

SOLID WASTE MANAGEMENT PLAN PUBLIC/TECHNICAL ADVISORY COMMITTEE

IN-PERSON MEETING

Thursday, November 20, 2025

1:00 pm – 3:00 pm

Meeting Room: Metro Vancouver Head Office - Room 2912

A G E N D A

ITEMS	TIME
1. WELCOME <ul style="list-style-type: none"> • Independent Consultation and Engagement Panel Members <ul style="list-style-type: none"> ○ Celena Benndorf 	1:00 pm – 1:05 pm
2. AGENDA	1:05 pm – 1:10 pm
3. PREVIOUS MEETING NOTES 3.1 October 3, 2025 (Attachment 1)	1:10 pm – 1:15 pm
4. DISCUSSION ITEMS Solid Waste Management Plan Update: 4.1 Targets and Metrics <ul style="list-style-type: none"> • Plenary discussion on primary and secondary metrics and targets <i>Designated Speaker: Terry Fulton, Senior Project Engineer, Solid Waste Services</i> Solid Waste Management Plan Update – Performance Metrics and Targets Report (Attachment 2) 	1:15 pm – 2:10 pm
5. INFORMATION ITEMS 5.1 Zero Waste Committee <i>For information</i> <i>Designated Speaker: Paul Henderson, General Manager, Solid Waste Services</i> Solid Waste Management Plan – Options Analysis Update (November 6, 2025 Zero Waste Committee Report) (Attachment 3)	2:10 pm – 2:30 pm

Proposed agenda times are intended to support effective meeting facilitation. Items requiring extended discussion that cannot be accommodated within the regular meeting time may be deferred to a future agenda or addressed in a specially scheduled meeting.

Zero Waste Committee Meeting Agenda - November 6, 2025 - Managers Report	
6. ACTION/STANDING ITEMS 6.1 Action Tracker (Attachment 4)	2:30 pm – 2:35 pm
7. ADDITIONAL ITEMS 7.1 Potential Meeting Dates for 2026 <ul style="list-style-type: none"> • January 29, 2026 • February 19, 2026 • March 26, 2026 7.2 Solid Waste Management Plan Update – Draft Regulatory Strategic Approach (Attachment 5) 7.3 Solid Waste Management Plan Update – Draft Recycling and Waste Centre Strategic Approach (Attachment 6) 7.4 Public/Technical Advisory Committee Member Submitted Feedback on Options Analysis (Attachment 7) 7.5 Public/Technical Advisory Committee Potential Work Plan Items for 2026 (Attachment 8) 7.6 Public/Technical Advisory Committee Updated 2025 Work Plan (Attachment 9) 7.7 Regional Waste Flows October 2025 (Attachment 10) 7.8 OCEANA Single-Use Item Reduction Presentation (Attachment 11)	2:35pm – 3:00 pm
8. NEXT STEPS	3:00 pm

Attachment 1: Draft Meeting Notes – October 3, 2025 – Solid Waste Management Plan Public/Technical Advisory Committee

Attachment 2: Solid Waste Management Plan Update – Performance Metrics and Targets Report

Attachment 3: Solid Waste Management Plan – Options Analysis Update (November 6, 2025 Zero Waste Committee Report)

Attachment 4: Action Tracker

Attachment 5: Solid Waste Management Plan Update – Draft Regulatory Strategic Approach

Attachment 6: Solid Waste Management Plan Update – Draft Recycling and Waste Centre Strategic Approach

Attachment 7: Public/Technical Advisory Committee Member Submitted Feedback on Options Analysis

Attachment 8: Public/Technical Advisory Committee Potential Work Plan Items for 2026

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Attachment 9: Public/Technical Advisory Committee Updated 2025 Work Plan

Attachment 10: Regional Waste Flows October 2025

Attachment 11: OCEANA Single-Use Item Reduction Presentation

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**SOLID WASTE MANAGEMENT PLAN
PUBLIC/TECHNICAL ADVISORY COMMITTEE**

**October 3, 2025
In-Person Meeting
1:00 pm – 4:00 pm**

MEETING NOTES

The Meeting Notes of the Public/Technical Advisory Committee (PTAC), held in person at the Metro Vancouver – Head Office. The meeting commenced at 1:00 p.m. Pacific Time on Friday, October 3, 2025.

Attendees: Director Sarah Kirby-Yung, Chair; Director Craig Hodge, Vice-Chair; Adelyn Chan, Amika Watari, Brenda Martens, Cody Irwin, Doug Schell, Gil Yaron, Jamie Kaminski, Jennifer Henry, John Doherty, Komal Fatima, Raman Johal, Sarah Scanlan, Sean Miles, Sue Maxwell, William Selten

Absent: Allen Lynch, Ben Liegey, Bill Chan, Cassidy vander Ross, Christoph Schultz, Daniel Rotman, Daryl Foster, Grant Hankins, Jake Turek, Jaye-Jaye Berggren, Kevin Huang, Marcelle Moreira dos Santos, Matthew Morin, Michael Zarbl, Stephanie Voysey, Tara Immell, Ulwiana Mehta-Malhorta

Metro Vancouver Staff: Brooke Atkinson, Chris Underwood, Karen Storry, Paul Henderson, Stephanie Liu, Terry Fulton, Joanna Gauci, Allec Wu, Faith Sabourault

Independent Consultation and Engagement Panel Members: Andrea Reimer, Celena Bendorff, Ryan Williams

1.	<p>WELCOME</p> <p>The Chair, Director Sarah Kirby-Yung welcomed PTAC members and introduced the following Independent Consultation and Engagement Panel Members:</p> <ul style="list-style-type: none"> • Andrea Reimer • Celena Benndorf • Ryan Williams 	Chair
2.	<p>AGENDA</p> <ul style="list-style-type: none"> • The Chair, Director Sarah Kirby-Yung presented and reviewed the October 3, 2025, meeting agenda. <p>Summary:</p> <ul style="list-style-type: none"> • The Chair noted today’s session is a workshop format, with the majority of time allocated to reviewing the solid waste management plan potential strategies and actions, and there will be discussion on the options under Recover and the ideas that staff consider inadvisable. • Suggestion that the agenda item titled “Plenary discussion on actions under Recover, and ideas staff consider inadvisable” be discussed in plenary before 	Chair

	<p>the workshop on the potential strategies and actions. Members and Chair agreed that this item would be moved for discussion first.</p> <ul style="list-style-type: none"> • Suggestion that financial discussions were important to have before discussing strategies and asked if there would be budget for actioning these strategies. 	
<p>3.</p>	<p>PREVIOUS MEETING NOTES</p> <ul style="list-style-type: none"> • Reviewed September 18, 2025, previous meeting notes and there were no additions made. 	<p>Chair</p>
<p>4.</p>	<p>DISCUSSION ITEMS</p>	<p>Chair</p>
	<p>Solid Waste Management Plan Update:</p> <p>4.1 Potential Strategies and Actions Feedback Session</p> <p>Terry Fulton, Senior Project Engineer, Solid Waste Services, Metro Vancouver, presented on the plan timeline, feedback session objectives, outcome of the options analysis phase, waste hierarchy, and additional opportunities for feedback.</p> <p>Plenary discussion on potential strategies and actions under Recover:</p> <ul style="list-style-type: none"> • Members expressed concern with sending wood to be used as alternative fuel. • Members asked that Metro Vancouver consider the fact that the Vancouver Landfill is closing and there is a carbon neutral goal by 2050. <ul style="list-style-type: none"> ○ Staff noted that the bottom ash pilot diverted 40,000 tonnes of material from disposal. In addition, 100,000 tonnes of small load waste material could be diverted from disposal. Acknowledgement that pilot initiatives (e.g., bottom ash beneficial use, small load waste) show potential but need scaling. • Members discussed concerns that funding and resources are being put into the recovery efforts and taken away from other areas (recycling, reuse, reduce, rethink). • Members asked about salvaging reusable materials from garbage. <ul style="list-style-type: none"> ○ Staff confirmed that Metro Vancouver does have an agreement with Urban Repurpose at the North Shore Recycling and Waste Centre that includes collecting reusables • Suggestion for clear articulation of triage systems at landfills and transfer stations to capture reusable/recyclable material. • Opposition to further reliance on incineration/waste-to-energy, citing: <ul style="list-style-type: none"> ○ Environmental/climate impacts ○ Risk of diverting resources away from higher priority 4R strategies ○ Potential cost escalation and conflict with Zero Waste objectives • Concern that including incineration in the plan risks locking resources into low-priority disposal instead of upstream actions • Interest in whether it's possible to set proportional metrics for funding for each strategy <p>Actions Considered “Unadvisable” by Staff</p>	<p>Terry Fulton</p>

	<p>Staff presented ideas identified as unadvisable by staff for inclusion in the updated solid waste management plan.</p> <p>Member discussion:</p> <ul style="list-style-type: none"> • Need to align these suggestions with Metro Vancouver’s Climate 2050 commitments. • Questions about cost assumptions used to justify continued operation of the Waste-to-Energy Facility. <ul style="list-style-type: none"> ○ Staff confirmed that no work is being done to expand waste-to-energy capacity. • Need for a hybrid approach that ensures all residual waste undergoes pre-processing/triage (Material Recovery Facility/Material Recovery and Biological Treatment systems) before landfill or incineration. • Source separation is preferable although there is no perfect separation system. Materials could go through a Materials Recovery Facility before going to landfill or waste-to-energy. • Many reasons to close the Waste-to-Energy Facility. • Privatization of the solid waste system is not advisable, with members citing risks of reduced accountability and oversight. <ul style="list-style-type: none"> ○ Important to maintain public system accountability and ensuring that resources are directed toward reduction, reuse, and recycling first. <p>Stephanie Liu, Program Manager, Community Engagement, Solid Waste Services, Metro Vancouver, provided the breakout group exercise details and instructions, highlighting the six tables to choose from including Rethink, Reduce, Reuse (Reuse, Refill, and Repair), Reuse (Food and Built Environment), Recycle (Infrastructure and Programs), and Recycle (Education).</p> <p>Feedback Session – Four Rs (Rethink, Reduce, Reuse, Recycle)</p> <ul style="list-style-type: none"> • Members chose small groups based on topics (Rethink, Reduce, Reuse, Recycle). • Groups reviewed and ranked strategies based on their level of priority to include in the draft plan. • Key themes identified: <ul style="list-style-type: none"> ○ Strong support for upstream prevention actions (food waste reduction, circular economy initiatives, reuse/repair systems). ○ High priority placed on education, consistency, and convenience in recycling programs. ○ Support for expanded partnerships and advocacy at higher levels of government to drive systemic change. ○ Need to have more ambitious zero waste objectives throughout the plan update. 	<p style="text-align: right;">Stephanie Liu</p>
	<p>Breakout group notes are included in Attachment 1.</p> <ul style="list-style-type: none"> • Rethink • Reduce • Reuse (Reuse, Refill, and Repair) • Reuse (Food and Built Environment) 	

- Recycle (Infrastructure and Programs)
- Recycle (Education)

Highlights from the feedback are presented below:

Rethink, Reduce, Reuse

- Support for actions in top three R's
- Increase focus on infrastructure to make reuse convenient and accessible (land, storage, software, facilities)
- Funding or incentives for piloting reuse and repair initiatives
- Systems already exist but can be further supported/enhanced
- Increase accountability for designing out waste and increasing reusability of products (e.g. use incentives)
- Identify opportunities in reuse and repair industry and skills required for repair; the knowledge exists but needs more focus

Regulation and Incentives

- Advocacy, tools, templates, and education are not enough – they need to be combined with regulation, enforcement, and financial incentives
- Incentivize innovators and entrepreneurs providing solutions for materials so they aren't disposed
- Financial disincentives for disposal vs. recycling
- Advocate for additional materials to be added to EPR regulation

Implementation, Education, and Outreach

- Actions need to be more specific, ambitious, and actionable
- In general, actions need to be stronger – e.g. "fund" instead of "support"
- Support for advocacy and partnerships to drive systemic change
- High priority placed on education, consistency, and convenience in recycling programs
- Strong support for upstream waste prevention (food waste reduction, circular economy initiatives, reuse/repair systems)
- Discussion on motivation for recycling is required; education only works if people are motivated and keen to recycle; maybe introduce penalties
- Education is not enough for event recycling; system needs to be made accessible and easy
- Standardization across the region would help

Public/Private Service Provision

- Solid waste system privatization is inadvisable. Concerns included risks of reduced accountability and oversight. Support for public system accountability, with resources directed toward reduction, reuse, and recycling first.
- Certification/verification of receiving facilities (such as construction and demolition) would enhance confidence in accuracy of data reported

Residual Waste

- Funding currently going to disposal or recovery could be redirected to efforts

	<p>under rethink, reduce, reuse, and recycle</p> <ul style="list-style-type: none"> • Opposition to further reliance on waste-to-energy, citing environmental impacts, diverting resources away from the top 4 R's, and costs; comment the facility should close • Residual waste should undergo pre-processing before landfill or incineration; source separation is preferable but still results in some recyclables in the garbage • Review health care waste to direct the materials back to recycling and waste centres 	
	<p>4.2 PTAC Feedback on Draft Plan Outline and Residual Waste Management Options Review</p> <p>Paul Henderson, General Manager, Solid Waste Services, Metro Vancouver, provided an opportunity for any further feedback on the draft plan outline and residual waste management options review that was presented to the committee at the September 18, 2025 meeting.</p> <p>Member discussion:</p> <ul style="list-style-type: none"> • Plan update should consider other Metro Vancouver management plans such as the climate action plan, climate 2050. Focus on Integrated plans. 	<p>Paul Henderson</p>
5.	INFORMATION ITEMS	Chair
	<p>5.1 Zero Waste Committee</p> <p>Paul Henderson, General Manager, Solid Waste Services, Metro Vancouver, provided an update on the October 2025 Zero Waste Committee agenda.</p> <p>Member discussion:</p> <ul style="list-style-type: none"> • The Electricity Purchase Agreement locks the region into a long term commitment, whereas a shorter term interim agreement could have been an option while the solid waste management plan is being updated. <ul style="list-style-type: none"> ○ Staff noted that the agreement includes cancellation provisions which are confidential. • A member noted the province updated waste-to-energy regulations in 2011. A consultant reviewed best practices for regulations. <p>5.1 Zero Waste Conference 2025 Reminder</p> <p>Paul Henderson, General Manager, Solid Waste Services, Metro Vancouver, provided a reminder about the upcoming Zero Waste conference on November 27, 2025. PTAC members are invited to attend at no cost.</p>	<p>Paul Henderson</p> <p>Paul Henderson</p>
6.	ACTION/STANDING ITEMS	
	<p>6.1 Action tracker</p> <p>The action tracker was reviewed, and updates were provided.</p> <ul style="list-style-type: none"> • Completed: <ul style="list-style-type: none"> ○ Circulation of full list of plan update ideas from idea generation phase of engagement 	<p>Brooke Atkinson</p>

