WRAPP

Waste Assessment Report

Department of XYZ
Head Office
31 Recycle Street Sydney

Prepared by WRAPP Committee
Department of XYZ

Date

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Contents

1. Executive Summary

A WRAPP waste assessment was conducted at the Department of XYZ's head office in 31 Recycle Street Sydney to review and assess waste and recycling systems at XYZ and to help XYZ meet Waste Reduction and Purchasing Policy (WRAPP) reporting requirements.

The waste assessment was conducted by a four person team, from the XYZ WRAPP Committee, on the evening of the 6th August 200X and involved a visual inspection of the general waste and paper recycling bins in the workstations, offices, printing areas, and kitchens on the following levels:

- Level 2 Administrative Services (including Mail Room); Records
- Level 5 West Side
- Level 7 Personnel
- Level 9 Public Affairs; Corporate Website; Printing Area and Kitchen

During the assessment, 64 waste bins and 52 recycling containers were inspected and materials in each bin were recorded by type, and the volume of the bin estimated. This sample represented material deposited in the bins during the previous 24 hour period (approximately).

Findings

XYZ's recycling systems seem to be generally well used by staff, indicating that staff are mindful of, and participate in, the current program for resource conservation and waste minimisation. Importantly, cleaning staff are supportive of XYZ's recycling system.

The waste assessment found:

- 55% of the general waste bins inspected contained recyclable paper;
- 70% of the recycling bins contained paper that had been printed on one side only;
- 23% of general waste bins contained co-mingled recyclables; and
- Compostable material was found in 56% of waste bins inspected.

Opportunities

XYZ may have the opportunity to divert a significant proportion of their waste into recycling, composting or reuse streams instead of it being disposed to landfill.

As XYZ currently pays for this general waste to be disposed to landfill, there are significant economic and environmental outcomes that could be attained by taking relatively easy measures to reduce this figure through reuse and recycling.

XYZ could also considerably reduce the amount of copy paper it has to purchase if double sided printing was a more common office practice. Throughout the XYZ it was noted that many photocopiers have the capacity to duplex but it appears that staff seldom use this function.

No recycled content paper was seen during the waste assessment and therefore XYZ has the opportunity to help "close the loop" by purchasing recycled content paper.

Recommendations

Convene a waste management team with representatives from all levels of XYZ to be responsible for steering the waste avoidance, minimisation and recycling initiatives.

Implement a co-mingled recycling system(s) to include plastic bottles (PET and HDPE only), aluminium and steel cans, LPB cartons and glass.

Develop and implement an education strategy to disseminate information from the waste assessment, highlight issues, and improve reuse and recycling practices. In addition, the waste team should also undertake training on waste avoidance and on environmentally preferable purchasing.

Review purchasing decisions in accordance with WRAPP requirements to remove any bias against the purchase of recycled content products and materials.

Introduce systems to monitor, review and feedback progress to enable waste generation to be tracked over time and monitor diversion rates on a regular basis. For example, follow up waste assessments could be conducted regularly to monitor diversion rates to improve reuse and recycling systems. This information could be useful in the compilation of XYZ's WRAPP Progress Report.

Establish a worm farm, which would be maintained by staff.

2. Waste Assessment Overview

A waste assessment was conducted at the Department of XYZ's head office in 31 Recycle Street Sydney. (Further references to XYZ will mean Department of XYZ's head office in 31 Recycle Street Sydney). The building accommodates 550 staff and occupies 13,200 square metres over eight floors.

Government agencies are continually looking at ways to improve their waste management practices and to save money. Improving resource management systems are a key tool in achieving these goals. The XYZ conducted this Waste Assessment to review and assess waste and recycling systems as part of improving its resource management systems.

The waste assessment also helps XYZ meet Waste Reduction and Purchasing Policy (WRAPP) reporting requirements that require all government agencies to report waste generation and recycling information.

The waste assessment objectives were to:

- Identify current waste disposal and paper recycling practices;
- Survey the composition of the contents of general waste and recycling bins;
- Identify the occurrence of recyclable paper in the general waste stream;
- Identify the occurrence of contamination in the recyclable paper stream;
- Gain an overview of the success of the paper recycling system;
- Identify waste minimisation opportunities; and
- Identify costs and potential savings in waste management.

