

# Commercial and Industrial Waste in the Lower Hunter Region

## Introduction

Manufacturers, shops and businesses of all sizes and varieties are some of the many sources of commercial and industrial (C&I) waste. The majority of C&I waste that ends up in landfills in NSW is made up of organic, degradable materials that emit greenhouse gases as they break down. Many of the diverse materials in the waste could be diverted before they reach the waste stream or have potential resource value if they could be recovered or recycled cost-effectively.

Increased resource recovery from the C&I sector will help reduce greenhouse gas emissions, save water and energy and help the sector reach the Waste Avoidance and Resource Recovery (WARR) Strategy target of recovering 63% from the C&I waste stream by 2014.

The 2008 NSW WARR Strategy Progress Report confirms recycling rates for C&I waste in 2008–09 of 52.3% for NSW and 60.4% in the Extended Regulatory Area, which includes the Lower Hunter region. It is estimated that in 2007–08 the Lower Hunter Region recycled 50% of C&I waste, however 176,455 tonnes of C&I waste, including timber, food, plastics, paper and cardboard, still ended up in landfills. It is important to note that the data on resource recovery for C&I waste is provided through DECCW annual reprocessor survey which is voluntary to complete, the data provided is not audited and not all those that are surveyed actually respond.

The Department of Environment, Climate Change and Water (DECCW) undertook a C&I disposal-based waste survey in the Lower Hunter in 2009 to gain a clearer and more accurate understanding of what is in the C&I waste disposal stream and identify the industry sectors that were the generators of this waste. The purpose of this report is to provide a summary of C&I waste disposal in the Lower Hunter region.

## The disposal-based survey

The disposal based survey comprised two parts. Waste Audit and Consultancy Services (WACS) were engaged to undertake the two day audit at Summerhill Waste Management Facility and the data analysis for the other lower Hunter Councils. Stage one was a field based survey conducted over two days at Summerhill Waste Management Centre in October 2009. This included a gatehouse survey of all C&I loads delivered to identify industry source and delivery vehicle type. Coupled with the gatehouse survey was a field based visual audit of all C&I waste disposed, to collect data which could then be used to develop a C&I waste profile for the Lower Hunter.

Stage two of this project was a gatehouse survey conducted by each of the gatehouse staff at the Mount Vincent, Cessnock, Awaba and SITA Composting Waste Management Facilities. The gatehouse survey, conducted over a five day period in October 2009, captured weight data and the industry generator of the waste, where this could be identified.

The information from the gatehouse surveys and the visual assessment of loads from Summerhill were analysed in detail using the Australian Waste Data classification to categorise what was in the C&I waste stream and provide a breakdown of industry source for the Lower Hunter Region.

The data presented in this report provides an estimate of the expected C&I waste profile, waste generators and material quantities for the Lower Hunter region.

## Key findings of the survey

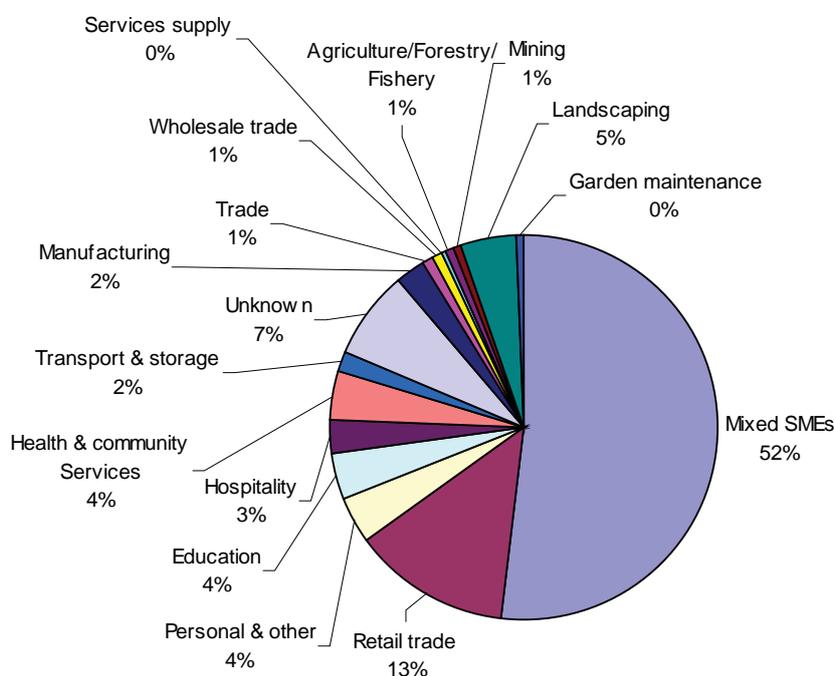
In 2007–08 176,455 tonnes of C&I waste was disposed at the six Lower Hunter landfills<sup>1</sup>.

