

WASTE MANAGEMENT PLAN
MARRICKVILLE METRO SHOPPING CENTRE



PREPARED BY WASTE AUDIT AND CONSULTANCY SERVICES

FOR

BOVIS LEND LEASE

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This report is based on information provided by Bovis Lend Lease and Waste Audit and Consultancy Services general knowledge of waste generated within the commercial and industrial sectors. To that extent this report relies on the accuracy of the information provided to our consultant. It has been compiled by Waste Audit and Consultancy Services (Aust) Pty Ltd on behalf of Bovis Lend Lease.

This report is not a substitute for legal advice on the relevant environmental and health related legislation, which applies to businesses, contractors or other bodies. Accordingly, Waste Audit and Consultancy Services (Aust) Pty Ltd will not be liable for any loss or damage that may arise out of this project, other than loss or damage caused as a direct result of Waste Audit and Consultancy Services (Aust) Pty Ltd's negligence.

1. INTRODUCTION

The Marrickville Metro Shopping Centre owned by AMP Capital Investors is proposing an expansion of the shopping precinct to incorporate additional retail specialty shops and major outlets.

This waste management plan covers the management of waste generated during the ongoing operations of the total upgraded centre.

Specifically, the aim of this Plan is to ensure that all waste is managed in an effective and environmentally aware manner. A focus on resource recovery will be applied in line with AMP's sustainability objectives.

This plan has been prepared with reference to the requirements of the Marrickville Council Development Control Plan No.27 –Waste Management.

The waste management systems as outlined in this document should be reviewed in consultation with industry experts at the completion of the development. This will allow Centre Management to review any new opportunities that may have arisen that improves the segregation or diversion of materials.

2. PROPOSED DEVELOPMENT

Existing Development

The existing shopping centre is located on 34 Victoria Road, Marrickville. The shopping centre consists of approximately 23,000m² GLA, is predominantly a single level retail building and comprises major tenants being Kmart, Woolworths and Aldi as well as a range of specialty stores. This area will remain largely untouched by this development. Systems for managing the waste from the existing Centre will continue.

Proposed Development

AMPCI proposes to upgrade and expand Marrickville Metro Shopping Centre to accommodate additional retail floor space, improved facilities and services, as well as enhance convenience and accessibility for the community.

The proposed new development consists of an additional 21,000m² GLA. The breakdown of GLA by tenancy type is detailed in table 1 below.

Table 1 GLA by tenancy type

Category	Existing Centre GLA	Expansion GLA	Total GLA
Fresh Food	1,404	1,700	3,104
Restaurants / Bars / Eateries	180		180
Food Court	526		526
Fashion - Combined	1,876	4,078	5,954
Convenience	1,890		1,890
General Merchandise/ Home	2,308	4,078	6,386
Total GLA covered in Waste Management Plan	8,696	9,855	18,039
Majors, Mini Majors	13,769	11,448	25,217
Vacant	467		467
GLA excluded by Waste Management Plan	14,236	11,448	25,684
Total GLA	22,932	21,303	44,235

The final mix of tenants for the new centre is yet to be completed. Table 1 has been used as a basis for calculations. Any significant change to the tenancy mix will require recalculation of waste generation and composition.

This report is prepared specifically to address the management of waste collection and removal from the total upgraded centre.

Note: The major and mini-major tenants are responsible for their own waste management systems and practices. Space has been provided in the plans for these tenancies in line with their stated waste management requirements.

