre customers.
- Reuse: estimated annual tonnes separated into nine material categories.

To create a more robust performance tracking system, for the updated Solid Waste Management Plan, Metro Vancouver is aiming to use an expanded suite of metrics which can help identify trends over time. This is especially important if quantitative data is difficult to obtain, such as when estimating reuse and overall waste prevention performance (rethink, reduce and reuse initiatives). Where applicable, metrics should also support alignment with other strategies, such as the Climate 2050 Roadmap.

2.3 Previous Related Studies

Metro Vancouver has undertaken several foundational studies to improve understanding and measurement of reuse, recycling, and circular economy performance. These efforts provide important context for the

[6] Reuse tracking is reported as estimates.

current review and have informed the development of potential metrics and assessment criteria. The following subsections summarize key findings from this previous work.

2.3.1 Estimated Reuse in Metro Vancouver

Metro Vancouver has provided estimates on reuse since 2018, based on a methodology developed in 2018 by Kelleher Environmental, in association with Maura Walker & Associates, as summarized in their report *Estimate of Reuse in Metro Vancouver*. Estimates come from multiple sources, including Metro Vancouver's survey results, reports, internet-based research, news articles, journals, and communication with organizations and businesses in the region.

2.3.2 Metro Vancouver Reuse Sector Assessment 2021

In 2021 a University of British Columbia Sustainability Scholar conducted a Reuse Sector Assessment for Metro Vancouver.[7] The purpose of the study was to enhance the methodology for estimating reuse developed by Kelleher Environmental. The Reuse Sector Assessment included a review of global best practices and regional reuse data.

A reuse estimate tool used in New York, called the Reuse Impact Calculator (RIC), was identified as a resource for Metro Vancouver to consider. However, the Reuse Sector Assessment concluded that regardless of the tools available, there are limitations, including data availability, inconsistency in how data is recorded and reported voluntarily, no interface for inputting numbers and conducting calculations easily, and the need for a dedicated team/network for data analysis.

2.3.3 Jurisdictional Scan of Recycling Statistics and Methodologies

In 2023, Metro Vancouver completed a scan of 12 North American jurisdictions that calculate and report on recycling rates. Information was collected from publicly available documents, such as annual reports, solid waste management plans, waste composition studies, and websites.

The reported recycling rate of each jurisdiction was reviewed in terms of materials included, data accessibility and methodology used, when available.

The following are Stantec's summary of key findings based on a review of the jurisdictional scan results:

- Methodologies for calculating and reporting recycling rates vary across jurisdictions, highlighting the need for greater standardization.
- Definitions of recycling and diversion rates vary across jurisdictions, limiting comparability and demonstrating the need for clearer terminology.

[7] METRO_VANCOUVER_REUSE_SECTOR_ASSESSMENT_Rawal.docx.pdf

- The reported performance often lacks published details on methodology and assumptions. It is unclear how different jurisdictions define sectors, what information sources are used to obtain data from each sector, and how much of the data comes from verified sources (e.g., licensed facilities[8]). Materials included in recycling calculations were not always evident. Data on construction, demolition, and commercial/institutional recycling is often limited due to reliance on private facilities, suggesting a need for improved data-sharing mechanisms.
- Not all jurisdictions had publicly available up to date data (2020 or later).
- Two of the reviewed jurisdictions (Toronto, 52% diversion in 2021 and Edmonton, 32% diversion in 2021) use the Residential – Manual on Generally Accepted Principles (GAP) for Calculating Municipal Solid Waste System Flow. This methodology only includes residential waste and therefore may be best applied in jurisdictions where only residential waste data is available. The GAP methodology calculates diversion rate as the total amount of diverted materials divided by total waste generation, where total generation is the sum of total diversion and total disposal.[9]

3 Methodology

3.1 Jurisdiction, Organization and Committee Review and Input

As part of the performance metrics review, an initial list of jurisdictions and organizations was developed in collaboration with Metro Vancouver staff. The list included jurisdictions with innovative practices, strong outcomes, or robust data tracking related to solid waste management. While interviews were conducted with a subset of these jurisdictions and organizations, additional research was completed for those not interviewed. This included a review of publicly available reports, plans, and data sources to ensure broad coverage of performance metrics and methodologies. The following subsections summarize the engagement process and input received from jurisdictions, organizations, and committees. In total, seven jurisdictions, four organizations, and four Metro Vancouver Public/Technical Advisory Committee members were interviewed.

3.1.1 Jurisdictions

Jurisdictions were selected based on innovative practices, robust data tracking, and strong outcomes, with respect to solid waste management programming and performance. Jurisdictions outside of Metro Vancouver interviewed included:

- City of Montreal

[8] Metro Vancouver's Bylaw 181 regulates the management of municipal solid waste and recyclable materials at privately owned or operated facilities through solid waste licenses.
[9] Complete-GAP-Manual.pdf

- City of Victoria
- City of Rotterdam
- City of Toronto
- Oregon Metro
- Recyc-Quebec

In terms of selecting sample jurisdictions within Metro Vancouver, the City of Richmond was interviewed based on their strong circular economy policies and programs related to waste prevention and management performance.

While metrics from additional jurisdictions were reviewed, interviews were not conducted in cases where Stantec did not receive a response, or where literature reviews indicated limited metrics. These jurisdictions included:

- King County
- City of Halifax
- Strathcona County
- San Francisco
- City of Calgary
- District of Squamish

3.1.2 Organizations

Organizations were selected based on their alignment to Metro Vancouver's solid waste priorities, with a focus on those demonstrating leadership in program delivery, innovation, or data tracking. Interviews were prioritized with local organizations with whom Metro Vancouver already had established relationships, to build on existing collaboration and knowledge. The following organizations were interviewed by Stantec and Metro Vancouver staff:

- Recycling Council of BC
- Food Mesh
- Invest Vancouver
- BCIT

Additional organizations that are considered global leaders were considered, and Stantec reached out to several international leaders such as the Finnish Innovation Fund (SITRA), Syke, WRAP UK, and the Ellen MacArthur Foundation. These organizations were found to focus primarily on circular economy frameworks, with little emphasis on solid waste performance metrics, and were therefore not included in the interview phase. While these groups were not included in the interview phase, some high-level insights from their published work were incorporated into the broader review.

3.1.3 Committees

Presentations on project scope, methodology, and outcomes were presented to Metro Vancouver committees between summer 2023 and summer 2025 as shown in the following table.

Table 2. Committee Meetings Dates

Committee	Date	Feedback/information session
REAC SW	July 27, 2023	Scope of work – feedback
PTAC	September 7, 2023	Scope of work – feedback
IAC	September 12, 2023	Scope of work - feedback
PTAC	September 13, 2024	Considerations for evaluating metrics - feedback
REAC SW	September 26, 2024	Considerations for evaluating metrics - feedback
IAC	October 8, 2024	Progress update - feedback
IAC	April 8, 2025	Metrics to consider for targets - feedback
REAC SW	April 10, 2025	Metrics to consider for targets - feedback
PTAC	April 10, 2025	Metrics to consider for targets - feedback

Four Public/Technical Advisory Committee members were also interviewed to obtain background information on relevant metrics and suggestions for jurisdictions to include in the review.

Feedback during the committee meetings was recorded and used to align metrics with Metro Vancouver's waste hierarchy, as well as help shape the potential metrics. Committee members were also encouraged to provide individual feedback via email to Metro Vancouver staff.

3.2 Criteria for Assessing Metrics

The metrics identified through the jurisdictional and organizational review were assessed against a set of criteria developed collaboratively with Stantec and Metro Vancouver staff. Metrics were documented as presented in the source material/interviews. For example, if a jurisdiction reported a metric as directly measured, it was documented that way, even if Metro Vancouver would need to estimate it due to local data limitations. Duplicate metrics were consolidated, and terminology was standardized for consistency. Metro Vancouver then conducted a localized review to evaluate feasibility and relevance within the regional context. The criteria used is as follows:

Specificity	How specific is the data that the metric is measuring?
Data type	Is the data set qualitative, quantitative, or a combination of both?
Data Quality	Is the data measured or estimated?
Data frequency	How often is the data measured/reported (e.g., monthly, yearly)?
Data source	What level of government, or private sector, is the data coming from (e.g., federal, provincial, etc.)?
Effort	Is measuring and reporting on the metric resource intensive (e.g., time, staffing, etc.)?
Data accessibility	How often is the metric being reported on (e.g., monthly, yearly, etc.)?

4 Considerations/Feedback

This section of the report presents high-level metrics that could support Metro Vancouver with performance tracking through the implementation of the updated plan. These options reflect input from all facets of the scope of this memo, including committee member feedback, literature reviews, and interviews.

4.1 Committees

The feedback below was gathered through committee meetings and interviews with committee members who requested the opportunity to share additional input. They highlight implications for the development and use of performance metrics.

> **"There is an opportunity to increase transparency and comprehension of regional trends if metrics presented as per capita amounts are also presented as regional totals."**
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Feeback from interviews and committee meetings is summarized below:

- **Keep Metrics Action-Focused**
  If numerical data is not available or difficult to acquire, focus on tracking actions being taken. Some metrics might need more research to understand how to best gather the data and report on it.

Therefore, the solid waste management plan should include steps to develop those methods over time.

- **Think System-Wide**
  Metrics should reflect more than technical performance. Qualitative metrics are valuable in addition to quantitative metrics. Qualitative metrics can show how behaviour is being influenced, the effect of changes in policy, etc.
- **Use Partnerships to Fill Gaps**
  Work with municipalities, businesses, non-profits, and the province to improve data access. Many groups already collect useful data and Metro Vancouver can help compile and standardize it.
- **Make It Easier for Businesses to Share Data**
  Offer support for data tracking and reporting. If reporting is seen as useful, not just a burden, businesses may be more likely to participate.
- **Standardize Where Possible**
  A regional or provincial approach to tracking data would reduce duplication and make it easier for smaller municipalities to participate. Municipalities often have fewer resources for data tracking and reporting; measures to reduce the burden will increase data availability and participation. Aligning with guidelines set by higher levels of government can help with consistency and comparability.
- **Connect Metrics to Climate and Circular Economy Goals**
  Waste metrics are closely tied to circular economy goals and climate action. They should align with broader targets, such as Sustainable Development Goals, and help show how waste contributes to climate impacts.
- **Use Third Parties to Manage Sensitive Data**
  Bringing in a neutral third party to handle confidential data could help build trust and encourage more open reporting.
- **Present Metrics in Multiple Ways**
  To better understand regional trends, show metrics both per capita and as regional totals. This helps clarify whether population growth is driving changes in waste generation.

> **"As we move forward on Extended Producer Responsibility (EPR) we should continue to look at how we build robustness in the source of data either through third party verification, more sampling or regulatory framework for producers/waste collectors/recyclers to report."**
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Additionally, during interviews, Stantec asked committee members what their 'wishes', or desired outcomes, were for performance metrics related to the updated solid waste management plan. Feedback included:

- Ensure Actionable Data: Ensure metrics help identify problems and support change, not just reporting.
- Provide Clear Definitions: Definitions are important, for example, ensure terms like "recycling" and "diversion" reflect environmental outcomes and public understanding.

- Improve Transparency: Track and report clearly on incineration, landfill, ash management, and emissions.
- Support Growth of the Reuse Sector: Collect data that shows the current impact and potential of reuse and repair to justify investment.

4.2 Organizations

Stantec reached out to both Sitra (Syke) and the Ellen MacArthur Foundation regarding waste-related circular economy metrics. Both organizations indicated that they did not have much to offer in terms of direct or practical metrics at the municipal or regional level, noting that their work has focused more on performance metrics from a business perspective and less on policy or city-level applications. Additionally, their work has a heavy focus on circular economy measures. However, they shared several documents containing high-level and strategic considerations, which are outlined below.[10][11][12]

One consistent message Stantec received was that data reporting in the solid waste sector presents several persistent challenges, including delays in data availability, inconsistencies in reporting practices, and limitations in verifying self-reported information. These challenges present an opportunity to strengthen the reliability and comparability of performance metrics across regions and sectors. Additionally, confidentiality concerns and a lack of data tracking systems further complicate efforts to achieve transparency and consistency. Limited resources for data validation and analysis also highlight an opportunity for investment in data infrastructure.

To see success, collaboration among stakeholders, such as governments, service providers, and industry groups, is essential to overcome barriers. Working together can help align methodologies, improve data quality, and support the development of more effective and transparent reporting frameworks.

