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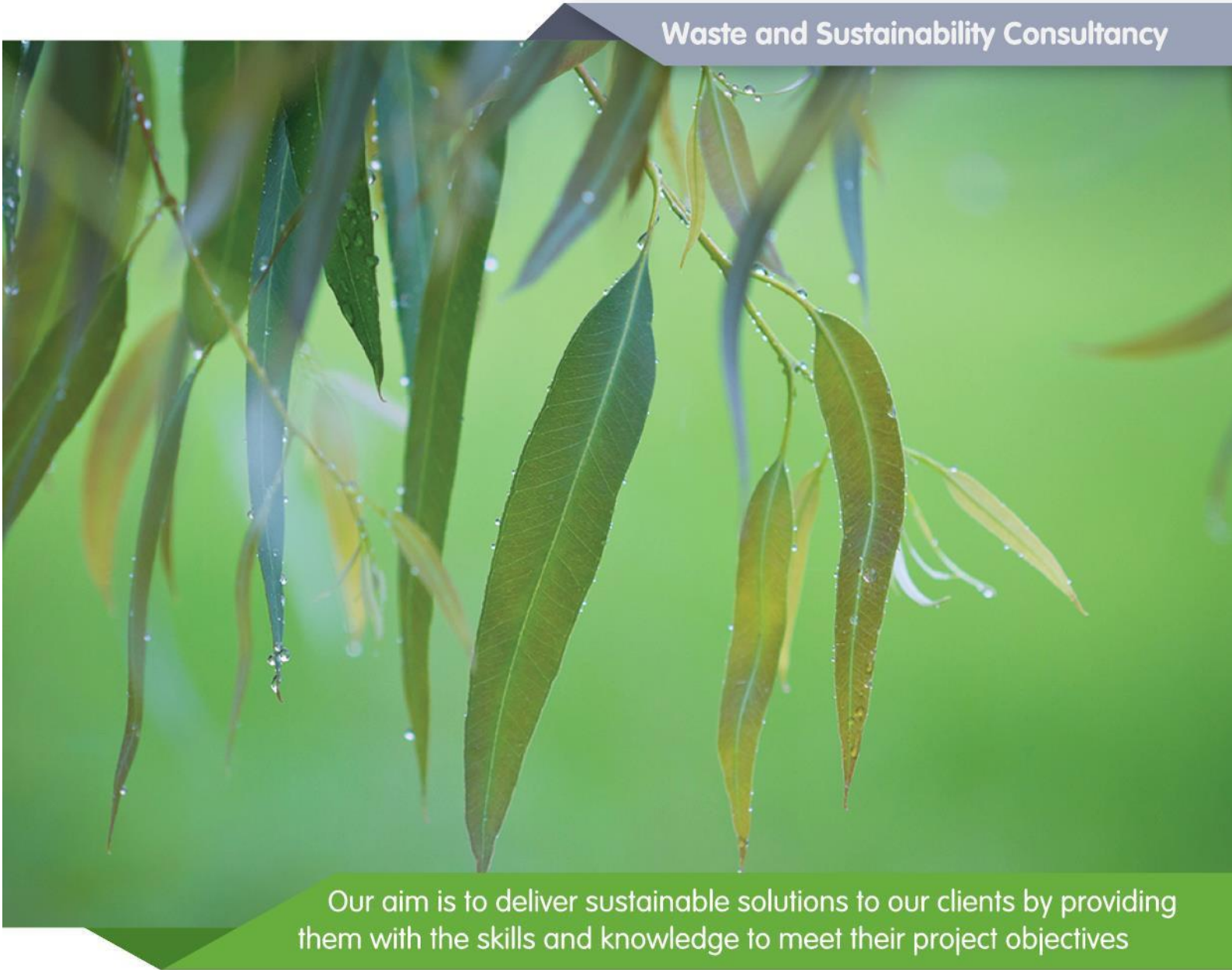

Report

Kerbside waste, recycling and garden organics audits 2024

Produced for: Muswellbrook Shire Council

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1. Executive summary

The following tables provide a quick reference to the previous audit results.

Table 1 – Presentation rate

	Presentation rate	
	2022	**2024**
Waste	89.3%	**87.35%**
Recycling	82.8%	**79.15%**
Garden organics	67.5%	**65.89%**

Table 2 – Bin percent full

	Bin percent full	
	2022	**2024**
Waste	74.1%	**72.84%**
Recycling	75.8%	**75.78%**
Garden organics	73.5%	**72.12%**

Table 3 – Contamination rate

	Contamination rate	
	2022	**2024**
Recycling	15.5%	**13.63%**
Garden organics	4.8%	**4.28%**

Table 4 – Average weekly generation rate

		Average weekly generation rate kg/households/week	
		2022	**2024**
Waste	Presented bins	10.02 Kg	**8.41 Kg**
	Incl. non-presentation	8.95Kg	**7.35 Kg**
Recycling	Presented bins	3.29 Kg	**2.96 Kg**
	Incl. non-presentation	2.773 Kg	**2.34 Kg**
Garden organics	Presented bins	8.37 Kg	**6.64 Kg**
	Incl. non-presentation	5.65 Kg	**4.38 Kg**

2. Introduction

Muswellbrook Shire Council has a population of approximately 16,357. It is understood there are approximately 7,298 residential dwellings, of which approximately 99% are estimated to be single residential dwellings and 1% are estimated to be multi-unit dwellings (*dwelling numbers from census quick stats 2016*). The dwelling structure and number of each occupied dwelling type is shown in the following table.

Table 5 – Council dwelling structure

Dwelling structure ***Occupied***	**LGA households**	**Percentage in LGA**	**National percentage**
Separate house	**5,292**	88.2%	72.3%
Semi-detached, row or terrace house etc	**595**	9.9%	12.6%
Flat, unit or apartment	**58**	1.0%	14.2%
Other dwelling	**33**	0.5%	0.6%

Data adapted from http://www.censusdata.abs.gov.au/ - 2021 data

Note: there is an estimated 805 (11.8% of total private dwellings) unoccupied private dwellings in the LGA

Current bin systems

Council operates a three-bin urban domestic waste service that includes:

Table 6 – Residential urban services provided.

	General/residual **Waste** red-lid bin	Commingled **Recycling** yellow-lid bin	Garden **Organics** green-lid bin
Standard service	140L Weekly	240L Fortnightly	240L Fortnightly
Approximate number of services	6,959	6,729	6,260
Collected by	J R Richards	J R Richards	J R Richards
Processed by	MSC	J R Richards	MSC

Project main objectives

All project objectives were successfully met. The audit was undertaken in accordance with the NSW EPA's "*Guidelines for conducting Household Kerbside and Residual Waste, Recycling and Garden Organics Audit in NSW Local Government Areas 2008 – Addendum 2010*", "Per household method".

The audit objectives were capture data that allows Councils to report on the kerbside collection service and to assist on targeted education strategies to any shortcomings in the existing disposal behaviour of residents. Knowwaste completed:

- Pre-collection visual audits to capture:
    - Presentation rates and generation rates by volume (bin percent full).