Based on the two day audit and five day gatehouse survey, it is estimated that:

- over a third, (approx 37%), of all waste disposed to landfill at the time of the survey was from C&I sources
- the C&I waste was evenly distributed between mixed loads at 50.3% and single material loads at 49.7% by weight
- the single material loads primarily comprised virgin extracted natural materials (VENM), quarry material or slag
- of the mixed C&I waste loads over half (52%) were from mixed small to medium enterprises (SMEs)
- retail trade contributed 13% of all mixed C&I waste
- two thirds of waste, (66%), was delivered by front lift trucks.

## Industry source of mixed C&I loads

Chart 1: Waste disposal by industry sector in the Lower Hunter



Industry sectors were classified according to ANZSIC codes and were determined by the gatehouse operator through the survey of vehicle drivers at time of disposal. The largest source of mixed C&I waste was Mixed SMEs (52%), followed by retail trade (13%), landscaping (5%) and unknown (7%). Personal and other services, Education and Health and Community Services each contributed a further 4% of mixed C&I waste loads.

The fact that over half of all C&I waste disposed to landfill is generated by Mixed SMEs has implications for the way in which C&I waste reduction and resource recovery projects are implemented, as waste from these businesses tends to be collected by front lift trucks and is mixed with multiple other businesses wastes.

## Composition of single material loads for the C&I waste stream

At the time of the audit and survey, 37% of all loads disposed to landfill were from C&I sources. Of these, approximately 50% were from mixed C&I sources and 50% from single material loads, by weight.

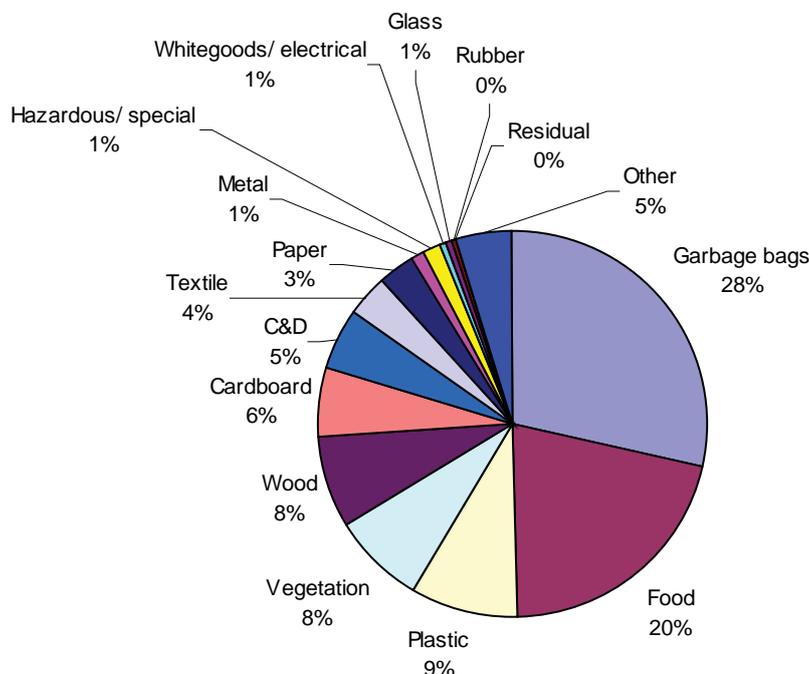
Of the single material loads 60% were VENM, 28% were quarry material, 9% contaminated soil, 2% were slag and <1% were council material.

<sup>1</sup> The audit and surveys were conducted at five waste management facilities however a sixth, Salamander Bay Waste Transfer Station, contributes to the overall tonnages of C&I waste disposed in the Lower Hunter Region.

## Composition of mixed C&I waste stream

The main materials contained in the mixed loads sent to landfills are garbage bags (28%), food (20%), plastic (9%), wood (8%), vegetation (8%) and cardboard (6%). Chart 2 provides a more detailed composition breakdown.