	<ul style="list-style-type: none"> ○ Information on landfill Greenhouse Gas Emissions shared with members previously via email ● In progress: <ul style="list-style-type: none"> ○ Detailed regulatory strategy to be brought forward in November PTAC meeting ○ OCEANA may present to PTAC at the November 20, 2025, meeting (time-permitting) 	
7.	ADDITIONAL ITEMS 7.1 Responses to Questions from PTAC September 18, 2025 Landfill Tour (Attachment 5) 7.2 Public/Technical Advisory Committee Updated 2025 Work Plan (Attachment 6) 7.3 Regional Waste Flows August 2025 (Attachment 7) 7.4 Metro Vancouver Disposal Ban Report (Attachment 8)	Chair
8.	NEXT STEPS AND NEXT MEETING DATE	
	The upcoming meetings are: <ul style="list-style-type: none"> ● November 20, 2025 Next PTAC Meeting: Targets and Metrics (in-person at Metro Vancouver) – last meeting of PTAC in 2025. 	Chair
9.	ADJOURNMENT The Chair thanked members for robust discussion and feedback with an emphasis on consolidating input into the draft Solid Waste Management Plan. The meeting adjourned at 3:47 p.m.	Chair

**SOLID WASTE MANAGEMENT PLAN
PUBLIC/TECHNICAL ADVISORY COMMITTEE
BREAK OUT GROUP NOTES**

ATTACHMENT 1

RETHINK
Round 1 – Strategy 1.1
Number of Participants: 4

Fist of 5

Action ID	Total Score
ID005	20
ID003	19
ID004	19
ID090	17
ID001	12

Discussion

Action ID and brief description	Comments / Feedback
Broad Feedback	<ul style="list-style-type: none"> • Need zero waste objectives re-integrated into the plan – municipal regulatory pieces are not reflected in this draft. • Advocating is important but need to be more directive with action-oriented tasks. • Not setting ambition high enough or recognizing systems change that is needed. <ul style="list-style-type: none"> ○ Actions need to be stronger than just advocating and have a bigger vision and ambition. • Need to support more transition to circular economy over long-term while also supporting meaningful systems change. • Need more of an economic development framework – economic pieces need to be more fully considered – i.e., if you are a local innovator, how can regulation support your innovation? • Circular economy frameworks should have zero waste strategy embedded within it. • Big thing that’s missing – redesigning the systems, reverse logistics, how do we think about procurement and business model transformation instead of incremental change to what is already happening. • Behaviour change needs to be more explicit. • Important to shift funds and resources and develop circular economy solutions through zero waste tools.

	<ul style="list-style-type: none"> • Need economy of scale which can't be achieved through pilots. Need more living labs to demonstrate economic models. • Need bolder supports to see changes. E.g., same with single use cup fee. Need to set up test systems to provide signal to market. • Need more bold commitments – e.g., commit \$10 million over 10 years.
Specific feedback on Actions	
Strategy 1.1 Action ID001	<ul style="list-style-type: none"> • Outside supply is a constraint now; so important to get foundational policies in place and that's something that comes out of it. This may come organically through other actions like ID003 and ID004, feels more of a secondary action.
Strategy 1.1 Action ID090	<ul style="list-style-type: none"> • Important to include, but calls out only the circular food systems sector and likely should be broader.
Strategy 1.2	<ul style="list-style-type: none"> • Consider how to support transition – important to build on the existing innovation, it will cultivate itself. Need stronger action and ability to quantify current landscape and change.
Strategy 1.2 Action ID008	<ul style="list-style-type: none"> • Consider creating a business certification – partner with existing organizations.
Strategy 1.2 Action ID079	<ul style="list-style-type: none"> • Should include zero waste education.
Strategy 1.2 Action ID009	<ul style="list-style-type: none"> • Change action to have Metro Vancouver to lead by example in zero waste.
Strategy 1.2 Action ID0074	<ul style="list-style-type: none"> • Limited to food systems – but these concepts are overarching to all sectors.
Strategy 1.3 Action ID017	<ul style="list-style-type: none"> • Make action more specific for collaborating with external groups. • Collaborate with circular innovators and entrepreneurs on the ground and across the country.

RETHINK
Round 2 – Strategy 1.3
Number of Participants: 2 (plus one observer)

Fist of 5

Action ID	Total Score	Action ID	Total Score	Action ID	Total Score
ID029	10	ID017	7	ID099	5
ID098	9	ID027	7	ID019	4
ID026	9	ID023	4	ID023	4
ID160	8	ID022	8		
		ID021	5		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 1.3 Action ID029	<ul style="list-style-type: none"> • Support for this action. Look at BC Housing, heavily weight cost. More facets we work into developing and implementing procurement policies that pull weight away from costs, towards circular criteria, is great. • All member jurisdictions have different criteria, so businesses are working in a patchwork. Higher ambition mandated through procurement criteria is what we want.
Strategy 1.3 Action ID026	<ul style="list-style-type: none"> • Action should go further and be specific about showing business case, collaborating is good but businesses need to know future direction –need to have regional commitments. • Harder words would be better – less about collaborating and educating, moving towards enforce and regulate (e.g. mandate and enforce). • Need to focus on accelerating the adoption of circular business models - this results in setting behavioural norm in the industry. Be transparent with business community about direction Metro Vancouver is going.
Strategy 1.3 Action ID022	<ul style="list-style-type: none"> • Collaboration with regional economic development agencies is important to develop digital tools. There is existing technology that tracks origin of the material. <ul style="list-style-type: none"> ○ Tool should focus on high value materials. If we deconstruct the building, if we don't know origin of material don't know what to do with it. • Consider digital passports and material banks. • How can we facilitate wider adoption, to ensure that tracking and forecasting is included. Working with retrofits – digital tools would be able to be scaled up.
Strategy 1.3 Action ID098	<ul style="list-style-type: none"> • Needs stronger wording on how to integrate Indigenous practices, important piece is how to do this at scale. • How to be able to have composting programs in every community. • Agro-ecology is a good term to think about and possibly integrate as it's broader principle.
Strategy 1.3 Action ID017	<ul style="list-style-type: none"> • What would be action that comes out of identifying new circular economy initiatives in communities? This action maybe folds into others. • There are enough materials and for-profit companies that are not getting the lift off or voice that they need to scale. Once we get to scalable systems and technologies – need to not pause before we give them lift off. • Need people participating – and need to widen the tent.
Strategy 1.3 Action ID023	<ul style="list-style-type: none"> • Deprioritize this in draft plan.

Strategy 1.3 Action ID027	<ul style="list-style-type: none"> A lot of requirements for new and up and coming circular economy businesses. Too high risk for businesses – insurance, land, cost margins. Not sure this action will address these issues, clarify and include this if not elsewhere and this is only reference recycling businesses.
Less relevant	<ul style="list-style-type: none"> About scale and enforceability – some of these don't fit from this perspective. E.g., ID018 – continue to learn – feels like we are past that.

REDUCE
Round 1 – Strategy 2.1
Number of Participants: 3

Fist of 5

Action ID	Total Score	Action ID	Total Score	Action ID	Total Score
ID161	14	ID 162	11	ID043	6
ID028	5	ID 020	10	ID028	5
ID101	14	ID062	8	ID040	4
ID002	13	ID024	8	ID100	1
		ID102	7		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 2.1 Action ID028	<ul style="list-style-type: none"> Sector education should come first for this action to be implemented. If they don't know where to go, this action won't be as relevant. Feedback that this ID doesn't address 'reduce'. Sectors have been taking materials to transfer stations for several years; it comes down to the amount of room they have on the ground. Good for some industries (like schools) but not others (construction). Tools and templates do not go far enough – we shouldn't be doing that. We should go further and put regulations (e.g. you cannot buy/sell things that end up in our landfills). Works in settings where there is a universal request for proposal process and they can then put it into their policy. Needs to be enforceable.
Strategy 2.1 Action ID101	<ul style="list-style-type: none"> Action needs to be paired with enforcement. Need to have a clear strategy to promote/require businesses to participate. If you have someone from Metro Vancouver coming into the businesses to talk, that's impactful and makes a big difference.

Strategy 2.1 Action ID002	<ul style="list-style-type: none"> Requires a financial incentive (e.g. if not using hard to recycle plastics was somehow saving producers money). Convenience and staffing are also factors. Companies will only take action if they are pressured.
Strategy 2.1 Action ID102	<ul style="list-style-type: none"> Not clear who is the one developing method to estimate or provide score card for businesses
Strategy 2.1 Action ID161	<ul style="list-style-type: none"> Would like to see requirements for new construction. Disappointed we're on the 'workshop' stage rather than further along into implementation. If businesses aren't not forced to do it, it won't happen.
Strategy 2.1 Action ID100	<ul style="list-style-type: none"> This action should have happened years ago. Educational tools are too 'soft' to be the focus. Need more requirements rather than educational tools.
Strategy 2.1 Action ID020	<ul style="list-style-type: none"> Action should include that healthcare has compactors, and when you remove a compactor you should reassess the system. There's groups within the healthcare system that advocates for recycling, but hard to execute because once there is a contaminant from health perspective it goes to incinerator. Force healthcare to put in programs to listen to subject matter experts and do the right thing. We like "co-develop waste reduction solutions" – because in industry, there are experts on what to do with their waste instead of 'workshops'. Tie to a 3rd party certification – this helps motivate as well.
ADDITIONAL ACTION	<ul style="list-style-type: none"> Have mechanism like a sensor in bin so that you only pay for pickup when the bin is full, rather than a regular schedule like weekly – provides an incentive for reducing garbage.
Strategy 2.1 Action ID0403	<ul style="list-style-type: none"> Could be effective for other industries but not C&D – they will not respond to a toolkit. They need rules, requirements, and financial incentives/disincentives.
NEW ACTION	<ul style="list-style-type: none"> Requirements to submit a zero-waste strategy, implement waste audits or waste plans, etc. could be effective.
NEW ACTION	<ul style="list-style-type: none"> Idea of licensing manufacturer, retailer, hauler. We don't have a clear picture on what receiving facility receives waste from where and which hauler.
NEW ACTION	<ul style="list-style-type: none"> Waste reduction coaches – have people supporting businesses directly
NEW ACTION	<ul style="list-style-type: none"> Circular procurement – use the region's procurement power, or procurement guidelines. Only buy from companies that do XYZ. Ban could also have the same effect – if something is banned, you look for alternatives.
Strategy 2.1 Action ID028	<ul style="list-style-type: none"> Nothing about Metro Vancouver implementing procurement strategy that incentivizes/awards sustainable procurement. Need more commitment – more committal language.

	<ul style="list-style-type: none"> • Need 10-year plan to develop full procurement policy to then implement. • Metro Vancouver’s own internal procurement would be year 1-2, then the next few years expand from there.
General comment	<ul style="list-style-type: none"> • Don’t embed examples in the action – maybe can add examples after. Embedding examples makes these actions confusing.
General Comment	<ul style="list-style-type: none"> • Include a timeline for stages of implementation of these actions.

REDUCE
Round 2 – Strategy 2.4
Number of Participants: 5

Fist of 5

Action ID	Total Score
ID107	20
ID105	19
ID106	19

Discussion

Action ID and brief description	Comments / Feedback
General Comments on strategy	<ul style="list-style-type: none"> • Problem with bans is we don’t have infrastructure to support reuse. • Reengineer the way we manage materials to support reuse. • The bans don’t come into place until there is infrastructure in place to handle the material flow (for recycling/reuse). • Regional District of Nanaimo has a study on clean wood ban – set up streams for wood in advance of the ban – they were revenue generating streams. <ul style="list-style-type: none"> ○ Good case study to look into when implementing bans. • Disposal Bans should not be under ‘Reduce’ as they encourage diversion as opposed to waste reduction. • Ban does not reduce the amount of waste generated in the first place. • A ban will mean they’ll go over border to dispose of banned materials. • Need a system to track waste from producer, hauler, and receiver so we know it’s left the region. • Should have certification of receiving facilities and regular audits, especially C&D facilities – need certification.
Rubric	<ul style="list-style-type: none"> • Comment on the rubric – people getting fined is impacting affordability. Haulers getting fined should not impact affordability.

	<ul style="list-style-type: none"> Affordability should apply to low-income residents. It should not play in as a factor when deciding on strategies for businesses or high-income residents. Apply an equity lens.
Strategy 2.4 Action ID 107	<ul style="list-style-type: none"> Clear bags should not be lumped with “technologies” – they are two separate things.
Strategy 2.4 Action ID107	<ul style="list-style-type: none"> Instal tech to monitor customers, rather than clear bags at the disposal site. More important to monitor at source.
Strategy 2.4 Action ID106	<ul style="list-style-type: none"> Beyond just providing incentives for collectors, the region should look into incentivizing innovators/entrepreneurs that provides solutions for materials so that they can then be banned. Consideration is as EPR comes in, that creates risk for innovators. Is there a way for EPR to not quash innovation. If there is a thriving system in place already, EPR should not be able to come in and displace that successful system.
Strategy 2.4 Action ID105	<ul style="list-style-type: none"> Need a pathway for waste from certain sectors to be banned from Metro Vancouver facilities to have a review process. Need a clear audit and review process to revisit items that are currently unable to go to recycling and need to go to WTEF (e.g. hospital waste).

**REUSE (Reuse, Refill, Repair)
Round 1 – Strategy 3.5
Number of Participants: 3**

Fist of 5

Action ID	Total (fingers)	Action ID	Total
ID061	12	ID059	14
ID086	11	ID065	11
ID058	10	ID060	13
ID166	14		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 3.5 Action ID058	<ul style="list-style-type: none"> Metro Vancouver can offer support, but lots of groups are already doing this work.
Strategy 3.5 Action ID059	<ul style="list-style-type: none"> Challenge of increasing cost of rent for nonprofit organizations doing reuse work. Increase focus on infrastructure to make reuse convenient and accessible (land, storage, software, facilities, etc.)
Strategy 3.5 Action ID060	<ul style="list-style-type: none"> Funding for larger industry to pilot reuse and repair initiatives or collaborate with smaller community groups to ensure the funding has the biggest impact.
Strategy 3.5 Action ID061	<ul style="list-style-type: none"> Develop a directory of organizations and businesses already working in the space for people to connect to (e.g. reporting mechanism).

