



## Waste diversion spurs skills demand

**Wright Corporate Strategy has compiled a assessment of skills needs in the waste industry over the next decade. Paul Howlett and Rebecca Walter outline the results in this four page exclusive.**

WASTE management in Australia is undergoing significant structural change as state governments push to divert waste from landfill disposal. This will lead to major and permanent shifts in the industry's employment profile and skill-base over the next 10 years; in particular jobs growth in regional areas of about one third and a boom in the organics and waste processing sectors with employment growth of 180% plus.

Wright Corporate Strategy has undertaken an analysis of the shift in job demands in the industry to 2016, assuming constant waste generation rates based on 2003-04 published data. To accommodate the shifts in employment mix and skill base, the industry will require:

- retraining of some personnel to move them from work activities and/or job classifications that will be in decline to those where growth is likely,

- employment of new personnel with new skills for the growth areas, and
- financial and material resources for training both the incoming and the relocated personnel.

These findings are designed to provide a basis for seeking appropriate support for the industry, with coverage by the Construction and Property Services Industry Skills Council in providing the

there is likely to be growth in total industry employment over the next decade of about 20%, or 2% per annum. Of this, a significant proportion will be outside metropolitan centres, with employment expected to increase by 32% compared to just 12% in the cities.

This reflects the increasing service levels that will become available to

forecast at 26%, much of it in organic waste processing, MRF operations and mixed waste processing.

Nationally there will be significant changes in employment in specific activities and job classifications. The two stand-out trends are a 39% reduction in jobs in the landfill sector and the massive growth in organics collection and processing and in mixed waste processing. The audit also forecasts a significant increase in demand for personnel engaged at the interface with waste generators. While collection patterns are expected to change at kerbside, the net shift in skill demands for collection services is considered to be relatively small.

This picture of industry job demands will help the Skills Council, associated working parties and specialist consultants prepare competency development material to address skill gaps. It will also help industry prepare for the shifts ahead and establish appropriate recruitment and training systems. The audit was well supported by the industry, with modest financial support and excellent statistical and data input from local councils and operators. [iw](#)

INCREASE IN EMPLOYMENT		DECREASE IN EMPLOYMENT	
ACTIVITIES	CLASSIFICATIONS	ACTIVITIES	CLASSIFICATIONS
<ul style="list-style-type: none"> <li>organic waste collection</li> <li>organic waste processing</li> <li>MRF operations</li> <li>mixed waste processing</li> </ul>	<ul style="list-style-type: none"> <li>fixed plant operations</li> <li>clerical</li> <li>drivers</li> <li>mechanics</li> <li>waste education</li> <li>customer service</li> </ul>	<ul style="list-style-type: none"> <li>general waste collection</li> <li>landfill operations</li> <li>transfer station operations</li> </ul>	<ul style="list-style-type: none"> <li>mobile plant</li> <li>operators at landfills</li> </ul>

*Broad trends in the waste trade's skills requirements.*

resources and leadership in national competency standards. The council also covers another 20-plus industry sectors, so the waste management industry must have a broad comprehension of its skill demands if it is to secure a fair and reasonable share of the resources available for skills development.

### **Fleshing out the fallout**

On a macro basis, the data indicates

non-metropolitan areas. The forecast can be expected to remain true even with the inclusion of increasing waste generation rates, especially given the population shifts being seen to coastal, non-metropolitan developments.

NSW is expected to experience the greatest jobs growth as it drives towards aggressive resource recovery targets and the waste levy progressively starts to bite. Employment growth is

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Following on from the inaugural Conference held in June of 2004, the 2006 event will once again provide a forum to develop and promote environmentally sound resource recovery and waste management practices. In addition, this event aims to provide further and updated information and ideas on those topics in effect, to look at the next steps in these, and other areas within the waste management industry in South Australia.

## Audit Methodology

THE SKILL demands of the waste management industry were ascertained from an analysis of the jobs required and an understanding of the skills and competencies necessary to carry out those jobs.

The predominant cause for the change in job demand, and therefore skill needs, was increasing desire on the part of communities and governments to recover more resources from waste streams before residuals are disposed.

