1 Southern Metropolitan Regional Council: Using Data to Help Recover Materials

This Case Study forms part of a series of resources to assist local governments with the collection and reporting of waste and recycling data. The remaining case studies and a series of Fact Sheets can be downloaded from www.wasteauthority.wa.gov.au/publications/lg-resources.

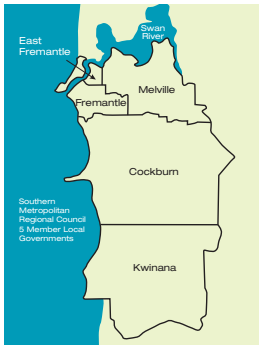
The Materials Recovery Facility

The Southern Metropolitan Regional Council (SMRC) is a regional council established by the City of Cockburn, Town of East Fremantle, City of Fremantle, City of Kwinana and City of Melville to manage waste and climate abatement for their local communities.

The SMRC's Regional Resource Recovery Facility encompasses three sophisticated processing technologies including a waste composting facility, green waste facility and a materials recovery facility to process and recover waste from households in the Perth southern metropolitan area.

The SMRC Materials Recovery Facility (MRF) was commissioned in July 2012 at a cost of $20 million and uses state-of-the-art systems and equipment to recover recyclables from the 240L yellow-top bins provided to households in the region. Recyclables are sorted, processed and baled for sale to domestic and international markets.

Over 80,000 tonnes of recyclables from households in the SMRC local government areas can be processed at the MRF, with expected recovery rates of materials to reach 98% glass, 91% plastic, 96% paper, 99% metals (steel and aluminium).



Photos: Material on the sorting conveyors (L) overview of the sorting equipment (R)

Why was quality data important in building the MRF

Designing and building infrastructure, plant and equipment to handle, process and store in excess of 90,000 tonnes of recyclables required quality data collection and analysis. At a cost of $20 million, the expected return on investment was to be verified by the SMRC based on predicted tonnages and types of materials to be processed and consequently the materials that would be available for sale.

Verifiable data was essential to:

- Determine the MRF footprint
- Assess and decide upon the specific processing plant and equipment that could handle the expected volumes of particular recyclables
- Design operational aspects of the MRF including planned locations and connectivity of heavy equipment / vehicle operations, location of fire suppression systems, location of floor workers to ensure safety
- Determine incoming and storage capacities required
- Identify periods of peak operations and expected flow of recyclables e.g. increase in glass / metals recyclables following New Year, Australia Day etc.

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How was data collected

The SMRC commissioned a detailed study into recyclables generated in the local government areas. This study involved auditing of 100 household's 240L yellow top bins, and categorisation of recyclables by material type. Data was then extrapolated based on the number of households in various local government areas that the MRF would service.

Auditing was conducted at the RRRC Auditing Facility with bins collected in the normal everyday manner to minimise any possible influences on the sample being targeted. Waste collection vehicle drivers recorded houses where bins were collected. The material was sorted into the following categories (Table 1).

Table 1: Categorisations of recyclables / non-recyclables (contaminants)

Recyclable	
Category	**Sub-category**
Glass	Clear
	Green
	Amber/Brown
	Mixed
Plastics	PET type1
	HDPE type 2
	PVC type 3
	LDPE type 4
	Polypropylene type 5
	Polystyrene type 6
	Other type 7
	Plastic bags
	Foam
Paper	Newspaper
	Glossy Paper
	Office Paper
	Other Paper
Cardboard	Flat
	Corrugated
	Liquid Paper Board
	Other Cardboard
Non-Ferrous	Cans
	Foil
	Aluminium Other
Ferrous	Steel cans
	Aerosol
	Other

Non-recyclable	
Category	**Sub-category**
Organic	Food waste
	Green waste
	Wood
Textiles	
Earth	Inert
	Ceramics
Medical	Pharmaceuticals
	Medical
	Hazardous Other
Hazardous	Fluorescent globes
	Batteries
	Chemicals
	Nappies
	Paint
Other	Toner Cartridges
	Computer Equipment
	Electrical
	Other (Specify)
Miscellaneous	

Analysing data

Categorisation, sorting and weighing of the recyclables and non-recyclables provided a snapshot of materials collected from the residential kerbside recycling bin to be delivered to the new MRF for processing (Figures 1, 2 and 3).