Strategy 3.5 Action ID086	<ul style="list-style-type: none"> • Same issues as thrift stores.
General Discussion	<ul style="list-style-type: none"> • Top-down change is required. Currently too much bureaucracy so that there is no room for change. • Too risk adverse (Example of putting in a reuse collection bin at Kitsilano beach being shut down by strict policies). Need incentive to adopt new practices (resources, time, money).

REUSE (Reuse, Refill, Repair)
Round 2 – Strategy 3.3
Number of Participants: 3

Fist of 5

Action ID	Total Score	Action ID	Total Score
ID047	10	ID167	7
ID025	10	ID066	6
ID083	8		
ID164	8		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 3.3 Action ID047	<ul style="list-style-type: none"> • Also create a cleaning and washing infrastructure for reusable product processing throughout the region (not hubs).
Strategy 3.3 Action ID025	<ul style="list-style-type: none"> • Take back more than just clothing such as electronics, etc.
Strategy 3.3 Action ID083	<ul style="list-style-type: none"> • Increase awareness of these programs.
Strategy 3.3 Action ID164	<ul style="list-style-type: none"> • Understand barriers to resident participation in reuse, refill, and repair.
Strategy 3.3 Action ID167	<ul style="list-style-type: none"> • Identify opportunities in reuse and repair industry and skills required for repair. The knowledge exists but needs more focus.
New Action	<ul style="list-style-type: none"> • Pilot broad reuse initiatives in a small community (complete top to bottom change to reuse)

REUSE (BUILT ENVIRONMENT AND FOOD)
Round 1 – Strategy 3.2
Number of Participants: 2

Fist of 5

Action ID	Total Score	Action ID	Total Score	Action ID	Total Score
ID037	10	ID036	6	ID068	8.5
ID039	10	ID038	6	ID071	7

ID046	10	ID045	5	ID087	6
ID035	8	ID067	10		
		ID069	9		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 3.2 Action ID071/ID087 – Food recovery data	<ul style="list-style-type: none"> • Programs should be considered before data. • Measurement is challenging; best estimates can be more practical.
Strategy 3.2 Action ID035 – Reuse in C&D sector	<ul style="list-style-type: none"> • Consider just reuse in construction sector; demolition by definition doesn't include reuse.
Strategy 3.2 Action ID046 – Land use for reuse activities	<ul style="list-style-type: none"> • Support for this action; shouldn't have to drive out of region for reused building supplies.
Strategy 3.2 Action ID037/ID039/ID046	<ul style="list-style-type: none"> • Critically important for Metro Vancouver specifically to implement. • Addressing the time component is key for incentivizing deconstruction. Currently the biggest disincentive is the increased time it takes.
Strategy 3.2 Action ID045 – Incentive program	<ul style="list-style-type: none"> • The incentive is already built in to some extent. • Scaling deconstruction is important for contractors. • Time component more important than incentive component.
Strategy 3.2 Action ID038 – Online marketplace	<ul style="list-style-type: none"> • Lower support, there have already been a lot of tries and failures in this area.
Strategy 3.2 Increase reuse of building materials	<ul style="list-style-type: none"> • Are we missing a C&D data action under reuse? • San Francisco requires reporting on C&D leaving the region. • No regulation actions in the C&D strategy currently – need to look beyond just incentives. • Look to Nanaimo for a successful example of a wood ban
Strategy 3.6 Scale efforts to recover food	<ul style="list-style-type: none"> • Pay the people doing the work, rather than apps and software to inform the business. • Major food recovery organizations could get together and operate a “Hub and spoke model”. • Relationships with non-profits are important. • Buildings and space are key to expanding the sector. • No regulations currently shown under this strategy; would be helpful.

REUSE (BUILT ENVIRONMENT AND FOOD)

Round 2 – Strategy 3.2

Number of Participants: 1

Action ID	Total (fingers)	Action ID	Total (fingers)	Action ID	Total
ID045	5	ID035	5	ID036	1
		ID037	4	ID046	1
		ID038	1		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 3.2 Action ID038 – Online marketplace	<ul style="list-style-type: none"> This already exists; Facebook marketplace. Maple Ridge New and Used and other physical locations already exist.
Strategy 3.2 Action ID045/35 – Advocate/work collaboratively	<ul style="list-style-type: none"> These actions are what Metro Vancouver should focus their effort on, but they need to be more direct. Don't like the term "advocate", "foster", "encourage"; these don't speak to action. Incentivize may be better to use rather than advocate. Consider disincentives for not using reused material. ID045 and ID035 could be combined. Support for regulation, asking for more regulatory authority rather than advocating.
Strategy 3.2 Action ID037 – Foster second hand material markets	<ul style="list-style-type: none"> This already exists, doesn't need resources. Consider a free store model at recycling and waste centres – both drop off and pick up of reusable materials.
Strategy 3.2 Action ID046 – Land use	<ul style="list-style-type: none"> Land is not an issue, action not supported. Ensure the material gets to facilities rather than supply land for it.
Strategy 3.2 Action ID039 – Triaging facility	<ul style="list-style-type: none"> Incentivize rather than 'encourage'. Doesn't need to be in-region – consider elsewhere. Should go through a MRF first.

RECYCLE (INFRASTRUCTURE AND PROGRAMS)

Round 1 – Strategy 4.2

Number of Participants: 3

Fist of 5

Action ID	Total Score	Action ID	Total Score
116	14	120	11
118	12	064	13
119	13	117	5
121	12		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 4.2 Action ID116	<ul style="list-style-type: none"> Identify and advocate for additional materials to be added to Extended Producer Responsibility (EPR) programs. Include mention of expansion of deposit return programs within EPR.

Strategy 4.2 Action ID064 Action ID119	<ul style="list-style-type: none"> • Replace “encourage” with “incentivize”. • Replace “encourage” with “incentivize” or “advocate”.
Strategy 4.2 Action ID117	<ul style="list-style-type: none"> • This action is redundant when considering the other actions in this category.
Missing action	<ul style="list-style-type: none"> • Advocate for curbside collection of EPR materials for 100% of Metro Vancouver residents.
Missing action	<ul style="list-style-type: none"> • Create/require accountability and transparency confirming chain of custody, end of life true recycling of materials, markets and recycled products from EPR materials collected.
Missing action	<ul style="list-style-type: none"> • Increase accountability for the first priority of EPR which is design changes to reduce waste and increase reusability in the products at source. • Incentivize upstream changes to focus on reusability or products and packaging.

RECYCLE (INFRASTRUCTURE AND PROGRAMS)

Round 2 – Strategy 4.3

Number of Participants: 3

Fist of 5

Action ID	Total Score
044	15
122	12
124	8
123	14

Discussion

Action ID and brief description	Comments / Feedback
Missing action	<ul style="list-style-type: none"> • Ensure all municipal solid waste is processed for the purpose of taking out recoverable materials. • Provide financial disincentives to not recycle (charge more for garbage to incentivize diversion).

RECYCLE (INFRASTRUCTURE AND PROGRAMS)

Round 3 – Strategy 4.1

Number of Participants: 3

Fist of 5

Action ID	Total Score	Action ID	Total Score
113	9	112	15
109	2		
111	15		
110	15		

Discussion

Action ID and brief description	Comments / Feedback
Strategy 4.1 Action ID112	<ul style="list-style-type: none"> • Need a stronger word e.g. pursue, collaborate, fund, prioritize – and for the purpose of creating a network/ecosystem. • Missing is working with subject matter experts, innovators, enabling startups. • Consider changing the wording from ‘enhance’ to “mandate”.
Strategy 4.1 Action ID110	<ul style="list-style-type: none"> • Ensure performance specs are met – don’t compromise performance to achieve the waste diversion and climate objectives. • Utilize learnings from elsewhere/successes to demonstrate it is possible.
Strategy 4.1 Action ID111	<ul style="list-style-type: none"> • This is a very important action that supports circular supply chains. • Creates market supply/demand. • By Metro Vancouver pursuing this (within own operations) they would then be seen as a role model/champion that others can learn from and point to when they are developing a business case for their own organization. • Builds a network for information sharing. • Acts as an entry point for others; creates and incentive for others
Strategy 4.1 Action ID113	<ul style="list-style-type: none"> • The action is focused on the wrong actor(s) – it should not be waste reduction organizations, should instead work with national and regional producers and manufacturers. • Alternative would be to “regulate” or “incentivize and regulate.” • If this would be changed to reflect the first bullet, this action would be top scorer.
Strategy 4.1 Action ID109	<ul style="list-style-type: none"> • This effort takes away from reuse, which should be the focus. • Need to have more systems thinking. • Better value and use of resources if focussed on higher level actions (reduction and reuse). • Not circular economy focused.

RECYCLE (EDUCATION)
Round 1 – Strategy 4.5 and 4.6
Number of Participants: 1

Fist of 5: Did not complete with only one participant.

Discussion

Action ID and brief description	Comments / Feedback
In general – apply to the whole Recycle category	<p>The whole R assumes that people care enough to recycle.</p> <ul style="list-style-type: none"> • This only really works in circles where there is keenness for the change (e.g. PTAC and environmental groups).

	<ul style="list-style-type: none"> • How do we change actions based on people who don't really care? • There is a cultural and societal norm around caring for recycling how do we get them to care regardless of their value system? This is something that the actions should also include an aspect of more than just behavioural change.
Strategy 4.5	<ul style="list-style-type: none"> • Make it more clear which type of recyclable is being referred to for each item in each action (e.g. what types of recycling are you referring to make it easier and more effective? Which items currently have the most confusion for recycling that need to be focused on?) • How do we ensure whatever is left from reduce and reuse can be recycled? • Whatever those materials are – should be specified within the strategy before diving into the actions – makes it more clear on what the action is tackling to the audience reading and interpreting these actions
Strategy 4.5 Action ID134	<ul style="list-style-type: none"> • Would be great to have standardized system collection across the region to be able for residents to understand it.
Strategy 4.5 Action ID132	<ul style="list-style-type: none"> • Have some sort of penalization for the people who do not participate – have different penalization rules per each large recycler, so they know when they disobey the rules, what the repercussions are. • What do the rewards systems look like for those who do participate and are avid recyclers in the system? Maybe specify that a bit more in the action.
Strategy 4.5 Action ID 137	<ul style="list-style-type: none"> • Support for this action because it looks upstream rather than downstream – good action to have to intervene with those not good at recycling.
Strategy 4.5 Action ID146	<ul style="list-style-type: none"> • Educational resources just aren't enough for people to participate in this action – need to really make the system accessible that they will hold their event at (i.e. have mandatory recycling and compost bins at large event areas)– and make it clear where and what to recycle and where it goes
Strategy 4.5 Action ID150 and 154	<ul style="list-style-type: none"> • These actions seem similar enough - could put them together
Strategy 4.5 Action ID103	<ul style="list-style-type: none"> • This action is operating under the assumption that education changes the behaviour of residents – there isn't strong enough proof to support that currently with recycling data, maybe look to other ways of enforcement in multi-family residents.
Strategy 4.7	<ul style="list-style-type: none"> • With transparency of what happens to materials, there needs to be honesty. • Acknowledging that the products that are being made in the system aren't necessarily getting recycled because there's no end market for them currently (i.e. certain plastics and

	<p>products)– that is part of the process, to collect those products in the solid waste system, so what does NOT get recycled because it cant be, should be part of the transparent data.</p> <ul style="list-style-type: none"> • There should also be transparency of how the businesses are making money off of those recyclable products. • Recycling is value creation – how do we ensure to send the benefits back to the consumer and community? <ul style="list-style-type: none"> ○ Explaining EPR more throughout education of what happens to that money and why it is baked into the cost of the items would be a useful start with transparency and honesty. • Mandate bins that are decaled – whether MURB or single family – would decrease contamination a lot. • Consider the space given to garbage bins versus recycling - when recycling should be a priority for most households – yet the garbage collection bin is the one with the most space and always largest.
<p>General comments of actions under RECYCLE – Education</p>	<ul style="list-style-type: none"> • All actions are very important – they all seem incomplete on their own, but stronger together. There needs to be stronger language – e.g. changing “support” to “fund” – explain how Metro Vancouver supports by funding – rather than having them as high level. • Could outline the importance of each action – and link the dependencies in the system – how they link together well.

**RECYCLE (EDUCATION)
Round 2 – Strategy 4.6
Number of Participants: 2**

Fist of 5: Not done with two participants, only discussion on each action.

Discussion

Action ID and brief description	Comments / Feedback
<p>Strategy 4.6 Action ID103</p>	<ul style="list-style-type: none"> • Must include alignment with specific building needs and producers or products. • Include non-profit organizations as facilitators of education where possible (e.g. Bidders).
<p>Strategy 4.6 Action ID147</p>	<ul style="list-style-type: none"> • Clarify what ‘environmental advisors’ are in the description of this action (RCBC Hotline) – could be interpreted differently. • Consider language and cultural barriers to regional participation for the information services being provided. • Spend the money on the services for translations – see if it would be helpful or not – then pivot if not.
<p>Strategy 4.6 Action ID 149</p>	<ul style="list-style-type: none"> • Some items on the agenda that needs to align with what is happening in the industry – relevancy is important.

	<ul style="list-style-type: none"> • Get the stratas etc. to have buy-in for the recycling guidelines that they need to follow and be held accountable.
Strategy 4.6 Action ID 154	<ul style="list-style-type: none"> • This action is harder to do effectively with use of AI. • The GHG emissions created from using AI is not worth it to support this action – not great benefits. • Create systems where organizations like Binnars could help to sort – rather than spending money on AI to sort. • If going to use AI – make sure its not too in depth for the items because it will use more energy and power to create it.
Strategy 4.6 Action ID151 and 154	<ul style="list-style-type: none"> • Very low support to gamify recycling and reduction education – think of other ways.
Strategy 4.6 Action ID146	<ul style="list-style-type: none"> • Include education or resources for suppliers of party supplies including catering (e.g. Costco/grocery stores). • Have stickers on the plastic packaging that indicates very visibly that it is recyclable and should go in a certain colour bin.
Strategy 4.6 Action ID145	<ul style="list-style-type: none"> • Clarify whether this action refers to non-profit organizations facilitating the recycling training within the buildings or running the buildings sorting programs.
Strategy 4.6 Action ID144	<ul style="list-style-type: none"> • Remove reference to “ethnocultural” – could be misinterpreted as those communities are causing the issues or recycling and contamination – instead make reference to providing the resources in multiples languages.

Performance Metrics

Performance Metrics



Prepared for:
Metro Vancouver

Date:
October 29, 2025

Prepared by:
Stantec and sonnevera

Project/File:
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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.



