DRAFT - Waste Design for New Developments – Guide A:

- Single Dwellings;
- Secondary Dwellings;
- Granny Flats;
- Semi-Detached and Attached Dwellings; and
- Dual Occupancies

Contents

1. Introduction

1.1 Applicable Development Type

The Waste Design for New Developments (Guide A) applies to the residential development comprising single dwellings, secondary dwellings, granny flats, semi-detached and attached dwellings and dual occupancies.

1.2 Objectives of the Guide

The City of Canterbury Bankstown (CBCity) aims to integrate waste management into the design fabric of urban planning to support effective collection and management of waste as an essential service. This includes identifying sustainable waste outcomes in all developments that are safe and efficient, reduction in waste generation, increase recycling and resource recovery and contribute to the built form and liveability of the community.

It is important that waste management facilities are not overlooked in the design process. There is a need for adequate consideration of waste management requirements early in the site planning and design stage of the development. Poor site planning and design decisions can have significant impacts on the ongoing operation of the development at occupancy stage and can impact how efficiently the development can be serviced.

Considering waste management requirements early in the design stage of the development and site planning process also ensures costly and timely delays are avoided during the assessment process.

Guide A is a valuable resource to improve the design and functionality of waste management systems within all new developments.

Guide A has been prepared to assist you to achieve the following objectives and comply with Council's planning controls:

1. To facilitate and ensure sustainable waste management within the City of Canterbury Bankstown in accordance with the principles of Ecologically Sustainable Development and a Circular Economy.
2. Waste management systems are safe, efficient and cost effective, maximise recycling and resource recovery and contribute to the built form and liveability of the community.
3. To ensure that waste management systems are designed and managed to minimise impacts on residential health, amenity, and the public realm.
4. To ensure that waste storage and collection facilities are considered early in the design process and integrated into the overall site planning and design of the development.
5. To ensure bin storage and collection facilities are designed so that they can be integrated with and comply with the requirements for council's domestic waste services now and into the future.

In addition, the design and ongoing management of waste management facilities encourage residents to use the facilities and waste services appropriately. This includes greater participation in waste stream separation, a reduction in waste generation, increased resource recovery and minimal contamination of recyclables and organics. It can also significantly reduce the likelihood of illegal dumping.

1.3 Waste Reduction and Resource Recovery Targets

In 2019, CBCity sent 68% of its waste to landfill, with 32% diverted from landfill through recycling and composting. The waste generated per residents was 214kg.

CBCity currently has an estimated population of 382,000 and is growing quickly, with the population expected to reach 500,000 in 2036. The waste management service provided by Council needs to continue to keep up with this growth. Also, with the decreasing availability of landfill space in Greater Sydney, reducing waste to landfill through resource recovery is essential.

By 2036, Council's targets for waste reduction and resource recovery are:

- Divert 80% of waste from landfill
- 200kg waste generation per person per year

To help Council achieve these targets, all developments are required to achieve best practise in the design, construction and maintenance of waste services and infrastructure. This will ensure that garbage, recycling, organic and bulky waste produced on site are reduced in the best possible way to improve resource recovery along with increasing the amenity, ease of use, environmental performance and ultimately the reputation of developments with well managed waste facilities.

Council is looking for and will support developments with innovative new ideas and technologies to reduce or treat waste on-site.

2. Waste Management and the Development Application Process

Waste management must be considered at the earliest stage of design and all planning stages for the development.

Consideration of waste management at an early stage will ensure appropriate waste facilities are provided to meet the needs of residents and the development. In addition, early planning will ensure costly design amendments are not required at a later stage, reducing delays in the assessment process.

Guide A is to be read in conjunction with Council's Planning and Building Application Lodgement Guide and should be used when developing a Waste and Recycling Management Plan.

2.1 Waste and Recycling Management Plan

A Waste and Recycling Management Plan (WRMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the CBCity Development Control Plan.

The WRMP is an important planning document that will not only be utilised as part of the development application process, but during construction and for the ongoing use of the development. Conditions of consent will be used to enforce the commitments contained within the WRMP.

Council has a template WRMP to support all Development Applications which addresses the demolition, construction and ongoing operation of the development. It is mandatory to use Council's template.

The WRMP is to provide the following:

- Details of the handling of construction, demolition and ongoing waste streams of the development, including the types and estimated quantities;
- Separate plans of the proposed development that show the location and space allocated to the waste management facilities, along with the nominated waste collection point;
- Identification of the travel path of access to the bin storage area/s by residents; and
- Details of ongoing management, storage and collection of waste.

The completed WRMP, including drawings submitted by the applicant, will be used in the Council assessment of the waste management facilities for the new development.

3. Construction and Demolition

The management of waste from construction and demolition activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.

The WRMP is to detail how this will be achieved and is to be submitted with any new DA (this may include DAs for the change-of-use of a development).

The storage, handling and disposal of any demolition and construction waste must be undertaken in accordance with the requirements of the *Protection of Environment Operations Act 1997* and associated regulations.

The WRMP is to address construction and demolition waste and include:

- Confirmation if the development involves the removal of asbestos, quantities, the licence details of asbestos removalist and the designated disposal site licensed to accept asbestos-related waste;
- Details regarding how all other waste is to be minimised within a development and expected amounts and types of materials to be re-used or left over for removal from the site;
- Details regarding the types of waste and likely quantities of waste to be produced;
- Details of the off-site recycler's primary destination for materials;
- A site plan showing storage areas away from public access for re-usable materials and recyclables during demolition and construction, and the vehicle access to these areas;
- Designation of appropriately licensed facilities (recycling and landfill) to receive the construction and demolition waste. It is recommended the legitimacy and compliance of the facility is checked. The ABN Lookup and Environmental Protection Authority Public Register services can be used;
- Details of the nominated person, responsible for retaining waste dockets from facilities and for ensuring site is clean, tidy and no litter or materials leave or blow off the site; and
- Confirmation that all waste going to landfill is not hazardous.

4. Waste Management Considerations

4.1 General Considerations

Each dwelling is to have its own set of three residential bins for the collection of general waste, comingled recycling and garden organics.

It is essential that you read all sections of Guide A and understand the waste facilities required to ensure that the bin storage area can be designed and integrated into the overall design of the development. This will maximise convenience for residents, as well as ensuring amenity impacts such as visual, noise and odour are minimised.

4.2 Waste Generation Rates

The following generation rates are applicable to each dwelling and the set of three bins.

Table ##: Weekly Waste Generation Rates per Dwelling

General waste	Recycling	Garden Organics
140L	120L	120L

4.3 Standard Waste Service

4.3.1 Collection Services

The standard collection service provided to single dwellings is kerbside collection, where all three bins (general waste, co-mingled recycling and garden organics) are collected from the kerbside.

4.3.2 Bin Sizes for Residential Developments

An adequate bin storage area is to be provided within the development site to store all three allocated bins. Table ## and ## provides the applicable bin types, sizes and dimensions.

Table #: Bin sizes

General waste	Recycling	Garden organics
140L	240L	240L

Table #: Standard bin dimensions

Standard Bin Type	Dimensions (Additional 15cm is to be provided around each bin)		
	Height	Width	Depth
140L Mobile Garbage Bin (MGB)	930 mm	530 mm	610 mm
240L Mobile Garbage Bin (MGB)	1,060 mm	580 mm	730 mm

NOTES:

1. An additional 15cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently.
2. Dimensions are a guide only and may differ depending on the manufacturer.

4.3.3 Service Frequency

The service frequencies are provided in Table ##.

Table #: Standard service frequencies

General Waste	Recycling	Garden Waste	Bulky Waste (Per Calendar Year)
One collection per week	One collection per fortnight	One collection per fortnight **	Two collections

NOTE:

1. ** Alternative week to recycling service

5. Waste Management Facilities

5.1 Internal Waste and Recycling Storage

To ensure each dwelling has the minimum infrastructure to be able to separate out, reuse and/or recycle items, the following internal waste storage and separation facilities are to be provided:

- A waste storage cupboard in the kitchen capable of holding a minimum 40L of waste (approximately two days) and to enable a minimum 20L of recyclable waste to be stored in a separate container and not in plastic bags;
- Suitable space for a 3-5L kitchen caddy to collect food waste from the kitchen. This is to encourage on-site composting and reduction in waste to landfill;
- Suitable storage space for bulky household waste waiting collection; and
- Suitable storage space for other recyclable items, such as light globes and batteries in each dwelling.

Insert Figures showing above

5.2 Outdoor Bin Storage Area Requirements

Outdoor bin storage areas are to be located so that they are:

- Sufficient size to accommodate the allocated three bins per dwelling;
- Located behind the building line of the dwelling or where it is screened or cannot be viewed from public areas;
- Located away from habitable windows and doors of adjoining dwellings to reduce noise and odour;
- Allow residents to conveniently carry their waste to the correct bin from their dwelling;
- The bin carting route from the bin storage area to the kerbside collection point has a maximum distance of 50m (in the case of battle-axe properties);
- Allow bins to be moved safely to the nominated collection point; and
- Ensure the bin-carting route from the bin storage area to the collection point does not pass through any internal rooms of the dwelling, including garages.

5.3 Kerbside Collection

All allocated bins are required to be presented kerbside for collection. It is essential that a kerbside collection point be nominated on plans accompanying your DA.

Kerbside collection points are to be located so they:

- Present all allocated bins in single file with a 30cm gap between bins;

- Allow a minimum of 2m (l) x 1m (w) per dwelling for bins to be presented to the kerb;
- Ensure all allocated bins are placed within the site's allocated frontage, not in the driveway and not in front of neighbouring lots;
- Have a separation distance of 2m from tree branches, bus stops, street furniture and road infrastructure such as round-a-bouts and speed humps; and
- Have a height clearance of 4.2m from overhanging tree branches, powerlines and other obstructions.

Insert figure: Kerbside collection

5.4 Bulky Waste

Council provides a collection service for bulky household waste, such as whitegoods, mattresses and household furniture. The amount of material accepted per collection is defined in Council's Waste Service Policy.

All dwellings are to have adequate storage within the dwelling or garage to store bulky waste. In addition, during the planning phase it is important to consider the kerbside location (minimum $3m^2$) the materials will be placed by the resident for collection.

5.5 Organic Waste

Approximately 40% of a residential garbage bin is food waste. By composting or worm farming food scraps and garden cuttings, residents can reduce the amount of waste sent to landfill.

Each dwelling within a lot is to be provided with unpaved earth surface to allow for composting or worm farming. It is essential that this area is nominated and shown on plans accompanying your DA.

5.5.1 Composting

Compost bins are a way of processing food waste and garden organic material on-site. This not only reduces the volume of waste but also creates a nutrient fertilizer (compost).

Compost bins are more versatile than worm farms, as they can process a wider range of materials including garden organics and citrus. Well managed bins can also process meat. Compost bins are best placed in the sun.

5.5.2 Worm Farms

Worm farms are an effective method of managing food waste, with an output of vermicast (worm compost) and vermiliquid (liquid extract from the worm farm) that can be used in gardens. Seafood, meat or bones, dairy products, garlic, onion and citrus should not be placed in worm farms.

Worm farms need to be placed in a shaded position and can occupy a small footprint on balconies or in gardens.

6. Glossary of Terms

6.1 Development Types

Type	Definition	Commonly Known As
Single Dwelling	A building containing only one dwelling	Secondary Dwelling Granny flat, Semi-detached, Attached, Dual Occupancy

6.2 Key terms

Term	Definition
Bin-carting route	Travel route for transferring bins from bin storage area to nominated collection point.
Bin storage area	Area which stores allocated bins for the development.
Bulky waste	Large household items such as furniture, white goods and mattresses.
Kerbside collection	All allocated bins are presented kerbside by individual residents for collection by council's waste collection staff or contractor.
Layback	The section of kerb that has been removed and replaced in concrete to allow easier access to the kerbside. Also known as a gutter crossing.
Main Road	A high-capacity urban road that has been defined as a Classified or Regional Road.
Mobile garbage bins (MGB's)	Small bins which have two wheels so can only be moved forwards and backwards (not sideways).
Nominated collection point	The nominated point where waste and recycling are collected from by the service vehicle.

CANTERBURY BANKSTOWN

DRAFT - Waste Design for New Developments – Guide B:

- Villas;
- Townhouses; and
- Manor Houses.

Contents

1. Introduction

1.1 Applicable Development Type

The Waste Design for New Developments (Guide B) applies to the Multi Dwelling Housing (MDH), which includes villas, townhouses and manor houses.

Insert figures/images showing housing type

1.2 Objectives of the Guide

The City of Canterbury Bankstown (CBCity) aims to integrate waste management into the design fabric of urban planning to support effective collection and management of waste as an essential service. This includes identifying sustainable waste outcomes in all developments that are safe and efficient, reduction in waste generation, increase recycling and resource recovery and contribute to the built form and liveability of the community.

It is important that waste management facilities are not overlooked in the design process. There is a need for adequate consideration of waste management requirements early in the site planning and design stage of the development. Poor site planning and design decisions can have significant impacts on the ongoing operation of the development at occupancy stage and can impact how efficiently the building can be serviced.

Considering waste management requirements early in the design stage of the development and site planning process also ensures costly and timely delays are avoided during the assessment process.

Guide B is a valuable resource to improve the design and functionality of waste management systems within all new developments.

Guide B has been prepared to assist you to achieve the following objectives and comply with Council's planning controls:

1. To facilitate and ensure sustainable waste management within the City of Canterbury Bankstown in accordance with the principles of Ecologically Sustainable Development and a Circular Economy.
2. Waste management systems are safe, efficient and cost effective, maximise recycling and resource recovery and contribute to the built form and liveability of the community.
3. To ensure that waste management systems are designed and managed to minimise impacts on residential health, amenity, and the public realm.
4. To ensure that waste storage and collection facilities are considered early in the design process and integrated into the overall site planning and design of the development.
5. To ensure bin storage and collection facilities are designed so that they can be integrated with and comply with the requirements for council's domestic waste services now and into the future.

In addition, the design and ongoing management of waste management facilities encourage residents to use the facilities and waste services appropriately. This includes greater participation in waste stream separation, a reduction in waste generation, increased resource recovery and minimal contamination of recyclables and organics. It can also significantly reduce the likelihood of illegal dumping.

1.3 Waste Reduction and Resource Recovery Targets

In 2019, CBCity sent 68% of its waste to landfill, with 32% diverted from landfill through recycling and composting. The waste generated per residents was 214kg.

CBCity currently has an estimated population of 382,000 and is growing quickly, with the population expected to reach 500,000 in 2036. The waste management service provided by Council needs to continue to keep up with this growth. Also, with the decreasing availability of landfill space in Greater Sydney, reducing waste to landfill through resource recovery is essential.

By 2036, Council's targets for waste reduction and resource recovery are:

- Divert 80% of waste from landfill
- 200kg waste generation per person per year

To help Council achieve these targets, all developments are required to achieve best practise in the design, construction and maintenance of waste services and infrastructure. This will ensure that garbage, recycling, organic and bulky waste produced on site are reduced in the best possible way to improve resource recovery along with increasing the amenity, ease of use, environmental performance and ultimately the reputation of developments with well managed waste facilities.

Council is looking for and will support developments with innovative new ideas and technologies to reduce or treat waste on-site.

2. Waste Management and the Development Application Process

Waste management must be considered at the earliest stage of design and all planning stages for the development.

Consideration of waste management at an early stage will ensure appropriate waste facilities are provided to meet the needs of residents and the development. In addition, early planning will ensure costly design amendments are not required at a later stage, reducing delays in the assessment process.

The Guide is to be read in conjunction with Council's Planning and Building Application Lodgement Guide and should be used when developing a Waste and Recycling Management Plan.

2.1 Waste and Recycling Management Plan

A Waste and Recycling Management Plan (WRMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the CBCity Development Control Plan.

The WRMP is an important planning document that will not only be utilised as part of the development application process, but during construction and for the ongoing use of the development. Conditions of consent will be used to enforce the commitments contained within the WRMP, including the requirement that the ongoing management section of the WRMP is included in the by-laws of strata properties. This will ensure that all relevant parties (ie. residents, property managers) are aware of the WRMP and that it will continue to apply as a working reference for the life of the building and community living there.

Council has a template WRMP to support all Development Applications which addresses the demolition, construction and ongoing operation of the development. It is mandatory to use Council's template.

The WRMP is to provide the following:

- Details of the handling of construction, demolition and ongoing waste streams of the development, including the types and estimated quantities;
- Separate plans of the proposed development that show the location and space allocated to the waste management facilities, along with the nominated waste collection point;
- Identification of the travel path of access to the bin storage area/s by residents and collection staff;
- Identification of the travel and swept paths for on-site collection by a HRV (if applicable);

- Details of ongoing management, storage and collection of waste, including responsibility for cleaning, transfer of bins between storage areas and collection points, implementation and maintenance of signage, and security of storage areas; and
- Where appropriate to the nature of the development, a summary document for tenants and residents to inform them of the building's ongoing waste management arrangements.

The completed WRMP, including drawings submitted by the applicant, will be used in the Council assessment of the waste management systems for the new development.

3. Construction and Demolition

The management of waste from construction and demolition activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.

The WRMP is to detail how this will be achieved and is to be submitted with any new DA (this may include DAs for the change-of-use of a development).

The storage, handling and disposal of any demolition and construction waste must be undertaken in accordance with the requirements of the *Protection of Environment Operations Act 1997* and associated regulations.

The WRMP is to address construction and demolition waste and include:

- Confirmation if the development involves the removal of asbestos, quantities, the licence details of asbestos removalist and the designated disposal site licensed to accept asbestos-related waste;
- Details regarding how all other waste is to be minimised within a development and expected amounts and types of materials to be re-used or left over for removal from the site;
- Details regarding the types of waste and likely quantities of waste to be produced;
- Details of the off-site recycler's primary destination for materials;
- A site plan showing storage areas away from public access for re-usable materials and recyclables during demolition and construction, and the vehicle access to these areas;
- Designation of appropriately licensed facilities (recycling and landfill) to receive the construction and demolition waste. It is recommended the legitimacy and compliance of the facility is checked. The ABN Lookup and Environmental Protection Authority Public Register services can be used;
- Details of the nominated person, responsible for retaining waste dockets from facilities and for ensuring site is clean, tidy and no litter or materials leave or blow off the site; and
- Confirmation that all waste going to landfill is not hazardous.

4. Waste Management Considerations

4.1 General Considerations

It is essential that you have read the components of Guide B that are relevant to the size of the development in selecting and designing waste management facilities. It is important that you:

- Ensure all dwellings have internal waste storage
- Have a thorough understanding of the waste generated by your development and the number of bins to be allocated by Council and stored within the development;
- Ensure that the development can be integrated with Council's standard HRV waste service;
- Consider what access is required to the site by collection staff and vehicles to facilitate the safe and efficient waste servicing of the development.

Understanding the waste facilities required, such as bin allocation and the size (and dimensions) of bins ensures that the bin storage area for the development can be designed and integrated into the overall design of the development. This will maximise convenience for future residents, as well as ensuring amenity impacts such as visual, noise and odour are minimised.

The nominated collection point must be able to be accessed by collection staff. It is vital that you understand and plan for the access arrangements required. This includes providing adequate vehicular access and manoeuvring for the standard HRV waste collection vehicle where on-site collection is required. There are no exceptions to this arrangement.

4.2 Waste Generation Rates

The following generation rates will need to be used to identify the number of bins needed for the development. Identifying the number of bins and the size of the bins in Table ## and ## will ensure that the waste management facilities designed meet the developments ongoing waste needs. When calculating the number of bins needed, it should be noted that bin allocations are rounded up to the next whole number (for example the calculation of 4.1 bins will be rounded to 5 bins.

Table 1: Weekly Waste Generation Rates per Dwelling

General waste	Recycling	Garden Organics
140L	120L	120L *

* Only applies to multi dwelling housing that generate garden organics (e.g. garden prunings and leaves).

4.3 Standard Waste Service

4.3.1 Collection Services

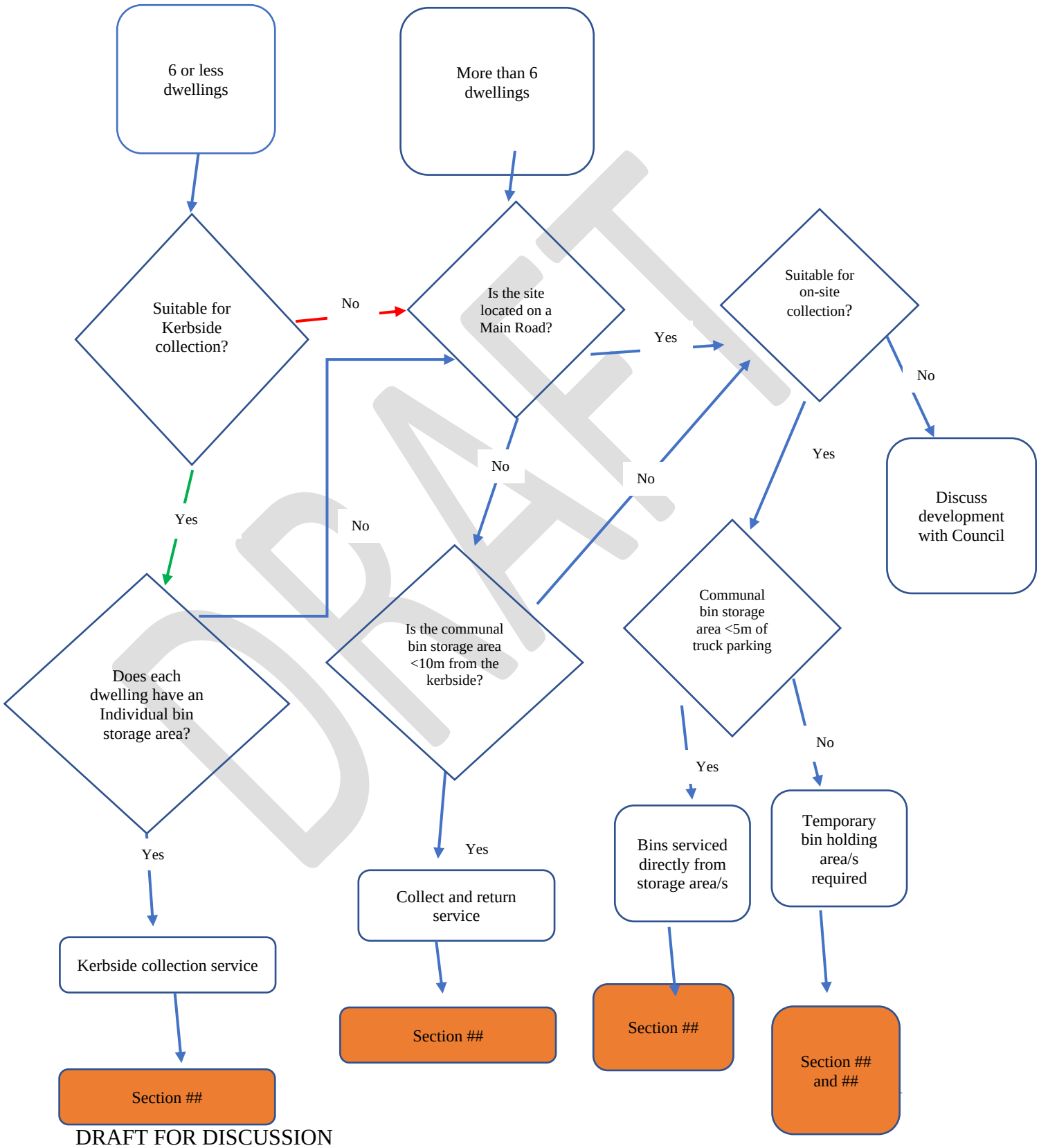
Council offer a range of waste collection services for residential development including:

- Kerbside collection: general waste, co-mingled recycling and garden organics are collected from the kerbside;
- Collect and Return: collection staff enter the development to collect bins from a nominated area and return them once emptied;
- On-site collection: collection occurs within a development site's boundary by a HRV as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities, at a nominated area.

The type of service available for your development varies depending on the number of dwellings, on-site conditions, amenity and safety issues, the number of bins requiring collection, the size of the bins and time taken to empty the bins.

To assist in identifying the appropriate collection service for your development, refer to Figure ## and the relevant sections in Guide B.

Figure #: Waste Service identification flowchart based on number of dwellings



Further details and requirements regarding collection points are provided later in this Guide for each development type.

4.3.2 Bin Sizes for Residential Developments

An adequate bin storage area is to be provided within the development site to store all allocated bins. Depending on the nature and density of the development, individual or communal bin storage areas may be provided.

The following Tables identify the bin types, sizes and dimensions required.

Table #: Bin sizes

General waste	Recycling	Garden organics
140L, 240L, 660L or 1,100L	240L, 660L or 1,100L	240L (on request)

NOTE:

1. One size of bin for each waste stream is provided for a development.

Table #: Standard bin dimensions

Standard Bin Type	Dimensions (Additional 15cm is to be provided around each bin)		
	Height	Width	Depth
140L Mobile Garbage Bin (MGB)	930 mm	530 mm	610 mm
240L Mobile Garbage Bin (MGB)	1,060 mm	580 mm	730 mm
660L Bulk Bin	1,250 mm	1,370 mm	850 mm
1,100L Bulk Bin	1,470 mm	1,370 mm	1,245 mm

NOTES:

1. It is important to understand the size of bins that will be allocated by Council for your development. Check with Council if you need assistance in identifying the most appropriate bin size/s.
2. An additional 15cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently, and to avoid damage to walls and doors from bins scraping against them.
3. Dimensions are a guide only and may differ depending on the manufacturer.

