

Development Waste Guideline



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Acknowledgement of country

We would like to acknowledge the traditional custodians of the Queanbeyan-Palerang region and pay our respects to Elders past, present and emerging. We acknowledge the stories, traditions and living cultures of our First Nations peoples on this land and commit to building a brighter future together.

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1 Introduction

This Development Waste Guideline is intended for stakeholders involved in the construction, design, management, and operation of waste management in various types of development within the Queanbeyan-Palerang Regional Council (Council) local government area (LGA). These include companies and individuals such as landowners, architects, designers, developers, planners, waste consultants, builders, certifiers, and building managers.

The Guideline outlines the required contents of Waste Management Plans (WMPs) for all development types, including single dwellings (SUDs), multi-unit housing, rural properties, subdivisions, shop-top housing, mixed-use, commercial and industrial developments.

1.1 Objectives

The objectives of this Guideline are to:

- Ensure that end-users are the primary focus when planning waste infrastructure
- Guide the design and construction of waste infrastructure in new developments to:
 - Accommodate appropriate volumes of waste and recyclables
 - Enable safe and efficient waste handling and collection
 - Ensure safe access and movement of collection vehicles and pedestrian
 - Meet standardised servicing requirements
 - Maximise resource recovery
- Align with and support the Development Control Plan (DCP) and the Development Application (DA) assessment process, enabling consistency and clarity across departmental reviews
- Ensure effective planning of construction and demolition activities to maximise recycling opportunities and minimise waste sent to landfill.

1.2 How to use the guideline

The procedure for following the Guideline is outlined in Figure 1 below. Refer also to Appendix F to understand the relevant sections of the Guideline applicable to your development type.

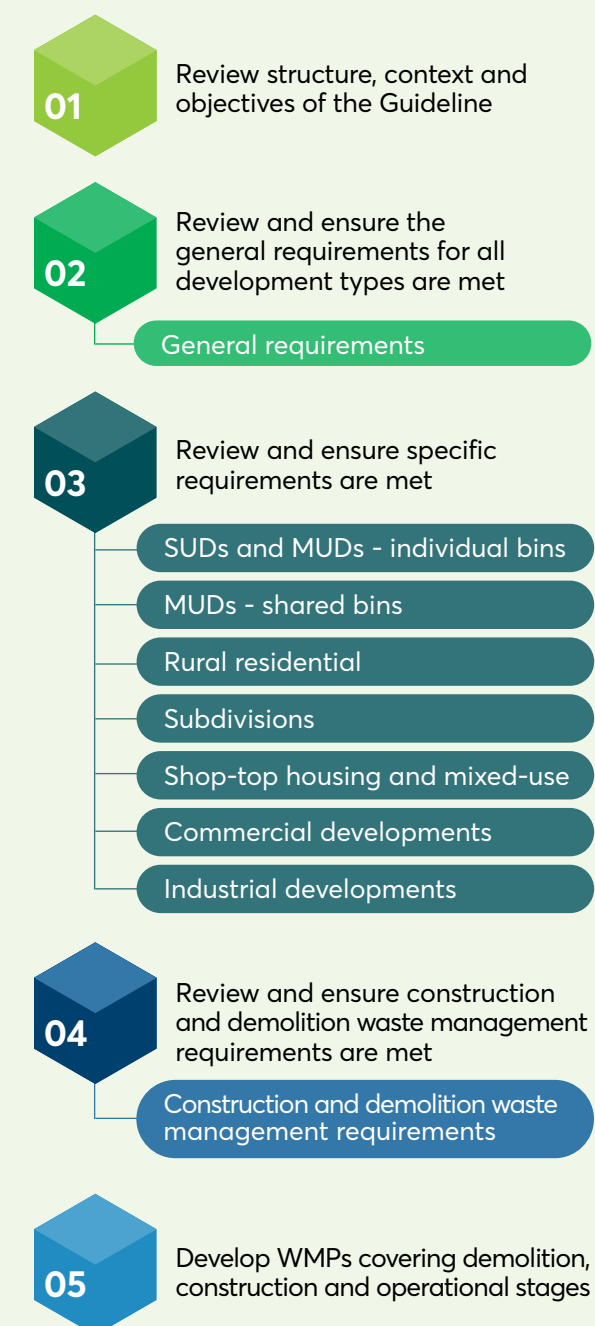


Figure 1 How to use this Guideline

This Guideline is to be read in conjunction with the Queanbeyan-Palerang Regional Local Environmental Plan (LEP) 2022, the Queanbeyan Development Control Plan (DCP) 2012, and any other relevant Council policies.

1.3 Waste Management Plans

A WMP should be submitted with all development applications (DAs) for new and change-of-use developments that will generate construction, demolition, and/or operational waste.

Applicants should prepare the WMP as per the requirements shown in Appendix F. Detailed templates are provided for each development stage (demolition, construction and operational).

The completed WMPs, including plans and drawings submitted by the applicant, will be used in Council's assessment of the waste management provisions for the development. Inaccurate or incomplete WMPs can delay development approval decisions.

1.4 Waste hierarchy and circular economy

Waste management in Council is guided by a combination of national, state and Council commitments that support the transition to a circular economy. These include:

- National Waste Policy Action Plan 2019
- NSW Waste and Sustainable Materials Strategy 2041
- Waste Avoidance and Resource Recovery Act 2001
- NSW EPA Better Practice Guide for Resource Recovery in Residential Developments 2019
- Queanbeyan-Palerang Regional Council Waste Management Strategy 2025-2045
- Queanbeyan-Palerang Community Strategic Plan 2042



2 General requirements

This section describes the general requirements that apply to all development types (excluding residential SUDs). It is to be read in conjunction with the requirements for the specific development types that are set out in the sections that follow.

The waste collection requirements in this Guideline apply to developments serviced by Council, Council's nominated contractor, or private waste collection contractors.

2.1 Bin requirements

- All waste must be stored in fit-for-purpose mobile garbage bins (MGBs) or other approved containers, sized to suit the type and volume of waste generated.
- Containers must be designed and managed to ensure:
 - safe use by residents and collection contractors
 - ease of cleaning and maintenance
 - efficient collection and transfer
- Waste containers shall remain closed at all times.
- Prior to occupation and throughout the life of the development, waste containers must be clearly labelled and, where possible, fitted with colour-coded lids in accordance with AS4123: *Mobile Garbage Containers* or relevant industry standard. Standard bin sizes (up to 1,100 L) are provided in Appendix B.
- The WMP shall specify the number, size and type of containers for each waste stream.

2.2 Waste storage

All waste and recycling must be stored in a dedicated storage area ('waste storage area').

2.2.1 Location

Waste storage areas must be:

- Level, safe and located entirely within the property boundary
- Reasonably close to the nominated collection point (within 10 m)
- No lower than one level below street level
- Square or rectangular in shape (not obtuse or irregular)
- Located in a position that is convenient for use by users and waste collection staff. The maximum walking distance from any entrance of a residential dwelling to the storage area should not exceed 30 m (lift travel distance not included).

Waste storage areas must not be:

- Adjacent to a habitable room unless amenity issues have been addressed
- Located near an adjacent property, unless amenity issues have been addressed. Amenity issues to be considered are discussed in Section 2.4.

More than one waste storage area may be required to provide sufficient storage or to meet criteria for the access and transfer of waste, recycling and food organics and garden organics (FOGO). Waste storage areas are to be specified and shown on DA plans and drawings submitted to Council. The following details must be provided:

- Waste storage area size (m²)
- Bin layout
- Wash-down area
- Ventilation
- Additional information may be required on vermin prevention, noise and odour reduction and stormwater protection.

2.2.2 Space and layout

- Waste storage areas must have sufficient capacity to hold all waste, recycling and FOGO generated between collection cycles, including peak demand (refer Appendix C for indicative generation rates).
- Space provisions should consider the proposed equipment, infrastructure, manoeuvring and future needs.
- The layout shall be designed to encourage easy separation of waste streams and minimise contamination.
- 'Double stacking' of bins (storing one bin behind another so it is not directly accessible) is not supported.
- Waste storage areas should have a minimum height of 2,100 mm for at least two-thirds of the floor area.

Table 1 Waste storage area (bin room) space and layout requirements

Minimum distance	Dimension label	Bins up to and including 240L MGB	Bins larger than 240L
Offset from rear wall	A	100 mm	100 mm
Distance between bins	B	200 mm	500 mm
Distance from side walls	C	100 mm	500 mm
Bin depth	D	800 mm	Bin depth plus 150 mm
Bin width	E	600 mm	Bin width plus 150 mm
Aisle width	F	1,500 mm	The greater of 1,500 mm or Bin depth plus 500 mm
Distance between rows of bins	G	100 mm	150mm
End or intermediate aisle width	H	1,000 mm	1,000 mm Except where bins are required to be moved through this section for collection, then Bin depth plus 500 mm
Maximum length of centrally placed bins without a gap	I	10,000 mm	10,000 mm
Minimum service door width	J	2,000 mm	Greater of 2,000 mm or largest bin depth plus 500 mm
Service door clearance	K	J + 500mm	J + 500 mm

Figure 2 shows a typical waste storage area example.

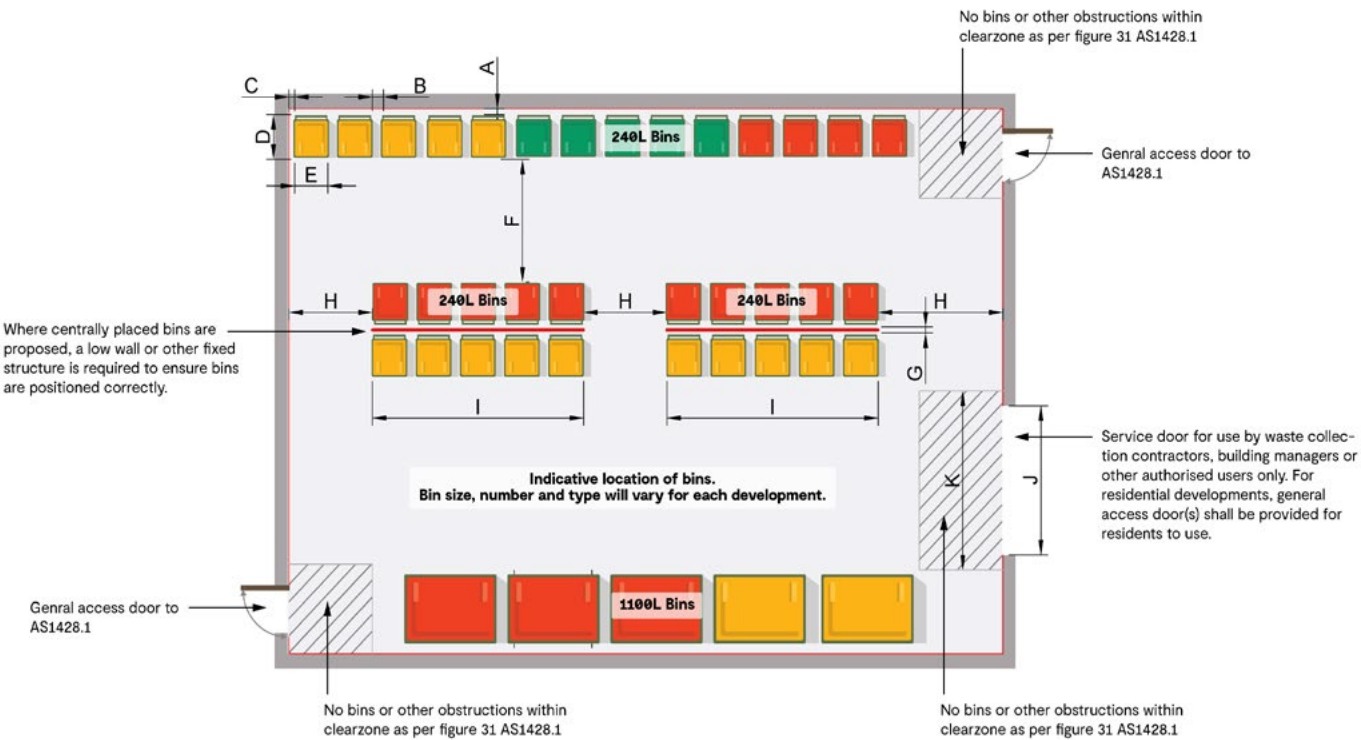


Figure 2 Typical waste storage area with MGBs (NSW EPA, 2019)

2.2.3 Ventilation

- Waste storages areas must be ventilated in accordance with the provisions of the National Construction Code.
- The openings of the ventilation units should be protected against flies and vermin. The openings should be located as near the ceiling and floor as possible, but away from the windows of dwellings.

2.2.4 Water and drainage

- Waste storage areas must have a reliable supply of water with hose cock and drainage fittings and be easy to clean.
- Taps must be protected from bins and be located where they can be easily accessed even when the area is at bin capacity.
- Water from washing of bins and/or waste storage areas must not be allowed to flow into stormwater drains. Any connection to sewer will need to consider [Liquid Trade Waste](#) approvals and requirements.

