

WASTE AUDIT REPORT

University of Canterbury Campus

August 2024

Sustainably.



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EXECUTIVE SUMMARY

This executive summary provides an overview of the *University of Canterbury Campus Waste Audit Report 2024* (UC Waste Audit). The UC Waste Audit was conducted by Sustainably in August 2024. This is the second Waste Audit conducted by Sustainably and the 4th consecutive annual Waste Audit for the University.

The purpose of the UC Waste Audit is to provide insights into progress on achieving targets 1, 2, 3, and 5 within the *UC Waste Plan 2022-2030*. The key findings from the UC Waste Audit include:

Comingled Recycling Target 2: Contamination of comingled recycling stream to be no greater than 25% by 2024 (measured by annual audit)

- Target 2 was achieved, however, there has been minimal improvement from the 2023 Waste Audit results (2024: 20.4%; 2023: 19.9%).
- The current de-contamination process conducted by EnviroNZ is necessary for acceptance of Comingled Recycling at the Eco Central which allows a 10% contamination rate.
- The material composition has changed with single-use beverage containers (SUBs) decreasing (Cans Plastics Bottles, and Glass) and fibre products increasing (Paper and Cardboard).

Organics Target 3: Retain or improve on 94% clean organics stream by 2024 (measured by annual audit).

- Target 3 was not achieved with 21% of the Organics deemed contaminated.
- The amount of Organics sorted was 45% less than the 2023 UC Waste Audit (2023: 110kg, 2024: 61kg).
- 79% of Organics was made up of food scraps, compostable bin liners and coffee grounds.
- Contamination was predominantly from one highly contaminated bag (12.5kg)

Landfill Target 1: Landfill waste stream to be composed of at least 75% 'clean landfill' by 2024 (i.e., a maximum of 25% of this stream to be made up of items that could have been diverted) (measured by annual audit).

- Target 1 was not achieved with 43% of Landfill deemed divertible via Comingled Recycling or Organics (Target specifies <25% to be divertible).
- A higher amount of Landfill waste was sorted (2023: 102.5kg, 2024: 454.8kg).
- Organics appeared to be predominately from tenants.
- Reusable items suitable for donation increased (2023: 3%, 2024: 7%).

Single-Use Plastic Bottles Target 5: Single-use plastic bottle disposal drops by 20% by 2025 and 50% by 2030 (measured by annual audit against EFTS)

- Waste Data indicates that Target 5 is on track, with reductions in percentage of waste data weight composition.
- Findings continue to support considerations for the phasing-out of Plastic Bottle sales on campus.
- Plastic Bottles continue to be lower in volume and weight than Cans, indicating a continued consumer preference for Can from 2023.
- Higher volumes of SUB's were observed in the Landfill audit, with as many being disposed of in Landfill bins as Comingled Recycling bins, an increase on 2023 and 2022 assumed to be due to incorrect Cleaner practices (rejection of contaminated Comingled Recycling bags).

In addition, waste collection data from the waste services provider, EnviroNZ was also analysed to identify challenges and trends. The key findings from the waste data analysis include:

Waste Collection Data

- Total waste has increased by 8% since 2023 and by 2% since 2022.
- Landfill usage seems to be a significant factor contributing to the overall waste increase, particularly since 2023, which has experienced an 81% increase in waste levels.
- There is a 4% decrease in Organics waste stream collected from site which is corroborated by the decrease in Organics waste stream presented for the Waste Audit.
- There is a 7% decrease in recyclable waste streams from the site, contributing to an increase in Landfill contributions.

The above findings identify that there is an opportunity to improve waste systems across the UC Campus. Sustainably recommends a Waste System Assessment to gain a better understanding of challenges and opportunities for improving waste reduction and diversion across the UC Campus. This will enhance future Waste Audit outcomes and support the achievement of the *UC Waste Plan 2022-2030* targets. Utilising Sustainably's intersecting circular framework illustrated below, the report identifies potential opportunities which may emerge as opportunities following a comprehensive Waste System Assessment:



Sustainably Waste Assessment Approach

INTRODUCTION

Sustainably is pleased to present the *University of Canterbury Campus Waste Audit Report 2024* (UC Waste Audit). Sustainably is a waste minimisation consultancy that specialises in identifying opportunities and addressing challenges within waste systems. Sustainably are motivated by waste minimisation and landfill diversion and recognise the need for considering the most important part of a waste system – people! Sustainably specialise in identifying ways to reduce waste, recover recyclable resources, and identify circular alternatives to sending waste to landfill.

This is the second annual Waste Audit completed by Sustainably for the University of Canterbury (UC), following the first audit conducted in October 2023. This marks the fourth consecutive year of Waste Audits. The UC Waste Audit 2024 followed the same approach as the UC Waste Audit 2023. Whenever possible, the methodology used for the UC Waste Audit is consistent with previous audits. This alignment enables comparability of data and results, facilitates pattern identification, and allows for effective tracking of progress.

The UC Waste Audit was conducted with support from UC's waste provider, EnviroNZ. Sustainably would like to thank both UC and EnviroNZ for their support and professionalism throughout the Waste Audit process.

Background

To align with the government's *Waste Reduction Work Programme*, UC has begun to consider waste generated across its campus, specifically focusing on - removing contamination, eliminating plastics, and strengthening diversion pathways. UC has a clear commitment to sustainability and has demonstrated efforts towards creating a sustainable community and campus, and contributing towards solving global sustainability challenges as outlined in its [*Sustainability Policy v. 3.01*](#).

The *UC Sustainability Policy* includes the following actions specific to waste minimisation and Landfill diversion:

Sustainable Operating Practices

- Ensure that the University follows best practice regarding waste minimisation, including the safe and sustainable disposal of hazardous waste; and
- Minimise the use of plastics (especially single-use plastics).

Partnerships for Sustainability

- Minimise the use of disposable single-use items, including through any outsourced services and the wider supply chain; and
- Take measures to reduce the overall amount of waste sent to landfill, noting that waste minimisation efforts extend to any outsourced suppliers and the wider supply chain.

To support these actions, the [*UC Waste Plan 2022-2030*](#) has identified priority areas for campus waste which are detailed within five targets:

- **Target 1:** Landfill waste stream to be composed of at least 75% 'clean landfill' by 2024 (i.e., a maximum of 25% of this stream to be made up of items that could have been diverted) (measured by annual audit).
- **Target 2:** Contamination of comingled recycling stream to be no greater than 25% by 2024 (measured by annual audit)

- **Target 3:** Retain or improve on 94% clean organics stream by 2024 (measured by annual audit).
- **Target 4:** Clean landfill rate drops by 25% by 2026 (measured against (Equivalent Full-Time Student [EFTS])).
- **Target 5:** Single-use plastic bottle disposal drops by 20% by 2025 and 50% by 2030 (measured by annual audit against EFTS)

UC has commissioned consistent annual Waste Audits since 2021, as well as several sporadic Waste Audits prior to this (2014 and 2017). They have also undertaken several supporting waste projects i.e., *UC Composting Options 2022*, and *UC Recycling Signage Options 2022*.

The UC Waste Audit 2024 will capture data which will provide insights into progress on achieving targets 1, 2, 3 and 5 within the *UC Waste Plan 2022-2030*.

Waste Audit Details

Below are details concerning scope and objectives, timeframes and locations, key representatives, health and safety, methodology, limitations, and disclaimer information related to the UC Waste Audit.

Scope and Objectives

The scope of the project included Sustainably conducting a Waste Audit on three waste streams generated at the UC Campus: Comingled Recycling, Organics, and Landfill. Data on waste weights and material composition was collected primarily to assess progress toward targets 1, 2, 3, and 5 within the *UC Waste Plan 2022-2030*. Data collection and analysis relating to target 4 within is excluded from the scope of services and this report.

Timeframe and Location

Two audits comprised the UC Waste Audit. These took place over two non-consecutive days as follows:

- **Comingled Recycling and Organics:** Tuesday 6 August, EnviroNZ Cass Street site.
- **Landfill:** Tuesday 20 August, EnviroNZ Francella Street site.

Waste was collected from the UC Campus on Monday 5 August (105.7kg of Comingled Recycling and 60.7kg of Organics) and Monday 19 August (454.8kg Landfill) via the standard EnviroNZ procedures. Waste was placed in a suitable location at the corresponding site.