Insert Image 2 from Bankstown Guide (showing 15cm between bins)

4.3.3 Service Frequency

The service frequencies are provided to assist in calculating the required number and size of bins.

Table #: Standard service frequencies for residential developments

General Waste	Recycling	Garden Waste	Bulky Waste (Per Calendar Year)
One collection per week	One collection per fortnight	One collection per fortnight **	Developments with six or less dwellings – Two collections *** Developments with more than 6 dwellings but not greater than 50 – four collections *** Developments with more than 50 dwellings – six collections ***

NOTES:

1. ** Alternative week to recycling service
2. *** Collection service to be introduced on 1st March 2021

5. Waste Management Facilities

Insert figure

It is essential the waste management system selected considers occupant amenity and safety, as well as provides bin storage areas that can be used and accessed conveniently.

In designing and selecting the appropriate waste management system for Multi Dwelling Housing it is important that you consider:

- How many bins will be allocated for your development and what are their sizes?
- Does the number of dwellings (six or less) and street frontage allow all bins to be safely placed for kerbside collection?
- Is the development better suited to utilise Councils collect and return service?
- How frequently is the development serviced?

The following information will assist in determining the appropriate collection options and supporting requirements to be taken into consideration during the detailed design of the development.

5.1 Internal Waste and Recycling Storage

To ensure each dwelling has the minimum infrastructure to be able to separate out, reuse and/or recycle items, the following internal waste storage and separation facilities are to be provided:

- A waste storage cupboard in the kitchen capable of holding a minimum 40L of waste (approximately two days) and to enable a minimum 20L of recyclable waste to be stored in a separate container and not in plastic bags;
- Suitable space within the kitchen for a 3-5L caddy to collect food waste from the kitchen. This is to encourage on-site composting and reduction in waste to landfill;
- Suitable storage space for bulky household waste waiting collection; and
- Suitable storage space for other recyclable items, such as light globes and batteries in each dwelling.

Insert Figures showing above

5.2 Collections Options

There are three collection options possible, however it is recommended to confirm the service with Council during your planning stage. A pre-lodgement meeting with planning and waste officers is recommended.

The developer may need to apply to the relevant authority for the installation of 'no parking on waste collections days' sign or similar. Any such requirements will be at no cost to the Council.

5.2.1 Option 1 – Kerbside Collection

In order to utilise Councils standard kerbside collection service, the following requirements need to be satisfied:

- A development with six or less dwellings and there is sufficient kerbside space for all allocated bins (140L and 240L) to be presented for collection;
- Each dwelling can have an individual bin storage area on their property and residents must be able to cart allocated bins and present them kerbside for collection; and
- Each dwelling is to have adequate storage within the dwelling or garage to store bulky waste waiting collection.

Kerbside Collection Points

Kerbside collection points are to be located so they:

- Present all allocated bins in single file with a 30cm gap between bins;
- Allow a minimum of 2m (L) x 1m (w) per dwelling for bins to be presented to the kerb side-by-side;
- Ensure all allocated bins are placed within the site's allocated frontage, not in the driveway, and not in front of neighbouring lots;
- Have a separation distance of 2m from driveways, street trees, bus stops, street furniture, intersections and road infrastructure such as round-a-bouts and speed humps;
- Have a height clearance of 4.2m from overhanging tree branches, powerlines and other obstructions; and
- Allow a minimum of $3m^2$ space per dwelling for bulky waste collection.

Individual Bin Storage Areas

Where there is kerbside collection, individual bin storage areas are to be provided for each dwelling. The areas must be designed in accordance with the following requirements:

- Located behind the building line of the dwelling or where it is screened or cannot be viewed from public areas;
- Located away from habitable windows and doors of adjoining dwellings to reduce noise and odour;
- Allow residents to conveniently carry their waste to the correct bin from their dwelling;
- Allow bins to be moved safely to the nominated collection point;
- Ensure the bin-carting route from bin storage area to collection point does not pass through any internal rooms of the dwelling; and

- The bin-carting route from the bin storage area to the collection point has a maximum distance of 50m (in the case of battle-axe properties).

It is essential that the individual bin storage area and kerbside collection point are nominated and shown on plans accompanying your DA.

Insert Kerbside Figure ##

5.2.2 Option 2 - Collect and Return Service

For Multi Dwelling Housing with more than six dwellings or that are not suitable for kerbside collection, will be required to be designed and serviced by Council's collect and return service. A communal bin storage area will be required to store the required 660L or 1,100L bins.

This service will allow collection staff to collect all allocated bins from the bin storage area and return the bins immediately once the service is completed. To ensure the development can access the collect and return service, the communal bin storage area is to be located within 10 metres of the nominated collection point and have a safe and convenient bin-carting route.

The collection vehicle will stop at the nominated collection point, which is not to be in a Bus Stop, a 'No Stopping Zone' and not blocking driveways.

Where developments cannot locate the communal bin storage areas within 10m of the kerbside collection point, a temporary holding area must be provided. Requirements for a temporary holding area is provided in Section ## of this Guide.

The communal storage area and the bin-carting route for collect and return service must be identified on plans accompanying the development application. Requirements for communal bin storage areas is provided in Section ## of this Guide.

Bin-carting route
Bin-carting routes from the bin storage area or temporary holding area to the kerbside must comply with the following requirements:

- To be direct and less than 10 metres,
- Include a layback at the nominated collection point;
- Minimum 2m wide hard surface;
- Does not pass through any internal walkways, doors or rooms;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Not be within a driveway or carpark, this is considered a conflict point for vehicles and collection staff; and
- Compliant with Work, Health and Safety for collection staff

5.2.3 Option 3 - On-Site Collection

For developments where site characteristics are unsuitable for kerbside collection or collect and return service, the development will be required to be serviced by Council's on-site collection service. A communal bin storage area will be required to store the required 660L or 1,100L bins and the development must ensure that an HRV is able to enter and exit the development in a forward direction. The bins are collected directly from the communal bin storage area or a temporary bin holding area.

5.3 Specific Requirements

5.3.1 Communal Bin Storage Area

A communal bin storage area is to be provided for developments that do not have adequate kerbside space available for all allocated bins.

It is essential that communal bin storage areas be considered early in the design process, so they can be successfully integrated into the overall design of the development and in an area convenient for all users. The following requirements apply to bin storage areas for multi dwelling housing developments that are to be serviced by collect and return or on-site service:

Size:
- The development must provide a bin storage area of sufficient size to accommodate all allocated bins side-by-side with fronts facing out;
- Sufficient space must be provided to ensure adequate room for manoeuvring, cleaning and maintaining all bins (15cm around each bin and 1.5m aisle space between bins);
- Sufficient space must be provided for any required equipment to manage waste and bins (including washing and cleaning); and
- Should not be excessive, as this will encourage the dumping of other household waste.

Location:
- Located at ground level and within 10m of the nominated collection point at the kerbside;
- Located no more than 30m for all dwellings;
- It's use and operation will not adversely impact the amenity of occupants and adjoining residential properties in terms of noise, odour and bin carting route.

Design:
- A designated room or enclosure, with a roof;
- Must be the same as the overall design of the development; and
- Screened from public view.

Layout:

- The area is free from obstructions so as not to restrict the movement and servicing of the bins;
- An aisle space of 1.5m minimum is required to access and manoeuvre the bins; and
- All bins must be placed side-by-side (front facing) with equal access to all bins.

Access:
- Access for all intended users is safe and convenient and in accordance with AS 1428 (Set) - 2003: Design for access and mobility
- Any doorways are at least 2m wide with doors unobstructed by any locks and security devices and are to open outwards.
- Restricts access by non-residents, to prevent theft, vandalism and illegal dumping;
- Collection staff can easily access the area in a safe and efficient manner in accordance with Work, Health and Safety legislation.

Construction:
- Floors must be constructed of concrete at least 75mm thick and graded and drained to a Sydney Water approved drainage fitting;
- Floors must be finished so that it is non-slip and has a smooth and even surface;
- The walls must be constructed of solid impervious material;
- A minimum 2.1m unobstructed room height is required in accordance with the Building Code of Australia Volume 2;
- The ceilings must be finished with a smooth faced non- absorbent material capable of being cleaned;
- Walls, ceiling and floors must be finished in a light colour;
- Is to be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;
- A close-fitting and self-closing door or gate operable from inside the area;
- Must prevent the entry of vermin and birds; and
- Be provided with adequate light and ventilation. Light source must be through controlled light switches located both outside and inside the room. Sensor lights may also be installed.

Insert figure: communal bin storage area

5.3.2 Temporary Holding Area (Collect and Return)

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area the day before the designated collection day and return them once emptied. The bin carting route from the bin storage area to the temporary holding area is to be:
- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and

- Compliant with Work, Health and Safety legislation.

The collection vehicle will stop at the nominated kerbside collection point and will collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for the temporary holding area.

Requirements of the temporary holding area:

- Within 10m from the nominated kerbside collection point
- Doorways a minimum 2m.
- Only temporarily store bins so they can be serviced.
- Be located fully within the development site.
- Be located within the front setback of the development but suitably screened so it is not visible from the public domain.
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5m and 15cm between bins); and
- Be clearly separated from car parking bays, footpaths and landscaped areas.

5.3.3 On-site collection

All developments that are to be serviced on-site, will be required to provide safe vehicle access and designed to enable the HRV collection vehicles to manoeuvre and load all allocated bins. The development will be required to nominate a loading area, which is within 5m of the bin storage area/s.

A temporary bin holding area will be required if the truck is not able to park within 5m of the bin storage area. The caretaker or property manager will be required to move the bins from the storage area to the temporary holding area (see section ##), ready for collection, and return them when emptied.

Requirements of the nominated loading area:

- Access requirements for a HRV are as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities;
- The collection vehicle loading area is to be nominated on the submitted plans. The loading area is to be within 5 metres of the bin storage or temporary holding area;
- The loading area is to be a separate parking area for the collection vehicle, which is located so as not to impede or restrict other vehicle and pedestrian movements during collection times and minimises impact on residents;
- Include an extra 2m at the rear of the vehicle parking area to allow for staff safety and emptying of bins;

5.3.4 Designing for waste collection vehicle access

The HRV must be able to safely and efficiently access the site and nominated loading area to collect all bins. The development's security measures such as gates and security doors

should not prevent vehicle access to the collection point which would result in waste being unable to be collected.

When designing for HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of a HRV as per AS2890.2, and includes adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided below.
- HRV must be able to enter and exit the site in a forward direction. The loading area/collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support a collection vehicle at maximum capacity (approximately 30 tonnes); and
- A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the HRV.

Figure ##: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheel base	Design turning radius	Swept circle	Clearance height	Maximum roadway/ramp grade	Maximum rate of change of grade
12.5	2.5	6.6	12.5	27.8	4.5	1:6.5 (15.4%)	1:16 (6.25%) in 7.0 m of travel

Swept paths for HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- A HRV can park safely within a designated loading area on-site whilst servicing the bins.

Insert Figure ##: Turning path template

5.3.5 Temporary Holding Area (On-Site Collection)

Where developments cannot locate the communal bin storage areas within 5m of the nominated loading area, a temporary holding area must be provided.

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area the day before the designated collection day and return them once emptied. The bin carting route from the bin storage area to the temporary holding area is to be:

- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation.

Council's collection truck will park in the nominated loading area and will collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for the temporary holding area.

Requirements of the temporary holding area:

- Within 5m from the nominated loading area
- Doorways a minimum 2m.
- Only temporarily store bins so they can be serviced.
- Be located fully within the development site.
- Be located within the front setback of the development but suitably screened so it is not visible from the public domain.
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5m and 15cm between bins); and
- Be clearly separated from car parking bays, footpaths and landscaped areas.

5.4 Bulky Waste

Council provides a collection service for bulky household waste, such as whitegoods, mattresses and household furniture. The amount of material accepted per collection is defined in Council's Waste Service Policy.

All dwellings are to have adequate storage within the dwelling or garage to store bulky waste waiting collection.

Where on-site collection of general waste and recycling is required, bulky waste must also be collected on-site. Refer to Section ## and ## of this Guide for on-site collection requirements.

5.5 Organic Waste

Approximately 40% of a residential garbage bin is food waste. By composting or worm farming food scraps and garden cuttings, residents can reduce their waste.

Space must be provided for composting and worm farming. The area is to be an unpaved earth surface, either in private courtyards or a communal area. An area of $1m^2$ is to be provided for each dwelling.

This space is to be shown on the site plans submitted with the Development Application.

5.5.1 Composting

Compost bins are a way of processing food waste and garden organic material on-site. This not only reduces the volume of waste but also creates a nutrient fertilizer (compost).

Compost bins are more versatile than worm farms, as they can process a wider range of materials including garden organics and citrus. Well managed bins can also process meat. Compost bins are best placed in the sun.

5.5.2 Worm Farms

Worm farms are an effective method of managing food waste, with an output of vermicast (worm compost) and vermiliquid (liquid extract from the worm farm) that can be used in gardens. Seafood, meat or bones, dairy products, garlic, onion and citrus should not be placed in worm farms.

5.6 Inspection by council

To ensure the communal bin storage area and bin-carting route has been constructed in accordance with the approved plans and to confirm the development can be serviced by Council's collect and return service or on-site collection, an inspection is required to be undertaken by Council's waste representative prior to the issue of the Occupation Certificate and delivery of bins.

A condition of consent will be imposed requiring the inspection be undertaken prior to the issue of the Occupation Certificate and any defects addressed prior to any agreement being entered into with Council.

Contact Council on 9707 9000 to arrange your pre-Occupation Certificate inspection.

5.7 Deed of agreement and indemnity

Where collection staff or vehicles are required to enter private property to perform the service, Council will require an unimpeded easement for access to undertake on-site or collect and return service. The development is also required to indemnify Council or its Contractors against claims for wear and tear of access roads or other parts of the building.

A condition of consent will be imposed requiring an Indemnity Agreement is to be signed prior to the issue of the Occupation Certificate and delivery of bins.

6. Glossary of Terms

6.1 Development Types

Type	Definition	Commonly Known As
Multi Dwelling Housing	means three or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building	Villas, Townhouses, Terrace House, Manor Houses

6.2 Key terms

Term	Definition
Bin-carting route	Travel route for transferring bins from bin storage area to nominated collection point. Usually undertaken by a caretaker. Distance allowed will vary depending on bin size.
Bin storage area	Area which stores allocated bins for the development. Can be a nominated area for individual or communal bin storage area. Some developments may have several bin storage areas.
Boarding House	A place of shared accommodation that provides accommodation to a boarder for a fee.
Bulk bins	Large bins which have four swivel wheels so can be moved in any direction**.** Usually greater than 660L bins.
Bulky waste	Large household items such as furniture, white goods and mattresses.
Collect and return service	Service for smaller MDH or RFB where council (or its contractors) access the bin storage area or temporary bin holding area and cart bins to the kerbside to be serviced. Bins are then returned to the bin storage area (or temporary holding area). The collection vehicle needs a safe parking spot on the kerb.
Communal bin storage area	Bin storage area(s) which stores allocated bins for the entire development and can be accessed by all residents and occupants.
Designated, State and Regional Roads	Specific roads in these categories are listed in the Council's DCP's.
Indemnity or Positive covenant	A legal agreement ensuring that a party providing services to a particular property will not be held responsible for any loss or

or Section 88B certificate	damage to such property as a result of the routine provision of the service.
In-Unit separation of waste, recycling and compost	This means the separate recycling and garbage (2x 20L) bins for the dwelling's kitchen. This is where the residents dispose / store the waste and recycling before taking it to the larger communal bins. There should also be sufficient space for a kitchen caddy to store food waste within the kitchen.
Kerbside collection	All allocated bins are presented kerbside by individual residents for collection by council's waste collection staff or contractor.
Layback	The section of kerb that has been removed and replaced in concrete to allow easier access to the kerbside. Also known as a gutter crossing.
Main Road	A high-capacity urban road that has been defined as a Classified or Regional Road.
Mobile garbage bins (MGB's)	Small bins which have two wheels so can only be moved forwards and backwards (not sideways).
Nominated collection point	The nominated point where waste and recycling are collected from by the service vehicle.
On-site collection	Collection occurs within the development site's boundary in a nominated collecting area.
Residential Level	Every level on which there is a dwelling.
Recycling cupboard	The cupboard(s) on each residential level that house the necessary number of recycling bins adjacent to the waste chute hopper.
Route of travel	The travel path for the waste collection vehicle when entering the site to access the nominated collection point and leaving the site after the waste has been collected.

Source Separation	The separation, by residents, of different recyclable items into separate bins or cages.
Temporary bin holding area	Area where bins are transferred to be temporarily stored for collection. Bins are required to be transferred back to the bin storage area as soon as possible after collection occurs. This bin transfer is undertaken by a caretaker.
Vehicular Crossing	The concrete vehicular crossing providing access across the Council controlled nature strip, consisting of a crossing and a layback.
Volume handing equipment	Equipment to automatically change the bin under the chute when it is full. The chute service room must be of adequate size to accommodate this equipment. Resident access to this equipment must be excluded. The bins on the volume handling equipment will not be services and are in addition to the total bin calculations on generation rates.
Waste chute system	Ventilated, vertical pipes passing through each floor of a residential flat building with access on each floor. Chutes discharge into bins at the lowest point in the waste room.

DRAFT - Waste Design for New Developments – Guide C:

- **Residential Flat Buildings**

Contents

1. Introduction

1.1 Applicable Development Type

The Waste Design for New Developments (Guide C) applies to the Residential Flat Buildings (RFBs), which includes units and apartments. These developments can be separated into three distinct sizes:

- Low rise – two or three storeys;
- Medium rise – four to 10 storeys; and
- High rise – more than ten storeys.

Insert figures/images showing housing type

1.2 Objectives of the Guide

The City of Canterbury Bankstown (CBCity) aims to integrate waste management into the design fabric of urban planning to support effective collection and management of waste as an essential service. This includes identifying sustainable waste outcomes in all developments that are safe and efficient, reduction in waste generation, increase recycling and resource recovery and contribute to the built form and liveability of the community.

It is important that waste management systems are not overlooked in the design process. There is a need for adequate consideration of waste management requirements early in the site planning and design stage of the development. Poor site planning and design decisions can have significant impacts on the ongoing operation of the development at occupancy stage and can impact how efficiently the building can be serviced.

Considering waste management requirements early in the design stage of the development and site planning process also ensures costly and timely delays are avoided during the assessment process.

Guide C is a valuable resource to improve the design and functionality of waste management systems within all new developments.

Guide C has been prepared to assist you to achieve the following objectives and comply with Council's planning controls:

1. To facilitate sustainable waste management within the City of Canterbury Bankstown in accordance with the principles of Ecologically Sustainable Development and a Circular Economy.
2. To assist in achieving Federal and State Government waste minimisation targets as set out in the Waste Avoidance and Resource Recovery Act 2001 and NSW Waste Avoidance and Resource Recovery Strategy 2014-2021.

3. Waste management systems are safe, efficient and cost effective, maximise recycling and resource recovery and contribute to the built form and liveability of the community.
4. To ensure that waste management systems are designed and managed to minimise impacts on residential amenity, health and the public realm.
5. To ensure that waste storage and collection facilities are considered early in the design process and integrated into the overall site planning and design of the development.
6. To ensure bin storage and collection facilities are designed so that they can be integrated with and comply with the requirements for council's domestic waste services now and into the future.

In addition, the design and ongoing management of waste management facilities encourage residents to use the facilities and waste services appropriately. This includes greater participation in waste stream separation, a reduction in waste generation, increased resource recovery and minimal contamination of recyclables and organics. It can also significantly reduce the likelihood of illegal dumping.

1.3 Waste Reduction and Resource Recovery Targets

In 2019, CBCity sent 68% of its waste to landfill, with 32% diverted from landfill through recycling and composting. The waste generated per residents was 214kg.

CBCity currently has an estimated population of 382,000 and is growing quickly, with the population expected to reach 500,000 in 2036. The waste management service provided by Council needs to continue to keep up with this growth. Also, with the decreasing availability of landfill space in Greater Sydney, reducing waste to landfill through resource recovery is essential.

By 2036, Council's targets for waste reduction and resource recovery are:

- Divert 80% of waste from landfill
- 200kg waste generation per person per year

To help Council achieve these targets, all developments are required to achieve best practise in the design, construction and maintenance of waste services and infrastructure. This will ensure that garbage, recycling, organic and bulky waste produced on site are reduced in the best possible way to improve resource recovery along with increasing the amenity, ease of use, environmental performance and ultimately the reputation of developments with well managed waste facilities.

Council is looking for and will support developments with innovative new ideas and technologies to reduce or treat waste on-site.

2. Waste Management and the Development Application Process

Waste management must be considered at the earliest stage of design and all planning stages for the development.

Consideration of waste management at an early stage will ensure appropriate waste facilities are provided to meet the needs of the community and the development. In addition, early planning will ensure costly design amendments are not required at a later stage, reducing delays in the assessment process.

The Guide is to be read in conjunction with Council's Planning and Building Application Lodgement Guide and should be used when developing a Waste and Recycling Management Plan.

2.1 Waste and Recycling Management Plan

A Waste and Recycling Management Plan (WRMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the CBCity Development Control Plan.

The WRMP is an important planning document that will not only be utilised as part of the development application process, but during construction and for the ongoing use of the development. Conditions of consent will be used to enforce the commitments contained within the WRMP, including the requirement that the ongoing management section of the WRMP is included in the by-laws of strata properties. This will ensure that all relevant parties (ie. residents, property managers) are aware of the WRMP and that it will continue to apply as a working reference for the life of the building and community living there.

Council has a template WRMP to support all Development Applications which addresses the demolition, construction and ongoing operation of the development. It is mandatory to use Council's template.

The WRMP is to provide the following:

- Details of the handling of construction, demolition and ongoing waste streams of the development, including the types and estimated quantities;
- Separate plans of the proposed development that show the location and space allocated to the waste management facilities, along with the nominated waste collection point;
- Identification of the travel path of access to the bin storage area/s by residents and collection staff;
- Identification of the travel and swept paths for on-site collection by a HRV (if applicable);

- Details of ongoing management, storage and collection of waste, including responsibility for cleaning, transfer of bins between storage areas and collection points, implementation and maintenance of signage, and security of storage areas; and
- Where appropriate to the nature of the development, a summary document for tenants and residents to inform them of the building's ongoing waste management arrangements.

The completed WRMP, including drawings submitted by the applicant, will be used in the Council assessment of the waste management systems for the new development.

3. Construction and Demolition

The management of waste from construction and demolition activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.

The WRMP is to detail how this will be achieved and is to be submitted with any new DA (this may include DAs for the change-of-use of a development).

The storage, handling and disposal of any demolition and construction waste must be undertaken in accordance with the requirements of the *Protection of Environment Operations Act 1997* and associated regulations.

The WRMP is to address construction and demolition waste and include:

- Confirmation if the development involves the removal of asbestos, quantities, the licence details of asbestos removalist and the designated disposal site licensed to accept asbestos-related waste;
- Details regarding how all other waste is to be minimised within a development and expected amounts and types of materials to be re-used or left over for removal from the site;
- Details regarding the types of waste and likely quantities of waste to be produced;
- Details of the off-site recycler's primary destination for materials;
- A site plan showing storage areas away from public access for re-usable materials and recyclables during demolition and construction, and the vehicle access to these areas;
- Designation of appropriately licensed facilities (recycling and landfill) to receive the construction and demolition waste. It is recommended the legitimacy and compliance of the facility is checked. The ABN Lookup and Environmental Protection Authority Public Register services can be used;
- Details of the nominated person, responsible for retaining waste dockets from facilities and for ensuring site is clean, tidy and no litter or materials leave or blow off the site; and
- Confirmation that all waste going to landfill is not hazardous.

4. Waste Management Considerations

4.1 General Considerations

It is essential that you have read the components of this Guide that are relevant to your development type in selecting and designing a waste management facilities. It is important that you:

- Ensure all dwellings have internal waste storage
- Have a thorough understanding of the waste generated by your development and the number of bins to be allocated by Council and stored within the development;
- Ensure that the development can be integrated with Council's standard HRV waste service;
- Consider what access is required to the site by collection staff and vehicles to facilitate the safe and efficient waste servicing of the development.

Understanding the waste infrastructure required, such as bin allocation and the size (and dimensions) of bins ensures that the bin storage area for the development can be designed and integrated into the overall design of the development. This will maximise convenience for future residents, as well as ensuring amenity impacts such as visual, noise and odour are minimised.

The nominated collection point must be able to be accessed by collection staff. It is vital that you understand and plan for the access arrangements required. This includes providing adequate vehicular access and manoeuvring for the standard HRV waste collection vehicle where on-site collection is required. There are no exceptions to this arrangement.