- Adjoining areas shall slope away from the bin room to ensure that stormwater is not directed to the waste area(s).

2.2.5 Lighting

- Waste storage areas must be provided with adequate lighting in accordance with the provisions of the National Construction Code, which may be either natural and/or artificial.
- Lighting must be available 24 hours a day
- Lighting may be sensor-activated to minimise energy use. Users should not have to manually turn on/off lighting.

2.2.6 Materials

- Floors must be constructed of concrete at least 75 mm thick.
- Smooth, cleanable and durable floors and wall surfaces that extend up the wall to the height equivalent of any bins held in the area are to be provided.

- Ceilings must be finished with a smooth-faced non-absorbent material capable of being cleaned.
- All surfaces (walls, ceilings and floors) must be finished in a light colour.
- Protection must be provided to all electrical, water or gas fittings to prevent damage caused by moving bins.

2.2.7 User safety

- Waste storage areas should be located in areas with reduced public access to avoid vandalism.
- Waste storage areas should have suitable non-slip flooring, and risks for all users should be managed to be as low as reasonably practicable.
- Waste storage areas should be designed to prevent theft and vandalism.
- Waste storage areas should have adequate weather protection.

2.2.8 Access

- The waste storage area shall comply with the *Disability Discrimination Act 1992* (Cth).
- Non-residents or illegitimate users should be restricted from accessing to waste storage areas.
- Where skip bins are used, the width of the door to the waste storage areas should be a minimum 2.5 m and must allow access and manoeuvrability of the largest bin and any required waste handling equipment.
- Waste storage area doors, gates or roller doors are to be durable, self-closing, lockable and able to be opened from both inside and outside. Doors must be fitted with galvanised steel angles to protect the guiderails against damage caused from bins striking the doors when they are being moved.
- In shop-top and mixed-use developments, separate waste storage areas are to be provided for residents and commercial premises that can only be accessed by the respective intended users.
- Residents should only be required to travel a reasonable distance to the waste storage areas when disposing their waste. When determining a reasonable distance, the following should be

- considered as a minimum:
 - Whether the development is for aged persons and persons with restricted mobility
 - Appropriate gradient of traverse (recommended maximum 1:14)
 - The capacity/volume of the bins
 - The compaction of waste in the bins.
- There should not be any lips, steps, or other obstructions in the access path between waste storage areas and collection points.

2.2.9 Fire safety

- In accordance with the National Construction Code, internal waste storage areas must be fire-isolated and equipped with fire sprinklers or alarms.
- Waste storage areas shall be readily accessible by emergency services in the event of an emergency.

2.2.10 Bulky waste storage

- A separate dedicated space, such as a room or screened area (which may be in or attached to the waste storage area) is to be provided for the storage of bulky waste prior to collection. Refer to the relevant sections of this Guideline for specific size requirements according to development type.
- Where there is no communal waste storage area, residents will need to be able to place bulky waste material directly at the kerbside for designated collections.

2.2.11 Additional space for future changes

- Applicants should consider including additional waste storage space for problem waste, reusable items, clothing and e-waste.

2.2.12 Security

Waste storage areas are generally located in areas that do not have high levels of natural surveillance. Design and amenity requirements further decrease natural surveillance. Waste storage areas should be designed with *Crime Prevention through Environmental Design* (CPTED) principles in mind.

The minimum dimensions detailed in Section 2.2.2 have considered CPTED principles (such as requiring a gap between rows of centrally placed bins to act as an escape path). As each waste storage area will have unique characteristics and circumstances, designers and developers will need to assess security on a case-by-case basis. Strategies that can be used include:

- Ensuring that access doors are suitably secured and keys are not easily copied
- Consider whether access arrangements should include access control systems such as fobs, swipes and/or access pins
- Providing multiple entry points to the waste storage area to provide multiple points of escape
- Installing security cameras at entrances/exits and within waste storage rooms

2.3 Waste collection

2.3.1 Collection points

A waste and recycling collection point is the designated position or area where waste or recyclables are loaded onto the collection vehicles.

- The requirements for the collection points are as follows:
- Collection points are to be easily accessible from the nominated waste storage area.
 - An access path is to be provided with sufficient clearance and of a suitable grade to wheel waste, recycling and FOGO bins from the waste storage area to the collection point. The access path is not to enter or traverse a dwelling.
 - For safety and ease of manoeuvrability, the access path distance required for residents, building managers and/or caretakers to wheel bins to the collection point must be the minimum achievable.
 - The access path for wheeling bins between a storage area and the collection point is to be level and free of steps or kerbs.
 - The maximum manual handling distance and surface grades between a waste storage area and the collection point for bins is listed in Table 2. Any proposed variations will require further assessment and discussion with Council.
 - Where bins are required to be presented at a designated collection point, the responsibility for moving bins to and from the collection point rests with the strata manager, building manager, caretaker or other nominated site representative.
 - Waste collection contractors are not required to operate bin tugs or mechanical bin-moving equipment, nor to retrieve bins from within buildings, basements or waste storage rooms.

Table 2 Bin carting (access path) design standard (NSW EPA, 2019)

Bin capacity	Up to 240 L	660L to 1100 L	More than 1100 L
Maximum distance	30 m	5 m	3 m
Maximum surface grades	1:14	1:24*	1:30
Steps or kerbs	None	None	None

*Reduced gradients of 1:14 may be considered when bins are moved with the assistance of a bin tug device

- Collection points are to be located where the waste or recycling collection vehicle(s) can stand safely.
- Collection points are to be level, free of obstructions and with sufficient height clearance to enable the safe mechanical pick up and set down of bins.
- Collection points are not to be located adjacent to a habitable room. Collection points are also not to be located directly below a habitable room unless there is a structure that shields the habitable room from noise and visual impacts.
- Collection points for residential and non-residential loads may be shared.
- Where collection points are located at kerbside:
 - The collection point should be on the same side of the road as the development and directly in front of the development.
 - For corner blocks, the collection point is to be located on the same road at the property frontage.
- Collection point locations and sizes are to be detailed on the DA plans and drawings.
- Collection points that are located external to the development should be within 15 m of the property boundary.
- Refer to Appendix E for minimum design collection vehicle, access and turning requirements.

Figure 3 provides an example of a good practice collection point.



Figure 3 Good practice example of defined waste service collection points (NSW EPA, 2019)

Figure 4 shows an example where bin access is blocked.

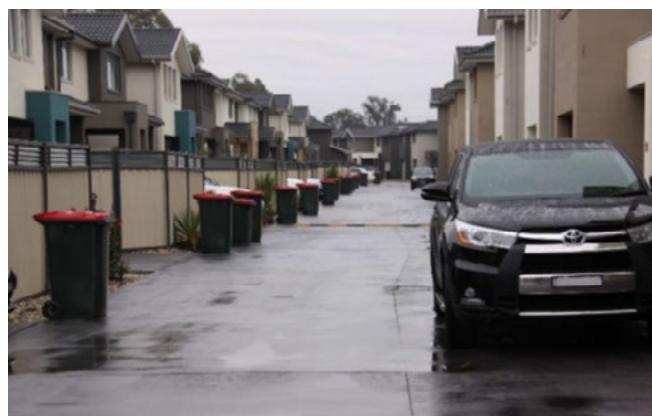


Figure 4 Parked cars example where bin access is blocked (NSW EPA, 2019)

2.3.2 Access for on-site collection

- Where on-site collection is proposed, collection vehicles must be able to enter and exit the site in a forward direction and sufficient clearance must be provided. Vehicle turntables are not preferred by Council to achieve this. If a vehicle turntable is proposed, this must be discussed with Council prior to DA lodgement. *Strict conditions will be placed on any proposal that includes a vehicle turntable relating to maintenance, safety and operation and deemed missed collections in the event the turntable is not working.*
- Particularly where a development is located on a narrow laneway, providing the absolute minimum clearances or turn paths specified in Austroads/ Australian Standard guidelines is not practical. Applicants must demonstrate consideration has been made to ensure safe and effective collection vehicle access can be achieved in practice.
- Collection vehicles are to be able to service the development with minimal reversing. If a collection vehicle needs to reverse to complete a collection, this needs to be detailed in the development's traffic management plan with a swept path drawing indicating clearances during the manoeuvre.
- DA drawings and plans must demonstrate access for collection vehicles, including swept path analysis.
- Refer to Appendix E for truck sizes and access requirements.
- Waste collection vehicle access and collection arrangements must be designed such that collection can occur without the need for collection staff to manually move bins or operate bin-moving equipment.

2.3.3 Access for on-street collection

- Where on-street collection is proposed, the Waste Management Plan shall include an engineering/ architectural plan showing the required number of bins positioned for collection with a 0.5 m spacing between bins.
- The bin collection point must be kept clear of obstructions (e.g. poles, trees, street furniture) and provide at least 1 m clearance from any obstacle.
- An additional 20 m shall be shown at the start and end of the bin area to allow for the vehicle to access the first and last bins. The plan will show the impacts on parking and any other items (e.g. poles, trees).
- On-street collection will not be permitted when the combined width of bins exceeds the property frontage width.
- Temporary or time-limited "No Parking" street signage is not supported. Time-limited "No Parking" zones are difficult to enforce (with a consequent increase in missed bins), are confusing for road users and restrict the ability of Council to alter waste collection arrangements to improve efficiency or manage the effects of public holidays and emergencies.

2.4 Amenity protection

The design and ongoing use of waste management areas/equipment shall not adversely impact the amenity of the site, adjoining sites and the public street or other public areas.

While some amenity issues are subjective, noise and odour are matters that fall under the remit of the Protection of the Environment Operations Act 1997 (NSW) and care needs to be taken to ensure that the development does not generate 'offensive noise' or 'offensive odour' as defined in the Act. 'Offensive noise', at the time of writing, is noise that "interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted". 'Offensive odour', is odour that "interferes with (or is likely to interfere unreasonably with) the comfort, rest or repose of a person who is outside the premises from which it is emitted".

The waste management plan shall provide details on how amenity impacts will be managed. As a minimum, it will consider:

- Odour associated with the storage of waste
- Noise associated with the movement and collection of waste containers, including that of waste collection vehicles
- Visual impacts of waste storage areas, including consideration of whether the design will encourage the misuse of the area and bins
- Visual impacts of on-street collection (where proposed), noting that waste streams are typically collected on any collection day
- Loss of on-street parking or other items to facilitate on-street collection (where proposed)
- Noise associated with any installed machinery or equipment (such as waste chutes)
- Whether the timing of the collections will increase the impacts of any waste collection activities

For all of the above matters, consideration shall be given to the impact of these on site users, adjoining sites and the general public.

2.5 Risk assessment

- A safety in design (SiD) review is required to show compliance with the *Work Health and Safety Act 2011* (NSW). Specifically, the review must show that risks have been addressed as per cl 17 of the Act and that the duties imposed under Division 3 have been met. The SiD shall be included as an appendix to the Waste Management Plan.
- Designers and developers should refer to Section 4.2 of the [Safe Design of Structures Code of Practice](#) (SafeWork NSW, 2019) which describes mitigation measures to control the risks to bin users, caretakers and collection contractors. Some listed design considerations include:

Considerate layout design:

- Designing traffic areas to separate vehicles and pedestrians
- Providing enough space to install, operate and maintain plant and machinery
- Designing spaces that accommodate waste technological solutions to reduce manual tasks

Material and design choices:

- Effective noise barriers and acoustic treatment
- Floor loadings for heavy machinery
- Use of non-slip materials on floors
- Providing adequate lighting

- Risks to be addressed in the design are listed in Table 3. The list is not exhaustive and proponents will need to ensure they have considered all foreseeable risks and that residual risk is as low as reasonably practicable.

Table 3 Examples of control measures addressed in design (NSW EPA, 2019)

Risk	Examples of control measures to be addressed in design
Manual handling injury from moving bins	• Ensure adequate space for safe manoeuvring of bins in storage areas and to collection points. • Provide enough waste storage space and bin capacity so that bins are not overloaded. • Ensure paths for moving bins are free of steps, kerbs and steep grades. • Ensure route between waste storage area and collection point is a short distance, flat and unobstructed. • Locate collection points to enable mechanical servicing of bins.
Vehicle incidents	• Ensure collection points are free from obstacles that block driver visibility and are easily accessible for collection vehicles with appropriate overhead clearances, pavement strength and dimensions. • Provide adequate manoeuvring and turning space to allow a minimum of 1000 mm clearance to all structures and services from the maximum loading height and width (including side mirrors) of the collection vehicles accessing a development or building.
Cuts and lacerations or harm from contact with unknown hazardous substances	• Keep storage areas clean and all waste, recycling and FOGO appropriately contained. • Ensure education programs and signs are in place showing the safe and appropriate use of bins.