Summarized feedback from the organizations include:

- **Data Gaps and Inconsistencies Are Common**
  Tracking progress is tough when data systems are fragmented, reporting practices vary, and regional data isn't always available. Estimates are often used, but they can introduce uncertainty. To improve reliability and comparability, it's important to clearly document the assumptions behind

[10] Ellen MacArthur Foundation. *Key Messages – Major Learnings from Developing Measurement Frameworks for Businesses and Governments*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[11] Ellen MacArthur Foundation. *Monitoring the Circular Economy in Cities and Regions*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[12] Finnish Environment Institute. *Regional Household Waste Volumes and Recycling Rates – Description of the Calculation Method*. Circwaste Key Indicator and Fisu Monitoring Indicator, 2020.

each metric and acknowledge any limitations in the data. Transparency can help with understanding the impact of reported outcomes or compare performance across jurisdictions.[13][14][15]

- **Collaboration Makes a Big Difference**
  Getting reliable data depends on strong collaboration between governments, waste companies, researchers, and producer responsibility organizations. Shared methods and coordinated efforts help improve consistency and make the data more useful.[16][17][18]
- **Measurement Should Be Practical and Useful**
  Metrics should support decision-making, help set priorities, and guide investments. It is important to lead by example.[19]
- **Supplementary Data Helps Fill Gaps**
  When regional data isn't available, national stats and population-based estimates are used. These are helpful but may not always reflect what's happening locally, so they should be used with caution.[20][21]
- **Standardization Would Help Everyone**
  A core set of indicators that can be used across different regions and stages of progress would make it easier to compare results, share learnings, and track impact over time.[22]
- **Link to Bigger Goals**
  Circular economy work, and related tracking should connect to broader agendas like climate action,

[13] Finnish Environment Institute. *Regional Household Waste Volumes and Recycling Rates – Description of the Calculation Method*. Circwaste Key Indicator and Fisu Monitoring Indicator, 2020.
[14] Ellen MacArthur Foundation. *Key Messages – Major Learnings from Developing Measurement Frameworks for Businesses and Governments*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[15] Ellen MacArthur Foundation. *Monitoring the Circular Economy in Cities and Regions*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[16] Finnish Environment Institute. *Regional Household Waste Volumes and Recycling Rates – Description of the Calculation Method*. Circwaste Key Indicator and Fisu Monitoring Indicator, 2020.
[17] Ellen MacArthur Foundation. *Key Messages – Major Learnings from Developing Measurement Frameworks for Businesses and Governments*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[18] Ellen MacArthur Foundation. *Monitoring the Circular Economy in Cities and Regions*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[19] Ellen MacArthur Foundation. *Key Messages – Major Learnings from Developing Measurement Frameworks for Businesses and Governments*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[20] Finnish Environment Institute. *Regional Household Waste Volumes and Recycling Rates – Description of the Calculation Method*. Circwaste Key Indicator and Fisu Monitoring Indicator, 2020.
[21] Ellen MacArthur Foundation. *Monitoring the Circular Economy in Cities and Regions*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[22] Ellen MacArthur Foundation. *Key Messages – Major Learnings from Developing Measurement Frameworks for Businesses and Governments*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.

biodiversity, and the UN's Sustainable Development Goals. This helps build momentum and unlock funding.[23]

- **Keep Improving the Approach**
  Monitoring frameworks should evolve as better data becomes available. Updating past results and refining methods over time is key to making the data more reliable and useful.[24][25]
- **Metrics Can Support Engagement**
  Good measurement tools help organizations track progress, identify areas for improvement, and engage stakeholders both internally and externally.[26]

5 Summary and Next Steps

Based on the analysis of Metro Vancouver's solid waste management principles and the waste hierarchy framework, the following considerations outline a comprehensive approach to establishing measurable goals and tracking mechanisms for the updated solid waste management plan.

5.1 Goals

Metro Vancouver has defined the goals for the updated solid waste management plan aligned with each level of the waste hierarchy. For each goal, a corresponding metric is suggested to help Metro Vancouver track progress over the plan implementation period. The goals and metrics are presented in the figure below, with the metrics in brackets below each goal. Each bracketed metric is written as a performance indicator, reflecting the desired trend over time (e.g., "decrease total waste generation"), and is intended to support tracking progress toward the plan's goals.

[23] Ellen MacArthur Foundation. *Key Messages – Major Learnings from Developing Measurement Frameworks for Businesses and Governments*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[24] Finnish Environment Institute. *Regional Household Waste Volumes and Recycling Rates – Description of the Calculation Method*. Circwaste Key Indicator and Fisu Monitoring Indicator, 2020.
[25] Ellen MacArthur Foundation. *Monitoring the Circular Economy in Cities and Regions*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.
[26] Ellen MacArthur Foundation. *Key Messages – Major Learnings from Developing Measurement Frameworks for Businesses and Governments*. 5th OECD Roundtable on the Circular Economy in Cities and Regions, 2023.

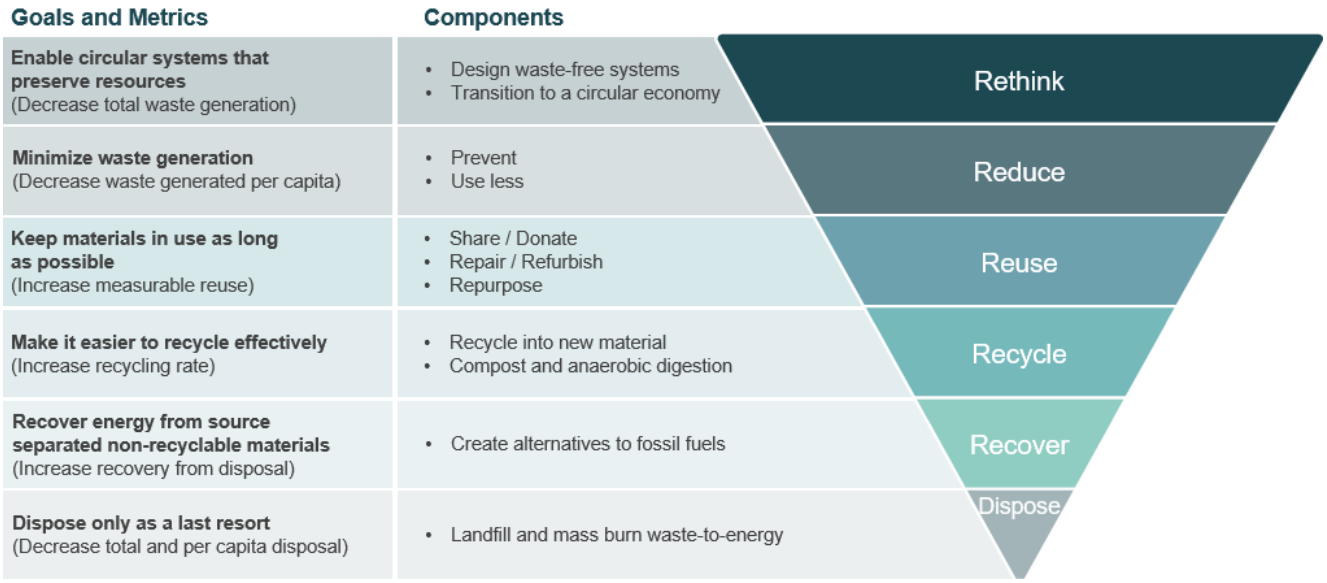

Figure 3: Metro Vancouver Updated Solid Waste Management Plan Goals and Associated Metrics.

5.2 Next Steps: Metrics for Strategies and Actions

Next steps involve Metro Vancouver developing a set of performance metrics to track progress on strategies and actions in the updated solid waste management plan. Since these strategies and actions are still under development, Stantec has not proposed specific metrics at this stage. However, a comprehensive list of consolidated metrics based on research and interview results has been provided to support Metro Vancouver in selecting appropriate indicators for the final plan. The consolidated metrics can be found in Appendix A.

To reflect progress in all areas of the solid waste management plan, from individual actions to broader strategies and goals, Metro Vancouver can consider selecting a suite of metrics. This suite should include both quantitative and qualitative indicators and be assessed collectively rather than in isolation. For example, an increase in recycling rate can be a positive indicator of progress when accompanied by a decrease in total waste generation. Combining the assessment of performance metrics will give a better indication of progress and help ensure that overall progress aligns with the plan's guiding principles and goals.

Appendix A Consolidated Performance Metrics

This document provides an overview of solid waste management performance metrics consolidated from interviews and email communication with jurisdictions and organizations. This document is intended to be used as reference for the development of performance metrics specific to Metro Vancouver as a part of the updated solid waste management plan. The data presented in this document is provided and assessed against the criteria shown below. Data is not assessed based on the jurisdiction that provided the information but not assessed specifically for applicability to Metro Vancouver.

This document is intended to help Metro Vancouver develop a suite of metrics that aligns with their goals, strategies, and actions. It is anticipated that performance metrics will need to be adapted and criteria adjusted to align best with Metro Vancouver's new strategies and actions as a part of the updated solid waste management plan.

The legend for each criteria is provided below.

Specificity Broad = related to an overall goal Targeted = related to a specific strategy Program Specific = related to a specific program/initiative	**Data Type**	**Data Quality**	**Data Frequency**	**Data source** Regional District (RD) Municipality (M) Private (P) Provincial (PV) Federal (F) Unknown (U)	**Effort** low = not many resources required (e.g., data is available internally or already being collected) medium = some resources required high = resource heavy (e.g., may require a research study and likely comes from multiple data sources)	**Data accessibility** low = difficult to access (e.g., data comes from many sources or minimally available) medium = some data available high = easier to access (e.g., data is available internally)
Broad	Qualitative	Estimate	Monthly	RD	Low	Low
Targeted	Quantitative	Measured	Yearly	MM	Medium	Medium
Program Specific	Both		Biennial	P	High	High
			Other	U		
				RD, MM		
				RD, MM, P		
				MM, P		
				RD, P		
				PV		
				FD		
				PV, FD		
				RD, PV, FD		
				RD, MM, P, PV, FD		

