Composition of waste study

York Valley Landfill
20 – 25 February 2023

Prepared for:
DS Project Solutions
Nelson Tasman Regional Business Unit
Nelson City Council
Tasman District Council

JBL Environmental
Hazardous Waste • Waste Repurposing • Waste Analysis

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1.0. Introduction

This report was compiled to present the results of the Composition of Waste Study (CWS) carried out by JBL Environmental Ltd. from 20 – 25 February 2023 at the York Valley Landfill in Nelson. The results of this study are intended for use in establishing the composition, and any potential changes to the composition, of the incoming waste at York Valley Landfill.

1.1. Background

The study was conducted using the Solid Waste Analysis Protocol (SWAP). This protocol was used as it is a nationally accepted method which has been specifically developed to ensure that consistent and reliable waste data can be obtained (Ministry for the Environment, 2002). The Nelson City Council (NCC), Tasman District Council (TDC), Nelson Tasman Regional Business Unit, DS Project Solutions, and other interested parties can use the information obtained from the study to: form an understanding of how the composition of waste is changing, assist with waste management planning, compare results with other regions of the country, help comply with monitoring regulations, and measure the performance of waste initiatives that are in place (Ministry for the Environment, 2002).

The SWAP uses specific classifications to represent the composition of waste. The 12 primary classifications are nationally accepted and provide the means to directly compare results of these types of study with the rest of the country. The primary classifications are as follows:

- Plastic
- Putrescible
- Ferrous Metals
- Non-Ferrous Metals
- Glass
- Textiles
- Nappies and Sanitary
- Rubble
- Timber
- Rubber
- Hazardous

(Ministry for the Environment, 2002).

1.2. Objectives

The objective of these studies was to find the composition, as a percentage by weight, of the waste entering York Valley Landfill using the designated 12 primary waste classifications.

To provide a more detailed analysis, certain primary classifications were broken down into the following corresponding secondary classifications:

- Paper (cardboard)
- Paper (other)
- Plastic (recyclable)
- Plastic (non-recyclable)
- Plastic (polystyrene)
- Putrescible (garden)
- Putrescible (excluding other)
- Timber (treated)
- Timber (untreated)
- Timber (processed)

During the survey a visual count of sources of refrigerant gas was undertaken. Sources could have included items such as fridges, freezers, air-conditioning units, and cylinders (further information can be found in Section 3.6).

2.0. Methodology

2.1. Overview

The study was carried out at York Valley Landfill during the opening hours Monday – Friday 8:00am - 4:30pm, Saturday 12:00pm-4:00pm, from 20 – 25 February 2023. The format of the study was based on the SWAP and used Procedure Two: Classification at the Disposal Facility (Ministry for the Environment, 2002). As recommended for Procedure Two surveys, the sort-and-weigh methodology was used (Ministry for the Environment, 2002).

Prior to the study, a hazard assessment was carried out to identify any potential dangers, and a specific sorting site away from vehicles and other hazards was established. Another area where landfill customers unloaded their rubbish, and where the samples were taken, was also established. JBL Environmental worked closely alongside the landfill contractor to ensure all site health and safety procedures were understood and adhered to.

Figure 1. Set up of the site.

The four staff members carrying out the study were outlined on the health and safety plan and hazard assessment. A health and safety briefing was held with the landfill contractor up at the site prior to the study and all staff were inducted onto the site by the contractor. All staff have carried out CWSs before, and also received further in-depth training prior to carrying out the CWS to ensure the accuracy of the study.

On the arrival of a landfill customer, the contents of all loads were recorded by at least two staff members to ensure accuracy, and drivers were interviewed to gain information on the loads. The information gathered included: time of arrival, company name, vehicle registration, origin of load, and the type of waste. This information was used to accurately align the weighbridge data with the data gathered from the study, and to provide further analysis of where each classification of waste was coming from. The origin of waste was recorded as one of four categories:

- Industrial – included waste from commercial operations. For example; building sites, local businesses, factories, agricultural and horticultural operations, and residential property waste generated by a commercial operation (e.g. lawn-mowing company).
- Kerbside – included waste from the council kerbside refuse collections in Nelson.
- Residential – included waste generated in a domestic environment, excluding Nelson kerbside refuse.
- Transfer stations – included waste transported to York Valley directly from transfer stations in the Nelson City, Tasman District areas and West Coast areas. Waste can be from either domestic or commercial sources.

All loads were visually assessed to check whether they contained a single, or mixed waste classification. If loads contained only one waste classification, that classification was recorded. Every mixed load was sampled except any that were either unsuitable, or too hazardous to sample.

2.2. Sampling regime

All loads that required analysis were dropped in the sampling area. If necessary, the load was spread out by landfill staff using an excavator or loader. The samples were then taken in accordance with the SWAP sub-sampling regime (Ministry for the Environment, 2002). Random numbers were used to determine the area of the load to be sampled. The sizes of the samples were based on values used in earlier studies as determined by Tonkin & Taylor Ltd. These sizes were approximately 2% of the weekly waste received at York Valley, which provides an accuracy of 15-20% in the major primary classifications, which is in line with the SWAP recommendations (Eldridge, 2012 & Ferry, 2017). A summary of the sampling regime is shown below:

LOAD SIZE	ESTIMATED SAMPLE SIZE	NUMBER OF SUB-SAMPLES	NOTES
< 2 tonnes	30 - 40 kg	2	Typically Demolition, General Rubbish, Skips and Mini Bins, and Street Litter loads (vehicle types usually include utes, small trailers, and skips)
2 - 5 tonnes	60 - 80 kg	3	Typically General Rubbish and Skips and Mini Bin loads (vehicle type usually include compactor trucks and skips)
5 - 15 tonnes	80 - 100 kg	4	Typically General Rubbish, Skips and Mini Bins, and Transfer Station loads (vehicle usually include front and side loaders, large compactors, transfer station trucks (truck only-no trailer)
> 15 tonnes	2 x 100 kg	4 from each 100kg sample	Typically General Rubbish (trucks from the Tasman region transfer stations), and Smart Environmental(Buller) TDC loads (vehicles usually are transfer station truck and trailers)

Table 1. Summary of sampling regime.