Performance Metrics

1 Background

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.



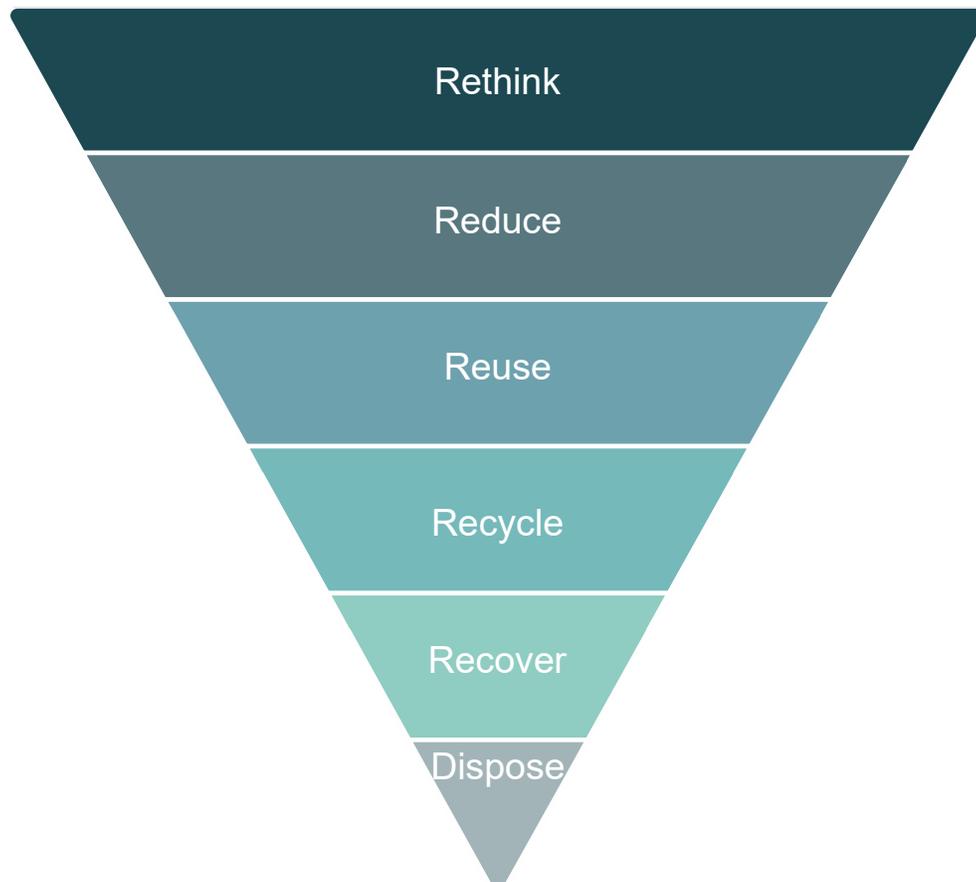


Figure 1: Metro Vancouver's Waste Hierarchy

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.”



Performance Metrics

2 Current Performance Metrics



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 Plan¹ (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 rate² 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”.



Performance Metrics
2 Current Performance Metrics

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 reports³, 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 2023 reported recycling rate.

Table 1. ISWRMP Recycling Targets and 2023 Recycling Rates⁵

ISWRMP Recycling Targets	2023 Recycling Rate
<ul style="list-style-type: none"> ▪ 30% Multi-family ▪ 65% Single-family ▪ 70% Institutional, commercial and industrial ▪ 80% Construction and Demolition 	<ul style="list-style-type: none"> ▪ 34% Multi-family ▪ 62% Single-family ▪ 50% Commercial/Institutional ▪ 81% Construction and Demolition

³ Available via URL: <https://metrovancover.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.



Performance Metrics

2 Current Performance Metrics

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 reuse⁶.

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.



Performance Metrics

2 Current Performance Metrics

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 facilities⁸). 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](#)



Performance Metrics

3 Methodology

- 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:



Performance Metrics

4 Considerations/Feedback

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.”



Feedback 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.



Performance Metrics

4 Considerations/Feedback

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.”



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.



Performance Metrics

4 Considerations/Feedback

- 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.¹⁰¹¹¹²

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.



Performance Metrics

4 Considerations/Feedback

each metric and acknowledge any limitations in the data. Transparency can help with understanding the impact of reported outcomes or compare performance across jurisdictions.¹³¹⁴¹⁵

- **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.¹⁶¹⁷¹⁸

- **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.²⁰²¹

- **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.



Performance Metrics

5 Summary and Next Steps

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.



Performance Metrics
5 Summary and Next Steps

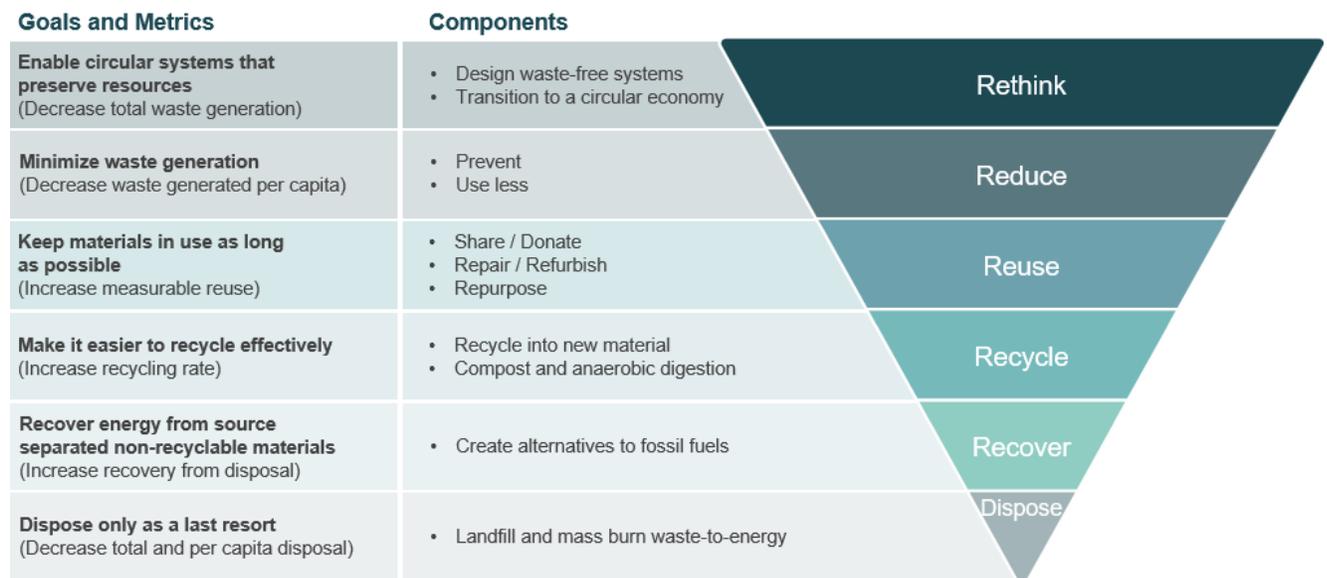


Figure 3: Metro Vancouver Updated Solid Waste Management Plan Goals and Associated Metrics.

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 ₂ e Emissions	Tonnes of CO ₂ e 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 CO ₂ e 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 CO ₂ e reduced related to solid waste system (open landfills, fleet vehicles, renewable natural gas)	Broad	Quantitative	Measured	Yearly	RD, M, P	Medium	Medium
		Kg CO ₂ 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) (CO ₂ e)	Targeted	Quantitative	Estimate	Yearly	RD, M	Medium	High
		CO ₂ 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 CO ₂ e emitted from landfilled organics/solid waste	Targeted	Quantitative	Estimate	Other	RD, M	Low	High
		tonnes of CO ₂ e per tonne food loss and waste	Targeted	Quantitative	Estimate	Yearly	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 services 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	
Students	# 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	
	# 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	
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
	Assistance 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	# source separated waste collection streets program	\$ 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	# 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	change in textile quantities in garbage bins (single-family and multi-family residential, each in kg/unit or kg/capita)	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
# of homes relocated			Program Specific	Yearly	Quantitative	Measured	RD, M	High	Low	
	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
	Textiles	# of mattresses collected	Targeted	Yearly	Quantitative	Measured	RD, M, P	Low	High
		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
	Construction and Demolition	kg/resident of recycling	Program Specific	Monthly	Quantitative	Measured	RD, M, P	Low	High
		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
		approx % 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
	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
	Contamination	% of total materials collected through the Blue Box and Cart programs	Targeted	Yearly	Quantitative	Measured	RD, M, P	Low	High
		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
	Household Hazardous Waste	% of recycling contamination by sector (single-family, multi-family, and commercial properties)	Program Specific	Other	Quantitative	Measured	RD, M, P	High	Low
		kg/person/year of electronic waste generated	Program Specific	Yearly	Quantitative	Estimate	RD, M	Medium	Medium
	Services	tonnes/year/jurisdiction household hazardous waste collected	Program Specific	Yearly	Quantitative	Measured	RD, M, P	Low	High
		# 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, collected, 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 towels, 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	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	Generat	% 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 (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
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 litter audit sites against one another	Program Specific	Biennial	Both	Estimate	M	High	Low
		size of audit area, attributes 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
	Health and Safety	# of cases of illegal dumping	Targeted	Yearly	Quantitative	Measured	RD, M	Low	High
		# of worker injuries that occur at solid waste facilities	Program Specific	Yearly	Quantitative	Measured	RD, M	Low	High
		% of MF properties with adequate garbage collection services	Program Specific	Yearly	Quantitative	Measured	RD, M	Medium	Medium
	Services	# 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

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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 inadvisable 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 inadvisable 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 inadvisable 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 remote 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://metrovancover.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://metrovancover.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://metrovancover.org/services/solid-waste/solid-waste-management-plan-public-technical-advisory-committee>



Solid Waste Management Plan Update

OPTIONS ANALYSIS

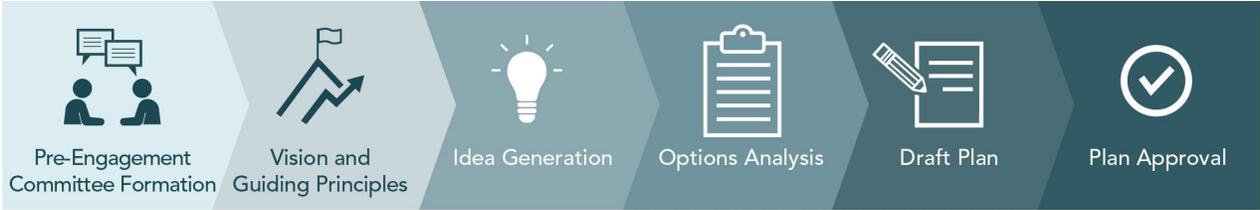
Paul Henderson, M.A.Sc., M.B.A., P.Eng.
General Manager, Solid Waste Services
Zero Waste Committee Meeting, November 6 2025

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PLAN TIMELINE



Pre-Engagement Committee Formation Vision and Guiding Principles Idea Generation Options Analysis Draft Plan Plan Approval

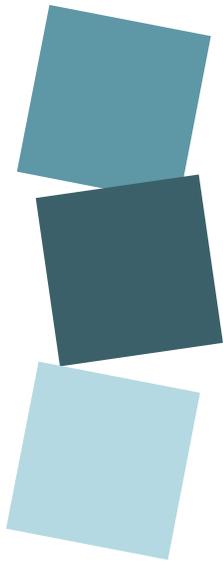
we are here

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2

OPTIONS ANALYSIS



- Determine which strategies and actions to include in the draft plan
- Engaging with First Nations, public, advisory committees, neighbouring regional districts, member jurisdictions, business and industry associations and groups, and non-profits
- Last step before a new plan is drafted in 2026



DRAFT SUMMARY OF IDEAS STAFF CONSIDER UNADVISABLE

- Stop using landfills
- Close the Waste-to-Energy Facility
- Increase Waste-to-Energy capacity
- Privatize regional solid waste system
- Replace source separation programs with mixed-waste collection and sorting programs
- Don't send materials to cement kilns and other industries for recovery

INDUSTRY ADVISORY COMMITTEE

- Support for waste reduction and recycling
- Constructive feedback on improving wording of actions
- Prefer incentives over new regulations
- Some members suggested:
 - Closure of the Waste-to-Energy Facility
 - Privatization of solid waste services



PUBLIC/TECHNICAL ADVISORY COMMITTEE



- High support for actions under rethink, reduce, and reuse
- Actions should be more specific, actionable, and ambitious
- Regulation, enforcement, and financial incentives are key
- Privatization not advisable due to reduced accountability and oversight
- Some members opposed the Waste-to-Energy Facility, advocating for its closure

BENCHMARK OF UTILITY COSTS – 2025

Solid Waste (\$ CAD / tonne)

Solid Waste	2025 Rate
Metro Vancouver (weighted average tipping fee)	\$149
Capital Regional District	\$155
Toronto	\$183
Seattle	\$251
San Francisco	\$371

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ENVIRONMENTALLY RESPONSIBLE WASTE DISPOSAL

Vancouver Landfill

Waste-to-Energy Facility

Contingency disposal



Vancouver Landfill

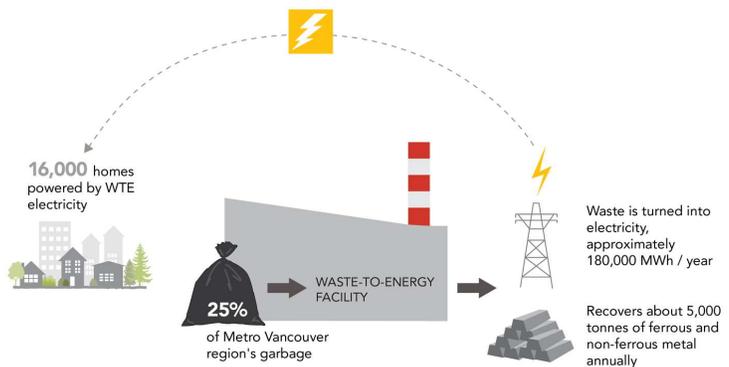
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DISPOSAL COSTS

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

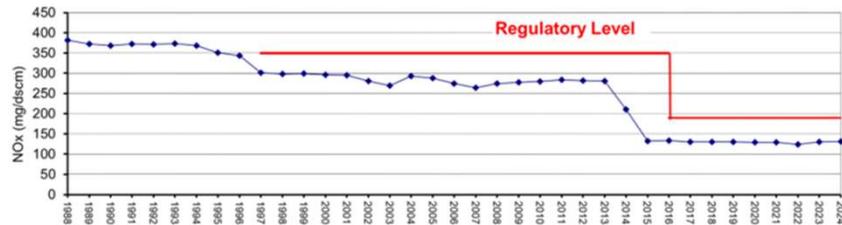
WASTE-TO-ENERGY FACILITY

- Handles about a quarter of the region’s residual garbage that is left over after reduction and recycling efforts
- Currently generates approximately 21 MW, enough to power 16,000 homes
- Safe and cost-effective way to manage garbage after waste reduction and recycling efforts

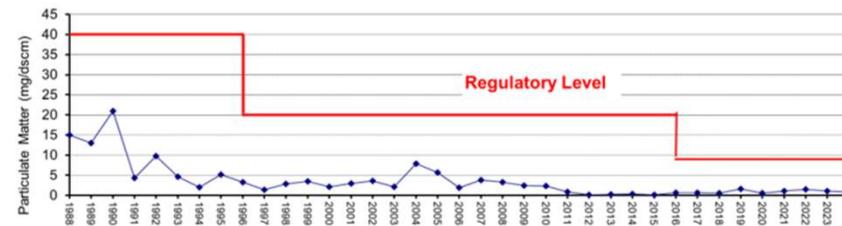


WASTE-TO-ENERGY FACILITY ENVIRONMENTAL PERFORMANCE

Nitrogen Oxides



Particulate Matter



11



Options Analysis Workshop

Thank You

12

2025 SOLID WASTE MANAGEMENT PLAN PUBLIC/TECHNICAL ADVISORY COMMITTEE ACTION TRACKER

To be updated after every Public/Technical Advisory Committee (PTAC) meeting to keep track of the actions or tasks that Metro Vancouver staff are responsible for.