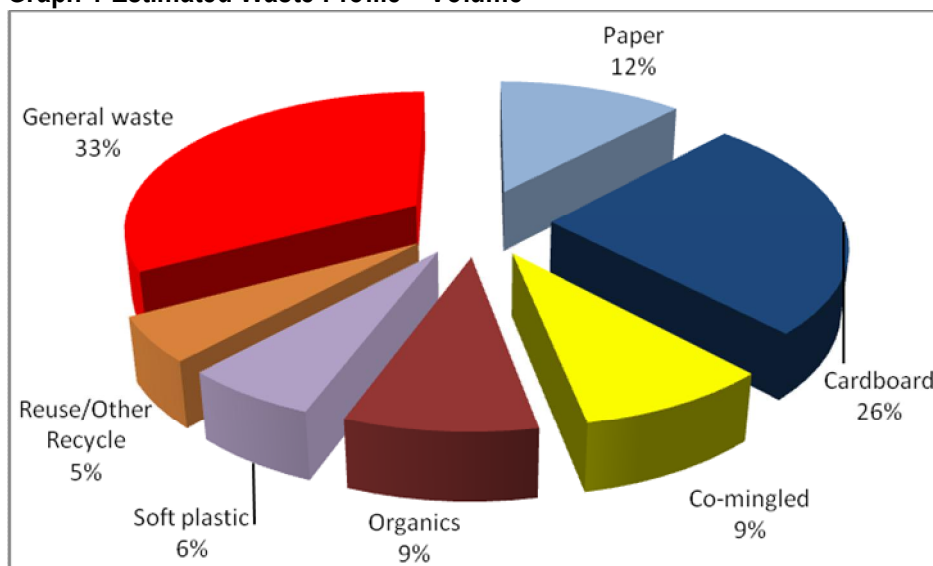
3. WASTE GENERATION

Estimated Waste Profile

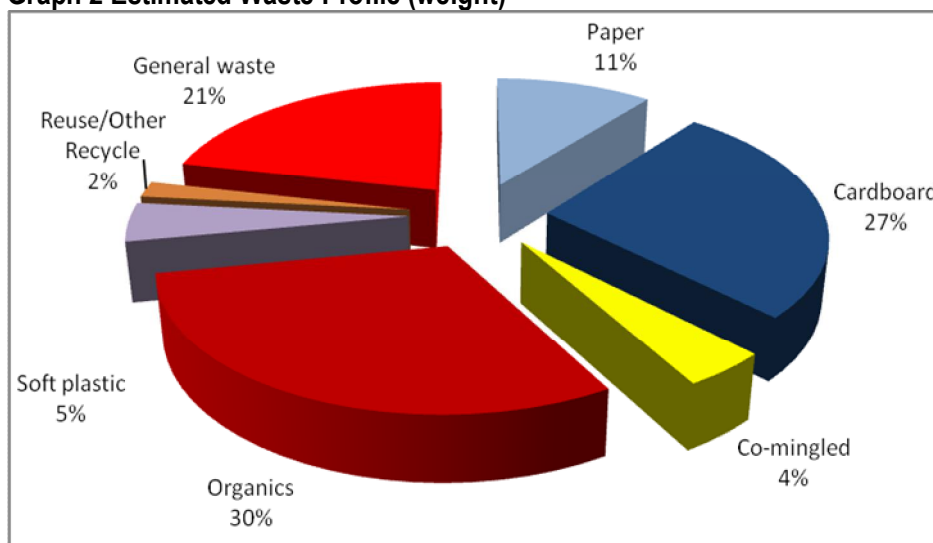
Based on waste collection data from the existing shopping centre, the types of outlets as proposed by the developers, and utilising waste metrics from previous waste audits, an estimated waste profile for the total Centre incorporating the proposed expansion was calculated as shown in the pie chart following.

Graph 1 and 2 – Waste Profile – Total Retail Centre (excludes Majors and mini-majors)

Graph 1 Estimated Waste Profile – Volume



Graph 2 Estimated Waste Profile (weight)



Waste Quantities

The estimated weekly waste quantities by weight for the existing development and proposed expansion, are shown in table 2 below.

Table 2 Estimated Weekly Waste Quantities By Weight (excludes Min-majors and Majors)

	Existing Centre	Expansion	Total
	Kgs/day	kgs/day	Kgs/day
Paper	94.3	134.1	228.4
Cardboard	299.9	269.5	569.4
Co-mingled	53.4	36.4	89.9
Organics	341.4	302.5	643.9
Soft plastic	40.0	58.0	98.0
Reuse/Other Recycle	24.1	15.9	40.0
General waste	349.8	107.0	456.8
Total	1,202.9	923.5	2,126.4

The estimated weekly waste quantities by volume for the existing development and proposed expansion, are shown in table 3 below.

Table 3 Weekly Waste Quantities By Volume (excludes Min-majors and Majors)

	Existing Centre	Expansion	Total
	Litres/day	Litres/day	Litres/day
Paper	1,186.3	1,744.4	2,930.6
Cardboard	3,332.1	2,994.4	6,326.5
Co-mingled	1,343.9	831.9	2,175.8
Organics	1,137.9	1,008.3	2,146.2
Soft plastic	615.3	893.1	1,508.4
Reuse/Other Recycle	828.8	426.8	1,255.6
General waste	6,137.5	1,877.3	8,014.9
Total	14,581.7	9,776.2	24,358.0

Waste Streams

Based on the estimated waste profile as detailed above, the following waste streams are proposed.