- Physical audits:
    - To gather data on waste, recycling and garden organics composition to allow monitoring of the services and waste diversion impacts.
    - Assess trends in the volume and composition of all three streams.
    - Assess the ongoing performance of the recycling and garden organics service:
        - recovery rates, contamination and generation rates.
        - leakage – loss of recycling and garden organic recoverable items in the landfill bins.
    - Provide baseline data to compare any new service.
    - To provide information on CDS eligible containers.
    - To compare the results of this audit with the results of previous audits.
    - Allow future evaluation of the services and waste diversion impacts.

Trends in the volume of all three streams

Recycling held a similar bin percent full compared to 2022, whereas waste and garden organic bin percent full both dropped marginally since 2022.

Figure 1 – Bin percent full

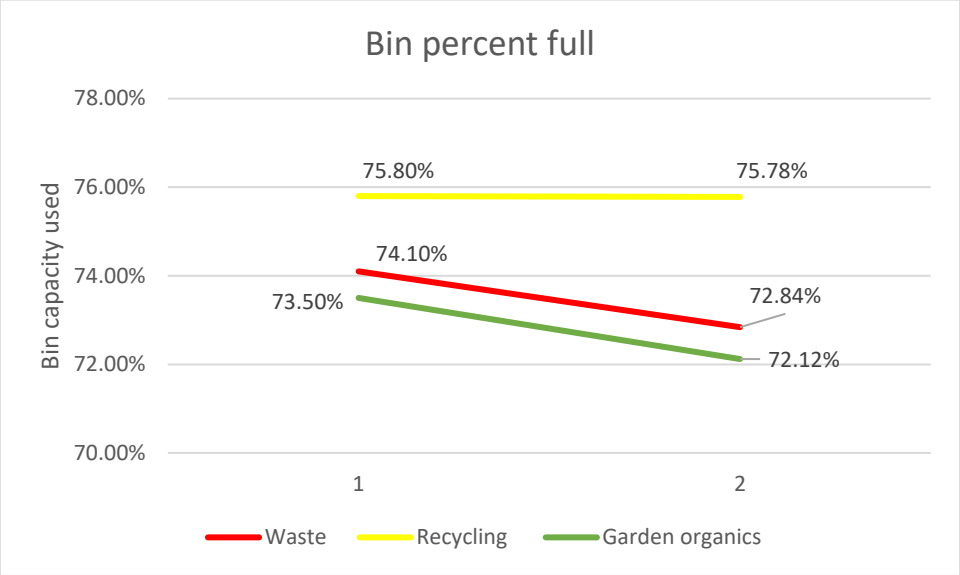


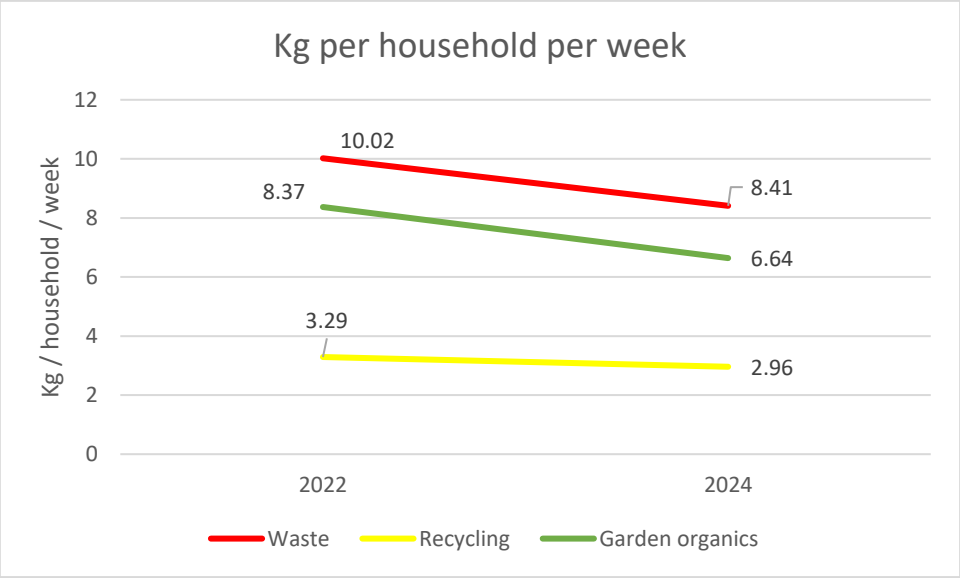
Table 7 – Bin percent full

	Bin percent full	
	2022	**2024**
Waste	74.1%	**72.84%**
Recycling	75.8%	**75.78%**
Garden organics	73.5%	**72.12%**

Recycling and garden organics generation rates and contamination

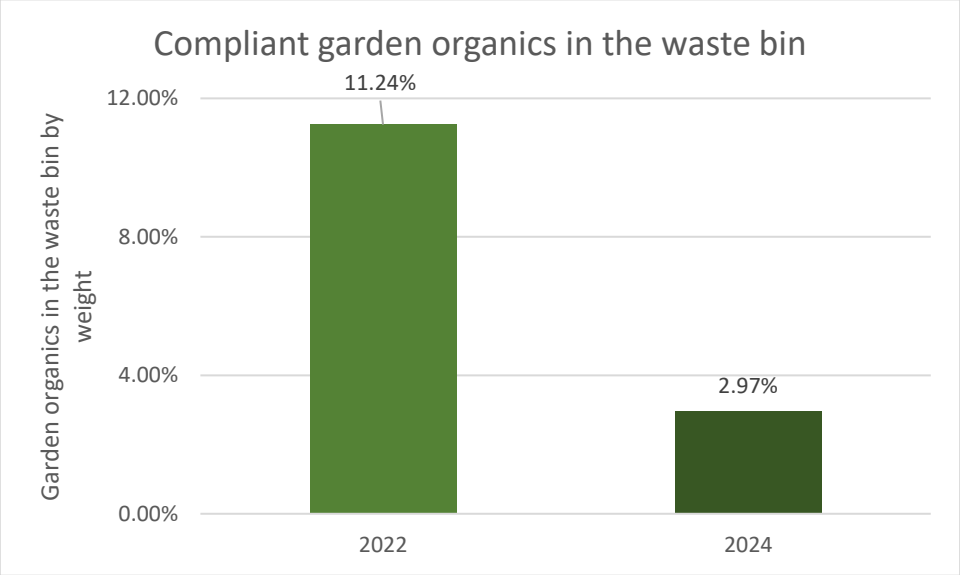
Waste and garden organics have followed a steady reduction in generation over the past two years, whereas the households that presented their recycling bins have maintained a similar generation rate. If Council introduces a new FOGO service, the waste bin could reduce its generation further by up to 35.07% or 2.95 Kg (food 32.45% and garden organics 2.62%).

Figure 2 – Bin generation rates



Garden vegetation in the waste stream has reduced from 11.24% down to 2.97% % in 2024.