4.2 Waste Generation Rates

The following generation rates will need to be used to identify the number of bins needed for the development. Identifying the number of bins and the size of the bins in Table ## and ## will ensure that the waste management facilities designed meet the developments ongoing waste needs. When calculating the number of bins needed, it should be noted that bin allocations are rounded up to the next whole number (for example the calculation of 4.1 bins will be rounded to 5 bins.

Table 1: Weekly Waste Generation Rates per Dwelling

General waste	Recycling	Garden Organics
140L	120L	120L *

* Only applies to multi dwelling housing and residential flat buildings that generate garden organics (e.g. garden prunings and leaves).

4.3 Standard Waste Service

4.3.1 Collection Services

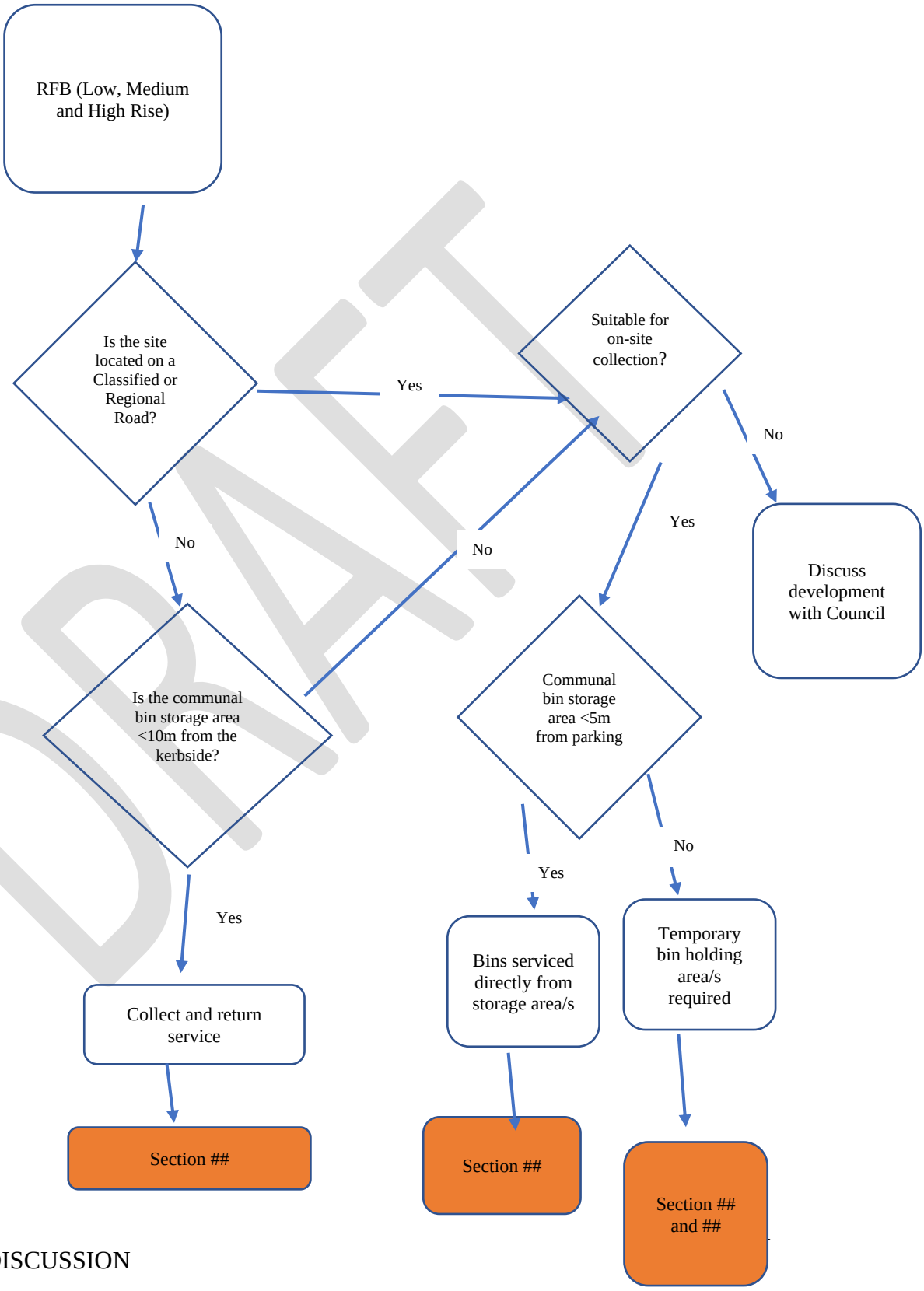
Council offer a range of waste collection services for RFBs:

- Collect and Return: collection staff enter the development to collect bins from a nominated area and return them once emptied;
- On-site collection: collection occurs within a development site's boundary by a HRV as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities, at a nominated area.

The type of service available for your development varies depending on the number of dwellings, on-site conditions, amenity and safety issues, the number of bins requiring collection, the size of the bins and time taken to empty the bins.

To assist in identifying the appropriate collection service for your development, refer to Figure ## and the relevant sections in Guide C.

Figure #: Waste Service identification flowchart based on number of dwellings



4.3.2 Bin Sizes for Residential Developments

An adequate bin storage area is to be provided within the development site to store all allocated bins. The following Tables identify the bin types, sizes and dimensions required for residential developments.

Table #: Bin sizes for developments

Waste Stream		
General waste	Recycling	Garden organics
660L, 1,100L or hook lift bin with compactor	660L or 1,100L	240L (on request)

NOTE:

1. One size of bin for each waste stream is provided for a development.

Table #: Standard bin dimensions

Standard Bin Type	Dimensions (Additional 15cm is to be provided around each bin)		
	Height	Width	Depth
240L Mobile Garbage Bin (MGB)	1,060 mm	580 mm	730 mm
660L Bulk Bin	1,250 mm	1,370 mm	850 mm
1,100L Bulk Bin	1,470 mm	1,370 mm	1,245 mm
Hook Lift / Compactor Bin ($10m^3$-$30m^3$)	2.5m	2.5m	6m

NOTES:

1. It is important to understand the size of bins that will be allocated by Council for your development. Check with Council if you need assistance in identifying the most appropriate bin size/s.
2. An additional 15cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently, and to avoid damage to walls and doors from bins scraping against them.
3. Dimensions are a guide only and may differ depending on the manufacturer.

Insert Image 2 from Bankstown Guide (showing 15cm between bins)

4.3.3 Service Frequency

The service frequencies are provided to assist in calculating the required number and size of bins.

Table #: Standard service frequencies for RFBs

	Service Frequency			
	General Waste	Recycling	Garden Waste	Bulky Waste (Per Calendar Year)
Low Rise	One collection per week	One collection per fortnight	One collection per fortnight **	Developments with six or less dwellings – Two collections *** Developments with more than 6 dwellings but not greater than 50 – four collections *** Developments with more than 50 dwellings – six collections ***
Medium Rise	One collection per week*	One collection per fortnight*	One collection per fortnight **	
High Rise	Two collections per week*	One collection per week	One collection per fortnight	

NOTES:

1. * Frequency of service may be increased for medium to high rise residential flat buildings, only after discussion and recommendation of Council's waste management assessment officers.
2. ** Alternative week to recycling service
3. *** Collection service to be introduced on 1st March 2021

5. Waste Management Facilities

RFB developments are required to provide safe, equitable and convenient waste storage facilities for residents.

Kerbside waste collection is considered unsuitable in RFB developments due to amenity and safety issues, the number of bins requiring collection, the size of the bins and time taken to empty the bins. Collect and return service may be appropriate for low and medium rise developments. High rise developments are to be serviced on-site, either at ground level, basement or via a loading dock and the development will need to accommodate a HRV as per Australian Standard (AS) 2890.2.

It may be suitable for residents to access a communal bin storage area within the basement or ground floor footprint, or a waste chute system may be proposed for high rise developments. Should a waste chute system be proposed it is recommended this be discussed with Council early in the design process.

RFB developments can be separated into three distinct sizes:

- Low rise – two or three storeys;
- Medium rise – four to 10 storeys; and
- High rise – more than ten storeys.

5.1 Internal Waste and Recycling Storage

To ensure each dwelling has the minimum infrastructure to be able to separate out, reuse and/or recycle items, the following internal waste storage and separation facilities are to be provided:

- A waste storage cupboard in the kitchen capable of holding a minimum 40L of waste (approximately two days) and to enable a minimum 20L of recyclable waste to be stored in a separate container and not in plastic bags;
- Suitable space for a 3-5L kitchen caddy to collect food waste from the kitchen. This is to encourage on-site composting and reduction in waste to landfill.
- Suitable space storage space for other recyclable items, such as light globes and batteries in each dwelling.

Insert images showing above

5.2 General Requirements

5.2.1 Low Rise Buildings

This size development generally includes two or three storeys, with four to twelve units. These developments are called walk ups, as they do not have a lift and access to the upper levels is by stairs.

There are two servicing options that are available for this type of development:

1. Collect and return service

For low-rise developments, the following requirements of the collect and return service are to be considered and incorporated into the site planning of the development:

- The use of 660L or 1,110L bulk bins for general waste and recycling.
- All allocated bins are to be stored in a communal area at ground level;
- Bins would be collected directly from the communal bin storage area or temporary collection area (if required).
- A safe and convenient bin-carting route is provided.
- Garden organics bins would be required to be presented to the kerbside by residents or a caretaker/property manager for collection
- Bulky waste is to be presented by residents to the kerbside for collection.

Plans accompanying the development application are to identify the following, with dimensions:

- Communal bin storage area (see Section ##)
- Temporary collection area (if required, see Section ##)
- Bin-carting route (see section ##)

2. On-site servicing

For larger sites or sites with multiple buildings, it may be appropriate to design the development to access Council's on-site waste collection service.

In designing and planning for on-site collection the following is to be considered:

- Communal bin storage area/s, with 660L or 1,1,00L bulk bins for garbage and recycling.
- An HRV collection vehicle is required to enter and exit the site in a forward direction.
- Garden organics bins would be required to be presented to the kerbside for collection by residents or a caretaker/property manager.
- Bulky waste would be collected on-site, from or near the bulky waste storage area.

Requirements for on-site servicing are provided in Section 7.3 of this Guide.

5.2.2 Medium Rise Buildings

Medium high rise residential flat buildings are usually between four and ten storeys high. They will have a lift and possibly a waste chute.

There are three service options and layouts for this type of development:

1. 660L or 1,100L bins for garbage and recycling, with bins stored in a communal area. Residents would be required to carry all waste and recyclable from their unit direct to the communal storage area (maximum distance of 30m). Bins would be collected directly from the communal bin area by collect and return service.

2. Provide a waste storage cupboard on each floor for the waste and recycling MGBs. A caretaker will be required to cart bins to the bin storage area and/ or bin collection area. The caretaker should use a bin lifter to empty the waste into larger 660L or 1,100L bins which are then emptied by Council.

3. Install a waste chute system for general waste leading to a central waste storage area in the basement. The chute can empty into either a bulk bins on a carousel. Recycling cupboards would be located on each floor, next to the chute hopper. A caretaker will be required to cart recycling bins to the bin storage area and/or bin collection area. A bin lifter would be needed to empty the MGB into larger 660L or 1,100L bins, which are then emptied by Council.

In all of the above layouts, if garden organic bins are provided, these would need to be presented to the kerbside for collection by residents or a caretaker/property manager. In addition, separate bulky waste storage area may be required.

5.2.3 High Rise Buildings

In High Rise developments, Council encourages the implementation of innovative and alternate solutions for waste management systems (ie. hook lift systems, on site processing of food waste, reuse on site or promotion of waste reduction and circular economy). Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

There are two potential service options layouts for this type of development. Bins would be collected directly from the communal bin area by collect and return service or if deemed unsuitable by Council, the development must be designed to facilitate on-site collection with a HRV.

1. Provide a waste storage cupboard/room on each floor for three days storage of waste and recycling for the number of dwellings on that floor. A service lift is required for the caretaker will to move the bins to the storage area and/ or bin collection area. The caretaker should use a bin lifter to empty the waste into larger 660L or 1,100L bins, which are then emptied by Council.

2. Install a waste chute system for general waste leading to a central waste storage area in the basement. The chute would empty into a bulk bin on a carousel. There would be a cupboard on each floor for a recycling MGB (stores three days of recycling generated by the number of dwellings on that floor) and chute hoper. A

service lift is required for the caretaker to empty the recycling bins on each floor every three days. A bin lifter is to be used to empty the recycling into bulk bins which are then emptied by Council.

In all of the above layouts, if garden organic bins are provided, these would need to be presented to the kerbside for collection by a caretaker/property manager. In addition, separate bulky waste storage area/s and space for additional recycling storage are required.

5.3 Specific Requirements

5.3.1 Communal bin storage area

A communal bin storage area must be designed so it can be integrated into the overall design of the development and located so it can be accessed conveniently and will not impact on residential amenity in regard to noise, odour and visual impacts.

The bin storage area must be able to accommodate the required number of bins and the volume of waste and recycling expected to be generated between collections. The standard service for RFBs is one or two collections per week. This frequency could be increased for larger developments, only after discussion with Council's waste management assessment officers.

In determining the appropriate location point for the bin storage area, consideration should be given to the following factors:

Size and Layout:

- The development must provide a communal bin storage area that is of sufficient size to accommodate all bins allocated for the development. For medium and high-rise developments, more than one bin storage areas may be required to maximise accessibility for occupants;
- Sufficient space must be provided to ensure adequate room is provided to manoeuvre, clean and maintain all waste and recycling bins for the development (minimum aisle space of 1.5m and 15cm between bins);
- Sufficient space must be provided for any required equipment to manage waste and bins (including washing, cleaning and bin lifting);
- Size must not be excessive, to discourage the dumping of other household waste in the bin storage area;
- The area is free from obstructions and steps, so as not to restrict the movement and servicing of the bins.

Location:

- All residents have easy, safe and convenient access to the waste and recycling facilities (less than 30m from all dwellings);
- Located on the ground floor of low rise developments;
- Located within the ground floor or basement footprint of medium to high rise developments;

- Located where its use and operation will not adversely impact the amenity of occupants in terms of appearance, noise and odour;
- If bins are required to be moved for collection, it is done in a safe and efficient manner in accordance with Work Health and Safety legislation. A bin tug or pull may be needed;
- The area cannot be viewed or easily accessed by the public domain;
- Amenity for residential occupants and adjoining residential properties is protected; and
- Positioned to prevent theft and vandalism and restrict unauthorised access to prevent illegal dumping.

Design:
- A designated room or enclosure, with a roof;
- Must be integrated into the overall design of the development; and
- Screened from public view.

Access:
- Located so access for all intended users is safe and convenient and in accordance with AS 1428 (Set) - 2003: Design for access and mobility
- Any doorways will be at least 2m wide and open outwards;

Construction:
- Floors must be constructed of concrete at least 75mm thick, graded and drained to a Sydney Water approved drainage fitting;
- The floors must be finished to a smooth, even surface;
- The walls must be constructed of solid impervious material;
- A minimum 2.1m unobstructed room height is required in accordance with the Building Code of Australia;
- Ceilings must be finished with a smooth faced non- absorbent material capable of being cleaned;
- Walls, ceiling and floors must be finished in a light colour;
- Is to be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;
- A close-fitting and self-closing door or gate operable from within the room;
- Must be constructed to prevent the entry of birds and vermin; and
- Be provided with adequate light and ventilation. Light source must be through controlled light switches located both outside and inside the room.

See Figure ##: communal bin storage area

For developments planning a waste chute system, further specifications for bin storage areas is provided in section 7.6.

5.3.2 Bin-carting routes

For the collect and return service, the bin carting route from the communal bin storage area to the kerbside collection point, must comply with the following requirements:
- To be direct and less than 10 metres,
- Include a layback at the nominated collection point;

- Minimum 2m wide hard surface;
- Does not pass through any internal walkways, doors or rooms;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Not be within a driveway or carpark, this is considered a conflict point for vehicles and collection staff; and
- Compliant with Work, Health and Safety for collection staff

5.3.3 Temporary Holding Area (Collect and Return)

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area the day before the designated collection day and return them once emptied. The bin carting route from the bin storage area to the temporary holding area is to be:

- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation.

The collection vehicle will stop at the nominated kerbside collection point and will collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for the temporary holding area.

Requirements of the temporary holding area:

- Within 10m from the nominated kerbside collection point
- Doorways a minimum 2m.
- Only temporarily store bins so they can be serviced.
- Be located fully within the development site.
- Be located within the front setback of the development but suitably screened so it is not visible from the public domain.
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5m and 15cm between bins); and
- Be clearly separated from car parking bays, footpaths and landscaped areas.

5.3.4 On-site collection

All developments that are to be serviced on-site, will be required to provide safe vehicle access and designed to enable the HRV collection vehicles to manoeuvre and load all

allocated bins. The development will be required to nominate a loading area, which is within 5m of the bin storage area/s.

A temporary bin holding area will be required if the truck is not able to park within 5m of the bin storage area. The caretaker or property manager will be required to move the bins from the storage area to the temporary holding area (see section ##), ready for collection, and return them when emptied.

Requirements of the nominated loading area:

- Access requirements for a HRV are as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities;
- The collection vehicle loading area is to be nominated on the submitted plans. The loading area is to be within 5 metres of the bin storage or temporary holding area;
- The loading area is to be a separate parking area for the collection vehicle, which is located so as not to impede or restrict other vehicle and pedestrian movements during collection times and minimises impact on residents;
- Include an extra 2m at the rear of the vehicle parking area to allow for staff safety and emptying of bins;

5.3.5 Designing for waste collection vehicle access

The HRV must be able to safely and efficiently access the site and nominated loading area to collect all bins. The development's security measures such as gates and security doors should not prevent vehicle access to the collection point which would result in waste being unable to be collected.

When designing for HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of a HRV as per AS2890.2, and includes adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided below.
- HRV must be able to enter and exit the site in a forward direction. The loading area/collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support a collection vehicle at maximum capacity (approximately 30 tonnes); and
- A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the HRV.

Figure ##: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheel base	Design turning radius	Swept circle	Clearance height	Maximum roadway/ramp grade	Maximum rate of change of grade

12.5	2.5	6.6	12.5	27.8	4.5	1:6.5 (15.4%)	1:16 (6.25%) in 7.0 m of travel

Swept paths for HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- A HRV can park safely within a designated loading area on-site whilst servicing the bins.

Insert Figure ##: Turning path template

5.3.6 Turntable

High-rise and large mixed-use developments can reduce the above vehicle turning circles in Table ## and Figure ##, by using a mechanical turntable (or similar) equipment. Turntables allow safe entry and exit for collection vehicles in a forward direction where space is limited.

A comparison between the area required for a HRV to enter/exit a traditional loading bay and a turntable loading bay arrangement is provided below.

Table ## - Area analysis of two loading bay configurations

Conventional Loading Bay	Figures
Truck Size	12.5
Turntable loading Bay Area (m^2)	219
Conventional loading Bay Area (m^2)	281
Site Area Saving (%)	28%

Extract from Penrith City Council – provided by Boston Planning need to check we can use this.

Any development that is seeking to utilise turntables needs to demonstrate compliance with the required dimensions for a HRV, including the diameter for the turntable and required clearance heights. In addition, the following needs to be addressed:

- The use of the turntable is always to be available to collection vehicles;
- The installation, operation and on-going servicing is to be at no-cost to Council;
- A servicing and maintenance inspection plan are to be prepared before the occupation certificate is issued;
- A contingency plan to be prepared before the occupation certificate is issued and include:
    - The use of a manual system is to be available in case of a breakdown; and
    - Breakdown assistance is to be provided within 4 hours.

5.3.7 Temporary Holding Area (On-Site Collection)

Where developments cannot locate the communal bin storage areas within 5m of the nominated loading area, a temporary holding area must be provided.

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area the day before the designated collection day and return them once emptied. The bin carting route from the bin storage area to the temporary holding area is to be:

- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation.

Council's collection truck will park in the nominated loading area and will collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for the temporary holding area.

Requirements of the temporary holding area:

- Within 5m from the nominated loading area
- Doorways a minimum 2m.
- Only temporarily store bins, so they can be serviced.
- Be located fully within the development site.
- Be located within the front setback of the development but suitably screened so it is not visible from the public domain.
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5m and 15cm between bins);
- Be clearly separated from car parking bays, footpaths and landscaped areas.

5.3.8 Waste Chute Systems

High rise developments should consider providing a waste chute system and consult with Council as part of the pre-lodgement process.

The benefits of a waste chute system are:

- Promotes and encourages recycling through the co-location of general waste and recycling facilities on each floor; and
- Ensures the convenient transfer of waste from different floors of the development without the need for residents to manually cart and carry waste down stairs or lifts.

While there are benefits of introducing a waste chute system there are also significant ongoing costs associated with future operational and maintenance requirements. These systems are likely to require a full-time caretaker due to the frequency of bin rotation required and potential for chutes to become blocked by incorrect use by occupants.

The following requirements apply to waste chute systems installed in developments:

General requirements:

- The waste chute will only be used to transfer garbage and not recycling;
- There will be no mechanical compaction of waste at the base of the chute;
- The bins at the base of the chute must have capacity for at least three days of waste;
- The bins can be mounted on an automatic carousel or liner system for easy rotation and to ensure capacity for three days;
- Waste chute disposal points (hoppers) are to be provided on each residential level of the development. The maximum travel distance from each dwelling to the chute hopper is 30m.
- Access to the chute hopper is to be in accordance with AS 1428 (Set) - 2003: Design for access and mobility;
- The chute is to terminate in the bin storage area and discharge directly into a 660L or 1,100L bin; and
- Signage is to be placed on the chute hopper on every residential level indicating how to use the system effectively.

Construction:

- Chute systems are to be designed so they can be constructed to satisfy manufacturer's requirements and can ensure required 660L or 1,100L bins fit at the base of the system;
- Must be designed and constructed so it can function effectively (gravity fed) and aligns as it passes through each level of the development;
- Designed in accordance with the requirements of the Building Code of Australia including fire rating, noise reduction and ventilation;
- Must be constructed and installed to prevent the transmission of noise and vibration to the structure of the development during its use and operation;
- The chute is to be cylindrical in cross-section and the internal diameter is to be a minimum 500 mm and adequate for material being deposited;
- The hopper doors are to be a minimum 500mm opening, fitted with door closers and have an effective self-sealing system; and
- Must be constructed to alleviate any odour.

Bin storage area:

- Must be located where the chute terminates;
- Must be large enough to fit the allocated number of bins with additional room for manoeuvring bins;
- Where volume-handling equipment (eg. bin lifting equipment) and/or an automatic carousel/liner system are to be installed, the bin storage area must be of adequate size to accommodate all required equipment and to operate it; and
- Resident access to the chute area is to be restricted. Bin storage and chute area may be two separate areas, next to each other.

Insert Figure ##: Waste chute system
Insert Figure ##: Waste chute system – layout of bin storage area

5.3.9 Recycling Cupboards

Developments that propose the use a waste chute system must also plan for recycling cupboards on each residential floor or directly on the corridor adjacent to the chute hopper. The cupboards should have an opening large enough for loose recycling to be placed into the bins behind. To prevent occupants from dumping excess rubbish, the cupboard should be locked, accessible only to the caretaker.

A caretaker will need to rotate recycling bins from the recycling cupboard to the bin storage area/s as a minimum every three days (based on generation rate of number of dwellings on the floor). A bin lifting machine will be needed to empty 240L bins into larger 660L or 1,100L bins for collection. No mechanical compaction will be used during this process.

The following requirements apply to recycling cupboards installed in developments:

General requirements:
- Must be conveniently located for residents on each residential level of the development (maximum distance of 30m);
- Access is to be in accordance with AS 1428 (Set) - 2003: Design for access and mobility; and
- Located directly adjacent to the hopper and contain only recycling bins;
- Must be of adequate size to accommodate one or two recycling bins, which allows for three days of recycling generated by the number of dwellings on that floor;
- Signage is to be placed on the recycling cupboard on every residential level indicating how to use the system effectively;
- A site caretaker will be required to rotate recycling bins from the cupboards to the bin storage area as a minimum every three days; and
- A service lift is required to transfer bins between the recycling cupboards, bin storage area and the collection point.

Construction:
- The cupboard is to be designed so the doors are of sufficient width to allow the transfer/rotation of 240L bins; and
- The cupboard floor is to be constructed of a durable and impervious material with a smooth finish.

See Figure ##: Recycling cupboard and chute hopper design

5.3.10 Bulky waste

Council provides a collection service for bulky household waste, such as whitegoods, mattresses and household furniture. The amount of material accepted per collection is defined in Council's Waste Service Policy.

All dwellings are to have adequate storage within the dwelling or garage to store bulky waste waiting collection.

Medium and high-rise developments are to provide an area within the building footprint for residents to store bulky waste awaiting collection to prevent the illegal dumping of materials on the kerbside or within common areas.

The size of the bulky waste area must be appropriate to the development, with the minimum being:

Number of Units	Minimum Size of Bulky Waste Area (total space)
6 to 20	4 m^2
21 to 30	5m^2
31 to 40	6m^2
41 to 50	7m^2
51 to 60	8m^2
61 to 70	9m^2
71 to 80	10m^2
81 to 90	11m^2
91 to 100	12m^2
More than 101	13 m^2 + 2 m^2 per 50 additional units (or part thereof) above 101 units

The bulky waste storage area is to be separate to the bin storage area/s, however the design is to comply with the requirements detailed in Section 7.3.1 of the Guide. Multiple buildings will require separate areas.