The waste assessment was conducted by a four person team on the evening of the 6th August 200X.

Methodology

Two team members conducted a visual inspection of the general waste and paper recycling bins in the workstations, offices, printing areas, and kitchens on the following levels:

- Level 1 Administrative Services (including Mail Room); Records
- Level 4 West Side
- Level 6 South Personnel
- Level 8 South Public Affairs; Corporate Website; Central Printing Area and Kitchen (See Table)

The waste assessment sample consisted of materials deposited in the general waste and paper recycling containers in the above areas over approximately 24 hours (from the afternoon of Tuesday 5th August to the afternoon of Wednesday 6th August 200X). Table 1 (over page) shows the number of bins inspected from

Table 1

Area	Number of Waste Bins Inspected	Number of Recycling Containers Inspected
Level 1	20	16
Level 4	8	7
Level 6	18	18
Level 8	18	11
Total	**64**	**52**

each area.
Materials in each bin were visually inspected, contents were recorded by type, and an estimation made on the volume of the total contents (i.e. percentage of bin full).

The number of bins that a material type appeared in was counted, and then calculated as a percentage of the total bins inspected.

For example, recyclable paper was found in 35 of the 64 general waste bins. Therefore 55% of the total general waste bins contained paper that could have been recycled. (See Graph 1 in Section 4 Key Findings)

While this does not give an exact amount of recyclable paper in the general waste stream, or a specific percentage of the composition that comprised, it does give an indication of how widely this material occurs within the survey area and an indication of potential gains for its diversion into the appropriate collection system.

The methodology outlined above distinguishes the XYZ waste assessment from a formal waste audit. In a waste audit, all materials are sorted and then weighed in order to get exact amounts and percentages for each item in the waste sample.

Therefore, due to the sample size inspected and the visual nature of the assessment, the composition and volume figures given in this report should only be seen as indicative figures that provide a basic analysis of the general waste and recycling systems.

The remaining two team members made general observations on the recycling systems in place and took photographs to record the waste assessment.

It was not possible to assess a sample of the general waste collected for the whole building, as the garbage bags set aside for assessment were inadvertently removed by the waste contractor prior to the assessment.

Data regarding XYZ's waste collections were obtained from the building manager John Jones PTY LTD as follows:

- General waste is collected by waste contractor Waste Away
- 200 cubic metres or about 26 tonnes of general waste is collected each year from XYZ
- The annual estimated cost of this service is $23,524
- Paper and cardboard is collected by Recycling Works
- Data is presently unavailable on the amount of recycling collected
- Toner cartridges are collected by Re-Tone

3. Current practices in General Waste Disposal and Paper Recycling

Introduction

XYZ currently has contractors collecting general waste, paper and cardboard as well as used toner cartridges.

XYZ does not have a co-mingled recycling system for aluminium and steel cans, glass bottles and jars, liquidpaperboard (LPB) cartons or PET bottles.

XYZ provides a general waste bin and a paper recycling container at every workstation and in every office throughout the XYZ building. (See photograph 1).

The general waste bin is a 15 litre capacity plastic bin that is lined with a plastic bin liner. The recycling containers are cardboard boxes with about 14 litre capacity. Acceptable and unacceptable materials for this recycling system are listed on the container.

The cleaners collect both general waste and paper recycling containers at the same time.

Photograph 1

Photograph 2

Photograph 3

Paper Recycling in Printing Areas

Photograph 2 illustrates paper recycling containers situated near photocopiers and printers. 240 litre mobile garbage bins are used.

Cardboard stacked for collection and recycling

Cardboard is placed in a central area on each level for collection by cleaning staff. (See Photograph 3).

Staff are responsible for flattening the boxes. The cardboard is then taken to the garbage room and stored briefly for re-use by staff and, if unused then taken for recycling.

