

# **Appendix CC**

## **Waste Strategy**

# Waste Strategy Report

Cudgegong Road Station Precinct South



## Cudgegong Road Station Precinct South

### Waste Strategy Report - State Environmental Planning Policy (SEPP) Submission

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## Executive Summary

The NSW Government is currently building the Sydney Metro Northwest (SMNW) that is due to start operations in 2019. The SMNW is Stage 1 of the overall Sydney Metro project and involves the construction of eight new metro stations supporting infrastructure between Cudgegong Road and Epping and converting five existing stations between Epping and Chatswood. Stage 2 will deliver a new metro rail line from Chatswood through Sydney's CBD to Sydenham (Sydney Metro City and Southwest).

Landcom and the Sydney Metro Delivery Office (SMDO), part of Transport for NSW (TfNSW), are working in collaboration to develop walkable, attractive, mixed use places around the SMNW stations. This includes using the surplus government owned land located around the Cudgegong Road Station.

The subject site, the Cudgegong Road Station Precinct South, is located between Cudgegong Road, Tallawong Road, Schofields Road and the Metro corridor and comprises around 7.8ha of government owned land. It is within the southern part of the broader Cudgegong Road Station Precinct (Area 20) of the North West Priority Growth Area, a substantial land release area for homes and jobs in Sydney's northwest.

AECOM has been engaged to carry out this waste strategy review to support the State Significant Development Application (SSDA) for the Station Precinct South concept proposal. The concept proposal allows for approximately 1,100 dwellings and 9,000 sqm of retail, commercial and community uses. It also includes a central park, new streets and supporting public domain.

This report provides advice on the waste strategy in response to the SEARs issued for the concept SSD application (SSD 9063). This has been prepared in accordance with but not limited to existing NSW legislation, policy and guidelines.

The key tasks undertaken and associated finding are summarised below.

**Background Review and Identification of Key Issues:** A desktop review of information related to the proposed Cudgegong Road Station Precinct South, including draft concept layouts and site area schedules for developable land. In addition, a desktop review of relevant local government, NSW and Commonwealth waste legislation/regulations/guidelines was also undertaken.

### Waste Characterisation:

Based on the background review, broad waste types and quantities anticipated from the proposed Cudgegong Road Station Precinct South were identified for the operation phase. These are summarised in the table below.

**Table ES1 Estimated Waste Generation (Residential) - Operations**

Waste Type	Estimated (Approximate) Quantity	Classification
Garbage	15.3kL/day	General Solid Waste (Putrescible)
Co-mingled Recycling	17.0kL/day	General Solid Waste (Non-Putrescible)

**Table ES 2 Estimated Waste Generation (Commercial and Retail) - Operations**

Waste Type	Estimated (Approximate) Quantity	Classification	Primary Source
Garbage	13.6kL/day	General Solid Waste (Putrescible)	Retail, Community Space, Child Care, Health and Fitness, Gym
Comingled Recycling	8.3kL/day	General Solid Waste (Non-Putrescible)	Retail, Community Space, Child Care, Health and Fitness, Gym



### Development of preferred waste management strategies:

Potential measures for maximising resource recovery and management of waste during the operation phase were identified to meet the respective SEARs requirements. The waste management strategies were based on implementation of the waste hierarchy, encompassing the whole waste lifecycle from generation and collection through to transport, processing and disposal. The proposed waste management strategies are summarised below.

- Source separation of waste streams at the proposed Cudgegong Road Station Precinct South would be implemented to aid material reuse and improve recycling; in particular, source separation of recyclable waste from garbage.
- Traditional waste collection methods (i.e. mobile garbage bins (MGBs) and garbage trucks) have been proposed in this waste strategy. Waste chutes could be used for residential and commercial garbage and recycling waste collection (where applicable)
- Residents would take their waste to the waste storage room and place it in appropriate bins. All waste storage rooms shall be internal to the building and council garbage trucks shall collect the waste from collection points within the footprint of each building lot.