Figure 3 – Garden organics in the waste bin



Contamination rates have reduced over the past two years. Recycling contamination has improved from 15.50% to 13.63% since 2022. Council's education program has had an impact, Council may wish to consider an education campaign to educate residents on the key contamination items, such as non-recyclable plastics and non-recyclable paper. For example, Knowwaste has had a lot of success with bin tagging, monitoring and reporting with other Councils in NSW over the past 8 years.

Garden organics also had an improvement since the 2022 audits results. Oversized garden organics and pet waste was 1.54%% of contamination, down from 2.31% in 2022.

Figure 4 – Contamination rate

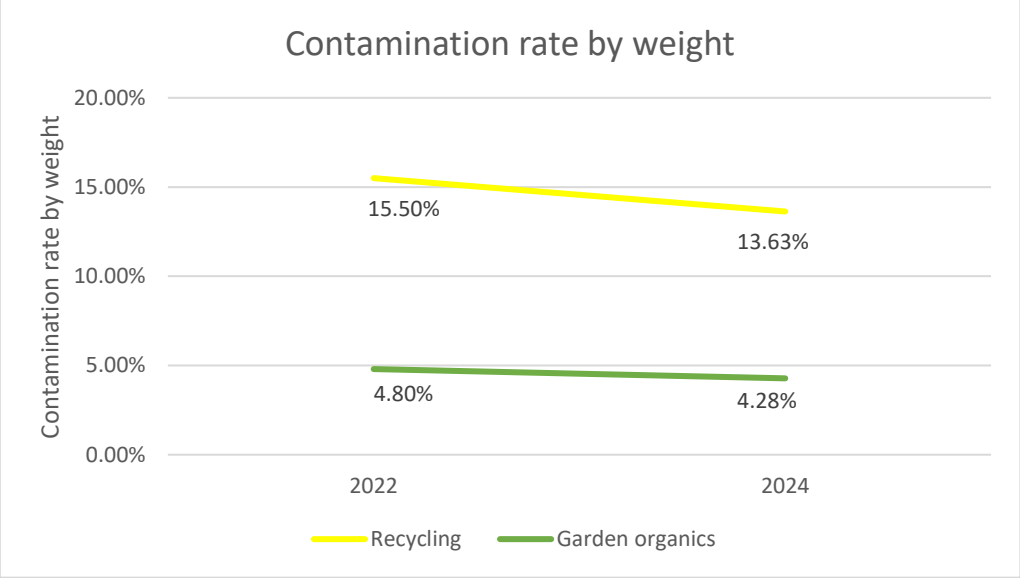


Table 8 – Contamination rates

	Contamination rate	
	2022	**2024**
Recycling	15.5%	**12.48%**
Garden organics	4.8%	**4.28%**

Presentation rates for all 3 streams

All three waste streams presentation rates have tracked comparatively since 2022. All streams have had a marginal reduction. This could be a result of post-COVID and people now spending less time at home and therefore producing less waste generation.

Figure 5 – Presentation rates

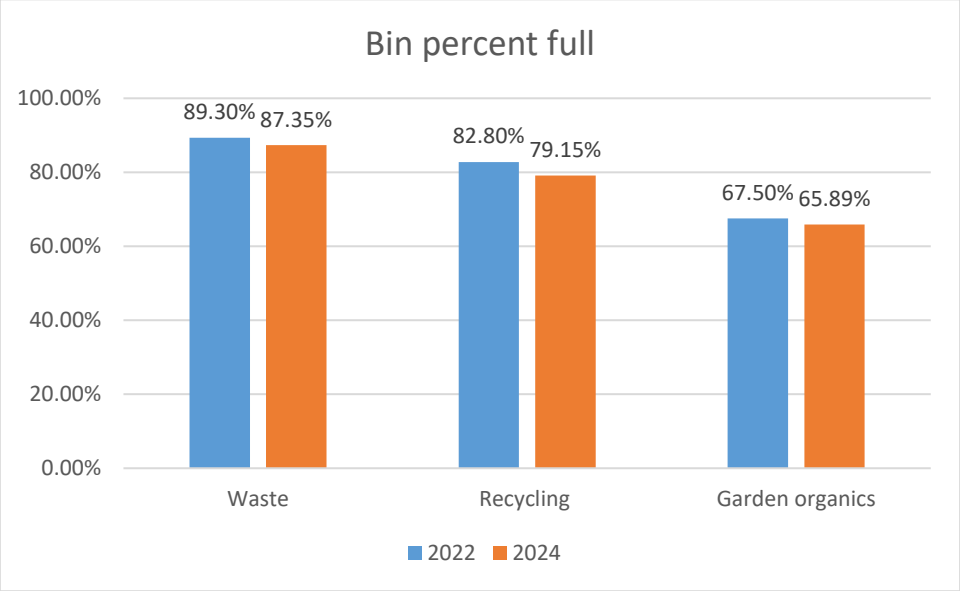


Table 9 – Presentation rates

	Presentation rate	
	2022	**2024**
Waste	89.3%	**87.35%**
Recycling	82.8%	**79.15%**
Garden organics	67.5%	**65.89%**

Assess the potential for the volume of garbage space to be reduced

The field teams believe the current bin sizes were adequate for the residents. The base waste service was 140L.

As Council introduces a new FOGO service, they may consider introducing a new standardised waste bin size of 120L. However, if there is any potential to change the waste service to a fortnightly collection, then bin sizes should likely not be reduced.

3. Results

Waste results

Waste bins had a presentation rate of 87.35% with the average bin usage at 72.84% of full capacity. The average household produced 8.41 Kg of waste per week.

Of the weekly waste bin generation, 11.57% by weight was recycling that could have been placed in the existing kerbside yellow lid recycling bins. Paper and cardboard was the highest proportion (4.57%), plastics (3.16%), glass (2.33%) and metal (1.52%).

Of the weekly waste bin generation 44.17%% content was Food and Garden / organic material. Of which, 35.07% (32.45% food and 2.62% garden organics) was deemed to be FOGO compliant in it's presented condition. The remaining 9.10% included containerised food, 'oversized' logs and pet waste.

The average household is presenting 1.37 CDS containers in their waste bins per week.