Photograph 4

Photograph 5

Used toner cartridge collection

XYZ has a used toner cartridge collection. Toner cartridges are collected from each level of XYZ by the cleaners and placed in a dedicated 240 litre bin in the garbage room for collection by the recycler. (See Photograph 4).

These toner cartridges are remanufactured for reuse, and the proceeds received by XYZ are donated to charity.

Reusable internal envelopes

XYZ stock reusable internal envelopes to reduce the number of envelopes purchased and, therefore, eventually the number sent for disposal or recycling. (See photograph 5).

Photograph 6

Kitchen Areas

Photograph 6 illustrates a typical kitchen area with swing top bins for general waste and an open bin for paper towels.

Paper towels from the kitchen areas are collected with cardboard and taken to the Garbage Room for recycling.

XYZ provides water coolers that are connected to the building's plumbing system, therefore avoiding the need for the delivery of refillable bottles. Disposable cups are not provided. Staff generally use their own glasses or cups thereby further reducing waste.

Waste and Recycling Collection System

Photographs 7- 8 illustrate the process that cleaners go through to empty bins in the XYZ office.

General waste and paper recycling are collected by contract cleaning staff commencing 6:30 PM every working day.

The general waste and recycling collected by the cleaners is emptied into two separate bags on the cleaner's trolley.

After being transported by the cleaning staff to the Garbage Room, paper for recycling is placed in the recycling wheelie bins and stored for collection.

General waste is bagged and placed in bins for collection. The bins are stored in the Garbage Room.

Photograph 7

Photograph 8

Other Reuse Initiatives

The XYZ building security unit make up their own notebooks from reusable waste paper. This practice was not noted in any of the other areas surveyed.

Conclusion

XYZ's office has a range of recycling collection initiatives in place. These systems seem to be generally well used by staff, indicating that staff are mindful of, and participate in, XYZ's current program for resource conservation and waste minimisation.

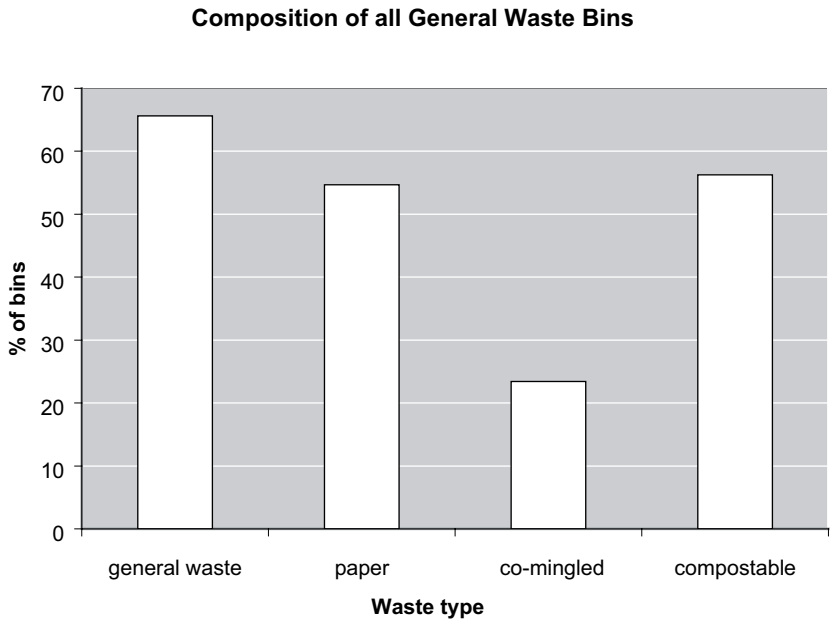
4. Key Findings

Composition of All General Waste Bins

Graph 1 Based on the items counted in the general waste bins, it was found that:

- 66% of general waste bins contained general waste;
- 55% of general waste bins contained recyclable paper;
- 23% of general waste bins contained co-mingled recyclables; and
- 56% of general waste bins contained compostable items.