Cardboard and paper recycling:

Cardboard and paper represent a significant proportion of the general waste stream and is generated from most tenancies. Systems will be implemented in the waste area that allows tenants to easily dispose of this material into recycling facilities.

Co-mingled recycling:

While co-mingled recycling is marginal in terms of cost benefit, the diversion of these materials does represent an environmental benefit. As such back of house recycling systems will be implemented.

The cafes and restaurants will be the main generators. These retailers will be instructed in the segregation of recyclable containers and advised as to the most practical way to setup effective systems within their tenancy. For example a coffee shop/cafe may find that the volume of milk containers, in particular warrants a separate bin to be located in their back of house area. For these outlets they may prefer a wheelie bin located in their back of house area. These can then be wheeled to the dock when full and exchanged for a new bin.

Plastics recycling:

The focus for this system will be on non-food retailers, principally fashion and personal goods, where a large percentage of their waste is either soft plastics or cardboard.

These retailers will be assisted in separating their plastics for consolidation in the waste area.

Used Cooking Oil

Used cooking oil cannot be disposed of in the general waste stream. Separate facilities have been established in the existing dock area to allow tenants to dispose of this material safely and in compliance with legislative requirements.

Organics Recycling:

The current daily quantities of this material are relatively small and would not justify a separate collection system. The current waste collection system diverts general waste to the Woodlawn Bioreactor where organic waste is converted to power. Thus organic waste is effectively being recovered and utilized beneficially.

In the new development, estimates for organics waste are based on the presence of a large fruit and vegetable grocer, if this remains the case, a separate collection system for their organic waste at the new dock may be preferred.

Fluorescent Tube Recycling;

Fluorescent tube recycling will be implemented throughout the Centre. Specialised containers will be provided by the contractor for the consolidation of these tubes prior to collection.

Other Opportunities

Given the developing nature of the waste industry, it is likely that additional diversion options may be available when the waste tender is issued. Centre management will actively encourage contractors to propose additional diversion systems or more effective ways to manage and divert material from landfill.

4. WASTE MANAGEMENT SYSTEMS

Waste and Recycling Areas

The existing waste and recycling area is located on the Ground Level on the Northern part of Murray Street. This area will continue to service the existing centre as well as the new specialty retail outlets located on Level 1 north of the Smidmore Street Plaza. The waste contractor will enter the area via Murray Street.

The new waste and recycling area is located on the Ground Level on the Corner of Murray Street and Edinburgh Rd. This area will service the new specialty retail outlets on the Ground Level and those on Level 1 South of the Smidmore Street Plaza. The waste contractor will enter the area via Murray Street.

The waste and recycling facilities located in each dock are easily accessible by tenants and contractors. Sufficient space is available for waste vehicles to enter and safely turn within each dock area.

Hot water is provided to allow for washing of waste bins. The area is appropriately drained.

Waste Systems- Current services

The current waste arising from the Marrickville Metro shopping centre is disposed of in one dock which houses a general waste compactor and a cardboard baler. The general waste compactor is emptied twice per week and the cardboard bales are collected twice per week.

To date the waste material has been delivered via the Clyde bulking facility to the Woodlawn bioreactor in Goulburn, New South Wales. This Alternative Waste Technology facility accelerates the decomposition process of residual waste and maximises the capture of biogas yields for conversion into green electricity.

The estimated waste quantities for the existing dock and new dock are detailed in tables 4 and 5 below.

Table 4 Estimated waste quantities at the existing waste collection dock

	Existing Dock			
	Kgs/day	Litres/day	Kgs/week	Litres/week
Paper	136.4	1,735.3	954.8	12,147.3
Cardboard	376.0	4,177.9	2,632.1	29,245.4
Co-mingled	58.8	1,469.2	411.4	10,284.3
Organics	346.3	1,154.5	2,424.3	8,081.2
Soft plastic	57.4	882.7	401.6	6,178.9
Reuse/Other Recycle	29.2	965.8	204.7	6,760.6
General waste	374.6	6,571.1	2,621.9	45,997.4
Total	1,378.7	16,956.4	9,650.8	118,695.0

Note: existing overall quantities have been verified with the current waste contractor.