Where on-site collection is required for waste and recycling, on-site collection of bulky waste is also required. Section 7.3.3 and 7.3.4 of the Guide are required to be complied with.

5.3.11 Additional Recycling Storage

Large developments with more than 75 dwellings will receive additional recycling services to increase recovery of material and to prevent the illegal dumping of materials on the kerbside or in common areas. Separate additional recycling storage area/s are to be provided for residents to store additional household items, such as clothing, mattresses, polystyrene, cardboard and electronic waste.

The minimum area required is 9m^2 and the area is to be designed to comply with the requirements detailed in Section 7.3.1 of the Guide.

The area/s must be separate to the bin storage area or room(s) and the bulky waste storage area.

The area/s must not be visible from any street frontage.

Where there are multiple buildings, separate areas must be provided.

On-site collection of additional recycling materials is required where waste and recycling bins are collected on-site. Section 7.3.3 and 7.3.4 of the Guide are required to be complied with.

5.3.12 Organic Waste

Approximately 40% of a residential garbage bin is food waste. By composting or worm farming food scraps and garden cuttings, residents can reduce their waste.

Space must be provided for composting and worm farming. The area is to be an unpaved earth surface, in a communal area that is managed by the development.

This space is to be shown on the site plans.

5.4 Design for ongoing use

Considering the ongoing management of waste systems in medium and high rise RFBs is an important consideration at the design stage to ensure amenity of residents is maintained and caretaker and collection staff is assured.

Selection of the waste management system including the ongoing role and responsibilities of the caretaker can also impact on the future operational costs of the development, which will be passed onto residents.

It is important for both the designer and developer to identify, establish and communicate responsibilities of both residents and caretakers to ensure effective management of waste at the operational stage of the development.

Council recommends an active caretaker be employed for medium to high rise RFB developments to ensure effective and efficient ongoing waste management. A site caretaker or manager will be required to:

- Maintain and clean all bin storage areas and recycling cupboards;
- Cleaning and maintenance schedules for all waste equipment;
- Maintain and clean temporary holding areas (if applicable);
- Clean and wash all bins;
- Manage all bin transfers and rotations;

- Ensure waste chute system and associated waste service equipment functions effectively and in accordance with manufacturer's specifications;
- Manage bulky waste and additional recycling storage areas and arrange appropriate collections;
- Ensure the loading bay is kept clear of parked cars;
- Ensure the turntable and related devices are maintained in effective and efficient working order;
- Providing training to collection staff in the use of the turntable when requested;
- Manage the communal composting area;
- Arranging the prompt removal of dumped rubbish;
- Ensuring the recycling bins are free of contamination (which included but not limited to garbage, plastic bags, clothing, polystyrene etc);
- Ensuring there is suitable signage for each bin hopper and recycling cupboard on each floor and bin storage room. Council can assist with signage;
- Ensuring all residents are informed and kept up to date in the use of the waste management system; and
- Checking the number of bins and reporting any damages to Council.

The site caretaker is to undertake the above actions as a minimum twice per week for enough hours to enable the waste management system to operate to a satisfactory standard.

5.5 High-capacity collection systems

In large developments of more than 400 apartments, larger capacity bins with or without static compactors may be considered. Council must be consulted as part of the pre-lodgement process if a high capacity collection system is being considered.

Generally known as 'hook-lift' bins, these systems come in a range of sizes with up to 40m^3 capacity which, when combined with a 3:1 compaction ratio, can hold up to 90m^3 of waste. This means that the frequency of collection can be significantly reduced, depending on the quantities.

Hook-lift bins require waste collection vehicles to reverse directly onto them, so the building will require enough turning and manoeuvring space for HRV collection vehicles, and additional height. Access for these kinds of vehicles should be modelled using turning circle software during the design stage.

5.6 Inspections by Council

At completion of basement level, an authorised Council waste officer is to inspect the development, or an engineer certificate is to be submitted to certify that the waste management facilities comply with the Development Approval and WRMP. Specifically, the

path of travel for the HRV, size of waste storage areas, access to water and sewer connections, finished materials, pathway and door way dimensions, and that all waste facilities are fit for purpose.

Prior to the issuing of the Occupational Certificate and delivery of bins, an authorised Council waste officer is to inspect that the communal bin storage area and bin-carting route have been constructed in accordance with the approved plans and to confirm the development can be serviced by Council.

Conditions of consent will be imposed requiring these inspections be undertaken. Contact Council on 9707 9000 to arrange these inspections.

5.7 Deed of agreement and indemnity

Where collection staff or vehicles are required to enter private property to perform the service, Council will require an unimpeded easement for access to undertake on-site or collect and return service. The development is also required to indemnify Council or its Contractors against claims for wear and tear of access roads or other parts of the building.

A condition of consent will be imposed requiring an Indemnity Agreement to be entered into prior to the issue of the Occupation Certificate and delivery of bins.

6. Advanced Waste Collection Systems

Precinct developments or developments on a large site with multiple buildings are encouraged by Council to implement innovative and alternate solutions for waste management systems (ie. hook lift systems, on site processing of food waste, reuse on site or promotion of waste reduction and circular economy). Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

Advanced waste collection systems which could be considered include automated waste collection systems and alternative bin or container systems.

6.1 Automated waste collection systems

Automated waste collection is an integrated network of underground pipes and chute inlets that transport both waste and recycling directly from residential or commercial buildings to a centralised collection point using a vacuum transport. These systems can collect all waste and recycling from an area up to 2.5 kilometres from the central station.

The use of automated waste collection is widespread internationally. Some systems have operated continuously for 50 years. Over 100 cities around the world operate at least one area with automated collection systems, and over one million households are currently connected to an automated waste collection system.

Automated waste is most effectively installed if included at the design stage for new developments. This allows for optimum conveyance pipe layout across the precinct and the incorporation of waste and recycling chutes in multiple buildings integrated with the system.

Developers interested in installing these systems within a new development should contact Council waste and planning staff at the earliest stage possible. The key requirements for bins, collection points, access and waste collection for service rooms referred to in this Guide may be open to amendment if an automated waste collection system is considered.

Benefits of automated waste collection include:

- Improved amenity for residents and businesses (reduced odour, noise, spillage and vermin)
- Reduced need for space allocated to waste handling and waste storage in buildings and costs
- Less need for waste management equipment, such as waste chutes, compactors and bins
- Reduced or eliminated vehicle collection and access at individual buildings, as waste collection would be at a central location (on site or off, away from residential buildings)
- Lower wage, fuel and vehicle costs, decreased carbon dioxide emissions, noise and traffic congestion from having fewer waste collection vehicle movements.

Requirements:

If an automated waste collection system is included in a DA, the following requirements will need to be taken into account:

- The ventilation, air intake and air outlet units will need to be located to minimise nuisance to neighbouring premises
- The waste and recycling storage capacity within a building shall be at least one day's waste or recycling output of the building
- Waste and recycling collection points and storage stations shall be accessible to Council's collection vehicles, and be located to minimise nuisance to neighbouring premises
- Space for bulky and additional recycling storage will still be required
- Adequate measures shall be taken to minimise noise resulting from the operation of the system
- Adequate measures shall be provided to remove dust and smell from the air used for waste conveyance before it is discharged into the atmosphere. The discharge point shall be located away from neighbouring premises

6.2 Underground bins

Underground bins involve installing large collection containers below ground level. The general user does not see the container but simply a small portion of the container or a small bin above ground.

Underground bins are available in a range of sizes including over 5,000 litres.

Underground bins have the following advantages:

- They allow for large waste storage capacity;
- They can be configured for different waste streams (recycling, general waste, organics);
- They have a small above-ground footprint;
- Waste stored underground improves amenity by reducing odour and vermin;
- Less collections mean fewer waste collection truck movements in residential streets;
- They can make waste collection easier where space for bin storage is restricted.
- Access can be restricted using a key control panel.

Other considerations:

- To service underground bins, power to operate the hydraulic lift must be supplied from onsite mains or from the waste collection vehicle.
- Heavy vehicle access and safe servicing of bins are key issues when deciding on suitable location of underground bin systems.

7. Treatment and Management of Food Waste

Approximately 40% of the average residential bin if food waste and when composted or treated on-site, can greatly reduce the amount of waste sent to landfill and create a nutrient rich fertilizer.

Council supports and encourages a reduction in food waste to landfill. Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

The viability of the systems that treat and manage food waste and whether they may be suitable for any particular development depends on such factors as:

- Size of the development, number of households and quantities of food waste generated
- Whether the development includes retailers and commercial premises and quantities and types of food waste generated
- Availability of trained people to manage and operate systems
- Availability of suitable space
- Ability to source separate food waste
- Availability and cost of food or food and garden collection services to offsite organic processors
- Ongoing operation and maintenance requirements of the selected onsite system.

7.1 Composting

Compost bins are a way of processing food waste and garden organic material on-site. This not only reduces the volume of waste but also creates a nutrient fertilizer (compost).

Compost bins are more versatile than worm farms, as they can process a wider range of materials including garden organics and citrus. Well managed bins can also process meat. Compost bins are best placed in the sun.

There are a variety of compost bin arrangements and systems that are commercially available.

7.2 Worm Farms

Worm farms are an effective method of managing food waste, with an output of vermicast (worm compost) and vermiliquid (liquid extract from the worm farm) that can be used in gardens. Seafood, meat or bones, dairy products, garlic, onion and citrus should not be placed in worm farms.

Worm farms need to be placed in a shaded position and can occupy a small footprint on balconies or in gardens.

7.3 Macerators

Macerators are grinders that reduce the volume of food waste by turning solid food waste into pulp slurry. This is pumped to a holding tank and collected by a licensed contractor and taken to a licensed treatment facility (eg. anaerobic digester or commercial composter).

7.4 Dehydraters

These systems reduce the volume of food waste by removing most of the water it holds, by heating and agitating the food waste over 24 hours. This can occur with or without the addition of bacterial starter cultures. They do not produce compost but only dehydrate waste. These containers need a sewer connection to dispose of the waste water and/or a filter for the vapours vented to the air. This may require additional Council approval. The outputs from these containers can be sent to a lawful facility such as a commercial composting facility.

The organic matter captured from these containers cannot be directly applied to land without an environment protection licence or a Resource Recovery Order and Resource Recovery Exemption.

7.5 Anaerobic digester

On-site anaerobic digesters use bacteria to break down food waste in an oxygen-free environment. The resulting biogas that is produced during this process can be used as an on-site energy source.

Although anaerobic digester technology isn't new, an on-site closed loop system to treat a building's food waste is a relatively new development in Australia. Some trials are currently underway across the country and viable systems will become more commonplace in the future.

8. Glossary of Terms

8.1 Development Types

Type	Definition	Commonly Known As
Residential Flat Building	means a building containing three or more dwellings, but does not include an attached dwelling or multi dwelling housing • Low Rise – two or three storeys; • Medium Rise – four to 10 storeys; and • High Rise – more than ten storeys.	Flats, apartments, Units, Boarding house

8.2 Key terms

Term	Definition
Bin-carting route	Travel route for transferring bins from bin storage area to nominated collection point. Usually undertaken by a caretaker. Distance allowed will vary depending on bin size.
Bin storage area	Area which stores allocated bins for the development. Can be a nominated area for individual or communal bin storage area. Some developments may have several bin storage areas.
Boarding House	A place of shared accommodation that provides accommodation to a boarder for a fee.
Bulk bins	Large bins which have four swivel wheels so can be moved in any direction**.** Usually greater than 660L bins.
Bulky waste	Large household items such as furniture, white goods and mattresses.
Collect and return service	Service for smaller MDH or RFB where council (or its contractors) access the bin storage area or temporary bin holding area and cart bins to the kerbside to be serviced. Bins are then returned to the bin storage area (or temporary holding area). The collection vehicle needs a safe parking spot on the kerb.
Communal bin storage area	Bin storage area(s) which stores allocated bins for the entire development and can be accessed by all residents and occupants.
Designated, State and Regional Roads	Specific roads in these categories are listed in the Council's DCP's.

Indemnity or Positive covenant or Section 88B certificate	A legal agreement ensuring that a party providing services to a particular property will not be held responsible for any loss or damage to such property as a result of the routine provision of the service.
In-Unit separation of waste, recycling and compost	This means the separate recycling and garbage (2x 20L) bins for the dwelling's kitchen. This is where the residents dispose / store the waste and recycling before taking it to the larger communal bins. There should also be sufficient space for a kitchen caddy to store food waste within the kitchen.
Kerbside collection	All allocated bins are presented kerbside by individual residents for collection by council's waste collection staff or contractor.
Layback	The section of kerb that has been removed and replaced in concrete to allow easier access to the kerbside. Also known as a gutter crossing.
Main Road	A high-capacity urban road that has been defined as a Classified or Regional Road.
Mobile garbage bins (MGB's)	Small bins which have two wheels so can only be moved forwards and backwards (not sideways).
Nominated collection point	The nominated point where waste and recycling are collected from by the service vehicle.
On-site collection	Collection occurs within the development site's boundary in a nominated collecting area.
Residential Level	Every level on which there is a dwelling.
Recycling cupboard	The cupboard(s) on each residential level that house the necessary number of recycling bins adjacent to the waste chute hopper.
Route of travel	The travel path for the waste collection vehicle when entering the site to access the nominated collection point and leaving the site after the waste has been collected.

Source Separation	The separation, by residents, of different recyclable items into separate bins or cages.
Temporary bin holding area	Area where bins are transferred to be temporarily stored for collection. Bins are required to be transferred back to the bin storage area as soon as possible after collection occurs. This bin transfer is undertaken by a caretaker.
Vehicular Crossing	The concrete vehicular crossing providing access across the Council controlled nature strip, consisting of a crossing and a layback.
Volume handing equipment	Equipment to automatically change the bin under the chute when it is full. The chute service room must be of adequate size to accommodate this equipment. Resident access to this equipment must be excluded. The bins on the volume handling equipment will not be services and are in addition to the total bin calculations on generation rates.
Waste chute system	Ventilated, vertical pipes passing through each floor of a residential flat building with access on each floor. Chutes discharge into bins at the lowest point in the waste room.

DRAFT - Waste Design for New Developments – Guide D:

- **Boarding Houses**

Contents

1. Introduction

1.1 Applicable Development Type

The Waste Design Guide for New Developments (Guide D) applies to Boarding Houses.

Boarding houses provide a form of low cost rental accommodation for a wide range of tenants including singles, retirees, students and young couples. A boarding house does not include backpackers' accommodation, group homes, serviced apartments, seniors housing, hotel or motel accommodation.

The term boarding house as used in *State Environmental Planning Policy (Affordable Rental Housing) 2009* relates to a building that:

- Is wholly or partly let in lodgings;
- Provides lodgers with a principal place of residence for three months or more;
- May have shared facilities, such as a communal living room, bathroom, kitchen or laundry; and
- Has rooms, some or all of which may have private kitchen and bathroom facilities, that accommodate one or two lodgers.

Boarding houses vary in size and number of rooms. There are two main types of boarding houses:

- A 'traditional' boarding house is where facilities are shared, such as a communal kitchen and amenities; and
- 'New generation' boarding houses have self-contained rooms, with a kitchenette and ensuite facilities (toilet, shower and wash basin) for the exclusive use of lodgers of that room.

All boarding houses must have communal living areas and comply with maximum room sizes so as not to be residential flat buildings.

1.2 Objectives of the Guide

The City of Canterbury Bankstown (CBCity) aims to integrate waste management into the design fabric of urban planning to support effective collection and management of waste as an essential service. This includes identifying sustainable waste outcomes in all developments that are safe and efficient, reduction in waste generation, increase recycling and resource recovery and contribute to the built form and liveability of the community.

It is important that waste management systems are not overlooked in the design process. There is a need for adequate consideration of waste management requirements early in the site planning and design stage of the development. Poor site planning and design decisions can have significant impacts on the ongoing operation of the development at occupancy stage and can impact how efficiently the building can be serviced.

Considering waste management requirements early in the design stage of the development and site planning process also ensures costly and timely delays are avoided during the assessment process.

Guide D is a valuable resource to improve the design and functionality of waste management systems within all new developments.

Guide D has been prepared to assist you to achieve the following objectives and comply with Council's planning controls:

1. To facilitate sustainable waste management within the City of Canterbury Bankstown in accordance with the principles of Ecologically Sustainable Development and a Circular Economy.
2. To assist in achieving Federal and State Government waste minimisation targets as set out in the Waste Avoidance and Resource Recovery Act 2001 and NSW Waste Avoidance and Resource Recovery Strategy 2014-2021.
3. Waste management systems are safe, efficient and cost effective, maximise recycling and resource recovery and contribute to the built form and liveability of the community.
4. To ensure that waste management systems are designed and managed to minimise impacts on residential amenity, health and the public realm.
5. To ensure that waste storage and collection facilities are considered early in the design process and integrated into the overall site planning and design of the development.
6. To ensure bin storage and collection facilities are designed so that they can be integrated with and comply with the requirements for council's domestic waste services now and into the future.

In addition, the design and ongoing management of waste management facilities encourage residents to use the facilities and waste services appropriately. This includes greater participation in waste stream separation, a reduction in waste generation, increased resource recovery and minimal contamination of recyclables and organics. It can also significantly reduce the likelihood of illegal dumping.

1.3 Waste Reduction and Resource Recovery Targets

In 2019, CBCity sent 68% of its waste to landfill, with 32% diverted from landfill through recycling and composting. The waste generated per residents was 214kg.

CBCity currently has an estimated population of 382,000 and is growing quickly, with the population expected to reach 500,000 in 2036. The waste management service provided by Council needs to continue to keep up with this growth. Also, with the decreasing availability of landfill space in Greater Sydney, reducing waste to landfill through resource recovery is essential.

By 2036, Council's targets for waste reduction and resource recovery are:

- Divert 80% of waste from landfill
- 200kg waste generation per person per year

To help Council achieve these targets, all developments are required to achieve best practise in the design, construction and maintenance of waste services and infrastructure. This will ensure that garbage, recycling, organic and bulky waste produced on site are reduced in the best possible way to improve resource recovery along with increasing the amenity, ease of use, environmental performance and ultimately the reputation of developments with well managed waste facilities.

Council is looking for and will support developments with innovative new ideas and technologies to reduce or treat waste on-site.

2. Waste Management and the Development Application Process

Waste management must be considered at the earliest stage of design and all planning stages for the development.

Consideration of waste management at an early stage will ensure appropriate waste facilities are provided to meet the needs of the community and the development. In addition, early planning will ensure costly design amendments are not required at a later stage, reducing delays in the assessment process.

Guide D is to be read in conjunction with Council's Planning and Building Application Lodgement Guide and should be used when developing a Waste and Recycling Management Plan.

2.1 Waste and Recycling Management Plan

A Waste and Recycling Management Plan (WRMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the CBCity Development Control Plan.

The WRMP is an important planning document that will not only be utilised as part of the development application process, but during construction and for the ongoing use of the development. Conditions of consent will be used to enforce the commitments contained within the WRMP, including the requirement that the ongoing management section of the WRMP is included in the by-laws of strata properties. This will ensure that all relevant parties (ie. residents, property managers) are aware of the WRMP and that it will continue to apply as a working reference for the life of the building and community living there.

Council has a template WRMP to support all Development Applications which addresses the demolition, construction and ongoing operation of the development. It is mandatory to use Council's template.

The WRMP is to provide the following:

- Details of the handling of construction, demolition and ongoing waste streams of the development, including the types and estimated quantities;
- Separate plans of the proposed development that show the location and space allocated to the waste management facilities, along with the nominated waste collection point;
- Identification of the travel path of access to the bin storage area/s by residents and collection staff;
- Identification of the travel and swept paths for on-site collection by a HRV (if applicable);

- Details of ongoing management, storage and collection of waste, including responsibility for cleaning, transfer of bins between storage areas and collection points, implementation and maintenance of signage, and security of storage areas; and
- Where appropriate to the nature of the development, a summary document for tenants and residents to inform them of the building's ongoing waste management arrangements.

The completed WRMP, including drawings submitted by the applicant, will be used in the Council assessment of the waste management systems for the new development.

3. Construction and Demolition

The management of waste from construction and demolition activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.

The WRMP is to detail how this will be achieved and is to be submitted with any new DA (this may include DAs for the change-of-use of a development).

The storage, handling and disposal of any demolition and construction waste must be undertaken in accordance with the requirements of the *Protection of Environment Operations Act 1997* and associated regulations.

The WRMP is to address construction and demolition waste and include:

- Confirmation if the development involves the removal of asbestos, quantities, the licence details of asbestos removalist and the designated disposal site licensed to accept asbestos-related waste;
- Details regarding how all other waste is to be minimised within a development and expected amounts and types of materials to be re-used or left over for removal from the site;
- Details regarding the types of waste and likely quantities of waste to be produced;
- Details of the off-site recycler's primary destination for materials;
- A site plan showing storage areas away from public access for re-usable materials and recyclables during demolition and construction, and the vehicle access to these areas;
- Designation of appropriately licensed facilities (recycling and landfill) to receive the construction and demolition waste. It is recommended the legitimacy and compliance of the facility is checked. The ABN Lookup and Environmental Protection Authority Public Register services can be used;
- Details of the nominated person, responsible for retaining waste dockets from facilities and for ensuring site is clean, tidy and no litter or materials leave or blow off the site; and
- Confirmation that all waste going to landfill is not hazardous.

4. Waste Management Considerations

4.1 General Considerations

It is essential that you have read the components of this Guide in selecting and designing waste management facilities. It is important that you:

- Ensure all rooms have internal waste storage
- Have a thorough understanding of the waste generated and the number of bins needed to be stored;
- Consider what access is required to the site by collection staff and vehicles to facilitate the safe and efficient waste servicing of the development.

It is also recommended you consult with private waste contractors to confirm collection requirements, bin types available (including sizes and dimensions) as well as their access requirements. Understanding the all requirements, such as bin allocation and the size (and dimensions) of bins ensures that the bin storage area for the development can be designed and integrated into the overall design of the development. This will maximise convenience for future residents, as well as ensuring amenity impacts such as visual, noise and odour are minimised.

The nominated collection point must be able to be accessed by collection staff. It is vital that you understand and plan for the access arrangements required. This includes providing adequate vehicular access and manoeuvring for the standard HRV waste collection vehicle where on-site collection is required. There are no exceptions to this arrangement.

4.2 Waste Generation Rates

The following generation rates will need to be used to identify the number of bins needed for the development. Identifying the number of bins and the size of the bins in Table ## and ## will ensure that the waste management facilities designed meet the developments ongoing waste needs. When calculating the number of bins needed, it should be noted that bin allocations are rounded up to the next whole number (for example the calculation of 4.4 bins will be rounded to 5 bins.

Table ##: Weekly Waste Generation Rates per Room

Type of Boarding House	General waste	Recycling
Traditional	60L	30L
New Generation	100L	90L

If contaminated sharps are generated, non-reusable sharps containers shall be provided in accordance with relevant Australian Standards for disposal. Final disposal must be undertaken by licensed contaminated waste contractors.

4.3 Standard Waste Service

4.3.1 Collection Services

Boarding Houses are categorised as commercial and are to be serviced by a private waste collection contractor. During the design stage, it is recommended you consult with waste contractors to confirm collection requirements, bin types available (including sizes and dimensions), their access requirements and collection frequency. Collection frequency can influence the size of bin storage areas for your development

However, under of the *Local Government Act 1993* (Chapter 15, Part 3, Section 516), a Boarding House can be considered residential if it meets the following criteria:

1. Each room tariff charged does not exceed the maximum tariff for Boarding Houses or lodging houses set by the Office of Local Government NSW; and
2. There are at least 3 tariff-paying occupants who have resided there for the last 3 consecutive months, or any period totalling 3 months during the last year.

If a Boarding House is categorized as residential, the collection service must be provided by Council.

