



# **Solid Waste Management Division**

## **Summary Report**

**2020 - 2021**



The City of Vancouver is located on the traditional, unceded territories of the xʷməθkʷəy̓ əm (Musqueam), Skwxwú7mesh (Squamish) and səilwətał (Tseil-Waututh) Nations. We acknowledge that Indigenous peoples have been stewards and protectors of land and marine environments for thousands of years on this land. We are humbled and grateful for the environmental stewardship and guidance of Indigenous groups and organizations, and the contributions made by Indigenous peoples who have engaged in our projects now and into the future.

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## INTRODUCTION

This report provides a summary of 2020-2021 accomplishments of the City of Vancouver’s Zero Waste and Resource Recovery Division, Engineering Services Department, along with more detailed information and metrics. The division was re-named Solid Waste Management and Green Operations in September 2021, as part of a departmental reorganization.

## ORGANIZATIONAL OVERVIEW

In 2020 and 2021 the delivery of Vancouver’s solid waste services and programs was managed by the Zero Waste and Resource Recovery Division, organized into four branches. This report will focus on accomplishment and metrics for these four branches.

In September 2021, two branches were added and the Division was re-named Solid Waste Management and Green Operations (SWMGO), however the focus of this report will remain on the four solid waste branches. Table 1 describes the responsibilities of each branch.

**Table 1. Branch Responsibilities**

<b>Branches</b>	<b>Responsibilities</b>
<b>Solid Waste Strategic Services</b>	<ul style="list-style-type: none"> <li>• Creates policy, plans and programs, and manages major projects supporting Transfer &amp; Landfill Operations, Sanitation and other groups while championing the City’s goal of maximizing waste reduction and diversion</li> <li>• Works closely with Metro Vancouver on long-range planning for effective solid waste management in the region, and engages with other levels of government on zero waste policy and regulation</li> </ul>
<b>Solid Waste Programs</b>	<ul style="list-style-type: none"> <li>• Develops, operates, and improves solid waste related programs, including education, outreach, enforcement, on-street infrastructure, grants, permits, contracts, and audits</li> <li>• Provides technical, planning, implementation, data and analytics, optimization, project management, and budgeting support to Sanitation Services</li> <li>• Provides technical support for street cleaning and collection operations, and operates the Clean Streets program including coordination of the Neighbourhood Cleanup Party, and inspection and enforcement of illegal dumping and commercial container license and by-law requirements.</li> </ul>
<b>Sanitation Services</b>	<ul style="list-style-type: none"> <li>• Collects garbage and green bin material (food scraps and yard trimmings), from single-family and a portion of multi-family residential properties as a Solid Waste Utility service</li> <li>• Provides street cleaning including sweeping, flushing, abandoned item and litter collection from sidewalks, streets, and lanes, and emptying of public litter and recycling receptacles in streets, parks and beaches.</li> <li>• Supports waste removal and cleanup at special events, snow removal at night, and fall street leaf removal</li> </ul>
<b>Transfer &amp; Landfill Operations</b>	<ul style="list-style-type: none"> <li>• Operates the Vancouver Zero Waste Centre (VZWC - depot on Yukon Street), Vancouver South Transfer Station (VSTS - West Kent Ave. North), and, Vancouver Landfill (VLF - in City of Delta) including the management of various environmental protection systems (flare station and storm water and leachate management system), a yard trimming composting facility, and the Landfill Zero Waste Centre (LFZWC)</li> </ul>

- |  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>• Vancouver Landfill is responsible for the management of municipal solid waste from commercial and residential sources within Metro Vancouver. The Vancouver Landfill manages approximately 70% of municipal solid waste within the Metro Vancouver region</li> </ul> |
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## KEY ACCOMPLISHMENTS 2020-2021

### COVID-19 PANDEMIC RESPONSE

The COVID-19 pandemic affected many aspects of everyday life, including the City's operations. When Provincial and Municipal states of emergency were declared in March 2020, solid waste operations were identified as an essential service and the City shifted its focus to ensuring essential services continued un-interrupted. In response to the pandemic, various adjustments were made, including but not limited to:

- Implementation of Covid-19 safety protocols such as :
  - Moved to a cash-less payment system at the VLF and VSTS (cash payment resumed in mid-October 2020)
  - Temporarily did not accept mattress vouchers from Delta and Richmond residents, and recorded numbers only (voucher acceptance resumed in April 2022)
  - Informed & ensured that all staff become familiar with COVID protocols in order to educate users of our facility
  - Implemented 2 meter spacing between vehicles at public drop-off facilities, closed every second parking stall, and a walk-in line was created at the entrance with stanchions and painted line to ensure social distancing
  - Electronic Sign Boards were strategically placed on roadways to inform citizens of COVID safety measures & to expect delays
  - Started accepting walk-in traffic at VZWC with a safe queuing procedure, signage and pavement markings to maintain social distancing
- Temporarily suspended the collection of certain materials for recycling due to service disruptions and/or safety concerns, including:
  - Foam packaging (resumed at both Zero Waste Centres by the end of April 2020)
  - Textiles (resumed at LFZWC in July 2020, VZWC in November 2020)
  - New drywall (did not resume until 2021)
- Temporarily suspended or altered some in-person programs and services including:
  - Compost sales to the public (resumed mid-May 2020)
  - Free compost pickup event for Vancouver residents (resumed May 2022)
  - Free compost pickup event for Delta residents resumed (April 2021)
  - Neighbourhood clean up events were paused in the spring (resumed in the summer with added safety measures in place)
  - Reuse and recycling drop-off events (held with limited promotion and transitioned to self-serve events with limited staff interaction)
  - School education programs pivoted away from in-person workshops to online platforms and webcasts
  - Outreach and education for the single-use item by-laws was paused
- The majority of the non-profit organizations which provide manual litter collection under the Street Cleaning grant program temporarily ceased operations, resuming in the summer with smaller crews
- Completed scenario planning to estimate impacts on City operations and the City's contracted waste processors. This work led to development of contingency plans for



ensuring essential services (waste collection, transfer and disposal) continued without interruption

- Increased street cleaning services to address the higher volume of people gathering outdoors, such as in the DTES and downtown core, neighbourhood parks, and outdoor plazas and parklets
- Developed communications around double-bagging medical waste, not littering personal protective equipment (PPE) such as masks and gloves, and respecting physical distancing guidelines
- Conducted a survey in May 2020 of Vancouver food businesses as part of the City's Emergency Operations Centre (EOC) to understand the impacts of COVID-19 on food businesses and their supply chains, and to review supports the City could provide or advocate for

## ZERO WASTE

- Executed a study on the Circular Economy of Food between July 2021 and May 2022. Results will help inform the creation of the Circular Food Innovation Lab (CFIL) which will directly engage Vancouver food businesses in food waste solution ideation and testing.
- In 2020, the City amplified [Love Food Hate Waste Canada's](#) (LFHW-C) summer and fall campaigns resulting in 73,000 video views and a 65% increase in LFHW-C website visits by Vancouver residents. The City renewed a second, three-year campaign partnership agreement with LFHW-C from July 2021 to June 2024.
- The first of [Vancouver's by-laws for reducing single-use items](#) came into effect in March 2020 (ban on foam cups and foam take-out containers) and April 2020 (ban on plastic straws and by-request requirement for single-use utensils).
- City Council was presented with an updated Green Operations Plan including a corporate single-use item-free policy for City operations and facilities.
- Implemented pilots in 2021 for collecting donated reusable shopping bags and making them available for free through existing non-profit programs, with a goal of developing a program to help minimize potential impacts of Vancouver's shopping bag by-law to people disproportionately affected by income inequality.
- Business case analysis for a Vancouver Landfill-based biofuel production facility was substantially completed in 2020; however, due to the COVID-19 pandemic and increased private sector competition, C&D tonnes necessary to support a project declined significantly. Market and materials flows are being monitored and a resumption of work will be considered if conditions change.
- In March 2020, awarded \$250,000 (CDN) to Habitat for Humanity Greater Vancouver to establish and operate a non-governmental deconstruction hub. The "[Rebuild Hub](#)" has begun to receive and sell deconstructed materials alongside its donated material stock. Progress to ramp up efforts has been hindered by COVID-19
- Continued as an active member of the [National Zero Waste Council](#), including participation on sub-committees for Construction & Demolition (C&D) and Recycled Asphalt Paving (RAP), and contribution to a wood [upcycling video](#) and a [RAP toolkit](#).
- Partnered with the Vancouver Economic Commission to implement a [zero waste technology incubator](#) for start-ups to demonstrate their innovative technologies at its former recycling receiving yard. This initiative will be done as a pilot for 2 years under the VEC's [Project Greenlight Demonstration Platform](#).

## OUTREACH & EDUCATION

- In 2020, staff hosted 5 [reuse & recycling drop-off events](#) and collected over 37 tonnes of materials. In 2021, staff hosted another 5 reuse & recycling drop-off events and collected over 36 tonnes of materials.

