

# 2 Shire of Mundaring: Managing Data at Rural Waste Transfer Stations

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](http://www.wasteauthority.wa.gov.au/publications/lg-resources).



The Shire of Mundaring is a 644 km<sup>2</sup> municipality located on the eastern fringe of Perth with a population of approximately 38,000 people living in around 14,000 households. The Shire is predominantly rural, with about half covered by National Park or water catchment areas. The bulk of the population lives on the suburban fringe of Perth, with the remainder living in the 22 townships located throughout the Shire. The Shire provides a weekly waste bin, fortnightly recyclables bin, annual verge collection for bulk waste and green waste, and access to three waste transfer stations throughout the year.

## Challenging aspects of managing rural Waste Transfer Stations

The Shire was faced with a number of challenges in managing waste and recyclables disposed of to the three rural transfer stations in the past couple of years; most notably the high costs associated with general waste disposal due to unlimited resident access to the sites.

Unlimited access for disposal of general waste offered no incentive for residents to separate recyclables resulting in increased waste to landfill and reduced recycling rates. Furthermore, the Shire was aware that 'resident passes' could be passed to non-residents to use. The misuse of passes resulted in residents paying for management of

non-resident's waste and also meant that there was no accurate mechanism of tracking the visitors to the transfer stations.

The Shire made the decision to restrict disposal of general waste to four visits per resident household in order to:

- Capture waste and recycling drop-off data
- Manage and mitigate escalating costs
- Improve recycling rates
- Eliminate non-resident use of the transfer stations.

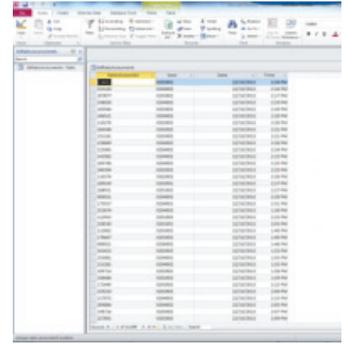
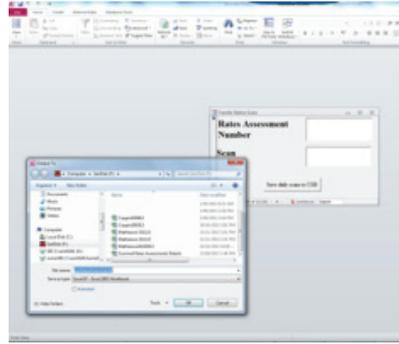
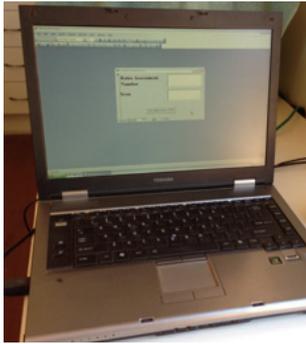
## A simple system to capture waste and recycling data

To implement varying access to the sites, the Shire developed a user-friendly database system for transfer station site operatives to record the 'resident pass' number, type of waste and type of vehicle.

The system consists of a simple Microsoft Access database that is linked to a scanner. A 'resident pass' is scanned on arrival at the manned transfer station gatehouse and records the rates assessment number. The gatehouse attendant then scans a separate sheet of paper with the relevant barcode for the type of waste being disposed of and type of vehicle used to dispose of the waste or recyclables. For example, waste type might scan as 'green waste' and vehicle type might

scan as 'trailer'. The rates assessment number, type of waste and type of vehicle along with identification of the particular transfer station, date and time of visit are stored in the Access database.

The cost to develop and implement was less than \$10K inclusive of the purchase of scanner and laptop. Access to the internet is not essential as data can be transferred at the push of a button to a USB device. Data can also be sent automatically at the end of each day to head office with use of an internet connection or if the transfer stations are linked remotely to head office servers. The system requires a basic level of competency with computers.



Scanner and laptop, sheet with relevant barcode for type of waste and vehicle, user interface showing data being saved to USB and data stored in database.