The total minimum area required for the waste storage rooms for both residential and commercial (and retail) development at the proposed site are shown in Table ES3.

**Table ES3 Minimum storage room area requirements**

Residential	Minimum Area Required (m <sup>2</sup> )
Site 1A	175
Site 1B	351
Site 2A	262
Site 2B	105
Site 2C	254
Site 2D	295
Site 2E	142
Commercial and Retail	Minimum Area Required (m <sup>2</sup> )
Commercial and Retail	108

*Note: The minimum areas in depend on final mobile garbage bin (MGB) size and arrangements, e.g. garbage and recycling bins placed on opposite ends of the room and ensuring enough space for moveability within the waste storage room.*

## 1.0 Introduction

This document summarises the design approach, key assumptions, relevant references and standards applied to the development of the civil design documentation for the Cudgegong Road Station Precinct South development.

This report is to be read in conjunction with the following reports:

- Cudgegong Road Station Precinct South – Civil Engineering Design Report;
- Cudgegong Road Station Precinct South - Utilities Report; and
- Cudgegong Road Station Precinct South - Integrated Water Cycle Management Report

## 1.1 Extent of Work

The extent of work involved in the Cudgegong Road Station Precinct South development is illustrated in Figure 1. Notable components of the design include a park, pedestrian and cycle network and associated landscaping as well as residential, retail, commercial and community uses in buildings up to 8 stores in height.

A waste strategy has been prepared to address the area bounded by the proposed site extents inclusive of Site 1 and Site 2 superlots.