Meeting Date	Requested Action/Item	Assigned Staff	Status
June 19, 2025	<ul style="list-style-type: none"> Potential to have an invited presenter (OCEANA) to a future PTAC meeting 	Brooke Atkinson	In-progress
June 19, 2025	<ul style="list-style-type: none"> Staff to bring back information on the United Boulevard Recycling and Waste Centre Reuse Days pilot 	Paul Henderson	Complete
June 19, 2025	<ul style="list-style-type: none"> Staff to bring back a more detailed regulatory strategy to the committee at a later meeting 	Terry Fulton	Complete

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	<ul style="list-style-type: none"> Fees and surcharges

	<ul style="list-style-type: none"> • Recyclable and hazardous materials banned from disposal • Generator levy
GVS&DD Municipal Solid Waste and Recyclable Material Regulatory Bylaw No.181, 1996	<ul style="list-style-type: none"> • Facility licensing • Powers of Solid Waste Manager and Officers • Fees
GVS&DD Notice of Bylaw Violation Enforcement and Dispute Adjudication Bylaw No.278, 2024	<ul style="list-style-type: none"> • 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.

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.

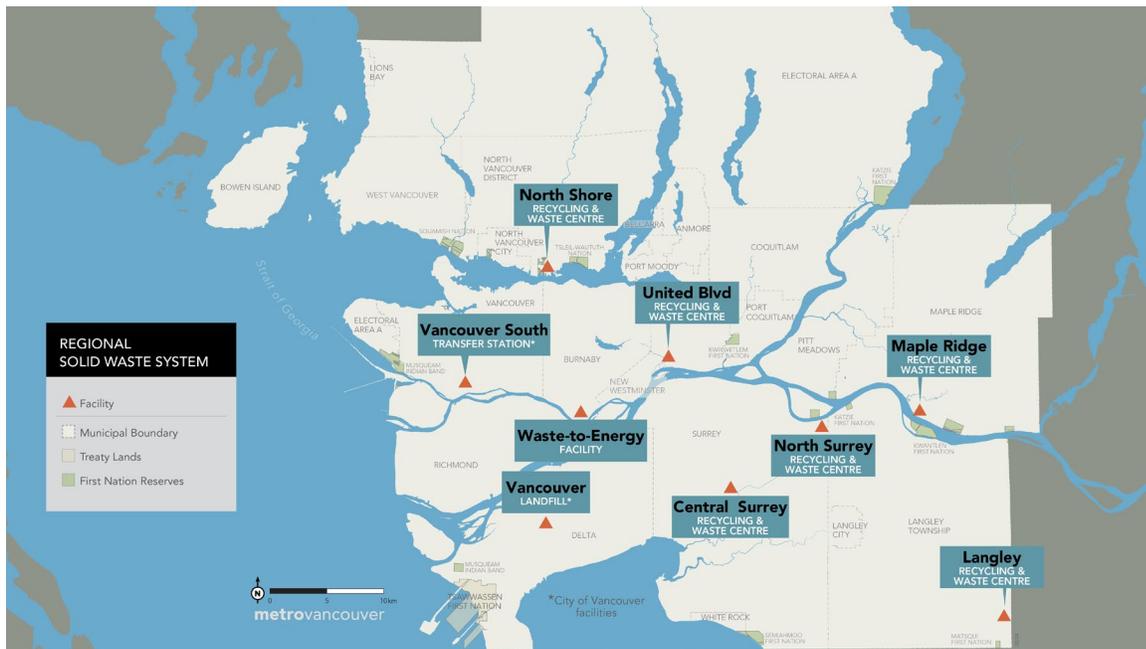
As recycling and waste infrastructure ages and service needs evolve, Metro Vancouver seeks to identify system upgrades or new developments to increase reuse and recycling and ensure system resilience while accommodating the region's growing population.

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 weigh scales 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
<p>Best practices in facility design, construction, and operation</p>	<ul style="list-style-type: none"> • Incorporate best practices in facility design that maximize reuse and recycling, and improve convenience and safety for users such as: <ul style="list-style-type: none"> ○ 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 or 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.
<p>Consistent and maximized reuse and recycling opportunities</p>	<ul style="list-style-type: none"> • 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

	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.

Personal information has been redacted in the following submissions received from PTAC members

Comments on Metro Vancouver’s Potential Strategies and Actions Being Considered

solidwasteplan@metrovancover.org

Date: October 27 2025

General Comments on Recovery and Disposal Section

HSR Zero Waste appreciates the opportunity to provide comments on the Draft Solid Waste Management Plan. We support Metro Vancouver’s efforts to advance waste reduction and circular economy goals but have serious concerns about how recovery and disposal are currently defined and applied. The plan’s treatment of combustion-based processes, industrial fuel use, and undefined categories such as “non-recyclable materials” risks undermining waste prevention, reuse, and recycling. Recovery should not be used to justify destructive disposal practices that release pollutants and discourage better upstream design and source separation.

Strategy 5.1 – Recover Materials and Energy from Non-Recyclable Materials

We strongly oppose the use of recovery to include combustion-based or fuel-substitution systems. This strategy risks rebranding destructive processes as beneficial outcomes. In particular, the undefined category of “non-recyclable materials” is deeply problematic. It may include materials that are technically recyclable but were not separated at source, as well as genuinely non-recyclable materials that contain hazardous substances. Without a clear and safe definition, Metro Vancouver risks allowing recyclable materials and toxic composites to be burned under the label of recovery.

Much of what is referred to as “non-recyclable” in current practice includes laminate and composite woods, MDF, engineered wood, and plastics with resins, adhesives, or coatings. These materials often contain formaldehyde, chlorine, and heavy metals. When burned in waste-to-energy facilities or cement kilns, they release harmful pollutants such as dioxins, furans, and fine particulates. Even with emission controls, these pollutants accumulate in ash residues and the surrounding environment, contributing to long-term exposure risks.

The plan should not encourage more effort to identify or process these materials for burning. This diverts resources away from more sustainable solutions, such as prevention, design improvements, and source separation. If materials cannot be recycled or reused safely, the least harmful option is landfilling after biological stabilization. This approach avoids the creation of toxic air emissions and prevents pollution transfer from air to soil.

Strategy 5.2 – Material Recovery and Biological Stabilization

We support the inclusion of mechanical material recovery and biological stabilization as best practices prior to final disposal. However, these processes should be categorized as disposal, not diversion. Mechanical recovery can capture some materials from residual waste, but the recovered outputs are generally lower quality and limited in market value. Recognizing these facilities as disposal ensures that they do not undermine the importance of source-separated recycling programs.

Biological stabilization, such as composting or anaerobic digestion of residuals, plays an essential role in reducing methane, odour, and leachate formation. By stabilizing waste before landfilling, this practice improves landfill performance and reduces long-term emissions. This should be identified as a disposal best practice rather than a diversion measure. Together, mechanical and biological treatments offer responsible management of residual waste without misrepresenting their role in the waste hierarchy.

Waste-to-Energy and Industrial Fuel Use

HSR Zero Waste opposes any classification of combustion-based activities as recovery, including waste-to-energy operations and the use of waste-derived fuels in cement kilns or pulp mills. Burning waste destroys valuable materials and emits pollutants that must still be managed through ash handling and environmental controls. It also delays progress toward upstream waste prevention, repair, and reuse systems. Treating these processes as recovery undermines the region's circular economy goals.

Industrial fuel use is particularly concerning because it allows toxic and composite materials, such as treated wood, laminates, and plastics, to enter fuel streams where emissions are less visible to the public. These materials release hazardous pollutants, including heavy metals and persistent organic compounds. If Metro Vancouver permits such practices to continue, it must require continuous emissions monitoring, regular soil testing near participating facilities, and full public disclosure of monitoring results. Transparency and accountability are essential for public trust and environmental protection.

Waste-to-energy should remain classified as disposal. While it plays a limited role in current waste management, it is not a circular solution and should not be expanded or redefined as recovery. The region's long-term focus should be on reducing residual waste through prevention and material redesign rather than maintaining combustion infrastructure.

Additional Comment – Recommendation to Close the Waste-to-Energy Facility

We are deeply concerned that Metro Vancouver staff have recommended rejecting public proposals to phase out or close the Burnaby Waste-to-Energy (WTE) facility. The reasons given for rejecting this idea are weak and do not stand up to scrutiny when weighed against the environmental, policy, and social benefits of phasing out incineration.

Staff have argued that the facility must remain in operation because the region still requires disposal capacity, that costs are comparable to landfilling, and that emissions are within

regulatory limits. Each of these points overlooks critical facts.

The claim that disposal demand justifies ongoing incineration is a circular argument. High disposal volumes are the result of insufficient waste prevention, reuse, and repair systems. Keeping the incinerator in operation locks the region into a constant need for feedstock rather than motivating investment in programs that would actually reduce waste generation. In other words, the incinerator sustains the very waste problem it is meant to solve.

The assertion that costs are comparable to landfilling also fails to consider escalating expenses and external impacts. The facility's operational and maintenance costs continue to rise, and new air pollution control systems will add further costs. In addition, the financial comparison excludes the environmental and public health costs associated with emissions, ash disposal, and cumulative exposure to fine particulates and persistent pollutants. When these factors are considered, the facility is neither cost-effective nor sustainable.

Finally, the argument that the facility operates within emission limits is not reassuring. Meeting outdated regulatory thresholds does not mean the operation is harmless. The Burnaby facility has required extensions to its air quality limits and is still in the process of implementing new emission control systems. Compliance within interim limits does not address cumulative or long-term effects on air quality, soil contamination, or health outcomes for nearby residents.

In contrast, the rationale put forward by those advocating for closure or phase-out is stronger and more aligned with Metro Vancouver's own stated goals. Closing the WTE facility would reduce greenhouse gas emissions, eliminate a source of toxic air pollutants, and redirect significant financial and technical resources toward upstream solutions such as reuse, repair, and product redesign. It would also remove the structural dependence on waste generation required to feed the facility, freeing the region to pursue true zero waste outcomes.

The staff's recommendation to reject this proposal therefore represents a short-term, risk-averse position that conflicts with Metro Vancouver's long-term sustainability commitments. A transition plan to phase out incineration is not only feasible but necessary. It would allow the region to focus on prevention, material recovery, and landfill stabilization, while avoiding the continued environmental and financial burden of maintaining combustion infrastructure.

Closing the Burnaby WTE facility would be a decisive step toward aligning Metro Vancouver's waste management system with its stated goals for climate action, circularity, and community health. The public rationale for keeping the facility open is weak, and the case for closure is far stronger, both in principle and in practice.

Conclusion and Recommendations

Metro Vancouver has the opportunity to lead with a waste management plan that prioritizes prevention, reuse, and safe residual management over destructive end-of-pipe solutions. To achieve this, the region should clearly distinguish recovery from disposal and remove combustion from the definition of diversion. It should acknowledge that non-recyclable materials often include both recyclable and hazardous materials and should not invest additional resources in defining or processing them for fuel use. Effort and investment should focus on preventing waste, improving separation at source, supporting local reuse and recycling infrastructure, and stabilizing remaining materials before landfilling.

We recommend that Metro Vancouver:

- Classify all combustion-based processing, including industrial fuel use, as disposal, not recovery.
- Identify mechanical material recovery and biological stabilization as disposal best practices prior to landfilling.
- Avoid allocating resources to define or develop recovery systems for 'non-recyclable materials.'
- Prioritize prevention, reuse, and landfill stabilization over combustion-based solutions.
- Require continuous emissions monitoring, regular soil testing, and public reporting for all facilities that burn waste-derived materials.

██████████

██████████, HSR Zero Waste

MV Options and Rubric Comments

Overall

There are many good actions included but the rubric seems to have been somewhat arbitrarily designed and applied. In addition, the actions do not seem to be laid out in a way that shows a comprehensive and strategic look at addressing the different types and sources of waste. Further, the last plan was meant to be a five year plan at the time of creation and this one as a ten year plan seems to be lacking a ten year lens with phases of actions, and ambitions of scale. Finally the inclusion and ongoing support of incineration and energy recovery means the plan is doomed to failure due to inadequate support of zero waste strategies and competing priorities.

Rubric Comments

- Affordability -this should be edited from evaluating if it increases costs (even if those are fines for poor separation) to if it increases costs for those who can afford it the least
- Circularity/Zero Waste -add in Zero Waste as defined by the Zero Waste International Alliance (especially important as the term circular economy is now getting misused more often). It should be defined using the Ellen MacArthur Foundation definition.
- Waste reduction -is about reducing materials getting **discarded, not disposed**. Need to decrease compost and recycling as well, also good to target materials that are larger components of the waste but if not looking enough at reduction, may see others creep up (household hygiene for example)
- Environmental Stewardship -need to make Toxicity its own line as this is going to be playing a bigger role going forward as we learn the harms of toxic materials and as the biodiversity crisis increases.
- GHGs should be all scopes not just 1 and 2, should not be net of GHG compared to fossil fuel burning but actuals, also needs to look at increased emissions from burning materials.
- Looking only at high volume materials is problematic as this is a 10 yr plan and everything is small when broken into chunks- the question should be: will it move the needle and does it move another piece of the pie out of disposal.