Colour Coding	
Rows in blue	Jurisdiction
Rows in green	Organization

Performance Metrics Analysis

Priority / Interest	Category	Adapted Metric/Indicator (specific performance metrics that indicate progress towards a given target / data that can be used to track progress)	Specificity	Data Type	Data Quality	Data Frequency	Data Source	Effort	Data Accessibility
Climate	CO_2e Emissions	Tonnes of CO2e emissions associated with products and materials consumed by greater region (consumption based emissions): includes food, home and entertainment, apparel, vehicles, home building/maintenance, and waste	Targeted	Quantitative	Measured	Yearly	RD, M, P	High	Low
		% of CO2e consumption based emissions generated in region vs out of region by greater region	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		Annual tonnes of CO2e reduced related to solid waste system (open landfills, fleet vehicles, renewable natural gas)	Broad	Quantitative	Measured	Yearly	RD, M, P	Medium	Medium
		Kg CO2 saved through specific initiatives (e.g., community composting)	Program Specific	Quantitative	Estimate	Yearly	RD, M	Medium	Low
		Greenhouse Gas emission reduction from landfill gas management (flaring) (CO2e)	Targeted	Quantitative	Estimate	Yearly	RD, M	Medium	High
		CO2 emissions from generation and disposal of waste	Broad	Qualitative	Estimate	Other	RD, M	Medium	High
		Tonnes of particulate and CO_2 emissions from solid waste fleet vehicles	Broad	Quantitative	Quantitative	Yearly	RD, M	Medium	Medium
		% total emissions reduction from baseline year (1990) from landfilled organics/solid waste	Targeted	Quantitative	Estimate	Other	RD, M	Medium	
		tonnes of CO2e emitted from landfilled organics/solid waste	Targeted	Quantitative	Estimate	Other	RD, M	Low	High
		tonnes of CO2e per tonne food loss and waste	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		consumption based emission inventory	Broad	Quantitative	Estimate	Other	RD, M, P	High	Low
		ecological footprinting	Broad	Qualitative	Estimate	Other	RD, M, P	High	Low
Outreach	Youth	# of youth reached by environmental literacy programs (other metrics include specificity to youth of colour and those economically disadvantaged)	Program Specific	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		# of participant hours of youth volunteering and training	Program Specific	Quantitative	Measured	Yearly	RD, M, P	High	Low
	General Public	# of online interactions with education resources	Targeted	Quantitative	Measured	Yearly	RD, M	Medium	Medium
		# of waste service calls	Targeted	Quantitative	Measured	Monthly	RD, M	Low	High
		# of recycling app installations (specific metrics include # of reminders, calendar downloads and recycling games played)	Targeted	Quantitative	Measured	Monthly	RD, M	Low	High
		# of searches on recycling app	Broad	Quantitative	Measured	Monthly	RD, M	Low	High
		surveys at transfer station on types of waste brought, origin of waste, reason for self-hauling, frequency of self-hauling, willingness to separate materials	Targeted	Quantitative	Measured	Other	RD, M	High	Medium
		customer satisfaction rating for servivices provided	Targeted	Both	Measured	Yearly	RD, M	Low	Medium
		Social media engagement	Targeted	Qualitative	Estimate	Monthly	RD, M	Medium	Medium
		public opinion survey around attitudes	Targeted	Both	Measured	Yearly	RD, M	Low	Medium
		street cleanliness, scored on a 5.0 scale (5 = A+, 1=F) by residents (surveys)	Broad	Qualitative	Estimate	Biennial	M	Low	Medium
		# of attendees for # of outreach activities	Program Specific	Quantitative	Measured	Yearly	RD, M	Low	High
		# of MF units provided with waste education	Program Specific	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		resident satisfaction with quality of garbage, recycling, and composting services assessed through online surveys	Program Specific	Qualitative	Estimate	Other	RD, M	Low	Low
	Students	# of solid waste ambassadors and # hours of volunteering and training	Program Specific	Quantitative	Measured	Yearly	RD, M	Low	High
		# of waste related special events attended and hours spent by waste ambassadors	Program Specific	Quantitative	Measured	Yearly	RD, M	Low	High
		# of meetings, planning sessions and hours held by waste ambassadors	Targeted	Quantitative	Measured	Yearly	RD, M	Low	High
		# of training and networking sessions and hours for waste ambassadors	Targeted	Quantitative	Measured	Yearly	RD, M	Low	High
		# of classroom presentations and students participating	Program Specific	Quantitative	Measured	Yearly	RD, M	Low	High
		# of school tours of waste facilities	Program Specific	Quantitative	Measured	Yearly	RD, M	Low	High
Circular Economy	Behaviour Change	% reduction in the primary use of raw materials	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		% of population partaking in circular behaviour related actions	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
	Local Capacity Building	# of new innovative waste projects supported	Targeted	Quantitative	Measured	Yearly	RD, M, P	High	Low
		# of companies that contribute directly to the circular economy	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		# new circular initiatives completed	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		# new jobs created by circular economy	Broad	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		% total number of jobs that are circular	Broad	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		# of credits of circular economy courses offered in universities of applied sciences / academic calendar year	Program Specific	Quantitative	Measured	Yearly	P	Medium	Medium
		% of collected recyclables sold to domestic markets	Broad	Quantitative	Measured	Yearly	RD, M, P	Medium	Medium
		Total $ value of support provided to organizations and businesses that help residents reuse, repair, and share materials	Program Specific	Quantitative	Estimate	Yearly	RD, M, P	Medium	Low

Priority / Interest	Category	Adapted Metric/Indicator (specific performance metrics that indicate progress towards a given target / data that can be used to track progress)	Specificity	Data Type	Data Quality	Data Frequency	Data Source	Effort	Data Accessibility
Equity	Income/ Finances	Median salary (euros/year) in circular economy sectors (recycling; repair and reuse; other circular economy sectors; all economic sectors)	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		Median wage in the waste management industry for managers/professionals and frontline/administrative staff (other metrics include specificity to race, ethnicity and gender)	Targeted	Quantitative	Measured	Yearly	RD, M, P	High	Low
		Share of jurisdictions that offer a low-income rate assistance program for residential collection services	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		Share of solid waste spending that goes to locally owned, minority-owned and woman-owned businesses and to community organizations	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		Share of grant funding awarded to projects that benefit marginalized communities	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		Typical curbside residential bill as a percent of median income	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
	Diversity	% diversity by race, ethnicity and gender in solid waste committees	Targeted	Quantitative	Estimate	Yearly	RD, M, P	High	Low
		Share of solid waste workforce that is people of colour and women (other metrics include specificity to race, ethnicity, and gender)	Program Specific	Yearly	Quantitative	Measured	RD, M, P, PV, FD	Medium	Medium
	Training	Share of local government and solid waste service providers that have gone through cultural competency training	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
	Assitance Programs	% of jurisdictions that offer a low-income rate assistance program for residential collection services	Program Specific	Quantitative	Measured	Yearly	M	Low	High
		Cumulative $ of contracts awarded to disabled/minority/woman/emerging small business/service-disabled veteran business enterprise firms that support waste collection services	Program Specific	Quantitative	Estimate	Yearly	RD, M, P	High	Low
Convenience	Proximity	accessibility of services (distance from home to facility to donate, distance to drive to facility)	Targeted	Quantitative	Estimate	Yearly	RD, M	Medium	Medium
		% of citizens that can access the nearest drop-off site for plastic packaging waste/e-waste/reusable textiles within a certain distance from home (0-1kms, 1-2kms, 2-5kms, >5 kms), by facility	Targeted	Quantitative	Estimate	Yearly	RD, M	Medium	Medium
		% of population within 20 mins of nearest self-haul facility by material type	Targeted	Quantitative	Estimate	Yearly	RD, M	Medium	Medium
		% of population within 20 mins of nearest commercial facility by material type	Targeted	Quantitative	Estimate	Yearly	RD, M	Medium	Medium
		% of population within 15 mins of nearest public recycling and bulky waste depot	Targeted	Quantitative	Estimate	Yearly	RD, M	Medium	Medium
Improving the Waste Management System	Feedback	location of people (where in the region) asking waste related questions	Broad	Quantitative	Estimate	Monthly	M, P	Medium	Medium
		demographics of people asking waste related questions	Targeted	Both	Measured	Monthly	M, P	Medium	Medium
	Emergency Preparedness	$ saved to address disaster debris	Targeted	Quantitative	Measured	Yearly	RD, M	Low	High
		# of jurisdictions with disaster debris plans	Targeted	Quantitative	Measured	Yearly	M	Low	High
		tonnes of capacity to manage disaster debris	Targeted	Quantitative	Estimate	Yearly	M	Low	Medium
Sharing prosperity	Professional Development	# of commercial driving licenses obtained through a driving diversity program	Program Specific	Quantitative	Measured	Yearly	P	Medium	Medium
		# of people trained for garbage and recycling careers through government initiatives	Program Specific	Quantitative	Measured	Yearly	RD, M, P, PV, FD	High	Medium
		# of people that became environmental promoters or master recyclers	Targeted	Quantitative	Measured	Yearly	RD, M, P	High	Low
	Supporting Marginalized Communities	% of community enhancement grant dollars awarded to waste projects that benefit marginalized communities	Program Specific	Quantitative	Measured	Yearly	RD, M	Low	High
Waste Prevention	Procurement	% reduction of cases of copy paper purchased	Targeted	Qualitative	Measured	Yearly	RD	Low	High
	Services	# of people helped by waste prevention experts	Program Specific	Quantitative	Estimate	Yearly	RD, M, P	High	Medium

Priority / Interest	Category	Adapted Metric/Indicator (specific performance metrics that indicate progress towards a given target / data that can be used to track progress)	Specificity	Data collection frequency	Data type	Data Quality	Data Source	Effort	Data Accessibility
Reduce	Funding	$ awarded to waste reduction projects	Targeted	Yearly	Quantitative	Estimate	RD, M, P	Low	Medium
	Reusables	% citizens that favour purchase of bulk or low-packaging products as often as possible	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	High	Low
	Single-use Items	count and brands for single-use items in specific streetscape bins	Program Specific	Biennial	Quantitative	Estimate	RD, M	Medium	High
	Zero Waste	$ spent on source separated waste collection streets program	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		# source separated waste stations added per year (streetscape collection)	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
	Food	# organizations in food recovery network	Targeted	Yearly	Quantitative	Measured	P	Low	High
		tonnes of food rescued	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		edible food vs non-edible disposed in tonnes	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		end destination of food (landfill vs rescue vs compost) in tonnes	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		network growth year over year of food waste rescue organizations	Program Specific	Yearly	Quantitative	Measured	P	Medium	Medium
		% of total food loss waste (FLW), edible food loss waste (EFLW) and associated non-edible parts (ANEP) in proportion to foods entering the food system	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		edible food loss waste (EFLW) and associated non-edible parts (ANEP) as proportion of total FLW	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		tonnage and % of total food loss waste food loss waste (FLW)	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		tonnage and % of edible food loss waste (EFLW)	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		total food loss waste (FLW) volumes by destination	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		comparitive differences in volume of edible food loss waste (EFLW) and associated non-edible parts (ANEP) (%) year to year	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		% of municipal organizations that set up an organic materials collection program	Targeted	Yearly	Quantitative	Measured	M	Low	High
		% of households served that consider organic material recovery a simple task	Program Specific	Yearly	Quantitative	Estimate	RD, M	Low	High
		# initiatives implemented related to reducing food waste	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Medium
		total recycling rate for organic materials	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		kg surplus fruit and veggies redistributed through urban harvest programs (or similar)	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
	Regulations	# of new provincial or federal laws to reduce plastic waste	Program Specific	Yearly	Quantitative	Measured	RD, PV, FD	Low	High
Reuse	C&D	estimated wood salvage from reuse, sale or donation provided in material salvage and disposal report	Program Specific	Yearly	Qualitative	Estimate	RD, M	Medium	Medium
		tonnes construction and demolition materials brought to recycling facilities	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
	Sharing	# library item loans / 1000 citizens	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of city bikes used / 1000 citizens	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
	Procurement	annual # of procurement processes that include waste reduction, reuse or recycling requirements	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
	Circular Economy	number of reusable cups being used in local programs	Program Specific	Other	Quantitative	Estimate	RD, M, P	Medium	Medium
		% waste reused	Broad	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		change in textile quantities in garbage bins (single-family and multi-family residential, each in kg/unit or kg/capita)	Program Specific	Yearly	Quantitative	Measured	RD, M	High	Low
		# of homes relocated	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	High
		kg of textiles collected for donation in curbside textiles collection program	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	High
Repair	Circular Economy	# of employees in the repair/reuse sector by material type	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		kg of clothing repaired in sewing repair hubs	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		# bicycles repaired/refurbished at bicycle repair hubs	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		# of items repaired at repair events (including type of item, age of participants, etc.)	Targeted	Yearly	Quantitative	Measured	RD, M, P	Low	High
Behaviour Change	General Public	tracking data from behaviour change campaigns through social media (clicks, time spent on sites like rethink waste and community ideas hub)	Broad	Yearly	Both	Measured	RD, M	Medium	High