2.3. Sorting regime

Once sampling from the load was completed, the sample was weighed. This weight was used as a reference to cross-check the end weights, once the sample had been sorted, to ensure no significant amount of the sample had been lost during the sorting process.

The sample was then manually sorted into the specific primary and secondary classifications. The definition of each primary classification was taken to be as that described in the SWAP (Ministry for the Environment, 2002). The secondary classifications were defined as follows:

- Paper (Cardboard) – Included waste made up of all types of cardboard, for example: corrugated cardboard, boxes, tubing, food packaging, egg cartons etc.
- Paper (Other) – Included all other paper waste aside from the above two descriptions (excluded all cardboard of any kind) for example: office paper, tissues, newspaper, foil or plastic covered paper, magazines, brochures etc.
- Plastic (Recyclable) – Included all plastic waste that was numbers 1, 2 and 5 that could be recycled at the recycling centres in the region for example: milk bottles, food containers, drink bottles etc.

- Plastic (Non-Recyclable) – Included all other plastic waste (numbers 3, 4, 6 and 7) for example: plastic wrapping (pallet wrap, glad wrap, silage wrap), clear files, toys, plastic furniture, plumbing pipe etc.
- Putrescible (Garden) – Included waste from gardening sources. For example; grass clippings, pruning waste, leaves, weeds, etc.
- Putrescible (Excluding Garden) – Included all putrescible waste that was not garden waste, for example: food waste, offal, game meat, fish waste, etc.
- Timber (treated) – included timber waste that had been chemically treated. For example; tanalised fence posts, landscaping timber, etc.
- Timber (untreated) – included timber waste that had not been chemically treated. For example; furniture, framing, tree stumps, pallets, etc.
- Timber (processed) – included timber that was untreated which had been processed and reconstituted into a usable wood, e.g. MDF board, particle board, ply-wood etc.

The sample material was placed inside large bins that were labelled with the designated waste classification, this ensured loss of any sample would be minimal.

Once sample sorting was completed, the bins were weighed individually and weights recorded. Each bin was individually tared, and this tare weight was checked regularly to maximise accuracy. Certified electronic scales with a capacity of 300kg gauged in 20g integrals were used for both weighing the sorted samples and finding the bin tare weights.

2.4. Study limitations and variables

Some loads contained items of refuse that were too large to handle, items too difficult to remove for sampling, or various forms of hazardous waste too dangerous for staff to handle. Due to health and safety concerns, no attempt was made to remove these items for sampling and instead a visual assessment and weight estimation was made.

An analysis of the weight of waste received at York Valley Landfill the week prior and after showed a significant increase of 29.2% the week before when compared with the current survey period. From looking at the weigh bridge data this increase is likely due to approx. 260 tonnes of hazardous waste entering York Valley during the week prior to the survey compared to approx. 39 tonnes during the survey period. This is possibly from a demolition or contaminated site clean-up or similar.

Other than the above, there were no other known limitations or variables encountered.

3.0. Results and commentary

3.1. Composition of total waste received at York Valley

In total 352 vehicles made use of the landfill during the survey period, and the following results are based on the information gathered from these vehicle loads analysed during the study. Physical samples were taken from loads containing mixed waste components, and visual analysis was used for loads either containing only one waste component, or loads unsuitable for sampling.

The percentage of each waste classification within a sample was calculated and applied to the entire load, in order to give the percentage of each waste classification within the load. The mean percentage by weight of each classification was calculated, and associated accuracy levels calculated at a 95% confidence interval, to give the overall composition of waste received at York Valley Landfill during the May 2022 study (see Chart 1).