- Staff introduced several [City-hosted cleanup events](#) during late summer of 2020 to showcase cleanups with new safe guidelines and build a sense of community amongst participating volunteers.
- Staff focused on promoting the [Adopt-a-Block program](#) in 2020 and 2021. The number of program participants increased to over 600 individuals and groups as compared to 170 in 2019.
- Increased outreach and educational support for businesses to comply with foam ban by-law starting in March 2020. There were more than 500 digital in-person visits and more than 1000 SUI toolkit material downloads. SUI toolkits assets were translated into 6 languages: Vietnamese, Tagalog, Punjabi, Simplified Chinese, Traditional Chinese and English. Consultants were hired by the City to provide in-person outreach in Chinese, Punjabi, and Tagalog.

## COLLECTIONS

- Maintained service levels while addressing numerous challenges resulting from COVID-19, such as:
  - Increased volumes of household garbage and green bin waste
  - Staffing impacts due to illness, a pause on recruitment, and new workplace requirements
  - Equipment maintenance and availability issues due to worldwide manufacturing and supply chain shutdowns
- Implemented health and safety procedures to keep Collections staff safe including retrofitting buildings with signage and renting tents for outdoor crew talks
- Delivered communications and messaging to the public and stakeholders about service impacts and new practices such as double bagging garbage with medical waste
- Mapping upgrades to move mapping data from EnGIS software into Geodata enterprise which outputted more useful data for operations
- Japanese beetle invasive species containment response, including launched public communications campaign with VanCollect, truck panels, and info bulletins. The beetles were first detected in 2017 which led the Canadian Food Inspection Agency to establish a regulated area around False Creek to restrict the movement of plant material and soil.

## STREET CLEANLINESS

- Replaced small waste receptacles (litter cans) in high volume areas with larger cart-enclosures to reduce overflows, create efficiencies, improve worker safety, and increase public space recycling options. Small receptacles were redeployed to new locations to increase the total number of receptacles across the city.
- Supported public realm cleanliness in 22 new public outdoor gathering places that were installed during the pandemic
- Conducted over 3,800 solid waste by-law infraction investigations in 2020 and over 4,000 in 2021 related to commercial containers, illegal dumping, and residential waste collections
- Expanded the [Street Cleaning Grant Program](#) to \$1.84 million in funding in 2020 for non-profit organizations that provide micro-cleaning services to supplement the work done by City crews. In 2021, the grant was further expanded to \$2.1 million to provide additional services in high need areas such as the Downtown Eastside (DTES), Chinatown, Gastown, Hastings Crossings, Granville, Crosstown, and Strathcona, as well as to fund a new feces collection pilot in the Downtown, Chinatown, and DTES area.

## TRANSFER, LANDFILL & ZERO WASTE CENTRES

- The Landfill ZWC formally began accepting paint and household hazardous wastes as part of the Product Care Association of Canada collection program in December 2020
- FortisBC Renewable Natural Gas (RNG) Project: In 2018, FortisBC and the City reached an agreement for FortisBC to develop an upgrading plant at the Landfill to convert Landfill Gas (LFG) to RNG for the FortisBC distribution network. This agreement was approved by the BC Utilities Commission in late 2019. In December 2021, FortisBC selected their technical provider for the RNG facility project and awarded the balance of plant design work. Commissioning is planned for late 2023.
- Delta Renewable Natural Gas (RNG) Project: In October 2020, the City and Village Farms Clean Energy (VFCE) finalized an agreement extension to facilitate VFCE developing a second facility beside the Vancouver Landfill to produce RNG from LFG for the FortisBC gas distribution network, and carbon dioxide for VFCE's greenhouses. The agreement extension is for a 20-year period and commences upon start-up and commercial operation of the Delta RNG project. The agreement extension has the option to extend for an additional 5-year period. Design began in late 2020 and commercial operation is planned for 2023
- Progressive closure activities continued at the Landfill in 2020 and 2021. Approximately 15.5 ha of landfill closure occurred over Phase 4S and Phase 4N over this two year period.
- Installed additional landfill gas collection infrastructure as the site develops to aim to meet or exceed the target of 75% gas collection efficiency.
- In 2020 and 2021, the City applied for and was awarded the CleanBC Industry Fund: Emissions Performance to fund several gas system expansion projects. The BC Ministry of Environment and Climate Change Strategy (BC MOECCS) is funding 50 percent and 90 percent respectively of the project costs.
- The City of Vancouver won the Call2Recycle Leaders in Sustainability Award in recognition of the collection of 14,790 kilograms of used batteries in 2021.
- An engineering design consultant was retained in 2021 to provide project management and design services in addition to a value added investigation as part of the Landfill Civil Works project. Upgrades will include a new sheltered cover for the household hazardous waste area and three bin canopies over the drop-off bays. A new wheel wash is also being explored.
- A Remote Water Level Monitoring System was commissioned at the Landfill in 2021. The system allows for the measurement and collection of water level data at various ditch and pond locations around the site. The measurements are stored on the City's SCADA system and will be used to assist with future stormwater management activities.
- An authorization was issued by BC MOECCS in late 2021 for a temporary increase to the annual discharge limit at the Vancouver Landfill. The authorization also allowed for temporary acceptance of agricultural and out-of-region waste. These measures were in response to the provincial state of emergency triggered by intense precipitation and flooding events.
- Landfill tours were not offered in 2020 and 2021 in accordance with the COVID-19 Public Health guidelines.

## DETAILED INFORMATION & METRICS

### ZERO WASTE

In 2011, Vancouver Council adopted the [Greenest City Action Plan \(GCAP\)](#) and subsequently an [updated 2015-2020 version of the plan](#). The [GCAP](#) includes a goal of Vancouver achieving

[zero waste](#) and a 2020 target of reducing total Vancouver waste disposed by 50% compared to a baseline year of 2008. In order to establish overall direction and specific actions with respect to the zero waste goal, in 2018 Council approved the [Zero Waste 2040 Strategic Plan](#) which establishes the vision of Vancouver becoming a zero waste community by 2040.

Vancouver is part of a larger regional waste system managed by the [Metro Vancouver Regional District](#), under Provincial Regulation and oversight. Metro Vancouver is responsible for long-term solid waste management planning, transfer and disposal, and many of Vancouver’s zero waste programs are influenced by Regional plans and policies (refer to: [Metro Vancouver Integrated Solid Waste and Resource Management Plan](#)).

**Table 2. Zero Waste Goal 2040**

Goal	Zero Waste by 2040
Baseline	480,000 tonnes (2008)
Progress	305,000 tonnes (2020)*
Change	36% less waste disposed

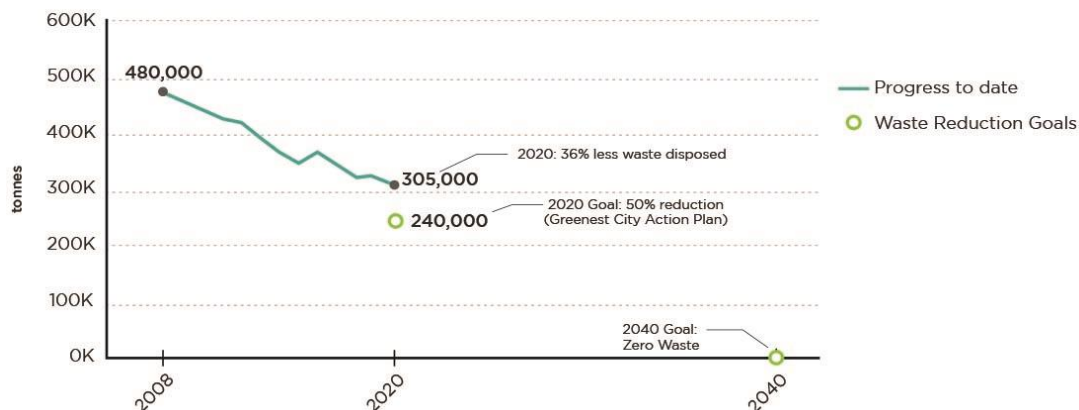
*\*Solid waste data is compiled first at a regional level and then at the city level. As a result, Vancouver’s data is always at least one year behind the reporting period. Total waste disposed to landfill or incinerator is estimated by adding tonnage collected by Sanitation Services (from Single-Family sector) with a proportional allocation of Metro Vancouver’s reported tonnage for Multi-Family, Institutional/Commercial/Industrial and Construction and Demolition sectors based on population. (I.e. 25% of the Metro Vancouver’s residents live in Vancouver.)*

Figure 1 below shows the City’s progress towards its Zero Waste 2040 goal. The latest 2020 data indicates 36% reduction in waste tonnes disposed from 2008 base line level. The 2020 goal was a 50% reduction from baseline. We’ve made significant progress towards this goal, however, several challenges remain including but not limited to:

- Separation of organics (wasted food and yard trimmings) from household and commercial waste
- Awaiting introduction of planned Extended Producer Responsibility programs
- Construction and demolition materials in the waste stream

We will continue our work to overcome these challenges on the path towards our goal of zero waste disposed to landfill or incinerator by 2040.