Full breakdown of categories are shown in appendix, with previous year comparisons.
Overview of 2024 waste bin audit results:

- Presentation rates – **87.35%**
- Average bin percent full – **72.84%**
- Average overall weekly generation rate – **8.41 Kg** per household per week (kg/hh/wk)
- Average leakage rate (loss or MGB recyclable in the waste stream) – **11.57%**
- CDS items in the waste stream – **1.37** items

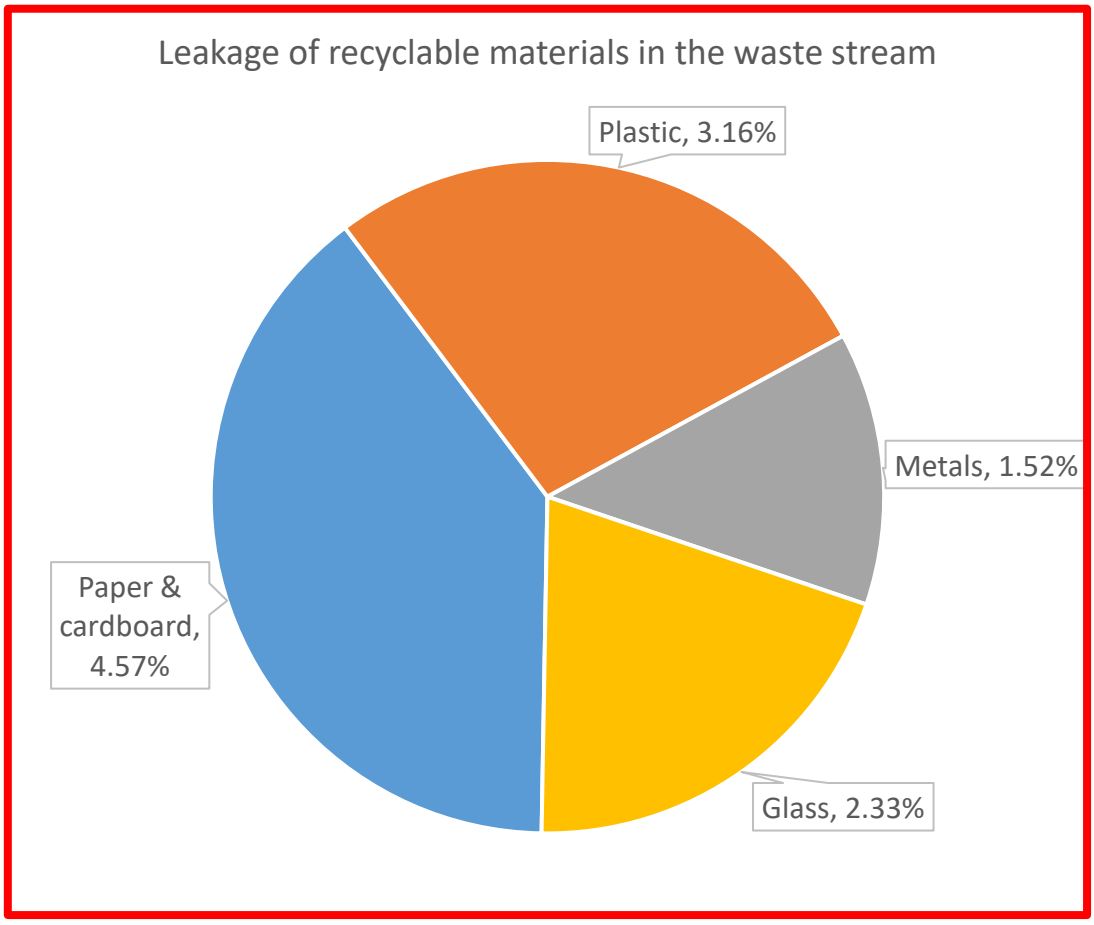
The following table shows the 'leakage' of recyclable materials in the waste stream. These materials are compliant in the existing yellow lid recycling bins available to households.

Table 10 – Waste bin leakage of recycling

Leakage of MGB compliant recyclables in the waste stream									
Average **KG** per week per household					**Percentage** per week of whole bin weight				
Paper	Plastics	Metal	Glass	Overall	Paper	Plastics	Metal	Glass	Overall
0.38	0.27	0.13	0.20	**0.97**	4.57%	3.16%	1.52%	2.33%	**11.57%**

As shown in the table, recyclable paper and cardboard are the largest percent of recycling material in the waste stream by weight. Plastics were second, metal third and glass was fourth. The following figure illustrates the results.

Figure 6 – Leakage of recyclable materials in the waste stream



Waste generation rates – summary categories

The following tables show the summary categories in the waste stream. The results are displayed in generation per household per week. The first table shows results in weight and the second table as a percentage of the overall bin contents.

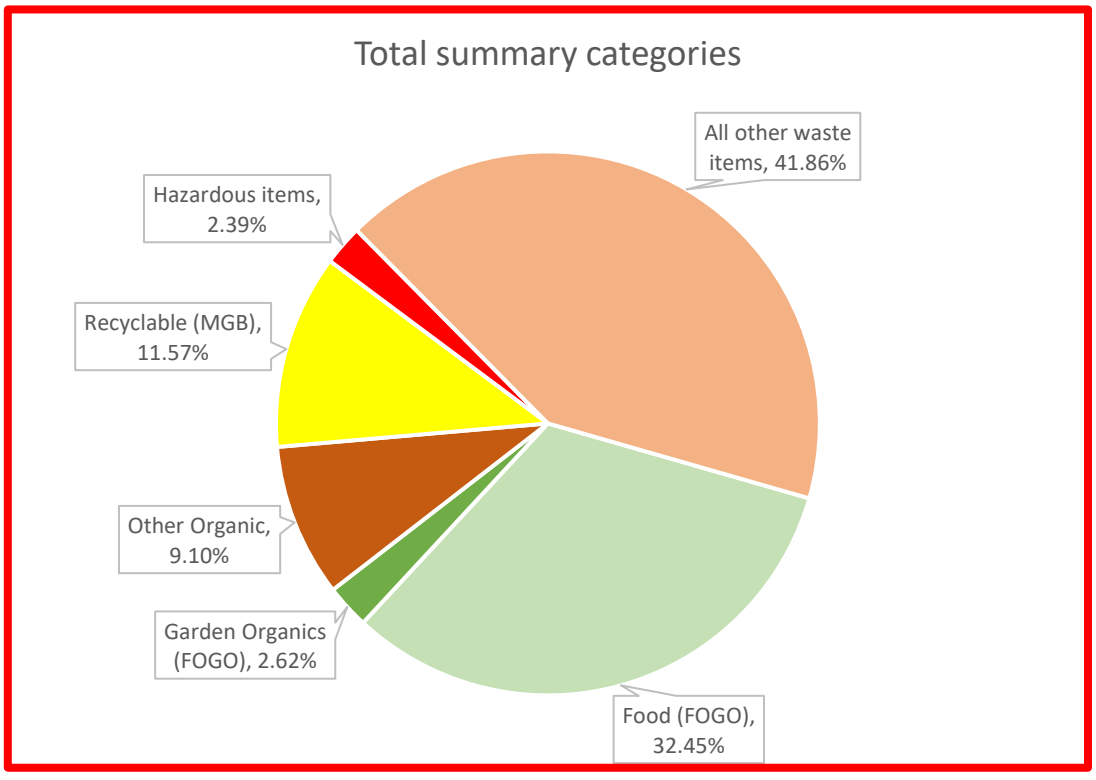
Table 11 – Waste generation rates – summary categories

	Summary categories in the waste stream – Kg / week						
	FOGO complaint		Other organic	Recyclable (MGB)	Hazardous items	All other waste items	Total
	Food	Garden organics					
Total LGA 220 households	2.73	0.22	0.77	0.97	0.20	3.52	**8.41**

	Summary categories in the waste stream – Kg / week						
	FOGO complaint		Other organic	Recyclable (MGB)	Hazardous items	All other waste items	Total
	Food	Garden organics					
Total LGA 220 households	32.45%	2.62%	9.10%	11.57%	2.39%	41.86%	**100.00%**

The following figure show the summary categories in percentage by weight.