- The following are considered to be unsafe and will not be accepted:
 - Any design that requires a waste vehicle to reverse from public land into a property or reverse from a property into public land
 - Any design that requires a waste vehicle to reverse an unreasonable distance
- Key resources for WHS considerations are:
 - *Work Health and Safety Act 2011* (NSW) and *Work Health and Safety Regulation 2017* (NSW)
 - *The Code of Practice for Collection of Domestic Waste* (WorkCover NSW, 2005), which provides guidance on how to prevent injury and illness from the collection of residential waste

2.6 Signage and education

- Signs and educational materials perform several functions including (NSW EPA, 2012):
 - Informing residents why it is important to recover resources and protect the environment
 - Providing clear instructions on how to use the bins and services provided
 - Alerting people to any dangers or hazards within waste storage areas.
- All waste, recycling and organic bins should be in accordance with AS4123: *Mobile Garbage Containers* colours and clearly and correctly labelled, such as by a sticker on the lid and/or the body of the bin.
- Communal waste storage areas should be clearly signposted with signs outlining how to correctly separate waste into the bins provided.

- Information on who to contact to find out more about the recycling and/or other resource recovery services in the building should also be displayed in communal areas, such as on a noticeboard.
- 'DANGER' warning signs and other appropriate WHS signage are to be prominently displayed at any point of entry to an area of waste chute discharge, or where balers, crushers or compactors operate.
- Road and street designs must comply with relevant acts, regulations, guidelines, and codes administered by Austroads, Standards Australia, Transport for NSW, WorkSafe NSW and any Council traffic requirements.

2.7 Easements and covenants

Council will use an Access to Private Property Agreement to permit waste collection on private land. Signing this agreement may form part of the conditions of consent and may be required before the Occupation Certificate is issued. Council will provide example access agreements for context.

Table 4 Roles and responsibilities

Roles	Responsibilities
Council	• Provide waste, recycling and FOGO services for eligible properties in the LGA • Communicate the services to all other parties involved • Council to be advised of the building champion's contact details so that Council can support them
Applicants	• Comply with Council's requirements relevant to waste management listed in this Guideline and relevant Development Control Plans (DCPs) • Communicate waste management requirements to contractors and subcontractors including waste collection contractors • Ensure waste is managed safely and effectively during demolition and construction
Designers, Engineers, Architects, Waste Consultants and others involved in the delivery of new developments	• Comply with Council's requirements relevant to waste management listed in this Guideline and relevant Development Control Plans (DCPs) • Ensure all new developments comply with the <i>Work Health and Safety Act 2011</i> (WHS Act) and the <i>Work Health and Safety Regulation 2017</i> • Ensure that end-users are the primary consideration from the outset, including considering accessibility, user safety, on-going costs and maintenance activities • Ensure that the proposed development does not require or encourage waste collection vehicles to break <i>Road Rules 2014</i> and other legislation and/or regulation
Cleaners	• Maintain the quality and cleanliness of the waste infrastructure, including bins, allocated waste storage areas and collection points • Transfer bins to waste collection points and return bins to storage areas in a timely manner

2.8 Limits of responsibility, ownership and maintenance

Table 4 outlines the responsibilities, ownership and maintenance requirements for each party involved in the waste management activities for a development.

For residential developments, waste, recycling and FOGO services are generally provided by Council or Council's nominated waste collection contractor.

Where developments do not meet Council's collection criteria (such as commercial waste within mixed-use developments), private waste collection services may be required.

Where waste collection services are provided by private waste collection contractors, the same design, access, safety, amenity and operational requirements set out in this Guideline apply as for developments serviced by Council or Council's nominated waste collection contractor.

Roles	Responsibilities
Collection contractors	• Ensure safe, clean and effective waste and recycling collection services • Act in a professional and safe manner at all time • Undertake collections on private property in accordance with the reasonable direction of body corporates, strata committees or other owners
Body corporate/ strata committee/ property owners	• Designate the building manager or cleaning staff to support better use of waste and recycling services and systems • Ensure accurate waste information is provided to residents • Provide the designated building manager or cleaning staff contact details to Council's waste management department when the building is first occupied and maintain these contact details • Provides information to new residents on how to use the waste management systems, such as council's clean-up service procedure and which materials go in which bin or should be taken to alternate waste management facilities e.g. paint and batteries. Council has a Waste Info App that provides bin collection details and information about what waste goes in each bin. Refer to Council's website for more details • Remain informed about Council's waste management services and systems so that the building manager or cleaning staff can update residents as needed • Identify a building champion to take responsibility for maintaining the waste and recycling system. Building champions could be paid cleaners, facilities managers or even residents. Their support, time and effort in keeping waste and recycling rooms clean and informing residents about how to use the waste, recycling and FOGO services can be critical. • Ensure that the quality and cleanliness of the allocated waste storage areas are maintained • Ensure bins are presented at the designated collection point prior to servicing, including the operation and maintenance of any bin-moving equipment where installed • Support safe, clean and effective waste and recycling collection services through the appropriate use of waste infrastructure • Use waste infrastructure in accordance with Council's Waste Terms and Conditions • Enter into an Access Agreement with Council as necessary • Keep Council land (verge) free of waste unless there is a scheduled Council approved kerbside clean-up and the requirements of this Guideline are followed

3 Specific requirements

3.1 Urban Single Unit Dwellings (SUDs) and Multi-Unit Dwellings (MUDs) with individual bins

This section describes the waste and recycling requirements for residential urban SUDs and MUDs with bins allocated to and managed at each individual dwelling.

3.1.1 Description of dwelling type

SUDs and MUDs with individual bins may include small-scale villas, townhouses, small-scale residential developments, duplexes, semis, and small unit complexes, however, only if each dwelling in the development has MGBs allocated specifically to, and only for, that dwelling and the resident(s) present the bins to the kerbside for collection. This includes multi-unit dwelling housing.

3.1.2 Key considerations

Refer to Appendix F for WMP checklist and template.

3.1.3 Waste storage

Space within each residence

- Each residence must have space inside it to store at least two days' worth of residual waste, recyclables and FOGO.
- Space (for a kitchen caddy or similar) should be allocated in kitchens for the separation of food waste.

Waste storage area

- Space is to be allocated within each property boundary for storing at least one each of Council specified waste, recycling and FOGO bins awaiting collection.
- This space is to be detailed on the DA plans and drawings.
- The waste storage area should not be placed in close proximity to habitable rooms on adjoining properties and the use of side boundary offsets for bin storage is discouraged.

3.1.4 Waste collection

- Bins will be presented by residents to the public road for collection by Council waste collection vehicles.
- The distance from a dwelling to the collection point should generally not exceed 30 m. Where this is not possible, the collection point shall be located in the closest appropriate location.
- The location of the proposed collection point is to be detailed on DA plans and drawings.

3.1.5 Specific requirements

For SUD lots < 250 m² in area or less than 10 m frontage, the following specific requirements apply:

- The path between the bin collection point and the bin storage must not require the bin to be moved through the residence.
- The bin collection point must be chosen so that it cannot be obstructed by legally parked vehicles.
- The bin collection point must be kept clear of obstructions (e.g. poles, trees, street furniture) and provide at least 1 m clearance from any obstacle.
- DA plans and drawings are to show the lot/building layout and indicate:
 - Where bins are to be stored
 - The nominated collection point
 - Access path to the nominated collection point
 - How the bins will be screened from the street (where bins need to be stored at the front of the property or other visible location)

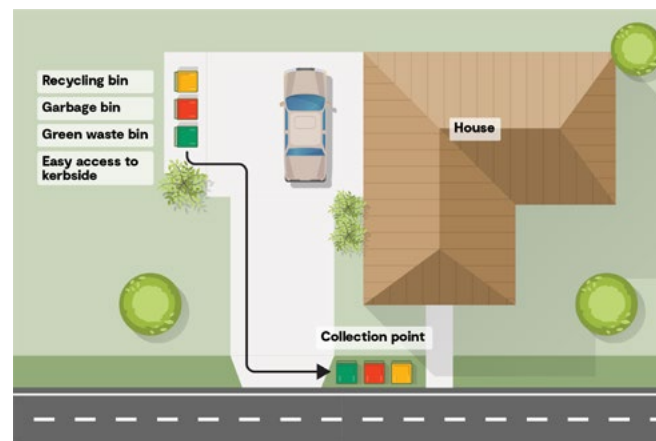


Figure 5 Example of waste storage and collection plan – SUDs

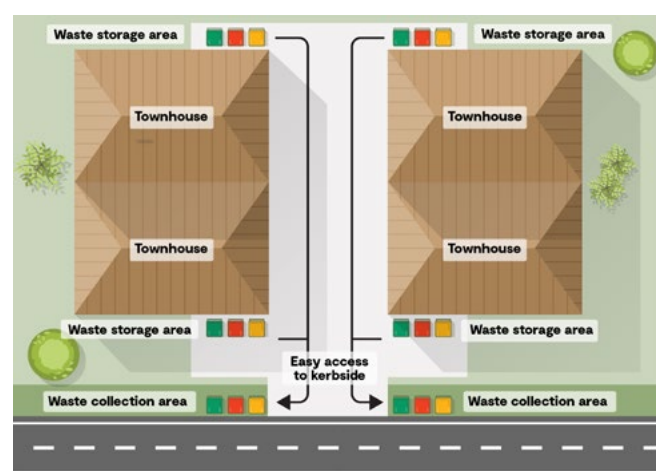


Figure 6 Example of waste storage and collection plan – townhouses

3.2 Multi-Unit Dwellings (MUDs) with shared bins

This section details the waste and recycling requirements for MUDs with shared bins. It should be read in conjunction with the general requirements for all development types (Section 2).

3.2.1 Description of dwelling type

MUDs with shared garbage, recycling and FOGO bins including residential flat buildings (RFBs).

3.2.2 Key considerations

- That the waste management system is designed, installed and operated to minimise inconvenience to end-users and to ensure that the system is safe for all people involved in its use or maintenance.
- Council requires on-site collection for MUDs, unless the development has sufficient road frontage and the design permits all units to wheel bins directly to the kerbside.
- Collection and loading are to be accommodated in the following order of preference:
 - At grade within the building in a dedicated collection or loading bay
 - At grade and off-street within a safe vehicular circulation system where, in all cases, vehicles will enter and exit the premises in a forward direction
 - In the building's basement

Refer to Appendix F for WMP checklist and template.

3.2.3 Waste storage

Space within each residence

- Each residence must have space inside it to store at least two days' worth of residual waste, recyclables and FOGO.

Waste storage area

- Waste storage areas must comply with the general requirements set out in Section 2 of this document.

- Waste storage areas must be user-friendly, convenient and accessible to all residents.
- The waste storage area is to provide space for all waste, recycling and FOGO bins as well as bulky waste.
- Bulky waste storage space is to be provided as a designated lockable cage, screened area or room in or next to the waste storage area. The minimum space requirements for bulky waste storage are shown in Table 5.

Table 5 Minimum bulky waste storage space to be allocated per number of units

No. units	Minimum storage space to be allocated
6 - 20	4 m ²
21 - 40	4 m ² and 1 m ² for every 10 additional units above 20 units (or part thereof)
41 - 100	8 m ² and 1 m ² for every 20 additional units above 40 units (or part thereof)
Over 101	12 m ² and 2 m ² for every 50 additional units above 100 units (or part thereof)

- Consideration should also be given to additional storage provision for problem waste and other potential future waste types such as e-waste, textiles/clothing, other reuse items etc.
- Waste storage areas should be situated close to lifts and/or stairwells and should not be more than 30 m (lift travel distance excluded) from any residential dwelling entrance.
- Waste storage areas are to be located to minimise odour and noise.
- A minimum of two days storage (maximum three days storage) is required in any satellite waste room (for example, recycling bins on each floor of multi-storey building which are then brought to a central waste area for collection).

- A Council-approved key system will be required to allow collection staff access if the waste storage area is in a secure street-level holding area (i.e. compound). Coordination with the Council's Waste Services Unit will be required to establish this system before an Occupation Certificate is obtained. The property management is responsible for paying all associated expenses.

3.2.4 Waste collection

- Proposed collection point locations are to be detailed on DA plans and drawings.
- An access path is to be provided with sufficient clearance and of a suitable grade to wheel waste and recycling bins from the waste storage area to the collection point. The access path is not to enter or traverse a dwelling.
- The distance from a dwelling to the nearest collection point is not to exceed 30 metres (not including vertical space).
- Refer to Appendix E for truck access requirements.

3.2.5 Specific requirements

- Conditions of any access agreement must be maintained at all times.
- Chute systems are not preferred. Where installed, they must comply with the requirements below.