Priority / Interest	Category	Adapted Metric/Indicator (specific performance metrics that indicate progress towards a given target / data that can be used to track progress)	Specificity	Data Frequency	Data Type	Data Quality	Data Source	Effort	Data Accessibility
Recycling	Printed Paper and Packaging (PPP)	tonnes recycled by material type and generator type (e.g., residential, curbside, etc.)	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		tonnes of glass received, % all materials that are glass, % glass sent to various endpoints	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	Medium
		regional recycling data from recycling program	Targeted	Yearly	Quantitative	Measured	RD	Low	High
		tonnes/tons collected at the recycling depot	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
	Large / Bulky Items Pick Up	# of residential units that received the service	Program Specific	Monthly	Quantitative	Measured	RD, M	Low	High
		# of requests for service	Program Specific	Monthly	Quantitative	Measured	RD, M	Low	High
		tonnes/year/jurisdictions of bulky materials collected	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		tonnes/year/jurisdictions of bulky materials reused or recycled	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		# of mattresses collected	Targeted	Yearly	Quantitative	Measured	RD, M, P	Low	High
	Textiles	tonnes/year/jurisdiction textiles collected	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		tonnes / year textiles recycled	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
	Other / Mixed Recyclables	tonnes of car seats collected by the recycling depot	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		tonnes of propane/butane & fire extinguishers collected by the recycling depot	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		residential recycling rates by sector (e.g., residential and non-residential)	Targeted	Yearly	Qualitative	Estimate	RD, M	High	Medium
		tonnes/year/jurisdiction recyclable materials generated and collected	Targeted	Yearly	Quantitative	Measured	RD, M, P	High	Low
		destination of outgoing materials for processing and recycling (excluding use in landfills)	Targeted	Monthly	Qualitative	Measured	RD, M, P	Low	High
		$/tonne (value) of recycled materials	Targeted	Monthly	Quantitative	Measured	RD, M, P	Low	High
		tonnes recyclable materials sent to disposal by sector	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		% and tonnes rejected, stored, not yet recycled	Targeted	Monthly	Quantitative	Measured	RD, M, P	Low	High
		kg/resident of recycling	Program Specific	Monthly	Quantitative	Measured	RD, M, P	Low	High
	Construction and Demolition	tonnes construction and demolition materials brought to recycling facilities	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		% total construction and demolition waste generated brought to recycling facilities	Targeted	Yearly	Quantitative	Measured	RD, M, P	High	Low
		% increase/decrease in tonnes brought to recycling facilities from previous years	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		approx % of total quantity of construction and demolition waste from building industry	Targeted	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		% total outgoing tonnes of material from construction and demolition recycling facilities	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		tonnes of outgoing materials based on destination	Targeted	Yearly	Both	Measured	RD, M, P	Medium	Medium
		tonnes wood waste recycled	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		appox % and tonnes of wood waste imported from outside the region and approx % increase from previous years	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		estimated total tonnes sent to disposal that could have been recycled	Targeted	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		tonnes/year recycling rate of construction and demolition waste	Targeted	Yearly	Quantitative	Measured	RD, M, P	High	Low
		tonnes/year/jurisdictions of construction and demolition generated	Targeted	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		construction and demolition debris diversion	Targeted	Yearly	Quantitative	Estimate	RD, M, P	Medium	Low
		tonnes / year downcycled demolition waste	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	High	Low
	Extended Producer Responsibility (EPR)	tonnes of extended producer responsibility materials collected at the recycling depot	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
	Analysis of Collected Materials Streams	% of total recycled materials collected at the recycling depot	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		% solid waste generated in city that is recycled	Targeted	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		% of total materials collected through the Blue Box and Cart programs	Targeted	Yearly	Quantitative	Measured	RD, M, P	Low	High
	Contamination	contamination rate for in and out-bound recyclables at material recovery facilities in the region	Program Specific	Other	Quantitative	Measured	RD, M, P	Medium	Medium
		% of recycling contamination by sector (single-family, multi-family, and commercial properties)	Program Specific	Other	Quantitative	Measured	RD, M, P	High	Low
	Household Hazardous Waste	kg/person/year of electronic waste generated	Program Specific	Yearly	Quantitative	Estimate	RD, M	Medium	Medium
		tonnes/year/jurisdiction hoiusehold hazardous waste collected	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Low	High
	Services	# of vehicle visits to the recycling depot	Program Specific	Monthly	Quantitative	Measured	RD, M	Low	High

Priority / Interest	Category	Adapted Metric/Indicator (specific performance metrics that indicate progress towards a given target / data that can be used to track progress)	Specificity	Data Frequency	Data Type	Data Quality	Data Source	Effort	Data Accessibility
Composting	Programs	# composting workshops/events from local community programs	Targeted	Yearly	Quantitative	Measured	RD, M	Medium	Medium
	Food Scraps and Yard Trimmings	tonnes/year, and %, of organic material generated, cllected, and composted	Broad	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		single-family and multi-family residential tonnes, %, kg/unit, and kg/capita Green Cart material collected	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		tonnes of garden/yard waste collected through private facilities	Program Specific	Yearly	Quantitative	Measured	P	Medium	Medium
		tonnes garden/yard waste brought to drop-off depots/transfer stations	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		tonnes/month and composition of organic materials diverted from landfill from zero waste stations (streetscape)	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		% of public realm collection that's yard and garden, napkins and paper towerls, food scraps and uneaten food	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	Low
		% of food wastage	Targeted	Yearly	Quantitative	Measured	RD, M, P	High	Low
		% of organic material in residual waste /household	Targeted	Yearly	Quantitative	Measured	RD, M	Medium	Medium
		tonnes of avoidable food waste	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		decrease of food scraps and food-soiled paper in waste stream	Targeted	Other	Quantitative	Measured	RD, M, P	High	Medium
	Community Gardens	# of community garden green carts serviced	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
	Services	# of organics carts downsized	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of compost bins sold	Program Specific	Monthly	Quantitative	Measured	RD, M	Low	High
Services	Equity	% of multi-family properties with collection for all services	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	High
		% of multi-family properties with adequate recycling collection services	Targeted	Yearly	Quantitative	Measured	RD, M, P	Medium	High
Behaviour Change	General	% of residents in the region stating they recycle systematically	Targeted	Yearly	Quantitative	Measured	RD, M	High	Low
		% people favourable to adopting "zero waste policy"	Targeted	Yearly	Quantitative	Estimate	RD, M	High	Low
		public survey to assess behaviour change - recycling, green bin, participation and awareness in program	Targeted	Biennial	Both	Estimate	RD, M	Medium	Medium
		% of people proud of recycling	Targeted	Yearly	Quantitative	Measured	RD, M	High	Low
		# of gold/blue star stickers put on carts during collection for proper organics and recycling sorting	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	High

Priority / Interest	Category	Adapted Metric/Indicator (specifiic performance metrics that indicate progress towards a given target / data that can be used to track progress)	Specificity	Data Frequency	Data Type	Data Quality	Data Source	Effort	Data Accessibility
Residuals Management	Waste Generated	Tonnes of waste generated / capita	Broad	Yearly	Quantitative	Measured	RD, M, P	Medium	Low
		Tonnes and % construction and demolition material sent to landfill	Targeted	Yearly	Quantitative	Measured	RD, M, P	High	Low
		waste composition for curbside collection, including Single Use Items	Program Specific	Other	Quantitative	Estimate	RD, M	High	Low
		waste composition for landfilling, including Single Use Items	Program Specific	Other	Quantitative	Estimate	RD, M	High	Low
		Tonnes/year/jursidiction construction and demolition & bulky materials generated	Targeted	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		Tonnes/year / jurisdiction construction and demolition & bulky materials collected	Targeted	Yearly	Quantitative	Measured	RD, M, P	High	Medium
		Tonnes residental waste disposed / jurisdiction	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		Kg disposed /capita	Broad	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		Tonnes of waste generated / capita for multi-family homes	Targeted	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		Tonnes of waste generated / customer for non-residential	Targeted	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		Tonnes of waste generated / capita for single-family homes	Targeted	Yearly	Quantitative	Estimate	RD, M	Low	High
		Tonnes garbage collected from public realm	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		% sent to landfill	Broad	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		% waste collection sent to landfill	Broad	Yearly	Quantitative	Measured	RD, M, P	High	Low
		% of public realm collection that's pet waste	Program Specific	Yearly	Quantitative	Estimate	RD, M, P	Medium	Medium
		Tonnes residual waste disposed by type of disposal site	Targeted	Other	Quantitative	Measured	RD, M, P	High	Low
		Tonnes residual waste disposed by material category / capita	Program Specific	Other	Quantitative	Measured	RD, M, P	High	Low
		Tonnes/year of other mixed waste incinerated without energy recovery	Targeted	Yearly	Qualitative	Measured	M	High	Low
		% of waste that is too low quality or hazardous, so needs to be incinerated	Targeted	Yearly	Qualitative	Measured	M	High	Low
		%/Tonnes/tons waste sent to landfill	Targeted	Yearly	Qualitative	Measured	M	High	Low
		% of clean plastics and drink packaging streams from residual waste	Targeted	Yearly	Qualitative	Measured	M	High	Low
		Tonnes of paper, plastic, glass, metals and textiles incinerated/year	Targeted	Yearly	Qualitative	Measured	M	High	Low
		% of domestic and office consumer goods that are landfilled and incinerated	Targeted	Yearly	Qualitative	Measured	M	High	Low
		Tonnes/year of other plastics, e-waste, mixed waste landfilled	Targeted	Yearly	Qualitative	Measured	M	High	Low
		% of waste coming from construction sector	Program Specific	Yearly	Quantitative	Estimate	M	High	Low
		Tonnes of diapers	Program Specific	Yearly	Quantitative	Estimate	M	High	Low
		composition of construction and demolition debris disposed (full characterization study)	Program Specific	Other	Qualitative	Measured	RD, M	High	Low
		Tons garbage received at transfer stations	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		Tonnes collected from single-family homes	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		Residental waste generated through black, blue, and green cart programs (kg/houeshold)	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		Curbside garbage, recycling and organics (lbs per person per year)	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		% recyclables, reusables, and organics in black carts	Program Specific	Yearly	Quantitative	Measured	M	High	High
		% waste generated per sector from landfill scale data	Broad	Other	Quantitative	Estimate	RD, M	Low	Medium
		kg construction and demolition waste disposed/capita	Program Specific	Biennial	Quantitative	Estimate	RD, M	High	Low
		% contamination rate	Targeted	Yearly	Quantitative	Estimate	RD, M	High	Low
	Waste Recovered / Diverted	% recovered from total waste generated	Broad	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		Tonnes of material sent to landfills and ratio (%) material used as alternative daily cover	Program Specific	Other	Quantitative	Measured	RD, M, P	Medium	Medium
		Tonnes of materials and type of material used as daily cover or other uses	Program Specific	Other	Both	Measured	RD, M, P	Medium	Medium
		% diversion rate	Broad	Yearly	Quantitative	Estimate	RD, M, P	High	Low
		kg/capital single-family residential diversion and change in % diverted	Program Specific	Yearly	Quantitative	Measured	MV, MM	Low	High
		kg/capital multi-family residential diversion and change in % diverted	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		kg/customer non-residential diversion	Program Specific	Yearly	Quantitative	Measured	RD, M, P	High	Low
		% diversion residential waste	Broad	Yearly	Quantitative	Measured	M	High	Low
		% of waste diverted from landfill from single-family homes	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		% recovery rate (tons of recycled and composted material/ total tons of small generator refuse)	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		% of waste recycled or composted	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High

Priority / Interest	Category	Adapted Metric/Indicator (specifiic performance metrics that indicate progress towards a given target / data that can be used to track progress)	Specificity	Data Frequency	Data Type	Data Quality	Data Source	Effort	Data Accessibility
Residuals Management (continued)	Streetscape/ Litter	% streetscape material that is recyclable (e.g., glass & metal, plastic containers, paper, and plastic)	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	Medium
		# of littered items by material types, size, and brand	Program Specific	Biennial	Quantitative	Measured	M	High	Low
		rank all liter audit sites against one another	Program Specific	Biennial	Both	Estimate	M	High	Low
		size of audit area, atributes of area	Program Specific	Biennial	Both	Estimate	RD	High	Low
	Illegally Dumped Waste	Tonnes of illegally dumped waste collected	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of sites cleaned	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of community led clean-ups funded by the regional government	Program Specific	Yearly	Quantitative	Measured	RD	Low	High
		# of cases of illegal dumping	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
	Health and Safety	# of worker injuries that occur at solid waste facilities	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
	Services	% of MF properties with adequate garbage collection services	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	Medium
		# of residential units receiving garbage cart service	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Medium	Medium
		# of garbage tags sold	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of disposal vouchers sold (landfill)	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		kms traveled / week to inspect streetscape bins	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of streetscape bins inspected	Program Specific	Monthly	Quantitative	Measured	RD, M	Low	High
		# of streetscape bins serviced	Program Specific	Monthly	Quantitative	Measured	RD, M	Low	High
		# of streetscape bins inspected vs. actually serviced	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of waste collection interruptions per 10,000 scheduled stops	Program Specific	Other	Quantitative	Measured	RD, M	Medium	Medium
		# of households subscribed to municipal curbside waste collection	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		% missed collections due to road construction, snow clearing, street sweeping	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# of waste carts downsized	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
	Cost	Average cost of recovering residual materials ($/tonne)	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		Average monthly cost of curbside services for households	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
	Operations	total tonnage managed	Broad	Yearly	Quantitative	Measured	RD, M	Low	High
		Member municipality landfill volume filled (cubic metres/year)	Targeted	Yearly	Quantitative	Measured	M	Low	High
		Member municipality landfill volume remaining (cubic metres)	Targeted	Yearly	Quantitative	Measured	M	Low	High
		Projected closure of member municipality landfill (years remaining)	Program Specific	Yearly	Quantitative	Measured	M	Low	High
		% efficiency of landfill gas collection at regional landfill	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	High
		# of garbage, recycling, and organics collection customers	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		# customer visits at transfer stations	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		Capacity and geographic distribution of solid waste facilities that meet seismic standards	Targeted	Yearly	Qualitative	Estimate	RD, M, P	Medium	Medium
		# of waste cart and recyclables audits	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
Equity	Illegally Dumped Waste	% of dump sites / area	Program Specific	Monthly	Both	Measured	RD, M	Medium	Medium

With every community, we redefine what's possible.