**Figure 1. Progress towards Zero Waste 2040 Goal**  
VANCOUVER WASTE DISPOSAL



## Food Waste

The City became a partner in the Vancouver Economic Commission's contract with a consultant to execute the Study of the Circular Economy of Food in Vancouver in three phases: Landscape Analysis, Material Flow and Analysis, and Recommendations Development. Funding for a fourth phase, the Circular Food Innovation Lab (CFIL) was obtained from the Carbon Neutral Cities Alliance totaling \$116,000 CAD in May 2021 and from Mitacs totaling \$90,000 CAD in December 2021. Led by the City, partners for CFIL are the City, the Vancouver Economic Commission and Emily Carr University.

Additionally, as part of the Love Food Hate Waste Canada campaign, the City launched a three-part webinar series engaging 77 City staff in exploring food waste prevention, reduction and root causes between April and June 2021. The City amplified LFHW-C's 2021 fall online public "5 Ways With" campaign and augmented it with 10 transit shelter ads.

In addition, the food waste team also collaborated with local, national and international subject matter experts through presentations and discussions for the purpose of applying learnings at a local scale. Examples include:

- BizBiz British Columbia Food & Agriculture Sector presentation on food waste prevention and reduction (July 2020)
- World Circular Economy Forum side event on Reflections from Canadian circular cities during a pandemic (September 2021)
- Rethink2gether presentation on Zero Waste 2040 and food waste prevention and reduction (September 2020)
- Natural Resource Defence Council (NRDC)/Urban Sustainability Directors Network (USDN) presentation on Grocers Retail Lab results (December 2020)

**Figure 2. Love Food Hate Waste Transit Shelter Ad**



### Single-Use Items

On January 1, 2020, a ban on foam cups and foam take-out containers took effect, and on April 22, 2020 a ban on plastic straws and a by-request requirement for single-use utensils came into effect. In November 2020, City Council approved shifting the start dates for the cup and shopping bag by-laws from January 1, 2021 to January 1, 2022 to give businesses impacted by the COVID-19 pandemic more time to get ready for the new requirements.

When the shopping bag by-law was adopted in 2019, Vancouver City Council also approved a staff recommendation to develop supportive actions to mitigate potential impacts the by-law may have on residents disproportionately affected by income inequality. In 2020, staff engaged non-profits and social enterprises that deliver programs to people experiencing poverty and living with low incomes to better understand the potential impacts of the shopping bag by-law, explore potential supportive actions, and identify collaboration opportunities. Based on engagement findings, the reusable shopping bag program was piloted in 2021 for collecting donated reusable shopping bags and making them available for free through existing non-profit programs. Over 5,300 free reusable shopping bags were distributed for reuse, and staff developed an [ongoing program](#) for launch in 2022 when the shopping bag by-laws took effect.

## **OUTREACH & EDUCATION**

Creating a zero waste community requires everyone living and working in the city to change the way they view and manage waste. The City provides a suite of outreach and education programs aimed to foster behaviour changes towards zero waste.

### Public Outreach and Campaigns

- City staff often attend events organized by external groups to relay key messages around zero waste, promote existing and upcoming programs, educate the public through interactive games, and provide giveaways to promote behaviour change
- Put Waste in its Place campaign ads were shown on public transit (e.g. buses, skytrain) and in social media platforms. The campaign encourages public to keep public areas clean by properly disposing waste in the public realm.
- City staff create various social media campaigns throughout the year to promote upcoming events and programs and to educate the public on various solid waste related topics (e.g. disposable masks, green bin etiquette, etc.)
- The City participates in the annual National Waste Reduction Week during the third week of October. This is a national campaign on raising awareness about reducing waste. City staff helped organized a variety of initiatives during the month of October including drafting a Mayor's proclamation, coordinating landmarks to light green, and social media posts. In addition, staff also planned some internal staff activities such as a reducing food waste campaign and an upcycling challenge.

### School Programs

- Zero Waste Place is a series of school workshops delivered by Elements Society, on behalf of the City, to introduce students around the concept of zero waste. The program is offered to all grade 5 classes in Vancouver.
- DreamRider Productions offers two different school plays to elementary schools in Vancouver. Zero Heroes inspires kids to take action and change the way they think about consumption, how stuff is made, and what ends up in the landfill. Clean Up Your Act teaches kids how litter, vandalism, and graffiti hurt our communities.
- The city runs the TRASHformation Upcycled Art Challenge during the month of October. This challenge is opened for students from K to grade 12 and provides an opportunity for students to showcase their artistic talents and gives them a platform where they can express their views on the impact of waste on our city and planet.

## Public Programs

- Staff organize and host recycling and reuse drop-off events periodically throughout different areas in Vancouver. These events allow residents to drop-off items such as small appliances, textiles, batteries, etc. for the purpose of being reused and recycled.
- The City partners with a number of non-profit organizations to host periodic repair workshops. At these workshops, residents are able to get their broken electronics/appliances or textile repaired while also learning basic repair skills
- The City made available free pocket ashtrays that residents can pick up at various community centers and community policing centers. Pocket ashtrays serve as an on-the-go cigarette butt container to reduce litter on the street.
- City Farmer continues to run the Compost Demonstration Garden on 2150 Maple Street on behalf of the City. Since 1978, City Farmer has been providing education and engagement about urban agriculture, backyard composting, and related sustainability topics such as water conservation.

## **COLLECTIONS**

The City [provides all single-family and duplex homes](#) (normally four units and less) with [green bin](#) (food scraps and yard trimmings) and garbage collection on a five day, “skip-a-day” (advance one day for holidays) schedule. Since 2013, green bins have been collected weekly, and garbage bi-weekly. The majority of the collection service is fully automated; however there is also a small portion of semi-automated collection. Carts for garbage (black lid) are available in five sizes ranging from 75 to 360 litres. Green bins (green lid) are available in four sizes, ranging from 120 to 360 litres. The cost of collection is recovered by Solid Waste Utility fees charged to users of the system. Larger containers are priced higher compared to smaller containers, resulting in variable container subscription or ‘pay-as-you-throw’ system (refer to Financial Summary section and Table 15 for more information).

**Figure 3. An Automated Collection Truck Collecting Garbage in Vancouver Lane**



**Figure 4. Crew Collecting Garbage with Semi-automated Truck**



**Table 3. Collections Operational Statistics 2020/2021**

	2020	2021
Collection Fleet	33 Automated Collection Vehicles 13 Semi-Automated Collection Vehicles	31 Automated Collection Vehicles 13 Semi-Automated Collection Vehicles
Operational Staff	57 Full Time Positions	57 Full Time Positions
Support Staff	3 Full Time Positions	3 Full Time Positions
Zones	5 Zones divided into 200 beats (100 Green Bin, 100 Garbage)	5 Zones divided into 200 beats (100 Green Bin, 100 Garbage)
Cart Counts	Green Bin - 90,100 Garbage - 96,300	Green Bin - 90,400 Garbage - 97,100

Green bin materials are processed into compost through a contract with a private sector facility operator. [Yard trimmings not mixed with food scraps and directly hauled by residents and contractors](#) to the [Landfill](#) and [Transfer Station](#) are [processed into compost](#) by the City at the Landfill's composting facility.

Multi-family and commercial properties are required to divert compostable organics and recycling materials from disposal, and collection of those materials is provided primarily by private sector haulers.

In 2016, the responsibility of residential recycling collection in Vancouver was transferred to [Recycle BC](#). Various other [Extended Producer Responsibility programs serve the city and the rest of the province](#), and successfully divert thousands of tonnes of materials from disposal.



**Table 4. Tonnes of City Collected Solid Waste Materials: Solid Waste Utility**

Material	2016	2017	2018	2019	2020	2021
Green Bin <sup>1</sup>	49,101	48,959	48,216	48,286	53,459	48,293
Garbage <sup>2</sup>	33,088	34,751	35,714	34,380	37,700	35,689
Street Leaf Sweeping <sup>3</sup>	8193 <sup>4</sup>	6,189	5,387	5,168	6,436	6,427
Residential Seasonal Organics <sup>5</sup>	<i>Data not available</i>	<i>Data not available</i>	848	809	981	1093

<sup>1</sup> Yard trimmings and food scraps collected primarily from single family and duplex residential properties.