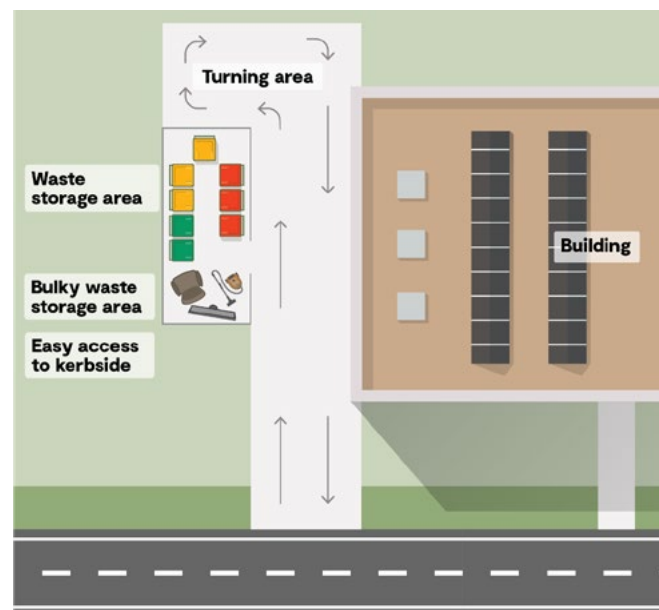


Figure 7 Example of waste storage and collection plan – MUDs with shared bins

Chute systems

If a chute system is proposed, the following requirements apply:

- For buildings of any height, a minimum of two separate chutes is required, including one for garbage and one for recycling. Diverter chutes are not acceptable.
- An additional separate chute for FOGO is encouraged but not mandatory, as shown in Figure 8. Where a FOGO chute is not provided, dedicated space for FOGO bins should be allocated within the communal waste storage area (Figure 9) or within chute rooms (Figure 10).
- An acoustic report shall be prepared that assesses the noise arising from the use of the chutes. The worst-case scenario shall be assumed, namely, use of the chutes late at night when the majority of residents will be sleeping.
- The chute system shall comply with all fire safety requirements. Confirmation of this shall be provided by a suitably qualified contractor.
- Chute systems will only be approved where an on-site building manager is employed/engaged. The building manager shall be present on-site every day of the year.

Chute openings

- Chutes are to be provided with an opening on every floor that is accessible to all residents and enclosed within a chute room. Chutes must not open onto any habitable space, and their openings must be effectively self-sealing.
- The total maximum travel distance from any residential dwelling entry to a chute system on any given storey is not to exceed 30 metres. Additional chutes may need to be considered to meet this requirement.

Chute discharge

- Chutes are to terminate in a waste storage area and discharge directly into a waste or recycling container in a manner designed to avoid spillage and overflow.
- Protective skirting between the chute and containers may be installed to prevent spillage and minimise dust or spray.
- Chute discharges should have a manual cut off to allow for the swapping of bins.
- For safety reasons, access to the area where the chute discharges shall be restricted to trained/authorised personnel only.
- Refer to Appendix D for further information.

Chute rooms

- A chute room is required on each habitable floor of a development that has a chute system.
- The chute room shall comply with the same requirements of a waste storage area contained in Section 2.2 and must also allow adequate space for:
 - The chute inlet hoppers
 - Easy opening of the chute inlet hoppers and chute room door
 - Provision of one (1) x 240 L MGB per waste stream for each six (6) residences serviced by the chute (to allow for waste storage in the event of chute failure)
 - FOGO bins (if no dedicated space for FOGO bins is allocated within the communal waste storage area (an example is shown in Figure 10))
 - Space for manoeuvring the MGBs, and
 - Temporary storage of large cardboard and/or bulky items (to minimise the likelihood of chute blockages).

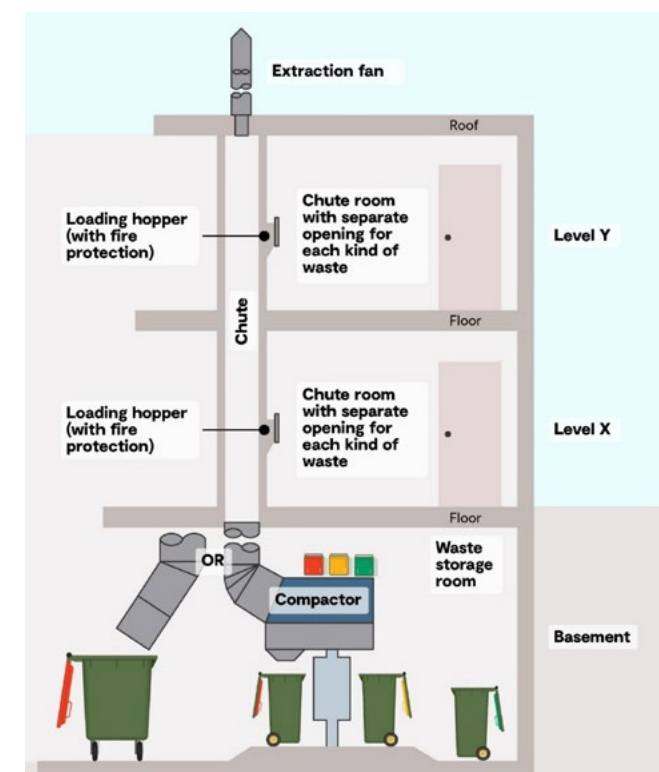


Figure 8 Example of waste storage and collection plan – MUDs with three chutes

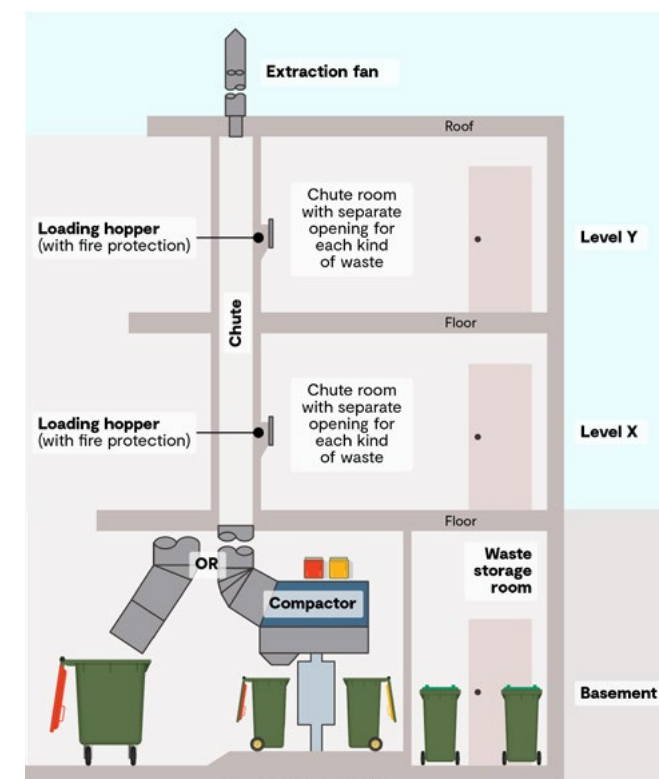


Figure 9 Example of waste storage and collection plan – MUDs with two chutes and FOGO bins in the communal waste storage room

- Chute rooms should not be located adjacent to a habitable room.
- Chute rooms must display instructions on how to use the chutes, including not to dispose of hazardous and bulky material into the chute, and what materials can be recycled using the chutes/MGBs provided.
- Chute rooms must provide access for all persons including those with disability.
- Refer to Appendix D for further information.

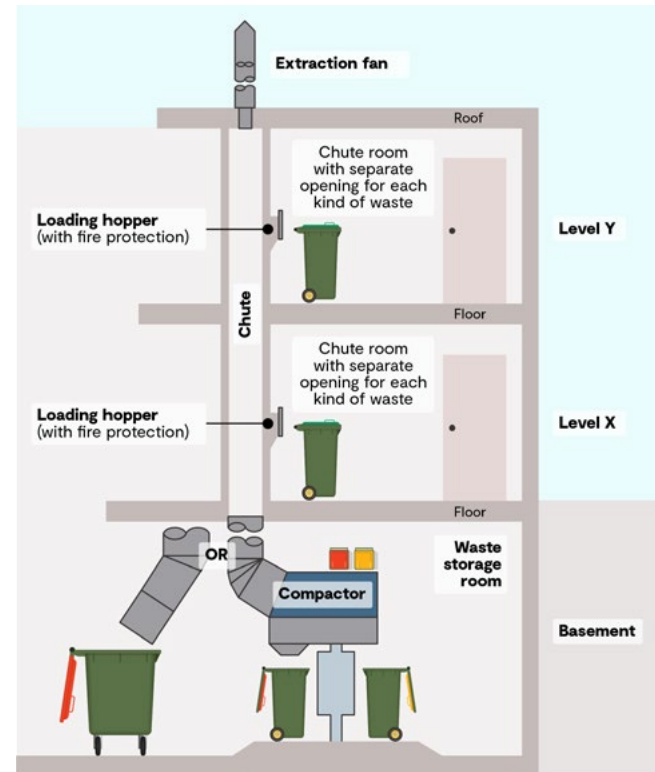


Figure 10 Example of waste storage and collection plan - MUDs with two chutes and FOGO bins in chute rooms

3.3 Rural residential

This section details the waste and recycling requirements for rural properties.

3.3.1 Description of dwelling type

This dwelling type comprises SUDs located in rural areas (including dual occupancies). Generally, these are larger lots located on roads with speeds higher than 70 km/h and no street-lighting.

3.3.2 Key considerations

- Consideration must be given to the location of collection points with respect to traffic conditions, speed limits and road safety.
- Satisfactory sight distance must be provided for safe exit/entry to collection points.
- Refer also to the considerations outlined in Section 3.1.2.

Refer to Appendix F for WMP checklist and template.

3.3.3 Waste storage

Space within each residence

- Each residence must have space inside it to store at least two days' worth of waste and recyclables.
- Space (for a kitchen caddy or similar) should be allocated in kitchens for the separation of food waste.

Waste storage area

- Given the large lot size of rural developments, it is assumed that bins can be stored on the site and that amenity impacts will be negligible. DA plans and drawings do not need to show the nominated storage location.

3.3.4 Waste collection

- Waste collection shall occur from the public road. Residents will be responsible for presenting the bins for collection.

- The location of the proposed collection point is to be detailed on DA plans and drawings.
- Refer to the requirements in Section 3.1.4.

3.3.5 Specific requirements

- The collection location shall provide safe stopping sight distance for vehicles approaching the driveway, however, this requirement does not override any greater distance required by other sections of any adopted Development Control Plans.
- The collection location shall be designed and constructed to permit the collection vehicle to stand completely off, and parallel to, the through-lane.
- The collection location approach and departure shall be sealed and shall have crossfall of no greater than 5%.

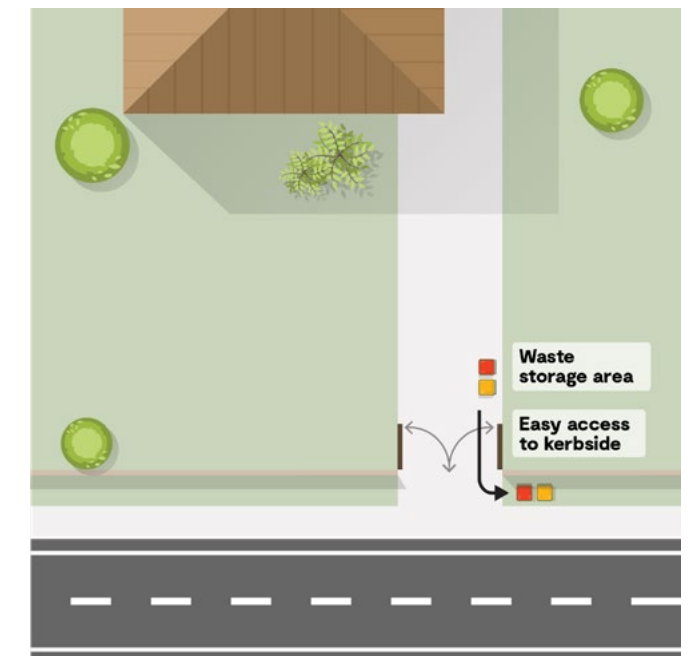


Figure 11 Example of waste storage and collection plan - rural residential

3.4 Subdivisions

This section details the waste and recycling requirements for sub-divisions. It should be read in conjunction with the general requirements for all development types (Section 2).

3.4.1 Description of dwelling type

Subdivisions refer to a plot of land that is divided into two or more lots.

3.4.2 Key considerations

Early consideration of waste management will ensure optimal outcomes for future users of the area. For all new subdivision developments (NSW EPA, 2019):

- For lots developed for SUDs, coordinate the bin collection location with the location of street trees, street furniture, streetlights, driveways and any other required items to provide sufficient frontage for the presentation of bins
- Ensure the width and alignment of public roads, internal roads and/or rear laneways are sufficient to support access and movements of waste collection vehicles
- Consider whether off-street parking allows for access of waste collection vehicles
- Ensure there are transitional arrangements to support efficient waste management as the development is being staged e.g. provision of temporary turning areas for waste collection vehicles.