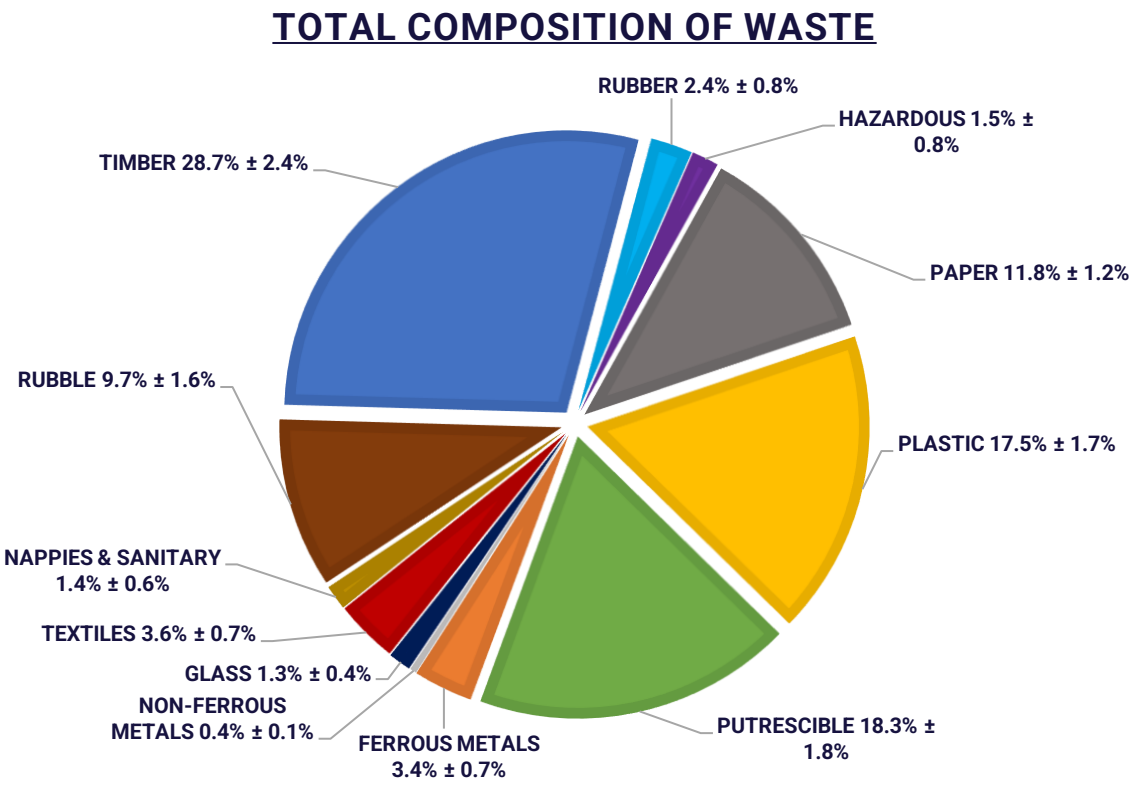

Chart 1. Composition of total waste by primary classification, presented as a percentage by weight, at 95% confidence interval.

Chart 1 shows the primary classification timber had the largest proportion within the overall composition, with a value of 28.7% ± 2.4%. This was followed by putrescible and plastic with values of 18.3% ± 1.8% and 17.5% ± 1.7% respectively. The smallest percentages by weight were found within the primary classifications non-ferrous metals and glass showing 0.4% ± 0.1% and 1.3% ± 0.4% respectively (see Chart 1).

The information in Table 2 was found by applying the percentages constituting the composition of total waste to the total weight of waste that entered York Valley (1,387,260kg). This provides a snapshot of the weight of waste within each primary of secondary classification.

PRIMARY CLASSIFICATION	SECONDARY CLASSIFICATION	SECONDARY CLASSIFICATION WEIGHT (KG)		PRIMARY CLASSIFICATION WEIGHT (KG)	
		KG	±	KG	±
	OTHER	107,747.1	11,040.6		
PAPER	CARDBOARD	55,339.7	10,403.9	**163,086.7**	**16,135.1**
	RECYCLABLE	16,577.1	3,184.7		
	NON-RECYCLABLE	220,351.1	22,866.6		
PLASTIC	POLYSTYRENE	5,937.1	5,286.6	**242,865.3**	**23,527.4**
FERROUS METALS				**47,052.5**	**9,699.9**
NON-FERROUS METALS				**5,251.3**	**756.8**
GLASS				**17,948.3**	**4,977.9**
RUBBLE				**135,126.1**	**21,950.8**
RUBBER				**32,995.5**	**10,762.5**
HAZARDOUS				**21,494.4**	**11,236.7**
	PUTRESCIBLE (GARDEN)	105,060.7	15,826.3		
PUTRESCIBLE	PUTRESCIBLE (EXCLUDING GARDEN)	148,723.1	20,459.0	**253,783.8**	**25,656.5**
TEXTILES				**50,112.3**	**9,629.4**
NAPPIES & SANITARY				**19,719.7**	**8,821.3**
	TIMBER (TREATED)	125,921.6	20,701.6		
	TIMBER (UNTREATED)	176,590.0	21,790.7		
TIMBER	TIMBER (PROCESSED)	95,312.4	16,183.8	**397,823.9**	**33,556.1**
TOTAL				**1,387,260.0**	

Table 2. Presents the weight of waste disposed of within each classification, at 95% confidence interval.

3.2. Compositions of waste from previous studies

Table 3 presents the compositions of waste found during the previous studies carried out at York Valley by JBL Environmental for comparison.

PRIMARY CLASSIFICATION	COMPOSITION (%)			
	JUL-20	NOV-20	MAY-22	FEB-23
PAPER	7.9	8.3	10.0	11.8
PLASTIC	9.4	12.7	13.0	17.5
PUTRESCIBLE	20.9	19.7	15.7	18.3
FERROUS METALS	4.6	3.3	4.1	3.4
NON-FERROUS METALS	0.2	0.5	0.5	0.4
GLASS	1.0	2.5	1.4	1.3
TEXTILES	3.4	2.9	3.7	3.6
NAPPIES & SANITARY	0.8	2.3	1.4	1.4
RUBBLE	22.7	15.0	8.4	9.7
TIMBER	19.8	29.3	28.7	28.7
RUBBER	4.5	3.2	6.6	2.4
HAZARDOUS	1.9	3.4	6.4	1.5

Table 3. Presents the composition of waste found during previous studies for comparison.

3.3. Composition of secondary classifications

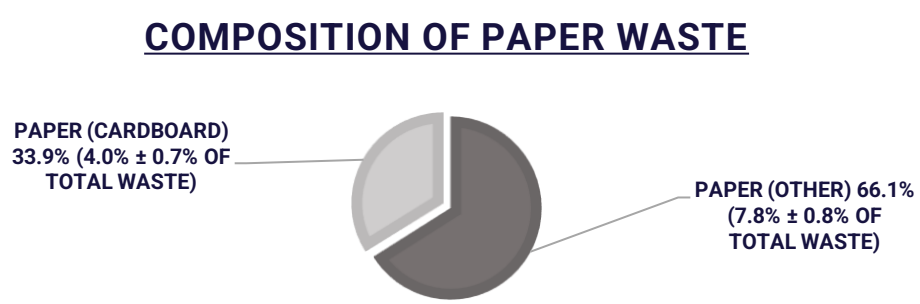

Chart 2. Presents the percentage of the secondary classifications within the primary classification paper.

Figure 2. Examples of paper waste.