Table 5 Estimated waste quantities at the new waste collection dock

	New Dock			
	Kgs/day	Litres/day	Kgs/week	Litres/week
Paper	92.0	1,195.3	643.9	8,367.2
Cardboard	193.4	2,148.4	1,353.5	15,039.1
Co-mingled	31.1	706.6	217.6	4,946.2
Organics	297.5	991.7	2,082.6	6,942.1
Soft plastic	40.7	625.6	284.7	4,379.3
Reuse/Other Recycle	10.7	289.8	75.2	2,028.4
General waste	82.3	1,443.8	576.1	10,106.8
Total	747.7	7,401.3	5,233.6	51,809.1

Table B details the proposed waste management systems to include the additional waste arising from the expanded centre. Attention has been placed on the implementation of recycling systems where feasible.

The systems outlined below represent currently available services. At the time of tendering new opportunities may become available, these will be reviewed at that time in terms of feasibility and

suitability to the Centre's needs, and importantly their ability to enhance the diversion of materials from landfill.

Where available and effective, recycling materials are contained in one system. This minimizes truck movements to the site and keeps the systems simple for tenants to follow. In this instance paper and cardboard are combined, and mixed containers (co-mingled) are combined.

Table B Waste Management Systems

Existing Specialty Dock

Stream	Waste System	Units	Collection Frequency
Paper and Cardboard	Existing Auto Bailer	1	3 x Weekly
	OR new Compactor	1	Weekly
General Waste	Existing 23m3 Compactor	1	1 -2 x Weekly
Co-mingled	240 Litre MGBS	10	2 x Weekly
Organics – Included in general waste, currently diverted to bioreactor			
Soft Plastics	Bale bag	3	2 x Weekly
Used cooking oil	800 ltr Tank	1	Weekly

New Specialty Dock

Stream	Waste System	Units	Collection Frequency
Paper and Cardboard	Auto Bailer	1	3 x Weekly
General Waste	1.5 or 1.1 m3 bins	3	Full bins only daily
Co-mingled	240 Litre MGBS	3	2 x Weekly
Organics	240 L MGBs	6	Daily
Soft Plastics	Bale bag	3	2 x weekly

5. MANAGEMENT OF WASTE

Centre Management will provide suitable waste systems for tenants to effectively manage their waste.

Ease of access to the waste area will enable tenants to safely transport and dispose of the material. The waste area will be well planned to ensure equal access to the recycling and general waste systems. All systems will be well signed and maintained.

The cleaning contractor will be responsible for cleaning all the waste handling areas and ensuring they stay litter free.

Waste from common areas will be collected in dedicated bins and relocated to the main collection points by the cleaning contractor.

The cleaning contractor and tenants will be approved and trained to operate all waste equipment.

Waste Stream	Management Protocol
General	Transported to dock area by tenants and cleaners and deposited into waste bin.
Cardboard	Segregated by tenants, transported to dock and loaded directly into auto baler. Cleaners to remove full bales and store in holding area awaiting collection.
Co-mingled	Tenants to segregate co-mingled materials in back-of-house areas and transport to waste area. Where wheelie bins are used, full bins will be exchanged for empty bins.
Soft Plastics	Retail tenants to segregate and collect in plastic bags for transfer to docks. Cleaners to monitor bale bags and change over when full.
Used cooking oil	Tenants to transport in tins to waste area for storage and collection. Oil area to be bunded to contain any spills.
Organics	For new produce tenant, wheelie bins to be located in BOH area and taken to waste area when full.

6. MAJOR TENANTS

The major tenants are responsible for their own waste management systems. Dock space has been made available for their designated waste systems. The following details the main waste stream anticipated to be generated by each of the major tenants.

Tenant	Stream
DDS	Cardboard recycling
	Plastic recycling
	General waste
Supermarket	Paper/cardboard
	General waste
	Organics

7. ON-GOING MANAGEMENT OF WASTE

The waste management plan outlines systems that are available today based on estimated quantities and material type. As the industry is in an evolving stage in terms of new technologies, it is likely that new opportunities will become viable for the Centre that will allow greater diversion and avoidance. To ensure these opportunities are identified, and to ensure ongoing best practice waste management initiatives are implemented, the following is recommended to Centre Management:

- **Monthly waste reporting** – an accurate and detailed reporting system will allow management to monitor total tonnes generated as well as the percentage of waste diverted from landfill. A waste monthly report should be included as part of the monthly management reporting process.
- **Tenant education and awareness** – a tenant education and awareness program will be instigated to ensure that tenants are aware of their responsibilities in relation to segregation of recyclables, and buy-in to the centre's program.
- **Contractor terms** – the waste contractor and cleaning contractors are essential to the ongoing effective management of waste at the site. So as to ensure full co-operation and participation by these contractors appropriate Key Performance Indicators should be included in their contracts. Such KPIs may include a requirement to participate in monthly waste meetings; active monitoring and feedback of the systems in place; development of a waste management action plan etc.
- **Signage** – clear and easily recognizable signage is essential in terms of correct system use and low contamination rates. Each system should be colour coded and signed. Signage should be placed on bins and in the waste areas. Information on signage should be communicated to tenants.