Figure 7 – Waste stream summary categories



The following table provides a breakdown of the "Other waste items" in the waste bins.

Table 12 – All other waste items breakdown

All other waste items	Notes	percentage
Non-recyclable plastics	Plastic bags, polystyrene, composites	15.28%
Non-recyclable paper	Nappies, coffee cups, composites	14.00%
Textiles	Clothes, shoes and bedding	4.79%
e-Waste	Electrical	2.77%
Ceramics / dust / dirt	Inert, ceramics, dust, dirt	2.27%
Non-recyclable metal	Any non-container type metal items	2.30%
Non-recyclable glass	Sheet / plate glass	0.42%
Other	Other non-specifically specified items, such as composites.	0.02%
Total subcategory		**41.86%**

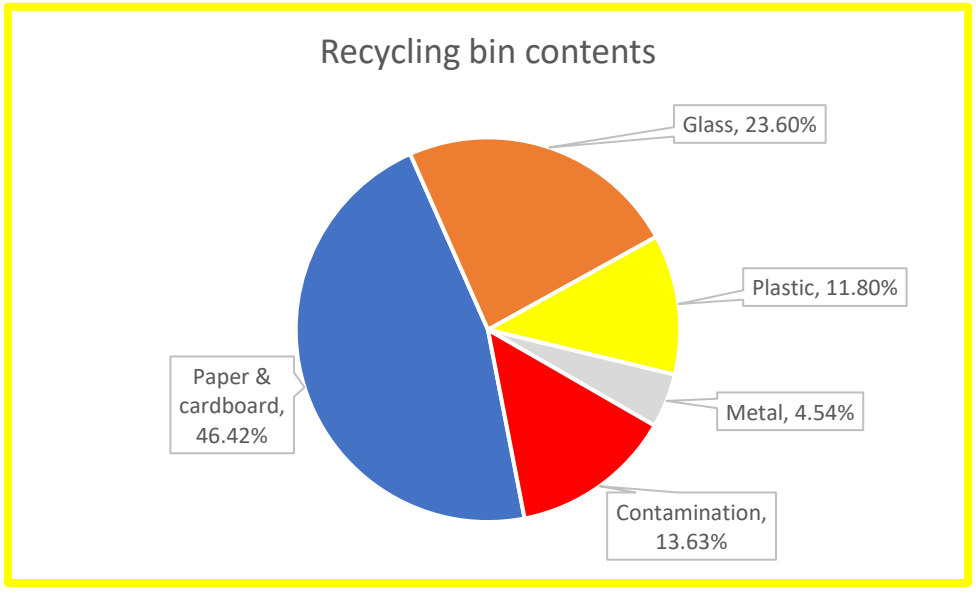
Recycling results

Recycling bins had a presentation rate of 79.15% with an average bin at 75.78% capacity. The average household recycling bin contained 5.91 Kg of material, or 2.96 Kg of material per week.

Allowing for non-presented bins, the overall average weekly household generation across the LGA would be closer to 2.34 Kg per week.

Recyclable paper and cardboard contributed 46.42% of recycling bin contents, recyclable glass (23.60%), recyclable plastics (11.80%) and recyclable metal (4.54%). The remaining 13.63% was contamination. Contamination has reduced since 2022.

Figure 8 – Recycling bin contents



- Presentation rates – **79.15%**
- Average bin percent full – **75.78%**
- Average generation – **2.96 kg** per household per week (kg/hh/wk)
- Average contamination rate (incorrect items placed in the recycling bins) – **13.563%**
- The average households presented **6.26 CDS** items in their recycling bin. This equates to an average of 3.13 CDS items per households per week.

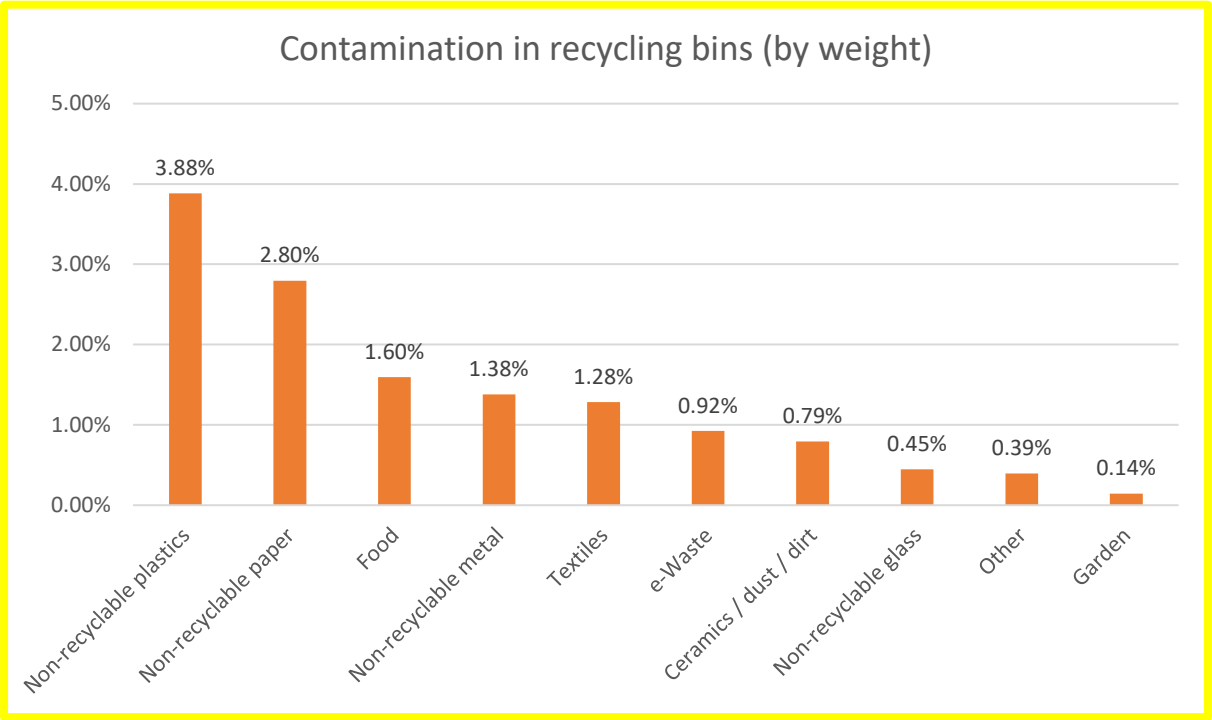
The full contamination list in the recycling bins included:

Table 13 – Recycling bin contamination breakdown

All other waste items	Notes	Percentage
Non-recyclable plastics	Plastic bags, polystyrene, composites.	3.88%
Non-recyclable paper	Nappies, coffee cups, composites.	2.80%
Food	Loose and containerised food	1.60%
Non-recyclable metal	Any non-container type metal items.	1.38%
Textiles	Clothes, shoes and bedding	1.28%
e-Waste	electrical	0.92%
Ceramics / dust / dirt	Inert, ceramics, dust, dirt	0.79%
Non-recyclable glass	Sheet / plate glass	0.45%
Other	Hazardous (household chemicals) and other	0.39%
Garden	All garden organics	0.14%
Total contamination		**13.63%**

Full breakdown of categories is shown in the appendix table with previous year comparisons.