This will see the following typical shifts in waste flows for both municipal and commercial waste streams:

- higher levels of source separation, particularly recyclables and organic waste,
- specialised collections for the source separated waste streams,
- dedicated processing plants for the source separated streams,
- processing plants for mixed residual waste, and
- less material destined for landfill disposal.

To develop an estimate of future job needs, WCS built a number of models based on public data, industry-confidential data and in-house estimates of current and future likely waste stream flows, focusing on MSW (general waste, organics and recyclables) and all dry solid C&I wastes.

We then assessed the current and projected productivities of people employed in collection, transfer and transport, processing and disposal, with a focus on blue collar jobs up to leading hand and all support staff up to waste and operations managers for both councils and the private sector.

**Table 1 – Employment in Waste Management Activities (2006-2016)**

Waste Management Activity	Capital Cities		Rest Of State		Australia	
	Est 2006	Est 2016	Est 2006	Est 2016	Est 2006	Est 2016
General Waste Collection (Municipal)	2,310	1,900	1,940	1,810	4,250	3,710
General Waste Collection (C&I)	330	330	160	160	490	490
Landfill Disposal	700	420	300	190	1,000	610
MRF Operations	1,740	2,030	1,120	1,690	2,860	3,720
MRW Process	40	320	10	150	50	470
Organics Processing	240	1,250	90	260	330	1,510
Organics Waste Collection (Municipal)	1,730	1,990	670	1,770	2,400	3,760
Recyclables Collection (Municipal)	1,440	1,440	1,150	1,190	2,590	2,630
Transfer Station Operations	440	360	60	50	500	410
<b>Total</b>	<b>8,970</b>	<b>10,040</b>	<b>5,500</b>	<b>7,270</b>	<b>14,470</b>	<b>17,310</b>

**TABLE 1** The estimates for employment levels in each of nine core waste management activities are shown separated into estimates for capital cities, the remainder of each state or territory and Australia overall.

It clearly demonstrates the major shifts expected in the intensity of waste management activities, such as:

- increase in collection and processing of source separated garden and food organic wastes, and a shift to weekly collections in

some metropolitan areas;

- reduction in the collection of general waste as organic collections move to weekly schedules and general waste is collected fortnightly in many metropolitan areas;
- increase in the amount of mixed residual waste diverted from landfill to mixed waste processing;
- increasing levels of service to non-metropolitan areas; and
- reduction in the demand for landfill activities.



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**Table 2 – Employment Levels in Job Categories**

Job Category	Capital Cities		Rest Of State		Australia	
	Est 2006	Est 2016	Est 2006	Est 2016	Est 2006	Est 2016
Clerical	740	920	500	610	1,240	1,530
Customer Service	170	170	100	130	270	300
Driver	1,960	1,950	1,210	1,550	3,170	3,500
General Labour	60	130	30	60	90	190
Managerial	840	940	680	790	1,520	1,730
Mechanic	550	660	410	570	960	1,230
Mobile Plant Operator	250	150	110	70	360	220
Process Plant Operator	1,530	2,280	930	1,470	2,460	3,750
Runner	1,610	1,270	800	1,000	2,410	2,270
Sales	140	190	60	70	200	260
Technician	390	470	50	50	440	520
Waste Education	460	610	480	690	940	1,300
Weighbridge	270	300	140	210	410	510
<b>Total</b>	<b>8,970</b>	<b>10,040</b>	<b>5,500</b>	<b>7,270</b>	<b>14,470</b>	<b>17,310</b>

**TABLE 2** The overall data was further analysed using industry-supplied metrics for typical productivities of employees in various job categories within each of the main waste management activities. It presents the data arranged according to the main job categories.

It indicates future waste management activities will become more labour-intensive than the landfill-based systems that predominate today, even though it is anticipated more mechanised systems for collection and processing will be introduced. In particular:

- there will be more collections for source separated wastes and more processing of those streams, demanding more process plant operators, mechanics, technicians, general labourers and managers at various levels across the range of waste management activities; and


- there will be greater interaction with waste generators from both councils and the waste service providers, as indicated in the demand for more waste educators, customer service staff and clerical/administrative personnel.