## CONCEPT PLAN - REFERENCE SCHEME

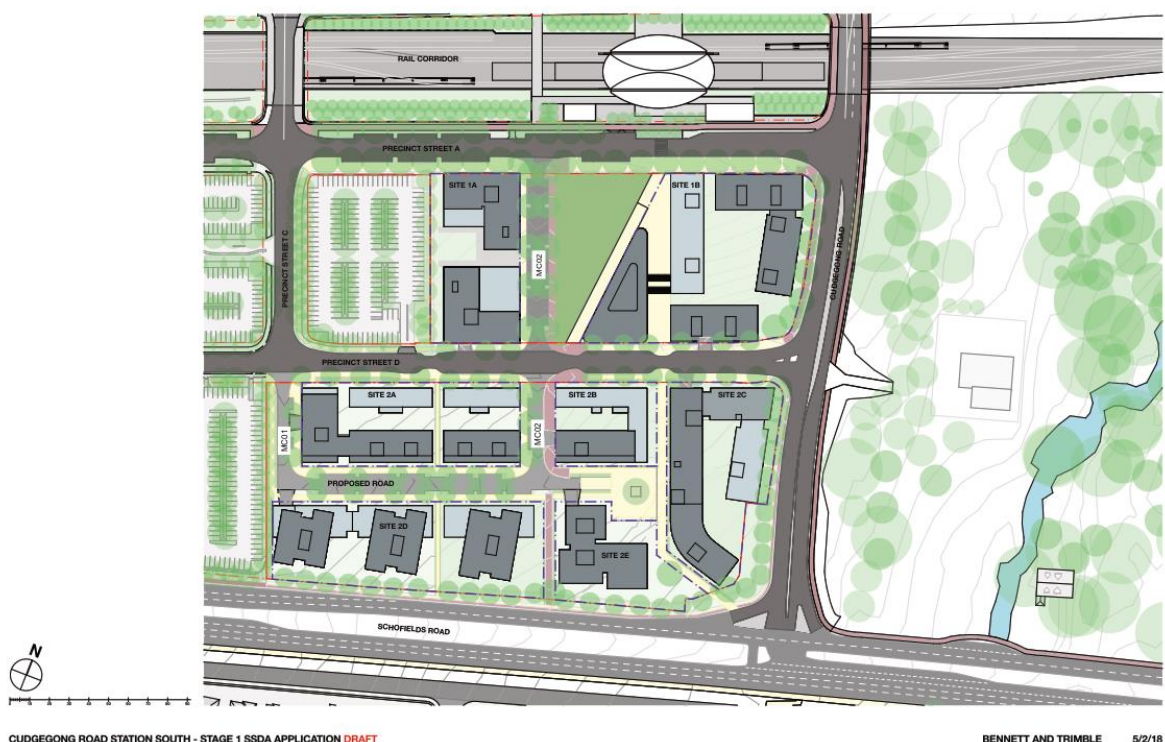


Figure 1 Concept Proposal



## 2.0 Waste Strategy

This waste strategy has been prepared to respond to the SEARs issued for the concept SSD application (SSD 9063) which stated that the Environmental Impact Statement (EIS) must be accompanied by a waste strategy.

### 2.1 Legislation, Policy and Guidelines

The management of waste from the project would be undertaken in accordance with but not limited to the following state and local government requirements.

#### 2.1.1 NSW State Requirements

##### Protection of the Environment Operations Act 1997

The NSW waste regulatory framework is set by the *Protection of the Environment Operations Act 1997* (PoEO Act). An objective of the PoEO Act is to:

- Reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote the following:
  - Pollution prevention and cleaner production;
  - The reduction to harmless levels of the discharge of substances likely to cause harm to the environment;
  - The elimination of harmful wastes;
  - The reduction in the use of materials and the re-use, recovery or recycling of materials;
  - The making of progressive environmental improvements, including the reduction of pollution at source; and
  - The monitoring and reporting of environmental quality on a regular basis.

The PoEO Act defines 'waste' for regulatory purposes and establishes management and licensing requirements along with offence provisions to deliver environmentally appropriate outcomes. The PoEO Act also establishes the ability to set various waste management requirements via the *Protection of the Environment Operations (Waste) Regulation 2014* (PoEO Waste Regulation).

##### Protection of the Environment Operations (Waste) Regulation 2014

The PoEO Waste Regulation came into effect on 1 November 2014. The PoEO Waste Regulation sets out provisions that cover the way waste is managed in terms of classification and transportation as well as reporting and record keeping requirements for waste management facilities.

##### Waste Avoidance and Resource Recovery Act 2007

The *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) includes the majority of NSW's over-arching objectives and guiding principles to encourage beneficial re-use and resource recovery.

The WARR Act promotes waste avoidance and resource recovery by providing a framework for the development of strategies and programs. It defines the waste hierarchy which is a set of priorities for the efficient use of resources which underpin the objectives of the WARR Act. The waste hierarchy ensures that resource management options are considered against the following priorities:

1. **Avoidance** including action taken to reduce the amount of waste generated, to maximise efficiency and avoid unnecessary consumption.
2. **Resource recovery** including reuse, recycling, reprocessing and energy recovery. Where avoiding and reducing waste is not possible, the next most preferred option is to re-use the

materials without further processing, avoiding the costs of energy and other resources required for recycling.

3. **Disposal** including management of all disposal options in the most environmentally sensitive manner. Disposal is the least preferred option, and is appropriate for materials such as asbestos that cannot be safely reused or recycled.

### **Waste Avoidance and Resource Recovery Strategy 2014-2021**

The *Waste Avoidance and Resource Recovery Strategy 2014-2021* (WARR Strategy) provides the strategic direction for future waste management and resource recovery activities in NSW. The priorities for waste reform were determined by the NSW Government in the *NSW 2021: A plan to make NSW number one*.

The WARR Strategy aims to drive the efficient use of resources, reduce the environmental impact of waste and improve the well-being of the NSW environment, community and economy. The WARR Strategy sets out long-term targets and provides a framework for the development of various implementation plans. The WARR Strategy sets the following targets for 2021–22 which are applicable to the Project

- Avoiding and reducing the amount of waste generated per person in NSW;
- Increasing recycling rates to 70% for commercial and industrial waste;
- Increasing recycling rates to 80% for construction and demolition waste; and
- Increasing waste diverted from landfill to 75%.