Options Comments

Note can't see all actions in spreadsheets (end of lines are missing)

1 Rethink

1.1 Advocate for circular economy policies

- Add "and zero waste "(overall ZW should be brought back into the plan), ID004 -work with munis/regions
- not innovative or difficult as should have been doing this with NZWC for over a decade? Also CCRI, UBCM, FCM, Climate Caucus, BC PSC and used to with RCBC. Likely others like C40 etc. Should already be doing with member municipalities.

1.2 Support the transition to a more circular regional economy through waste prevention -

ID079 include ZW education

ID088 Business certification

- make this easier by partnering with Zero Waste Canada or others who already do this. Instead push businesses to get certified. Don't reinvent the wheel.

ID009 integrate waste prevention

- change to MV to lead by example in ZW

ID013 Build on the innovation

- add "and zero waste "

1.3 Build on and foster an inclusive and collaborative circular economy

ID0029 circular procurement

- very good and much needed

2 Reduce

2.1 Collaborate with businesses and institutions to reduce waste at the source

ID101 Increase in person education where business and others can talk directly with experts on how to reduce waste.

- should be core part of program, actually working with them for tech guidance and so should help decrease costs.

ID 024

- Textiles still important especially over a 10 yr plan if have success on higher weight materials like organics/plastic/paper

2.2 Support residents adopting waste prevention habits &

2.3 Prioritize food waste reduction

initiatives

Over all lots of actions about education but really should be about supporting behaviour change which can include policy/incentives/reminders, etc.

2.4 Enhance approaches to Metro Vancouver's disposal ban program

ID107 Explore options to enhance disposal ban inspection efficacy such as the use of clear bags or innovative technology solutions.

- **Strongly disagree** that affordability should be used as a way to avoid this action. Should not measure affordability on ability to skip proper costs. Same for convenience -it should be about making the right thing more convenient, not the wrong thing.
- Should have clear bags as its own action, not with tech. Same for ID105 on textiles

3 Reuse

3.1 Support consistent approaches to reuse

ID063 regional harmonization on reuse -Think SUI are important to tackle -not sure if affordability has to be impacted or more that it needs to be considered in how it is implemented.

3.2 Increase reuse of used building materials

ID 039 encourage the development of an in-region facility for triaging building materials to their best and highest use.

- Very important

3.3 Foster the broad adoption of reuse, refill, and repair

- Needs some direct action to foster this

3.4 Work with event organizers, businesses and institutions to increase reuse

ID054 -add on subsequent action - “and then implement if suitable”. This is an example of where the action is not suitable for a ten year plan but is instead the first step of many that could be implemented in a ten year span.

ID055 -reusable food ware - Think SUI are important to tackle -not sure if affordability has to be impacted or more that it needs to be considered in how it is implemented.

ID066 – unclear how better data by itself is having any impact so not clear how the rubric was used to evaluate this. It is a good action but more from a foundational level and not because this alone will reduce waste or GHGs or impact affordability. Or perhaps the action is about communicating options for repair but it is not stated this way.

3.5 Increase access to reuse, refill and repair

ID060 explore feasibility... add on subsequent action - “and then implement if suitable”.

This is another example of where the action is not suitable for a ten year plan but is instead the first step of many that could be implemented in a ten year span.

3.6 Scale efforts to recover food

- Important

3.7 Encourage and celebrate residents and businesses that prioritize reuse and refill practices

4 Recycle

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

- This should be under rethink as it is about design.
ID 109 Research and advocate for improvements to the recyclability of plastic-lined paper products such as coffee cups.
- Is this about trying to recycle hard to recycle item or can it be replaced, or the non-recyclable components phased out? If just about plastic lined items, how is this not ranked low under existing scale? If the latter, should be under rethink.

4.2 Enhance EPR programs

ID119 Advocate for accelerated deployment of direct collection of an expanded suite of materials including film plastic and foam.

- This should not increase costs unless the EPR program is not paying for it (which it should) and this would be a key way to decrease contamination (saving those penalties). So far, costs for Recycle BC are not showing up in consumer costs.

4.3 Encourage the development of new recycling infrastructure

- MV should develop its own composting infrastructure, in region.
- MV should start furniture recycling across region
- MV should offer book recycling across region
- For all non-EPR non-food/garden materials MV should track data and systems to support transition to EPR

4.4 Improve participation in green bin programs and alternatives for multi-family residents and businesses

- Plus institutions!!!
ID 128 Determine what role, if any, compostable plastics can play in organics management systems.
- Key is not to introduce new forms of contamination into existing streams and to ensure it is not a way to EPR programs to offload costs-this is not noted in the factors

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

ID 133 -standardized sign tool very good -collaborate with other governments on this and offer decals

4.6 Target recycling education

- More on behaviour change and coaching, less on what sounds like brochures, such as involving artists/influencers (rationale for low makes no sense) ID 148 and ID 151 comparison
ID 129 Promote and educate residents on worm bins, backyard composting.
- Should factor in human-wildlife issues and develop tools/coaching like the North Shore Recycling Program had before it folded.

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

- Needed

4.8 Prevent litter and illegal dumping through public space recycling initiatives

- This should be under 6.0 Disposal
- Not going to help on most criteria but needed

5 Recover

5.1 Recover materials and energy from non- recyclable materials

ID 169 burn dimensional wood

ID 172 burn demolition wood waste

ID170 burning in cement plants

ID179 “beneficial use of ash –

- 100% disagree with all of these, this is why we did not support the energy recovery part in the hierarchy, but including it in the hierarchy led to a goal and now it has these actions. Please reverse this inclusion in the hierarchy.
- Keep in mind grant funding and private investment is still someone’s money and it is money that does not then get used for other better purposes.

This section if it continues to exist should be looking at Material Recovery, Biological Treatment (MRBT) for mixed waste, recovering tires from landfill (saw many on the landfill tour). It should only focus on recovery of Materials, not Energy as it will always waste more energy than if the materials are recovered or ideally managed through any of the higher hierarchy levels.

6 Disposal

There should be a section for disposal. This should include the following:

- Phase out the incinerator by 2028
- Implement a ban on waste to energy and incineration in the region and for waste coming from the region
- Waste will go to landfill but landfills will be selected based on their ability to meet the best in class environmental criteria (minimizing gas emissions, leachate control, etc.) and social criteria (minimize impact to those nearby, social acceptance by receiving area, etc.)
- Gathering information on what was wasted and critically, why? Good data exists from waste composition studies which could be scaled back to every other year or when systemic changes are enacted to determine the impacts. Instead, start researching the cause of the waste (did not have bins, lack of enforcement, confusion over material, lack of pother options locally, etc.)

Ideas for other sections

Engaging with First Nations is a needed step but there should also be co-planning for any waste that may be collected on First Nation reserves that enters the MV waste system, as well as collaboration on tools/educations, etc. that could benefit multiple communities. Also recognizing the many First Nation members that are living in MV (off reserve).

Wildlife attractant management should be a part of the management plan.

Recycle bins and garbage bins should be wildlife resistant like having locks on them.

- This should be part of the SWMP as well as the debris plan -there are lots of bear issues across the region, but also litter with crows, coyotes, raccoons.

Looking at partnerships with fellow regional districts to see how we might be able to work together. For example: dealing with drywall together, addressing wood waste in an economic development plan (Like King County has looked at for highest and best use of wood - i.e. not burning).

Adopt the ZW hierarchy as the guide and encourage others to do so as well.

- This is still a necessary step and the failure to do this is resulting in these subsequent problems

Items now grouped under the development of recycling and waste centre strategic approaches

- should be a strategy in the plan, like the others and then be clear on what will be done and what is goal
- Same for regulatory strategies

Ideas considered unadvisable

Close the Waste- to-Energy Facility- MV rationale for not including:

1. In spite of the region's success in reducing waste, approximately 1,000,000 tonnes per year of garbage from residential commercial and institutional sources require disposal. Waste-to-energy costs are consistent with local landfilling, and half of remote landfilling.
 - Cost information is inaccurate -would be cheaper to pursue closing facility. A quick glance at the line items of any year of the Metro Vancouver five year financial plan will show this. Metro Vancouver continues to avoid sharing the cost information related to its budget lines that proves its claim of incineration being cost effective.
 - If the region is as successful as stated, should be able to decrease the waste enough to not require this facility and that should be a goal. It has done this before which is why a new incinerator was not built so it can do it again.
2. Emissions from the Waste-to- Energy Facility are closely monitored and openly shared in real time online, in addition to being reported to regulators. All regulated emission parameter values are below regulatory emission limits, with most parameters less than 10% of limits.
 - What is more accurate to say is that permitted levels of pollution are out of date. MV is not required to test continuously for the most toxic pollutants as is required in Oregon and for some in the EU. The province is requiring MV to hold a public consultation on updating the pollution levels and testing. Health Authorities are required to be part of developing a public health risk assessment.
 - There is a difference between "meeting parameters" and not causing harm to the environment and health
 - Also similar to findings around newer incinerators, there are dioxins in the close vicinity. There needs to be a thorough testing of the actual levels of pollution and work done to eliminate them.

I fully support the closure of the incinerator and investment in zero waste actions instead.

I am also very concerned that Metro Vancouver has not been more frank with the committee in terms of noting that it is pursuing agreements that can last for up to 50 years and where significant financial penalties could be incurred if the facility does not exist. The [most recent one](#) also mentions the possibility of rebuilding the facility, which Metro Vancouver has been indicating they are not considering. Our committee has been in existence since 2022 and yet has not been asked about these important decisions. The process seems to have been designed to have the incinerator locked in before there is any committee decisions or discussion.

Don't send materials to cement kilns and other industries for recovery -MV rationale for not including:

1. Where a feasible alternative exists, Metro Vancouver aims to manage materials according to the highest applicable level of the waste hierarchy (e.g. recycling before recovery). Recovering energy and resources from non-recyclable materials is preferable to disposal according to Metro Vancouver's waste hierarchy, which is consistent with the provincial and federal hierarchies.
 - This is not consistent with the ZW hierarchy.
 - These facilities are nowhere near the level of pollution control and testing of a provincially regulated facility.
 - As noted for some recover actions, this further incents bad design, bad systems and does not decrease waste.
 - The guidelines for SWMPs clearly state that the federal and provincial hierarchies do not need to be followed -communities can choose stronger ones, in fact leading jurisdictions have.
 - Metro Van to date does not seem to be actively seeking better (reduce/reuse/recycle) options for these materials.

Agree that closing the landfill, adding new incineration (WTE) capacity and privatizing the collection /sorting systems, and single stream collection are all bad ideas. Extending the life of landfills as long as possible through waste reduction is recommended.

- MV should make it explicit in the SWMP that no new waste incineration or WTE facilities will be allowed.

October 28, 2025

Comments Regarding Metro Vancouver Solid Waste Management Plan Potential Strategies and Actions

Light House Sustainable Building Centre is a Canadian non-profit organization committed to advancing sustainable and low-carbon building practices. Our work focuses on fostering innovation in policy, design, and construction to reduce the environmental impact of the built environment. Light House's [REDACTED] of Circular Innovation, [REDACTED] currently sits on Metro Vancouver's Solid Waste Management Plan Public/Technical Advisory Committee.

Light House appreciates the opportunity to provide feedback on potential strategies and actions presented by Metro Vancouver in relation to the development of the region's Solid Waste Management Plan.

While we appreciate the process that Metro Vancouver has followed to receive input on action items and frame the feedback received in the context of the evolved prevention hierarchy, it is our view that the action items fall short generally in several ways:

- The actions detailed are limited concepts that do not address the system-level changes that are required to move towards a circular economy. Actions need to focus on re-engineering existing systems and infrastructure, driving behaviour change and shifting capital to scaling circular economic activities.
- As part of a 10-year plan for managing solid waste in the region, the actions lack SMART targets and outcomes to define the desired outcomes of the region's material management strategy. Without clear outcomes there is no accountability for attaining circular objectives.
- All actions continue to use waste terminology focused on tailpipe solutions and language that devalues materials -- waste prevention and waste reduction -- rather than circular economic terms that highlight the inherent value of material resources, including reducing use of virgin materials and treating excess and salvaged materials as a resource.

We submit that Metro Vancouver's SWMP include a select number of bold and tangible actions directed at systems-level change towards a more circular economy; each action accompanied by SMART targets.

It is not possible to comment on all the actions detailed in the list provided by Metro Vancouver. The following is a reframing of a select number of actions under some of the pollution prevention hierarchy categories for illustrative purposes. We submit that the entire list of actions needs to be reconsidered with reference to the principles stated above. In addition, we endorse the comments made by [REDACTED] [REDACTED] with HSR Zero Waste and [REDACTED] of Zero Waste BC.

1. RETHINK

Currently, all proposed actions under section 1.1 (Advocate for circular economy policies) focus on advocating for change rather than leading on change through action. Metro Vancouver should set out clear actions that demonstrate leadership and move the region towards a circular economy in a tangible way. For example,

- Develop and implement a circular economic policy framework that addresses all three elements of the circular economy as defined by the Ellen MacArthur Foundation to replace the Solid Waste Management Plan.
- Reframe all regional solid waste policies and programs in terms of circular economy principles and concepts.
- Require that all regional and regionally-funded projects have material diversion targets with reporting that clearly identifies end fates.
- Require that all regional procurement policies prioritize use of reclaimed materials, including minimum reuse requirements.

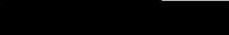
We support a number of concrete actions under section 1.2 (Support the transition to a more circular regional economy through waste prevention), such as ID088 (develop circular certification programs for business) and ID042. However, most actions fall short of what is required to achieve this desired transition. Accordingly, Metro Vancouver should outline clear and impactful actions, not just support, to transition to a circular regional economy, such as:

- Allocating \$X millions to developing and scaling circular initiatives over 5 years.
- Establishing programs in partnership with industry associations and educational institutions to foster awareness about the circular economy amongst, students, SMEs and other community stakeholders.
- Modifying ID009 to specify the exact policies that Metro Vancouver will integrate, including:
 - Allocation of underutilized regional lands for waste diversion programs
 - Reuse requirements in new regional construction or regionally-funded construction
 - Introducing bans on importing materials into the region that do not have a recycling option.