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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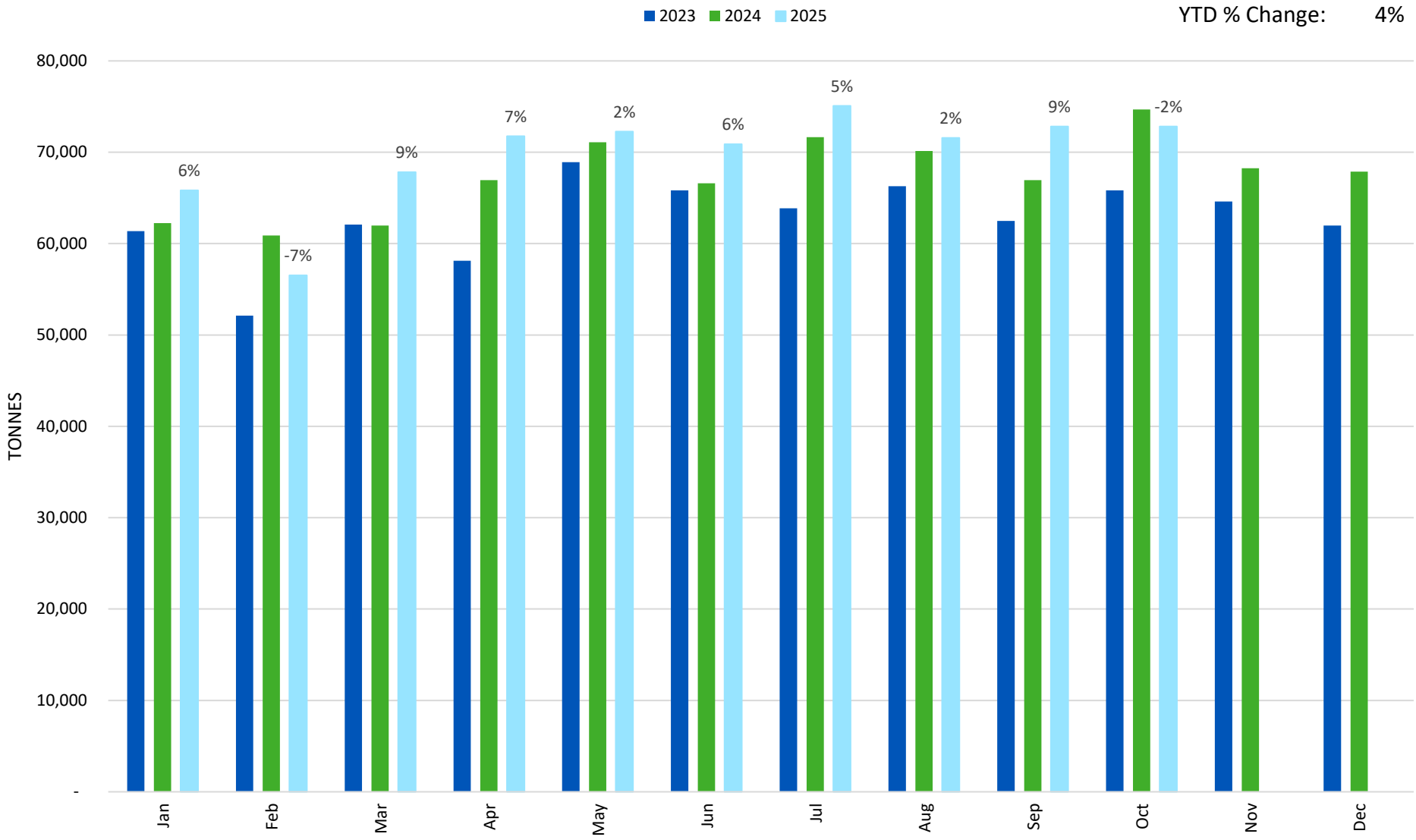
Metro Vancouver Waste Quantities*
2023 - 2025**

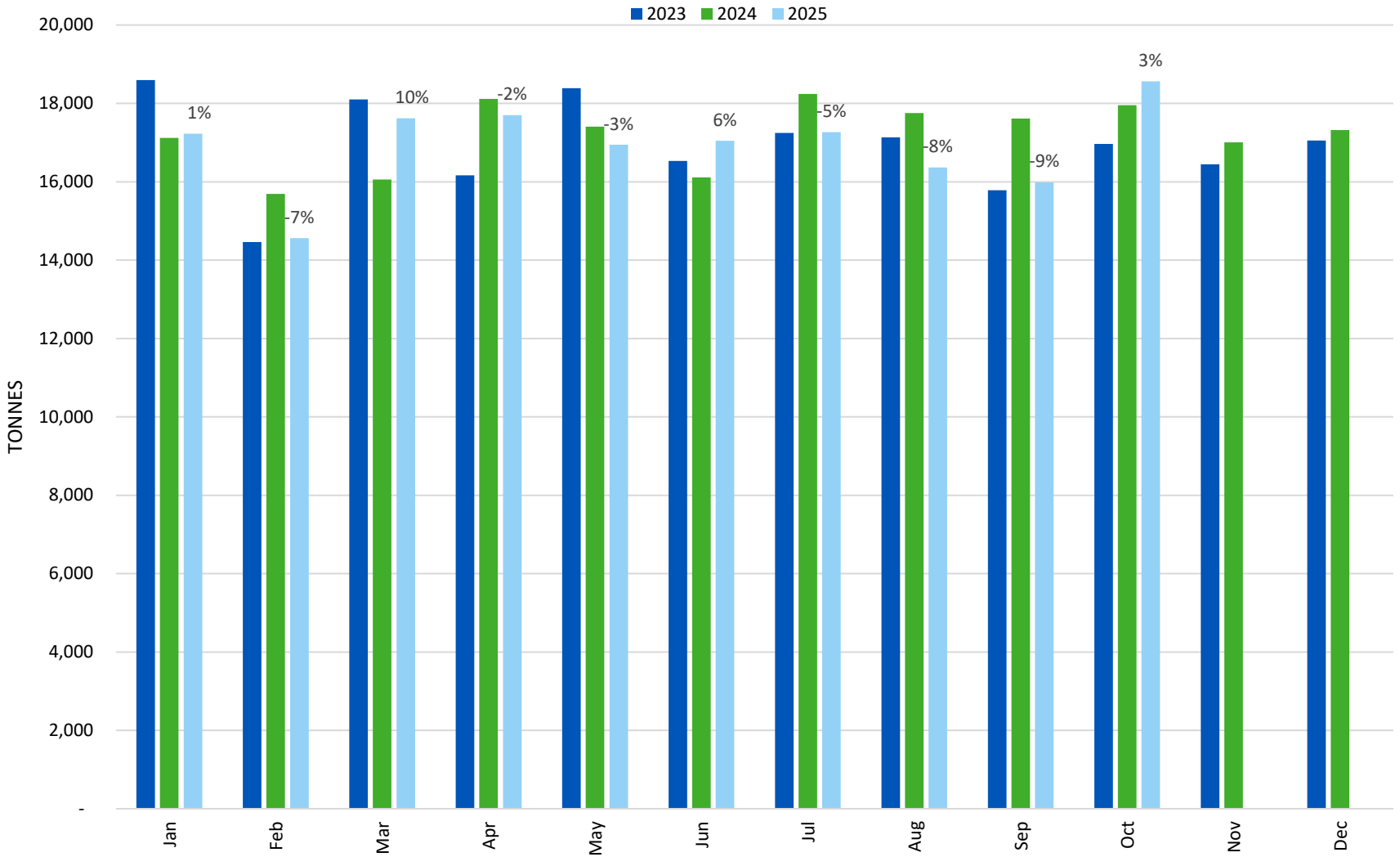


**Data reconciled to August 2025

*Metro Vancouver's Six Recycling and Waste Centres & the Waste-to-Energy Facility

City of Vancouver Waste Quantities*
2023 - 2025
(Demo garbage not included)

YTD % Change: -2%

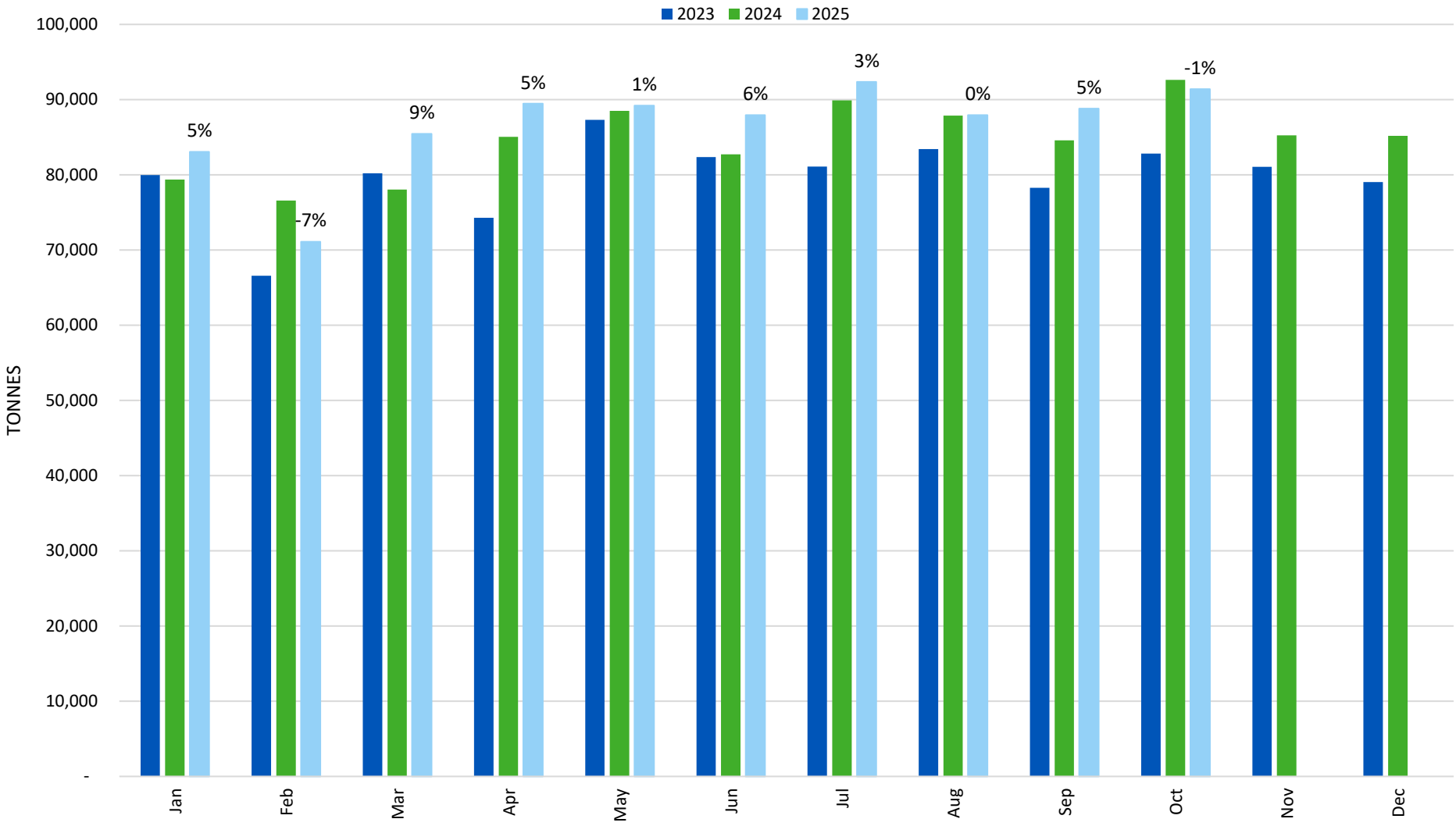


*Vancouver Landfill & Vancouver South Transfer Station

Metro Vancouver and City of Vancouver Waste Quantities
2023 - 2025*

(Demo garbage not included)

YTD % Change: 3%



*Metro Vancouver data reconciled to August 2025

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

SOLID WASTE AND RECYCLING INDUSTRY ADVISORY COMMITTEE 2025 WORK PLAN

October 30, 2025

Quarter 1	**Status**	**Approach**
Draft 2023 Recycling and Garbage Statistics	Complete	Plenary
Notice of Bylaw Violation Engagement - Tipping Fee Bylaw	Complete	Plenary
Source Reduction Incentive Program	Pending	Small group
SWMP: Timeline Update	Complete	Plenary
SWMP: Climate 2050 Solid Waste Roadmap	Complete	Plenary
SWMP: Draft Goals and Hierarchy	Complete	Small Group
SWMP: Options Analysis Criteria	Complete	Plenary
Quarter 2	**Status**	**Approach**
Concrete and Asphalt Study Report	Complete	Plenary
Soil Management	Pending	Plenary
Vancouver Landfill/Long-Term Disposal Planning and Options	Pending	Small group
SWMP: Residuals Management Options Report and Discussions	Complete	Plenary
SWMP: Targets and Performance Metrics	Complete	Small group
SWMP: Idea Generation Report Back	Complete	Plenary
Quarter 3	**Status**	**Approach**
Public Education – role of public and private entities	Pending	Small group
SWMP: Regulatory Framework	Complete	Small group
SWMP: Recycling and Waste Centre Strategy Development	Complete	Small group
Quarter 4	**Status**	**Approach**
Share/Reuse/Repair Update	Pending	Plenary
SWMP: Metrics and Targets	In-progress	Small group
SWMP: Options Analysis	Complete	Small group

Greenhouse gas emissions from disposal

An action item from the September 9, 2025 Industry Advisory Committee meeting included providing information about greenhouse gas emissions related to disposal:

Anthropogenic emissions from WTEF are carbon dioxide from combustible non-organic material such as plastic. Included emissions from landfills are fugitive methane emissions that are not captured in the landfill gas management system. Similar to biogenic emissions from the Waste-to-Energy Facility, the carbon dioxide from flaring of methane captured by the landfill gas management systems is considered biogenic and is not counted towards total landfill emissions under international carbon accounting standards.