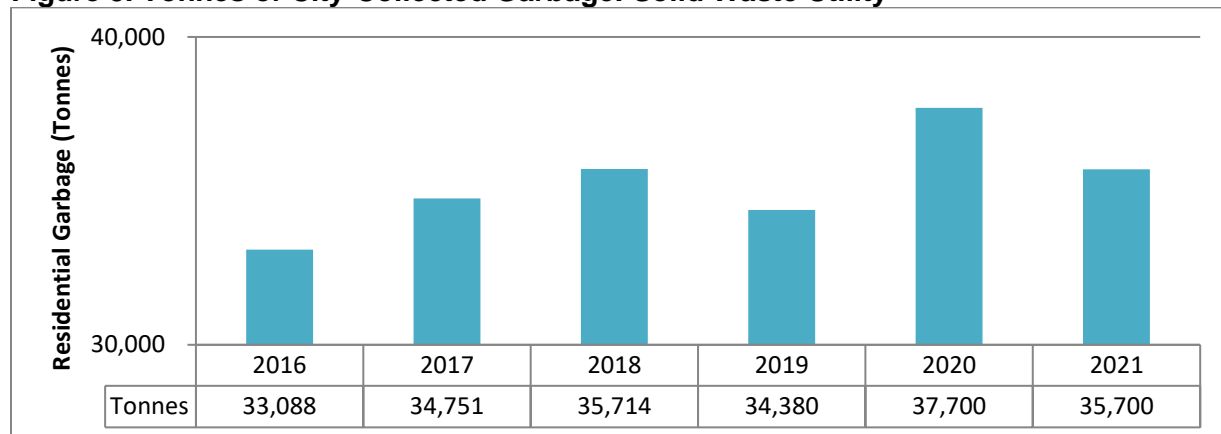
<sup>2</sup> Refuse to landfill collected primarily from single family and duplex residential properties.

<sup>3</sup> City-wide street leaf sweeping is typically from start of October to end of January.

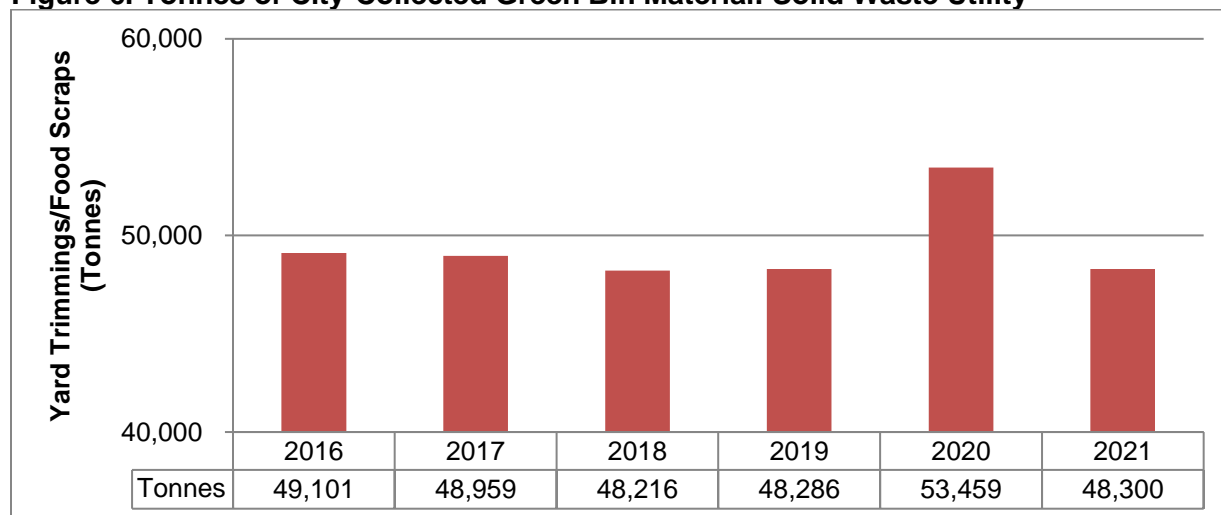
<sup>4</sup> Street leaf sweeping was delayed in 2016 due to snow/ice and when it resumed, included collection of sand applied to streets during winter weather.

<sup>5</sup> Seasonal organics collection includes residential leaf bags and Christmas tree collection. Residential leaf bags collection program is typically from start of October to end of January.

**Figure 5. Tonnes of City-Collected Garbage: Solid Waste Utility**



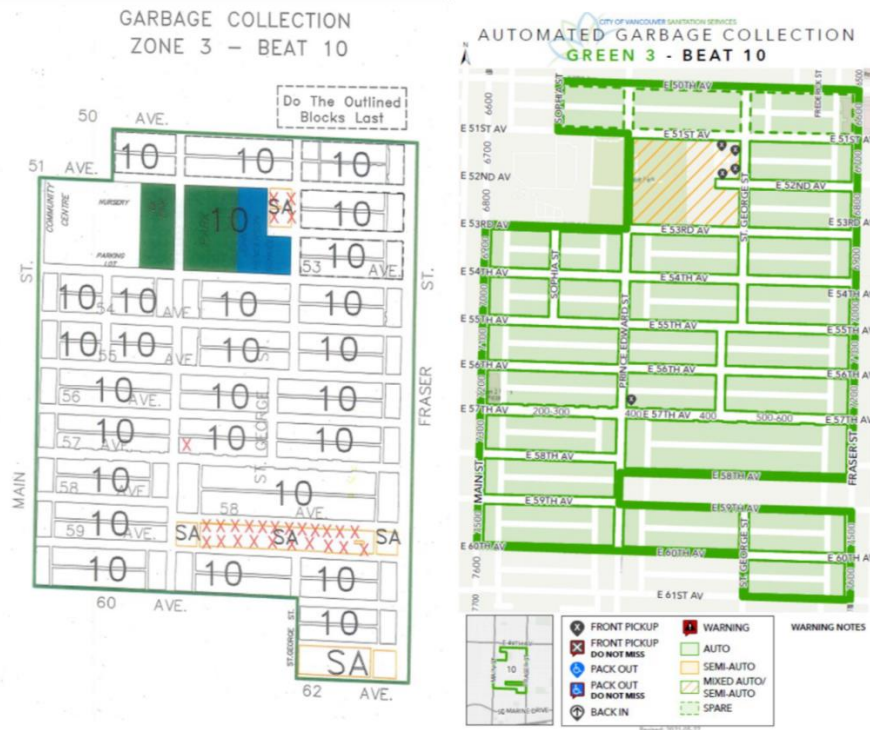
**Figure 6. Tonnes of City-Collected Green Bin Material: Solid Waste Utility**



## Mapping and GIS Data Upgrades

In 2021, with the help of the operational technology team, Sanitation was able to automate the process of creating residential beat maps for automated residential collection. This required a redesign of GIS data, consultation with all stakeholders such as truck drivers and supervisors, and field data checks. In total, over 289 maps were updated, and there are future plans to scale this system to include Semi-Automated truck maps and Japanese Beetle maps.

**Figure 7. Old (left) and New (right) Maps for Sanitation Collection**



## Recycle BC Program for Residential Recycling

Recycle BC is a non-profit stewardship organization that uses member fees to finance residential recycling programs for paper product and packaging, either directly or by working with local governments, First Nations, private companies and non-profit organizations. British Columbia's full producer responsibility model is often recognized as a best-in-class model for the efficient and effective management of residential packaging and paper. Since its inception in 2014, Recycle BC has consistently achieved its target recovery rate, which was 75% for the period 2014-2019 and 77% beginning in 2020, reaching a pandemic high of 94.1% in 2021, while growing accessibility to provide service to 99% of BC residents.

Recycle BC provides recycling services to 99.3% of British Columbia residents living in urban, rural, remote and First Nations communities across the province. Providing service to households, from remote northern and rural communities to densely populated urban centres, requires a variety of collection methods. Recycle BC works with 181 collection partners to provide the following methods of collection:

- Curbside collection to single-family homes that set out materials for pick up.
- Multi-family collection from a central location in buildings with five or more residential units

In 2021, Recycle BC serviced a total of 2,642,825 residents and collected 125,817 tonnes of recycling in the Metro Vancouver Regional District<sup>1</sup>. In addition to providing curbside and multi family collection, Recycle BC also has depot locations that have expanded recycling services. Vancouver Zero Waste Centre and Landfill Zero Waste Centre are two of the 41 depot facilities where Metro Vancouver residents can drop off packaging and paper products.