**Chart 2: Estimated C&I waste quantities in the Lower Hunter for mixed C&I loads**



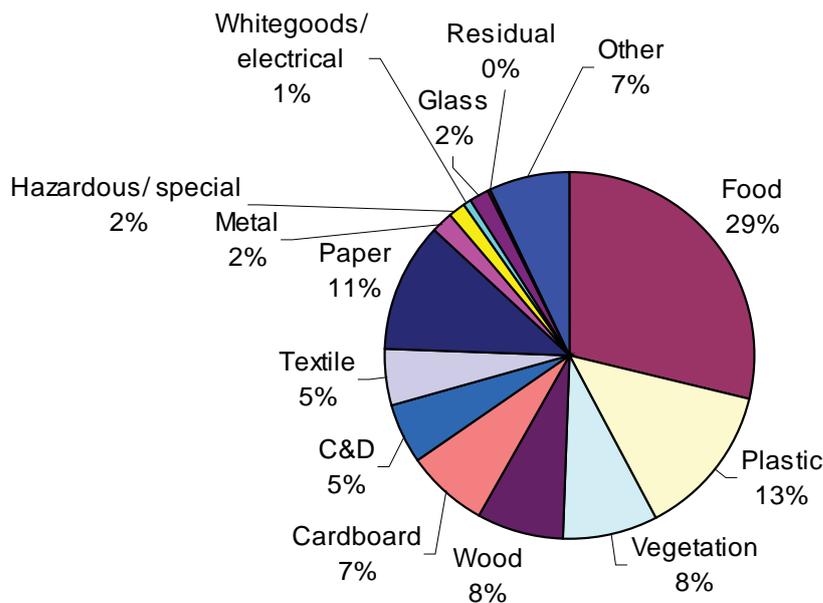
Note: 'Other' includes fines, ceramics, nappies, fibreglass, insulation etc.

Using the most commonly disposed materials from the estimated waste profile for the Lower Hunter, this translates to 49,407 tonnes of mixed materials disposed in plastic bags, 35,291 tonnes of food, 15,881 tonnes of plastic, 14,116 tonnes of vegetation and wood, respectively and 15,881 tonnes of paper and cardboard.

## Composition of mixed C&I waste stream with garbage bag contents distributed

In 2008, on behalf of DECCW, WACS completed a comprehensive disposal based survey of six landfills and six transfer stations in Sydney. The audit included thorough auditing of waste disposed in garbage bags. This data was used to provide an estimate of the composition of garbage bags found in the C&I waste stream for the Lower Hunter Region. Paper (29.2%) and food (27.7%) accounted for more than half the garbage bag contents. Plastic (15.1%), other (7.0%), textile (4.5%) and cardboard (4.1%) made up a further 30.7%. The estimated waste material profile with the garbage bag data apportioned is shown in Chart 3.

**Chart 3: Estimated mixed C&I waste quantities in the Lower Hunter (garbage bags distributed)**



With the waste from garbage bags apportioned, it can be seen that food waste, plastic and paper all experienced notable increases in the quantity being disposed.

Using the main material categories in the mixed C&I waste stream and the 2007–08 disposal figure of 176,455 tonnes, this translates into 51,172 tonnes of food, 22,393 tonnes of plastic, 31,762 tonnes of paper and cardboard, and 14,116 tonnes each of wood and vegetation.

The consolidated food waste category in the mixed C&I waste stream is estimated to consist primarily of ‘food – loose other’ (88.7%). Waste within this category would fall more within the ‘post-consumer’ food waste category rather than as a result of production.

Plastic in the C&I waste stream is estimated to consist primarily of plastic bags and film (49% of plastic waste stream) and plastic – hard (47%). Plastic – other and polystyrene make up the remaining 4% of the plastic waste disposed to landfill. Approximately 85% of the vegetation waste is from vegetation – branches/grass clippings, with the remainder being tree stumps/logs.

The consolidated paper and cardboard category in the mixed C&I waste stream mainly consists of paper – all (35%), compacted dry cardboard (47%) and compacted wet cardboard (17.8%). Biodegradable waste (food, vegetation, wood, cardboard and paper) made up 63% of the waste disposal stream.

## Limitations of this survey

As this project involved a field based survey conducted at Summerhill Waste Management Centre over a two day period and gatehouse surveys at the other four Lower Hunter landfills, conducted by gatehouse staff over a five day period, to develop a C&I waste profile for the Lower Hunter region, there are some limitations to the data.

The data presented in this report provides an estimated C&I waste profile in the Lower Hunter, however, it can not be guaranteed as accurate as an extensive field-based audit would provide. This data captured a ‘snapshot’ of C&I waste disposal in the Hunter and any variations or unique disposal patterns at the time of the audit and gatehouse surveys may result in skewed results.

Additionally, the reliability of the data from the four Lower Hunter landfills that participated in the gatehouse survey is only as accurate as the information the gatehouse operators were able to obtain at the time of the survey.

## Further information

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