3.4.3 Waste storage

- Depending on the layout of the development and its property management structure, it may be possible to establish communal bin storage areas between properties to facilitate safe waste collection and handling in large housing estates. If this is not appropriate, separate bin storage areas within each property boundary should be provided. Space is to be allocated within each property boundary for storing at least one each of Council specified waste, recycling and FOGO bins awaiting collection.

- This space is to be detailed on the DA plans and drawings.

3.4.4 Waste collection

- Collection requirements should be discussed with Council in the early planning and design stages and marked on the DA plans and drawings.
- Suitable waste collection points should be planned early in the design stage and identified on the master plans prepared for Council. Depending on the size of the development, there may need to be more than one collection point and a combination of both kerbside and on-site collection.
- If the development includes individual free-standing dwellings that will have kerbside collections, enough space should be allowed at the kerbside adjoining the property for the placement of at least two 240 L bins.
- If on-site waste collections are proposed, the DA drawings and plans must consider how waste collection vehicles can access and move around the development. Roads, streets and driveway access throughout the development should be designed and constructed so that waste collection vehicles can drive on them safely and without causing damage.
- The design of the development needs to ensure that:
 - Road geometry and road strength can withstand heavy rigid class collection vehicles
 - Overhead clearances allow heavy rigid class vehicles to pass and operate
 - T-heads, turning circles, cul-de-sacs and other vehicle manoeuvring areas are designed to allow waste collection vehicles to safely use them with a minimum amount of reversing required (access and turning circle requirements are discussed in Appendix E)
 - Buildings and other structures do not extend over roads or corners where they may be struck by waste collection vehicles.

- Consideration should also be given to the species of kerbside trees selected so that when they are mature, they will not arch over roads and restrict the access of heavy rigid class vehicles.

3.4.5 Specific requirements

All roads

- All roads shall be designed to ensure that heavy rigid vehicles are not required to cross the centreline unless turning on to or off the road
- Turning paths shall be shown for all intersections and any bends greater than 45 degrees

Private roads

- If the development includes private roads or access roads shared between properties and battle-axe blocks, ensure that the roads are designed to support access by heavy rigid class collection vehicles.
- Council may impose conditions of consent in accordance with Austroads, AS2890.2 *Parking facilities: off-street commercial vehicle facilities* as well as local requirements in relation to minimum road widths and strengths and turning circles. Refer to Appendix E.

Greenfield sites

- Properties with public road frontages must allow for the number of bins required based on Council's weekly kerbside servicing provisions (minimum 2 x 240 L MGBs with a 50 cm space in between), in an area free from obstructions and tree canopies and not blocking driveway access.
- For staged developments where the full length of the road will not be completed as part of initial first stage development temporary turning areas are to be installed, to ensure waste collection vehicles are able to service the new dwellings without needing to reverse out of the street. Temporary turning areas should meet Council's minimum turning requirements (Appendix E) and can be removed when a through road is connected into the next stage of the development.

Battle-axe lots

- The width of the access handle must be sufficient to allow all bins to be presented for collection without restricting vehicle access and movements.

Laneways

Council currently does not allow for laneways in new developments or servicing of bins from the laneways due to issues with collection of waste.

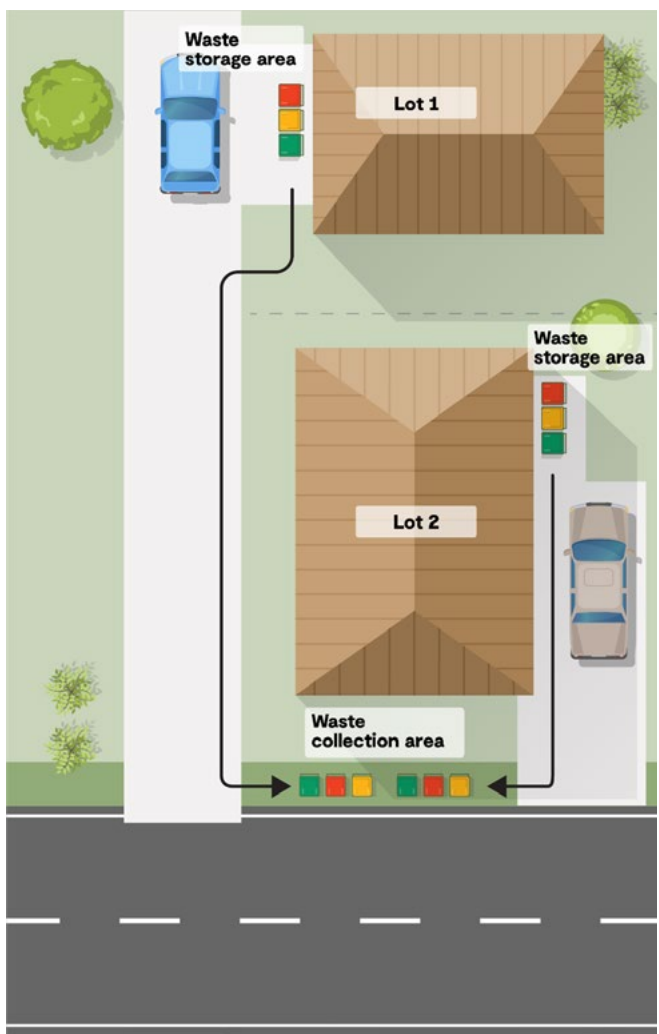


Figure 12 Example of waste storage and collection plan - sub-division: battle-axe

3.5 Shop-top housing and mixed-use

This section details the waste and recycling requirements for shop-top housing and mixed-use developments. It should be read in conjunction with the general requirements for all development types (Section 2), MUDs (Section 3.2) and commercial developments (Section 3.6).

3.5.1 Description of dwelling type

Shop-top housing means one or more dwellings located above the ground floor of a building, where at least the ground floor is used for commercial premises or health services facilities. Mixed-use development means a building or place comprising two or more different land uses.

3.5.2 Key considerations

- The waste storage areas must be kept separate for residential dwellings and commercial units.
- Residents and commercial tenants should be prevented from using each other's waste storage areas and waste facilities.
- Commercial waste management systems must be designed to minimise noise and odour impacts on residential dwellings within the development.

3.5.3 Waste storage

- The waste streams (waste, recycling and FOGO) must be separated and labelled clearly in each waste storage area.
- Residents and commercial tenants should not be able to use each other's facilities. This can be achieved by building separate and lockable bin storage areas that can only be accessed via keys, swipe cards or pin codes.
- Waste storage areas should consider the following:
 - The number and type of commercial tenants that may occupy the development and the types and quantities of waste, recycling and FOGO they may generate. Refer to Appendix C for indicative waste generation rates.
 - The number of residential dwellings and the quantity of residential waste, recyclables and FOGO they will generate. Refer also to Appendix C.

- Additional waste infrastructure (bins and any other waste management equipment) may be required to separately manage the commercial waste. For example, retailers may install cardboard balers to manage large amounts of cardboard and restaurants may generate food waste that may require more frequent waste collection.
- The waste infrastructure needed to manage the residential component, such as chutes, compactors and bulk bins. Refer to Appendix B and Appendix D for waste bin options and potential technological solutions.
- The need for service lifts to transfer waste from different levels of the development to the waste storage area(s).
- Enough space must be provided to store all waste, recycling and FOGO likely to be generated by commercial tenants and residents between collection cycles as well as the equipment to manage it.

3.5.4 Waste collection

- Council requires on-site collection for shop-top and mixed-use developments.
- A designated collection point must be identified for shop-top and mixed-used developments.
- Council requires collection to occur during normal business hours for the commercial component of shop-top and mixed-use developments.

3.5.5 Specific requirements

- Waste produced by non-residential properties must not be transported by any chute situated inside the residential portion of a shop-top or mixed-use development.
- Shop-top housing and mixed-use developments shall comply with the relevant sections of the multi-unit dwelling and commercial development sections of this Guideline.

3.6 Commercial developments

This section details the waste management requirements for commercial developments. It should be read in conjunction with the general requirements for all development types (Section 2).

3.6.1 Description of development type

Commercial developments include food and drink premises, offices, accommodation and entertainment premises (e.g., hotels, restaurants and pubs) and retail outlets (e.g. supermarkets, groceries and convenience stores). This section also applies to non-Council operated community facilities.

3.6.2 Key considerations

- Product stewardship programs applying to products sold at the development are considered and the sufficient space is allowed to support the program.
- All waste handling and collection shall occur wholly within the property boundary.
- Waste handling equipment, including balers and compactors should conform to the relevant design and safety standards.
- Council provides only standard kerbside service. Developments requiring additional services shall engage a private contractor.
- The WMP is required to include:
 - Expected volumes and types of waste generated by the development.
 - Details of on-site storage, including separation of different waste types, and any specialised waste collection services (e.g. trade waste, grease trap, hazardous waste, etc.).
 - Arrangements for ongoing waste management.
 - Nomination of private waste collection contractors (if engaged).
 - Details of any product stewardship programs that apply to the products sold in the development and how the development will support ongoing implementation of the product stewardship program

3.6.3 Waste storage

Space within each tenancy

- Sufficient space should be provided within tenancies for the interim storage of at least one days' worth of waste, recyclables and FOGO.
- The space inside tenancies should allow for source separation and separate storage of recyclables from the waste stream. Where separated collection or processing of food organics is available, sufficient space should also be allocated for segregation of food organics.

Waste storage area

- Waste storage areas must provide adequate storage, based on calculated waste, recycling and FOGO generation for the particular commercial mix and development size. Consideration must also be given to space requirements for additional waste management equipment (if applicable).
- Space and storage provisions should be made for the separation of waste streams and storage requirements in accordance with health and safety guidelines and other relevant standards for any specialised waste such as grease trap waste, hazardous and/or chemical waste.
- Waste storage areas should be convenient to tenants, cleaners and other users and permit easy transfer of bins to the collection point if required.
- A dedicated storage space must be made available on-site and reasonably close to retail or commercial buildings for storing bulky waste such as reusable commercial products such crates, pallets, kegs, strip out rubbish, and similar items so that public storage spaces are entirely avoided. The space provided must be at least:
 - 2 m² for developments under 100 m²
 - 4 m² for developments between 100 m² and 2,000 m²
 - An additional 4 m² is required for each retail, accommodation or entertainment development over 2,000 m² and for every 20,000 m² of office space.

- Waste storage areas should be out of sight or well screened from public view to minimise potential visual amenity impacts for the public, customers and visitors
- Waste storage areas should consider refrigerated or air-conditioned areas where large amounts of food waste are generated.
- Waste storage areas (including bulky waste storage) must be shown on DA plans and drawings.

3.6.4 Waste collection

Ideally, the waste storage area should also serve as the collection point to avoid moving bins for collection.

All activities related to waste collection must occur within the property boundaries. Vehicles must be able to enter the site in a forward direction, safely turn and exit the site in a forward direction. In addition, waste collection points should:

- Not be near intersections, ramps, roundabouts, pedestrian crossings, on busy roads or in narrow lanes
- Not be near awnings, overhead wires, trees or other overhead structures
- Be clear of air-conditioning and other service ducts and pipes, sprinklers, CCTV cameras, movement sensors, smoke detectors and other ceiling fixtures if located inside the development
- Be on level surfaces rated for heavy vehicles
- Have plenty of room for collection trucks to manoeuvre and reverse if necessary
- Have enough room for bins to be manoeuvred by the driver for servicing
- Be away from public areas
- Be well clear of other vehicles, pedestrians, public, staff and visitor traffic areas
- Not be restricted by parked cars or vehicle loading or unloading

- Not be restricted by bollards, signs, plants, bins, seats or other street furniture
- Minimise the amount of reversing by collection vehicles
- Not block the normal operations of the development
- Be accessible at the times the collections are scheduled to take place and not behind locked gates.

3.6.5 Specific requirements

Table 6 outlines the specific requirements for various commercial development types.