**Table 5. Recycle BC Program Material Recovery Rates<sup>2</sup>**

<b>Material Category</b>	<b>2020 Recovery Rate</b>	<b>Updated Target Recovery Rate (2020)</b>	<b>2021 Recovery Rate</b>	<b>Updated Target Recovery Rate (2021)</b>
<b>Paper</b>	90%		101%	
<b>Plastic</b>	52%		55%	58%
<b>Rigid Plastic</b>	64%		67%	73%
<b>Flexible Plastic</b>	24%		28%	27%
<b>Metal</b>	85%	81%	83%	
<b>Glass</b>	97%	98%	116%	

**Table 6. Recycle BC Program Collection Metrics<sup>2</sup>**

<b>METRIC</b>	<b>2020</b>	<b>2021</b>	<b>YOY VARIANCE %</b>
Gross Collected Tonnes	221,870	229,922	3.6%
Recycled Tonnes	199,856	197,745	-1.1%
Supplied Tonnes	236,884	227,603	-3.9%
Collected Tonnes *	203,213	214,273	5.4%
Recovery Rate *	85.8%	94.1%	8.4%
Provincial Recycling Target	77%	77%	na
Collected Tonnes: Paper	127,599	135,268	6.0%
Supplied Tonnes: Paper	141,121	133,682	-5.3%
Recovery Rate: Paper	90%	101%	10.8%
Collected Tonnes: Plastic	32,804	34,461	5.1%
Supplied Tonnes: Plastic	63,416	62,379	-1.6%
Recovery Rate: Plastic	52%	55%	3.5%
<i>Collected Tonnes: Rigid Plastic</i>	27,964	29,108	4.1%
<i>Supplied Tonnes: Rigid Plastic</i>	43,561	43,589	0.1%
<i>Recovery Rate: Rigid Plastic</i>	64%	67%	2.6%
<i>Collected Tonnes: Flexible Plastic</i>	4,840	5,353	10.6%
<i>Supplied Tonnes: Flexible Plastic</i>	19,856	18,791	-5.4%
<i>Recovery Rate: Flexible Plastic</i>	24%	28%	4.1%
Collected Tonnes: Metal	10,742	10,356	-3.6%

<sup>1,2</sup> Source: Recycle BC Annual Report 2020, Recycle BC Annual Report 2021

Supplied Tonnes: Metal	12,619	12,449	-1.3%
Recovery Rate: Metal	85%	83%	-1.9%
Collected Tonnes: Glass	19,120	22,211	16.2%
Supplied Tonnes: Glass	19,729	19,094	-3.2%
Recovery Rate: Glass	97%	116%	19.4%
Total Population Served by PPP Program	4,614,000	4,969,000	7.7%
Curbside and Multi-Family Population Served by PPP Program	3,732,000	3,885,000	4.1%
Recovered KG per Capita *	44.0	43.1	-2.1%
Total Households Served	1,867,000	2,028,000	8.6%
Curbside and Multi-Family Households Served	1,555,000	1,586,000	2.0%
Percent of Households with Access to Depots	99.2%	99.3%	0.1%
Number of Stewards	1,199	1,163	-3.0%
Consumer Awareness of Recycle BC Program	57%	61%	4.0%

## WASTE COMPOSITION SUMMARY

Studies on the types and quantities of materials disposed are routinely conducted by the City and Metro Vancouver (refer to Metro's *About Solid Waste Services [Reports & Resources website](#)*).

Summary results from the City's most recent composition studies are as follows:

### Street Litter Composition Audits

- Street litter composition audits took place from September 28 – October 1, 2020 at 124 locations for the purpose of assessing the composition of accumulated litter present on Vancouver streets.
- 14 additional sites were added into the overall analysis to provide a better representation of street litter throughout the City's neighborhoods.
- Two types of litter were assessed: large litter, which is any litter that is equal to or larger than four square inches; and small litter, which is any litter that is smaller than four square inches.
- An additional assessment, referred to as a 'supersite' evaluation was completed at 20 of the pre-selected sites. A supersite evaluation refers to a more thorough assessment of small litter within the site.
- In response to the COVID-19 pandemic, "Medical Waste" was added as a new large category in 2020 to capture litter items such as disposable gloves, masks and disinfecting wipes.
- The Cleanliness Index (CI) was added this year in an effort to understand how CI rankings and overall litter accumulation correspond to one another. CI rankings were used as a visual ranking of all litter sites.
- Key findings – large litter assessment:

- The average number of large litter items per site was 10.3 pieces for sites with no adjacent construction and 8.7 if the sites with construction were included.
  - Most common large litter categories were 'other miscellaneous' (31%), paper/fibre materials (20%) and cups (10%).
  - Total large litter audited was 1,201 for sites without construction (117) and 61 for sites immediately adjacent to construction (7).
  - Of the 1,201 pieces of large litter audited, 5% were PPE and other medical waste items (disposable masks, gloves and disinfecting wipes).
- Key findings – small litter assessment:
    - The average number of small litter items per site was 8.2 pieces for sites with no adjacent construction and 10.9 if the sites with construction were included.
    - The most common small litter observed were cigarette butts/debris (24%), chewing gum (19%) and paper (17%).
    - The total small litter audited was 954 for site without construction (117) and 76 for sites immediately adjacent to construction (7).
  - Key findings – supersite assessments:
    - Average number of small items per site was 234.85 pieces of small litter.
    - Most common categories of small litter observed were cigarette butts/debris (37%) and chewing gum (35%).
    - The total small litter audited was 4,697 pieces.
  - Key findings – Cleanliness Index:

Ranking:	Description:	Percent of Sites
1	No Noticeable Litter or Very Little	41%
2	Noticeable Litter in Certain Areas	43%
3	Consistent Noticeable Litter or Large Items or a Concreated Pile of Garbage/Litter	16%
4	Requires More than One Person for Cleaning and Required City Attention	0%

## **STREET CLEANLINESS**

### **City Street Cleaning Operations**

The City provides comprehensive 365 day/year street cleaning services, including mechanical sweeping, flushing, abandoned garbage removal, and public litter and recycling container collection. The majority of work is performed at night to avoid disruptions to traffic and pedestrians.

Residential streets are cleaned by sweeper trucks during fall leaf collection, while arterial and Downtown streets and lanes are swept clean more frequently. Extra cleaning is provided for major events, such as the Vancouver Marathon, Pride Parade and Celebration of Lights. Street and lane flushing in the Downtown and Downtown Eastside occurs in the summer. For 2020/2021, the City swept 25,000 km of roadway and collected 2,800 tonnes of debris.

**Table 7. Street Cleaning Operational Statistics 2020/2021**

	2019	2020	2021
Street Cleaning Fleet	9 Street Sweepers 7 Street Litter Can Collection Vehicles 2 Parks Litter Can Collection Vehicles 1 Flushers 14 Litter Collection Vehicles	10 Street Sweepers 7 Street Litter Can Collection Vehicles 3 Parks Litter Can Collection Vehicles 3 Flushers 14 Litter Collection Vehicles	13 Street Sweepers 11 Street Litter Can Collection Vehicles 3 Parks Litter Can Collection Vehicles 3 Flushers 14 Litter Collection Vehicles
Operational Staff	72 Full Time Equivalent Positions over 3 shifts: Day Shift – M-F 7AM-3:30PM Afternoon Shift – 7 Days 10AM-8:30PM Night Shift – 8:30PM-7AM	74 Full Time Equivalent Positions over 3 shifts: Day Shift – M-F 7AM-3:30PM Afternoon Shift – 7 Days 10AM-8:30PM Night Shift – 8:30PM-7AM	74 Full Time Equivalent Positions over 3 shifts: Day Shift – M-F 7AM-3:30PM Afternoon Shift – 7 Days 10AM-8:30PM Night Shift – 8:30PM-7AM
Support Staff	6 Full Time Positions	6 Full Time Positions	6 Full Time Positions
Litter Can Counts (peak season)	3014	3014	3014
Number of Collection Routes	No data reported	Residential Collection Garbage 105 Residential Collection Green Bin 105 Weekly Collection ICI Garbage 22 Multi-Family Collection Green Bin 10	Residential Collection Garbage 105 Residential Collection Green Bin 105 Weekly Collection ICI Garbage 22 Multi-Family Collection Green Bin 10

Deliberately [abandoned or dumped waste](#) on public or private property is considered illegal dumping. Illegal dumping is harmful to the environment, is costly for taxpayers and can send a message that illegal activity is tolerated in Vancouver neighbourhoods. The most common illegally dumped items include furniture (mattresses, couches) and appliances (refrigerators, washers, stoves). Non-recyclable materials are disposed to the Vancouver Landfill through the Vancouver South Transfer Station, while abandoned recyclable materials are separated and recycled where possible.

The City provides over 3,000 public litter receptacles on sidewalks, seawalls, in parks and at bus stops, and these are typically emptied once or twice per day, but up to three to four times per day in busy commercial areas during the summer months.

**Table 8. Tonnes of City Collected Solid Waste Materials: Street Cleaning Program**

Material	2017	2018	2019	2020	2021
Abandoned Waste <sup>1</sup>	2,725	2,513	2,013	1,643	2,028
Street Litter <sup>2</sup>	3,367	3,432	3,204	3,139	2,900

<sup>1</sup>Abandoned waste and illegal dumping (e.g. furniture, mattresses, hazardous waste, bagged and loose garbage, etc.).

<sup>2</sup>Garbage collected from garbage receptacles in streets and parks.

**Public Realm Zero Waste Stations**

Vancouver has been piloting various designs of zero waste stations for several years, and evaluating the quality of recyclables collected. Processors require high-quality recyclable materials streams, which can be challenging to achieve in a public setting. The current design shown in Figure 9 has been shown to be operationally efficient and produce good quality recycling streams.