Key Representatives

The following representatives were present at, or contributed towards, the UC Waste Audit:

Company	Representative
UC	Matt Morris – Sustainability Advisor
EnviroNZ	Dan Redmond – Christchurch Branch Manager
Sustainably	Aimy East – Services Director
	Kat Ralph-Triebels – Waste Minimisation Consultant

Health and Safety

The health, safety, and well-being of all people are of the utmost importance to Sustainably. Sustainably includes stringent health and safety processes within their Waste Audit process to ensure all activities comply with the *Health and Safety at Work Act 2015*. This includes, but is not limited to:

- Liaising with the client and/or any sub-contractors during the planning phase to identify risks and define roles and responsibilities.
- The use of PPE, where appropriate, including non-slip shoes, cut-resistant gloves, hi-vis jackets, ear protection, eye protection, overalls/aprons, and respiratory protection face masks.
- Engaging in open communication with the client and/or sub-contractors to advise of any on-site processes, potential risks, site/process hazards, incidents, and near misses.
- Complete all required health and safety documentation, where applicable, including a *Site-Specific Safety Plan (SSSP)*, *Emergency Evacuation Plan*, and *Incident Reports*.

Audit Methodology

The Sustainably Waste Audit process follows a set format to ensure consistency, transparency, and the delivery of meaningful data. Details of Sustainably's Waste Audit methodology follows:

- **Audit Input Data:** Where possible, the UC Waste Audit methodology is aligned with the Ministry for the Environment (MfE) Solid Waste Analysis Protocol (SWAP) established in 2002. A SWAP involves a sort-and-weigh methodology whereby waste is hand-sorted into a series of categories and sub-categories and weighed to collect statistically accurate data¹. The UC Waste Audit is not classified as a SWAP as there was only one assessment of each waste stream, rather than repeated assessments.
- **Waste Streams, Materials, and Categories:** The UC Waste Audit incorporated three UC waste streams: Comingled Recycling, Organics, and Landfill. The accepted materials and material sub-categories for each of the waste streams at UC are as follows:

Waste Stream	Material	Material Sub-Category
Comingled Recycling	Fibre	Paper
	Fibre	Cardboard (including Pizza Boxes*)
	Metals	Steel Tins
	Metals	Aluminium Cans
	Glass	Bottles, Jars & Other
	Plastics	PET #1 (bottles)
	Plastics	Other (PET # 1 containers, HDPE #2 bottles and containers, PP # 5 bottles and containers)
	Mixed Material	Reusable Items Suitable for Donation
Organics	Food Scraps	Food Waste
	Fibre	Paper Towels
General Waste	Compostables	Coffee Cups
	Compostables	Compostable Packaging (including PLA #7)
	Plastics	LDPE #4 (soft plastics packaging)
	Plastics	Unsuitable Recyclables (heavily soiled, oversized)
	Mixed Materials	All Other Residual Waste Materials (e.g. non-recyclable plastics, general waste)

* Waste stream has changed from UC Waste Audit 2023.

The current UC waste stream categories are aligned with key municipal waste streams in Ōtautahi, Christchurch which were updated in February 2023.

Differing from previous audits, several material sub-categories were excluded from the audit, such as Tetra Paks, pizza boxes, and bottle caps/lids. Additionally, plastics were

¹ Ministry for the Environment, 2002 - <https://environment.govt.nz/publications/solid-waste-audits-for-ministry-for-the-environment-waste-data-programme-200708/2-methodology/>

categorised into fewer sub-groups. These changes were implemented because the additional time invested yielded limited insights and no discernible cost-benefit.

- **Data Metrics:** Data is reported by weight (i.e. actual weight of waste), as well as a percentage of overall weight (i.e. calculated by the waste divided by the total weight of all waste sorted).
- **Waste Audit Process:** The Waste Audit process followed the guidelines established for the UC Waste Audit 2023. Descriptions of the specific audit processes for each waste stream are detailed in the findings section.

Limitation and Disclaimer

- **Limitations:** The Waste Audit process can encounter limitations due to constraints such as resource and data availability. The limitations identified for the UC Waste Audit 2024 are as follows and should be considered when reviewing the report:
 - All Waste Audits were completed at a single point in time; therefore, they provide a limited snapshot of waste volumes and composition.
 - The Landfill Waste Audit was limited to 69% of the provided waste.
 - Several high-risk bags were identified during the Landfill Waste Audit. These were rejected due to health and safety concerns, including but not limited to, bags that contained body fluids (nappies, medical treatment materials) or presented with heavy leakage and strong odours from decomposing organic material.
- **Disclaimer:** While every effort has been made to ensure the data collected and information presented is both comprehensive and accurate, Sustainably is in no way responsible for unavoidable discrepancies such as scale irregularities. Given the evolving nature of the waste industry, Sustainably takes no responsibility for the availability of any solutions or recommendations made within the report. The report and its findings are deemed relevant for 12 months.

WASTE AUDIT FINDINGS

Comingled Recycling Waste Audit

Purpose

The Comingled Recycling Waste Audit was conducted to gather data relating to target 2 of the *UC Waste Plan 2022-2030*:

Target 2 - Contamination of comingled recycling stream to be no greater than 25% by 2024.

The audit results provide data for determining significant changes within the Comingled Recycling waste stream from previous Waste Audits. The data will support decision-making and identify opportunities for introducing measures which might continue progress and/or improve results within the Comingled Recycling waste stream.

Process

Following are details regarding the audit process taken for the Comingled Recycling Waste Audit:

- All Comingled Recycling waste collected by EnviroNZ on Monday 5 August from the UC Campus was brought to the EnviroNZ Cass Street site. There was a total of 105.7kg of Comingled Recycling, a similar amount to the 2023 audit (103.4kg).
- All Comingled Recycling waste was sorted on Tuesday 6 August by six Sustainability representatives via the following process:
 - Each bag was individually weighed, and the weight was recorded.
 - Each bag was opened and tipped onto a dedicated waste sorting table.
 - Materials and items were hand-sorted according to applicable sub-categories.
 - 240L wheelie bins and small containers were used to sort waste according to volume i.e. 240L wheelie bins were used to sort materials/items found in large volumes and small containers were used for materials/items found in small volumes.
 - Once all Comingled Recycling waste had been sorted the sub-categories within the 240L wheelie bins and smaller containers were weighed and recorded.
 - Following this process, the waste was disposed of accordingly.

Key Insights

- Target 2 was achieved; however, results have remained largely unchanged from 2023 (2024: 20.4%; 2023: 19.9%).
- As the acceptance threshold for contaminated Comingled Recycling is 10% these results suggest the current de-contamination process conducted by EnviroNZ is necessary for acceptance of Comingled Recycling at the Eco Central.
- There has been a change to the material composition with single-use beverage containers decreasing (Cans Plastics Bottles, and Glass) and fibre products increasing (Paper and Cardboard).

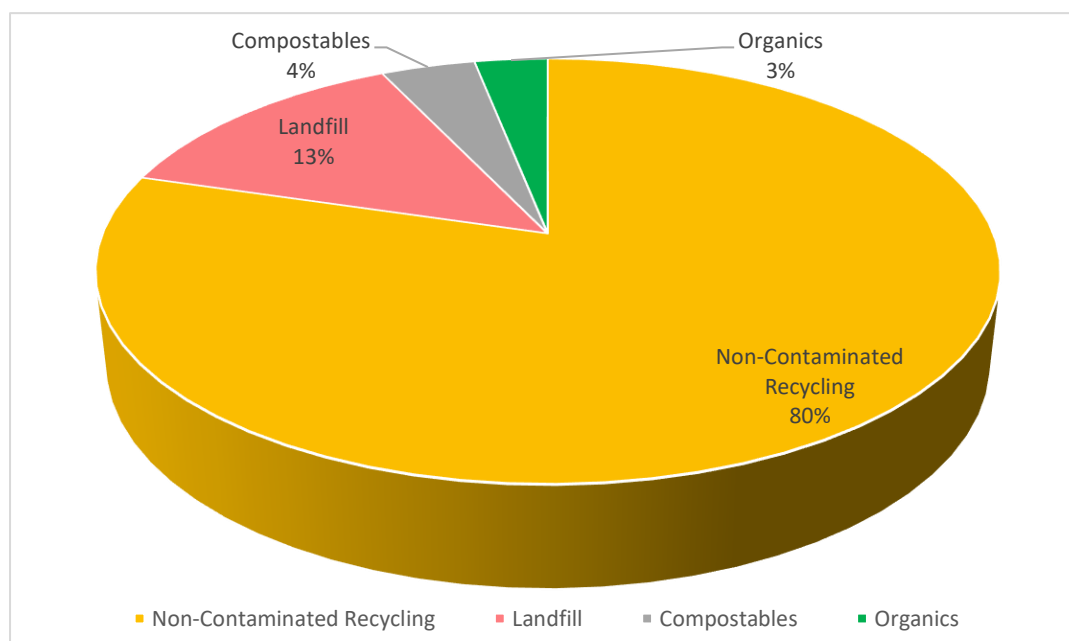
Data

Below is the Comingled Recycling waste stream composition. Materials have been categorised by the UC waste stream and then further classified into materials and material sub-categories:

Waste Streams	Material	Material Sub-Category	Weight (kg)	Weight (%)	Additional Information
Comingled Recycling	Fibre	Paper	20.2	19%	
	Fibre	Cardboard	19	18%	Including Pizza Boxes*
	Metals	Steel Tins	5.9	6%	
	Metals	Aluminium Cans	15.5	15%	
	Glass	Bottles, Jars & Other	6.7	6%	
	Plastics	PET #1 (bottles)	8.3	8%	Single-use bottles
	Plastics	Other (PET # 1 containers, HDPE #2 & PP # 5 bottles and containers)	8.5	8%	
Total Recycling Materials			84.1	80%	
Organics	Food Scraps	Food Waste	3.3	3%	Including liquids
General Waste	Compostable Fibre Mix	Coffee Cups	1.4	1%	Diversion pathways not available in current waste system
	Compostable Fibre Mix	Compostable Packaging	2.8	3%	
	Plastics	LDPE #4 (soft plastic packaging)	2.7	3%	
	Plastics	Unsuitable Recyclables	1.8	2%	Oversized
	Mixed Material	All Other Residual Waste Materials	9.6	10%	Including receipts, Lids, Tetra Paks
Total Contaminants (Organics + Landfill)			21.6	20%	
TOTAL WEIGH			105.7	100%	

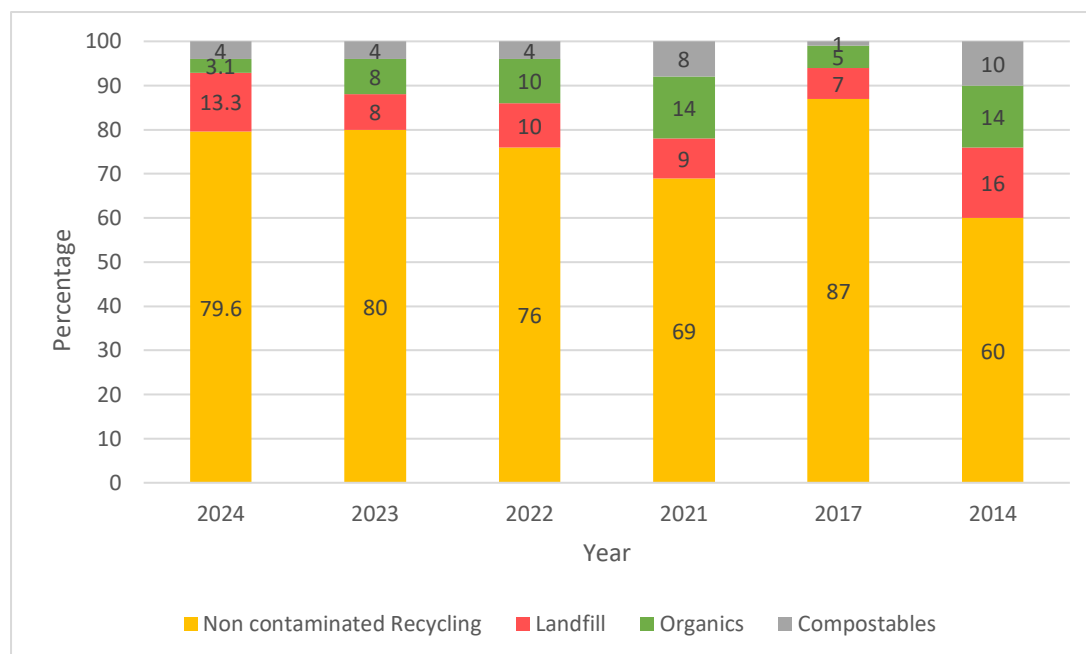
*Waste stream has changed from UC Waste Audit 2023.

The percentage composition of the Comingled Recycling waste stream was as follows:



Annual Comparison

A year-on-year comparison of the Comingled Recycling percentage composition is as follows:



This indicates a consistent level of contamination to the 2023 Waste Audit results; however, there is a change in the composition of the contamination.

Material Composition

The rank of material composition within Comingled Recycling has changed from 2023. The most notable change is the increase of fibre materials (Paper and Cardboard) and the decrease of single-use beverage containers (SUBs) which include Cans, Plastics Bottles, Glass. These changes may be due to on-site changes relating to SUBs and/or paper/cardboard pathways.

2022 Comingled Recycling Material - Composition Ranking by Weight

1. Cans (31%)
2. Glass (24%)
3. Plastic Bottles (19%)
4. Paper (17%)
5. Cardboard (7%)
6. Tin (2%)

2023 Comingled Recycling Material - Composition Ranking by Weight

1. Cans (25%)
2. Glass (23%)
3. Paper (21%)
4. Plastic Bottles (16%)
5. Cardboard (12%)
6. Tin (3%)

2024 Comingled Recycling Material - Composition Ranking by Weight

1. Paper (24%)
2. Cardboard (23%)
3. Cans (18%)
4. Plastic Bottles (10%)
5. Glass (8%)
6. Tin (7%)

Key Observations

Below are the key observations made throughout the Comingled Recycling Waste Audit:

- The audit observed a decrease in Comingled Recycling from 2023; however, the weight remained comparable between the two years, largely due to a higher contribution from Paper and Cardboard.
- Landfill materials observed within the Comingled Recycling included receipts, Up & Go Tetra Paks, and other non-recyclable materials.
- A bag assumed to be from a tenant (Nuts & Bolts) contained well-cleaned recycling.
- Low amounts of pizza boxes were observed with Comingled Recycling (updated waste stream since February 2024 nationally standardised kerbside changes).
- High amounts of Paper appeared to come from office clear outs.
- Low amounts of Organics were observed.

Images

		
Recycling pre-sort	Recycling pre-sort	Receipts
		
Well cleaned Recycling	Landfill	Paper
		
Soft Plastics	Oversized Recycling	Plastics
		
Cardboard	Single-Use Bottles (PET #1)	Aluminium Cans

Organics Waste Audit

Purpose

The Organics Waste Audit was conducted to gather data relating to target 3 of the *UC Waste Plan 2022-2030*:

Target 3 - Retain or improve on 94% clean organics stream by 2024.

The audit results provide data for determining any significant changes within the Organics waste stream from previous Waste Audits. The data will support decision-making and help identify opportunities for introducing measures which might continue progress and/or improve results within the Organics waste stream.

Process

Following are details regarding the audit process taken for the Organics Waste Audit:

- All Organics waste collected by EnviroNZ on Monday 5 August from the UC Campus was brought to the EnviroNZ Cass Street site. There was a total of 60.7kg of Organics.
- All Organics waste was sorted on Tuesday 6 August by six Sustainability representatives via the following process:
 - Each bag was individually weighed, and the weight was recorded.
 - Each bag was opened and tipped onto a dedicated waste sorting table.
 - Materials and items were hand-sorted according to applicable sub-categories.
 - 240L wheelie bins and small containers were used to sort waste according to volume i.e. 240L wheelie bins were used to sort materials/items found in large volumes and small containers were used for materials/items found in small volumes.
 - Once all Organics waste had been sorted the sub-categories within the 240L wheelie bins and smaller containers were weighed and recorded.
 - Following this process, the waste was disposed of accordingly.

Key Insights

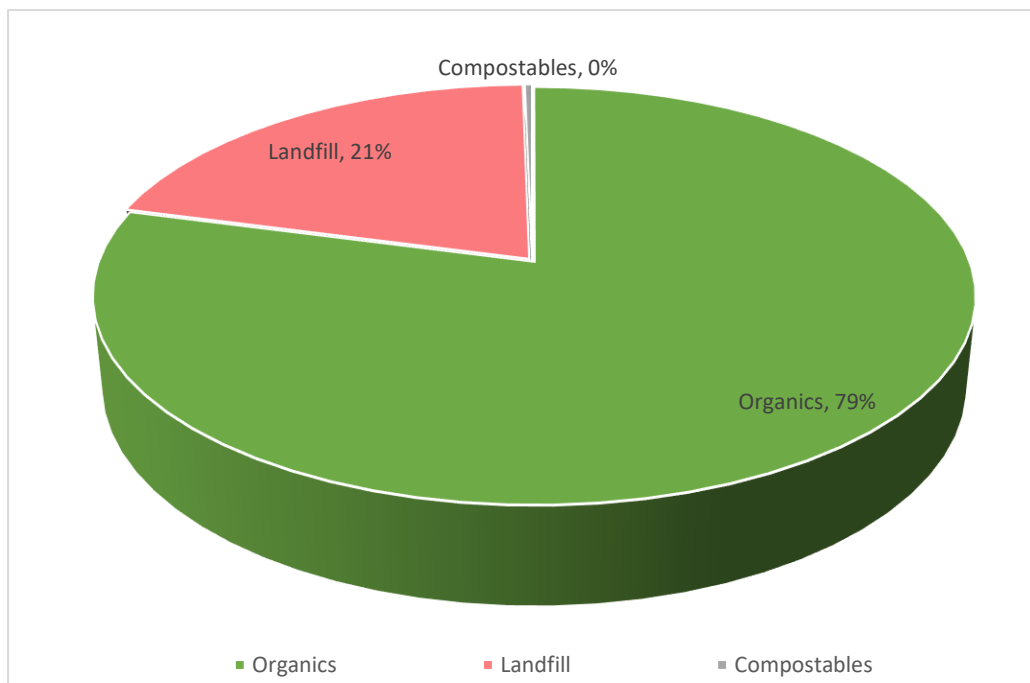
- Target 3 was not achieved with 21% of the Organics deemed contaminated.
- The amount of Organics waste (one day) was 45% less than the 2023 UC Waste Audit (2023: 110kg, 2024: 61kg).
- 79% of Organics was made up of food scraps, compostable bin liners and coffee grounds.
- Contamination was predominantly from a highly contaminated bag (12.5kg) assumed to be from a tenant.