The chart presented to PTAC includes the following GHG emissions:

- Vancouver Landfill – fugitive methane emissions as reported by City of Vancouver here: Greenhouse Gas Reporting Program data search - Canada.ca (Under Advanced Search, look for Delta, and/or enter G10443 for the facility ID to find the data)
- Closed landfills – fugitive methane emissions from closed landfills within the Metro Vancouver region with data from various sources
- Remote landfills:
    - Cache Creek Landfill – fugitive methane emissions data associated with Metro Vancouver garbage calculated based on: Greenhouse Gas Reporting Program data search - Canada.ca (Under Advanced Search, look for Cache Creek and/or enter G10573 for the facility ID to find data)
    - Other remote landfills within contingency disposal contracts – fugitive methane emissions estimated using IPCC's First Order Decay model recommended by EPA and Province, assuming the same parameters as Vancouver Landfill
- WTEF anthropogenic emissions – this data is also publicly available here: Greenhouse Gas Reporting Program data search - Canada.ca (Under Advanced Search, look for Burnaby and/or enter G10470 for the facility ID to find data)

See table below for example solid waste annual emissions in tonnes of CO_2e:

	2010	**2020**	**2022**
Vancouver Landfill	319,797	208,351	227,554
Closed landfills	115,350	57,879	51,556
Remote landfills	120,537	53,559	52,314
WTEF	103,310	143,652	115,736
Total	**658,994**	**463,441**	**447,160**

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Zero Waste Committee

From: Paul Henderson, General Manager, Solid Waste Services

Date: October 28, 2025 Meeting Date: November 6, 2025

Subject: **Solid Waste Management Plan - Options Analysis Update**

RECOMMENDATION
That the GVS&DD Board receive for information the report dated October 28, 2025, titled "Solid Waste Management Plan - Options Analysis Update".

EXECUTIVE SUMMARY
The regional solid waste management plan is being updated to further reduce waste, reduce greenhouse gas emissions, and advance a circular economy. The options analysis phase assesses ideas from previous research and engagement to determine what will be included in the draft plan to be considered by the Zero Waste Committee and Board in advance of submission to the Minister of Environment. For transparency, all ideas – including those considered unadvisable by staff – have been published.

Engagement with advisory committees showed general support for actions related to waste reduction and recycling. Some advisory committee members advocated for closing the Waste-to-Energy Facility and others advocated for privatizing the regional solid waste system. Closing the Waste-to-Energy Facility and privatizing the regional solid waste system are considered unadvisable by staff. Metro Vancouver's publicly owned solid waste system, including the Waste-to-Energy Facility, is operated with public oversight and contractor expertise and efficiency. The system is cost-effective, environmentally responsible, and delivers North American leading waste reduction performance.

PURPOSE
The purpose of this report is to update the GVS&DD Board on the solid waste management plan update process, including strategies and actions being considered during the current options analysis phase, feedback from advisory committees, and considerations related to feedback on disposal.

BACKGROUND
On June 28, 2024, the GVS&DD Board approved the vision and guiding principles for an updated solid waste management plan. Subsequently, engagement on idea generation was launched to hear ideas from interested parties on potential strategies and actions to build on Metro Vancouver's progress to accelerate waste prevention and recycling while reducing greenhouse gases and promoting a circular economy. Following the idea generation phase, draft goals and an updated waste hierarchy were developed and were approved by the GVS&DD Board on July 3, 2025. All phases of the solid waste management plan update process are informed by extensive engagement with First Nations, member jurisdictions, adjacent regional district staff, advisory committees, and the public.

The following timeline shows the phases of the solid waste management plan update:

OPTIONS ANALYSIS

The options analysis phase of the solid waste management plan focuses on determining which strategies and actions will become part of a draft updated solid waste management plan. The initial step in the options analysis phase was to consolidate the many ideas heard during the idea generation phase. Similar ideas with shared methods and outcomes were combined into distinct potential action options. Options were then organized by categories reflecting a common theme (draft strategies). Ideas were also assessed using criteria based on Board strategic priorities, provincial guidance, and the vision and guiding principles of the updated solid waste management plan. For transparency, a full list of ideas received, including which draft action option each idea was incorporated into, was published on the Metro Vancouver website.

Draft Strategies and Actions

Metro Vancouver published a list of draft strategies and action options for potential inclusion in the updated solid waste management plan. Strategies are organized by goal and associated level of the waste hierarchy. Each strategy contains multiple action options. The full list of potential strategies and actions is available on the project web page, along with supporting documents including a full list of ideas from idea generation, assessment of potential strategies and actions, and options analysis rubric (Reference 1).

Ideas Staff Consider Unadvisable

Some ideas reviewed by staff were inconsistent with Board strategic direction, the plan's vision and guiding principles, or the goals and hierarchy of the updated plan. These ideas were included in a summary of ideas staff consider unadvisable along with the rationale. They include ideas such as closing the waste-to-energy facility, increasing waste-to-energy capacity, and privatizing the regional solid waste system. The Draft Summary of Ideas Staff Consider Unadvisable is available on the project web page (Reference 1).

Options Analysis Engagement

In Fall 2025, Metro Vancouver engaged with First Nations, member jurisdictions, neighbouring regional districts, advisory committees, non-profits, and residents to help prioritize the potential strategies and actions for inclusion in the draft solid waste management plan. Engagement feedback is being collated and analyzed, and a full engagement report will be provided to the Zero Waste Committee in the coming months.

One key aspect of engagement has been the work done with advisory committees – the Solid Waste Management Plan Public/Technical Advisory Committee (Public/Technical Advisory Committee), the Solid Waste and Recycling Industry Advisory Committee (Industry Advisory Committee), and the Regional Engineers Advisory Committee Solid Waste Subcommittee. Feedback from the Public/Technical Advisory Committee and the Industry Advisory Committee is highlighted below. REAC Solid Waste Subcommittee members and other member jurisdiction staff provided feedback on member jurisdiction actions which will be revised prior to sharing publicly.

Solid Waste and Recycling Industry Advisory Committee
The Industry Advisory Committee provides a forum for industry contribution, discussion, and advice on planning, operations, and policy issues related to solid waste and recycling services in Metro Vancouver, as well as the ongoing solid waste management plan update. In response to previous feedback, the committee continues to emphasize focused discussions, reduced reliance on information-only reports, and increased attention to the solid waste management plan update. The 2025 work plan includes topics such as long-term disposal, residuals management options, and solid waste management plan options analysis.

Feedback summaries on solid waste management plan update topics in 2025 are published on the committee web page (Reference 2).

Highlights from the Industry Advisory Committee October 2025 options analysis workshop include:

- General support for waste reduction and recycling actions, with suggestions to consolidate or clarify actions, or make them more practical and actionable
- Preference for incentive-based approaches over new regulations, considering impact on business viability and affordability
- Emphasis on ensuring markets exist before introducing new disposal bans, and the need for clear criteria and rationale
- Mixed views on hauler incentive programs, with limited tools available to haulers to influence customer behaviour
- Comment that incineration is a pre-treatment method prior to landfilling of residual ash, and other pre-treatment methods may be less toxic
- Some members advocated for closure of the Waste-to-Energy Facility, and concerns that decisions related to the facility including long-term commitments were made without committee consultation
- Advocacy for exploring privatization of solid waste services, noting that with proper regulation, the private sector could match or exceed public sector performance
- Concern that previous input was not adequately considered, and that the engagement process feels predetermined with limited room for meaningful input

Solid Waste Management Plan Public/Technical Advisory Committee
The Public/Technical Advisory Committee provides a forum for contribution from individuals with diverse experiences and expertise to inform the review and update of the solid waste management plan. Discussion topics in 2025 have focused on components of the updated solid waste management plan such as goals, metrics, waste hierarchy, residuals management options, and evaluation criteria for options analysis, included in the committee's work plan. Committee meeting notes, including summaries from other discussions related to the solid waste management plan, are published on the committee web page (Reference 3).

Highlights from the Public/Technical Committee October 2025 options analysis workshop include:

- High support for actions in the top three R's (rethink, reduce, reuse)
- Support for more ambitious actions and targets to move up the waste hierarchy
- Suggestions on how to consolidate similar actions, and make them clearer, more specific, more ambitious, and actionable
- Comment on the importance of regulation, enforcement, and financial incentives/disincentives to accompany advocacy, tools, templates, and education
- Feedback that privatization of the solid waste system would not be advisable, citing risks such as reduced accountability and oversight
- Comment that more funding should focus on rethink, reduce, reuse, and recycle rather than disposal or recovery
- Some members expressed strong opposition to waste-to-energy, citing environmental impacts, costs, and diverting resources away from the first four R's

Transparency

Metro Vancouver strives for transparency with respect to reporting out on meeting proceedings. In July 2025, a member of both the Public/Technical Advisory Committee and Industry Advisory Committee expressed concern about the transparency of the consultation process, specifically that feedback and opinions from advisory committee members were not adequately and fairly emphasized in the meeting notes. In response, Metro Vancouver has committed to enhancing meeting notes, and sharing them with committee members prior to the publication of the following meeting's agenda package to allow more time for review. Meeting materials, including agendas, notes, and recordings of online meetings are available on the committee webpages (References 2 and 3).

To further support transparency and strengthen engagement, Metro Vancouver invited members of the Solid Waste Management Plan Independent Consultation and Engagement Panel to attend Public/Technical Advisory Committee and Industry Advisory Committee meetings as observers beginning in September 2025. The panel, by providing third-party guidance to staff and reporting to the GVS&DD Board, plays a key role in advising on the development and implementation of an inclusive and transparent engagement process for the solid waste management plan update.

Waste-to-Energy Facility Role in the Solid Waste Management System

Metro Vancouver has received feedback advocating for the closure of the Waste-to-Energy Facility, citing concerns related to cost and emissions. Following review, this idea was included in the summary of ideas staff consider unadvisable. The Waste-to-Energy Facility continues to be a safe and cost-effective method for managing residual garbage, alongside other disposal options.

Waste-to-Energy Facility Costs
After all efforts to reduce waste, residual garbage is disposed primarily at the Vancouver Landfill or Waste-to-Energy Facility. For garbage in excess of local disposal capacity, Metro Vancouver relies on contingency disposal contracts to ship waste to remote landfills. After accounting for recycling and waste centre and transportation costs, the Vancouver Landfill and Waste-to-Energy Facility are comparable. In contrast, contingency disposal is nearly double the cost. The Vancouver Landfill is a finite resource in terms of both annual and long-term capacity. For future planning, the only practical alternative to the Waste-to-Energy Facility would be contingency disposal at private remove landfills in central British Columbia or the United States. Therefore, closing the Waste-to-Energy Facility would lead to significant disposal cost increases.

	Vancouver Landfill	**Waste-to-Energy Facility**	**Contingency Disposal**
Total Costs / Tonne	$123.10	$122.90	$230.60

Waste-to-Energy Facility Environmental Performance
All air emission related parameters monitored in 2024 were well below regulatory limits specified in the Waste-to-Energy Facility Operational Certificate, issued by the Province. The facility's contributions of nitrogen dioxide, fine particulates, and anthropogenic (human caused) greenhouse gases are less than 1% of regional emissions. Emission data is reported to regulatory agencies and posted on the Metro Vancouver website. Continuous emissions monitoring results are also posted on the website in real-time.