**Figure 8. Three stream cart enclosure (garbage, organics, mixed containers) in a Vancouver park**



**Figure 9. Three stream cart enclosure (mixed containers, mixed paper, garbage) in downtown Vancouver**



By the end of 2021, there were a total of 90 Zero Waste Stations installed in Vancouver, providing public space recycling opportunities to Vancouver residents and visitors. This is slightly less than the number of stations in 2019 (99), as an older design of zero waste station being piloted was decommissioned and removed, and selectively replaced with the above newer style of zero waste station.

The majority of the zero waste stations are located in the downtown area, with 30 of the stations located at concession stands at beaches and in Stanley Park. Container recycling stations were also installed at 2 of the public plazas approved for public drinking during the pandemic. The table below outlines the tonnage of recyclables collected in the zero waste stations.

**Table 9. Tonnes of Recycling Collected through Street & Park Zero Waste Stations.**

Material	2017	2018	2019	2020	2021
Recycling Stations <sup>1</sup>	43	65	77	54	48

<sup>1</sup>Includes paper, container and organics streams collected from on-street and parks zero waste stations.

The amount of material collected at recycling stations was impacted by the pandemic as foot traffic was significantly decreased during the initial lockdown period compared to previous years. The delayed opening of the concession stands during typical peak season also resulted in less recycling material generated at beaches and in Stanley Park.

### **Enforcement**

The City has 7 full-time Street Use Inspectors working throughout the city to inspect, educate and enforce a variety of by-laws and permit requirements associated with solid waste and street cleanliness issues. The inspectors ensure both commercial and residential waste and recycling containers are managed appropriately, investigate illegal dumping incidents and, when sufficient evidence is available, pursue fines and/or prosecution. The inspection team investigated over 3800 and 4000 by-law infractions in 2020 and 2021 respectively. Table 10 highlights the different types of investigations that were carried out.

**Table 10. Number of Commercial and Residential Waste and Recycling Investigations**

Enforcement	2020	2021
Illegal dumping investigations	820	870
Unmanaged commercial container cases	1900	1700
Residential solid waste-related investigations	1100	1500

### **Street Cleaning Grant Program**

To supplement the City's street cleaning services, for the past 22 years Council has approved annual grants to non-profit agencies that have the capacity to provide micro-cleaning services. Micro-cleaning involves daily collection of litter and needles on foot using brooms, shovels and wheeled garbage carts, and is work that is outside the scope of services provided by the City's forces. In addition, the grant program supports initiatives involving the local binning community

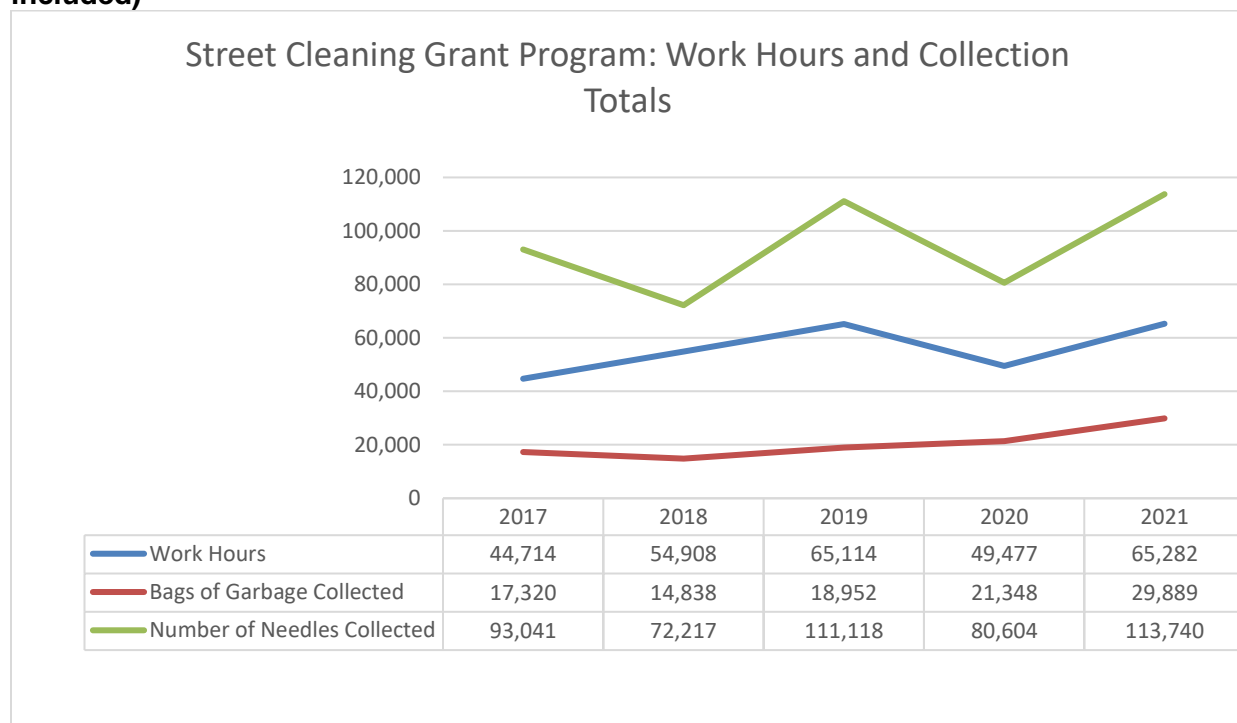


and assists in developing strategies to address challenges with rat populations. In 2020, the Street Cleaning Grant of \$1.84 million provided micro-cleaning in an area covering almost 7 square kilometres, within 22 BIAs and 13 temporary and permanent plazas.

The majority of organizations temporarily suspended operations in March/April 2020 to review and update their safety procedures in light of the pandemic. Organizations continued to support their employees/clients with honorariums, meals, mental health supports and some micro-cleaning continued at limited capacity in areas of DTES, Chinatown, Gastown, Hastings Crossing and Strathcona. The organizations began to ramp up services again through May and June. By July 2020, organizations were fully operational and working closely with City staff to ensure micro-cleaning was strategically focused around public gathering spaces and areas of higher emerging needs through the pandemic.

In 2021, the grant funding increased to \$2.1 million and resulted in micro-cleaning at 15 additional temporary plazas, more cleaning in high need areas such as the DTES, as well as a Feces Removal Response Pilot. The pilot was launched in March 2021 to respond to feces complaints submitted via 311/VanConnect and to proactively patrol Downtown, Chinatown, and the DTES for feces collection. This successful pilot operated by Mission Possible contributed to over 13,000 feces collections, between March and December 2021, contributing to the cleanliness of the downtown core. The pilot is low tech, and the 2-person response team collects feces for disposal and the affected areas are sanitized using a disinfectant spray.

**Figure 10. Work Hours and Collection Total: Street Cleaning Grant Program (Plaza hours included)**



**Figure 11. A team of micro-cleaners help keep Vancouver's streets clean**



### **Volunteer Cleanup Programs**

Cleanliness is among the reasons why Vancouver is considered one of the most livable cities in the world. By joining or hosting an Adopt-a-Block Program or a Neighbourhood Cleanup Party, residents can get involved in strengthening their community and protecting the environment by getting together with friends, family and colleagues to tidy up their neighbourhoods.

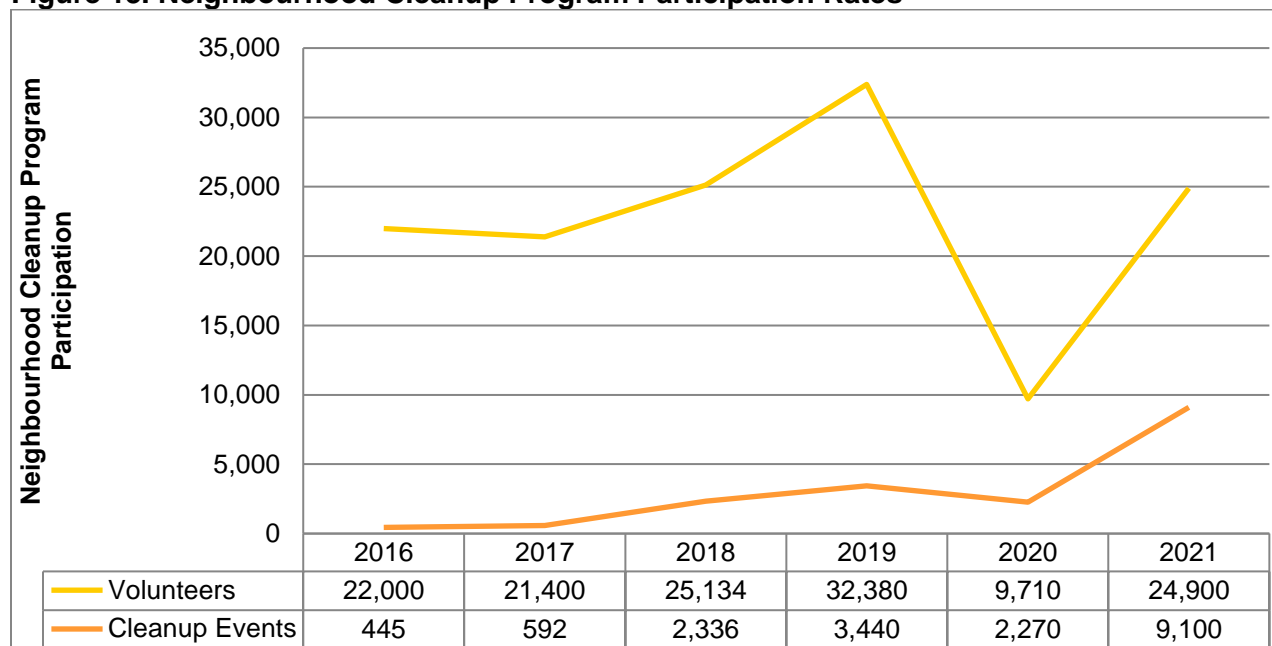
The program encourages residents to clean up their neighbourhood by providing garbage bags, gloves, other cleanup tools, and free pick up of litter collected.