The WARR Strategy provides a clear framework for waste management to 2021-22 and provides an opportunity for NSW to continue to increase recycling across all waste streams. The Project will aim to meet the objectives of the WARR Strategy and implement measures to manage waste in a way which minimises the impact waste has on the environment.

### **NSW Waste Classification Guidelines**

Waste classification helps those involved in the generation, treatment and disposal of waste, ensure the environmental and human health risks associated with their waste is appropriately managed in accordance with the PoEO Act and its associated regulations. Part 1 of the *Waste Classification Guidelines* (EPA, 2014) provides advice and direction on classifying waste so that appropriate management of all waste types is achieved.

The following waste classifications are relevant to the operational works:

- Pre-classified waste including:
  - General solid waste (putrescible); and
  - General solid waste (non-putrescible).

#### **2.1.2 Local Government Requirements**

The Blacktown Local Environmental Plan 2015 aims to make local environmental planning provisions for land in Blacktown in accordance with the relevant standard environmental planning instrument under section 33A of the Environmental Planning and Assessment Act 1979. The plan also aims to provide for infrastructure to maintain and meet demands arising from housing and employment growth.

The Blacktown City Council Growth Centre Precincts Development Control Plan 2010 (also referred to as BCC Growth Centre DCP) aims to ensure the orderly, efficient and environmentally sensitive development of the Precincts as envisaged by the North West Growth Centre Structure Plan and State Environmental Planning Policy (*Sydney Region Growth Centres*) 2006 (the Growth Centres SEPP). Furthermore, this DCP aims to promote high quality urban design outcomes within the context of environmental, social and economic sustainability.

This DCP sets out the objectives for Ecologically Sustainable Development and includes a number of key controls, including:

- Implementing a waste management strategy that promotes the overall reduction of waste levels; and
- Promoting the achievement of the 60 percent waste reduction target for New South Wales.

### **2.1.3 Guidelines**

The following guidelines have been used in preparation of the waste strategy. Relevant waste management practices have been extracted from these guidelines for incorporation into this waste strategy.

#### **NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities**

This guide provides advice to help architects, developers, council staff and building managers to incorporate better waste management practice into the design, establishment, operation and ongoing management of waste services in commercial and industrial developments.

#### **Department of Environment & Climate Change NSW (2008) Better Practice Guide for Waste Management in Multi-unit Dwellings**

This guide has been developed to assist council staff; architects, residential developers and building management incorporate better practice in the design, establishment, operation and ongoing management of waste services in residential multi-unit developments. It outlines various essential points to be considered when designing a waste management system for medium or high-density residential, mixed-use and integrated housing developments.

#### **City of Melbourne Guidelines for Preparing a Waste Management Plan 2017**

These guidelines have been developed to help in preparing a plan to manage the waste and recycling needs of proposed developments. It includes sections for residential developments and commercial developments. Mixed use developments would need to refer to both sections.

## **2.2 Waste Management Objectives**

The objectives for the management of waste generated by the indicative Cudgegong Road Station Precinct South design operational works are:

- To maximise opportunities for re-use through source separation and on-site storage;
- To minimise waste generation and maximise re-use and recycling; and
- To ensure efficient collection, storage and transport and disposal of waste in an environmentally friendly manner.

These objectives are in line with the WARR Strategy and the Blacktown City Council Growth Centre Precincts Development Control Plan 2010.

## **2.3 Potential Environmental Impacts**

If not managed responsibly, waste generated by the operations has the potential to cause the following impacts:

- Land and surface water contamination as a result of spills or inappropriate storage, handling, transportation and disposal of waste;
- Noise impacts associated with waste collection, movement and transport;
- Odours and vermin resulting from improper storage and treatment putrescible wastes;
- Visual amenity impacts resulting from waste storage and movements at the Site (e.g. bins storage, collection and transport); and

- Off-site land and water pollution due to windblown wastes following inappropriate storage, handling, and transportation of wastes.