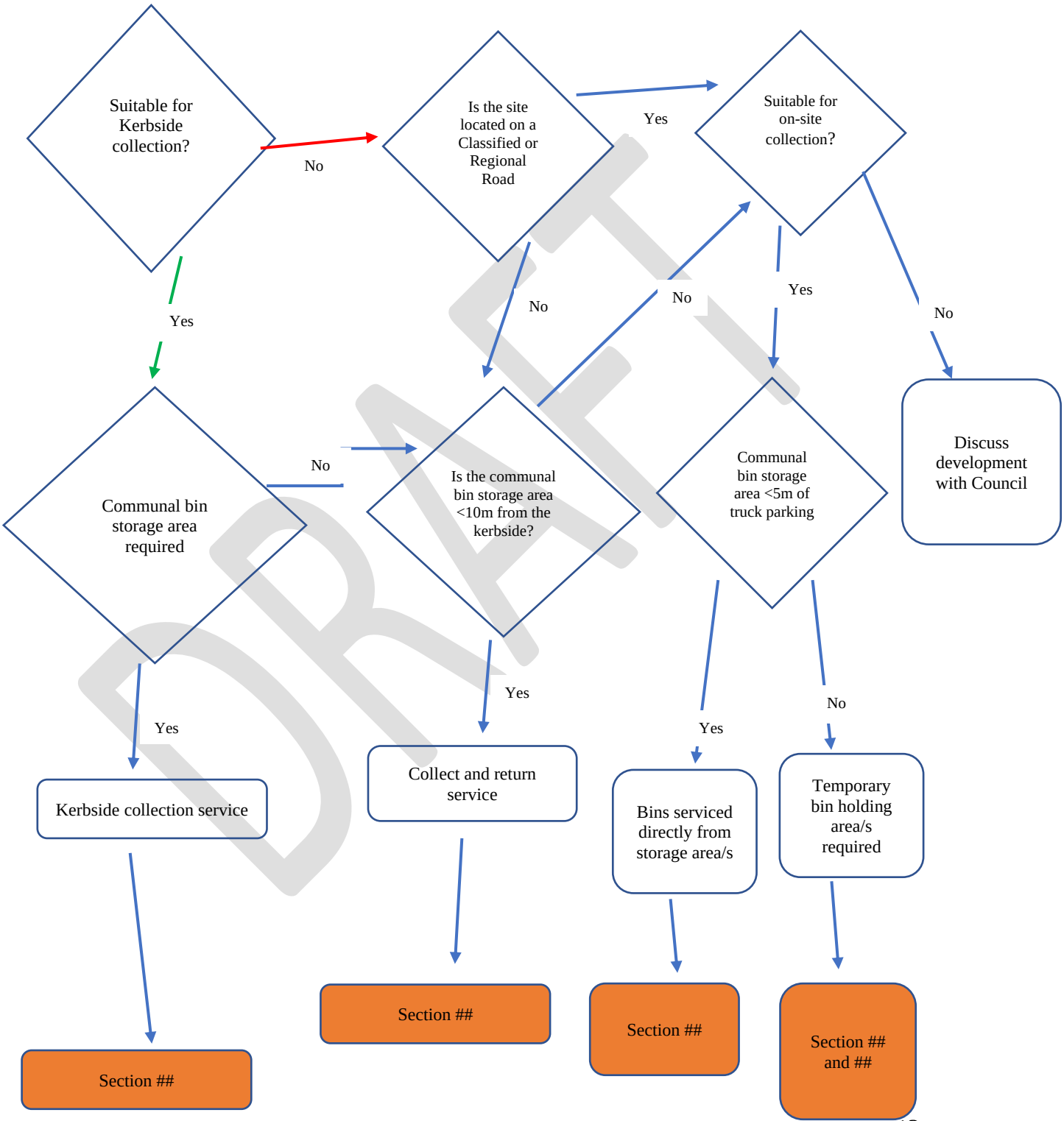
There are three servicing options that are available for this type of development:

- Kerbside collection: general waste and co-mingled recycling are collected from the kerbside;
- Collect and Return: collection staff enter the development to collect bins from a nominated area and return them once emptied;
- On-site collection: collection occurs within a development site's boundary by a HRV as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities, at a nominated area.

The type of service available for your development varies depending on the number of rooms, on-site conditions, amenity and safety issues, the number of bins requiring collection, the size of the bins and time taken to empty the bins.

To assist in identifying the appropriate collection service for your development, refer to Figure ## and the relevant sections in this Guide.

Figure 1: Waste Service identification flowchart based on development type and number of dwellings



Further details and requirements regarding collection points are provided later in this Guide.

4.3.2 Bin Sizes

An adequate bin storage area is to be provided within the development site to store all allocated bins. Depending on the nature and density of the development, individual or communal bin storage areas may be provided.

The following Tables identify the bin types, sizes and dimensions required for residential developments.

Table #: Bin sizes for developments

Waste Stream	
General waste	Recycling
140L, 240L, 660L or 1,100L	240L, 660L or 1,100L

NOTE:

1. One size of bin for each waste stream is provided for a development.

Table #: Standard bin dimensions

Standard Bin Type	Dimensions (Additional 15cm is to be provided around each bin)		
	Height	Width	Depth
140L Mobile Garbage Bin (MGB)	930 mm	530 mm	610 mm
240L Mobile Garbage Bin (MGB)	1,060 mm	580 mm	730 mm
660L Bulk Bin	1,250 mm	1,370 mm	850 mm
1,100L Bulk Bin	1,470 mm	1,370 mm	1,245 mm

NOTES:

1. It is important to understand the size of bins that will be allocated by Council for your development. Check with Council if you need assistance in identifying the most appropriate bin size/s.
2. An additional 15cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently, and to avoid damage to walls and doors from bins scraping against them.
3. Dimensions are a guide only and may differ depending on the manufacturer.

Insert Image 2 from Bankstown Guide (showing 15cm between bins)

4.3.3 Service Frequency

The service frequencies are provided to assist in calculating the required number and size of bins.

Table #: Standard service frequencies

General Waste	Recycling
One collection per week*****	One collection per fortnight*****

NOTES:

1. * Frequency of service may be increased, only after discussion and recommendation of Council's waste management assessment officers.

Details and requirements regarding bin storage areas are provided in this Guide.

5. Waste Management Facilities

5.1 Internal Waste and Recycling Storage

To ensure each room has the minimum infrastructure to be able to separate out, reuse and/or recycle items, the following internal waste storage and separation facilities are to be provided:

- A waste storage cupboard capable of holding a minimum 20L of waste (approximately two days) and to enable a minimum 10L of recyclable waste to be stored in a separate container and not in plastic bags; and
- Suitable space storage space for other recyclable items, such as light globes and batteries in each dwelling.

5.2 Collection Options

5.2.1 Option 1 – Kerbside Collection

In order to utilise the kerbside collection service, the following requirements need to be satisfied:

- Present all allocated bins (140 Land 240L only) in single file with a 30cm gap between bins;
- Ensure all allocated bins are placed within the site's allocated frontage, not in the driveway, and not in front of neighbouring lots;
- Have a separation distance of 2m from driveways, street trees, bus stops, street furniture, intersections and road infrastructure such as round-a-bouts and speed humps; and
- Have a height clearance of 4.2m from overhanging tree branches, powerlines and other obstructions.

5.2.2 Option 2 - Collect and Return Service

To ensure the development can access the collect and return service, the communal bin storage area is to be located within 10 metres of the nominated kerbside collection point. This service will allow collection staff to collect all allocated bins from the bin storage area and return the bins immediately once the service is completed.

The communal bin storage area and bin-carting route are to be identified on plans accompanying the Development Application.

5.2.3 Option 3 - On-Site

For larger boarding house developments, on-site collection service may be more appropriate. This is dependant on:

- Number of rooms and storeys;
- Maintaining streetscape and amenity;
- Traffic flow and parking;
- Pedestrian safety; and
- Work, Health and Safety for collection staff.

The development will also need to be designed to ensure a standard HRV collection vehicle is able to enter the property and collect bins from a designated loading area or directly from the communal bin storage area.

The vehicle is required to enter and exit the development in a forward direction.

5.3 Specific Requirements

5.3.1 Communal bin storage area

A communal bin storage area must be designed so it can be integrated into the overall design of the development and located so it can be accessed conveniently and will not impact on amenity in regard to noise, odour and visual impacts.

The bin storage area must be able to accommodate the required number of bins and the volume of waste and recycling expected to be generated between collections.

In determining the appropriate location point for the bin storage area, consideration should be given to the following factors:

Size and Layout:

- The development must provide a communal bin storage area that is of sufficient size to accommodate all bins allocated for the development. For medium and high-rise developments, more than one bin storage areas may be required to maximise accessibility for occupants;
- Sufficient space must be provided to ensure adequate room is provided to manoeuvre, clean and maintain all waste and recycling bins for the development (minimum aisle space of 1.5m and 15cm between bins);
- Sufficient space must be provided for any required equipment to manage waste and bins (including washing, cleaning and bin lifting);
- Size must not be excessive, to discourage the dumping of other household waste in the bin storage area;
- The area is free from obstructions and steps, so as not to restrict the movement and servicing of the bins.

Location:

- All residents have easy, safe and convenient access to the waste and recycling facilities (less than 30m from all dwellings);

- Located within the ground floor;
- Located where its use and operation will not adversely impact the amenity of occupants in terms of appearance, noise and odour;
- If bins are required to be moved for collection, it is done in a safe and efficient manner in accordance with Work Health and Safety legislation. A bin tug or pull may be needed;
- The area cannot be viewed or easily accessed by the public domain;
- Amenity for residential occupants and adjoining residential properties is protected; and
- Positioned to prevent theft and vandalism and restrict unauthorised access to prevent illegal dumping.

Design:
- A designated room or enclosure, with a roof;
- Must be integrated into the overall design of the development; and
- Screened from public view.

Access:
- Located so access for all intended users is safe and convenient and in accordance with AS 1428 (Set) - 2003: Design for access and mobility
- Any doorways will be at least 2m wide and open outwards;

Construction:
- Floors must be constructed of concrete at least 75mm thick, graded and drained to a Sydney Water approved drainage fitting;
- The floors must be finished to a smooth, even surface;
- The walls must be constructed of solid impervious material;
- A minimum 2.1m unobstructed room height is required in accordance with the Building Code of Australia;
- Ceilings must be finished with a smooth faced non- absorbent material capable of being cleaned;
- Walls, ceiling and floors must be finished in a light colour;
- Is to be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;
- A close-fitting and self-closing door or gate operable from within the room;
- Must be constructed to prevent the entry of birds and vermin; and
- Be provided with adequate light and ventilation. Light source must be through controlled light switches located both outside and inside the room.

See Figure ##: communal bin storage area

5.3.2 Bin-carting routes

For the collect and return service, the bin carting route from the communal bin storage area to the kerbside collection point, must comply with the following requirements:

- To be direct and less than 10 metres,
- Include a layback at the nominated collection point;
- Minimum 2m wide hard surface;
- Does not pass through any internal walkways, doors or rooms;

- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Not be within a driveway or carpark, this is considered a conflict point for vehicles and collection staff; and
- Compliant with Work, Health and Safety for collection staff

5.3.3 Bulky Waste

An area must be provided within the building footprint to store bulky waste awaiting collection and to prevent the illegal dumping of materials on the kerbside or within common areas.

The size of the bulky waste area must be appropriate to the development, with the minimum being:

Number of Rooms	Minimum Size of Bulky Waste Area (total space)
Less than 6	4m^2
6 to 20	5 m^2
21 to 30	6m^2
31 to 40	7m^2
41 to 50	8m^2
51 to 60	9m^2
61 to 70	10m^2
71 to 80	11m^2
81 to 90	12m^2
91 to 100	13m^2
More than 101	14 m^2 + 2 m^2 per 50 additional units (or part thereof) above 101 units

The bulky waste storage area must be:

- Accessible for residents in accordance with AS 1428 (Set) - 2003: Design for access and mobility;
- A lockable room or caged area, that is separate to the bin storage area/s;
- Is unable to be accessed by non-residents;
- Have a minimum doorway width of 2m to allow for easy movement of large household items;
- Be located at ground level (screened from the street) or in the basement. If located in the basement, the items must be moved to ground level for collection or collection vehicle is to park within 2m; and
- Multiple buildings will require separate areas.

It is important to consider during your planning phase the location the materials will be placed for collection.

Where on site collection is required for waste and recycling, bulky waste must also be collected onsite.

5.3.4 On-site collection

All developments that are to be serviced on-site, will be required to provide safe vehicle access and designed to enable the HRV (Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities) collection vehicles to manoeuvre and load all allocated bins. The development will be required to nominate a loading area, which is within 5m of the bin storage area/s.

A temporary bin holding area will be required if the truck is not able to park within 5m of the bin storage area. The caretaker or property manager will be required to move the bins from the storage area to the temporary holding area (see section ##), ready for collection, and return them when emptied.

Requirements of the nominated loading area:

- Access requirements for a HRV are as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities;
- The collection vehicle loading area is to be nominated on the submitted plans. The loading area is to be within 5 metres of the bin storage or temporary holding area;
- The loading area is to be a separate parking area for the collection vehicle, which is located so as not to impede or restrict other vehicle and pedestrian movements during collection times and minimises impact on residents;
- Include an extra 2m at the rear of the vehicle parking area to allow for staff safety and emptying of bins;

5.3.5 Designing for waste collection vehicle access

The HRV must be able to safely and efficiently access the site and nominated loading area to collect all bins. The development's security measures such as gates and security doors should not prevent vehicle access to the collection point which would result in waste being unable to be collected.

When designing for HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of a HRV as per AS2890.2, and includes adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided below.
- HRV must be able to enter and exit the site in a forward direction. The loading area/collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support a collection vehicle at maximum capacity (approximately 30 tonnes); and

- A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the HRV.

Figure ##: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheel base	Design turning radius	Swept circle	Clearance height	Maximum roadway/ramp grade	Maximum rate of change of grade
12.5	2.5	6.6	12.5	27.8	4.5	1:6.5 (15.4%)	1:16 (6.25%) in 7.0 m of travel

Swept paths for HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- A HRV can park safely within a designated loading area on-site whilst servicing the bins.

Insert Figure ##: Turning path template

5.3.6 Turntable

Developments can reduce the above vehicle turning circles in Table ## and Figure ##, by using a mechanical turntable (or similar) equipment. Turntables allow safe entry and exit for collection vehicles in a forward direction where space is limited.

A comparison between the area required for a HRV to enter/exit a traditional loading bay and a turntable loading bay arrangement is provided below.

Table ## - Area analysis of two loading bay configurations

Conventional Loading Bay	Figures
Truck Size	12.5
Turntable loading Bay Area (m^2)	219
Conventional loading Bay Area (m^2)	281
Site Area Saving (%)	28%

Extract from Penrith City Council – provided by Boston Planning need to check we can use this.

Any development that is seeking to utilise turntables needs to demonstrate compliance with the required dimensions for a HRV, including the diameter for the turntable and required clearance heights. In addition, the following needs to be addressed:

- The use of the turntable is always to be available to collection vehicles;
- The installation, operation and on-going servicing is to be at no-cost to Council;

- A servicing and maintenance inspection plan are to be prepared before the occupation certificate is issued;
- A contingency plan to be prepared before the occupation certificate is issued and include:
    - The use of a manual system is to be available in case of a breakdown; and
    - Breakdown assistance is to be provided within 4 hours.

5.3.7 Temporary Holding Area

Where developments cannot locate the communal bin storage areas within 5m of the nominated loading area, a temporary holding area must be provided.

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area the day before the designated collection day and return them once emptied. The bin carting route from the bin storage area to the temporary holding area is to be:

- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation.

The collection truck will park in the nominated loading area and will collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for the temporary holding area.

Requirements of the temporary holding area:

- Within 5m from the nominated loading area
- Doorways a minimum 2m.
- Only temporarily store bins so they can be serviced.
- Be located fully within the development site.
- Be located within the front setback of the development but suitably screened so it is not visible from the public domain.
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5m and 15cm between bins);
- Be clearly separated from car parking bays, footpaths and landscaped areas.

6. Plan of Management

There are several issues relating to illegal dumping and recycling contamination with boarding house, therefore it is essential that waste management is considered in the Plan of Management. The Plan of Management is required to address the following:

6.1 Inspections by Council

At completion of basement level, an authorised Council waste officer is to inspect the development, or an engineer certificate is to be submitted to certify that the waste management facilities comply with the Development Approval and WRMP. Specifically, the path of travel for the HRV, size of waste storage areas, access to water and sewer connections, finished materials, pathway and door way dimensions, and that all waste facilities are fit for purpose.

Prior to the issuing of the Occupational Certificate and delivery of bins, an authorised Council waste officer is to inspect that the communal bin storage area and bin-carting route have been constructed in accordance with the approved plans and to confirm the development can be serviced by Council.

Conditions of consent will be imposed requiring these inspections be undertaken. Contact Council on 9707 9000 to arrange these inspections.

6.2 Deed of agreement and indemnity

Where collection staff or vehicles are required to enter private property to perform the service, Council will require an unimpeded easement for access to undertake on-site or collect and return service. The development is also required to indemnify Council or its Contractors against claims for wear and tear of access roads or other parts of the building.

A condition of consent will be imposed requiring an Indemnity Agreement to be entered into prior to the issue of the Occupation Certificate and delivery of bins.

7. Glossary of Terms

7.1 Key terms

Term	Definition
Bin-carting route	Travel route for transferring bins from bin storage area to nominated collection point. Usually undertaken by a caretaker. Distance allowed will vary depending on bin size.
Bin storage area	Area which stores allocated bins for the development. Can be a nominated area for individual or communal bin storage area. Some developments may have several bin storage areas.
Boarding House	A place of shared accommodation that provides accommodation to a boarder for a fee.
Bulk bins	Large bins which have four swivel wheels so can be moved in any direction**.** Usually greater than 660L bins.
Bulky waste	Large household items such as furniture, white goods and mattresses.
Collect and return service	Service for smaller MDH or RFB where council (or its contractors) access the bin storage area or temporary bin holding area and cart bins to the kerbside to be serviced. Bins are then returned to the bin storage area (or temporary holding area). The collection vehicle needs a safe parking spot on the kerb.
Communal bin storage area	Bin storage area(s) which stores allocated bins for the entire development and can be accessed by all residents and occupants.
Designated, State and Regional Roads	Specific roads in these categories are listed in the Council's DCP's.
Indemnity or Positive covenant	A legal agreement ensuring that a party providing services to a particular property will not be held responsible for any loss or

or Section 88B certificate	damage to such property as a result of the routine provision of the service.
In-Unit separation of waste, recycling and compost	This means the separate recycling and garbage (2x 20L) bins for the dwelling's kitchen. This is where the residents dispose / store the waste and recycling before taking it to the larger communal bins. There should also be sufficient space for a kitchen caddy to store food waste within the kitchen.
Kerbside collection	All allocated bins are presented kerbside by individual residents for collection by council's waste collection staff or contractor.
Layback	The section of kerb that has been removed and replaced in concrete to allow easier access to the kerbside. Also known as a gutter crossing.
Main Road	A high-capacity urban road that has been defined as a Classified or Regional Road.
Mobile garbage bins (MGB's)	Small bins which have two wheels so can only be moved forwards and backwards (not sideways).
Nominated collection point	The nominated point where waste and recycling are collected from by the service vehicle.
On-site collection	Collection occurs within the development site's boundary in a nominated collecting area.
Residential Level	Every level on which there is a dwelling.
Recycling cupboard	The cupboard(s) on each residential level that house the necessary number of recycling bins adjacent to the waste chute hopper.
Route of travel	The travel path for the waste collection vehicle when entering the site to access the nominated collection point and leaving the site after the waste has been collected.

Source Separation	The separation, by residents, of different recyclable items into separate bins or cages.
Temporary bin holding area	Area where bins are transferred to be temporarily stored for collection. Bins are required to be transferred back to the bin storage area as soon as possible after collection occurs. This bin transfer is undertaken by a caretaker.
Vehicular Crossing	The concrete vehicular crossing providing access across the Council controlled nature strip, consisting of a crossing and a layback.
Volume handing equipment	Equipment to automatically change the bin under the chute when it is full. The chute service room must be of adequate size to accommodate this equipment. Resident access to this equipment must be excluded. The bins on the volume handling equipment will not be services and are in addition to the total bin calculations on generation rates.
Waste chute system	Ventilated, vertical pipes passing through each floor of a residential flat building with access on each floor. Chutes discharge into bins at the lowest point in the waste room.

DRAFT - Waste Design for New Developments – Guide E:

- Mixed Use Development

Contents

1. Introduction

1.1 Applicable Development Type

The Waste Design for New Developments (Guide E) applies to Mixed Use Development, which is defined as a building containing residential dwellings and commercial businesses within the same development. There are one or more levels of commercial properties within the development.

1.2 Objectives of the Guide

The City of Canterbury Bankstown (CBCity) aims to integrate waste management into the design fabric of urban planning to support effective collection and management of waste as an essential service. This includes identifying sustainable waste outcomes in all developments that are safe and efficient, reduction in waste generation, increase recycling and resource recovery and contribute to the built form and liveability of the community.

It is important that waste management systems are not overlooked in the design process. There is a need for adequate consideration of waste management requirements early in the site planning and design stage of the development. Poor site planning and design decisions can have significant impacts on the ongoing operation of the development at occupancy stage and can impact how efficiently the building can be serviced.

Considering waste management requirements early in the design stage of the development and site planning process also ensures costly and timely delays are avoided during the assessment process.

Guide E is a valuable resource to improve the design and functionality of waste management systems within all new developments.

Guide E has been prepared to assist you to achieve the following objectives and comply with Council's planning controls:

1. To facilitate sustainable waste management within the City of Canterbury Bankstown in accordance with the principles of Ecologically Sustainable Development and a Circular Economy.
2. To assist in achieving Federal and State Government waste minimisation targets as set out in the Waste Avoidance and Resource Recovery Act 2001 and NSW Waste Avoidance and Resource Recovery Strategy 2014-2021.
3. Waste management systems are safe, efficient and cost effective, maximise recycling and resource recovery and contribute to the built form and liveability of the community.
4. To ensure that waste management systems are designed and managed to minimise impacts on residential amenity, health and the public realm.

5. To ensure that waste storage and collection facilities are considered early in the design process and integrated into the overall site planning and design of the development.
6. To ensure bin storage and collection facilities are designed so that they can be integrated with and comply with the requirements for council's domestic waste services now and into the future.

In addition, the design and ongoing management of waste management facilities encourage residents to use the facilities and waste services appropriately. This includes greater participation in waste stream separation, a reduction in waste generation, increased resource recovery and minimal contamination of recyclables and organics. It can also significantly reduce the likelihood of illegal dumping.

1.3 Waste Reduction and Resource Recovery Targets

In 2019, CBCity sent 68% of its waste to landfill, with 32% diverted from landfill through recycling and composting. The waste generated per residents was 214kg.

CBCity currently has an estimated population of 382,000 and is growing quickly, with the population expected to reach 500,000 in 2036. The waste management service provided by Council needs to continue to keep up with this growth. Also, with the decreasing availability of landfill space in Greater Sydney, reducing waste to landfill through resource recovery is essential.

By 2036, Council's targets for waste reduction and resource recovery are:

- Divert 80% of waste from landfill
- 200kg waste generation per person per year

To help Council achieve these targets, all developments are required to achieve best practise in the design, construction and maintenance of waste services and infrastructure. This will ensure that garbage, recycling, organic and bulky waste produced on site are reduced in the best possible way to improve resource recovery along with increasing the amenity, ease of use, environmental performance and ultimately the reputation of developments with well managed waste facilities.

Council is looking for and will support developments with innovative new ideas and technologies to reduce or treat waste on-site.

2. Waste Management and the Development Application Process

Waste management must be considered at the earliest stage of design and all planning stages for the development.

Consideration of waste management at an early stage will ensure appropriate waste facilities are provided to meet the needs of the community and the development. In addition, early planning will ensure costly design amendments are not required at a later stage, reducing delays in the assessment process.

The Guide is to be read in conjunction with Council's Planning and Building Application Lodgement Guide and should be used when developing a Waste and Recycling Management Plan.

2.1 Waste and Recycling Management Plan

A Waste and Recycling Management Plan (WRMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the CBCity Development Control Plan.

The WRMP is an important planning document that will not only be utilised as part of the development application process, but during construction and for the ongoing use of the development. Conditions of consent will be used to enforce the commitments contained within the WRMP, including the requirement that the ongoing management section of the WRMP is included in the by-laws of strata properties. This will ensure that all relevant parties (ie. residents, property managers) are aware of the WRMP and that it will continue to apply as a working reference for the life of the building and community living there.

Council has a template WRMP to support all Development Applications which addresses the demolition, construction and ongoing operation of the development. It is mandatory to use Council's template.

The WRMP is to provide the following:

- Details of the handling of construction, demolition and ongoing waste streams of the development, including the types and estimated quantities;
- Separate plans of the proposed development that show the location and space allocated to the waste management facilities, along with the nominated waste collection point;
- Identification of the travel path of access to the bin storage area/s by residents and collection staff;
- Identification of the travel and swept paths for on-site collection by a HRV (if applicable);

- Details of ongoing management, storage and collection of waste, including responsibility for cleaning, transfer of bins between storage areas and collection points, implementation and maintenance of signage, and security of storage areas; and
- Where appropriate to the nature of the development, a summary document for tenants and residents to inform them of the building's ongoing waste management arrangements.

The completed WRMP, including drawings submitted by the applicant, will be used in the Council assessment of the waste management systems for the new development.

3. Construction and Demolition

The management of waste from construction and demolition activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.

The WRMP is to detail how this will be achieved and is to be submitted with any new DA (this may include DAs for the change-of-use of a development).

The storage, handling and disposal of any demolition and construction waste must be undertaken in accordance with the requirements of the *Protection of Environment Operations Act 1997* and associated regulations.

The WRMP is to address construction and demolition waste and include:

- Confirmation if the development involves the removal of asbestos, quantities, the licence details of asbestos removalist and the designated disposal site licensed to accept asbestos-related waste;
- Details regarding how all other waste is to be minimised within a development and expected amounts and types of materials to be re-used or left over for removal from the site;
- Details regarding the types of waste and likely quantities of waste to be produced;
- Details of the off-site recycler's primary destination for materials;
- A site plan showing storage areas away from public access for re-usable materials and recyclables during demolition and construction, and the vehicle access to these areas;
- Designation of appropriately licensed facilities (recycling and landfill) to receive the construction and demolition waste. It is recommended the legitimacy and compliance of the facility is checked. The ABN Lookup and Environmental Protection Authority Public Register services can be used;
- Details of the nominated person, responsible for retaining waste dockets from facilities and for ensuring site is clean, tidy and no litter or materials leave or blow off the site; and
- Confirmation that all waste going to landfill is not hazardous.