Residuals Management Options
A Residuals Management Options Review concluded landfill and mass burn waste-to-energy are the approaches used around the world, and that other options such as gasification and pyrolysis have not been implemented at a commercial scale anywhere in the world. The study includes a list of criteria communities apply in deciding on the appropriate disposal solution. The draft solid waste management plan will include criteria that could be considered if new disposal capacity is required over the term of the solid waste management plan.

Solid Waste System Cost Effectiveness and Disposal Ban Program
The Metro Vancouver solid waste system is cost effective compared to solid waste systems in other major Canadian cities. In many cities property taxes are used to support the solid waste system whereas in Metro Vancouver the solid waste system is fully funded through tipping fees. A key reason that the regional solid waste system can be funded through tipping fees is that the generator levy ensures that all generators contribute to the cost of the regional solid waste system and encourages use of Metro Vancouver and City of Vancouver solid waste facilities. Commercial haulers account for approximately 60% of all the garbage delivered to regional solid waste facilities, and that garbage accounts for approximately 60% of the solid waste system revenues.

An additional benefit of commercial haulers being encouraged to use the regional solid waste system is that disposal bans are applied at Metro Vancouver and City of Vancouver solid waste facilities to encourage recycling of banned materials.

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

FINANCIAL IMPLICATIONS

Technical work and engagement on the solid waste management plan update are included in the approved Solid Waste Services budget.

OTHER IMPLICATIONS

The list of strategies and actions will include specific member jurisdiction actions, which have been presented in draft to member jurisdiction staff for feedback. These actions will be revised to incorporate member feedback and incorporated into the draft solid waste management plan for feedback.

CONCLUSION

The objective of the current solid waste management plan update phase – options analysis – is to evaluate ideas received during the idea generation phase of engagement by applying decision-making criteria grounded in the vision and guiding principles of the updated plan. Feedback received in this phase will help to decide which actions and strategies are included in the draft plan. This is the final phase before the new plan is drafted. Advisory committees generally support actions related to waste reduction and recycling, with some advisory committee members advocating for closure of the Waste-to-Energy Facility and others advocating for privatizing the regional solid waste system. Metro Vancouver's public solid waste system delivers North American leading waste reduction

Engagement with advisory committees showed general support for actions related to waste reduction and recycling. Some advisory committee members advocated for closing the Waste-to-Energy Facility and others advocated for privatizing the regional solid waste system. These ideas are considered unadvisable by staff as Metro Vancouver's solid waste system delivers North American leading waste reduction performance while ensuring cost-effectiveness and considering environmental sustainability.

ATTACHMENTS

1. Presentation re: Solid Waste Management Plan – Options Analysis Update.

REFERENCES

1. Metro Vancouver. (2025). Solid Waste Management Plan Update web page. https://metrovancouver.org/services/solid-waste/solid-waste-management-plan-update
2. Metro Vancouver. (2025). Solid Waste and Recycling Industry Advisory Committee Web Page (including all meeting agendas, minutes, and recordings). https://metrovancouver.org/services/solid-waste/solid-waste-and-recycling-industry-advisory-committee
3. Metro Vancouver. (2025). Solid Waste Management Plan Public/Technical Advisory Committee Web Page (including all meeting agendas, notes, and recordings). https://metrovancouver.org/services/solid-waste/solid-waste-management-plan-public-technical-advisory-committee

DISPOSAL COST COMPARISON DETAILS

At the September 11, 2025 Zero Waste Committee meeting, there was a request from committee for more information on the cost comparison between the Vancouver Landfill, the Waste-to-Energy Facility, and Contingency Disposal presented in the report dated September 2, 2025, titled "Waste-to-Energy Facility 2024 Financial Update".

The following tables provide more detail with respect to disposal cost comparisons. A future-looking comparison between the Vancouver Landfill and the Waste-to-Energy Facility is not appropriate because the Vancouver Landfill is a finite resource from both an annual and long-term capacity perspective. For future planning, for any garbage remaining after all efforts to reduce waste, the only practical alternative to the Waste-to-Energy Facility would be contingency disposal at private remote landfills either in central British Columbia or in the United States.

Table 1: Allocation of Recycling and Waste Centre Cost Detail

Cost/Tonne	Vancouver Landfill	Waste-to-Energy Facility	Contingency Disposal
Recycling and Waste Centres	$74	$69	$59
Portion of garbage received from recycling and waste centres	80%	35%	100%
Allocated Recycling and Waste Centre Costs	**$58.70**	**$23.90**	**$59.30**

Recycling and waste center costs vary based on transportation and or loading cost depending on destination.

Table 2: Disposal Cost Calculation

	Vancouver Landfill (1)	Waste-to-Energy Facility (2)	Contingency Disposal (3)
Disposal Costs	$32,801,889	$24,079,057	$25,964,738
Tonnes Disposed (4)	509,495 tonnes	243,169 tonnes	151,539 tonnes
Disposal Cost/tonne	**$64.40**	**$99.00**	**$171.30**

Notes:

(1) Vancouver landfill disposal costs include operating and capital costs allocated to Metro Vancouver by the City of Vancouver, estimated future closure and post closure costs, and royalties. No Metro Vancouver staff costs are included in the costs.

(2) The Waste-to-Energy Facility costs include operating costs, and capital project debt service costs. Metro Vancouver staff costs related to the Waste-to-Energy Facility are included in the costs. The operating costs are offset by electrical and metal revenues and incremental revenue associated with Special Handle Waste destruction.

(3) Contingency disposal costs are total cost for all three contingency disposal contractors billed to Metro Vancouver plus costs for storage of loads containing suspected short-half life radiation materials, and loading wait times at recycling and waste centres. No Metro Vancouver staff costs are included in the calculation.

(4) Tonnes disposed is the total municipal solid waste from Metro Vancouver facilities disposed of through each option in 2024.

Table 3: Comparison of Disposal Options Including Recycling and Waste Centre Cost Allocation.

Cost/Tonne	Vancouver Landfill	Waste-to-Energy Facility	Contingency Disposal
Allocated Recycling and Waste Centre Costs	$58.70	$23.90	$59.30
Disposal Cost	$64.40	$99.00	$171.30
Total	**$123.10**	**$122.90**	**$230.60**

The total values in Table 3 are reported in the Zero Waste Committee report dated September 2, 2025 titled “Waste-to-Energy Facility 2024 Financial Update”.

Solid Waste Management Plan Update - Draft Recycling and Waste Centre Strategic Approach

Purpose

The solid waste management plan recycling and waste centre strategic approach outlines Metro Vancouver's plans for continuous improvement of the network of regional recycling and waste centres. This approach sets key priorities and associated considerations in line with the vision and guiding principles of the solid waste management plan.

The focus of this strategy is to inform future upgrades, replacements and additions to the Metro Vancouver recycling and waste centre network. This network and the region rely on other public and private solid waste facilities that directly support the regional network, and in addition provide valuable services to public and private generators of municipal solid waste and recyclable materials.

Background

Metro Vancouver provides a range of recycling and waste drop-off services before and after the weigh scales at its recycling and waste centres, conveniently located to serve residents across the region. This regional network of recycling drop-off services supports and enhances the programs and services provided by other levels of government, member jurisdictions, extended producer responsibility programs, not-for-profits, and the private sector, all together forming one of the most successful and resilient recycling systems in North America.

Recycling depots located before the weigh scales at recycling and waste centres allow customers to drop off recyclable materials for free. Currently, recycling depots are in place at the North Shore, United Boulevard, Maple Ridge, and Central Surrey recycling and waste centres. In addition, the 2026 - 2030 Financial Plan identifies new recycling depots for the Langley and North Surrey recycling and waste centres. The recycling depots provide convenient, accessible, and free drop off of a wide range of recyclable materials including metal, paper, plastic, glass, and other extended producer responsibility materials such as electronics, batteries, paint and pesticides, currently diverting over 10,000 tonnes of recyclables a year from disposal. Cost efficiencies gained by including a recycling depot at a recycling and waste centre include those realized through sharing equipment, attendants and other labour, security and other contracting needs.

As recycling and waste infrastructure ages and service needs evolve, Metro Vancouver seeks to identify system upgrades or new developments to increase reuse and recycling and ensure system resilience while accommodating the region's growing population.

Metro Vancouver owns six recycling and waste centres in the region, which provide convenient drop-off of recyclables and garbage for residents, member jurisdictions, and businesses, and incorporate opportunities for reuse:

- Central Surrey Recycling and Waste Centre
- Langley Recycling and Waste Centre,
- Maple Ridge Recycling and Waste Centre,
- North Shore Recycling and Waste Centre,
- North Surrey Recycling and Waste Centre, and
- United Boulevard Recycling and Waste Centre.

The facility locations are depicted below in Figure X, which also includes the Metro Vancouver Waste-to-Energy Facility and City of Vancouver owned facilities (the Vancouver South Transfer Station (including the Vancouver Zero Waste Centre), and the Vancouver Landfill):

Figure X: Regional Solid Waste System

**Owned and operated by the City of Vancouver*

In 2022, Metro Vancouver transfer stations were renamed to "recycling and waste centres", reflecting the priority to maximize recycling drop-off services. Recent improvements to the system include:

- Establishment of a recycling depot ahead of the weighscales at the historic Coquitlam Transfer Station in 2014.
- Redevelopment and integration of the previous municipal recycling depot into the North Shore Recycling and Waste Centre in 2017;

- Implementation of a recycling depot funding strategy which recognizes the contribution of municipally operated depots to the regional system in 2021;
- The opening of the United Boulevard Recycling and Waste Centre in 2022, including expanded opportunities for recycling before the scale;
- The opening of the Central Surrey Recycling and Waste Centre in 2022, reducing overall system drive times;
- Initiation of design to upgrade the Langley and North Surrey Recycling and Waste Centres to add recycling depots ahead of the scales; and
- Expansion of recycling and reuse services to include the following:
    - Reuse of bikes (North Shore Recycling and Waste Centre)
    - Return-It Express drop off(United Boulevard Recycling, North Shore, and Central Surrey recycling and waste centres)
    - Commercial expanded polystyrene, cardboard and film at Central Surrey, North Shore, North Surrey and United Boulevard
    - Agreements with various product stewards for expanded recycling services at recycling and waste centres including:
        - Recycle BC expanded to United Boulevard and Central Surrey
        - Interchange Recycling for used oil and antifreeze at North Shore, United Boulevard, Central Surrey and Langley.
        - Return-It Express at United Boulevard, North Shore and Central Surrey
    - Reuse days, in partnership with non-profit reuse entities (North Shore and United Boulevard recycling and waste centres)

Municipal Recycling Depots

To recognize the contribution of municipally operated recycling depots to the regional system, Metro Vancouver provides municipal recycling depot funding for municipal recycling depots. The funding is based on municipalities accepting a core set of recyclables and making the depots available to all residents of the region. Municipalities continue to independently manage and operate the depots.

Strategic Approach

Recycling and Waste Centre Priorities

Future improvements and upgrades to facilities aim to continue to strive for consistent services at all recycling and waste centres that maximize opportunities for reuse and recycling, minimize drive times for residents, maximize accessibility, and optimize the layout of any new facilities or facility upgrades according to best practices. Cost effective and affordable operations are a key focus in delivering the service. The following table outlines priorities for continuous improvement of the recycling and waste centre network, presented in alphabetical order. Collectively, the considerations under each priority reflect the seven guiding principles of the plan and help ensure that the evolution of the recycling and waste centre system is consistent with the direction and values of the updated solid waste management plan.

Note: Blue highlighting indicates feedback originating from the Solid Waste Management Plan Public/Technical advisory committee. Yellow highlighting indicates feedback from the Solid Waste and Recycling Industry Advisory Committee. This is for reference only and will be removed in the final version.