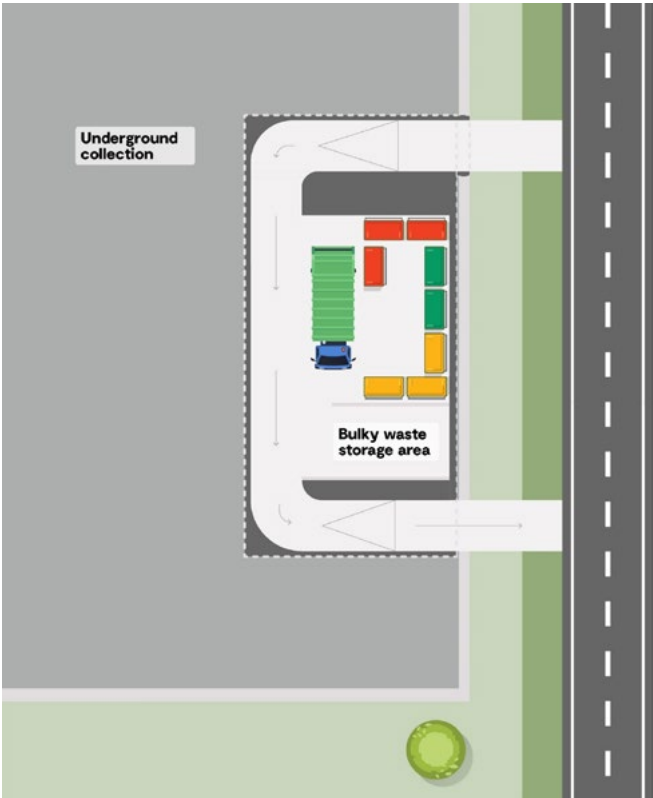


Figure 13 Example of waste storage and collection plan – commercial development

Table 6 Specific requirements for various commercial development types

Development type	Specific requirements
Food and drink premises (restaurants, cafes, grocery stores, supermarkets, pubs, clubs and commercial kitchens)	• Food and drinks premises are required to comply with <i>AS 4674 Design, construction and fit-out of food premises</i> (Standards Australia, 2004), including the general waste and recyclable materials requirements. This Guideline is not intended to conflict with the obligations outlined in that Standard. • The waste types listed below are required to be collected daily or stored in a refrigerated waste room until collection (refer to Appendix D): – 50 litres of seafood, poultry, and/or meat waste in total each day of operating – Waste containing 20% fish, poultry or meat by weight or volume • Any premises that involve food preparation for wholesale distribution or retail must include waste separation systems or be in close distance to an existing system. This is to ensure plastic and cardboard waste is separated from food waste. • All waste is to be removed daily from the food preparation area. • Waste oils should be separated from food and other waste types.
Offices	• Each floor is required to have an area for the separation and storage of recyclable items (including mixed containers, cardboard, paper and paper products). • Paper and cardboard must be stored in a dry, pest-free area. To avoid vermin breeding in the material being stored, paper and cardboard should not be kept for longer than two weeks. • All common areas should have centrally located bin stations • Space for a cardboard baler or compactor shall be provided within or close to the waste storage area if the development includes more than 20,000 m² of office space. • Printing or photocopying rooms are to provide storage for paper collection (in MGBs up to 240 L) and used toner and/or printer cartridges for recycling. • Cleaning contracts must outline that all office waste is transferred to a central waste storage area at least once daily. Refer to <i>Better Buildings Partnership Best Practice Operational Waste Guidelines</i> (Better Buildings Partnership, 2018) for examples of best practice waste management in commercial office.
Accommodation	• Waste storage areas for boarding houses must be located at the rear of the property to minimise odour or noise disturbances.
Entertainment premises (e.g., hotels, clubs and pubs)	• Clubs and hotels to consider the use of glass crushers and to minimise noise impact on neighbouring premises. This is required for clubs or hotels with an internal serving area greater than 1,000 m².
Retail outlets (e.g., supermarkets, groceries and convenience stores).	• Consider cardboard compactor, baler, shredder or other volume-reduction equipment for premises with high volumes of cardboard waste and the space required for the equipment. • A cardboard baler or compactor is required for developments with a retail area greater than 2,000 m². • Where appropriate, additional space or storage systems should be set aside for handling and storing plastic shrink-wrap.

3.7 Industrial developments

This section details the waste and recycling requirements for industrial developments. It should be read in conjunction with the general requirements for all development types (Section 2).

3.7.1 Description of development type

Industrial development means a building or place used for activities including the manufacturing, production, assembling, altering, formulating, repairing, renovating, ornamenting, finishing, cleaning, washing, dismantling, transforming, processing, recycling, adapting or servicing of, or the research and development of, any goods, substances, food, products or articles for commercial purposes, and includes any storage or transportation associated with any such activity.

3.7.2 Key considerations

Waste and recycling systems should:

- Ensure that all waste management activities occur wholly within the site
- Be designed in line with the principles of the 'Waste Hierarchy' to reuse or recycle materials in preference to disposal.
- Consider options to improve efficiencies and reduce waste (circular economy principles).
- Maximise source separation and recovery of recyclable materials.
- Be designed to appropriately manage on-site waste and recycling systems, including safe handling, storage and collection.
- Plan for appropriate work, health and safety.
- Be intuitive and easy to use.
- Include contingency planning in order to avoid

stockpiling, which can increase fire risks.

- Mitigate any potential health and amenity impacts (e.g. vermin, noise or odours).

Council provides only a standard kerbside service. Developments requiring additional services shall engage a private contractor.

3.7.3 Waste storage

Waste storage requirements include (NSW EPA, 2020):

- Ensure sufficient space is allocated to separate waste and recyclable materials, and provide appropriate storage
- Provide safe and effective access and egress for waste and recyclable material collections.
- Incorporate design measures to minimise impacts on the neighbourhood and the environment, including from odour, noise, runoff, litter, dust and oil.
- Use recycled and reusable materials in building construction and undertake adaptive reuse of buildings, where practical.

3.7.4 Waste collection

A collection point must be provided suitable for the proposed number and sizes of bins.

On-site collection must be provided for industrial developments. Sites must allow for a Heavy Rigid Vehicle throughout the vehicle's entire on-site path of travel as per AS2890.2 Off-street Commercial Vehicle Facilities.

The on-site collection point must:

- Be designed in a way which collection vehicles do not impede access to, within or from the site for other users.

- Be designed in a way which collection vehicles can enter and exit the site in a forward direction. Reversing of waste vehicles on-site must only be done in the vicinity of a turning bay. Trucks are not use private driveways or car parks as turning areas.
- Be designed to accommodate all waste equipment including compactors.

3.7.5 Specific requirements

In addition to land use planning considerations, the storage, transport, treatment and disposal of any clinical and/or hazardous waste may be subject to policies and regulations including:

- *Protection of the Environment Operations Act 1997* (POEO Act), which requires waste generators, transporters, and receivers of clinical and hazardous wastes to comply with EPA licensing, record-keeping, and tracking requirements (via WasteLocate).
- *Protection of the Environment Operations (Waste) Regulation 2014*, which sets put specific controls for:
 - Waste classification and licensing
 - Tracking of clinical and hazardous waste
 - Storage requirements, including secure containment and signage
 - Transportation standards for handling and labelling
- *NSW Health Waste Management Guidelines for Health Care Facilities* (2023), which provides standards for segregation, handling, storage and disposal of clinical and related waste.
- *Dangerous Goods (Road and Rail Transport) Act 2008* and *Regulation 2022*, which apply if clinical or hazardous waste is classified as dangerous goods under the Australian Dangerous Goods (ADG) Code and regulate labelling and packaging, vehicle and driver licensing and transport documentation.

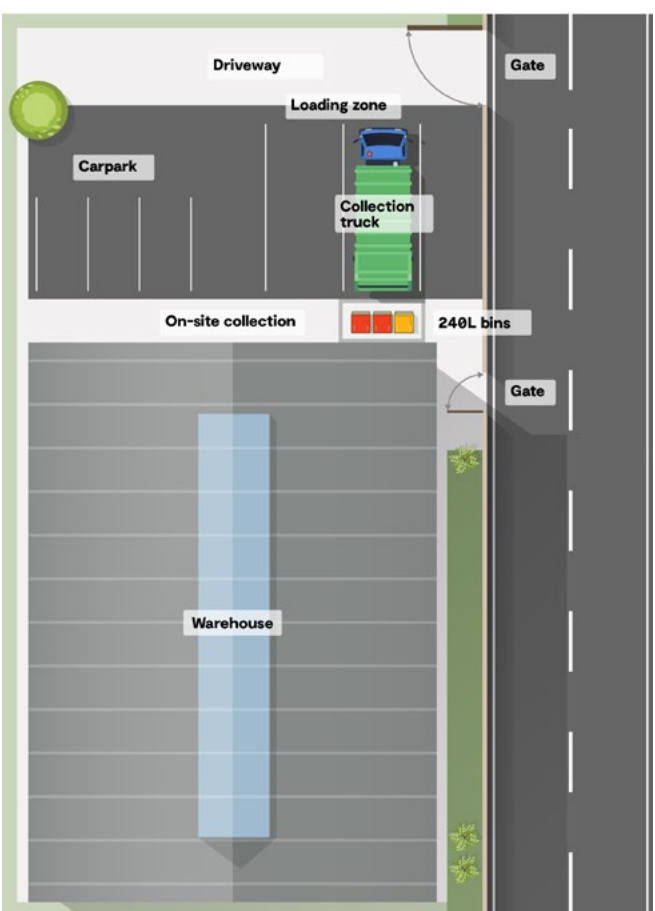


Figure 14 Example of waste storage and collection plan – industrial development

4 Construction and demolition waste management requirements

4.1 Waste Management Plan

Developments that involve construction and demolition activities require a WMP to be submitted as a part of the DA. The WMP should include:

- Estimates of the waste expected to be generated from construction and demolition activities, broken down into major waste streams and waste classification.
- An indication if hazardous or special waste such as asbestos containing materials (ACM) is likely to be generated. It is a requirement to disclose any ACM known to be on the property, information on quantities, asbestos removalists' licence information, and the designated disposal facility authorised to accept asbestos waste.
- A description of measures to avoid and reduce waste generation and opportunities to reuse on-site and recycle.
- A description of on-site waste management including handling, storage and collection.
- A description of the proposed management approach for each waste stream:
 - Specify the quantities of materials that will be disposed of, reused on-site or recycled.
 - Nominate potential disposal and/or recycling facilities.

The WMP should be provided to relevant stakeholders involved in the construction, including project managers, builders, contractors, sub-contractors and architects.

4.2 Waste generation

Applicants are required to estimate the waste generation volumes and types:

- The estimation method is to be determined by the Applicants. Appendix C provides indicative waste generation rates during demolition and construction.

- Typically, construction waste generation can be estimated based on bill of quantities for common construction materials such as brick, concrete, timber, metal, plasterboard and tiles.

4.3 Waste handling

All waste must be handled and managed to comply with relevant environmental protection legislation and regulations, to protect local amenity during construction and to maximise diversion from landfill. General requirements regarding waste handling include:

- Implementing and maintaining dust, odour and sediment controls.
- Separating different C&D material types at the construction site to facilitate separate collection and recycling. This may be achieved through separate skip bins for each material type or other suitable method.
- Documenting volumes/tonnages of waste materials throughout the construction works.
- Removing ACM by an EPA licensed contractor and transporting and disposing of ACM legally and safely.

4.4 Waste storage

Waste storage locations should be established and maintained to:

- Maximise separation of materials
- Maximise diversion from landfill
- Manage environmental issues
- Ensure no amenity issues (litter, odour, dust etc)
- Facilitate safe removal of materials

Waste storage areas should also include an area to check the safety and environmental controls of outgoing loads before leaving the site.

The waste storage area should consider an area where reusable material (e.g. soil stockpiles) can be stored on-site safely and appropriately. Clear signage with appropriate colour coding is required.

Waste receptacles shall be provided for construction personnel to use. The receptacles are to be conveniently located and allow source separation of waste and recyclables.

Storage areas should be appropriately located, sized and suitably screened related to the waste generation and construction sequencing of the development.

Waste storage areas must be shown on DA plans and drawings.

4.5 Waste collection

4.5.1 Collection points

Applicants are required to designate a collection area that is clear from obstructions. A swept path analysis showing the worst-case scenario, prepared by a suitably qualified professional, must be provided in accordance. The swept path analysis must show safe site access (including forward entry and exit from the site) and vehicle manoeuvring for waste collection services.

4.5.2 Collection contractor(s)

Private contractors should be engaged for the collection of construction and demolition waste. Council does not provide this service.

If construction or demolition involves and/or generates waste other than general solid waste (as defined in the current NSW EPA *Waste Classification Guidelines*), specialist waste collection contractors will be required. Council requires confirmation that specialist waste collection contractors have been arranged prior to the release of a Construction Certificate.

4.5.3 Waste records

Developments involving construction or demolition will be required to submit waste records in accordance with the Development Approval Conditions of Consent.

All parties involved in the development are encouraged to thoroughly review the Conditions of Consent prior to commencing works and to establish systems to record the required information. Delayed submission, or non-submission, will likely result in delays in issuing occupation/completion certificates for the constructed works.