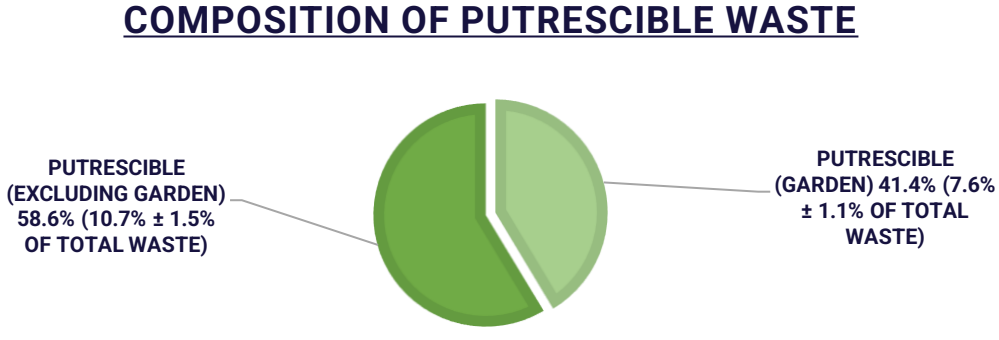

Chart 3. Presents the percentage of the secondary classifications within the primary classification putrescible.

Figure 3. Examples of putrescible waste.

COMPOSITION OF TIMBER WASTE

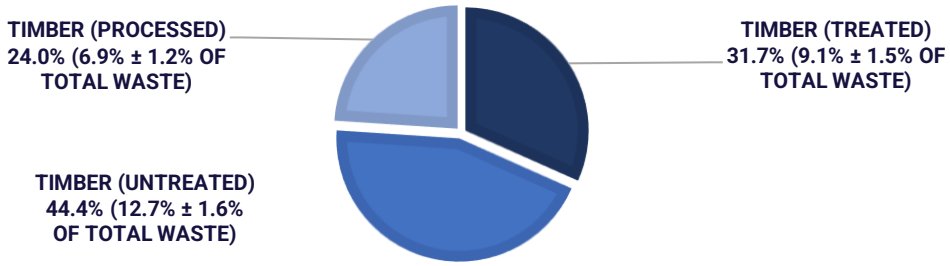

Chart 4. Presents the percentage of the secondary classifications within the primary classification timber.

Figure 4. Examples of timber waste.

3.4. Plastic waste

DS Project Solutions requested a focus on light waste within the landfill, specifically polystyrene. Polystyrene was found to constitute 0.4% ± 0.4% of the total weight of waste entering York Valley. It should be noted that polystyrene is a very light-weight material and as the composition is determined using weight of waste, the actual impacts on the landfill from polystyrene are difficult to gauge using this information only (for example, a small weight of polystyrene constitutes a large volume of space).

Of all loads analysed during the survey, only two were found to contain significantly high levels of polystyrene:

- One load of 100% polystyrene within the skips & mini bins weighbridge category, industrial origin.
- One load of 30.0% polystyrene within the general waste weighbridge category, industrial origin.

The vast majority of the rest of the polystyrene encountered during the survey was within mixed general loads of refuse. The majority of polystyrene was in the form of packaging or insulation and examples of polystyrene waste from the survey are shown in the photos below.

The composition of plastic waste can be seen in Chart 5.

Figure 5. Examples of polystyrene encountered during the study.

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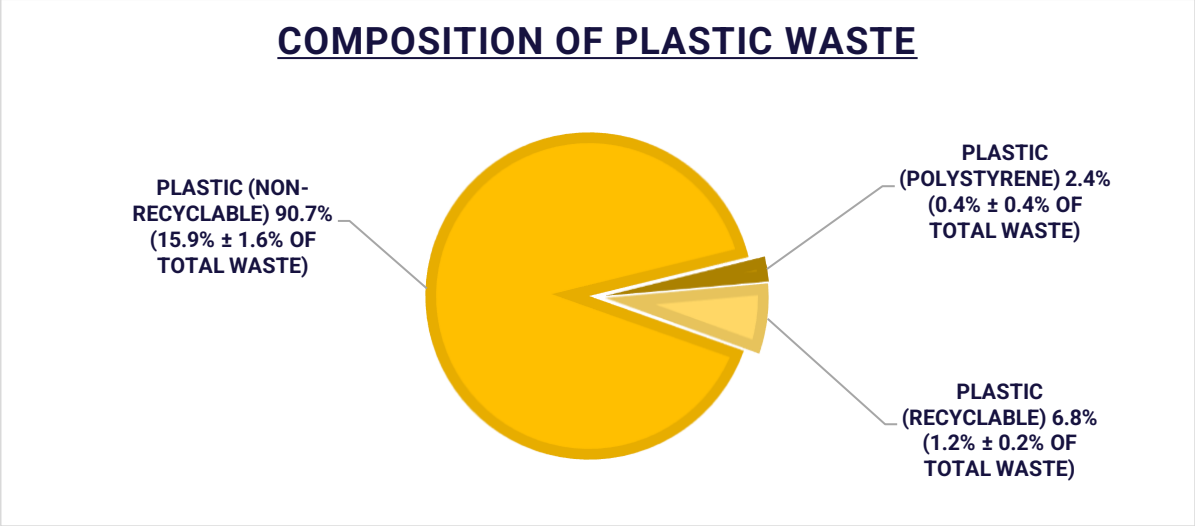

Chart 5. Presents the percentage of the secondary classifications within the primary classification plastic.

3.5. Origin of waste

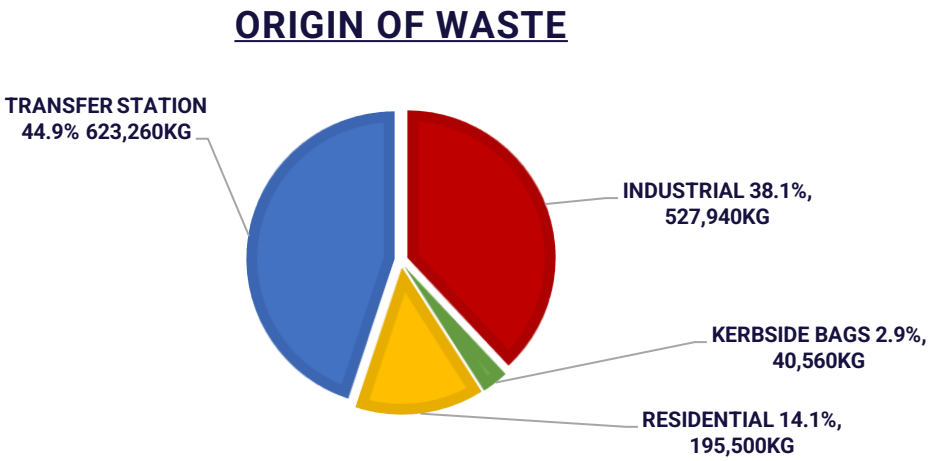

Chart 6. Origin of waste, presented by percentage and weight, over the February 2023 study..