Graph 1



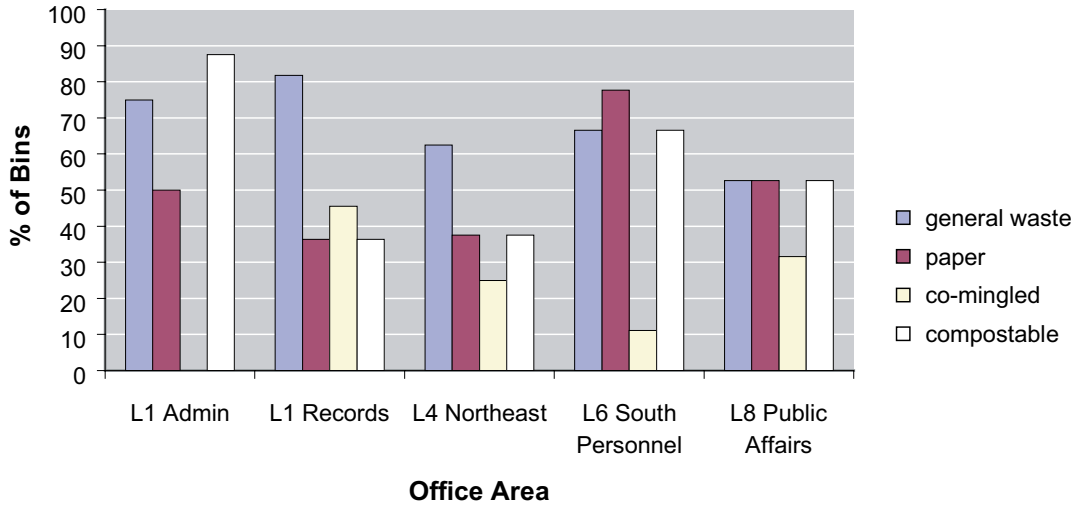
Composition of General Waste Bins by Area

Graph 2 illustrates the percentage of bins in each area that contained general waste; recyclable paper (eg copy paper, scrap paper, paper towels); co-mingled recyclables (eg PET bottles, steel and aluminium cans, liquidpaperboard cartons, glass bottles and jars) and compostable materials (eg food scraps, tea bags, tissues).

The results show:

- ·Recyclable paper was found in a high percentage of general waste bins across all areas;
- A significant percentage of general waste bins contained co-mingled recyclables across all areas except Administration;
- 35% to 85% of all general waste bins contained compostable materials; and
- The potential exists to remove recyclable/ reusable materials from the general waste bins.

Graph 2 **Composition of General Waste Bins by Office Area**



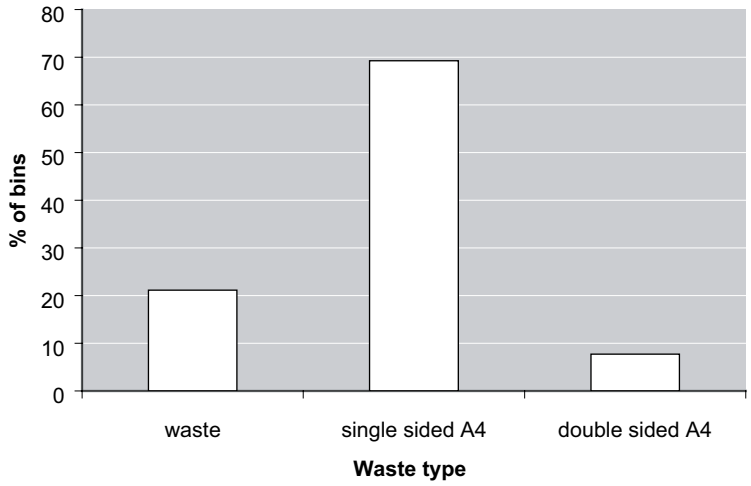
Paper Recycling

Graph 3 illustrates the percentage of all paper recycling bins inspected that contained general waste; recyclable paper printed on only one side (single sided); and paper printed on both sides (double sided).

The results show:

- Almost 70% of the recycling bins contained paper that had been printed on one side only;
- The percentage of bins containing paper printed on both sides was about 8%; and
- About 21% of the containers for recyclable paper contained general waste (i.e. contamination of the paper recycling stream).