## 2.4 Operations Waste Generation

The Cudgegong Road Station Precinct South project will eventually involve the delivery of a mixed-used development offering residential, commercial, retail and community uses. As a result, the key activities associated with the operational works expected to generate waste include:

- Residential premises (1 bedroom, 2 bedroom and 3 bedroom apartments);

A total of 1,100 residential dwellings are envisaged at the proposed development. The potential apartment type mix will be as follows:

- 1 bedroom apartments – 30%
- 2 bedroom apartments – 55%
- 3 bedroom apartments – 15%

This breakdown has been provided purely for the purposes of waste infrastructure assessment and is subject to change as detailed design continues.

- Retail outlets;
- Commercial developments; and
- Community use (including child care services, health and fitness and flexible community space).

The major waste streams anticipated to be generated include garbage and comingled recycling waste. Estimates of waste generation rates were based on the area schedule (developable land) contained in the reference design (Cudgegong Road Station South – Stage 1 SSDA Application Draft) by Bennet and Trimble and a site description provided in Section 1.2 of the Cudgegong Road Station Precinct South – Ecologically Sustainable Development Report by AECOM.

According to these documents, the development will feature:

- Approximately 4,500 m<sup>2</sup> retail gross floor area (GFA);
- Approximately 3,000 m<sup>2</sup> commercial GFA; and
- Approximately 1,500 m<sup>2</sup> of community use (including 800 m<sup>2</sup> child care, 400 m<sup>2</sup> health and fitness and 300 m<sup>2</sup> of flexible community space).

Indicative estimates of the quantity and classification of waste streams generated from residential premises are summarised in Table 1.

**Table 1 Estimated Waste Generation (Residential) - Operations**

Waste Type	Estimated (Approximate) Quantity	Classification
Garbage	15.3kL/day	General Solid Waste (Putrescible)
Co-mingled Recycling	17.0kL/day	General Solid Waste (Non-Putrescible)

The following waste generation rates have been used to estimate daily residential waste generation provided in Table 1.

**Table 2 Waste Generation Rates (Source: City of Melbourne\*, Waste Generation Rates, January 2015)**

Apartment Size	Garbage	Recycling	Paper & Cardboard**
3 bedroom or greater	120 L/week	60 L/week	60 L/week
2 bedroom	100 L/week	60 L/week	60 L/week

Apartment Size	Garbage	Recycling	Paper & Cardboard**
1 bedroom or studio	80 L/week	40 L/week	40 L/week

\*The Blacktown City Council DCP does not provide waste generation rates for proposed developments. The City of Melbourne rates have been used as they provide a detailed breakdown of waste generation rates by apartment and/or industry type and were published relatively recently in 2015.

\*\*Paper and cardboard waste generation has been determined separately, however; this stream is incorporated under "comingled recycling" since Blacktown City Council does not offer separate collection of paper and cardboard.

Table 3 shows indicative estimates of the quantity, classification and primary source of waste streams generated from the commercial and retail areas (including flexible community space) based on seven (7) day per week operation.

**Table 3 Estimated Waste Generation (Commercial and Retail) - Operations**

Waste Type	Estimated (Approximate) Quantity	Classification	Primary Source
Garbage	13.6kL/day	General Solid Waste (Putrescible)	Retail, Community Space, Child Care, Health and Fitness, Gym
Comingled Recycling	8.3kL/day	General Solid Waste (Non-Putrescible)	Retail, Community Space, Child Care, Health and Fitness, Gym

A breakdown of the estimated volume of waste generated per day based on the type of waste generator is shown in Table 4.