Chart 6 shows the most waste entered the landfill from the transfer station origin, followed by waste from the industrial origin.

3.5.1. Industrial origin

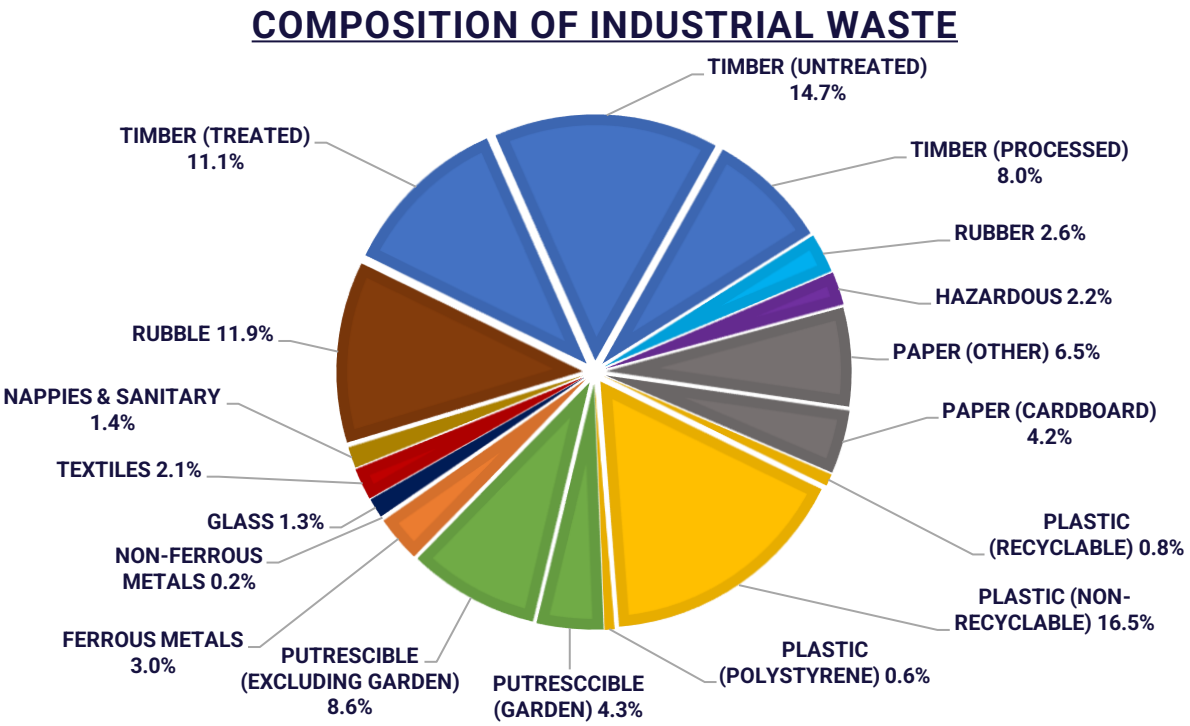

Chart 7. Composition of waste from the industrial origin, presented as a percentage by weight.

Timber constituted the highest proportion of industrial waste, making up 33.8% of the composition. Timber (untreated made up the majority of timber waste, followed by treated timber. Major contributors to timber waste from the industrial origin were from demolition, construction, horticultural/landscaping timber, and furniture.

Plastic was the second highest primary classification with 17.9% observed, and the vast majority of this was plastic (non-recyclable) (see Chart 7).

Industrial waste was found to consist of the highest proportions of rubble, timber, and hazardous when compared to all other origins (see Charts 7, 8, 9, & 10).