Data

Below is the Organics waste stream composition. Materials have been categorised in relation to the correct UC waste stream and then further classified into materials and material sub-categories:

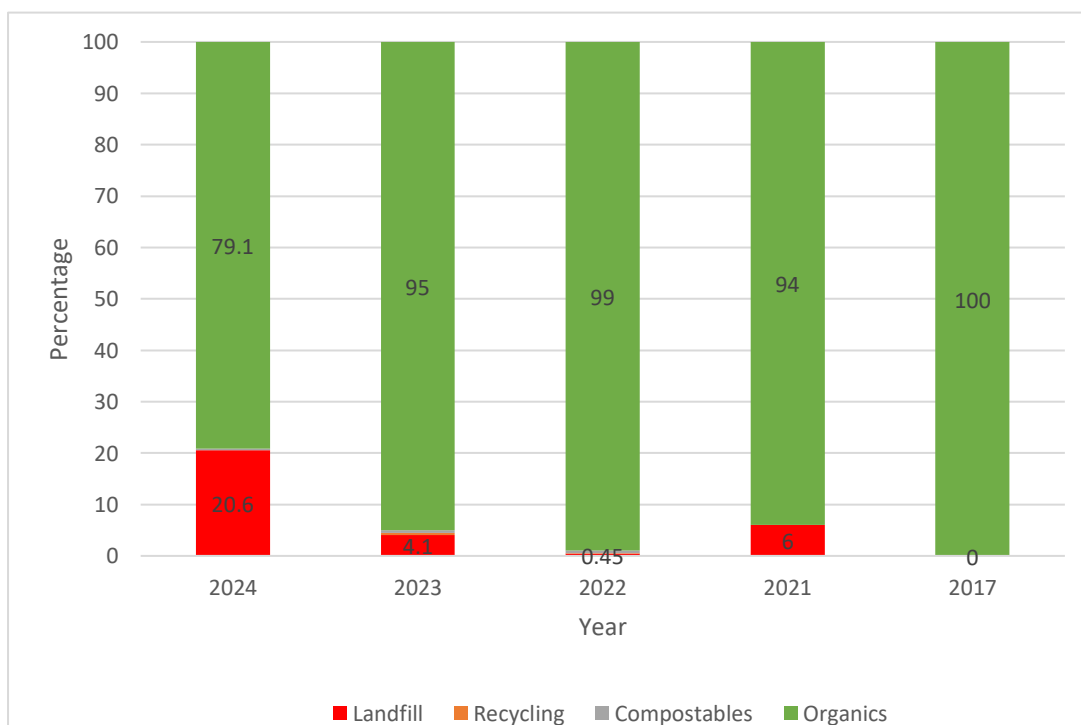
Waste Stream	Material	Material Sub-Category	Weight (kg)	Weight (%)	Additional Information
Organics	Food Scraps	Food Waste	48	79%	
Total Organics Materials			48	79%	
General Waste	Mixed Materials	All Other Residual Waste Materials	12.7	21%	Including compostables (0.2%) and a heavily contaminated bag (21%)
Total Contaminants (Recycling + Landfill)			12.7	21%	
TOTAL WEIGH			60.7	100%	

The percentage composition of the Organics waste streams was as follows:



Annual Comparison

A year-on-year comparison of the Organics composition is as follows:



Key Observations

- The lower Organics weight was also evident in the volume observed during the Organics Waste Audit, which was significantly less than 2023.
- The Organics included several large clear bin liners containing many smaller green compostable bin liners.
- Excluding the heavily contaminated bag (12.5kg), most Organics were free from contamination except for reasonable amounts of tea bags observed within the smaller green compostable bin liners which were deemed too difficult to remove .
- The contaminated bag appeared to come from a tenant and included foam packaging beads, blue latex catering gloves, loose soft plastics and food packaged in soft plastics.
- High amounts of coffee grounds were observed.

Images

		
Compostables	Compostable bin liners within larger clear bin liners	Compostable bin liners within larger clear bin liners
		
Compostable bin liners within larger clear bin liners (showing tea bags)	Coffee grounds	Heavily contaminated bag from tenant

Landfill Waste Audit

Purpose

The Landfill Waste Audit was conducted to gather data relating to target 1 of the *UC Waste Plan 2022-2030*:

Target 1 - Landfill waste stream to be composed of at least 75% 'clean landfill' by 2024 (i.e., a maximum of 25% of this stream to be made up of items that could have been diverted).

The audit results provide data for determining any significant changes within the Landfill waste stream from previous Waste Audits. The data will support decision-making and identify opportunities for introducing measures which might continue progress and/or improve results within the Landfill waste stream.

Process

Following are details regarding the audit process taken for the Landfill Waste Audit:

- All Landfill waste collected by EnviroNZ on Monday 19 August from the UC Campus was brought to the EnviroNZ Francella Street site. There was a total of 660kg of Landfill set aside to audit. Only 454.8kg of waste was sorted (69%).
- All Landfill waste was sorted on Tuesday 20 August by seven Sustainability representatives via the following process:
 - Each bag was individually weighed, and the weight was recorded.
 - Each bag was opened and tipped onto a dedicated waste sorting table (**NB:** some bags were rejected due to health and safety concerns).
 - Materials and items were hand-sorted according to applicable sub-categories.
 - 240L wheelie bins and small containers were used to sort waste according to volume i.e. 240L wheelie bins were used to sort materials/items found in large volumes and small containers were used for materials/items found in small volumes.
 - Once all Landfill waste had been sorted the sub-categories within the 240L wheelie bins and smaller containers were weighed and recorded.
 - Following this process, the waste was disposed of accordingly.

Key Insights

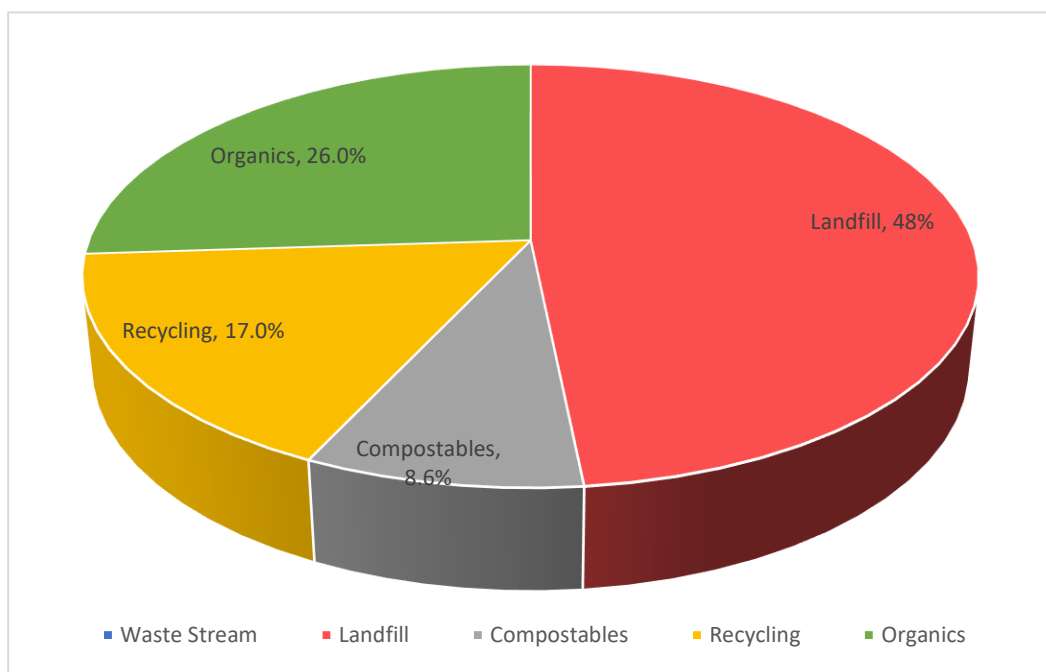
- Target 1 was not achieved with 43% of Landfill deemed divertible via Comingled Recycling or Organics (target specifies <25% to be divertible).
- An increase in waste sorters resulted in a higher amount of Landfill waste being sorted (2023: 102.5kg, 2024: 454.8kg).
- Organics within the Landfill appeared to be predominately from tenants.
- Reusable items suitable for donation increased (2023: 3%, 2024: 7%).