Graph 3 **Composition of all Paper Recycling Bins**

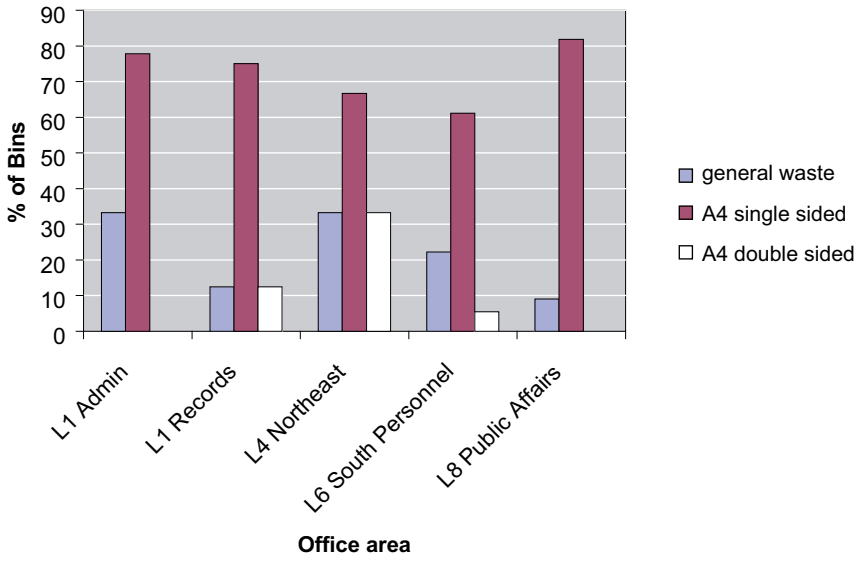


Graph 4 illustrates the percentage of paper recycling bins in each area that contained general waste; recyclable paper printed on only one side (single sided) and paper printed on both sides (double sided).

The results show:

- In all five areas inspected, general waste was found in paper recycling bins;
- In two areas this contamination was high with 30% of the recycling bins inspected containing general waste (see Photograph 9);
- Recyclable paper was printed on both sides was found in three of the five areas although the amount of double sided paper recorded was substantially less than single sided paper; and
- 61% to 82% of the paper recycling bins across all areas contained single side paper.

Graph 4 **Composition of Paper Recycling Bins by Office Area**



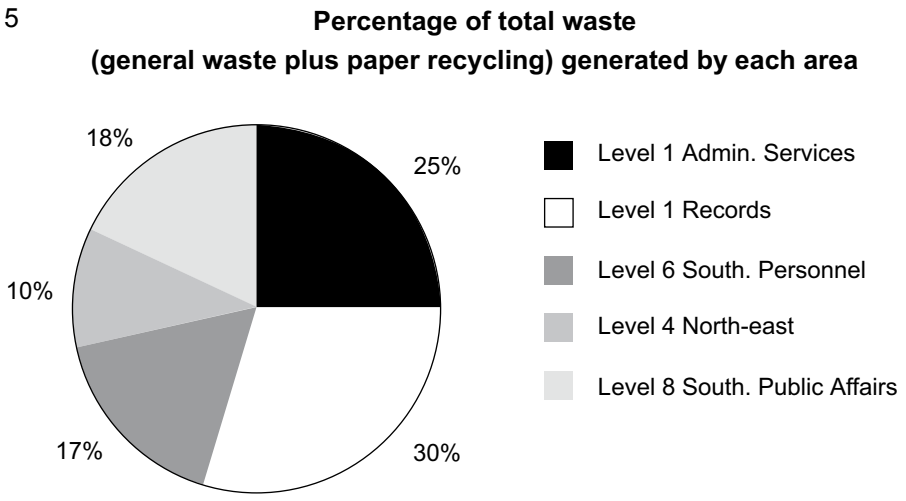
Photograph 9 illustrates an example of contamination of a paper recycling bin (even though a general waste bin is right beside) .