3.5.2. Kerbside bag origin

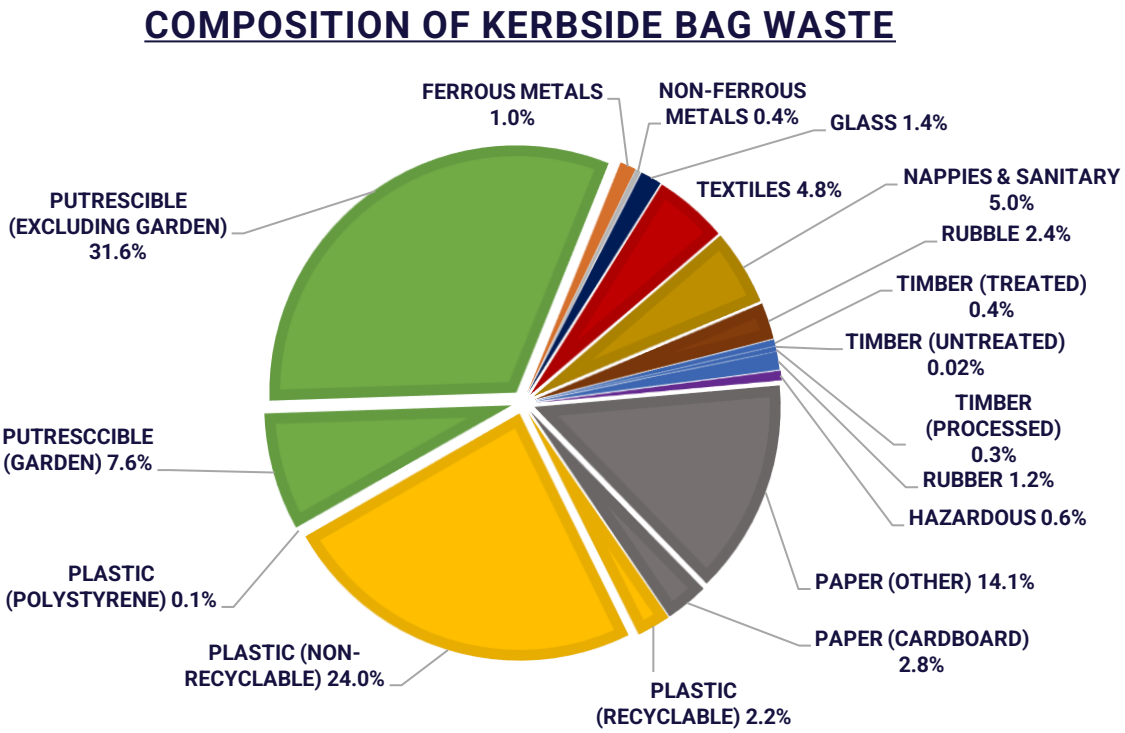

Chart 8. Composition of waste from the kerbside bags origin, presented as a percentage by weight.

Waste from the kerbside origin consists only of official council kerbside refuse that is collected in Nelson every week.

In total, 15 kerbside bag trucks were analysed during the study, and samples of bags were taken from each truck.

Putrescible waste was found to have the highest representation within the composition of kerbside waste with a value of 39.3% and this origin had the highest proportion of putrescible waste when comparing all waste origins (see Charts 7, 8, 9 & 10). The majority of this was putrescible (excluding garden) and this was observed to consist mainly of food waste.

Kerbside bags waste was also found to contain the highest proportions of plastic, paper and nappies & sanitary waste, of any one origin (see Charts 7, 8, 9 & 10).

3.5.3. Residential origin

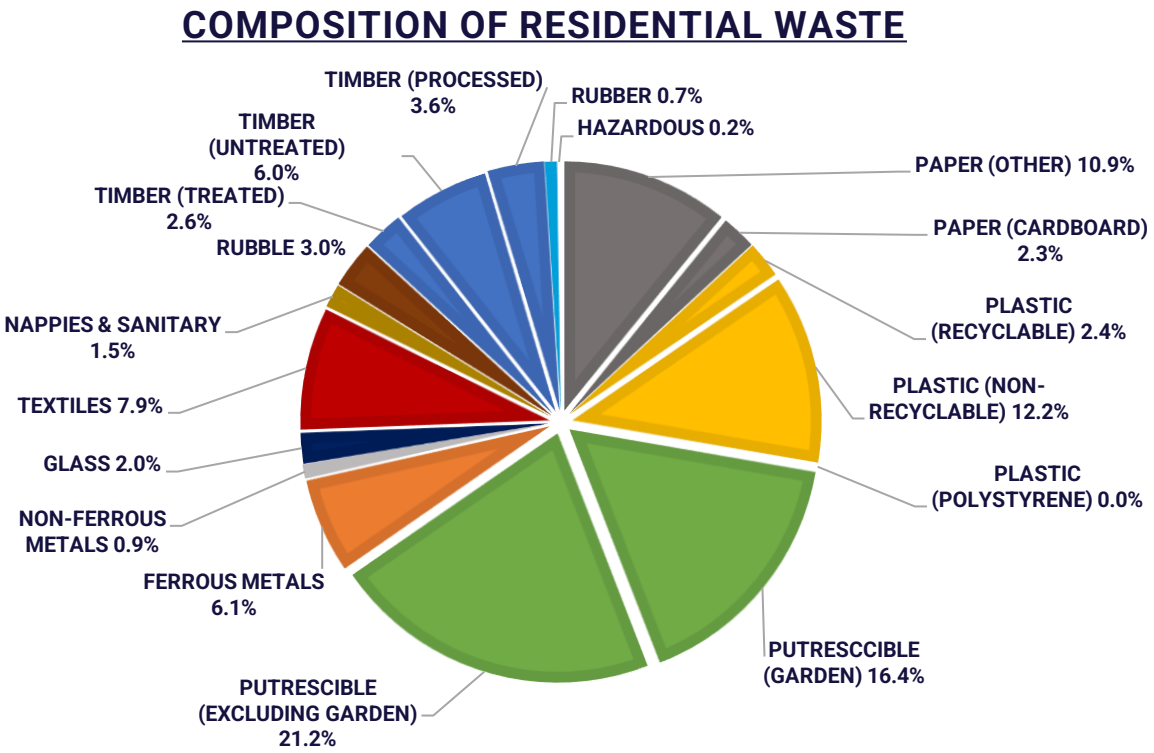

Chart 9. Composition of waste from the residential origin, presented as a percentage by weight.

The origin with the second highest proportion of putrescible waste was the residential, with 37.6% observed (see Charts 7, 8, 9 & 10). The majority of residential putrescible waste consisted of putrescible (excluding garden), and made up 21.2% of the total residential composition (see Chart 9).

Putrescible (garden) was found to have the highest value when comparing all origins, and the vast majority of both putrescible (garden) and putrescible (excluding garden) waste came in on compactor trucks that collected wheelie bins or similar.

The residential origin also had the highest proportion of ferrous metals, non-ferrous metals, textile, and glass waste.