## How managing data has improved waste operations

Since implementing the data management system, Shire officers can readily:

- Track visits and disposals of general waste to the landfill, and inform residents when four visits for disposals of general waste have been reached
- Determine whether 'resident passes' should be re-issued or not based on the number of visits
- Assess (on an estimated basis of volumes of waste types disposed of in vehicle types) the amount of general waste to landfill, amount of recyclables and volumes of green waste being disposed of, recycled or mulched
- Determine costs attributable in managing general waste, handling recyclables and hiring contractors to mulch green waste
- Determine cost per load of a particular waste which has enabled accurate price setting to fully recover costs of waste disposal.

Management can readily run reports to determine:

- Whether commercial entities are utilising the transfer station facilities (as the 'rates assessment number' can be linked to another system whereby Council rates information showing resident / business details)
- The busiest days / times of operation at the transfer stations and allocate operational resources accordingly
- The predominant mode of vehicle used to dispose of waste stream to assist in setting out traffic flow, and locations for drop off of materials
- The volumes of waste streams being disposed of over a selected time period.

Total Visits per Waste Type	
Waste	Count of Rates Assessment No
<b>Coppin Road</b>	
13	Waste Goods
1	Truck - 1000 Plus
2	Truck - 400 Plus
210	Recyclables
200	Green Waste
84	General Waste

Thursday, 22 November 2012 Page 1 of 1

Total Visits per Vehicle Type	
Waste	Vehicle Type
<b>Coppin Road</b>	
1116	Ute or Van
125	Ute and trailer
21	Truck (2000)
1100	Trailer Only
737	Trailer High Sides
94	Car
<b>Mathieson Road</b>	
80	Ute or Van
81	Ute and trailer
18	Truck (2000)
810	Trailer Only
308	Trailer High Sides
105	Car

Thursday, 22 November 2012 Page 1 of 1

Figure 1: Example of Management Reports

## Benefits of the Transfer Station data management system

- General waste to landfill tonnages and costs have decreased (Table 1) as tracking of visits for disposals of general waste has changed resident behaviour:
  - Residents increasingly source separate recyclables
  - Residents do not tend to allow non-residents to use passes for general waste
- Recyclables have increased (as a percentage of total waste received) which has led to an increase in funds flowing to the Shire (from sales of steel for recycling; refer Table 1)
- Outcomes from analysing the data from the transfer station passes:
  - Facilitation of better allocation of operational resources on busiest days of the year (with the busiest time being identified as just after New Years)
  - Justification for the use / purchase of equipment to better handle volumes of waste e.g. purchase of larger hook-lift bins for storage and transport of cardboard / recyclables
  - Enabled funding to be obtained for the improved recycling of wastes i.e. establishment of the site as a permanent drop off facility under the National Product Stewardship Scheme for Computers and TVs
  - Enables planning for future initiatives, infrastructure and funding based on the expected tonnages of waste streams general, recyclables and green waste.

Table 1: Waste and recyclables comparison from 2012 to 2013 (from implementation of improved data management system)

Waste Type	Year to 31 Aug 2012		Year to 31 Aug 2013		Difference between years (%)
	Tonnes	Percentage of Total Waste Received	Tonnes	Percentage of Total Waste Received	
Landfill	5,829	31%	3,867	26%	-34%
Green waste	9,006	47%	7,707	51%	-14%
Metals	1,067	6%	926	6%	-13%
Rubble	2,881	15%	2,412	16%	-16%
Cardboard & Paper	155	0.8%	142	0.9%	-8%
Glass	33	0.2%	50	0.3%	52%
Other Recycling	42	0.2%	38	0.3%	-10%
<b>Total Waste</b>	<b>19,013</b>		<b>15,142</b>		<b>-20%</b>

The data in Table 1 shows that there has been a 20 % decrease in material being dropped off at transfer stations since the implementation of the new system. However, of the material dropped-off at the site, 74% is now recycled, where previously on 69% was recycled.

**‘Collecting data has been simple and inexpensive to implement. It has given the Shire a better understanding of the community’s use of the sites and the types of waste delivered. It has allowed the Shire to set appropriate fees and budget for the provision of the service more effectively; and, has provided much better control over resident access to the sites. Since the implementation of resident passes and the data capture system, waste disposed of to landfill has reduced by more than 30% and recycling has increased’.**

Matthew Fulford, Coordinator Waste and Recycling Services, Shire of Mundaring.