Figure 9 – Recycling bin contamination breakdown



The following table shows the breakdown of compliant recyclable materials in the recycling stream. These materials are compliant in the existing recycling bins available to households.

Table 14 – Compliant recycling materials

	Compliant items in the recycling stream									
	KG per households per week					Percentage per households per week				
	Paper & cardboard	Glass	Plastic	Metal	Overall	Paper & cardboard	Glass	Plastic	Metal	Overall
Total LGA 220 households	1.37	0.70	0.35	0.13	**2.25**	46.42%	23.60%	11.80%	4.54%	**86.37%**

As shown in the table, paper & cardboard and glass materials contribute the greatest weight of material in the recycling bins.

Garden organic results

Garden organic bins had a presentation rate of 65.89% with an average bin at 72.12% capacity full. The households that did present bins had an average generation of 13.28 Kg of garden organics. Allowing for the fortnightly collection schedule, this equals 6.64 Kg of material per week.

Allowing for non-presented bins, the overall average household generation across the LGA would be closer to 4.38 Kg per week.

There was 4.28% contamination in garden organic bins, an improvement from 4.8% in 2022.

Full breakdown of categories in appendix.

- Presentation rates – **65.89%**
- Average bin percent full – **72.12%**
- Average overall generation– **6.64 kg** per household per week (kg/hh/wk)
- Average contamination rate (incorrect items placed in the waste bins) – **4.28%**
    - 2.18% combined of paper, plastic, metal, textiles and ceramics.
    - oversized garden organics and pet waste 1.54%
    - 0.56% was loose and containerised food.
- CDS items recorded in the Garden organics stream – 0 items
    - No CDS items were found in the Garden organic bins.

The majority of garden organic bins were presented with no contamination. Approximately 12.99% (30 households from 231 samples) of garden organic bins contained contamination. These 30 households contributed all the contamination.

Garden organics generation rates – summary categories

The following tables show the summary categories in the garden organic stream. The results are displayed in generation per household per week. The first table shows results in weight and the second table as a percentage of the overall bin contents.

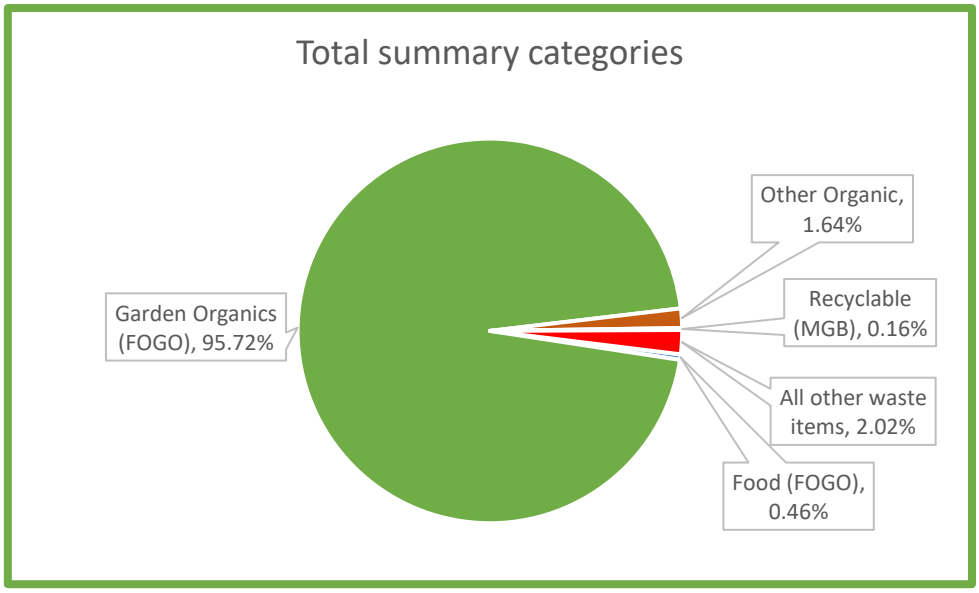
Table 15 – Garden organic generation rates – summary categories

	Summary categories in the waste stream – Kg / week						
	FOGO complaint		Other organic	Recyclable (MGB)	Hazardous items	All other waste items	Total
	Food	Garden organics					
Total LGA 220 households	0.03	6.36	0.11	0.01	-	0.13	**6.64**

	Summary categories in the waste stream – Kg / week						
	FOGO complaint		Other organic	Recyclable (MGB)	Hazardous items	All other waste items	Total
	Food	Garden organics					
Total LGA 220 households	0.46%	95.72%	1.64%	0.16%	-	2.02%	**100.00%**

The following figure shows the breakdown of the garden organic bins.

Figure 10 – Garden organic stream – summary categories



4. Comments and recommendations

Waste bin

Textiles in the waste bin contributed 4.79% of the bins contents by weight, a comparable result to 4.74% in 2022. Council may consider a textile recovery program at their Council Recycling Centre (CRC).

Non-recyclable plastic in the waste stream has risen from 8.66% in 2022, up to 15.28% in 2024. Council may look to increase their capability to recover soft plastics at their CRCs or set up a recovery station in the town centre. Council will need to research existing programs, such as; Recycle Smart, APR Plastics, Terra Cycle and Plasmar.

Food and other FOGO organics accounts for over 40% of the total waste bin contents. A FOGO system for Council will be a good option to help divert a significant amount of waste from landfill.

MGB recyclable items accounted for 11.57% of the waste bin contents that could have been placed in the existing resident recycling bins. This was an improvement from 12.60% in 2022. Council may look to educate their residents on how to further divert their recycling items from landfill using the existing bins available.

Recycling bin

Council should consider addressing contamination in the recycling bins in the following order of contamination. Council may seek to change their priorities of education on more 'problem' items such as textiles and e-waste with cables that can get caught in MRF mechanics and slow sorting. The full contamination list in the recycling bins included:

Table 16 – Recycling bin contamination breakdown

All other waste items	Notes	percentage
Non-recyclable plastics	Plastic bags, polystyrene, composites.	3.88%
Non-recyclable paper	Nappies, coffee cups, composites.	2.80%
Food	Loose and containerised food	1.60%
Non-recyclable metal	Any non-container type metal items.	1.38%
Textiles	Clothes, shoes and bedding	1.28%
e-Waste	electrical	0.92%
Ceramics / dust / dirt	Inert, ceramics, dust, dirt	0.79%
Non-recyclable glass	Sheet / plate glass	0.45%
Other	Hazardous (household chemicals) and other	0.39%
Garden	All garden organics	0.14%
Total contamination		**13.63%**

Garden organic bin

The garden organic bins had low contamination. With Council's new FOGO service to be rolled out in July 2024, residents should be educated on the items that are not compliant in the new FOGO bins. This may include, oversized logs, pet waste and paper & cardboard.