3.5.4. Transfer stations origin

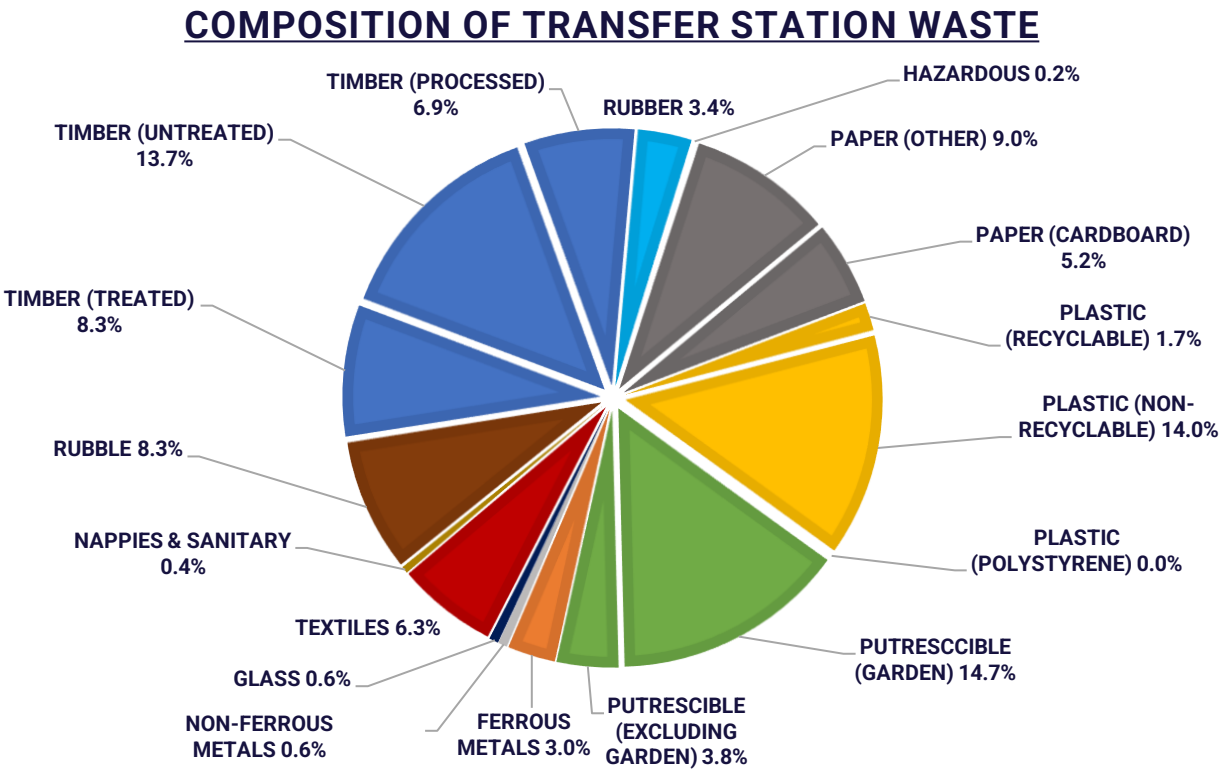

Chart 10. Composition of waste from the transfer stations origin, presented as a percentage by weight.

The following table outlines the loads from the transfer stations throughout the region:

TRANSFER STATION	# OF LOADS	WEIGHT OF WASTE (KG)	% OF TRANSFER STATION ORIGIN WASTE
PASCOE STREET	17	117,420	18.8
WESTPORT	4	54,460	8.7
MARIRI	9	163,280	26.2
MURCHISON	2	10,660	1.7
RICHMOND	15	267,540	42.9
TAKAKA	1	9,900	1.6

Table 4. Number and origin of loads from the transfer stations.

The transfer stations origin was found to contain the highest proportion of rubber waste when compared to all other origins (see Charts 7, 8, 9 & 10).

3.5.6. Weight of waste within each origin

		INDUSTRIAL		KERBSIDE BAG		RESIDENTIAL		TRANSFER STATIONS	
PRIMARY CLASSIFICATION	SECONDARY CLASSIFICATION	SECONDARY CLASSIFICATION WEIGHT (KG)	PRIMARY CLASSIFICATION WEIGHT (KG)	SECONDARY CLASSIFICATION WEIGHT (KG)	PRIMARY CLASSIFICATION WEIGHT (KG)	SECONDARY CLASSIFICATION WEIGHT (KG)	PRIMARY CLASSIFICATION WEIGHT (KG)	SECONDARY CLASSIFICATION WEIGHT (KG)	PRIMARY CLASSIFICATION WEIGHT (KG)
	OTHER	34,119.1		5,701.5		21,257.1		56,294.6	
PAPER	CARDBOARD	22,026.1	56,145.2	1,150.1	6,851.6	4,453.6	25,710.7	32,564.4	88,859.0
	RECYCLABLE	4,121.0		896.5		4,607.8		10,731.3	
	NON-RECYCLABLE	87,306.4		9,731.2		23,827.8		87,011.8	
PLASTIC	POLYSTYRENE	3,227.7	94,655.1	51.6	10,679.3	74.2	28,509.8	117.9	97,861.0
	PUTRESCIBLE (GARDEN)	22,644.4		3,102.5		32,038.2		91,314.3	
PUTRESCIBLE	PUTRESCIBLE (EXCLUDING GARDEN)	45,367.5	68,011.9	12,822.4	15,924.9	41,531.5	73,569.6	23,547.6	114,861.9
FEROUS METALS			16,068.0		423.8		12,012.0		18,602.4
NON-FERROUS METALS			1,185.1		147.3		1,825.7		3,545.2
GLASS			6,799.3		569.5		3,845.7		3,660.0
TEXTILES			11,107.8		1,959.2		15,386.3		39,110.7
NAPPIES & SANITARY			7,263.6		2,014.3		2,974.9		2,715.9
RUBBLE			62,906.5		959.7		5,886.5		51,547.5
	TREATED	58,847.9		179.0		5,089.0		51,463.4	
	UNTREATED	77,794.6		7.7		11,766.4		85,666.9	
TIMBER	PROCESSED	42,047.1	178,689.5	130.2	316.9	7,056.7	23,912.0	42,946.5	180,076.8
RUBBER			13,719.6		468.2		1,428.2		21,100.5
HAZARDOUS			11,388.4		245.2		438.6		1,319.1
TOTAL			527,940.0		40,560.0		195,500.0		623,260.0

Table 5. Presents the weight of waste disposed of within each classification from each origin.