Sincerely,

 Circular Innovation

Light House

P: 
E: 



Comments via track changes

1.0 RETHINK

1.1. Advocate for circular economy policies

ID090 Advocate that federal and provincial governments develop regulatory programs to improve reporting and implementation of circular economy (including food systems) that provides for standardized terminology, specific metrics and timelines of performance.

New comment

Advance the thought leadership on circular economy by providing support through speaking engagements, venues and learning opportunities for stakeholders.

New comment

Advance the framework and obligation of manufacturers and producers of protecting the environment and protecting the public interest.

4.0 RECYCLE

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

• ID112 Enhance partnerships with the provincial government, ~~academia,~~ and community groups where industry provides funding to research and develop solution to overcome barriers to reuse and recycling and opportunities to incorporate recycled content into new products.

Deleted: industry,

Develop support with the provincial government on consumers unclaimed deposits (i.e. beverage containers) that arise from the Recycling Regulation to fund general recycling initiatives of Metro Vancouver.

4.2. Enhance EPR programs

- ID116 Identify and advocate for additional materials to be added to extended producer responsibility programs including, non-residential packaging with and without readily available markets, such as mattresses and household furniture.
- ID118 Advocate for full funding of producer responsibility programs and the expansion of residential-only programs to businesses.
- ID119 Advocate for accelerated deployment of direct collection and recycling of an expanded suite of materials including film plastic and foam.

Deleted: such as

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• ID121 Advocate and have a regulated framework for expanded recycling drop-off options funded by the stewards or producers of the product for materials such as household hazardous waste, batteries, and items that are not traditionally recycled through the residential blue box, considering mobile options to improve convenience and accessibility.

• ID117 Continue to participate in BC product steward engagements and provide feedback on their regulatory obligations of EPR, the public interest and improvements to existing programs and the development of new programs

Deleted: potential

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

• ID131 Improve access to textile donation and recycling collection services and advocate for textile producers and retailers to set up infrastructure for recycling.

• ID132 Recognize and reward those who recycle well so others are inspired to follow their example: by creating app.

Deleted: .

• ID135 Provide a leadership to standardize national guidelines on what can and cannot be recycled: with standardize symbols and colors.

Deleted: clear, consistent

• ID138 Review multi-family residential waste and recycling container space and access guidelines, including determining if the guidance needs to account for increased amounts of material or additional types of materials.

Deleted: .

• ID134 Centralize information sources to make it consistent and easier for the public to find information and look for resources.

78992557

• ID136 Advocate for producers, businesses and recycling depots as a responsible steward to work towards streamlining the types of materials accepted where practical.

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Solid Waste Management Plan Public/Technical Advisory Committee

2026 Work Plan – Potential Items

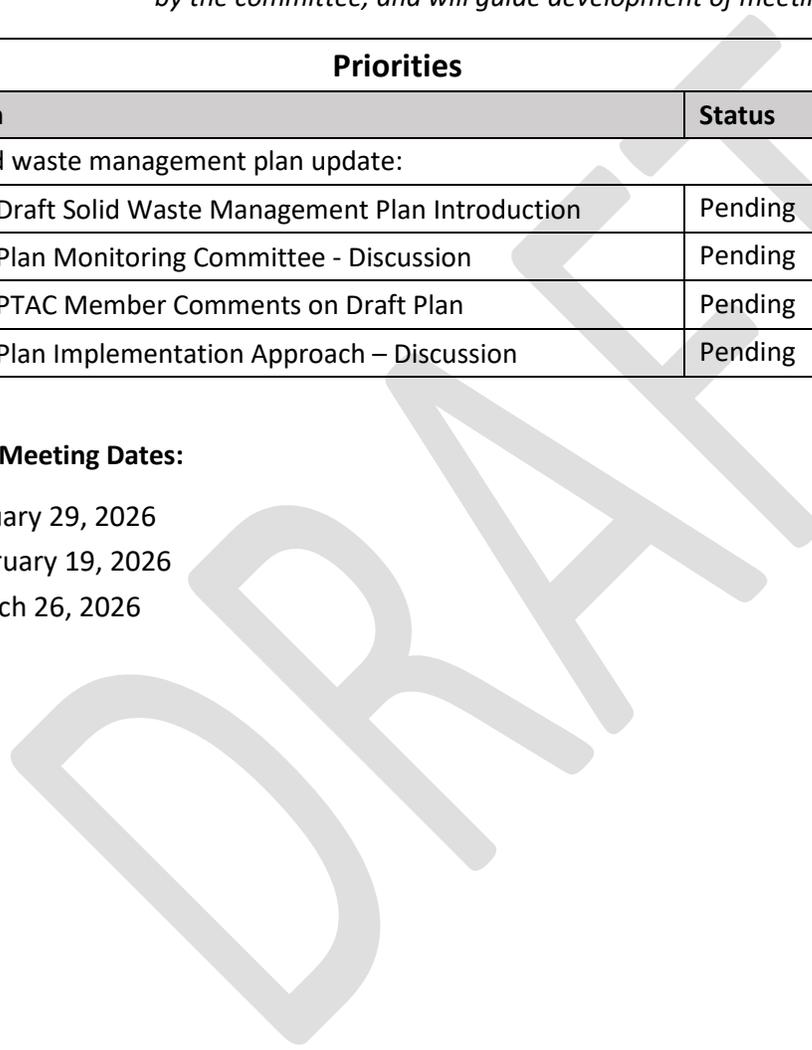
Meeting Date: November 20, 2025

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

Priorities		
Item	Status	Proposed Meeting Date
Solid waste management plan update:		
• Draft Solid Waste Management Plan Introduction	Pending	January 29, 2026
• Plan Monitoring Committee - Discussion	Pending	January 29, 2026
• PTAC Member Comments on Draft Plan	Pending	February 19, 2026
• Plan Implementation Approach – Discussion	Pending	March 26, 2026

2026 Meeting Dates:

- January 29, 2026
- February 19, 2026
- March 26, 2026



Solid Waste Management Plan Public/Technical Advisory Committee

2025 Annual Work Plan – Updated Draft

Meeting Date: November 20, 2025

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

Priorities		
Item	Status	Proposed Meeting Date
Public/Technical Advisory Committee Updated Terms of Reference	Complete	February 21, 2025
2023 Solid Waste and Recycling Statistics	Complete	February 21, 2025
Solid waste management plan update:		
• Introducing Goals and Options Analysis Criteria	Complete	February 21, 2025
• Climate 2050 Solid Waste Primer	Complete	April 10, 2025
• Draft Hierarchy, Goals, and Performance Metrics Feedback Session	Complete	April 10 and May 8, 2025
• Options Analysis Criteria	Complete	May 8, 2025
• Regulatory Framework	Complete	June 19, 2025
• Idea Generation Engagement Summary Report	Complete	June 19, 2025
• Concrete and Asphalt Recycling Opportunities Review	Complete	June 19, 2025
• Recycling and Waste Centre Strategy	Complete	June 19, 2025
• Residual Waste Management Options Review	Complete	September 18, 2025
• Plan Outline, Rubric, and Strategies Review	Complete	September 18, 2025
• Vancouver Landfill Tour	Complete	September 18, 2025
• Options Analysis Feedback Session	Complete	October 3, 2025
• Targets and Metrics	In-progress	November 20, 2025

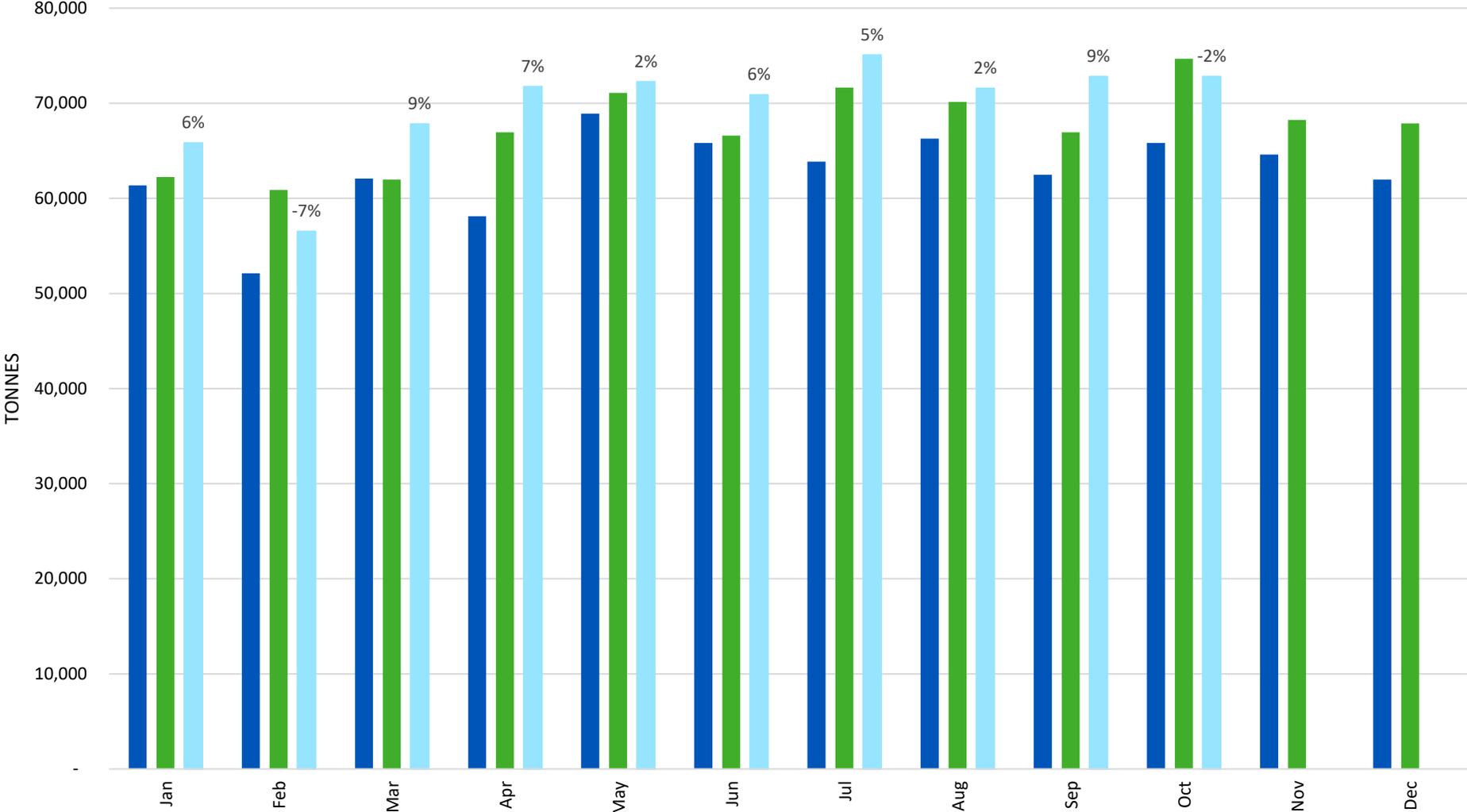
2025 Meeting Dates:

February 21, 2025
 April 10, 2025 (In-person)
 May 8, 2025
 June 19, 2025
 September 18, 2025 (Vancouver Landfill Tour and meeting)
 October 3, 2025 (In-person)
 November 20, 2025 (In-person)

Metro Vancouver Waste Quantities* 2023 - 2025**

■ 2023 ■ 2024 ■ 2025

YTD % Change: 4%



**Data reconciled to August 2025

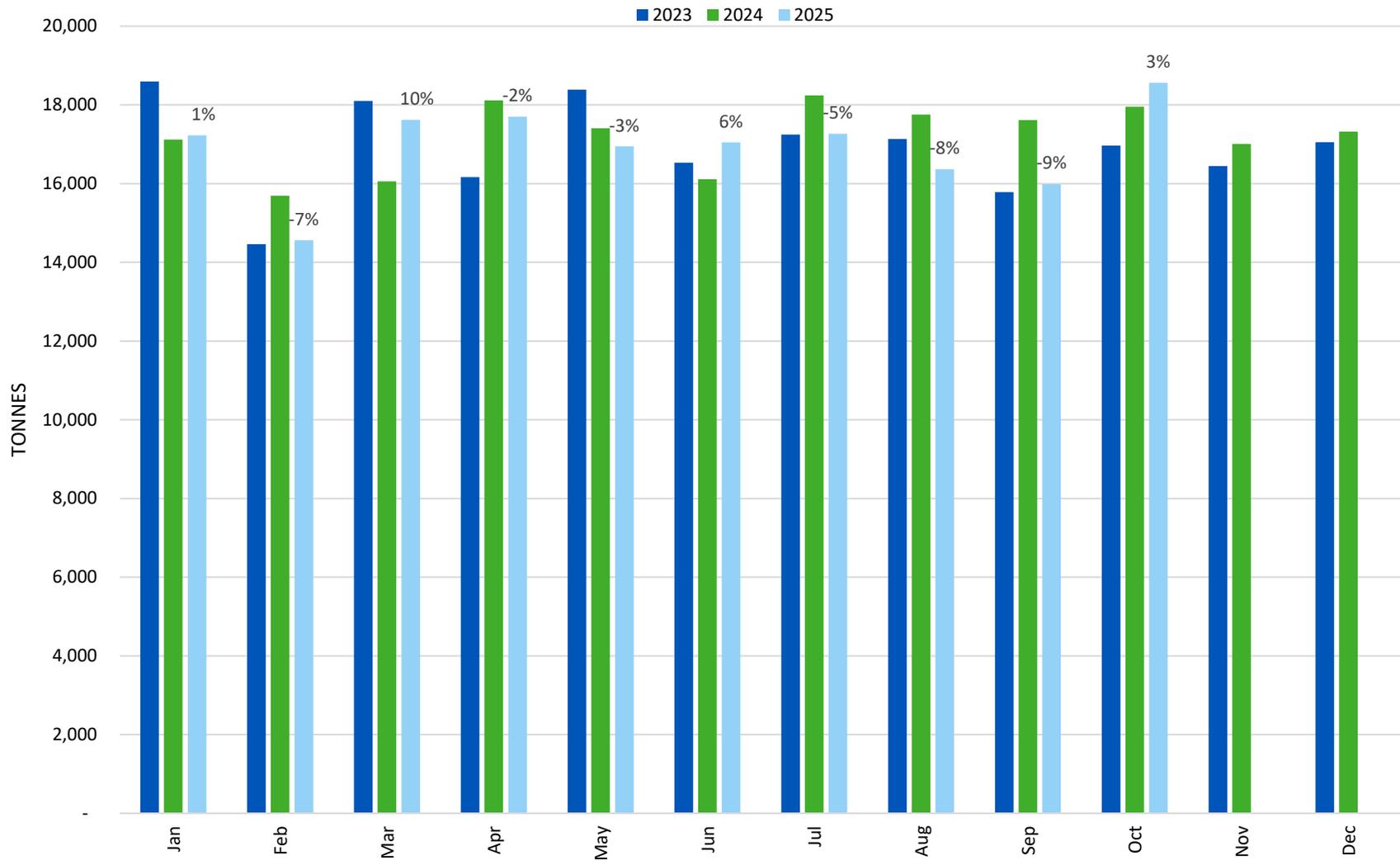
*Metro Vancouver's Six Recycling and Waste Centres & the Waste-to-Energy Facility