4. Waste Management Considerations

4.1 General Considerations

Development must be designed for on-site collection of residential and commercial waste, either at ground level, basement or via a loading dock and the development will need to accommodate a HRV as per Australian Standard (AS) 2890.2.

Council will service the residential component of the development as a mandatory service and may be invited to collect the commercial component by the commercial occupants as a separate paid arrangement.

The requirements for mixed use developments, including shop top housing are as follows:

- Separate bin storage areas for residential and commercial components of the development are to be provided;
- The residential component of the development is to comply with Section #;
- The commercial component of the development is to comply with Section #;
- Access to residential bin storage areas by commercial tenancies is to be restricted;
- Each commercial operator is to be allocated an area in the bin storage area for their individual waste to be stored; and
- Service lift to transport bins will be required.

Council encourages the implementation of innovative and alternate solutions for waste management systems (ie. hook lift systems, on site processing of food waste, reuse on site or promotion of waste reduction and circular economy). Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

5. Residential Waste Management Considerations

5.1 General Considerations

It is essential that you have read the components of this Guide that are relevant to your development type in selecting and designing a waste management system. It is important that you:

- Ensure all dwellings have internal waste storage
- Have a thorough understanding of the waste generated by your development and the number of bins to be allocated by Council and stored within the development;
- Ensure that the development can be integrated with Council's standard HRV waste service;
- Consider what access is required to the site by collection staff and vehicles to facilitate the safe and efficient waste servicing of the development.

Understanding the waste infrastructure required, such as bin allocation and the size (and dimensions) of bins ensures that the bin storage area for the development can be designed and integrated into the overall design of the development. This will maximise convenience for future residents, as well as ensuring amenity impacts such as visual, noise and odour are minimised.

The nominated collection point must be able to be accessed by collection staff. It is vital that you understand and plan for the access arrangements required. This includes providing adequate vehicular access and manoeuvring for the standard HRV waste collection vehicle where on-site collection is required. There are no exceptions to this arrangement.

5.2 Waste Generation Rates

The following generation rates will need to be used to identify the number of bins needed for the development. Identifying the number of bins and the size of the bins in Table ## and ## will ensure that the waste management facilities designed meet the developments ongoing waste needs. When calculating the number of bins needed, it should be noted that bin allocations are rounded up to the next whole number (for example the calculation of 4.4 bins will be rounded to 5 bins.

Table 1: Weekly Waste Generation Rates per Dwelling

General waste	Recycling	Garden Organics
140L	120L	120L *

* Only applies to multi dwelling housing and residential flat buildings that generate garden organics (e.g. garden prunings and leaves).

5.3 Standard Waste Service

5.3.1 Collection Services

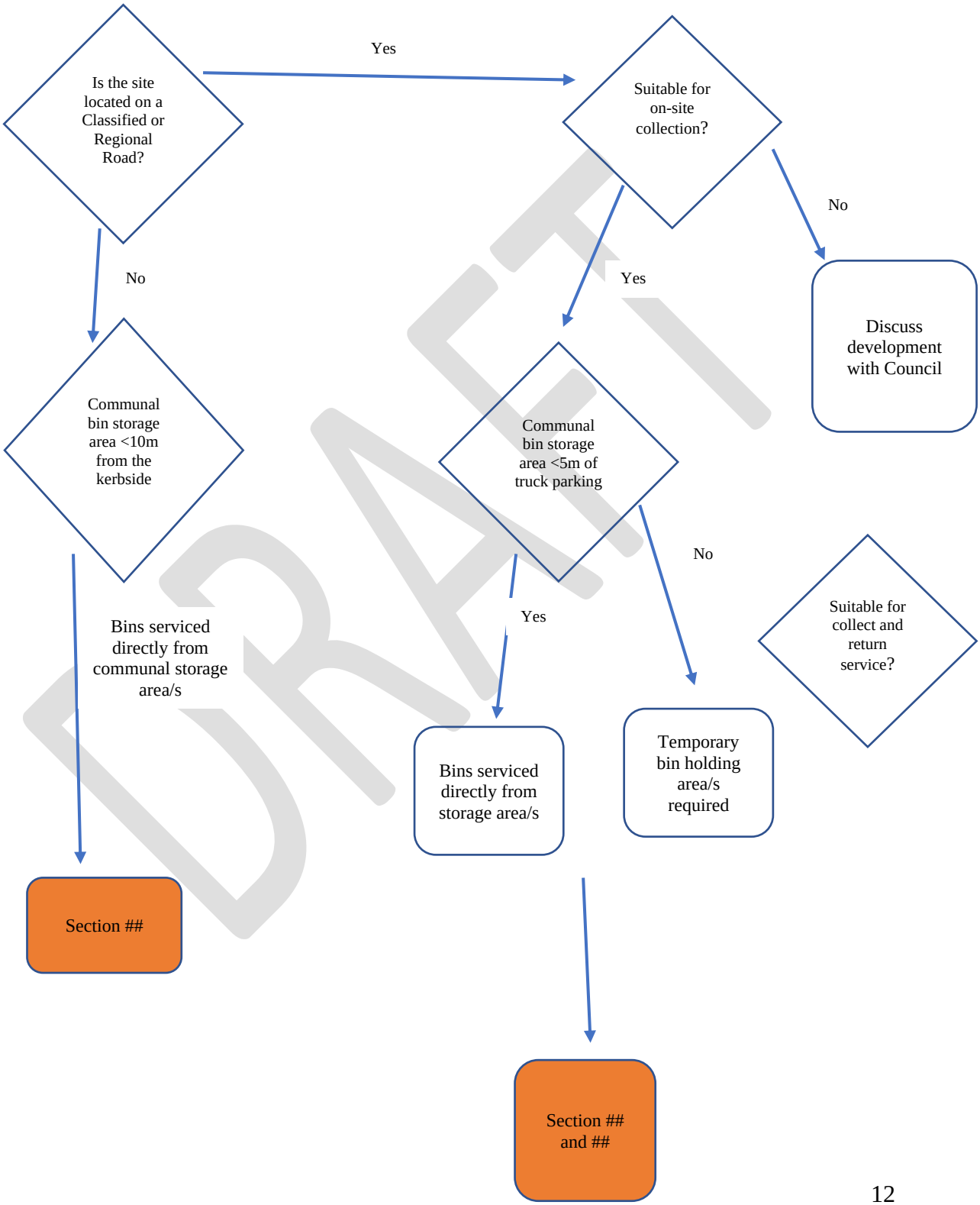
For residential properties, Council offer a range of waste collection services for Mixed Use Developments:

- Collect and Return: collection staff enter the development to collect bins from a nominated area and return them once emptied;
- On-site collection: collection occurs within a development site's boundary by a HRV as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities, at a nominated area.

The type of service available for your development varies depending on the number of dwellings, on-site conditions, amenity and safety issues, the number of bins requiring collection, the size of the bins and time taken to empty the bins.

To assist in identifying the appropriate collection service for your development, refer to Figure ## and the relevant sections in this Guide.

Figure 1: Waste Service identification flowchart based on development type and number of dwellings



5.3.2 Bin Sizes for Residential Developments

An adequate bin storage area is to be provided within the development site to store all allocated bins. Depending on the nature and density of the development, individual or communal bin storage areas may be provided.

The following Tables identify the bin types, sizes and dimensions required for residential developments.

Table #: Bin sizes for developments

Waste Stream		
General waste	Recycling	Garden organics
660L, 1,100L or hook lift bin with compactor	660L or 1,100L	240L (on request)

NOTE:

1. One size of bin for each waste stream is provided for a development.

Table #: Standard bin dimensions

Standard Bin Type	Dimensions (Additional 15cm is to be provided around each bin)		
	Height	Width	Depth
240L Mobile Garbage Bin (MGB)	1,060 mm	580 mm	730 mm
660L Bulk Bin	1,250 mm	1,370 mm	850 mm
1,100L Bulk Bin	1,470 mm	1,370 mm	1,245 mm
Hook Lift / Compactor Bin ($10m^3$-$30m^3$)	2.5m	2.5m	6m

NOTES:

1. It is important to understand the size of bins that will be allocated by Council for your development. Check with Council if you need assistance in identifying the most appropriate bin size/s.
2. An additional 15cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently, and to avoid damage to walls and doors from bins scraping against them.
3. Dimensions are a guide only and may differ depending on the manufacturer.

Insert Image 2 from Bankstown Guide (showing 15cm between bins)

5.3.3 Service Frequency

The service frequencies are provided to assist in calculating the required number and size of bins.

Table #: Standard service frequencies for residential developments

Service Frequency			
General Waste	Recycling	Garden Waste	Bulky Waste (Per Calendar Year)
One or two collections per week*****	One collection per fortnight or One collection per week	One collection per fortnight	Developments with six or less dwellings – Two collections *** Developments with more than 6 dwellings but not greater than 50 – four collections *** Developments with more than 50 dwellings – six collections ***

NOTES:

1. * Frequency of service may be increased for shop top housing, only after discussion and recommendation of Council's waste management assessment officers.
2. *** Collection service to be introduced on 1st March 2021

6. Residential Waste Management Facilities

Developments are required to provide safe, equitable and convenient waste storage facilities for residents.

6.1 Internal Waste and Recycling Storage

To ensure each dwelling has the minimum infrastructure to be able to separate out, reuse and/or recycle items, the following internal waste storage and separation facilities are to be provided:

- A waste storage cupboard in the kitchen capable of holding a minimum 40L of waste (approximately two days) and to enable a minimum 20L of recyclable waste to be stored in a separate container and not in plastic bags;
- Suitable space in the kitchen for a 3-5L caddy to collect food waste from the kitchen. This is to encourage on-site composting and reduction in waste to landfill.
- Suitable space storage space for other recyclable items, such as light globes and batteries in each dwelling.

Insert Figures showing above

6.2 General Requirements

There are three potential service options layouts for this type of development. Bins would be collected directly from the communal bin area by collect and return service or if deemed unsuitable by Council, the development must be designed to facilitate on-site collection with a HRV as per AS 2890.2.

1. 660L or 1,100L bins for garbage and recycling, with bins stored in a communal area. Residents would be required to carry all waste and recyclable from their unit direct to the communal storage area (maximum distance of 30m). Bins would be collected directly from the communal bin area.

2. Provide a waste storage cupboard on each floor for three days storage of waste and recycling. A service lift is required for the caretaker will to move the bin storage area and/ or bin collection area. The caretaker should use a bin lifter to empty the waste into larger 660L or 1,100L bins, which are then emptied by Council directly from the communal bin area.

3. Install a waste chute system for general waste leading to a central waste storage area in the basement. The chute would empty into a bulk bin on a carousel. There would be a cupboard on each floor for a recycling MGB (stores three days of recycling generated by the number of dwellings on that floor) and chute hoper. A service lift is required for the caretaker to empty the recycling bins on each floor

every three days. A bin lifter is to be used to empty the recycling into bulk bins which are then emptied by Council directly from the communal bin area.

In all of the above layouts, if garden organic bins are provided, these would need to be presented to the kerbside for collection by a caretaker/property manager. In addition, separate bulky waste storage area/s and space for additional recycling storage are required.

6.3 Specific Requirements

6.3.1 Communal bin storage area

A communal bin storage area must be designed so it can be integrated into the overall design of the development and located so it can be accessed conveniently and will not impact on residential amenity in regard to noise, odour and visual impacts.

The bin storage area must be able to accommodate the required number of bins and the volume of waste and recycling expected to be generated between collections. The standard service for RFBs is one or two collections per week. This frequency could be increased for larger developments, only after discussion with Council's waste management assessment officers.

In determining the appropriate location point for the bin storage area, consideration should be given to the following factors:

Size and Layout:

- The development must provide a communal bin storage area that is of sufficient size to accommodate all bins allocated for the development. For medium and high-rise developments, more than one bin storage areas may be required to maximise accessibility for occupants;
- Sufficient space must be provided to ensure adequate room is provided to manoeuvre, clean and maintain all waste and recycling bins for the development (minimum aisle space of 1.5m and 15cm between bins);
- Sufficient space must be provided for any required equipment to manage waste and bins (including washing, cleaning and bin lifting);
- Size must not be excessive, to discourage the dumping of other household waste in the bin storage area;
- The area is free from obstructions and steps, so as not to restrict the movement and servicing of the bins.

Location:

- All residents have easy, safe and convenient access to the waste and recycling facilities (less than 30m from all dwellings);
- Located within the ground floor or basement footprint;
- Located where its use and operation will not adversely impact the amenity of occupants in terms of appearance, noise and odour;
- If bins are required to be moved for collection, it is done in a safe and efficient manner in accordance with Work Health and Safety legislation. A bin tug or pull may be needed;

- The area cannot be viewed or easily accessed by the public domain;
- Amenity for residential occupants and adjoining residential properties is protected; and
- Positioned to prevent theft and vandalism and restrict unauthorised access to prevent illegal dumping.

Design:
- A designated room or enclosure, with a roof;
- Must be integrated into the overall design of the development; and
- Screened from public view.

Access:
- Located so access for all intended users is safe and convenient and in accordance with AS 1428 (Set) - 2003: Design for access and mobility
- Any doorways will be at least 2m wide and open outwards;

Construction:
- Floors must be constructed of concrete at least 75mm thick, graded and drained to a Sydney Water approved drainage fitting;
- The floors must be finished to a smooth, even surface;
- The walls must be constructed of solid impervious material;
- A minimum 2.1m unobstructed room height is required in accordance with the Building Code of Australia;
- Ceilings must be finished with a smooth faced non- absorbent material capable of being cleaned;
- Walls, ceiling and floors must be finished in a light colour;
- Is to be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;
- A close-fitting and self-closing door or gate operable from within the room;
- Must be constructed to prevent the entry of birds and vermin; and
- Be provided with adequate light and ventilation. Light source must be through controlled light switches located both outside and inside the room.

See Figure ##: communal bin storage area

For developments planning a waste chute system, further specifications for bin storage areas is provided in section #.

6.3.2 Bin-carting route - Collect and Return Service

For the collect and return service, the bin carting route from the communal bin storage area to the kerbside collection point, must comply with the following requirements:

- To be direct and less than 10 metres,
- Include a layback at the nominated collection point;
- Minimum 2m wide hard surface;
- Does not pass through any internal walkways, doors or rooms;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);

- Not be within a driveway or carpark, this is considered a conflict point for vehicles and collection staff; and
- Compliant with Work, Health and Safety for collection staff

6.3.3 Temporary Holding Area (Collect and Return)

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area the day before the designated collection day and return them once emptied. The bin carting route from the bin storage area to the temporary holding area is to be:

- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation.

The collection vehicle will stop at the nominated kerbside collection point and will collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for the temporary holding area.

Requirements of the temporary holding area:

- Within 10m from the nominated kerbside collection point
- Doorways a minimum 2m.
- Only temporarily store bins so they can be serviced.
- Be located fully within the development site.
- Be located within the front setback of the development but suitably screened so it is not visible from the public domain.
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5m and 15cm between bins); and
- Be clearly separated from car parking bays, footpaths and landscaped areas.

6.3.4 On-site collection

All developments are required to provide safe vehicle access and be designed to enable the HRV collection vehicles to manoeuvre and load all allocated bins. A collection loading area is to be nominated, which is within 5m of the bin storage area/s.

A temporary bin holding area will be required if the truck is not able to park within 5m of the bin storage area. The caretaker or property manager will be required to move the bins from the storage area to the temporary holding area ready for collection, and return them when emptied (see section ##).

Requirements of the nominated loading area:

- Access requirements for a HRV are as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities;
- The collection vehicle loading area is to be nominated on the submitted plans. The loading area is to be within 5 metres of the bin storage or temporary holding area;
- The loading area is to be a separate parking area for the collection vehicle, which is located so as not to impede or restrict other vehicle and pedestrian movements during collection times and minimises impact on residents; and
- Include an extra 2m at the rear of the vehicle parking area to allow for staff safety and emptying of bins;

6.3.5 Bin-carting route – On-Site Collection

The bin carting route from the communal bin storage area to the collection loading area, must comply with the following requirements:

- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Does not pass through any internal walkways, doors or rooms;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Not be within a driveway, this is considered a conflict point for vehicles and collection staff; and
- Compliant with Work, Health and Safety for collection staff

6.3.6 Designing for waste collection vehicle access

The HRV must be able to safely and efficiently access the site and nominated loading area to collect all bins. The development's security measures such as gates and security doors should not prevent vehicle access to the collection point which would result in waste being unable to be collected.

When designing for HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of a HRV as per AS2890.2, and includes adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided below.
- HRV must be able to enter and exit the site in a forward direction. The loading area/collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support a collection vehicle at maximum capacity (approximately 30 tonnes);
- The grades of entry and exit ramps must not exceed the capabilities of HRV and are to comply with AS2890.2 Parking Facilities: Off-Street Commercial Vehicle Facilities; and

- A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the HRV.

Figure ##: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheel base	Design turning radius	Swept circle	Clearance height	Maximum roadway/ramp grade	Maximum rate of change of grade
12.5	2.5	6.6	12.5	27.8	4.5	1:6.5 (15.4%)	1:16 (6.25%) in 7.0 m of travel

Swept paths for HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- A HRV can park safely within a designated loading area on-site whilst servicing the bins.

Insert Figure ##: Turning path template

6.3.7 Turntable

Large mixed-use developments can reduce the above vehicle turning circles in Table ## and Figure ##, by using a mechanical turntable (or similar) equipment. Turntables allow safe entry and exit for collection vehicles in a forward direction where space is limited.

A comparison between the area required for a HRV to enter/exit a traditional loading bay and a turntable loading bay arrangement is provided below.

Table ## - Area analysis of two loading bay configurations

Conventional Loading Bay	Figures
Truck Size	12.5
Turntable loading Bay Area (m^2)	219
Conventional loading Bay Area (m^2)	281
Site Area Saving (%)	28%

Extract from Penrith City Council – provided by Boston Planning need to check we can use this.

Any development that is seeking to utilise turntables needs to demonstrate compliance with the required dimensions for a HRV, including the diameter for the turntable and required clearance heights. In addition, the following needs to be addressed:

- The use of the turntable is always to be available to collection vehicles;

- The installation, operation and on-going servicing is to be at no-cost to Council;
- A servicing and maintenance inspection plan are to be prepared before the occupation certificate is issued;
- A contingency plan to be prepared before the occupation certificate is issued and include:
    - The use of a manual system is to be available in case of a breakdown; and
    - Breakdown assistance is to be provided within 4 hours.

6.3.8 Temporary Holding Area (On-site Collection)

Where developments cannot locate the communal bin storage areas within 5m of the nominated loading area, a temporary holding area must be provided.

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area the day before the designated collection day and return them once emptied. The bin carting route from the bin storage area to the temporary holding area is to be:

- To be direct and less than 5 metres,
- Minimum 2m wide hard surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation.

Council's collection truck will park in the nominated loading area and will collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for the temporary holding area.

Requirements of the temporary holding area:

- Within 5m from the nominated loading area
- Doorways a minimum 2m.
- Only temporarily store bins so they can be serviced.
- Be located fully within the development site.
- Be located within the front setback of the development but suitably screened so it is not visible from the public domain.
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5m and 15cm between bins);
- Be clearly separated from car parking bays, footpaths and landscaped areas.

6.3.9 Waste chute systems

Developments that are considering providing a waste chute system and consult with Council as part of the pre-lodgement process.

The benefits of a waste chute system are:

- Promotes and encourages recycling through the co-location of general waste and recycling facilities on each floor; and
- Ensures the convenient transfer of waste from different floors of the development without the need for residents to manually cart and carry waste down stairs or lifts.

While there are benefits of introducing a waste chute system there are also significant ongoing costs associated with future operational and maintenance requirements. These systems are likely to require a full-time caretaker due to the frequency of bin rotation required and potential for chutes to become blocked by incorrect use by occupants.

The following requirements apply to waste chute systems installed in developments:

General requirements:

- The waste chute will only be used to transfer garbage and not recycling;
- There will be no mechanical compaction of waste at the base of the chute;
- The bins at the base of the chute must have capacity for at least three days of waste;
- The bins can be mounted on an automatic carousel or liner system for easy rotation and to ensure capacity for three days;
- Waste chute disposal points (hoppers) are to be provided on each residential level of the development. The maximum travel distance from each dwelling to the chute hopper is 30m.
- Access to the chute hopper is to be in accordance with AS 1428 (Set) - 2003: Design for access and mobility;
- The chute is to terminate in the bin storage area and discharge directly into a 660L or 1,100L bin; and
- Signage is to be placed on the chute hopper on every residential level indicating how to use the system effectively.

Construction:

- Chute systems are to be designed so they can be constructed to satisfy manufacturer's requirements and can ensure required 660L or 1,100L bins fit at the base of the system;
- Must be designed and constructed so it can function effectively (gravity fed) and aligns as it passes through each level of the development;
- Designed in accordance with the requirements of the Building Code of Australia including fire rating, noise reduction and ventilation;
- Must be constructed and installed to prevent the transmission of noise and vibration to the structure of the development during its use and operation;
- The chute is to be cylindrical in cross-section and the internal diameter is to be a minimum 500 mm and adequate for material being deposited;
- The hopper doors are to be a minimum 500mm opening, fitted with door closers and have an effective self-sealing system; and
- Must be constructed to alleviate any odour.

Bin storage area:

- Must be located where the chute terminates;
- Must be large enough to fit the allocated number of bins with additional room for manoeuvring bins;

- Where volume-handling equipment (eg. bin lifting equipment) and/or an automatic carousel/liner system are to be installed, the bin storage area must be of adequate size to accommodate all required equipment and to operate it; and
- Resident access to the chute area is to be restricted. Bin storage and chute area may be two separate areas, next to each other.

Insert Figure ##: Waste chute system
Insert Figure ##: Waste chute system – layout of bin storage area

6.3.10 Recycling Cupboards

Developments that propose the use a waste chute system must also plan for recycling cupboards on each residential floor or directly on the corridor adjacent to the chute hopper. The cupboards should have an opening large enough for loose recycling to be placed into the bins behind. To prevent occupants from dumping excess rubbish, the cupboard should be locked, accessible only to the caretaker.

A caretaker will need to rotate recycling bins from the recycling cupboard to the bin storage area/s as a minimum every three days (based on generation rate of number of dwellings on the floor). A bin lifting machine will be needed to empty 240L bins into larger 660L or 1,100L bins for collection. No mechanical compaction will be used during this process.

The following requirements apply to recycling cupboards installed in developments:

General requirements:
- Must be conveniently located for residents on each residential level of the development (maximum distance of 30m);
- Access is to be in accordance with AS 1428 (Set) - 2003: Design for access and mobility; and
- Located directly adjacent to the hopper and contain only recycling bins;
- Must be of adequate size to accommodate one or two recycling bins, which allows for three days of recycling generated by the number of dwellings on that floor;
- Signage is to be placed on the recycling cupboard on every residential level indicating how to use the system effectively;
- A site caretaker will be required to rotate recycling bins from the cupboards to the bin storage area as a minimum every three days; and
- A service lift is required to transfer bins between the recycling cupboards, bin storage area and the collection point.

Construction:
- The cupboard is to be designed so the doors are of sufficient width to allow the transfer/rotation of 240L bins; and
- The cupboard floor is to be constructed of a durable and impervious material with a smooth finish.

See Figure ##: Recycling cupboard and chute hopper design

6.3.11 Bulky waste

Council provides a collection service for bulky household waste, such as whitegoods, mattresses and household furniture. The amount of material accepted per collection is defined in Council's Waste Service Policy.

All dwellings are to have adequate storage within the dwelling or garage to store bulky waste waiting collection.

A bulky waste room will help prevent the illegal dumping of materials on the kerbside or within common areas.

The size of the bulky waste area must be appropriate to the development, with the minimum being:

Number of Units	Minimum Size of Bulky Waste Area (total space)
6 to 20	4 m^2
21 to 30	5m^2
31 to 40	6m^2
41 to 50	7m^2
51 to 60	8m^2
61 to 70	9m^2
71 to 80	10m^2
81 to 90	11m^2
91 to 100	12m^2
More than 101	13 m^2 + 2 m^2 per 50 additional units (or part thereof) above 101 units

The bulky waste storage area is to be separate to the bin storage area/s, however the design is to comply with the requirements detailed in Section #. Multiple buildings will require separate areas.

On-site collection of bulky waste is also required. Section # is required to be complied with.

6.3.12 Additional Recycling Storage

Large developments with more than 75 dwellings will receive additional recycling services to increase recovery of material and to prevent the illegal dumping of materials on the kerbside or in common areas. Separate additional recycling storage area/s are to be provided for residents to store additional household items, such as clothing, mattresses, polystyrene, cardboard and electronic waste.

The minimum area required is 9m^2 and the area is to be designed to comply with the requirements detailed in Section #.