The City also hosts periodic cleanups throughout the year at different areas of the city. These City hosted events help build a sense of community amongst the volunteers that participate in these cleanups.

**Figure 12. A Group of Volunteers Participating in a Neighborhood Cleanup Event**



**Figure 13. Neighbourhood Cleanup Program Participation Rates**



NOTE: The COVID-19 pandemic resulted in a substantial decrease in numbers of volunteers and numbers of cleanup events in 2020 because Neighbourhood Cleanup Party was suspended for the majority of the year.

## TRANSFER, LANDFILL & ZERO WASTE CENTRES

The City’s solid waste operations include the [Vancouver South Transfer Station](#), [Vancouver Landfill](#), and two Zero Waste Centres – one in [Vancouver](#) and the other at the Vancouver Landfill in the City of Delta. These City of Vancouver owned and operated facilities receive residential and commercial waste and recycling materials from Vancouver and other communities in Metro Vancouver, and contribute to the [Metro Vancouver regional solid waste system](#).

Currently, the Vancouver Landfill receives 70% of the region’s residual waste requiring disposal, and recently has been operating near its permitted annual capacity of 750,000 tonnes, despite declining tonnes from Vancouver. For more information, refer to Table 11 below, and the [Vancouver Landfill Annual Report](#). In November 2021, due to the provincial state of emergency in response to the severe flooding in BC, the MOECCS temporarily approved an increase to the maximum annual discharge rate up to 825,000 tonnes for the 2021 calendar year.

**Table 11. Tonnes of Garbage Disposed to Vancouver Landfill**

Source	2016	2017	2018	2019	2020	2021
Total	693,446	736,405	717,906	721,507	698,659	756,472
Vancouver only <sup>1</sup>	147,634	129,733	129,093	115,862	111,056	148,245

<sup>1</sup>From City of Vancouver collections, including public works, and private sector commercial haulers.

Waste disposed of at the Vancouver Landfill is either hauled directly to the Landfill or transferred through the Vancouver South Transfer Station or Metro Vancouver’s transfer stations (refer to Appendix B: Material Flows). The Transfer Station receives an average of 455 vehicle loads per

day, hauling garbage destined for the Landfill or yard trimmings which are transferred by the City to the Vancouver Landfill composting facility where it is processed into compost.

The Vancouver ZWC, located at 8588 Yukon Street, provides a convenient location for residents and small business to drop-off a [wide range of materials](#) for reuse and recycling, free of charge.

Table 12 below includes more information about materials received at the Vancouver Landfill and Vancouver Zero Waste Centre in 2020 and 2021:

**Table 12. Materials Received at Landfill and Vancouver Zero Waste Centre (2019-2021)**

Item	Landfill Zero Waste Centre (LFZWC)				Vancouver Zero Waste Centre (VZWC)				
	2019	2020	2021	Units	2019	2020	2021	Units	
Bicycles	Material not collected at location				0.7	0.0	0.0	tonnes	
	Material not collected at location				38	0	0	units	
Books	Material not collected at location			1.8	tonnes	170.1	124.5	101.2	tonnes
Clothing	6.6	4.8	12.4	tonnes	127.5	48.7	132.4	tonnes	
Containers (Plastic, Metal, Paper)	2.9	12.5	3.9	tonnes	84.3	92.3	78.1	tonnes	
Cooking Oil	0.6	1.18	1.77	tonnes	3.61	3.45	4.13	tonnes	
Drywall, new scraps only	123	23.7	88.1	tonnes	7.3	0.0	0.0	tonnes	
Electronics & Small Appliances	117	180.3	158.9	tonnes	389.2	440.6	444.1	tonnes	
Fire Extinguishers	0	0.9	1.6	tonnes	4	3.9	3.7	tonnes	
	0	396	692	units	1749	1700	1,637	units	
Food scraps, residential drop off	Data unavailable	1.4	2.475	tonnes	2	2.2	8.64	tonnes	
Glass Bottles & Jars	5.4	5.907	4.048	tonnes	40.7	40.9	35.9	tonnes	
Household Batteries & Cell Phones	0.7	1.4	1.2	tonnes	11.8	12.7	12.9	tonnes	
Lead Acid Batteries	11.3	25.2	18.7	tonnes	19.4	23.3	22.7	tonnes	
Light Bulbs	1.1	0.8	2.7	tonnes	11.3	14.0	13.9	tonnes	
Mattresses	247	259.3	315.3	tonnes	568.3	670.0	632.7	tonnes	
	9,146	10,394	12,636	units	21,048	26,854	25,360	units	
Mixed Paper & Cardboard, Commercial	18	10.0	0	tonnes	Material not collected at location				
Mixed Paper & Cardboard, Residential	209	248.4	259.9	tonnes	1264.2	1216.0	1130.0	tonnes	
Other Flexible Plastic Packaging (new in 2018)	1.6	1.8	6.7	tonnes	56.5	65.2	80.2	tonnes	
Plastic Bags & Overwrap	3.1	4.1	1.8	tonnes	18.1	40.2	32.4	tonnes	
Plastic Foam Packaging	5.7	7.9	7.9	tonnes	37.1	35.9	40.5	tonnes	
Product Care Items (Paint, Aerosol, Solvent)	3.8	22.9	49.0	tonnes	Data unavailable	0.9	0.0	tonnes	
Propane Tanks	4.3	8.2	9.2	tonnes	22.8	15.2	14.1	tonnes	
	3,317	4,315	9,643	units	22,926	13,697	22,509	units	
Refrigerators, Freezers & Air Conditioners	198	242	230	tonnes	714.5	784.5	791.5	tonnes	
	2,936	3,789	3711	units	11,554	13,338	14,371	units	

Item	Landfill Zero Waste Centre (LFZWC)				Vancouver Zero Waste Centre (VZWC)			
	2019	2020	2021	Units	2019	2020	2021	Units
Scrap Metal (excluding Refrigerators, Freezers & Air Conditioners)	685	714.6	821.3	tonnes	1184.6	1190.5	1055.1	tonnes
Smoke Alarms	4	0.023	0.034	tonnes	0.556	0.5	0.5	tonnes
Tires	47	49	35	tonnes	Data unavailable			
	4,498	4,542	3350	units	Data unavailable			
Waste Antifreeze	1.2	0.81	2.91	tonnes	Data unavailable			
	1,160	805	2,910	litres	Data unavailable			
Waste Oil	24	26.15	26.83	tonnes	N/A*	0.365	0.000	tonnes
	27,049	29,380	30,150	litres	N/A*	410	0	litres
Waste Oil Filters	1.7	0.80	1.70	tonnes	N/A*	0.0	0	tonnes
	Data unavailable	800	1,700	units	N/A*	0.0	0	units
Wood Waste	Data unavailable	3946	3688	tonnes	982.3	494	355	tonnes
Yard Trimmings	Data unavailable	15,737	9,112	tonnes	12,609.90	12760	12,457	tonnes
<b>Total</b>	<b>1,718</b>	<b>21,537</b>	<b>14,866</b>	<b>tonnes</b>	<b>18,330.21</b>	<b>18,080</b>	<b>17,448</b>	<b>tonnes</b>

## FINANCIAL SUMMARY FOR VANCOUVER'S SOLID WASTE COLLECTION

Costs and revenues for Vancouver's solid waste collection, transfer and disposal programs and facilities reside within the City's Solid Waste Utility (SWU). Each year City Council approves SWU fees for the following year. SWU fees cover the cost of garbage and green bin collection, and since 2017 have included a contribution to general street cleaning services provided by the City. The fees also include the cost of transfer and disposal of Vancouver residential waste at the Vancouver Landfill, and transfer and composting of green bin materials. The contribution to support general street cleaning programs covers portions of the cost of litter and abandoned waste collection in and around residential areas of the city. Remaining street cleaning costs are funded from the City's property tax supported public works budget.