Table X: Recycling and Waste Centre Priorities

Priority	Considerations

Best practices in facility design, construction, and operation	• Incorporate best practices in facility design that maximize reuse and recycling, and improve convenience and safety for users such as:
	  ○ Recycling before the scale at all facilities
	  ○ Flat tipping floors (instead of pits) for improved safety and flexibility
	  ○ Sufficient on-site queuing space to prevent back-ups of traffic on to public streets during all but most extreme operating conditions
	  ○ Access considerations for cyclists and pedestrians
	  ○ Recessed bins to improve accessibility and safety in accessing bins
	  ○ Servicing of bins or pallets from non-customer areas
	  ○ Flexibility to add additional materials and space to host temporary events or pilots
	  ○ Traffic patterns that reduce the probability of accidents
	  ○ Separating public and service/operating areas for improved safety.
	• Reduce greenhouse gas emissions from operation through low or zero carbon equipment and fuel
	• Consider greenhouse gas emission implications including embodied carbon when selecting construction materials and methods for the development and maintenance of facilities.
	• Incorporate sustainability features, reused of recycled construction materials such as concrete, asphalt and wood for construction where possible
	• Consider resilience in facility design, including use of robust, low maintenance building materials
	• Continue to align with regulations and published industry best practices such as the BC Building Code and Master Municipal Construction Documents
	• Design for worker and customer safety, accessibility and inclusivity.
	• Consider potential to incorporate new technologies to improve operational and customer efficiencies, and to maximize material diversion from disposal
	• Consider overall aesthetics of the design to maximize user experience and minimize operational and environmental impacts such as noise, odour, dust, etc.

Consistent and maximized reuse and recycling opportunities	• Provide consistent services across locations • Continue to expand the types of materials accepted including planning for expanded extended producer responsibility programs • Maximize opportunities for reuse • Ensure clear and consistent communication of services available to increase participation, educate, and build confidence in the solid waste management system

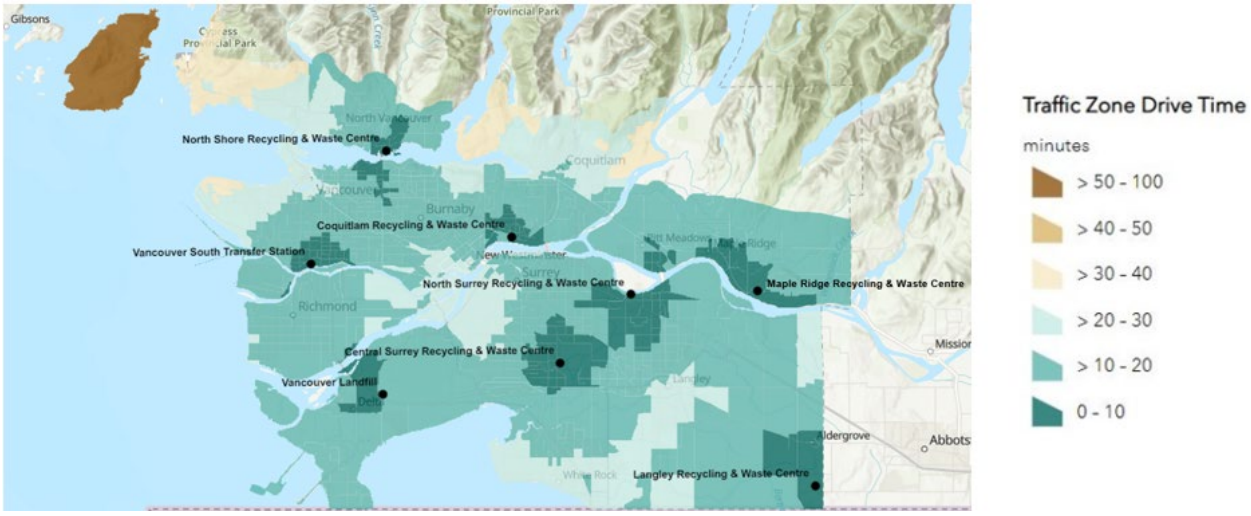
	• Consider inclusivity in the development of each program • Include flex space at facilities to expand or trial new opportunities for reuse and recycling
New facilities developed in areas with expected future growth	• Account for population growth patterns when assessing new facility locations • Incorporate population growth estimates into drive time analyses • Assess facility accessibility for cyclists and transit users as the region continues to develop and methods of transportation continue to diversify
Reasonable and consistent drive times	• Site future facilities close to areas that experience relatively high drive times, accounting for population density (see Figure X) • Aim to reduce overall greenhouse gas emissions through reduced drive times
Resilient and cost-effective service delivery	• Consider replacement or upgrades to aging and outdated facilities • Secure public land at market rates where possible to reduce challenges associated with land acquisition • Design and operate facilities in such a way to minimize risk of disruptions due to climate change or other factors • Continue to strive for best value solutions for operating facilities and providing convenient drop-off services that maximize service level and waste reduction potential • Ensure that extended producer responsibility programs' contributions are consistent with cost of managing materials

Drive Time Analysis

In 2023, Metro Vancouver completed a study to evaluate the current regional solid waste system and analyze future system service and infrastructure needs and opportunities over the next 30 years. To evaluate the current recycling system, access to regional, municipal, and private depots were mapped to understand how the system meets service level standards. The study reviewed tonnage and vehicle data to understand system capacities and developed a model to evaluate the impact to regional drive times, kilometres (kms) driven, and greenhouse gas emissions using a 2050 population and provide insight to potential future facility upgrades, replacements, or relocations to best achieve service level standards. An example of the model output in a heat map for small loads and baseline waste (current system) is shown in the below figure.

Drive time analysis will continue to be used in evaluating locations for future recycling and waste centre development.

Figure X: Comparative Drive Time Analysis



Solid Waste Management Plan Update - Draft Regulatory Strategic Approach

Purpose

The solid waste management plan regulatory strategic approach outlines the types of regulatory initiatives, such as bylaws, that Metro Vancouver may consider over the lifespan of the solid waste management plan, including how potential Metro Vancouver regulations are assessed, engaged on, and implemented. Recognizing that future changes to regulation require dedicated engagement beyond the scope of this solid waste management plan update, the regulatory strategic approach aims to clarify Metro Vancouver's outlook with respect to any future regulatory actions to further progress toward the solid waste management plan goals and targets. This approach identifies examples of initiatives that may be advanced through both direct action and advocacy with senior and local governments.

Background

Overview

The Greater Vancouver Sewerage and Drainage District (GVS&DD) Board enacts bylaws to better manage waste within our system and protect public health and the environment. This authority is delegated to the GVS&DD from the province under the *Environmental Management Act* S.B.C. 2003 c.53, and the *Greater Vancouver Sewerage and Drainage District Act* S.B.C. 1956 c.59, Section 7A and 7B.

The primary bylaws related to solid waste management in the region are the *GVS&DD Tipping Fee and Solid Waste Disposal Regulation Bylaw No.379,2024,* as amended (Tipping Fee Bylaw), which sets garbage and recycling fees at Metro Vancouver solid waste facilities, identifies recyclable and hazardous materials banned from disposal and specifies surcharges, and establishes the requirements of the generator levy; and the *GVS&DD Municipal Solid Waste and Recyclable Material Regulatory Bylaw No.181, 1996,* as amended (Bylaw 181), which specifies requirements for private solid waste facilities, including reporting, inspection, and enforcement provisions. The *GVS&DD Notice of Bylaw Violation Enforcement and Dispute Adjudication Bylaw No.378, 2024,* as amended, provides an additional compliance promotion tool, allowing the issuance of penalty amounts up to $500 per contravention of specified provisions of Bylaw 181 and the Tipping Fee Bylaw. It also establishes a process for dispute adjudication.

Existing Regulations

Bylaw	Key Components
GVS&DD Tipping Fee and Solid Waste Disposal Regulation Bylaw No.379, 2024	• Fees and surcharges

	• Recyclable and hazardous materials banned from disposal • Generator levy
GVS&DD Municipal Solid Waste and Recyclable Material Regulatory Bylaw No.181, 1996	• Facility licensing • Powers of Solid Waste Manager and Officers • Fees
GVS&DD Notice of Bylaw Violation Enforcement and Dispute Adjudication Bylaw No.278, 2024	• Bylaw violations and penalties • Dispute adjudication

Since approval of Metro Vancouver's 2011 solid waste management plan ,the generator levy was implemented and new bylaw enforcement tools have been added. The generator levy, added to the Tipping Fee Bylaw in 2018, encourages the use of Metro Vancouver and City of Vancouver solid waste facilities where disposal bans for recyclable materials are in place, and ensures all garbage generators contribute to funding the cost of the regional solid waste system – a system that provides reliable and resilient services that benefit and are available to all residents and businesses in the region. The generator levy is included in the garbage tipping fee charged at regional solid waste facilities; however, if garbage is delivered to other facilities, haulers must pay the per-tonne generator levy directly to Metro Vancouver. The generator levy is a key contributor to Metro Vancouver's continued success in advancing waste reduction and recycling.

Metro Vancouver's Role

At its facilities, Metro Vancouver is responsible for providing convenient drop-off for garbage for residents and businesses, determining the final disposal destination of that material, and providing both free and paid recycling opportunities primarily for materials delivered in small hand-unloaded vehicles. Recycling sorting and processing facilities are managed by the private sector under requirements set out in Bylaw 181. This system allows and encourages private sector innovation in recycling.

Metro Vancouver's regulatory authority does not currently include the ability to enforce bylaws at the generator or property level. Generally, that authority resides with municipalities. Also out of scope are extended producer responsibility programs and regulations impacting the sale or distribution of specific products, and eco fees or refundable deposit fees charged for some products, which may be implemented at the provincial or federal level. Any changes beyond Metro Vancouver's current regulatory authority, including compliance promotion mechanisms, require changes to provincial legislation and associated approval processes. Metro Vancouver also plans to advocate for continuous improvement of extended producer responsibility programs and regulations at the federal and provincial level that will help rethink waste and transition to a circular economy, including design for recyclability, the right to repair, and waste prevention legislation.

Compliance and Enforcement

Metro Vancouver's Environmental Regulation & Enforcement group is responsible for enforcing the provisions of Bylaw 181, including reviewing licence applications and ensuring compliance with licence terms and conditions. Officers appointed under Bylaw 181 have authority to issue notices of bylaw violation under the *GVS&DD Notice of Bylaw Violation Enforcement and Dispute Adjudication Bylaw No.378, 2024*, as amended, which includes penalties of up to $500 per contravention of specified provisions of the generator levy and Bylaw 181. Bylaw 181 also allows for penalties for each day an offence is committed under the Bylaw, as well as cancellation of a licence. All active solid waste licences are available on Metro Vancouver's website, as well as Notices of Bylaw Violation issued to corporate entities since March 13, 2024 that have been paid, upheld, or are no longer in a dispute process. The appointment of enforcement officers is reported publicly.

Reporting and Continuous Improvement

Metro Vancouver publicly reports annually on the top surcharges under the Tipping Fee Bylaw, as well as information to enhance Metro Vancouver's understanding of the movement of waste around the region through the Smart Waste Program. This information is used to assess the effectiveness of the disposal ban and generator levy programs, respectively, and helps inform decisions on how these programs can continue to be effective.

Strategic Approach

Regulatory Priorities

Metro Vancouver's regulatory priorities for the solid waste management plan align with the vision and guiding principles and can help to achieve the plan's strategies and actions. These priorities are summarized below.

- Improve data accuracy, transparency, and availability
- Increase reuse and recycling
- Reduce barriers to participation
- Support effectiveness of the facility licensing system
- Support effectiveness of the generator levy
- Support innovation, particularly for reuse and repair

Potential future regulatory approaches may include hauler licensing, source separation requirements, expanded licensed facility types, or updated facility licensing provisions in support of the above priorities.

Considerations

For any proposed regulations not identified in the solid waste management plan's strategies and actions, at a minimum the following will be considered:

- What is the objective of the proposed regulation, and are there other options for achieving the same objective?

- Does GVS&DD currently have authority to implement the proposed regulation, and if not, what is required for obtaining that authority?
- What are the resource requirements for developing the proposed regulation, and for administering and enforcing it once enacted?
- Which sectors, businesses or individuals would be subject to the proposed regulation, and what is the estimated impact on meeting solid waste management plan goals and targets that would be achieved by regulating the targeted sectors?
- If the proposed regulation targets a specific material type and impacts how that material is managed, what are the expected operational consequences to the solid waste system overall?
- What are the expected financial implications resulting from the proposed regulation, such as tipping fee changes or other costs borne by residents and businesses?
- At which level of government would this regulation be most effective?
- Are there any unintended consequences of implementing the proposed regulation?

Engagement

Any new regulations, including changes to existing bylaws or the creation of new bylaws, will be accompanied by a transparent engagement process. Engagement will follow Metro Vancouver's Public Engagement Board Policy and Public Engagement Guide. Metro Vancouver will also comply with any provincial requirements related to engagement.