Figure 15 Example of waste storage and collection plan – construction and demolition

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Appendix A Glossary and abbreviations

Table 7 Glossary of terms

Term	Definition
Applicant	The individual or company who lodges the Development Application
AS	Australian Standard
BCA	Building Code of Australia
Bulky waste	Solid waste too large to fit into MGBs that typically includes household items, furniture, whitegoods, electronics, cardboard, other packaging and/or mattresses.
Commercial development	As defined in Section 3.6.
C&D	Construction and demolition.
Collection point	The designated position or area where waste or recyclables are loaded onto the collection vehicle.
Chute	A ventilated, essentially vertical pipe for waste disposal, passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at the lower end within a waste storage area.
Chute room	A room located on each floor of a building to enclose waste and/or recycling chutes or the interim storage of recyclable materials.
Complying development	Combined planning and construction approval for development.
Construction certificate	Certificate that confirms that the construction plans and development specifications are consistent with development consent.
Council	Queanbeyan-Palerang Regional Council
DA	Development Application
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCP	Development Control Plan
FOGO	Food organics and garden organics
General waste	Putrescible and non-putrescible waste produced that cannot be reused, recycled or composted.
Guideline	Development Waste Guideline
Industrial development	Industrial developments generally include warehouses, manufacturing facilities and factories.
Kerbside collection	Waste management service that typically requires bin presentation on the nature strip.

Term	Definition
L	Litres
LGA	Local Government Area
Litter	Rubbish not including but not limited to, paper, plastic or containers left lying in an open or a public space.
m	Metres
m ²	Square metre
m ³	Cubic metre
mm	Millimetres
Multi dwelling housing	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.
MGB	Mobile Garbage Bin: A waste container generally constructed of plastic with wheels with a capacity in litres of 140 or 240.
Multi-unit dwelling (MUD)	MUDs are residential developments comprising multiple units with shared waste and recycling bins. MUDs include multi dwelling housing and residential flat buildings (RFBs).
NSW EPA	New South Wales Environmental Protection Authority
Occupation certificate	Allows for property owners (current and future) to use new buildings or sections of a building.
Garden organics waste	Garden prunings and leaves
On-site collection	Waste is presented at a collection point within the property boundary and the waste service provider parks the waste service vehicle wholly or partially on the private property to service the bins. This may include service from a driveway, internal service bay or dedicated loading bay. Council must be indemnified for damage to the driveway in these instances.
Operational waste	Waste generated by occupants of developments as part of typical occupancy and use. This includes all waste streams and materials irrespective of how they are disposed or recovered.
Problem waste	Waste that cannot easily be managed by regular waste and recycling services and is often hazardous in nature. Problem waste includes paints, chemicals, batteries, light bulbs, gas bottles, and motor and cooking oils. The majority of these items can be recycled if separately collected and managed.
QPRC	Queanbeyan-Palerang Regional Council
Recycling	Plastic containers, bottles, tubs and jars, aluminium, aerosol and steel cans, glass bottles and jars, liquid paperboard containers, paper and cardboard items of a type specified by Council collected in a yellow lid bin and delivered to a Materials Recovery Facility for sorting and recycling.

Term	Definition
Residential Flat Building (RFB)	A building containing 3 or more dwellings but does not include an attached dwelling, co-living housing or multi dwelling housing.
Residential waste	Waste produced in the course of day-to-day residential activity. Residential waste does not normally include waste generated from demolition, construction, major renovation or large-scale landscaping activities.
Refrigerated waste room	A waste room which is refrigerated by a cooling system which maintains the temperature below 5°C
Resource	A waste material that can be recycled or reused for another purpose.
Rural development	As defined in Section 3.3.1
Shop top housing	One or more dwellings located above ground floor retail premises or business premises.
Single unit dwelling (SUD)	As defined in Section 3.1.1
Skip bin	Large open-topped waste container designed for the collection and disposal of various types of waste, particularly in large quantities.
Storey	A space within a building that is situated between one floor level and the floor level next above, or if there is no floor above, the ceiling or roof above, but does not include a space that contains only a lift shaft, stairway or meter room, or a mezzanine or attic.
Stripout waste	Refurbishment waste from commercial buildings
Subdivisions	As defined in Section 3.4.1
Textile waste	Clothing, sheets, linen and other household fabric and textiles.
Waste	Any discarded, rejected, unwanted, surplus or abandoned matter.
Waste collection point	This is where waste is collected by the waste service provider. It may or may not be the same location as the usual waste storage area. It is always the responsibility of the occupier or the body corporate to arrange the movement of bins from the usual storage area to the collection point.
Waste storage area	A dedicated space (including a bin room or bin bay) for the storage of waste, recycling and FOGO bins, bulky waste, problem waste and textile waste that is convenient for residents and occupiers to access and use.
WHS	Work Health and Safety
WHS Act	<i>Work Health and Safety Act 2011</i>
WMP	Waste management plan

Appendix B Waste bins

Waste bins

All bins and containers allocated must conform with AS4123.1 *Mobile Waste Containers* and be fitted with the correct colour lid for the waste contained as per AS4123.7 *Mobile Waste Containers: colours, markings and designation requirements*.

Waste handling equipment, including waste chutes and compactors, must conform to the manufacturers' relevant design and safety standards and meet the requirements listed in this Guideline.

MGBs are the most commonly used bins in commercial and residential settings. These bins can be either two wheeled, commonly referred to as 'wheelie bins' or four wheeled.

MGBs must comply with AS4123.6 *Mobile Waste Containers* which specifies standard sizes and sets out the colour designations for the bodies and lids of mobile waste containers indicating the type of materials they are used to collect.

The standard bin sizes Council provides are 140 L, 240 L, 660 L and 1,100 L. Refer to Table 8, Table 9 and Figure 16 below for the standard bin sizes and colour coding.

Table 8 Bin sizes for waste streams

Parameter	Unit	140 L MGB	240 L MGB	660 L bulk	1,100 L bulk
Construction material	-	Plastic	Plastic	Plastic	Plastic
Height	mm	950	1,080	1,250	1,470
Depth	mm	620	735	850	1,245
Width	mm	530	580	1,370	1,370
Approximate footprint	m²	0.33	0.43	1.16	1.71
Approximate weight	kg	10.4	13	45	65
Approximate maximum load	kg	56	96	310	440

Table 9 Bin colour coding for waste streams

Stream	Bin body colour	Bin lid colour
General waste	Dark green	Red
Recycling	Dark green	Yellow
FOGO	Dark green	Lime green



Figure 16 Colour coded bins for waste, recycling and FOGO waste (NSW EPA, 2019)Table 13 Estimated construction waste generation rates

Appendix C Waste generation rates

Waste generation rates – operational

Table 10 provides indicative waste generation rates during operation for residential development, while Table 11 provides rates for commercial and industrial development.

Table 10 Estimated residential waste generation rates

Litres per week					
Residential developments	Waste	Recycling	Garden organics	Food waste	Reference
SUDs*	100	120	120	40	City of Sydney (CoS), 2018
MUDs (1 bedroom/studio)	80	80	-	25**	
MUDs (2 bedroom)	100	100	-	25**	NSW EPA, 2019
MUDs (3 bedroom or greater)	120	120	-	50**	

* Waste and recycling generation rates for SUDs also depend upon the number of people residing in the dwelling.
**This assumes a 7 L kitchen caddy for food preparation and food scraps is emptied 3.5 times per week. In addition to food waste there may also be organic waste generated from the maintenance of communal gardens and pot plants.

Table 11 Estimated commercial and industrial waste generation rates

Estimated litres per 100m ² per day or as stated				
Development types	Waste	Recycling	Food waste	Reference
Accommodation and entertainment				
Hotel	20	25	15	City of Sydney (CoS), 2018
Backpackers	30	30	20	
Boarding/guest house/ student accommodation	30	30	30	
Serviced apartments	20	25	15	
Convention/ conference (no accommodation)	50	225	20	
Entertainment venues	100	125	30	
Restaurant/ eating	100	500	100	
Pubs/ clubs	100	150	40	
Commercial offices				
Offices	15	25	5	City of Sydney (CoS), 2018

Estimated litres per 100m² per day or as stated				
Development types	Waste	Recycling	Food waste	Reference
Retail				
Supermarkets	75	450	25	City of Sydney (CoS), 2018
Specialised grocery	150	300	50	
Convenience stores	50	250	10	
Bulky goods/ department store	40	300	10	
General retailing	25	200	5	
Shopping centre	15	10		
Industrial				
Warehouses, manufacturing facilities and factories	30	30	NA	Randwick City Council, 2004
Other				
Medical	60	60	NA	Camden Council, 2019
Educational institution	25	15	NA	
Childcare centres/ facilities with kitchens	50	50	15	
				City of Sydney (CoS), 2018

Waste generation rates – demolition and construction

Tables below provide indicative waste generation rates during demolition and construction. Applicants are encouraged to estimate waste generation based on the development, i.e. using bill of quantities.

Table 12 Estimated demolition waste generation rates

Material	Estimated demolition waste quantities per dwelling (m³)			Estimated demolition waste quantities per 100m² (m³)		
	1 bedroom brick/fibre board house	3 bedroom brick house	3 bedroom weatherboard house	Residential	Industrial	Office
Brick	3 to 5	10 to 15	NA	504	158	1,142
Concrete	4	4	20 to 30	407	407	6,736
Timber	5 to 10	12 to 15	7 to 15	2	2	56
Metal	1 to 2	NA	20 to 25	35	35	45
Plasterboard	NA	10 to 15	4 to 6	3	3	83
Garbage	10 to 15	NA	NA	18	18	155
Roof tiles	NA	7 to 9	NA	NA	NA	NA
Asbestos	Variable	NA	NA	NA	NA	NA

Source: Camden Council, 2019

	Estimated construction waste quantities			
	Per dwelling (m ³)			Per 100m ² (m ³)
Material	General residential	MUDs	Residential flat buildings	Industrial
Brick	1 to 3	2.5 to 4.5	3 to 4	1 to 2
Tiles	0.5 to 2.5	1 to 2.5	NA	NA
Concrete	0 to 0.5	0 to 0.5	6 to 7	2 to 3
Plasterboard	0.5 to 1.5	0.5 to 1.5	1 to 2	NA
Timber	0.5 to 3	1 to 3	1 to 2	1 to 3
Metal	NA	NA	1 to 2	2 to 3
Roof sheeting	NA	NA	NA	3
Other waste	0.5 to 3	1 to 3	10 to 15	10

Source: Camden Council, 2019

Appendix D Technological solutions

This Appendix provides a list of existing waste technologies and equipment to assist waste management and any conditions and obligations arising from the use of such technologies. is based on the *Better Practice Guide for Resource Recovery in Residential Developments* (NSW EPA, 2019), or any subsequent version endorsed by the NSW EPA.

Waste handling equipment, including waste chutes and compactors, must conform to the manufacturers' relevant design and safety standards and meet all council requirements.

Bin movers

A bin mover for waste management is a motorised equipment used to transport heavy waste containers, such as bins or dumpsters, within a facility. It eliminates the need for manual labour, improves efficiency, and reduces the risk of injuries associated with heavy lifting.

Responsibility

Applicants to include specifications of the device and location of where it will be stored must be submitted with the waste management plan.

Procedure for issues

Building managers are required to assess and manage any malfunctions, damages or operational difficulties with the equipment. This can be done by:

- Contacting the supplier or manufacturer
- Reviewing warranty or service agreements
- Engaging with maintenance or repair services
- Documenting and tracking the issue
- Evaluating and considering other options

General management/ handling requirements

- Ensure that operators have the appropriate training.
- Conduct routine inspections.
- Ensure there is regular maintenance and servicing as recommended by the manufacturer.
- Maintain appropriate documentation and record keeping.

- Ensure clear communication regarding equipment issues.
- Regularly assess the manoeuvrability, load capacity, battery life (if applicable) and overall operational costs.

Bin lifters

Bin lifters are mechanical devices (such as small tractor or tow tug) designed to lift and empty bins into larger collection vehicles. They typically consist of a sturdy frame with hydraulic or electric-powered mechanisms that secure and tilt the container, allowing for easy and efficient disposal of waste. Bin lifters enhance safety and efficiency by reducing manual lifting and minimising the risk of injuries associated with heavy lifting.

Responsibility

Applicants are required to ensure that enough space is accounted for allow for space to store and operate the lifting equipment.

The building manager is responsible for ensuring proper installation of the bin listers in the waste management system.

The lifting equipment should be fitted with safety features to prevent injury to operators and secured to prevent unauthorised use, particularly by residents.

Procedure for issues

The building manager is to be alerted for any working orders required for the bin lifters.

It is the building manager's responsibility to monitor the performance of the bin lifters regularly. They should be attentive to any issues or malfunctions and take prompt action to address them. This may involve contacting maintenance personnel or arranging for repairs.

General management/ handling requirements

- Ensure that operators have the appropriate training.
- Conduct routine inspections.
- Ensure there is regular maintenance and servicing as recommended by the manufacturer.

- Maintain appropriate documentation and record keeping.
- Ensure clear communication regarding equipment issues.
- Regularly assess the manoeuvrability, load capacity, battery life (if applicable) and overall operational costs.

Service lifts

Service lifts are typically used in residential dwellings, commercial complexes, hospitals, industrial facilities, and other locations where waste collection and disposal require efficient vertical transportation.