The area/s must be separate to the bin storage area or room(s) and the bulky waste storage area.

The area/s must not be visible from any street frontage.

Where there are multiple buildings, separate areas must be provided.

On-site collection of additional recycling materials is also required and Section # is to be complied with.

6.3.13 Organic Waste

Approximately 40% of a residential garbage bin is food waste. By composting or worm farming food scraps and garden cuttings, residents can reduce their waste.

Space must be provided for communal composting and worm farming. The area is to be an unpaved earth surface, in a communal area that is managed by the development.

This space is to be shown on the site plans.

6.4 Design for ongoing use

Considering the ongoing management of waste systems is an important consideration at the design stage to ensure amenity of residents is maintained and caretaker and collection staff is assured.

Selection of the waste management system including the ongoing role and responsibilities of the caretaker can also impact on the future operational costs of the development, which will be passed onto residents.

It is important for both the designer and developer to identify, establish and communicate responsibilities of both residents and caretakers to ensure effective management of waste at the operational stage of the development.

Council recommends an active caretaker be employed Mixed Use Developments to ensure effective and efficient ongoing waste management. A site caretaker or manager will be required to:

- Maintain and clean all bin storage areas and recycling cupboards;
- Cleaning and maintenance schedules for all waste equipment;
- Maintain and clean temporary holding areas (if applicable);
- Clean and wash all bins;
- Manage all bin transfers and rotations;
- Ensure waste chute system and associated waste service equipment functions effectively and in accordance with manufacturer's specifications;

- Manage bulky waste and additional recycling storage areas and arrange appropriate collections;
- Ensure the loading bay is kept clear of parked cars;
- Ensure the turntable and related devices are maintained in effective and efficient working order;
- Providing training to collection staff in the use of the turntable when requested;
- Manage the communal composting area;
- Arranging the prompt removal of dumped rubbish;
- Ensuring the recycling bins are free of contamination (which included but not limited to garbage, plastic bags, clothing, polystyrene etc);
- Ensuring there is suitable signage for each bin hopper and recycling cupboard on each floor and bin storage room. Council can assist with signage;
- Ensuring all residents are informed and kept up to date in the use of the waste management system; and
- Checking the number of bins and reporting any damages to Council.

The site caretaker is to undertake the above actions as a minimum twice per week for enough hours to enable the waste management system to operate to a satisfactory standard.

6.5 High-capacity collection systems

In large developments of more than 400 apartments, larger capacity bins with or without static compactors may be considered. Council must be consulted as part of the pre-lodgement process if a high capacity collection system is being considered.

Generally known as 'hook-lift' bins, these systems come in a range of sizes with up to 40m^3 capacity which, when combined with a 3:1 compaction ratio, can hold up to 90m^3 of waste. This means that the frequency of collection can be significantly reduced, depending on the quantities.

Hook-lift bins require waste collection vehicles to reverse directly onto them, so the building will require enough turning and manoeuvring space for HRV collection vehicles, and additional height. Access for these kinds of vehicles should be modelled using turning circle software during the design stage.

6.6 Inspections by Council

At completion of basement level, an authorised Council waste officer is to inspect the development to certify that the waste management facilities comply with the Development Approval and WRMP. Specifically, the path of travel for the HRV, size of waste storage areas, access to water and sewer connections, finished materials, pathway and door way dimensions, and that all waste facilities are fit for purpose.

Prior to the issuing of the Occupational Certificate and delivery of bins, an authorised Council waste officer is to inspect that the communal bin storage area and bin-carting route have been constructed in accordance with the approved plans and to confirm the development can be serviced by Council.

Conditions of consent will be imposed requiring these inspections be undertaken. Contact Council on 9707 9000 to arrange these inspections.

6.7 Deed of agreement and indemnity

Where collection staff or vehicles are required to enter private property to perform the service, Council will require an unimpeded easement for access to undertake on-site or collect and return service. The development is also required to indemnify Council or its Contractors against claims for wear and tear of access roads or other parts of the building.

A condition of consent will be imposed requiring an Indemnity Agreement to be entered into prior to the issue of the Occupation Certificate and delivery of bins.

7. Commercial Waste Management Considerations

This section applies to all commercial (including retail) in Mixed Use Developments. This section also applies to change of use development applications.

It is essential when selecting a waste management system you have a thorough understanding of the likely waste to be generated by your development and potential waste streams. Waste generation and waste streams will influence the size of bin storage areas as well as how all waste streams will be collected.

A Waste and Recycling Management Plan that includes calculation of waste to be generated by the development is to be provided.

7.1 Waste Generation

Careful consideration of waste generation rates will ensure you select an appropriate waste system and ensure its design is functional and effective for ongoing use of the site.

Table # contains waste generation rates for various commercial and industrial developments. These generation rates should be used to indicate the likely generation of waste from your development. This will also assist in calculating the number of bins required for the development, determine the type and frequency for waste collection and the design (including size) of your bin storage area.

Each commercial operator is to be allocated an area in the bin storage area for their individual waste service to be stored.

Table #: Commercial and industrial waste and recycling generation rates

Premises Type	Generation Rate (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m^2 floor space.

Carparks (commercial)	1	1	Based on per 100 m^2 floor space.
Childcare	20	5	Per child
Cultural and recreational services: (museums, theatres, cinemas)	5	10	Based on per 100 m^2 floor space for patrons (seating areas for theatre/cinema). Calculate cafes separately. Calculate office areas separately.
Dry cleaning	15	5	Per premises (80 m^2)
Food retail: bakeries	240	120	Per premises (80 m^2)
Food retail: butchers	250	50	Per premises (80 m^2). If organics recycling implemented, then 150L may be transferred from waste.
Food retail: seafood	250	50	Per premises (80 m^2) If organics recycling implemented, then 150L may be transferred from waste.
Food retail: greengrocers	540	60	Per premises (80 m^2) A higher rate needs to be considered for larger premises (based on a pro-rata increase for the 80 m^2) premises. If organics recycling implemented, then 300L may be transferred from waste.
Food retail: other	120	80	Per premises (80 m^2)
Food retail: takeaway (with sit-down area)	500	240	Per premises (80 m^2) – day operation only Note consideration must be given to the number of hours or operation.
Food retail: takeaway (food preparation only)	120	60	Per premises (80 m^2)
Gymnasiums	20	15	Based on per 100 m^2 floor space
Hair and beauty	50	40	Per premises (80 m^2)
Hotels/pubs (without meals provided at the bar)	50	50	Based on per 100 m^2 floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Licensed clubs (with gaming)	50	50	Based on per 100 m^2 floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Medical	20	10	Per number of doctors' consulting rooms.

			Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Motels	10	5	Based on the number of guest rooms with other types of facilities calculated separately.
Offices	10	15	Based on per 100 m^2 floor space that is used for staff activities (e.g. exclude lobby areas).
Optical	15	25	Per premises (80 m^2)
Restaurants	400	280	Based on per 100 m^2 floor space
Retail: chemists	20	45	Per premises
Retail: chain stores (clothing, manchester etc.)	5	20	Based on per 100 m^2 floor space. Other facilities such as cafes calculated separately.
Retail: other non-food	50	100	Per premises
Retail: grocery and convenience stores	120	240	Based on per 100 m^2 floor space
Retail: homeware and kitchenware shops	20	120	Per premises
Retail: newsagents and stationery shops	30	60	Per premises
Retail: office-based (e.g. travel agents)	30	40	Based on per 100 m^2 floor space that is used for staff activities (e.g. exclude lobby areas).
Retail: variety gift stores	20	120	Per premises
Schools: pre-school	10	15	Per student
Schools: primary	15	20	Per student
Schools: secondary	20	15	Per student
School: tertiary	10	10	Per student (full time equivalent). Note that other waste such as chemical waste will be generated.

			Need to calculate other services (e.g. food halls, student accommodation, childcare, gyms), separately.
Showrooms	10	25	Based on per 100 m^2 floor space
Supermarkets	240	300	Based on per 100 m^2 floor space. Larger supermarkets may have a number of recycling streams, so advice should be sought as to what systems will be provided.
Wholesale trade	100	50	Based on per 100 m^2 floor space

7.2 Waste Collection Service

In most instances commercial land uses are required to be serviced by a private waste collection service.

Council does offer a trade waste service for certain commercial developments and may be invited to quote for service by the business operator.

During the design stage, it is recommended you consult with waste contractors to confirm collection requirements, bin types available (including sizes and dimensions) as well as their access requirements. Further details are provided in the NSW EPA's Better Practice Guide for Waste Management and Recycling in Commercial and Industrial Facilities (https://www.epa.nsw.gov.au/publications/managewaste/120960-comm-ind). To achieve best practise, commercial and industrial developments should be designed for HRV access and manoeuvring as per AS1980.2. This includes entering and existing the site in a forward direction.

Consideration of collection frequency is also required. Collection frequency can influence the size of bin storage areas for your development. Different commercial types will require more frequent collection services such as retail premises containing fish, poultry and meat products.

7.3 Bin Storage Area

When designing developments it is recommended consideration of the intended and future uses should be undertaken to reduce any costly retrofitting that may be required at the operational stage of the development.

Bin storage areas are to be designed so they can be constructed to the following requirements:

Size

- The size of the bin storage area must be sufficient to cater for all likely waste generation and the required bins for all waste streams. Waste generation is to be determined in accordance with Table #.

Location

- Equal and convenient access for all tenants is to be provided, with each tenant to have their own allocated area for bin storage;
- Sited behind the development building line and incorporated within the development footprint;
- In areas that will not reduce the amenity for tenants and existing users adjoining the development.
- Located within 10m of the nominated collection point, to minimise bin-carting routes.

Design

- As a minimum, the design should allow for the separate collection of general waste, recycling, paper and cardboard, food waste and pallets;
- Bin storage areas can be a stand-alone structure for smaller commercial and industrial developments. Where a stand-alone structure is to be provided it is to be designed and integrated into the overall look of the development in regards to materials and finishes.
- For larger developments (particularly with a high number of individual tenancies) a bin storage area should be provided within the development footprint.

Layout

- The layout of the bin area must prevent obstructions that impact on bin movement, maintenance and cleaning as well as any servicing requirements;

Construction

- Floors must be constructed of concrete at least 75mm thick and graded and drained to a Sydney Water approved drainage fitting;
- Floors must be finished so that it is non-slip and has a smooth and even surface;
- Walls must be constructed of solid impervious material;
- Ceilings must be finished with a smooth faced, non-absorbent material capable of being cleaned;
- Walls, ceilings and floors must be finished in a light colour;
- If a room or is integrated within the building, a minimum 2.1m unobstructed room height is required in accordance with the Building Code of Australia;
- The area must be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;
- Doors must at least 2m wide and be close fitting and self-closing and able to be opened from within the area
- The area must be constructed to prevent the entry of vermin and birds;
- The area must have adequate light and ventilation; and
- Lighting must be controlled using switches located both inside and outside the area.

7.4 Collection Point

For commercial and industrial developments, all allocated bins are required to be presented to a nominated on-site collection point and not on the kerbside. The site is to allow a HRV to enter the site and collect all bins directly from the bin storage area, a loading dock or a separate on-site bin presentation area.

On-site collection points need to be located so they do not interfere with car parking, vehicle manoeuvring areas or pedestrian areas.

When designing for HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of a HRV as per AS2890.2, and includes adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided below.
- HRV must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support the waste collection vehicle at maximum capacity (approximately 30 tonnes);
- The grades of entry and exit ramps must not exceed the capabilities of the waste collection vehicle and are to comply with AS2890.2; and
- A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the HRV.

Figure ##: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheel base	Design turning radius	Swept circle	Clearance height	Maximum roadway/ramp grade	Maximum rate of change of grade
12.5	2.5	6.6	12.5	27.8	4.5	1:6.5 (15.4%)	1:16 (6.25%) in 7.0 m of travel

Swept paths for HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- A HRV can park safely within a designated loading area on-site whilst servicing the bins.

Insert Figure ##: Turning path template

7.5 Other requirements for specific commercial and industrial developments

If contaminated sharps are generated, non-reusable sharps containers should be provided in accordance with relevant Australian Standards for disposal. Final disposal must be undertaken by licensed contaminated waste contractors.

Food Premises, including food retailers, cafes and restaurants

- Food premises are to comply with the requirements of AS 4674-2004 Design, construction and fit-out of food premises, including the general waste and recyclable materials requirements. The Guide is not intended to alter obligations under that Standard, and in the event of any conflict between this Guide and the Australian Standard, the Standard prevails.
- Individual tenancies are to be provided with appropriate space to store bins and containers that can store up to two days of estimated generated waste.
- A bunded and graded on-site storage area for liquid waste is to be provided so it can be drained to a grease trap to satisfy Sydney Water requirements.
- Additional space in the waste area to accommodate reusable items like pallets and crates.
- Commercial tenancies producing more than 50 litres of meat, seafood or poultry waste must have daily waste collection or be designed with a dedicated refrigerated room for waste storage between collections. These sites are encouraged to consider on site processing of food waste to limit collection costs.

Multiple Tenancies Retail Premises

- A centralised waste storage area for the development for all required bins awaiting collection.
- Where individual tenancies are proposed within a commercial development, each tenancy is to be provided with appropriate space to store bins and containers that can store up to two days of estimated generated waste.
- A waste service area on each level is to be provided, that can store a minimum one day's waste and recycling generated by the tenancies on that level. Cleaners will be required to move the waste to a centralised waste storage area for collection.
- Additional space for the storage of bulky items in the centralised waste service area.
- Additional space for the separation of waste and recycling in the centralised waste service area.
- Waste and recycling from the waste service areas must be transferred to the centralised waste area daily by cleaners.

Office Premises

- A centralised waste storage area for the development for all required bins awaiting collection.
- Where individual offices are proposed within a development, each office is to be provided with appropriate space to store bins and containers that can store up to one day of estimated generated waste.

- A waste service area on each level that can store a minimum, one day's waste, recycling and paper/cardboard generated by the tenancies on that level. Cleaners will be required to move the waste to a centralised waste storage area for collection
- Additional space for the storage for bulky items in the centralised waste service area.
- Additional space for the separation of waste and recycling in the centralised waste service area.
- Waste and recycling from the waste service area must be transferred to the centralised waste room daily.

Industrial Development Including warehouses

- Where individual tenancies are proposed within an industrial development, they are to be provided with appropriate space to store bins and containers that can store up to two days of estimated generated waste.
- A bunded and graded storage area for liquid waste so that it can be drained to a grease trap to satisfy Sydney Water requirements.
- Additional space (minimum $10m^2$) in the waste rooms to accommodate reusable items like pallets and crates.

8. Advanced Waste Collection Systems

Precinct developments or developments on a large site with multiple buildings are encouraged by Council to implement innovative and alternate solutions for waste management systems (ie. hook lift systems, on site processing of food waste, reuse on site or promotion of waste reduction and circular economy). Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

Advanced waste collection systems which could be considered include automated waste collection systems and alternative bin or container systems.

8.1 Automated waste collection systems

Automated waste collection is an integrated network of underground pipes and chute inlets that transport both waste and recycling directly from residential or commercial buildings to a centralised collection point using a vacuum transport. These systems can collect all waste and recycling from an area up to 2.5 kilometres from the central station.

The use of automated waste collection is widespread internationally. Some systems have operated continuously for 50 years. Over 100 cities around the world operate at least one area with automated collection systems, and over one million households are currently connected to an automated waste collection system.

Automated waste is most effectively installed if included at the design stage for new developments. This allows for optimum conveyance pipe layout across the precinct and the incorporation of waste and recycling chutes in multiple buildings integrated with the system.

Developers interested in installing these systems within a new development should contact Council waste and planning staff at the earliest stage possible. The key requirements for bins, collection points, access and waste collection for service rooms referred to in this Guide may be open to amendment if an automated waste collection system is considered.

Benefits of automated waste collection include:

- Improved amenity for residents and businesses (reduced odour, noise, spillage and vermin)
- Reduced need for space allocated to waste handling and waste storage in buildings and costs
- Less need for waste management equipment, such as waste chutes, compactors and bins
- Reduced or eliminated vehicle collection and access at individual buildings, as waste collection would be at a central location (on site or off, away from residential buildings)
- Lower wage, fuel and vehicle costs, decreased carbon dioxide emissions, noise and traffic congestion from having fewer waste collection vehicle movements.

Requirements:

If an automated waste collection system is included in a DA, the following requirements will need to be taken into account:

- The ventilation, air intake and air outlet units will need to be located to minimise nuisance to neighbouring premises
- The waste and recycling storage capacity within a building shall be at least one day's waste or recycling output of the building
- Waste and recycling collection points and storage stations shall be accessible to Council's collection vehicles, and be located to minimise nuisance to neighbouring premises
- Space for bulky and additional recycling storage will still be required
- Adequate measures shall be taken to minimise noise resulting from the operation of the system
- Adequate measures shall be provided to remove dust and smell from the air used for waste conveyance before it is discharged into the atmosphere. The discharge point shall be located away from neighbouring premises

8.2 Underground bins

Underground bins involve installing large collection containers below ground level. The general user does not see the container but simply a small portion of the container or a small bin above ground.

Underground bins are available in a range of sizes including over 5,000 litres.

Underground bins have the following advantages:

- They allow for large waste storage capacity;
- They can be configured for different waste streams (recycling, general waste, organics);
- They have a small above-ground footprint;
- Waste stored underground improves amenity by reducing odour and vermin;
- Less collections mean fewer waste collection truck movements in residential streets;
- They can make waste collection easier where space for bin storage is restricted.
- Access can be restricted using a key control panel.

Other considerations:

- To service underground bins, power to operate the hydraulic lift must be supplied from onsite mains or from the waste collection vehicle.
- Heavy vehicle access and safe servicing of bins are key issues when deciding on suitable location of underground bin systems.

9. Treatment and management of food waste

Approximately 40% of the average residential bin if food waste and when composted or treated on-site, can greatly reduce the amount of waste sent to landfill and create a nutrient rich fertilizer.

Council supports and encourages a reduction in food waste to landfill. Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

The viability of the systems that treat and manage food waste and whether they may be suitable for any particular development depends on such factors as:

- Size of the development, number of households and quantities of food waste generated
- Whether the development includes retailers and commercial premises and quantities and types of food waste generated
- Availability of trained people to manage and operate systems
- Availability of suitable space
- Ability to source separate food waste
- Availability and cost of food or food and garden collection services to offsite organic processors
- Ongoing operation and maintenance requirements of the selected onsite system.

9.1 Composting

Compost bins are a way of processing food waste and garden organic material on-site. This not only reduces the volume of waste but also creates a nutrient fertilizer (compost).

Compost bins are more versatile than worm farms, as they can process a wider range of materials including garden organics and citrus. Well managed bins can also process meat. Compost bins are best placed in the sun.

There are a variety of compost bin arrangements and systems that are commercially available.

9.2 Worm Farms

Worm farms are an effective method of managing food waste, with an output of vermicast (worm compost) and vermiliquid (liquid extract from the worm farm) that can be used in gardens. Seafood, meat or bones, dairy products, garlic, onion and citrus should not be placed in worm farms.

Worm farms need to be placed in a shaded position and can occupy a small footprint on balconies or in gardens.

9.3 Macerators

Macerators are grinders that reduce the volume of food waste by turning solid food waste into pulp slurry. This is pumped to a holding tank and collected by a licensed contractor and taken to a licensed treatment facility (eg. anaerobic digester or commercial composter).

9.4 Dehydraters

These systems reduce the volume of food waste by removing most of the water it holds, by heating and agitating the food waste over 24 hours. This can occur with or without the addition of bacterial starter cultures. They do not produce compost but only dehydrate waste. These containers need a sewer connection to dispose of the waste water and/or a filter for the vapours vented to the air. This may require additional Council approval. The outputs from these containers can be sent to a lawful facility such as a commercial composting facility.

The organic matter captured from these containers cannot be directly applied to land without an environment protection licence or a Resource Recovery Order and Resource Recovery Exemption.

9.5 Anaerobic digester

On-site anaerobic digesters use bacteria to break down food waste in an oxygen-free environment. The resulting biogas that is produced during this process can be used as an on-site energy source.

Although anaerobic digester technology isn't new, an on-site closed loop system to treat a building's food waste is a relatively new development in Australia. Some trials are currently underway across the country and viable systems will become more commonplace in the future.

10. Glossary of Terms

10.1 Development Types

Type	Definition	Commonly Known As
Single Dwelling	A building containing only one dwelling	Secondary Dwelling Granny flat, Semi-detached, Dual Occupancy
Multi Dwelling Housing	means three or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building	Villas, Townhouses, Terrace House, Manor Houses
Residential Flat Building	means a building containing three or more dwellings, but does not include an attached dwelling or multi dwelling housing • Low Rise – two or three storeys; • Medium Rise – four to 10 storeys; and • High Rise – more than ten storeys.	Flats, apartments, Units, Boarding house
Mixed-Use Development	Means a building containing residential dwellings and commercial businesses within the same development. They can vary in size	Shop top housing, one or more levels of commercial properties

10.2 Key terms

Term	Definition
Bin-carting route	Travel route for transferring bins from bin storage area to nominated collection point. Usually undertaken by a caretaker. Distance allowed will vary depending on bin size.
Bin storage area	Area which stores allocated bins for the development. Can be a nominated area for individual or communal bin storage area. Some developments may have several bin storage areas.
Boarding House	A place of shared accommodation that provides accommodation to a boarder for a fee.
Bulk bins	Large bins which have four swivel wheels so can be moved in any direction**.** Usually greater than 660L bins.
Bulky waste	Large household items such as furniture, white goods and mattresses.
Collect and return service	Service for smaller MDH or RFB where council (or its contractors) access the bin storage area or temporary bin holding area and cart bins to the kerbside to be serviced. Bins are then returned to the bin storage area (or temporary holding area). The collection vehicle needs a safe parking spot on the kerb.
Communal bin storage area	Bin storage area(s) which stores allocated bins for the entire development and can be accessed by all residents and occupants.
Designated, State and Regional Roads	Specific roads in these categories are listed in the Council's DCP's.
Indemnity or Positive covenant	A legal agreement ensuring that a party providing services to a particular property will not be held responsible for any loss or

or Section 88B certificate	damage to such property as a result of the routine provision of the service.
In-Unit separation of waste, recycling and compost	This means the separate recycling and garbage (2x 20L) bins for the dwelling's kitchen. This is where the residents dispose / store the waste and recycling before taking it to the larger communal bins. There should also be sufficient space for a kitchen caddy to store food waste within the kitchen.
Kerbside collection	All allocated bins are presented kerbside by individual residents for collection by council's waste collection staff or contractor.
Layback	The section of kerb that has been removed and replaced in concrete to allow easier access to the kerbside. Also known as a gutter crossing.
Main Road	A high-capacity urban road that has been defined as a Classified or Regional Road.
Mobile garbage bins (MGB's)	Small bins which have two wheels so can only be moved forwards and backwards (not sideways).
Nominated collection point	The nominated point where waste and recycling are collected from by the service vehicle.
On-site collection	Collection occurs within the development site's boundary in a nominated collecting area.
Residential Level	Every level on which there is a dwelling.
Recycling cupboard	The cupboard(s) on each residential level that house the necessary number of recycling bins adjacent to the waste chute hopper.
Route of travel	The travel path for the waste collection vehicle when entering the site to access the nominated collection point and leaving the site after the waste has been collected.
Source Separation	The separation, by residents, of different recyclable items into separate bins or cages.

Temporary bin holding area	Area where bins are transferred to be temporarily stored for collection. Bins are required to be transferred back to the bin storage area as soon as possible after collection occurs. This bin transfer is undertaken by a caretaker.
Vehicular Crossing	The concrete vehicular crossing providing access across the Council controlled nature strip, consisting of a crossing and a layback.
Volume handing equipment	Equipment to automatically change the bin under the chute when it is full. The chute service room must be of adequate size to accommodate this equipment. Resident access to this equipment must be excluded. The bins on the volume handling equipment will not be services and are in addition to the total bin calculations on generation rates.
Waste chute system	Ventilated, vertical pipes passing through each floor of a residential flat building with access on each floor. Chutes discharge into bins at the lowest point in the waste room.

DRAFT - Waste Design for New Developments – Guide F:

- **Commercial and Industrial Development**

9 November 2020

Contents

1. Introduction

1.1 Applicable Development Type

The Waste Design for New Developments (Guide F) applies to commercial (including retail) and industrial development. Guide F also applies to change of use development applications.

1.2 Objectives of the Guide

The City of Canterbury Bankstown (CBCity) aims to integrate waste management into the design fabric of urban planning to support effective collection and management of waste as an essential service. This includes identifying sustainable waste outcomes in all developments that are safe and efficient, reduction in waste generation, increase recycling and resource recovery and contribute to the built form and liveability of the community.

It is important that waste management systems are not overlooked in the design process. There is a need for adequate consideration of waste management requirements early in the site planning and design stage of the development. Poor site planning and design decisions can have significant impacts on the ongoing operation of the development at occupancy stage and can impact how efficiently the building can be serviced.

Considering waste management requirements early in the design stage of the development and site planning process also ensures costly and timely delays are avoided during the assessment process.

Guide F is a valuable resource to improve the design and functionality of waste management systems within all new developments.