City of Vancouver Waste Quantities*

2023 - 2025

(Demo garbage not included)

YTD % Change: -2%



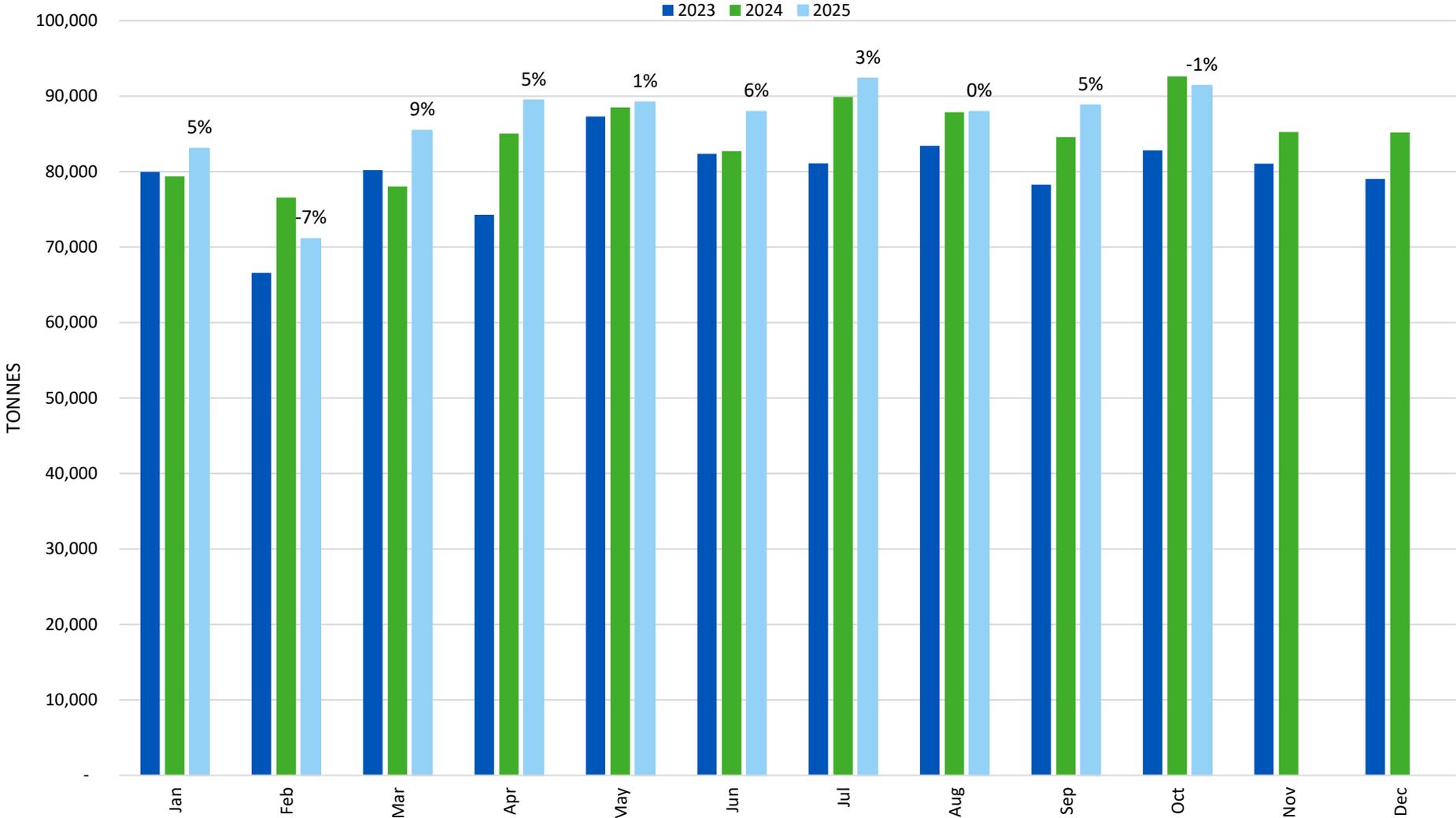
*Vancouver Landfill & Vancouver South Transfer Station

Metro Vancouver and City of Vancouver Waste Quantities

2023 - 2025*

(Demo garbage not included)

YTD % Change: 3%



*Metro Vancouver data reconciled to August 2025

Effective municipal policies to reduce single-use pollution

Anthony Merante, Oceana Canada



With offices and staff around the world,



CANADA

UNITED STATES

MEXICO

BELIZE

BRAZIL

PERU

CHILE

UNITED KINGDOM

EUROPE

PHILIPPINES



Oceana is the world's largest ocean-focused conservation organization, with a goal of eliminating unnecessary single-use plastics

PROPOSED: REUSE BYLAW

- Cities across the world are facing litter issues
 - Landfill bound products
 - Polluted shorelines
 - Overflowing waste bins
 - Parks requiring constant clean up
- Single-use products in the hospitality sector are commonly top of the litter lists
- Hospitality can be seen as two sides: dine-in & dine-out
- Dine-out waste solutions are still undergoing innovation
- Dine-in waste solutions are here, simple, and within municipal jurisdiction
- Cities can pass a “reuse bylaw” requiring on-site food and beverage service to be carried out using reusable foodware
 - Cups, ramekins, glasses, chopsticks, plates, silverware, etc.
 - Products that are collected, cleaned and re-stocked



ON-SITE FOOD AND BEVERAGE SERVICE IS ~30% OF SALES

REUSE IS COMMON IN SMALL & MEDIUM BUSINESSES

BIG WASTE WINS WOULD COME FROM THE LARGEST POLLUTERS



Tim Hortons®



ZERO WASTE VICTORIA

TARGET

50% reduction in landfill disposal by 2040

On Sept. 5, the City of Victoria adopted the Single-Use Items Reduction bylaw it hopes will significantly reduce the distribution of single-use items (currently calculated at 60 million items each year) and make commonly used plates, cups and cutlery reusable in local restaurants.

The move aligns with Victoria's [Zero Waste strategy](#) to reduce landfill waste by 50% by 2040.

“This is a significant step forward in our commitment to fostering a circular economy,” said Mayor Marianne Alto. “The new bylaw will reduce waste, lessen the strain on our regional landfill, and create a cleaner community for residents and visitors.”

The BC Restaurant & Foodservices Association (BCRFA) offered its approval.

“The city team took a careful and cautious approach to developing a bylaw that is fair and addresses the importance of reducing single-use items,” said Ian Tostenson, president of the [BCRFA](#).



Other Canadian cities passing reuse/anti-single-use bylaws:

- Victoria, British Columbia
- Banff, Alberta
- Edmonton, Alberta
- Guelph, Ontario
- Toronto, Ontario
- Montréal, Québec
- Mont Tremblant, Québec
- Terrebonne, Québec

And the entire country of France 



Canada's First **Stadium-Wide** Reusable Cups Program

24 September 2025



SUSTAINABILITY

Francos de Montréal implements sustainable initiatives to minimize its impact on the environment and maximize its positive influence on society and the local economy.





[Live Nation Canada](#) introduced reuse at the new 50,000-capacity Rogers Stadium during their week of [#Coldplay](#) concerts, setting a powerful example of environmental leadership. They provided free and accessible water refill stations and served mixed drinks and draft in reusable cups. As a result, tens of thousands of single-use products per show were kept out of landfills and kept from polluting rivers, lakes, and oceans. This is the kind of reuse leadership Canada needs. This is how we protect the oceans

We urge [Live Nation Canada](#) to continue this reuse model for future shows, and we call on the [City of Toronto](#) and the [City of Vancouver](#) to replicate this at the [FIFA World Cup 2026™ - Canada, Mexico and the United States](#) Fan Festivals.

Quotes and photos provided by [Rachel Labbe-Bellas](#) from [O'land Stations](#) and Scott Morrison from [Muuse](#).

"It was incredible to witness 50,000 people embracing reuse and refill at a concert of Coldplay's scale. The impact we report today is just a fraction of what's possible in a venue like this. With continued momentum, we're on track to reach 1 million refills – and single-use bottles avoided – at Rogers Stadium this summer. I feel empowered and motivated by what's ahead."

– Rachel Labbe-Bellas, Founder, O'Land Stations



63,510 single-use plastic water bottles avoided!

Better dining culture, less waste, cleaner beaches.

When a city adopts a reuse bylaw it:

- Levels the playing field for businesses looking to get into the reuse market (standard design for products)
- Supports shorter supply chains which are more reliable, less volatile, and create local green jobs
- Significantly reduces the amount of waste coming out of businesses and on collection day
- Creates a sit-down culture which supports business centres and shopping areas
- Unlocks a viable pathway for a local circular economy and new businesses to emerge
- Costs the city nothing, while seeing gains economically and environmentally



Today's "one-way throw-away" food service model

High climate and energy impacts, water use and natural resource extraction.

Nearly **1 trillion disposable food-service packaging items**, which equals **9 million tons**.

\$6 billion spent by businesses and communities on solid waste costs from disposables



Single-use foodware and packaging suppliers



\$24 billion spent by restaurants on disposables



Compost facility



Recycling facility



Reuse Wins Report | Upstream Solutions (USA)

86% of disposables avoided

- reducing climate and energy impacts, water use and natural resource extraction.

193,000 jobs created in new reuse economy.

Jobs are created regionally in collection, washing, logistics, delivery, etc.

841 billion disposable food packaging items avoided and **7.5 million tons** of materials averted annually.

Reuse service providers

\$5 billion saved by food service businesses from no longer procuring disposables for on-site dining.

\$5.1 billion saved by businesses and communities from avoided solid waste costs from no longer using disposables

17 billion pieces of litter prevented through new reuse systems



LET'S DRAFT A SIMPLE, EFFECTIVE, AND BUSINESS FRIENDLY BYLAW



Draft Bylaw Language

High level goals:

- Keep it simple, and easy for businesses to understand
- Create a bylaw that benefits majority of Vancouverites
- It must have teeth to be effective
- Isolate the big sources of single-use waste
- The results should be highly visible to gain long-term support
- Properly define your targets, your expectation for reuse, your exceptions
- Publish in all relevant languages spoken in Vancouver
- Make sure local BIAs understand the bylaw
- Use Victoria's [Single-Use Items Reduction Bylaw \(No. 23-013\)](#) as a base



Bylaw:

- Target restaurants, cafés, theatres, entertainment venues, and annual festivals – places that seat over 12 individuals*

** Don't die on the hill that the tiny 5-person café needs to buy a dishwasher to partake*

- Target on-site service and require the establishment to collect, clean, and re-stock the foodware (or via a third party)
- Festival permitting to require sustainability plans that integrate reuse systems and minimize single-use
- Create a timeline for phase-in no longer than 3 years



Bylaw:

- You will receive pushback from large chains (i.e., fast food) that have invested in single-use
- For chains with >5 locations, allow 3-year phase in to allow zoning changes for dishwasher installation or create third party reuse partnerships (if needed)

Reuse protects local environments and businesses; multinational chains only burden local waste streams by continuing on a linear, single-use path



Oceana Canada is currently working with the City of Toronto to adopt a city-wide reuse bylaw ahead of FIFA World Cup 26™ as a policy outcome from hosting the tournament.

Vancouver can join that rally and leave behind a Canada-wide sustainability legacy.

HELP MAKE THE WORLD CUP IN TORONTO ZERO-WASTE



Join the #ReuseForTheWin Movement



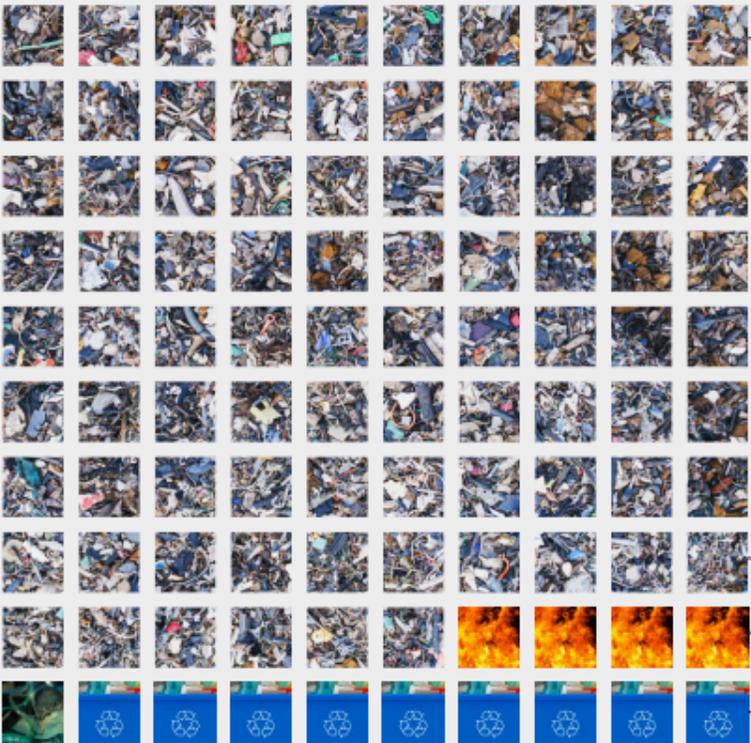
The image features a seascape with a boat's wake in the foreground and a cloudy sky above. The Oceanana logo, a stylized white wave, is positioned to the left of the word "OCEANA" in a bold, white, sans-serif font. To the right of "OCEANA", the tagline "Protecting the World's Oceans" is written in a smaller, white, sans-serif font, arranged in two lines.

OCEANA Protecting the
World's Oceans

Recycling is not circularity. Most single-use products are made of plastic or contain plastic (as liners) leading them to failing recovery rates:

What happens to the plastic we throw away

(Environment and Climate Change Canada, 2019)



TOTAL PLASTIC DISCARDED:
4.3 MILLION TONNES

86% LANDFILLED

**~5% INCINERATED OR CONVERTED
TO FUEL FOR INCINERATION.**

8% MECHANICALLY RECYCLED

1% pollutes the environment through littering, mismanaged disposal and microplastics from laundry, tire wear, etc.