Data

Below is the Landfill waste stream composition. Materials have been categorised in relation to the correct UC waste stream and then further classified into materials and material sub-categories:

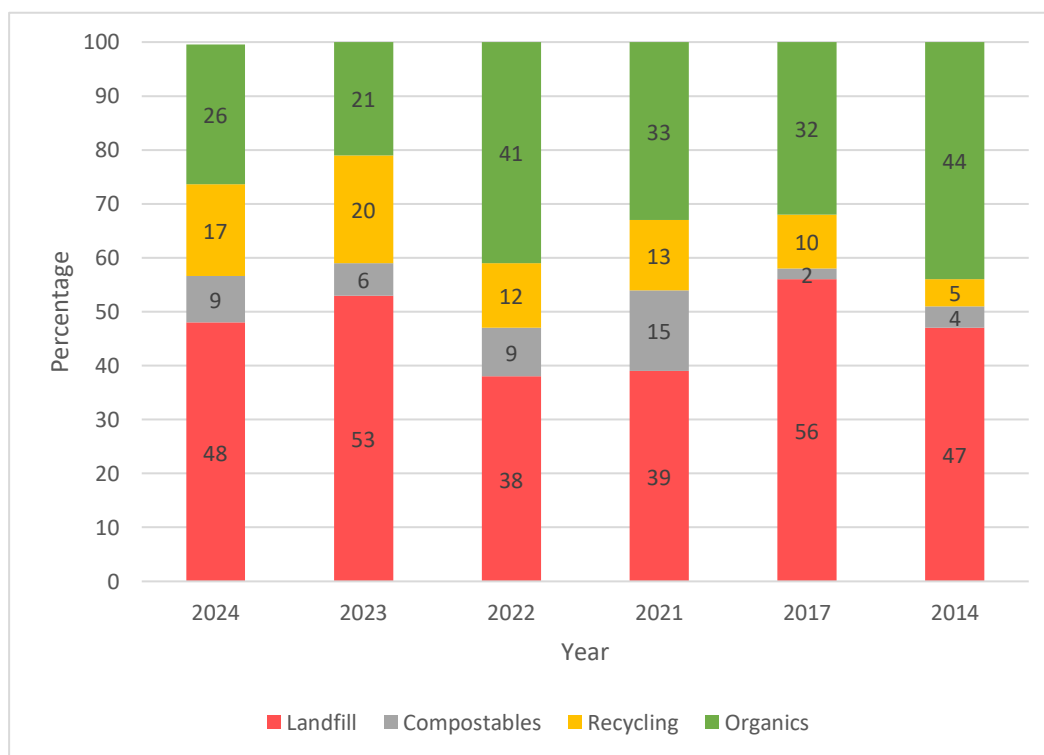
Waste Stream	Material	Material Sub-Category	Weight (kg)	Weight (%)	Additional Information
General Waste	Compostable Fibre Mix	Coffee Cups	13.4	2.9%	Diversion pathway not currently available
General Waste	Compostable Fibre Mix	Compostable Packaging	25.7	5.7%	Diversion pathway not currently available
General Waste	Plastics	LDPE #4 (soft plastic packaging)	38	8.4%	Diversion pathway not currently available
General Waste	Mixed Material	All Other Residual Waste Materials	149.5	32.9	Including paper towels, receipts, Boba cups, liquids and at-risk bags unable to be sorted.
Total Non-Divertible Materials			226.6	49.87%	
Comingled Recycling	Fibre	Paper	22.6	5%	
	Fibre	Cardboard	12.1	2.7%	
	Metals	Steel Tins	14.7	3.2%	
	Metals	Aluminium Cans	1.8	0.4%	
	Glass	Bottles, Jars & Other	6.8	1.5%	
	Plastics	PET #1 (bottles)	8.1	1.8%	
	Plastics	Other (PET # 1 containers, HDPE #2 bottles and containers, PP # 5 bottles and containers)	11.1	2.4%	
	Mixed Material	Reusable Items Suitable for Donation	32.6	7.2%	Reusable items suitable for donation
Organics	Food Scraps	Food Waste	118.4	26%	Including liquids
Total Divertible Materials			228.2	50%	
TOTAL WEIGH			454.8	100%	

The percentage composition by waste type within the Landfill waste stream was as follows:



Annual Comparison

A year-on-year comparison of the Landfill composition is as follows:












Key Observations






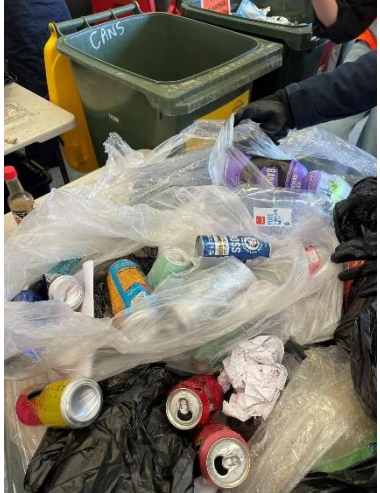
- Increased amounts of recyclable materials were observed within the Landfill waste stream compared with 2023, particularly Cans and Plastic Bottles (SUBs). There was an increased amount of rejected Comingled Recycling within clear bags within the Landfill waste stream. This has not impacted the Waste Audit data significantly as these materials are low weight.
- Much of the Organics within the Landfill appeared to have come from campus tenants.
- High amounts of Compostable Packaging and Coffee Cups were observed.

- Reasonable amounts of SUBs were observed (Cans, Plastics Bottles).
- Reasonable amounts of Tetra Paks were observed.
- Reasonable amounts of receipts were observed.
- Reasonable amounts of reusable items suitable for donation were observed e.g. clothing, homewares, and personal items.
- Reasonable amounts of coffee grounds were observed.
- Low volumes of Boba (#5) and PLA (#7) were observed.

Images

		
Pre Sort Example	Pre-Sort Example	Pre-sort example
		
Receipts	Coffee Grounds	Coffee Cups

		
Compostable Packaging	Plastics	Boba (#5) and PLA (#7) Cups
		
Tins	Soft Plastics	Single-Use Plastic Bottles (PET #1)
		
Cans	Paper	Food Scraps (Organics)

		
Cardboard	Reusable items (donatable)	Tetra Pak
		
Rejected Comingled Recycling	Rejected Comingled Recycling	Rejected Comingled Recycling

SINGLE-USE PLASTIC BOTTLE FINDINGS

Purpose

Both the Comingled Recycling and Landfill Waste Audits provided data to provide progress of Target 5 of the **UC Waste Plan 2022-2030**:

Target 5 – Single-use plastic bottle disposal drops by 20% by 2025 and 50% by 2030

The data collected has been used to quantify the number of plastic bottles being disposed of at the UC Campus.

Process

Data relevant to Single-Use Beverages (SUBs) was collected during the Comingled Recycling and Landfill Waste Audits to better understand the disposal of Plastic Bottles. Additional SUBs included in the data analysis include Cans and Glass bottles.

Key Insights

- Waste Data indicates that Target 5 is on track, with reductions in percentage of waste data weight composition.
- Findings continue to support considerations for the phasing-out of Plastic Bottle sales on campus.
- Plastic Bottles continue to be lower in volume and weight than Cans, indicating a continued consumer preference for Can from 2023.
- Higher volumes of SUB's were observed in the Landfill audit, with as many being disposed of in Landfill bins as Comingled Recycling bins, an increase on 2023 and 2022 assumed to be due to incorrect Cleaner practices (rejection of contaminated Comingled Recycling bags).

Data

The below table indicates the SUB weights and approximate volume² within both the Comingled Recycling and Landfill waste streams in the 2024 Audit:

Single-Use Beverage Containers	Comingled Recycling (kg)	Landfill (kg)	Total Weight	Total Volume (Litre)
Plastic Bottles	8.3	8.1	16.4	580L
Cans	15.5	14.7	30.2	1100L
Glass Bottles	6.7	6.8	13.5	47L

NB: As Glass is a heavier material, it is over-indexed in-weight vs volume, therefore, volume is a more accurate measure for comparing number of bottles.

To assist with understanding if Target 5 has been achieved specific Plastic bottle data has been compared against 2023 and 2022 Audit data. Due to the inconsistencies in Audit sample sizes, percentages are the most accurate comparison measure. The following table captures the data specific to Plastic Bottles across the 3 years.