Photograph 9

Waste Generated

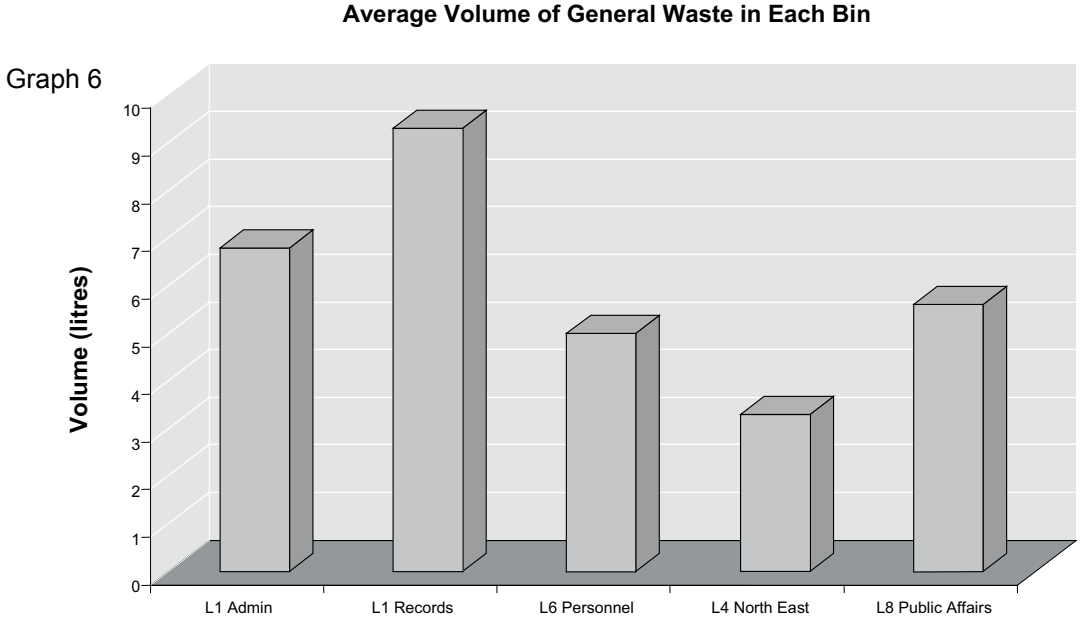
Graph 5 illustrates the average volume of waste (i.e. estimated total volume of all waste divided by number of general waste and recycling bins) generated by each area as a proportion of the total general waste.

Graph 5



Graph 6 illustrates that Level 1 Records and Level 1 Administrative Services generate the highest average volume of general waste per bin.

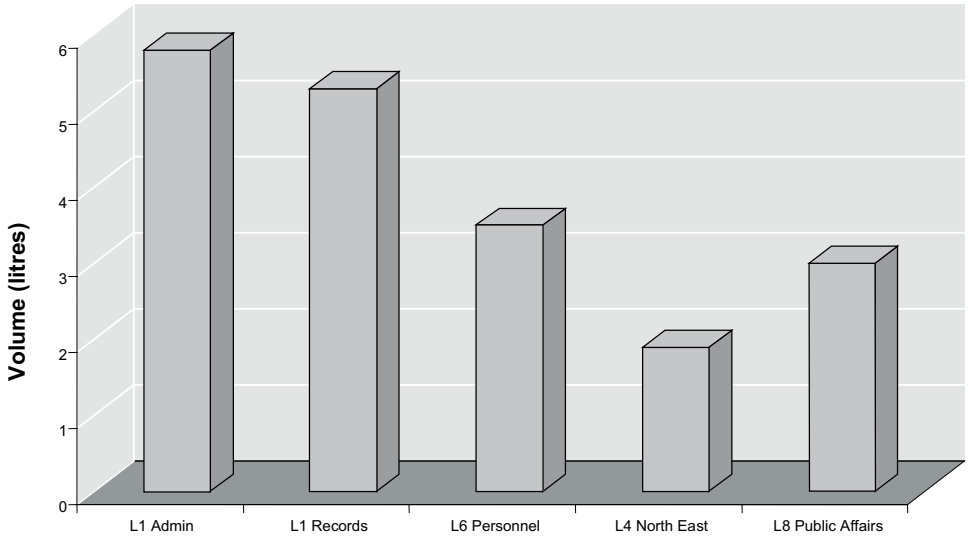
Graph 6



Graph 7 illustrates that Level 1 Administrative Services and Level 1 Records generate the highest average volume of recycling per bin.