The main area of decline will be in mobile plant operations, which are found mainly in landfill activities.

Meeting the demand for people in process plant operations – MRFs, composting and mixed waste plants – will require a new group of skilled employees, unlikely to be easily recruited from other process plant environments in other sectors. This will require immediate thinking on specialised training for new entrants into processing activities, recruited from both within and outside the industry, and exploring opportunities for early-age entry of new employees into the waste management sector. In the technician area, process techni-

cians and engineers will be required to facilitate operation of plants with increasing process technology complexity, greater cost implications and significant quality control and environmental management ramifications.

For those new jobs requiring high levels of interaction with waste generators, there will be some limited opportunities to recruit suitably skilled people from other industry sectors, such as customer service and clerical employees. However, for the demand in waste educators there will be an urgent requirement to put in place appropriate training at various institutions and within the industry, and introduction of a significant campaign to attract appropriate people into the waste management sector. In both instances, the time for response will be short and the training time must be factored-in to deliver suitable candidates as the demand arises.

The WCS Skills Audit has considered job category demands that are likely to arise through changes in waste stream flows as greater efforts are made to recover resources. The analysis assumes introduction of reasonably known technologies and systems, without consideration of possible impacts from new technologies that may change the way existing activities are undertaken. Therefore, in addition to the broad demands highlighted, there will be extra skill and competency demands on the current workforce brought about by greater use of IT and communications systems, greater interest and concern by the community in the outcomes achieved with higher demand for community interaction, and greater demand for technologically aware employees. 



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**Table 3 – New Job Demand by State**

	NSW	VIC	QLD	WA	SA	TAS	NT	ACT	Total
Existing job breakdown	35%	25%	19%	10%	6%	2%	2%	1%	-
<b>Job Category</b>									
Clerical	110	70	80	15	-	10	-	5	290
Customer Service	20	10	-	-	-	-	-	-	30
Driver	180	70	50	15	-	10	-	5	330
General Labour	50	30	10	10	-	-	-	-	100
Managerial	90	40	50	20	5	5	-	-	210
Mechanic	120	60	60	20	5	5	-	-	270
Mobile Plant Operator	-50	-30	-40	-10	-5	-5	-	-	-140
Process Plant Operator	510	260	350	90	50	20	-	10	1,290
Runner	40	-90	-90	10	-5	-10	-	5	-140
Sales	20	10	20	10	-	-	-	-	60
Technician	35	10	15	5	5	5	-	5	80
Waste Education	90	90	70	80	5	15	5	5	360
Weighbridge	35	20	25	10	5	5	-	-	100
<b>Total</b>	<b>1,250</b>	<b>550</b>	<b>600</b>	<b>275</b>	<b>70</b>	<b>60</b>	<b>5</b>	<b>30</b>	<b>2,840</b>

**TABLE 3** The top row shows the distribution of employed people across the states and territories. It remains fairly constant between 2006 and 2016 and aligns with the historical employment distribution data published by the Australian Bureau of Statistics for the waste industry.

In respect of sourcing the new employees for the various job categories on a state-by-state basis, it indicates that:

- demand for new positions in NSW is unlikely to be satisfied by transfer of existing skilled workers from other industry sectors;
- in South Australia, Tasmania, the Northern Territory and the ACT it is likely the demand could be satisfied through transfers from other sectors; and
- for Victoria, Queensland and Western Australia, a combination of training fresh recruits and transfers from other sectors could be a successful strategy.

**Table 4 – Demand for employees if generation increases**

	NSW	VIC	QLD	WA	SA	TAS	NT	ACT	Total
Employees required	6,410	4,500	3,500	1,810	1,020	390	360	250	18,240

**TABLE 4** A possible upper bound in the demand for new employees was made assuming waste generation rates continue to grow in line with inflation and population growth. This might result in demand for a further 930 people nationally, or 5% over the constant generation case. On this basis, it is reasonable to assume real employment levels in the sector could be up to double the national average inflation rate.

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