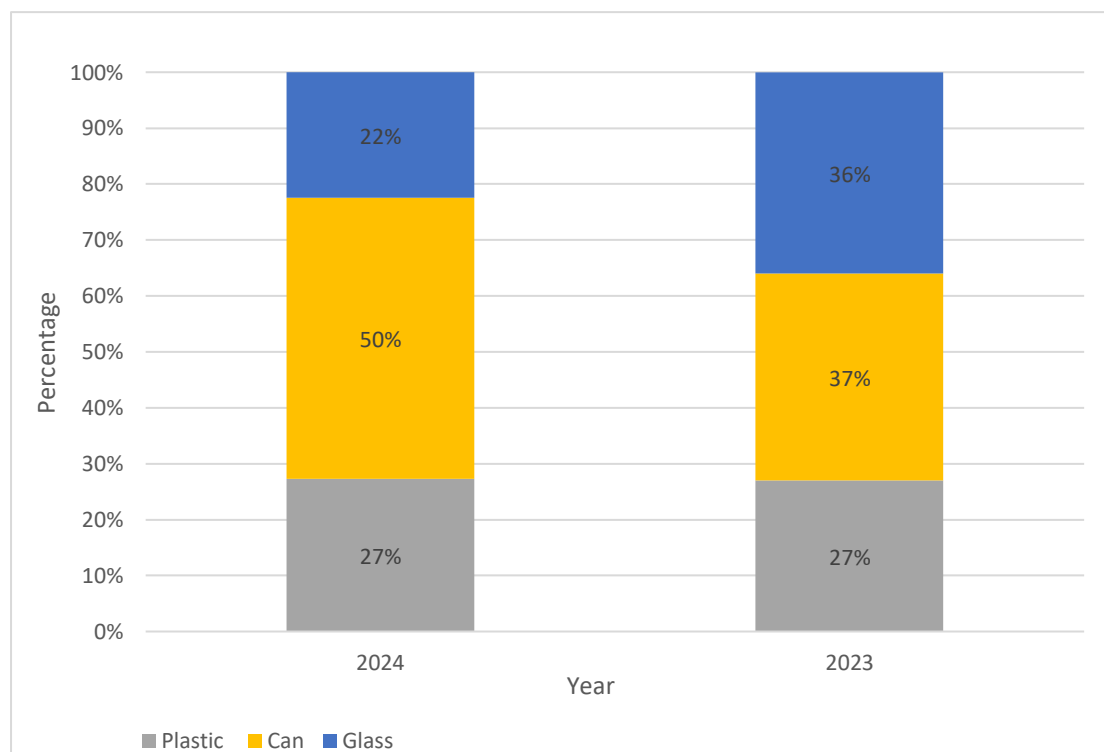
² Volumes are visual calculation based on volume within bin. For Plastic Bottles and Cans, 240L wheelie-bins were used, for Glass, a 54 litre bin was used.

Measure	2024	2023	2022
Kg PB in Recycling	8.3	11	32
Kg PB in Landfill	8.1	4.6	6
Kg PB in Landfill + Recycling	16.4	15.6	38
Kg of total Recycling	102.4	103.4	222
Kg of total Landfill	454.8	178.3	282
Kg total Landfill + Recycling	557.2	281.7	504
% PB in Recycling	8%	11%	14%
% PB in Landfill	2%	4%	2%
% PB in Landfill + Recycling	3%	6%	8%

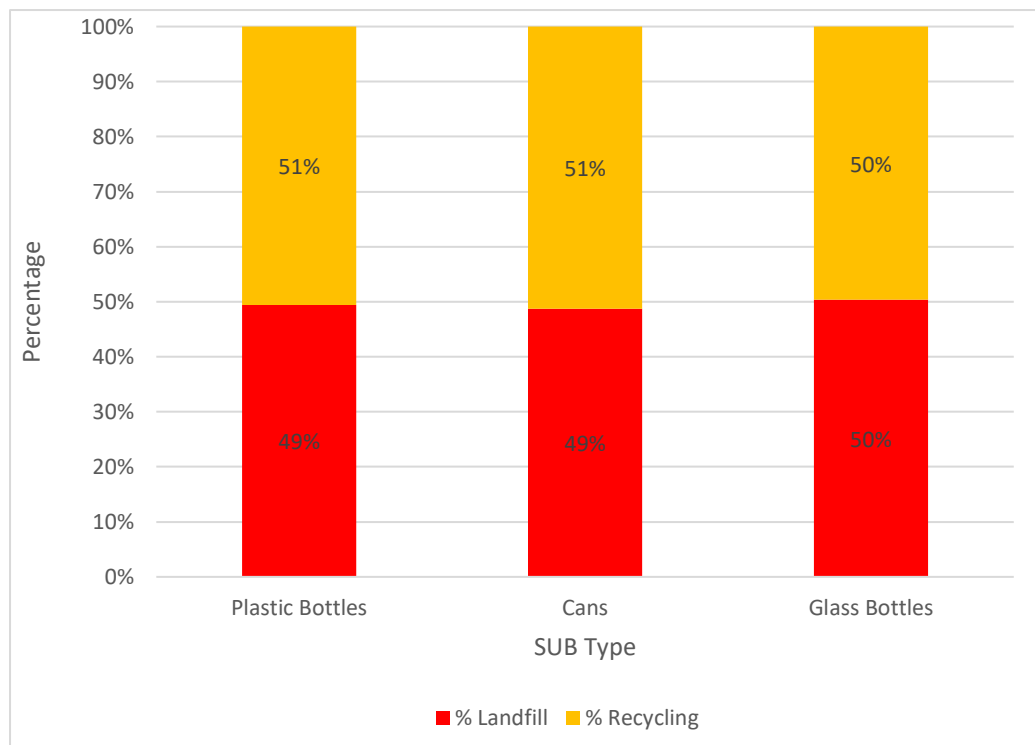
In 2024 the weight percentage of Plastic Bottles within the Waste audited was 3%, this is 50% of the weight percentage of 2023 (6%) and 37.5% of the weight percentage of 2022 (8%). This indicates that **Target 5 – Single-use plastic bottle disposal drops by 20% by 2025 and 50% by 2030** is on track for achievement.

Insights

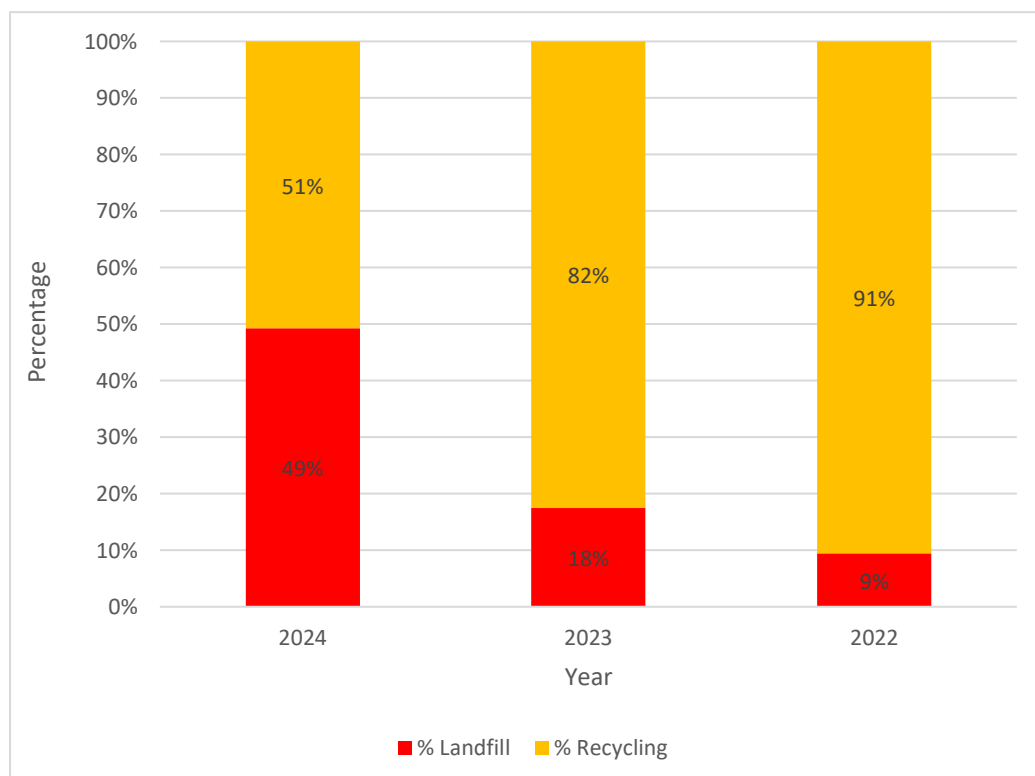
The data reveals that Plastic Bottles are lower in disposal (weight and volume) than Cans, and lower in volume than Glass. Representing 27% of weight percentage of all SUB's, the 2024 results for Plastic Bottles are consistent with the 2023 Waste Audit, as per the following graph:



The data indicates that almost as many SUB's are present in Landfill as Comingled Recycling with a total of 49% not being disposed for Recycling. This is consistent across all types of SUBs – Glass, Cans and Plastics Bottles. The following graph depicts the weight percentage by SUB types within Comingled Recycling and Landfill:



The 2024 results for SUB percentage weight disposal to Landfill (49%) was much higher than both 2023 (18%) and 2022 (9%) as the following graphs show.