The figures shown in Graphs 6 and 7 may warrant further research to identify if waste minimisation strategies could be implemented in areas of greatest waste generation.

Graph 7 **Average Volume of Recycling in Each Bin by Area**



Discussion of Findings

More than half (55%) of the general waste bins inspected contained recyclable paper. The majority of this was scrap paper and envelopes.

This indicates that some staff may be unaware of the types of paper that are acceptable in the paper recycling system.

However, in some instances A4 copy paper was placed in the general waste bin when a paper recycling container was near by. (See Photograph 10).

In the Personnel Area (Level 6), up to 78% of general waste bins contained recyclable paper. The lowest instance of recyclable paper being thrown into the general waste bins occurred in the Records and Mailroom areas. Both of these areas deal with high volumes of paper in their daily duties.

In the course of their normal duties, the building manager and cleaning staff have put extra effort into retrieving as much paper from the general waste as possible.

Recyclable containers, e.g. aluminium and plastic, were found in all areas surveyed except on Level 1 Administration. On average, 23% of general waste bins contained PET bottles, aluminium and steel cans, LPB cartons and glass bottles and jars. These materials could be recycled if an appropriate system was in place.

Photograph 10

Compostable material, generally fruit scraps, was found in all areas surveyed and in 56% of waste bins inspected.

In general, the levels of paper recycling are average and there is a high level of support for recycling amongst staff. The general waste and paper recycling system is largely in place amd importantly the cleaners are supportive of XYZ's recycling system.

5. Waste Minimisation Opportunities

Recycling

It appears that a substantial amount of the waste XYZ pays to be disposed to landfill is recyclable paper. There are significant economic and environmental outcomes that could be attained through taking relatively easy measures to reduce this figure.

This could be achieved by ensuring all staff have access to paper recycling bins. For example, during the waste assessment it was noted that the Level 8 Corporate Website Section was missing some recycling bins. (There were four garbage bins and only one paper recycling bin).

A campaign to educate staff on the importance of recycling, and ensuring staff understand what items can be recycled would also improve the recycling rate.

The XYZ practice is for every staff member to be issued with a recycling bin. Cleaners are responsible for replacing missing bins at workstations. This system would be improved if the onus of identifying that paper recycling bins are missing did not lie solely with the cleaning staff.

The high staff rotation within XYZ impacts upon the waste and recycling collection systems because as staff move, the knowledge of how to correctly use these systems needs to be refreshed.

The Level 1 Mailroom's induction practice could be a role model for XYZ in how to maintain waste and recycling systems in spite of high staff rotation. This area had a low contamination rate combined with a high usage of the paper recycling system.

Recyclable containers such as plastic bottles, glass jars, liquidpaperboard cartons, metal cans constitute significant amount of materials XYZ send to landfill. The opportunity exists for co-mingled recycling bins to be provided in appropriate locations such as kitchen areas so that staff can conveniently deposit their co-mingled containers. The cost of collection for such a system is approximately $7.70 per 240 litre bin collected.

Instead of paying to sending organic material, such as fruit scraps, to landfill a worm farm could be established to turn this waste into beneficial organic fertilisers. For example, the Department of Environment and Conservation (NSW) , another large government office, is operating a successful organic recycling scheme (worm farm) as part of the waste minimisation activities at their Goulburn Street office.

Optimise the use of paper and save money

XYZ could considerably reduce the amount of copy paper it purchases if double sided printing was a more common practice throughout the office.

Throughout the XYZ it was noted that many photocopiers have the capacity to duplex but it appears that staff seldom use this function.

In some sections, such as the Personnel Section (Level 6 South) printers are not capable of duplex printing. When XYZ acquires new printers/ copiers, contracts should specify that they have duplex capacity.

Reuse

Currently most of the copy paper in the recycling system was printed on one side only. Setting aside this paper would allow it to be reused as note paper or in notebooks.