**Table 4 Estimated Daily Waste Generated During Operations (Garbage + Recycling)**

Generator Category	NSA <sup>1</sup> (m <sup>2</sup> )	Daily Garbage Generated (L/day)	Daily Recycling Generated (L/day)
Commercial (Offices)	2,700	270	270
Health and Fitness (Gym)	360	36	36
Child Care	720	360	360
Flexible Community Space	270	810	473
Retail	4,050	12,150	7,088
<b>Total</b>	<b>8,100</b>	<b>13,626</b>	<b>8,226</b>

The following waste generation rates have been used to estimate daily commercial and retail waste generation provided in Table 4.

**Table 5 Waste Generation Rates (Source: City of Melbourne\*, Waste Generation Rates, January 2015)**

Type of Premises	Garbage generation	Recycling generation
Offices	10L/100 m <sup>2</sup> floor area/day	10L/100 m <sup>2</sup> floor area/day
Gym	10L/100 m <sup>2</sup> /day	10L/100 m <sup>2</sup> /day
Child Care	350L/100 m <sup>2</sup> floor area/week	350L/100 m <sup>2</sup> floor area/week
Convenience Store**	300L/100 m <sup>2</sup> floor area/day	150L/100 m <sup>2</sup> floor area/day

<sup>1</sup> NSA – Measured from internal face of apartment. Excludes balconies. NSA = 95% GFA

Type of Premises	Garbage generation	Recycling generation
Café**	300L/100 m <sup>2</sup> floor area/day	200L/100 m <sup>2</sup> floor area/day

\*Refer to note in Table 2.

\*\*Since there was no breakdown of what type of retail outlets will constitute the retail space in the indicative design, an average value calculated from typical generation rates from convenience store and café was used in estimating both retail garbage and recycling waste generation.

The use of the "Flexible Community Space" has not been determined at this stage. To be conservative the estimated waste generation rates for 'retail' have been used to represent a high waste generating community space.

## 2.5 Waste Management Measures

The operational waste management strategy has been developed by adopting the waste hierarchy as a framework for waste management practices to achieve the best environmental outcomes. The preferred order of adoption is as follows:

- **Avoid** the potential of waste generation;
- **Reduce** waste during operations;
- **Re-use** waste where applicable;
- **Recycle** waste whenever possible;
- **Recovery** of waste materials; and
- **Disposal** of waste when there is no reuse or recycling potential.

### 2.5.1 Source-separation

Source separation involves identification and separation of waste into common material streams or categories at the point of generation for separate collection. This aids material reuse and improves recycling, thereby capturing reusable or recyclable material that would otherwise end up in landfill. All waste materials generated during operation would be identified and classified in line with the *Waste Classification Guidelines* (EPA, 2014) prior to separation.

Appropriate containers and bins would be provided on all levels across the site during operation for garbage and reusable/recyclable materials. These containers would be clearly marked and identifiable to staff/caretakers (where applicable) and the public to encourage correct waste separation. All containers and bins would be placed in allocated waste holding areas. The following waste streams will be source-separated at the proposed development:

- Garbage; and
- Comingled recyclables.

Source-separation of organic waste could be considered in the detailed design phase.

### 2.5.2 Waste Collection and Storage

- Separate waste storage rooms (also referred to as bin rooms) for residential, commercial/retail are to be provided) at the proposed development. Space should be allocated for temporary bin storage within the various waste generating areas;
- The Waste Strategy assumes that residential waste is collected by Blacktown City Council and commercial and retail waste is collected by a private contractor;
- Traditional waste collection methods (i.e. mobile garbage bins (MGBs) and garbage trucks) have been proposed in this waste strategy. Waste chutes could be used for residential and commercial garbage and recycling waste collection (where applicable). Residents' access to the waste storage room would have to be restricted if chute systems are implemented;
- Typical bin types, sizes and collection vehicle dimensions have been selected in accordance with better practice guides and typical local waste contractor standards; and



- Residential waste services typically include 240L MGBs. The most common capacities of MGBs in commercial applications in Australia are 660 L and 1,100 L. Exact measurements differ between suppliers however typical bin dimensions are provided in Table 6.