Feedback obtained from EnviroNZ and supported by the Cleaning Supervisors suggests that a proportion of this could be due to incorrect bag rejection by Cleaners, a practice not required due to the EnviroNZ decontamination process.

Key Observations

		
Rejected Comingled Recycling in Landfill	Rejected Comingled Recycling in Landfill	Rejected Comingled Recycling in Landfill

WASTE COLLECTION DATA ANALYSIS

Purpose

As there were some key observed differences in the waste audited in 2024 versus 2023, such as the significant reduction in Organics waste presented, and the increase observation of Comingled Recycling in Landfill, Sustainably requested a waste collection dataset from EnviroNZ for the prior 3 years.

Process

Sustainably conducted a comprehensive analysis of the UC waste collection dataset provided by EnviroNZ, to identify key challenges and trends.

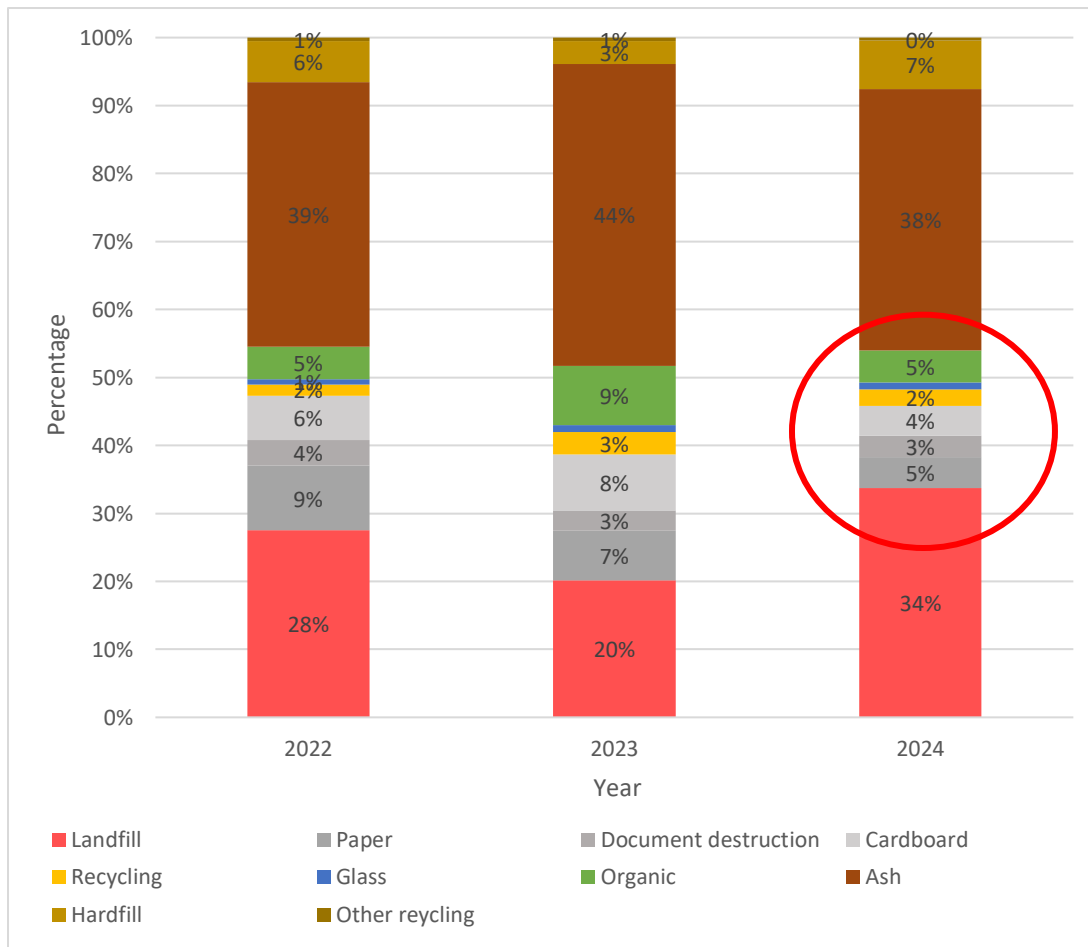
Data

The dataset provided from EnviroNZ was tabled by waste stream tonnage by year as follows

Waste Stream	Tonnage		
	2022	2023	2024
Landfill	227.0	156.4	282.6
Paper	78.0	56.6	38.4
Document destruction	31.5	23.2	26.1
Cardboard	53.6	63.9	37.3
Comingled Recycling	13.8	25.5	20.4
Glass	6.3	7.8	8.4
Organic	39.3	67.8	39.3
Ash	321.0	344.2	322.7
Hardfill	49.7	26.4	59.3
Other Recycling	4.5	4.1	3.9
Total	824.7	775.7	838.5
Total 2024 vs 2023			+8%
Total 2024 vs 2022			+2%
Landfill 2024 vs 2023			+81%
Landfill 2024 vs 2022			+24%

The analysis revealed an 8% increase in total waste tonnage on 2023 and a 2% increase on 2022, with Landfill significantly contributed to the overall waste increase particularly in comparison to the 2023 with an 81% increase in tonnage.

There has been a 4% decrease in Organics waste stream collected from the site, which is supported by the lower amount of this waste stream presented at the Waste Audit. Additionally, recyclable waste streams collected from site have decreased by 7%. This is corroborated by a rise in Organics and recyclable materials observed in the Landfill Waste Audit. The below graph indicates the increase in Landfill and decrease in Organics and recyclable materials within overall waste amounts:



POTENTIAL OPPORTUNITIES

The Waste Audit findings highlight several opportunities to improve the waste system at UC, aiming to reduce waste and increase diversion from Landfill. Last year Sustainably recommended conducting a Waste System Assessment to identify and quantify these opportunities. This could be tailored to meet the needs of the University and could either be a comprehensive evaluation of the complete UC waste system, or a targeted approach focusing on specific components (e.g., waste pathways, waste contracts) or areas of the campus (e.g., tenant spaces, external areas).

To lay the groundwork for the Waste System Assessment, Sustainably merged findings from the Waste Audit with insights from the September 19th stakeholder meeting, identifying several promising opportunities. Utilising Sustainably's intersecting circular framework, as illustrated below, this report will conclude by outlining these opportunities for UC's consideration:

1. **Programme:** establishing priorities and setting goals.
2. **Place:** identifying unique site features that impact waste systems.
3. **Partners:** strengthening partnerships and aligning expectations so that they are mutually beneficial.
4. **Pathways:** improving bin systems to foster better user decision-making and increase diversion.
5. **Products:** finding solutions for single-use, high-volume, and challenging materials, as well as waste stream addressing contamination.
6. **Practices:** amplifying results by consideration of staff processes, training, engagement, and outreach.



Programme



A Waste Reduction Programme is a strategic framework which supports the transition to an environmentally sustainable waste system. UC has initiated strategic planning for waste reduction and Landfill diversion in its *UC Waste Plan 2022-2030* (UC Waste Plan). The UC Waste Plan forms the basis of a Waste Reduction Programme.

As indicated by previous Waste Audit results, progress toward the established targets has been minimal. Sustainably recommends revisiting the priority areas and targets specified in its Waste Plan to better align them with the findings from Waste Audits and new objectives that may have emerged. Sustainably can help develop comprehensive deliverables to help achieve UC Waste Plan strategies, clearly defining key tasks, responsibilities, timelines, outputs, and expected outcomes for each target.

Updating the UC Waste Plan and defining deliverables will likely necessitate engagement and collaboration with key stakeholders. Sustainably can facilitate this process through advisory consultations or workshop sessions. This process can be aligned with organisational timelines, resource allocations, and budget considerations.

Place



The UC Campus includes a range of facilities and spaces, each equipped with different waste infrastructures and handling diverse volumes and materials. Additionally, these areas are serviced by a combination of internal and external cleaning contractors. While the UC Facilities Team controls certain aspects of the waste system— external waste infrastructure, signage, waste services contract terms—they have limited oversight of other critical components—tenant waste practices, student and faculty behaviours, and product procurement.

Given these challenging environmental conditions, the UC Facilities Team should look to streamline and enhance its area of control while maximising influence where it has limited oversight. The subsequent elements within Sustainably's Waste Assessment Approach will detail how this can be effectively achieved.

Partners



Meaningful change hinges on collaboration, and the waste services provider is a crucial stakeholder in establishing an effective waste management system. We recommend investigating opportunities surrounding a campus-wide waste services agreement, consolidating the various UC facilities and business areas currently managed under individual contracts. This will foster a more integrated and cohesive approach to waste management.