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The above table provides a snapshot of the weight of waste within each classification (both primary and secondary) disposed of during the study week, based on the composition found. Of the primary classifications, the transfer stations origin was found to contain the largest amount of all primary classifications except glass, nappies & sanitary, rubble, and hazardous waste, which were found to be highest in the industrial origin (see Table 5).

3.6. Refrigerant gas

It was requested by DS solutions to carry out a simple investigation on the potential of refrigerant gas entering York Valley. During the survey a visual count of any items that could have potentially contained refrigerant gas were recorded. These types of items included but were not limited to:

- Fridges
- Freezers
- Cylinders
- Air-conditioning units

No items containing refrigerant gas were encountered via visual analysis during the survey period.

3.7. Composition within each weighbridge category

PRIMARY CLASSIFICATIONS	SECONDARY CLASSIFICATIONS	GENERAL RUBBISH		SKIPS AND MINI BINS		SMART ENVIRONMENTAL (BULLER) TDC		DEMOLITION		STREET LITTER	
		SECONDARY (%)	PRIMARY (%)	SECONDARY (%)	PRIMARY (%)	SECONDARY (%)	PRIMARY (%)	SECONDARY (%)	PRIMARY (%)	SECONDARY (%)	PRIMARY (%)
	PAPER (OTHER)	9.4		5.0		16.5		0.8		32.2	
PAPER	PAPER (CARDBOARD)	4.7	14.1	2.3	7.4	13.0	29.4	0.0	0.8	29.9	62.2
	PLASTIC (RECYCLABLE)	1.3		0.6		3.9		0.0		24.3	
	PLASTIC (NON-RECYCLABLE)	20.5		8.4		16.2		1.8		7.6	
PLASTIC	PLASTIC (POLYSTYRENE)	0.2	22.1	1.4	10.4	0.0	20.1	0.3	2.1	0.0	31.9
	PUTRESCCIBLE (GARDEN)	9.8		2.7		3.1		7.0		0.0	
PUTRESCIBLE	PUTRESCIBLE (EXCLUDING GARDEN)	10.1	20.0	17.9	20.6	9.1	12.2	0.0	7.0	0.0	0.0
FERROUS METALS			2.5		7.4		2.5		1.4		0.5
NON-FERROUS METALS			0.5		0.1		0.5		0.0		2.4
GLASS			1.3		1.7		1.5		0.0		3.0
TEXTILES			4.1		3.7		8.4		0.0		0.0
NAPPIES & SANITARY			1.3		2.7		0.6		0.0		0.0
RUBBLE			8.0		10.9		2.8		20.8		0.0
	TIMBER (TREATED)	5.1		7.3		4.9		36.3		0.0	
	TIMBER (UNTREATED)	11.3		16.8		8.2		25.9		0.0	
TIMBER	TIMBER (PROCESSED)	6.5	22.9	10.3	34.4	4.8	18.0	3.9	66.1	0.0	0.0
RUBBER			3.1		0.8		3.7		2.0		0.0
HAZARDOUS			0.2		0.0		0.3		0.0		0.0

Table 6. Presents the composition found within each weighbridge category utilised during 20 – 25 February 2023.

PRIMARY CLASSIFICATIONS	SECONDARY CLASSIFICATIONS	ASBESTOS		HAZARDOUS WASTE		SAWDUST TREATED		STREET SWEEPING	
		SECONDARY (%)	PRIMARY (%)	SECONDARY (%)	PRIMARY (%)	SECONDARY (%)	PRIMARY (%)	SECONDARY (%)	PRIMARY (%)
PAPER	PAPER (OTHER)	0.0		0.0		0.0		0.0	
	PAPER (CARDBOARD)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLASTIC	PLASTIC (RECYCLABLE)	0.0		0.0		0.0		0.0	
	PLASTIC (NON-RECYCLABLE)	0.0		0.0		0.0		0.0	
	PLASTIC (POLYSTYRENE)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PUTRESCIBLE	PUTRESCCIBLE (GARDEN)	0.0		0.0		0.0		0.0	
	PUTRESCIBLE (EXCLUDING GARDEN)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FERROUS METALS			0.0		0.0		0.0		0.0
NON-FERROUS METALS			0.0		0.0		0.0		0.0
GLASS			0.0		0.0		0.0		0.0
TEXTILES			0.0		0.0		0.0		0.0
NAPPIES & SANITARY			0.0		0.0		0.0		0.0
RUBBLE			0.0		33.3		0.0		100.0
TIMBER	TIMBER (TREATED)	0.0		0.0		100.0		0.0	
	TIMBER (UNTREATED)	0.0		0.0		0.0		0.0	
	TIMBER (PROCESSED)	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
RUBBER			0.0		0.0	0.0	0.0		0.0
HAZARDOUS			100.0		66.7	0.0	0.0		0.0

Table 7. Presents the composition found within each weighbridge category utilised during 20 – 25 February 2023.

Tables 6 & 7 presents the average composition within each weighbridge category that was used during the survey period. This information was found by creating the mean composition of each waste classification in each weighbridge category based on the samples, and provides an indication of the proportions of waste within each weighbridge category.

Please note, the following weighbridge category compositions were based on less than 10 vehicle loads:

- Smart Environmental (Buller) TDC
- Asbestos
- Hazardous Waste
- Sawdust Treated
- Street Litter
- Street Sweeping

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5.0. References

Abernethy, C. (2022, 2020). *Composition of Waste Study York Valley Landfill – Nelson.* JBL Environmental Ltd: Blenheim

Eldridge, S. (2012) *Bluegums Landfill – ETS Obligations UEF Application – SWAP Sampling Advice*. Tonkin and Taylor Ltd: Auckland.

Ferry, J. (2017). *Bluegums Regional Landfill – Emissions Trading Scheme sampling and testing plan.* Tonkin and Taylor Ltd: Auckland.

Ministry for the Environment (2002) *Solid Waste Analysis Protocol*. Ministry for the Environment: Wellington.

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