**Table 6 Mobile garbage bin (MGB) dimensions<sup>2</sup>**

Dimensions	240L MGB	660 L MGB	1,100 L MGB
Height (mm)	1,080	1,250	1,470
Depth (mm)	735	850	1,245
Width (mm)	580	1,370	1,370
Approx. Footprint (m <sup>2</sup> )	0.43	1.16	1.71

The indicative number of waste bins, based on 240L MGBs recommended for each residential storage room is provided in Table 7. This is based on a weekly collection for garbage and fortnightly collection for recycling waste (Blacktown City Council waste collection schedules<sup>3</sup>). Potentially larger MGBs could be used, thereby minimising the waste room area required, however this would need to be confirmed with Council. To ensure it is compatible with their waste collection vehicle.

**Table 7 Estimated Number of Waste Bins Required and Minimum Area (Residential)**

Waste Room	Garbage Waste Storage	Recycling Waste Storage	Minimum Area required for MGBs (m <sup>2</sup> )*
Site 1A	55	121	87.6
Site 1B	109	242	174.6
Site 2A	81	180	130.3
Site 2B	33	73	52.6
Site 2C	79	175	126.5
Site 2D	92	204	147.3
Site 2E	44	98	70.6

For commercial and retail waste, the indicative number of bins required for the entire development based on collection of both garbage and recycling waste seven (7) days per week, are shown in Table 8

**Table 8 Estimated Number of Bins Required and Minimum Area (Commercial and Retail)**

Type of premises	Garbage Waste Storage	Recycling Waste Storage	Minimum Area required for MGBs (m <sup>2</sup> )*
Commercial and Retail	14 x 1,100L MGBs	9 x 1,100L MGBs	40

\*NB: The minimum areas presented in Table 7 and Table 8 are the area requirements for MGBs only (not the actual waste storage room) and are based on the assumption of no compaction of waste at the proposed development.

Waste compactors could be considered to reduce waste volume and thus reduce waste room sizes and collection frequencies.

<sup>2</sup> NSW EPA (2012) *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*

<sup>3</sup> <https://www.blacktown.nsw.gov.au/Services/Waste/Waste-and-recycling-service#section-2>

### Waste storage room general requirements

Space would be provided for the storage of waste handling equipment (e.g. compactors or balers where applicable), and waste bins required to store waste generated at the proposed development between collections. Some requirements for waste storage rooms include the following:

- Sufficient area for garbage MGBs;
- Sufficient area for MGBs for mixed recycling and cardboard and paper (where applicable);
- Appropriate access for 1,100L MGBs – it will be important to ensure the doors to the storage room are designed to accommodate these MGBs; and
- An area for the storage of bulky waste, e-waste and fluorescent and LED lighting.

The total minimum area required for the waste storage rooms for both residential and commercial (and retail) development at the proposed site are shown in Table 9.

**Table 9 Minimum storage room area requirements**

Residential	Minimum Area Required (m <sup>2</sup> )
Site 1A	175
Site 1B	351
Site 2A	262
Site 2B	105
Site 2C	254
Site 2D	295
Site 2E	142
Commercial and Retail	Minimum Area Required (m <sup>2</sup> )
Commercial and Retail	108

*Note: The minimum areas in Table 9 depend on MGB arrangements, e.g. garbage and recycling bins placed on opposite ends of the room and ensuring enough space for moveability within the waste storage room.*

### Other Design Considerations

In order to minimise the hazards and impacts associated with the usage of the waste storage facilities, the following should be taken into consideration:

- Adequate sizing to accommodate all waste from the building;
- Ensuring Work, Health and Safety (WHS) requirements for waste contractors are met;
- Ventilate fully enclosed waste facilities by natural or artificial means complying with AS 1668;
- Provide wash down facilities for garbage storage areas and also for the disinfection of containers on-site;
- Locate hot and cold water hose cocks within the waste rooms or nearby;
- Provide adequate signage within the storage rooms, with a description of storage facilities within the area;
- Ensure lighting in the waste facility room is in accordance with AS 1680; and
- Ensure appropriate access and space for collection.