Combined Councils – Recyclables Contamination Percentage March 2013

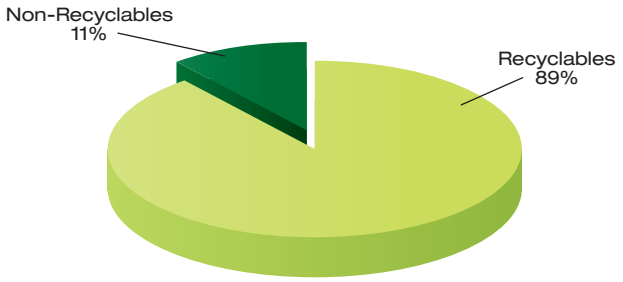

Figure 1: Percentage of the recycling stream that is contamination

Combined Councils – Recyclable Component Percentage March 2013

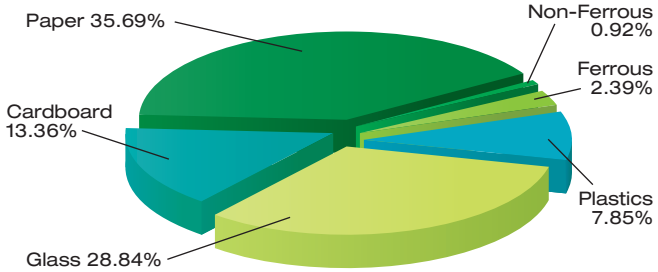

Figure 2: Percentage of each recyclable component in the recycling stream

Combined Councils – Breakdown of Contamination in Recyclables March 2013

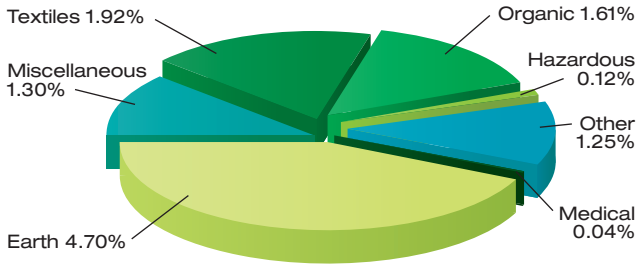

Figure 3: Pie chart of contamination in the recycling stream (89% uncontaminated)

Benefits of managing data

Almost 85% of recyclables received at the MRF in the financial year 2012/2013 were diverted from landfill; exceeding targets set out in the State Waste Strategy and leading to overwhelming community support and satisfaction with recycling services being provided (SMRC Annual Report 2012/13).

The collection of verifiable data by the SMRC has not only facilitated the design of the MRF but has also provided other wider benefits including:

- Evaluation of the effectiveness of communications campaigns such as 'Recycle Right' by tracking levels of contamination in recycling bins
- Enabling submission of data to Federal and State governments for annual local government Census on waste and national greenhouse gas reporting
- Providing readily reportable information to the community on recycling rates over time thus encouraging proper disposal and reducing contamination
- Providing evidence that that recyclables are processed and sold into markets thus overcoming industry and community scepticism
- Ongoing analysis and forecasts of sales based on trends of incoming materials (Table 2).

Output Product	Tonnes	% of Sales
Mixed Paper	5,106	29%
Cardboard (OCC)	2,482	14%
Newspaper (ONP 6/8)	7,304	42%
Ferrous Metal / Steel	822	5%
Aluminium	198	1%
Plastic type 1 (PET)	299	2%
Mixed Plastic	1,013	6%
Plastic type 2 (HDPE)	272	2%
Sub-total (Sales)	**17,495**	**100%**

Table 2: Analysis of outgoing product as % of sales for 2012/13