5. Photos

Figure 11 – Recyclable material in the waste stream

1. Recyclable metal containers

2. Recyclable plastic containers

3. Paperboard & Cardboard

4. Recyclable plastic containers

5. Recyclable glass

6. 10c Container Deposit Scheme items (CDS)

Figure 12 – Contamination in the recycling stream

1. Containerised and loose food

2. Expanded polystyrene

3. Non-compliant metal

4. Electrical

5. Non-recyclable plastic

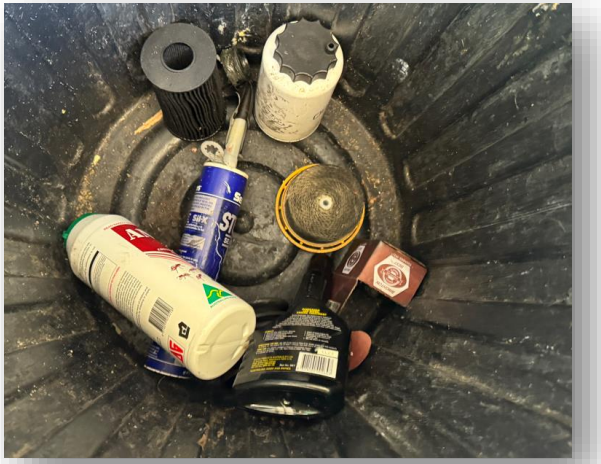
5. CDs and VHS

Figure 13 – Hazardous items in the waste stream

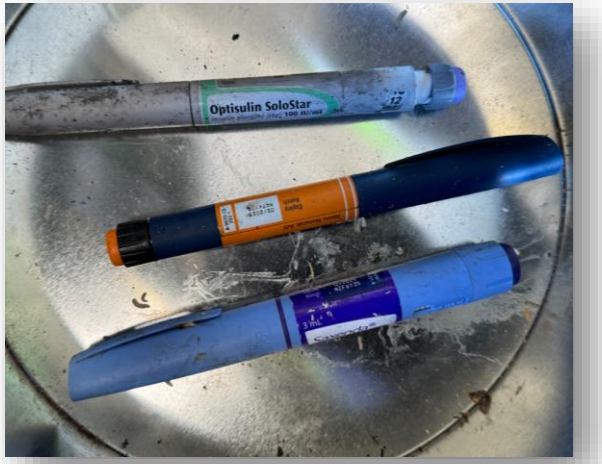
1. Asbestos

2. Asbestos

3. Car oils and parts



4. Sharps



5. Loose batteries

5. Vapes

Figure 14 – Photos of sample collection and sorting

1. Collection

2. Samples at roadside

3. Samples at roadside

4. Sorting site

5. Sorting site

6. Sorted material disposal

Figure 15 – Contamination in garden organic bins

1. Textiles

1. Textiles

1. Pet waste

4. Oversized logs

5. Plastic

6. Plastic

Figure 16 – Compliant Garden organics






Figure 17 – Compliant Garden organics

6. Appendix – Summary results year on year

Table 17 – Previous year comparison on waste data

Categories		Household waste generation rate			
		KG per week		Percentage per week	
		2022	2024	2022	2024
Paper	Recyclable	0.47	0.38	4.64%	4.57%
	Non-recyclable	1.09	1.18	10.90%	14.00%
Plastic	Recyclable	0.20	0.27	1.98%	3.16%
	Non-recyclable	0.87	1.29	8.66%	15.28%
Metals	Recyclable metal	0.18	0.13	1.76%	1.52%
	Non-recyclable metals	0.20	0.19	1.96%	2.30%
Glass	Recyclable glass	0.19	0.20	1.85%	2.33%
	Non-recyclable glass	0.03	0.04	0.29%	0.42%
Organics	Food - FOGO	3.75	2.73	37.45%	32.45%
	Other food	0.67	0.52	6.67%	6.13%
	Garden FOGO	0.06	0.22	0.62%	2.62%
	Other Garden	1.13	0.25	11.24%	2.97%
eWaste	TV, computer, laptops,	0.08	0.23	0.81%	2.77%
Hazardous	Hazardous	0.18	0.20	1.82%	2.39%
Textiles	Textiles	0.48	0.40	4.74%	4.79%
Ceramics / dust / dirt	Dust / dirt	0.46	0.19	4.62%	2.27%
Other	Other	-	0.001	-	0.02%
	Total	**10.02**	**8.41**	**100.00%**	**100.00%**

Table 18 – Previous year comparison on recycling data

Categories		Household recycling generation rate			
		KG per week		Percentage per week	
		2022	2024	2022	2024
Paper	Recyclable	1.56	1.37	47.28%	46.42%
	Non-recyclable	0.09	0.08	2.70%	2.80%
Plastic	Recyclable	0.25	0.35	7.66%	11.80%
	Non-recyclable	0.14	0.11	4.28%	3.88%
Metals	Recyclable metal	0.15	0.13	4.41%	4.54%
	Non-recyclable metals	0.04	0.04	1.22%	1.38%
Glass	Recyclable glass	0.74	0.70	22.49%	23.60%
	Non-recyclable glass	0.01	0.01	0.33%	0.45%
Organics	Food - FOGO	0.06	0.01	1.79%	0.37%
	Other food	0.09	0.04	2.73%	1.22%
	Garden FOGO	0.00	0.00	0.06%	0.05%
	Other Garden	0.03	0.00	0.76%	0.10%
eWaste	TV, computer, laptops,	0.02	0.03	0.46%	0.92%
Hazardous	Hazardous	0.06	0.01	1.67%	0.39%
Textiles	Textiles	0.06	0.04	1.85%	1.28%
Ceramics / dust / dirt	Dust / dirt	0.01	0.02	0.30%	0.79%
Other	Other	-	-	-	-
	Total	**3.29**	**2.96**	**100.00%**	**100.00%**

Table 19 – Previous year comparison on garden organic data

Categories		Household garden organic generation rate			
		KG per week		Percentage per week	
		2022	2024	2022	2024
Paper	Recyclable	0.00	0.01	0.04%	0.13%
	Non-recyclable	0.01	0.02	0.06%	0.27%
Plastic	Recyclable	0.00	0.00	0.02%	0.01%
	Non-recyclable	0.01	0.07	0.07%	0.99%
Metals	Recyclable metal	0.00	0.00	0.00%	0.01%
	Non-recyclable metals	0.00	0.00	0.00%	0.03%
Glass	Recyclable glass	0.01	0.00	0.08%	0.01%
	Non-recyclable glass	0.00	0.00	0.00%	0.03%
Organics	Food - FOGO	0.01	0.03	0.16%	0.46%
	Other food	0.00	0.01	0.01%	0.10%
	Garden FOGO	7.88	6.36	94.10%	95.72%
	Other Garden	0.19	0.10	2.31%	1.54%
eWaste	TV, computer, laptops,	0.00	0.00	0.01%	0.02%
Hazardous	Hazardous	0.00	0.00	0.00%	-
Textiles	Textiles	0.00	0.02	0.04%	0.29%
Ceramics / dust / dirt	Dust / dirt	0.26	0.03	3.11%	0.40%
Other	Other	-	-	-	-
	Total	**8.37**	**6.64**	**100.00%**	**100.00%**

7. Appendix - Methods

This project used as a guide the NSW EPA Guidelines as a guide for auditing "*Guidelines for conducting household kerbside residential waste, recycling and garden organics audits in NSW Local Government Areas 2008 – Addendum 2010".* All samples were collected on the regular collection day prior to the regular kerbside collection truck servicing the bins. All project methods adhere to industry best practice WHS conformance and follow industry and company confidentiality and privacy procedures.