Guide F has been prepared to assist you to achieve the following objectives and comply with Council's planning controls:

1. To facilitate sustainable waste management within the City of Canterbury Bankstown in accordance with the principles of Ecologically Sustainable Development and a Circular Economy.
2. To assist in achieving Federal and State Government waste minimisation targets as set out in the Waste Avoidance and Resource Recovery Act 2001 and NSW Waste Avoidance and Resource Recovery Strategy 2014-2021.
3. Waste management systems are safe, efficient and cost effective, maximise recycling and resource recovery and contribute to the built form and liveability of the community.
4. To ensure that waste management systems are designed and managed to minimise impacts on residential amenity, health and the public realm.

5. To ensure that waste storage and collection facilities are considered early in the design process and integrated into the overall site planning and design of the development.
6. To ensure bin storage and collection facilities are designed so that they can be integrated with and comply with the requirements for council's domestic waste services now and into the future.

In addition, the design and ongoing management of waste management facilities encourage residents to use the facilities and waste services appropriately. This includes greater participation in waste stream separation, a reduction in waste generation, increased resource recovery and minimal contamination of recyclables and organics. It can also significantly reduce the likelihood of illegal dumping.

1.3 Waste Reduction and Resource Recovery Targets

In 2019, CBCity sent 68% of its waste to landfill, with 32% diverted from landfill through recycling and composting. The waste generated per residents was 214kg.

CBCity currently has an estimated population of 382,000 and is growing quickly, with the population expected to reach 500,000 in 2036. The waste management service provided by Council needs to continue to keep up with this growth. Also, with the decreasing availability of landfill space in Greater Sydney, reducing waste to landfill through resource recovery is essential.

By 2036, Council's targets for waste reduction and resource recovery are:

- Divert 80% of waste from landfill
- 200kg waste generation per person per year

To help Council achieve these targets, all developments are required to achieve best practise in the design, construction and maintenance of waste services and infrastructure. This will ensure that garbage, recycling, organic and bulky waste produced on site are reduced in the best possible way to improve resource recovery along with increasing the amenity, ease of use, environmental performance and ultimately the reputation of developments with well managed waste facilities.

Council is looking for and will support developments with innovative new ideas and technologies to reduce or treat waste on-site.

2. Waste Management and the Development Application Process

Waste management must be considered at the earliest stage of design and all planning stages for the development.

Consideration of waste management at an early stage will ensure appropriate waste facilities are provided to meet the needs of the community and the development. In addition, early planning will ensure costly design amendments are not required at a later stage, reducing delays in the assessment process.

The Guide is to be read in conjunction with Council's Planning and Building Application Lodgement Guide and should be used when developing a Waste and Recycling Management Plan.

2.1 Waste and Recycling Management Plan

A Waste and Recycling Management Plan (WRMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the CBCity Development Control Plan.

The WRMP is an important planning document that will not only be utilised as part of the development application process, but during construction and for the ongoing use of the development. Conditions of consent will be used to enforce the commitments contained within the WRMP, including the requirement that the ongoing management section of the WRMP is included in the by-laws of strata properties. This will ensure that all relevant parties (ie. residents, property managers) are aware of the WRMP and that it will continue to apply as a working reference for the life of the building and community living there.

Council has a template WRMP to support all Development Applications which addresses the demolition, construction and ongoing operation of the development. It is mandatory to use Council's template.

The WRMP is to provide the following:

- Details of the handling of construction, demolition and ongoing waste streams of the development, including the types and estimated quantities;
- Separate plans of the proposed development that show the location and space allocated to the waste management facilities, along with the nominated waste collection point;
- Identification of the travel path of access to the bin storage area/s by residents and collection staff;
- Identification of the travel and swept paths for on-site collection by a HRV (if applicable);

- Details of ongoing management, storage and collection of waste, including responsibility for cleaning, transfer of bins between storage areas and collection points, implementation and maintenance of signage, and security of storage areas; and
- Where appropriate to the nature of the development, a summary document for tenants and residents to inform them of the building's ongoing waste management arrangements.

The completed WRMP, including drawings submitted by the applicant, will be used in the Council assessment of the waste management systems for the new development.

3. Construction and Demolition

The management of waste from construction and demolition activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.

The WRMP is to detail how this will be achieved and is to be submitted with any new DA (this may include DAs for the change-of-use of a development).

The storage, handling and disposal of any demolition and construction waste must be undertaken in accordance with the requirements of the *Protection of Environment Operations Act 1997* and associated regulations.

The WRMP is to address construction and demolition waste and include:

- Confirmation if the development involves the removal of asbestos, quantities, the licence details of asbestos removalist and the designated disposal site licensed to accept asbestos-related waste;
- Details regarding how all other waste is to be minimised within a development and expected amounts and types of materials to be re-used or left over for removal from the site;
- Details regarding the types of waste and likely quantities of waste to be produced;
- Details of the off-site recycler's primary destination for materials;
- A site plan showing storage areas away from public access for re-usable materials and recyclables during demolition and construction, and the vehicle access to these areas;
- Designation of appropriately licensed facilities (recycling and landfill) to receive the construction and demolition waste. It is recommended the legitimacy and compliance of the facility is checked. The ABN Lookup and Environmental Protection Authority Public Register services can be used;
- Details of the nominated person, responsible for retaining waste dockets from facilities and for ensuring site is clean, tidy and no litter or materials leave or blow off the site; and
- Confirmation that all waste going to landfill is not hazardous.

4. Waste Management Considerations

4.1 General Considerations

It is essential when selecting a waste management system you have a thorough understanding of the likely waste to be generated by your development and potential waste streams. Waste generation and waste streams will influence the size of bin storage areas as well as how all waste streams will be collected.

A Waste and Recycling Management Plan that includes calculation of waste to be generated by the development is to be provided.

4.2 Waste Generation Rates

Careful consideration of waste generation rates will ensure you select an appropriate waste system and ensure its design is functional and effective for ongoing use of the site.

Table # contains waste generation rates for various commercial and industrial developments. These generation rates should be used to indicate the likely generation of waste from your development. This will also assist in calculating the number of bins required for the development, determine the type and frequency for waste collection and the design (including size) of your bin storage area.

Each commercial operator is to be allocated an area in the bin storage area for their individual waste service to be stored.

Table #: Commercial and industrial waste and recycling generation rates

Premises Type	Generation Rate (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m^2 floor space.
Carparks (commercial)	1	1	Based on per 100 m^2 floor space.

Childcare	20	5	Per child
Cultural and recreational services: (museums, theatres, cinemas)	5	10	Based on per 100 m^2 floor space for patrons (seating areas for theatre/cinema). Calculate cafes separately. Calculate office areas separately.
Dry cleaning	15	5	Per premises (80 m^2)
Food retail: bakeries	240	120	Per premises (80 m^2)
Food retail: butchers	250	50	Per premises (80 m^2). If organics recycling implemented, then 150L may be transferred from waste.
Food retail: seafood	250	50	Per premises (80 m^2) If organics recycling implemented, then 150L may be transferred from waste.
Food retail: greengrocers	540	60	Per premises (80 m^2) A higher rate needs to be considered for larger premises (based on a pro-rata increase for the 80 m^2) premises. If organics recycling implemented, then 300L may be transferred from waste.
Food retail: other	120	80	Per premises (80 m^2)
Food retail: takeaway (with sit-down area)	500	240	Per premises (80 m^2) – day operation only Note consideration must be given to the number of hours or operation.
Food retail: takeaway (food preparation only)	120	60	Per premises (80 m^2)
Gymnasiums	20	15	Based on per 100 m^2 floor space
Hair and beauty	50	40	Per premises (80 m^2)
Hotels/pubs (without meals provided at the bar)	50	50	Based on per 100 m^2 floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Licensed clubs (with gaming)	50	50	Based on per 100 m^2 floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Medical	20	10	Per number of doctors' consulting rooms.

			Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Motels	10	5	Based on the number of guest rooms with other types of facilities calculated separately.
Offices	10	15	Based on per 100 m^2 floor space that is used for staff activities (e.g. exclude lobby areas).
Optical	15	25	Per premises (80 m^2)
Restaurants	400	280	Based on per 100 m^2 floor space
Retail: chemists	20	45	Per premises
Retail: chain stores (clothing, manchester etc.)	5	20	Based on per 100 m^2 floor space. Other facilities such as cafes calculated separately.
Retail: other non-food	50	100	Per premises
Retail: grocery and convenience stores	120	240	Based on per 100 m^2 floor space
Retail: homeware and kitchenware shops	20	120	Per premises
Retail: newsagents and stationery shops	30	60	Per premises
Retail: office-based (e.g. travel agents)	30	40	Based on per 100 m^2 floor space that is used for staff activities (e.g. exclude lobby areas).
Retail: variety gift stores	20	120	Per premises
Schools: pre-school	10	15	Per student
Schools: primary	15	20	Per student
Schools: secondary	20	15	Per student
School: tertiary	10	10	Per student (full time equivalent). Note that other waste such as chemical waste will be generated.

			Need to calculate other services (e.g. food halls, student accommodation, childcare, gyms), separately.
Showrooms	10	25	Based on per 100 m^2 floor space
Supermarkets	240	300	Based on per 100 m^2 floor space. Larger supermarkets may have a number of recycling streams, so advice should be sought as to what systems will be provided.
Wholesale trade	100	50	Based on per 100 m^2 floor space

4.3 Waste Collection Service

In most instances commercial and industrial land uses are required to be serviced by a private waste collection service.

Council does offer a trade waste service for certain commercial developments and may be invited to quote for service by the business operator.

During the design stage, it is recommended you consult with waste contractors to confirm collection requirements, bin types available (including sizes and dimensions) as well as their access requirements. Further details are provided in the NSW EPA's Better Practice Guide for Waste Management and Recycling in Commercial and Industrial Facilities (https://www.epa.nsw.gov.au/publications/managewaste/120960-comm-ind). To achieve best practise, commercial and industrial developments should be designed for HRV access and manoeuvring as per AS2980.2. This includes entering and existing the site in a forward direction.

Consideration of collection frequency is also required. Collection frequency can influence the size of bin storage areas for your development. Different commercial types will require more frequent collection services such as retail premises containing fish, poultry and meat products.

4.3.1 Bin Sizes

An adequate bin storage area is to be provided within the development site to store all allocated bins. The following table provides the dimensions for bins that can be used to collect waste and recycling.

Table #: Standard bin dimensions

Standard Bin Type	Dimensions (Additional 15cm is to be provided around each bin)		
	Height	Width	Depth
140L Mobile Garbage Bin (MGB)	930 mm	530 mm	610 mm
240L Mobile Garbage Bin (MGB)	1,060 mm	580 mm	730 mm
660L Bulk Bin	1,250 mm	1,370 mm	850 mm
1,100L Bulk Bin	1,470 mm	1,370 mm	1,245 mm
Hook Lift / Compactor Bin ($10m^3$-$30m^3$)	2.5m	2.5m	6m

NOTES:

1. An additional 15cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently, and to avoid damage to walls and doors from bins scraping against them.
2. Dimensions are a guide only and may differ depending on the manufacturer.

Insert Image 2 from Bankstown Guide (showing 15cm between bins)

5. Specific Requirements

5.1 Bin Storage Area

When designing developments it is recommended consideration of the intended and future uses should be undertaken to reduce any costly retrofitting that may be required at the operational stage of the development.

Bin storage areas are to be designed so they can be constructed to the following requirements:

Size

- The size of the bin storage area must be sufficient to cater for all likely waste generation and the required bins for all waste streams. Waste generation is to be determined in accordance with Table #.

Location

- Equal and convenient access for all tenants is to be provided, with each tenant to have their own allocated area for bin storage;
- Sited behind the development building line and incorporated within the development footprint;
- In areas that will not reduce the amenity for tenants and existing users adjoining the development.
- Located within 10m of the nominated collection point, to minimise bin-carting routes.

Design

- As a minimum, the design should allow for the separate collection of general waste, recycling, paper and cardboard, food waste and pallets;
- Bin storage areas can be a stand-alone structure for smaller commercial and industrial developments. Where a stand-alone structure is to be provided it is to be designed and integrated into the overall look of the development in regards to materials and finishes.
- For larger developments (particularly with a high number of individual tenancies) a bin storage area should be provided within the development footprint.

Layout

- The layout of the bin area must prevent obstructions that impact on bin movement, maintenance and cleaning as well as any servicing requirements;

Construction

- Floors must be constructed of concrete at least 75mm thick and graded and drained to a Sydney Water approved drainage fitting;
- Floors must be finished so that it is non-slip and has a smooth and even surface;
- Walls must be constructed of solid impervious material;

- Ceilings must be finished with a smooth faced, non-absorbent material capable of being cleaned;
- Walls, ceilings and floors must be finished in a light colour;
- If a room or is integrated within the building, a minimum 2.1m unobstructed room height is required in accordance with the Building Code of Australia;
- The area must be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;
- Doors must at least 2m wide and be close fitting and self-closing and able to be opened from within the area
- The area must be constructed to prevent the entry of vermin and birds;
- The area must have adequate light and ventilation; and
- Lighting must be controlled using switches located both inside and outside the area.

5.2 Collection Point

For commercial and industrial developments, all allocated bins are required to be presented to a nominated on-site collection point and not on the kerbside. The site is to allow a HRV to enter the site and collect all bins directly from the bin storage area, a loading dock or a separate on-site bin presentation area.

On-site collection points need to be located so they do not interfere with car parking, vehicle manoeuvring areas or pedestrian areas.

When designing for HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of a HRV as per AS2890.2, and includes adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided below.
- HRV must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support the waste collection vehicle at maximum capacity (approximately 30 tonnes); and
- A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the HRV.

Figure ##: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheel base	Design turning radius	Swept circle	Clearance height	Maximum roadway/ramp grade	Maximum rate of change of grade

12.5	2.5	6.6	12.5	27.8	4.5	1:6.5 (15.4%)	1:16 (6.25%) in 7.0 m of travel

Swept paths for HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- A HRV can park safely within a designated loading area on-site whilst servicing the bins.

Insert Figure ##: Turning path template

5.3 Other requirements for specific commercial and industrial developments

If contaminated sharps are generated, non-reusable sharps containers should be provided in accordance with relevant Australian Standards for disposal. Final disposal must be undertaken by licensed contaminated waste contractors.

Food Premises, including food retailers, cafes and restaurants

- Food premises are to comply with the requirements of AS 4674-2004 Design, construction and fit-out of food premises, including the general waste and recyclable materials requirements. The Guide is not intended to alter obligations under that Standard, and in the event of any conflict between this Guide and the Australian Standard, the Standard prevails.
- Individual tenancies are to be provided with appropriate space to store bins and containers that can store up to two days of estimated generated waste.
- A bunded and graded on-site storage area for liquid waste is to be provided so it can be drained to a grease trap to satisfy Sydney Water requirements.
- Additional space in the waste area to accommodate reusable items like pallets and crates.
- Commercial tenancies producing more than 50 litres of meat, seafood or poultry waste must have daily waste collection or be designed with a dedicated refrigerated room for waste storage between collections. These sites are encouraged to consider on site processing of food waste to limit collection costs.

Multiple Tenancies Retail Premises

- A centralised waste storage area for the development for all required bins awaiting collection.
- Where individual tenancies are proposed within a commercial development, each tenancy is to be provided with appropriate space to store bins and containers that can store up to two days of estimated generated waste.

- A waste service area on each level is to be provided, that can store a minimum one day's waste and recycling generated by the tenancies on that level. Cleaners will be required to move the waste to a centralised waste storage area for collection.
- Additional space for the storage of bulky items in the centralised waste service area.
- Additional space for the separation of waste and recycling in the centralised waste service area.
- Waste and recycling from the waste service areas must be transferred to the centralised waste area daily by cleaners.

Office Premises

- A centralised waste storage area for the development for all required bins awaiting collection.
- Where individual offices are proposed within a development, each office is to be provided with appropriate space to store bins and containers that can store up to one day of estimated generated waste.
- A waste service area on each level that can store a minimum, one day's waste, recycling and paper/cardboard generated by the tenancies on that level. Cleaners will be required to move the waste to a centralised waste storage area for collection
- Additional space for the storage for bulky items in the centralised waste service area.
- Additional space for the separation of waste and recycling in the centralised waste service area.
- Waste and recycling from the waste service area must be transferred to the centralised waste room daily.

Industrial Development Including warehouses

- Where individual tenancies are proposed within an industrial development, they are to be provided with appropriate space to store bins and containers that can store up to two days of estimated generated waste.
- A bunded and graded storage area for liquid waste so that it can be drained to a grease trap to satisfy Sydney Water requirements.
- Additional space (minimum $10m^2$) in the waste rooms to accommodate reusable items like pallets and crates.

6. Advanced Waste Collection Systems

Precinct developments or developments on a large site with multiple buildings are encouraged by Council to implement innovative and alternate solutions for waste management systems (ie. hook lift systems, on site processing of food waste, reuse on site or promotion of waste reduction and circular economy). Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

Advanced waste collection systems which could be considered include automated waste collection systems and alternative bin or container systems.

6.1 Automated waste collection systems

Automated waste collection is an integrated network of underground pipes and chute inlets that transport both waste and recycling directly from residential or commercial buildings to a centralised collection point using a vacuum transport. These systems can collect all waste and recycling from an area up to 2.5 kilometres from the central station.

The use of automated waste collection is widespread internationally. Some systems have operated continuously for 50 years. Over 100 cities around the world operate at least one area with automated collection systems, and over one million households are currently connected to an automated waste collection system.

Automated waste is most effectively installed if included at the design stage for new developments. This allows for optimum conveyance pipe layout across the precinct and the incorporation of waste and recycling chutes in multiple buildings integrated with the system.

Developers interested in installing these systems within a new development should contact Council waste and planning staff at the earliest stage possible. The key requirements for bins, collection points, access and waste collection for service rooms referred to in this Guide may be open to amendment if an automated waste collection system is considered.

Benefits of automated waste collection include:

- Improved amenity for residents and businesses (reduced odour, noise, spillage and vermin)
- Reduced need for space allocated to waste handling and waste storage in buildings and costs
- Less need for waste management equipment, such as waste chutes, compactors and bins
- Reduced or eliminated vehicle collection and access at individual buildings, as waste collection would be at a central location (on site or off, away from residential buildings)
- Lower wage, fuel and vehicle costs, decreased carbon dioxide emissions, noise and traffic congestion from having fewer waste collection vehicle movements.

Requirements:

If an automated waste collection system is included in a DA, the following requirements will need to be taken into account:

- The ventilation, air intake and air outlet units will need to be located to minimise nuisance to neighbouring premises
- The waste and recycling storage capacity within a building shall be at least one day's waste or recycling output of the building
- Waste and recycling collection points and storage stations shall be accessible to Council's collection vehicles, and be located to minimise nuisance to neighbouring premises
- Space for bulky and additional recycling storage will still be required
- Adequate measures shall be taken to minimise noise resulting from the operation of the system
- Adequate measures shall be provided to remove dust and smell from the air used for waste conveyance before it is discharged into the atmosphere. The discharge point shall be located away from neighbouring premises

6.2 Underground bins

Underground bins involve installing large collection containers below ground level. The general user does not see the container but simply a small portion of the container or a small bin above ground.

Underground bins are available in a range of sizes including over 5,000 litres.

Underground bins have the following advantages:

- They allow for large waste storage capacity;
- They can be configured for different waste streams (recycling, general waste, organics);
- They have a small above-ground footprint;
- Waste stored underground improves amenity by reducing odour and vermin;
- Less collections mean fewer waste collection truck movements in residential streets;
- They can make waste collection easier where space for bin storage is restricted.
- Access can be restricted using a key control panel.

Other considerations:

- To service underground bins, power to operate the hydraulic lift must be supplied from onsite mains or from the waste collection vehicle.
- Heavy vehicle access and safe servicing of bins are key issues when deciding on suitable location of underground bin systems.

7. Treatment and management of food waste

Composting or treating food waste on-site, can greatly reduce the amount of waste sent to landfill and create a nutrient rich fertilizer.

Council supports and encourages a reduction in food waste to landfill. Architects, designers and developers are encouraged to discuss these developments with Council early in the planning process.

The viability of the systems that treat and manage food waste and whether they may be suitable for any particular development depends on such factors as:

- Size of the development, number of households and quantities of food waste generated
- Whether the development includes retailers and commercial premises and quantities and types of food waste generated
- Availability of trained people to manage and operate systems
- Availability of suitable space
- Ability to source separate food waste
- Availability and cost of food or food and garden collection services to offsite organic processors
- Ongoing operation and maintenance requirements of the selected onsite system.

7.1 Composting

Compost bins are a way of processing food waste and garden organic material on-site. This not only reduces the volume of waste but also creates a nutrient fertilizer (compost).

Compost bins are more versatile than worm farms, as they can process a wider range of materials including garden organics and citrus. Well managed bins can also process meat. Compost bins are best placed in the sun.

There are a variety of compost bin arrangements and systems that are commercially available.

7.2 Worm Farms

Worm farms are an effective method of managing food waste, with an output of vermicast (worm compost) and vermiliquid (liquid extract from the worm farm) that can be used in gardens. Seafood, meat or bones, dairy products, garlic, onion and citrus should not be placed in worm farms.

Worm farms need to be placed in a shaded position and can occupy a small footprint on balconies or in gardens.

7.3 Macerators

Macerators are grinders that reduce the volume of food waste by turning solid food waste into pulp slurry. This is pumped to a holding tank and collected by a licensed contractor and taken to a licensed treatment facility (eg. anaerobic digester or commercial composter).

7.4 Dehydraters

These systems reduce the volume of food waste by removing most of the water it holds, by heating and agitating the food waste over 24 hours. This can occur with or without the addition of bacterial starter cultures. They do not produce compost but only dehydrate waste. These containers need a sewer connection to dispose of the waste water and/or a filter for the vapours vented to the air. This may require additional Council approval. The outputs from these containers can be sent to a lawful facility such as a commercial composting facility.

The organic matter captured from these containers cannot be directly applied to land without an environment protection licence or a Resource Recovery Order and Resource Recovery Exemption.

7.5 Anaerobic digester

On-site anaerobic digesters use bacteria to break down food waste in an oxygen-free environment. The resulting biogas that is produced during this process can be used as an on-site energy source.

Although anaerobic digester technology isn't new, an on-site closed loop system to treat a building's food waste is a relatively new development in Australia. Some trials are currently underway across the country and viable systems will become more commonplace in the future.

8. Glossary of Terms

8.1 Development Types

Type	Definition	Commonly Known As
Mixed-Use Development	Means a building containing residential dwellings and commercial businesses within the same development. They can vary in size	Shop top housing, one or more levels of commercial properties

8.2 Key terms

Term	Definition
Bin-carting route	Travel route for transferring bins from bin storage area to nominated collection point. Usually undertaken by a caretaker. Distance allowed will vary depending on bin size.
Bin storage area	Area which stores allocated bins for the development. Can be a nominated area for individual or communal bin storage area. Some developments may have several bin storage areas.
Bulk bins	Large bins which have four swivel wheels so can be moved in any direction. Usually greater than 660L bins.
Bulky waste	Large household items such as furniture, white goods and mattresses.
Collect and return service	Service where collection staff access the bin storage area or temporary bin holding area and cart bins to the kerbside to be serviced. Bins are then returned to the bin storage area (or temporary holding area). The collection vehicle needs a safe parking spot on the kerb.
Communal bin storage area	Bin storage area(s) which stores allocated bins for the entire development and can be accessed by all residents and occupants.
Indemnity or Positive covenant or Section 88B certificate	A legal agreement ensuring that a party providing services to a particular property will not be held responsible for any loss or damage to such property as a result of the routine provision of the service.
In-Unit separation of waste,	This means the separate recycling and garbage (2x 20L) bins for the dwelling's kitchen. This is where the residents dispose / store the waste and recycling before taking it to the larger

recycling and compost	communal bins. There should also be sufficient space for a kitchen caddy to store food waste within the kitchen.
Kerbside collection	All allocated bins are presented kerbside for collection by council's waste collection staff or contractor.
Layback	The section of kerb that has been removed and replaced in concrete to allow easier access to the kerbside. Also known as a gutter crossing.
Main Road	A high-capacity urban road that has been defined as a Classified or Regional Road.
Mobile garbage bins (MGB's)	Small bins which have two wheels so can only be moved forwards and backwards (not sideways).
Nominated collection point	The nominated point where waste and recycling are collected from by the service vehicle.
On-site collection	Collection occurs within the development site's boundary in a nominated collecting area.
Route of travel	The travel path for the waste collection vehicle when entering the site to access the nominated collection point and leaving the site after the waste has been collected.
Source Separation	The separation, by residents, of different recyclable items into separate bins or cages.
Temporary bin holding area	Area where bins are transferred to be temporarily stored for collection. Bins are required to be transferred back to the bin storage area as soon as possible after collection occurs. This bin transfer is undertaken by a caretaker.
Vehicular Crossing	The concrete vehicular crossing providing access across the Council controlled nature strip, consisting of a crossing and a layback.
Volume handing equipment	Equipment to automatically change the bin under the chute when it is full. The chute service room must be of adequate

	size to accommodate this equipment. Resident access to this equipment must be excluded. The bins on the volume handling equipment will not be services and are in addition to the total bin calculations on generation rates.