Alternatively, UC should re-engage with its existing waste services providers to assess the efficiency and effectiveness of the current contract. This evaluation can uncover opportunities for improving waste infrastructure (i.e., bin quantities, sizes, and placement), servicing schedules, and reporting requirements, all of which can deliver financial (i.e., cost savings) and environmental benefits.

Cleaners are essential stakeholders in the waste management system across the UC campus. The rejected clear Comingled Recycling bags observed during the UC Waste Audit indicate an opportunity to improve at source sorting, reduce contamination, and increase recycling levels. Engaging cleaning staff in identifying and integrating processes that enhance waste diversion would significantly benefit the UC waste system. This could involve amending responsibilities, enhancing training programmes, and incentivising positive performance.

Engaging with tenants is crucial for understanding their internal bin systems, waste volumes, materials, staff practices, and waste-related challenges. Insights gained from tenant engagement can enhance waste management approaches, fostering better integration with UC's infrastructure and servicing schedules. Improved tenant practices will support reduced waste outputs and higher diversion rates, particularly for Organics observed in Landfill which appears to be predominantly from tenants. It will also lay the groundwork for collaboration between tenants and cleaning contractors.

With a background in owning and operating a waste services business, Sustainably has the unique expertise to support businesses in navigating the waste services provider contract negotiation and account management landscape. We can assist with contract negotiations or procuring a new service provider. Additionally, we can support discussions and negotiations with cleaning contractors and tenants.

Pathways



Maximising the diversion pathway within a waste system is a crucial strategy for minimising environmental impact. Waste streams refer to waste collection service provisions, while diversion pathways encompass the entire waste journey, from waste generation to disposal destination. Whereas waste streams are generally static, diversion pathways are dynamic, and businesses can influence these pathways to drive effective change within their waste system.

At the UC Campus, existing front-of-house waste streams include Landfill, Comingled Recycling, Cardboard, Paper, Glass, and Organics. Despite the diverse range of waste streams, UC Waste Audit results indicate that a substantial portion of contamination in Comingled Recycling could be eliminated, and more waste could be diverted from Landfill, by enhancing on-site diversion pathways. UC should aim to improve its diversion pathways to be as robust or stronger than Landfill options.

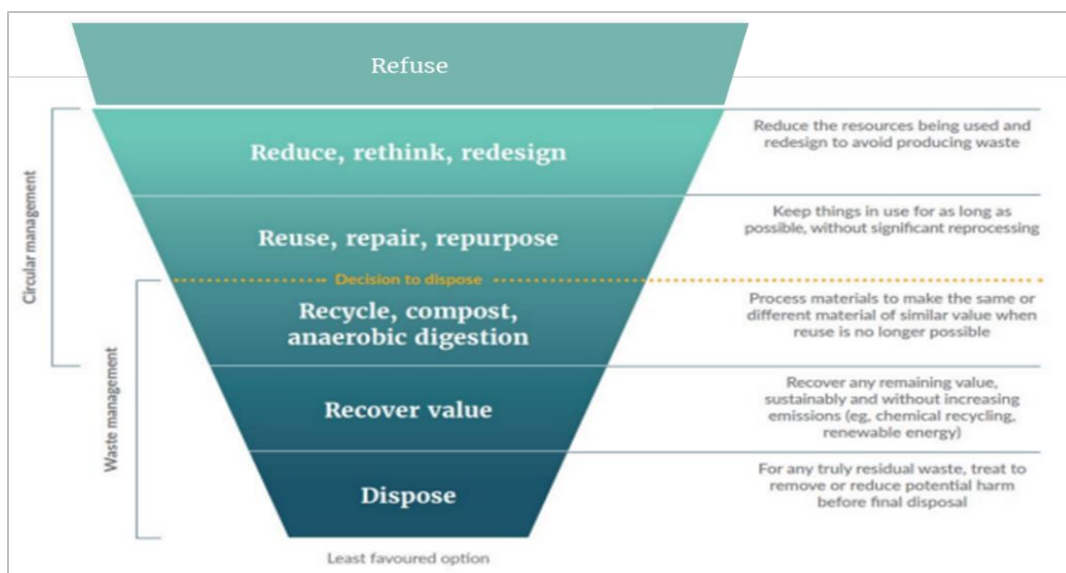
Diversion pathways can be improved by enhancing waste infrastructure, implementing site-specific signage, and broadening waste stream availability. Designing user-friendly bins and reviewing their placement can assist with strengthening diversion pathways. Additionally, creating tailored signage featuring messaging aligned with on-site waste streams, common materials and contaminants will improve disposal behaviours among tenants, staff, and students and enhance the overall user experience. Finally, aligning on-site waste streams with nationally standardised kerbside waste streams and exploring new recyclable options, such as Soft Plastics, will contribute to strong and cohesive diversion pathways.

Sustainably has conducted comprehensive research in waste signage and visual aid design, completing projects for several high-profile clients. Our experience also includes waste infrastructure design and pioneering industry innovations, with samples available for viewing in our showroom. We would be delighted to share our insights, showcase examples of our previous design projects, and support the development and installation of innovative waste solutions.

Products



The UC Waste Audit identified several key consumable products contributing to high volumes of waste across all waste streams. Many of these items were single-use products such as Plastic Bottles, Compostable Packaging, and Soft Plastic. We would suggest that these high-volume consumables be considered within the Ministry for Environment Waste Hierarchy:



For instance, food and beverage tenants could be approached to collaborate on a project to phase out Plastic Bottles from the UC Campus. Similarly, compostable packaging could be minimised by partnering with food and beverage tenants to encourage the adoption of reusable serviceware and coffee cup initiatives. Additionally, a Soft Plastics waste stream could be investigated, as detailed under ‘Pathways’. Lastly, purpose-built waste infrastructure equipped with smart bin technology could help users make informed disposal choices.

Another way to address product challenges is by reviewing product-related procurement policies and processes. This review could lead to significant waste reduction benefits, such as sourcing sustainable products, encouraging bulk purchasing to minimise packaging waste, and fostering partnerships with suppliers committed to environmental practices.

Sustainably can help UC identify and address problematic products and materials, supporting efforts to eliminate, reduce, or substitute them. Our services include researching, sourcing, and evaluating potential alternatives. Additionally, we provide smart bin technology and can assist in reviewing procurement policies and processes, drawing on our experience with policies, standard operating procedures (SOPs), and requests for proposals (RFPs) and quotations (RFQs).

Practices



Modifying a waste system is effective only when seamlessly integrated into daily practices, requiring that these changes become intrinsic to daily operations and embedded within the organisation's culture. Engaging tenants, staff, contractors, and students is essential to optimise practices and improve waste outcomes.

Following the implementation of physical changes, it is important to update Standard Operating Procedures (SOPs), guidelines, and job descriptions for cleaning contractors, tenants, and staff. The effectiveness of new processes can be enhanced by introducing Waste Ambassador roles for key personnel, who will facilitate training and ensure compliance.

UC should also implement a training program, using engaging workshops or online platforms to educate stakeholders about the new waste system. Incorporating waste information into staff, tenant and contractor induction processes will reinforce responsibilities.

Shifting the organisational culture around waste reduction requires effective communication. Specific communication tools can share waste statistics, celebrate achievements, and incentivise compliance. Finally, UC can enhance its impact by engaging with schools, non-profits, social enterprises, and local businesses, providing resources and mentorship to support others waste minimisation journeys. Additionally, UC could consider forming a partnership with a local environmental not-for-profit, supporting them through annual appeals, volunteer events, and other efforts.

Sustainably can assist with updates and the establishment of Waste Ambassadors while also specialising in developing effective training and educational resources tailored to these needs. We are equipped to design and implement internal communication programs, including material development, online tool design, and workshop delivery. Our strong connections in this sector will further enable UC to enhance its sustainability initiatives and community impact.

CONCLUSION

The 2024 Waste Audit has identified both challenges and opportunities within the UC Campus waste management system. Although target 1 (relating to Comingled Recycling contamination) was achieved, the level of contamination is still higher than the 10% required to eliminate a decontamination process. Target 5 (relating to Plastic bottle disposal rates) is on track, however the Waste Audit revealed that target 2 (relating to Organics contamination) and target 3 (relating to divertible materials in Landfill) were not achieved.

With consideration for the Waste Collection Analysis data, Landfill waste has increased by 81% on 2024 indicating that action is required to address this trend and enhance waste diversion efforts. The decline in the amount of most recyclable waste streams and Organics further underscores the need for a renewed focus on waste reduction strategies.

To improve target performance and waste collection statistics, Sustainably recommends UC conduct a comprehensive Waste System Assessment. An assessment will highlight opportunities using Sustainably's intersecting circular framework: programme, place, partners, pathways, products and practices.

Sustainably is happy to provide clarity on any information within this report and we look forward to our continued partnership for improving waste outcomes across the UC Campus.