**Table 13. Annual Solid Waste Utility Fees**

Cart Size (litres)	Garbage Collection Fees			Green Bin Collection Fees		
	2019	2020	2021	2019*	2020	2021
75	\$83	\$87	\$100	-	-	-
120	\$96	\$100	\$115	\$143	\$147	\$149
180	\$112	\$117	\$134	\$167	\$173	\$174
240	\$129	\$135	\$154	\$192	\$199	\$200
360	\$163	\$170	\$193	\$242	\$250	\$252

*\*On April 23, 2019, Council approved a green bin rate increase effective May 1. For a representative single family home (240L cart) this has increased the collection rate from \$170 to \$201, which has produced a blended rate for 2019 of \$192. This rate increase supports our Green Bin Program and the processing systems required to meet ongoing regulatory requirements in Metro Vancouver for food waste. [Learn more about the change to green bin rates.](#)*

Multi-family residential and commercial properties are serviced primarily under contracts negotiated between the property owner or operator and private sector solid waste materials haulers.

Surplus revenue from commercial tipping fees charged at the VSTS and VLF are transferred at year-end to a Solid Waste Capital Reserve. This Reserve funds Vancouver Landfill closure and post-closure costs.

A Collection Stabilization Reserve is in place to capture excess SWU rate revenue over expenditures. This Reserve is used to help moderate future SWU rate increases.

Links to recent Solid Waste Utility Fees reports containing more detailed financial information are available in Appendix A. The City's annual operating and capital budgets can be found on the [City's website](#).

## APPENDICES

## APPENDIX A - Resources

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- [2018-2019 ZWRR Annual Report](#)
- [2021 Vancouver Landfill Annual Report](#)
- [2020 Vancouver Landfill Annual Report](#)
- [2020 Solid Waste Utility \(SWU\) Fees and By-law Change Report](#) approved by [Vancouver City Council December 10, 2019](#)
- [Interim 2019 Solid Waste Utility \(SWU\) Fees Adjustment and By-law Change Report](#) approved by [Vancouver City Council April 23, 2019](#)
- [Greenest City Action Plan](#)
- [Zero Waste 2040 Strategy](#)
- [Single-Use Item Reduction Strategy](#)
- [Metro Vancouver Solid Waste Services](#)
- [Metro Vancouver Regional Solid Waste Management Plan](#)
- [Metro Vancouver Solid Waste Services Reports and Studies](#)
- [BC Recycling Regulation](#)
- [BC Organic Matter Recycling Regulation & Guidance \(OMRR\)](#)
- [RecycleBC](#)
- [Extended Producer Responsibility Programs in BC](#)
- [National Zero Waste Council](#)

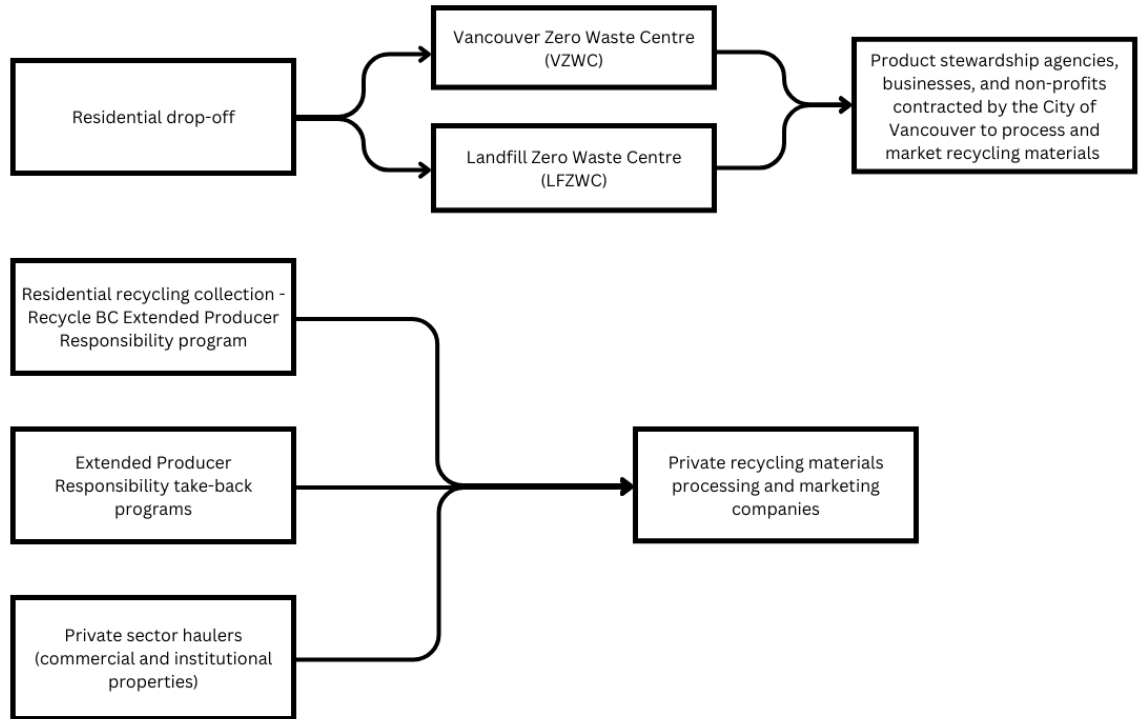


## APPENDIX B - Materials Flow Summary

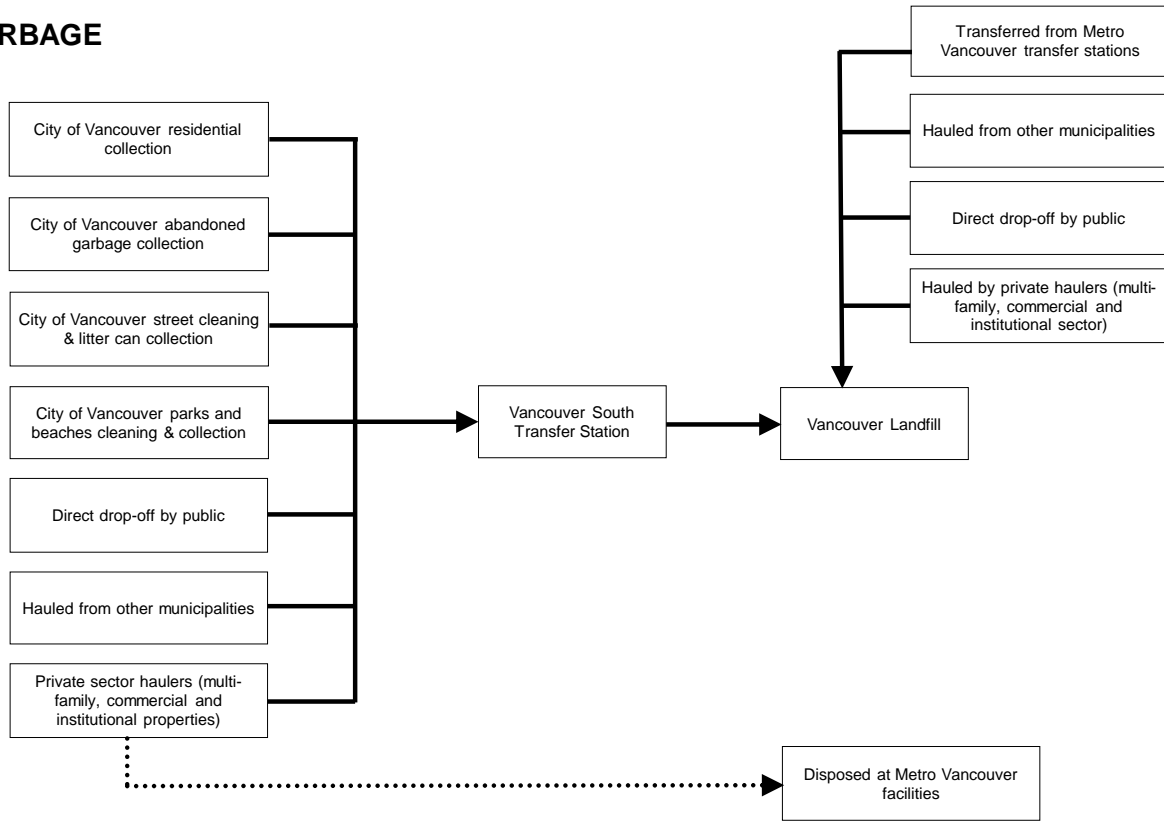
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The following charts summarize the flow of common recycling materials, garbage, and source separated organics within Vancouver's solid waste system:

### Flow of Common Recycling Materials



# GARBAGE



# YARD TRIMMINGS & FOOD SCRAPS