The waste management systems as outlined in this document should be reviewed in consultation with industry experts at the completion of the development. This will allow Centre Management to review any new opportunities that may have arisen that improves the segregation or diversion of materials.

8. GREEN STAR REQUIREMENTS

The design and layout of the waste management and recycling room complies with Green Star Retail criteria as detailed below.

Mat 1 - To encourage and recognise the inclusion of storage space that facilitates the recycling of resources used within buildings to reduce waste going to landfill.

Compliance - A recycling area is located within 20 metres of the exit used for recycling pick-up and complies with City of Sydney access requirements as detailed below.

City of Sydney Policy for Waste Minimisation in New Developments

Green Star requires compliance with the access criteria as detailed in the City of Sydney Policy for Waste Minimisation in New Developments. These criteria are summarised below:

Table 6: Compliance with the City of Sydney access criteria

Reference	City of Sydney Requirement	Compliance Status
Section A – A-12	The room/s for storing waste and recycling must be located in a position that is convenient for both users and waste collection staff	Complies – the waste area is located adjacent to the specialty area and within close proximity to the tenant back of house exit point. The recycling area is easily accessible by the recycling contractors, entering the dock area via Murray Street
A-13	City of Sydney Requirement Collection vehicles must be able to service the development efficiently and effectively, with limited need to reverse. If a vehicle turntable is used it must have a 30 tonne capacity.	Compliance Status Complies - there is good access to the waste area which allows the collection vehicle to exit in a forwards direction. Waste contractors will service the building outside normal operating hours, thus avoiding any tenant traffic or other delivery trucks.

	City of Sydney Requirement	Compliance Status
A-14	Residential development requires a minimum vertical clearance 4 metres. For all other development, if clearance proposed is less than 3.8 metres, then vehicle specification will be required from the waste provider that conforms with the proposed development.	Complies – there are no height restrictions for vehicle access at this development.
A-15	City of Sydney Requirement A suitable refuse collection point must be nominated where waste loading operations can occur on a level surface away from gradients and vehicle ramps.	Compliance Status Complies – the waste loading area is level.

	City of Sydney Requirement	Compliance Status
A-16	The path for wheeling bins between a central waste storage point and the collection vehicle must be level and free of steps or kerbs. The maximum travel distance between the storage point and the collection point for bins is: <ul style="list-style-type: none"> • 10 metres – for bins including 240 litre, 660 litre & 1000 litre Mobile Garbage Bins (MGB's) • 3 metres – for both 1500L and 2000 litre bulk bins (also known as skips) • Any proposed variations require further assessment and discussion with relevant Council officers. 	Complies – Wheelie bins will access the collection point in the dock via a downward ramp. Complies – distance between the waste area and collection point is less than 10m.
A-17	City of Sydney Requirement Where collection vehicles are required to drive into a building to collect waste or recycling, adequate vehicle clearance is required. Access to an approved collection point within a building must enable all collection vehicles to both enter and exit the premises in a forward direction.	Compliance Status Complies .

Section C – C-14	City of Sydney Requirement	Compliance Status
	Where collections takes place inside a building, appropriate clearances need to be allowed for the collection vehicle to enter the premises, clear the waste container and exit the premises. It must be noted that some systems require the waste container to be lifted above the collection vehicle to be emptied (front lift-bulk bin) or loaded (waste compactor).	Complies – there are no height restrictions entering the point of collection.
C-15	City of Sydney Requirement	Compliance Status
	If clearance proposed is less than 3.8m, then vehicle specifications will be required from the waste provider that conforms with the proposed development.	Complies – not applicable as there are no height restrictions.

Mat 8 - To encourage and recognise management systems and building infrastructure that facilitate the reduction of the overall operational waste generation and disposal.

Compliance - In line with AMP sustainability program a full waste management plan will be completed for the site detailing waste reduction and diversion targets per stream and tenant education and awareness programs.

9. RECOMMENDATIONS

It is recommended that close to the completion of the new development, a new tender is released for the waste and integrated services contractors. The new contracts should include specific KPI's on waste management, recycling and reporting, to allow for implementation of the protocols documented in this report.