### 2.5.3 Waste Movement

- Residents would take their waste to the waste storage room and place it in appropriate bins. All waste storage rooms shall be internal to the building and council garbage trucks shall collect the waste from collection points within the footprint of each building lot.
- Commercial and retail waste would, from the point of generation, be transported by a caretaker and via the service lift (where applicable) to the commercial waste storage room at the end of each day, to be collected by a private waste contractor.

### 2.5.4 Waste Re-Use, Recycling and Disposal

Waste would be re-used and recycled where possible. Where practical and considering potential health and hygiene issues, waste would be collected and segregated on-site and stored in suitable containers to maximise re-use and recycling before being transported to offsite processing/disposal facilities. Waste would be handled and disposed of in a manner that causes the least environmental harm.

Preferably, general solid waste garbage from residential apartments and commercial / retail would be transported to an advanced resource recovery facility, otherwise sent to landfill. Any waste classified as restricted, special, or hazardous waste will be transported to a suitably licensed facility in line with regulatory requirements.

Comingled recyclables from the proposed development would be transported to a Materials Recovery Facility (MRF). During the detailed design additional opportunities for re-use, recycling and disposal could be identified.

### 2.5.5 Waste Monitoring and Auditing

Throughout the operational works, on-site waste monitoring and auditing procedures would be developed for each waste stream; volumes produced, and waste management practices adopted.

The objectives of these procedures would be to provide:

- An assessment of the actual waste quantities and their classification;
- Monitor the potential environmental impacts;
- Review the waste transportation records and disposal routes;
- Enable positive actions to be taken in the event of incidents or accidents occurring on-site;
- Recommend future actions to improve waste management practices; and
- Monitor the implementation of the principles of waste management hierarchy.

## 2.6 Summary of waste management requirements

Table 10 Details of Waste Management -Operations

Waste Type	Classification	Primary Source	Management Requirements	Destination
<b>Residential</b>				
Garbage	General Solid Waste (Putrescible)	All Apartments	Garbage would be collected from apartments and placed in designated waste collection MGBs located in the waste storage (bin room). No recyclable materials are to be placed in garbage bins. Residents will be responsible for placing waste in designated bins. Blacktown City Council would collect garbage bins for disposal to a licensed waste facility.	To and appropriately licensed an advanced resource recovery facility where available or to landfill
Comingled Recycling	General Solid Waste (Non-Putrescible)	All Apartments	Comingled recycling waste would be collected from apartments and placed in designated waste collection MGBs located in the waste storage (bin room). Residents will be responsible for placing waste in designated bins. Blacktown City Council would collect garbage bins to a licensed recycling or reprocessing facility.	To a Materials Recovery Facility (MRF)
<b>Commercial and Retail</b>				
Garbage	General Solid Waste (Putrescible)	Retail, Flexible Community Space, Child Care, Offices, Health and Fitness	Garbage would be collected onsite in designated waste collection MGBs.	To a licensed disposal facility

Waste Type	Classification	Primary Source	Management Requirements	Destination
			No recyclable materials are to be placed in these garbage bins. A private waste contractor would collect the waste for transport to a licensed disposal facility.	
Comingled Recycling	General Solid Waste (Non-Putrescible)	Retail, Flexible Community Space, Child Care, Offices, Health and Fitness	Comingled recycling waste would be collected onsite and placed in designated waste collection MGBs located in the waste storage room. A private waste contractor would collect comingled recycling bins to a licensed recycling or reprocessing facility.	To a Materials Recovery Facility (MRF)

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