Waste audit background

A waste audit is the collection and analysis of garbage and resource recovery. The physical sorting of the waste stream provides a detailed view into the composition of the garbage and recycling generation by weight.

This waste audit has been designed to monitor the results and to identify the key composition categories.

Sampling method and techniques

Random households were selected in each collection zone to gain a representation of the areas on each day of auditing. These addresses were checked with Council for correct collection days.

Sample frame

Table 20 – Project samples

Dwellings	Waste	Recycling	Garden Organics
SUDs	220	221	231

Pre collection bin surveys

Prior to sample collection Knowwaste completed a visual survey of the waste, recycling and garden organic bins to capture presentation rate data for Council, the survey included:

1. Waste stream (waste, recycling and garden organics)
2. Percentage full (volume data generation) and Presentation rates

Collections and transport

Knowwaste completed sample collection using the 'bagging' technique.

- Run sheets and maps were produced for each collection day.
- Knowwaste staff identified the target household bins and place a heavy-duty woven polypropylene (WPP) bulk bag over the opened top of the targeted bin.
- Following manual handling training, Knowwaste staff emptied the contents of the bin into the WPP bags, then replaced the residents' bin back on the kerb.
- The bags were secured and labelled following the privacy procedure.
    - Following the NSW EPA guidelines, actual street addresses were never recorded in the field. During the collection process, each sample collected and bagged was labelled with a sample identifier. Sample identifiers record the:

Sample identifier (bagging labels)

Date collected	*- dd/05/2021*
Waste stream collected	*- Waste / Recycling / Green*
SUD | MUD	*SUD / MUD*
Target street identifier number	*- A / B / C / D / E*
Target household identifier number	*- 1 / 2 / 3 /.....*

Samples were placed into the rear of the collection vehicle for transportation to the designated sorting site at Councils waste site.

Data collection

On each field day, the samples were delivered to the sorting site, the sorting stations were setup and sorting commenced. Each bin contents/sample were individually sorted and weighed. The sample was placed into the sorting tub [placed on the table] and sorted to the relevant material categories. The sorted material was placed into labelled sampling bins for reconciling and weight recording.

The process was repeated until all samples for the day had been sorted into the relevant material categories. The following equipment was used for the project:

- tables
- sorting tubs
- sorting bins (labelled with categories)
- uniform, PPE, safety signage and first aid kits
- vehicles
- scales (as below)
- all required PPE
    - gloves
    - masks
    - hi-vis
    - safety boots
    - waterproofs
    - UVA protection
    - eye protection

Scales

All auditing scales are purchased from Wedderburn and calibrated by Wedderburn for guaranteed accuracy. The scales are field-calibrated by Knowwaste field consultants on each day of auditing. Two different scale types are used for the weighing of sorted materials.

30kg scales

To weigh items less than 30kg to within 1gr of accuracy

150kg scales

To weigh items greater than 30kg and less than 150kg to within 10gr of accuracy

Sorting Categories – Materials

Knowwaste's Project manager confirmed with Councils representative on the parameters of compliant and contamination for each material category. This was completed to confirm:

- what materials are accepted and rejected at the MRF, and
- when compliant recyclable items are rejected due to contamination.

Table 21 – Sorting categories

Sorting categories		
Paper	Recyclable Paper	Paper, cardboard and liquid paper
	Non-recyclable paper	Contaminated soiled paper, composite, Coffee cups and other
Plastics	Recyclable plastics	PET 1, HDPE 2, PVC 3, LDPE 4, PP 5
	Non-recyclable plastics	PS and EPS 6, P7, plastic bags and film, composites
Metals	Recyclable metals	Ferrous and non-ferrous
	Non-recyclables metals	Non-recyclable metals and composites
Glass	Recyclable glass	Beverage, food and containers
	Non-recyclable glass	Glassware, sheet and plate
Organic	Food / kitchen	Food – FOGO compliant
		Food – containerised, non-FOGO compliant
	Garden organic	FOGO compliant garden organics
		Non-compliant FOGO garden organics
e-Waste	TV, computer, laptops, tablets	Set top boxes, DVD & video players etc.
Hazardous	Hazardous	Batteries, light globes, chemicals, paint, asbestos, etc
Textiles	Textiles	Shoes, clothes, sheets, towels etc
Inert	Ceramic / dust / dirt / earth	Ceramic / dust / dirt / earth
Other	Other (Specify)	Other (Specify)

CDS	Eligible CDS items in sample	Count CDS items in each sample

Sorting site

Knowwaste used a designated sorting area at Councils waste facility. The site was selected because it provided a safe working environment and is a licensed facility to receive the sorted waste materials post auditing.

Figure 18 – Sorting area

Sorted material disposal

Knowwaste disposed of all sorted material in designated areas at site.

Workplace Health and Safety (WHS)

Knowwaste uses best industry practise for WHS, the WorkCover guide "*Collection of domestic waste, code of practice*" is referenced regarding WHS for the auditing of garbage. The code of practice sets clear procedures to reduce risk. The relevant sections include:

- Implementing WHS procedures and completing WHS forms
- Development of safe work method statements
- Manual handling and hazardous substances
- Personal protective equipment (PPE) and first aid and fatigue and fitness for work

Risk Management

Knowwaste implemented steps to identify any foreseeable hazards, assess their risks and take action to eliminate or control them. Prior to any works commencing on this project, at least the following WHS forms were completed:

- *Form_4 WHS HRAF (Hazard & risk assessment form)*
- *Form_5 WHS Safe work method statement - manual collection (bagging)*
- *Form_7 WHS Safe work method statement – waste and recycling sorting*
- *Form_10 WHS Safe work method statement - visual bin surveys*
- Form_13 *WHS vehicle check list*
- *Form_17 WHS toolbox and employee conformance*

These forms are completed in conjunction with the site-specific WHS plan.

Confidentiality

Only aggregated data is reported, no addresses are listed in any reporting.

All consultants and field workers conform to industry standards and Knowwaste's confidential policy. Knowwaste does not use labour hire or subcontractors for quality control and confidentiality purposes.