The XYZ Security Section makes note books out of reused paper and this practice could be introduced into other areas of XYZ.

Cardboard boxes that are not reused by staff are sent for recycling, when this material could have been reused by another part of XYZ. Some stationery suppliers will also take back cardboard boxes that can be reused again.

Other “unwanted” stationery items could be reused if a system was in place to store them and let staff know they are available (i.e. a reusables section in the stationery cabinet). For example, plastic folders that appeared to be in good condition were seen in the garbage room, awaiting collection by the general waste contractor. (See Photograph 11).

Photograph 11

Purchase Recycled Content

Purchasing recycled content products helps to increase the demand for recycled material, thus increasing the value of the products collected. It is called “closing the loop” when an organisation recycles a product and then buys a new product that is made from the recycled material.

The assessment revealed bulk A4 copy paper stacked for use is Reflex or EXP brands that contain no recycled content. No recycled content paper was seen during the waste assessment (See Photograph 12).

Photograph 12

6. Recommendations

The following recommendations support the opportunities identified in this assessment report and are aimed at improving waste management practices within XYZ. By effectively implementing these recommendations, benefits including cost savings, decreased environmental impact, improved employee morale, and meeting the NSW government's WRAPP requirements could be achieved.

It is essential that a full evaluation of options, including cost/ benefit, be undertaken before implementing changes.

Key recommendations from the waste assessment report are listed in the table below.

Recommendations	Potential Outcomes
Convene a waste management team with representatives from all levels of XYZ to be responsible for steering the waste avoidance, minimisation and recycling initiatives.	The first task for the team should be to review the waste assessment report, WRAPP Plan, WRAPP Progress Reports and develop an action plan (see Action Plan format following).Team would be the driving force behind future environmental/ waste initiatives.
Implement a co-mingled recycling system(s) for plastic bottles (PET and HDPE only), aluminium and steel cans, LPB cartons and glass.	The potential exists to divert a considerable proportion of XYZ's total waste away from landfill and into recycling. This will have economic as well as environmental benefits.
Implement an education strategy where information gathered from the assessment could be highlighted to improve reuse and recycling practices.The waste management team should undertake training on waste avoidance and environmentally preferable purchasing.Information about the office recycling systems could also be included in office induction materials.	Education will help achieve an increased awareness and improved participation from staff in recycling and resource conservation.
Review purchasing decisions with regard to the use of recycled content paper and other stationery in order to remove any bias against the purchase of recycled content products and materials.	Compliance with WRAPP requirements.
Establish a worm farm, maintained by trained volunteer staff.	Removal of compostable materials from the general waste stream.
Introduce systems to monitor, review and feedback progress to enable waste generation to be tracked over time and monitor diversion rates on a regular basis. Follow up waste assessments could be conducted regularly to monitor diversion rates to improve reuse and recycling systems. Feedback this information to staff via charts displayed on noticeboards.The XYZ may considerw the value in allocating waste costs to individual department budgets to encourage management to view waste as a real cost to business and one that can be minimised.	By monitoring and providing information back to staff they will be able to identify how their efforts are having a positive impact on the amount of waste generated and how much is being diverted.

Action Plan Format

Issue: Co-mingled recyclables in desk-side bins

Target: Recycle 50% by December 2005

Waste Issues	Action Required	Stakeholders	Responsibility	Timing
Recycling bins only in kitchen	1. Promote co-mingled system, display recycling performance and target for co-mingled	WRAPP committee	TT and VN to develop poster	15th Sept
Cleaners identified low level of participation	2. Staff notice re system to come up when individual computer switched on	WRAPP committee, IT section	TT and VN to develop with IT section	30th Sept
Staff “too busy” to walk to kitchen	3. Do desk walk around on Level 2 and discuss the system	WRAPP committee, staff, management	JP to approach management	17th Oct
Proper signage on recycling bin	Ensure kitchen bin is signed. Discuss monitoring of desk bins with cleaners	WRAPP committee, cleaning staff	RP replace sign in lunchroom	15th Sept