Responsibility

Applicants are required to ensure that there is enough space to easily transfer at least two loaded waste bins per transfer from the floors to the waste storage facility.

Procedure for issues

The building manager is to be alerted for any working orders required for the bin lifters.

It is the building manager's responsibility to monitor the performance of the bin lifters regularly. They should be attentive to any issues or malfunctions and take prompt action to address them. This may involve contacting maintenance personnel or arranging for repairs.

General management/ handling requirements

- Ensure that operators have the appropriate training.
- Conduct routine inspections.
- Ensure there is regular maintenance and servicing as recommended by the manufacturer.
- Maintain appropriate documentation and record keeping.
- Ensure clear communication regarding equipment issues.
- Regularly assess the manoeuvrability, load capacity, battery life (if applicable) and overall operational costs.

Bin compactors

Waste compactors are used to compress waste to reduce its overall size and increase density. This also helps to reduce the number of bins required and the overall footprint of the bin storage area. Many types of waste compactors are available, and they vary in size. There are two types of compactor systems used in SUDs and MUDs:

- systems that require waste to be transported away from where it is collected under a chute and decanted into a compacting unit
- systems that compact directly into a bin sitting under the chute outlet (such as a ceiling mounted compactor). Compacting directly into bins eliminates the need to manually load waste into a compactor.

Responsibility

In particular, systems fed from a chute can be prone to blockages or failure of the 'electronic eye', which can result in waste overflowing or backing up the chute.

They also require electricity for operation, which may not be an advantage in buildings seeking to reduce energy demand.

The designer is required to set the appropriate compaction ratio, it is typically set around 2:1.

Procedure for issues

A closed-circuit camera may be used, providing it is frequently monitored, such as part of a building security system.

Compactors are to be fitted with optical or visual sensors to provide warning to a nominated caretaker that a bin is to be replaced.

Compactors require regular ongoing maintenance.

General management/ handling requirements

Council does not encourage the use of compaction systems for residential general waste using 240 litre MGB systems, due to issues related to weight, handling and the reduction of bin life.

Compactors will only be permitted by Council as a development condition if other options to reduce waste storage issues, such as optimal bin sizes, have been thoroughly considered and have been proven unable to be used.

Compactors are not to be used for recycling material with the exception of cardboard, as specially designed balers and crusher systems are more effective.

Balers

Balers compress bulky materials such as cardboard and plastic film and tie them into bales so they remain compacted. They are advantageous in situations where large amounts of bulky materials are produced, space is limited and the materials can be compressed so as not to occupy valuable bin capacity.

Balers come in a wide variety of sizes and capacities and have a small footprint.

Responsibility

Building waste management staff are required to load and operate the baler.

Procedure for issues

Alert building management for any issues related to balers.

General management/ handling requirements

Building manager must ensure there is a forklift available if required and appropriate training and licences are in place.

Glass crashers

Bottle crushers are designed to break glass into small but recyclable-sized fragments, known as 'cullet'. Most crushers are integrated with a small mobile bin (typically 60 litres) to keep the weight of the cullet within limits for ease of handling. Crushers allow for much larger weights of glass to be stored in smaller volumes, reducing the storage space required for glass recycling by well over 50 per cent. In addition, the crushers minimise noise associated with handling glass recycling by reducing the need to tip bottles from a bar-sized bin to a larger storage bin, and also from reducing the noise at collection. Glass

bottle crushers are available in different sizes and configurations to suit venues ranging from small bars to larger clubs.

Responsibility

These crushers should be considered in areas of close proximity to residential dwellings to reduce the loss of amenity from recycling noise levels, and where bottle disposal is high and storage areas are limited.

Procedure for issues

Alert building or facility management for any issues related to glass crushers.

General management/ handling requirements

- Ensure that operators have the appropriate training.
- Conduct routine inspections.
- Ensure there is regular maintenance and servicing as recommended by the manufacturer.
- Maintain appropriate documentation and record keeping.
- Ensure clear communication regarding equipment issues.
- Regularly assess the load capacity, battery life (if applicable) and overall operational costs.

Food waste digestors

On-site anaerobic digesters are systems that 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 is not 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.

Chute system

A waste chute system refers to a network of vertical or sloping tubes installed in buildings to enable efficient and centralised disposal of garbage or waste materials from different floors. They provide a convenient and centralised way to collect and transport waste to a common location, typically located at ground or basement level for proper disposal or recycling.

Dual chute for waste recycling: A dual-chute system consists of two separate chutes, one for waste and one for recycling.

Diverter chutes: Diverter chute systems consist of a single chute for both waste and recycling. The resident selects either waste or recycling by pressing a button on the front panel. The material placed in the chute is automatically diverted either to a waste or recycling bin at the base of the chute.

Responsibility

The building manager is responsible for ensuring that the waste chutes and the chute system is regularly inspected and properly maintained. This may involve scheduling routine inspections, addressing any issues or repairs, and keeping the system in good working condition.

The building manager must ensure that the waste chute system meets safety standards and complies with local regulations. This may involve implementing safety measures such as proper signage, fire suppression systems, and adherence to waste disposal guidelines.

The building manager plays a role in educating residents about the proper use of the waste chute system. This includes providing clear instructions on waste separation, disposal guidelines, and any specific rules or restrictions related to the waste chute system.

Procedure for issues

In the event of any problems or complaints related to the waste chutes and/or system, the building manager or body corporate is responsible for addressing and resolving them. This could include handling blockages, addressing odours or hygiene concerns, or addressing any maintenance or repair needs.

General management/ handling requirements

The building manager is responsible for coordinating waste management efforts within the building. This may involve establishing recycling programs, organising waste collection schedules, and implementing efficient waste disposal practices.

Chute room

A waste chute room is an enclosed area that houses vertical or inclined tubes (waste chutes) used to dispose of garbage or waste materials from different floors.

A chute room is required on each habitable floor of a development that has a chute system.

Responsibility

Applicants are required to ensure that the chute room is accessible.

Applicants are to ensure that chute rooms have sufficient space to permit easy opening of the chute and chute room door and the storage and manoeuvring of MGBs.

Architects are to ensure that the chute room is not located adjacent to a habitable room.

Building management is required to display instructions on the use of the waste and/or recycling chute including instructions not to dispose hazardous and bulky material into the chute, and what materials can be recycled using the container(s) provided.

Procedure for issues

Building management is to be alerted for any issues with the chute rooms.

General management/ handling requirements

Cleaners are to ensure that the chute room is maintained regularly to avoid odour, leachate and vermin.

Carousels

Bins at the bottom of the chute can be mounted on an automatic carousel or liner system for easy rotation or can be manually rotated when full. Automatic systems can be fitted with ceiling-mounted compactors or waste can be fed directly into a compacting bin from the chute or decanted into a waste compactor. Compacting waste helps reduce the number of bins required and saves on space in the bin storage room.

Hook-lift bins

A hook-lift bin is a large, heavy-duty waste container designed to be transported and emptied using a hook lift truck. They are typically used for large-scale commercial, industrial and construction waste.

Refrigerated storage system

A refrigerated storage system for waste management provides an effective solution for storing and managing perishable waste materials, ensuring optimal conditions to preserve their quality and minimise environmental impacts.

Home composting and wormeries

Worm farms or vermiculture systems transform food and other organic material into vermicast (worm compost) and vermi-liquid (liquid extract from a worm farm). Seafood, seafood shells, meat or bones and dairy products are not an acceptable part of the worms' diet and should not be applied to these systems. Worm farms can occupy a small footprint and be located on balconies or in gardens. The worm farm should be placed in a sheltered position to avoid getting too hot in summer.

Compost tumblers and bins and compost bays transform food and other organic material into useful soil enhancer (compost). They are more versatile than worm farms as they can generally process a wider range of materials, including woody garden organics and can be placed in the sun. Before setting up an on-site composter or a worm-farm system, check with Council for any local requirements such as setback distances from property boundaries.

A variety of compost bins and tumblers are available from hardware stores or some local councils. There are also various online resources on how to construct them using recycled materials such as timber pallets. The footprint area requirement for a typical single household compost bin is about 1m x 1m x 1m.

Truck turntables

Turntables allow safe entry and exit for heavy vehicles in a forward direction where space is limited. Some RFBs have turntables fitted for cars and other small vehicles. A turntable for a waste collection vehicle needs to have an additional minimum 12.5 m diameter circular clearance zone.

Appendix E Waste collection vehicle sizes and access requirements

Minimum waste collection vehicle design requirements

Waste collection vehicles can be side loading, rear loading or front-end loading. The size of vehicles varies according to the collection service.

Table 14 provides minimum design requirements, representative of a typical Council waste collection vehicle and should be used as the design parameters for swept path analysis.

Table 14 Typical collection vehicle parameters

Vehicle parameter	Unit	Rear loader	Side loader	Front loader
Length overall	m	12.5	12.5	12.5
Width overall	m	2.8	2.8	2.8
Travel height clearance required	m	4.3	4.3	4.3
Min. vertical clearance required when loading	m	5.5	5.5	6.8
Min. turning circle radius required	m	12.5	12.5	12.5
Max. roadway/ramp grade	-	1:6.5 (15.4%)	1:6.5 (15.4%)	1:6.5 (15.4%)
Swept circle	m	27.8	27.8	27.8
Vehicle turning speed	km/h	5-10	5-10	5-10
Min. clearance on both sides of the wheel path	mm	600	600	600

Source: Standard HRV dimensions in accordance with AS2890.2 and Better Practice Guide for Resource Recovery in Residential Developments (NSW EPA, 2019).



Figure 17 Waste truck dimensions – rear loading collection vehicle

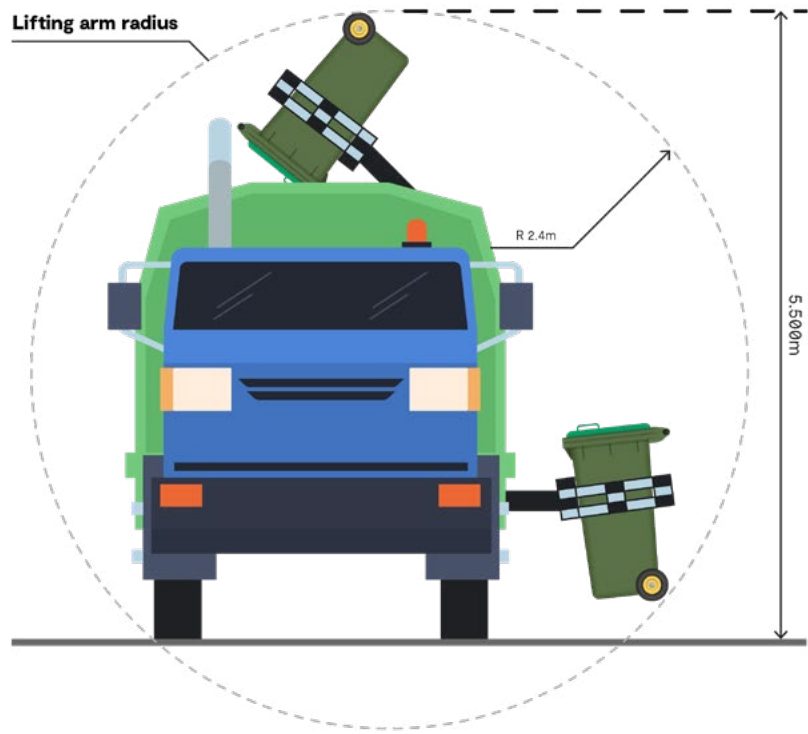
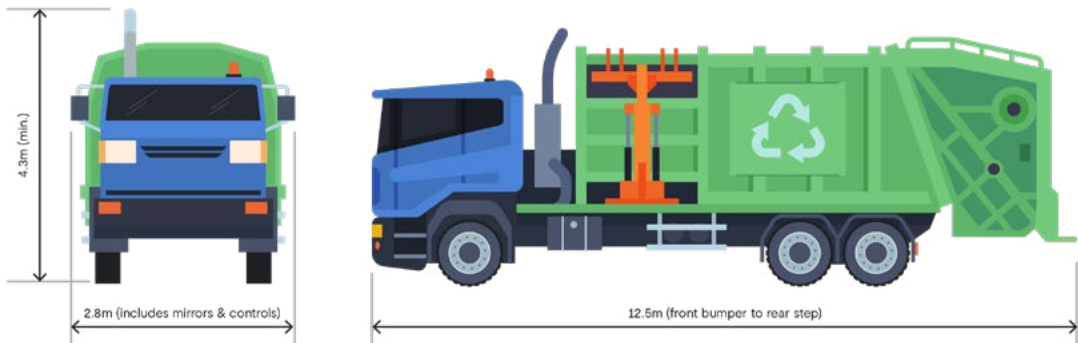


Figure 18 Waste truck dimensions – side loading collection vehicle

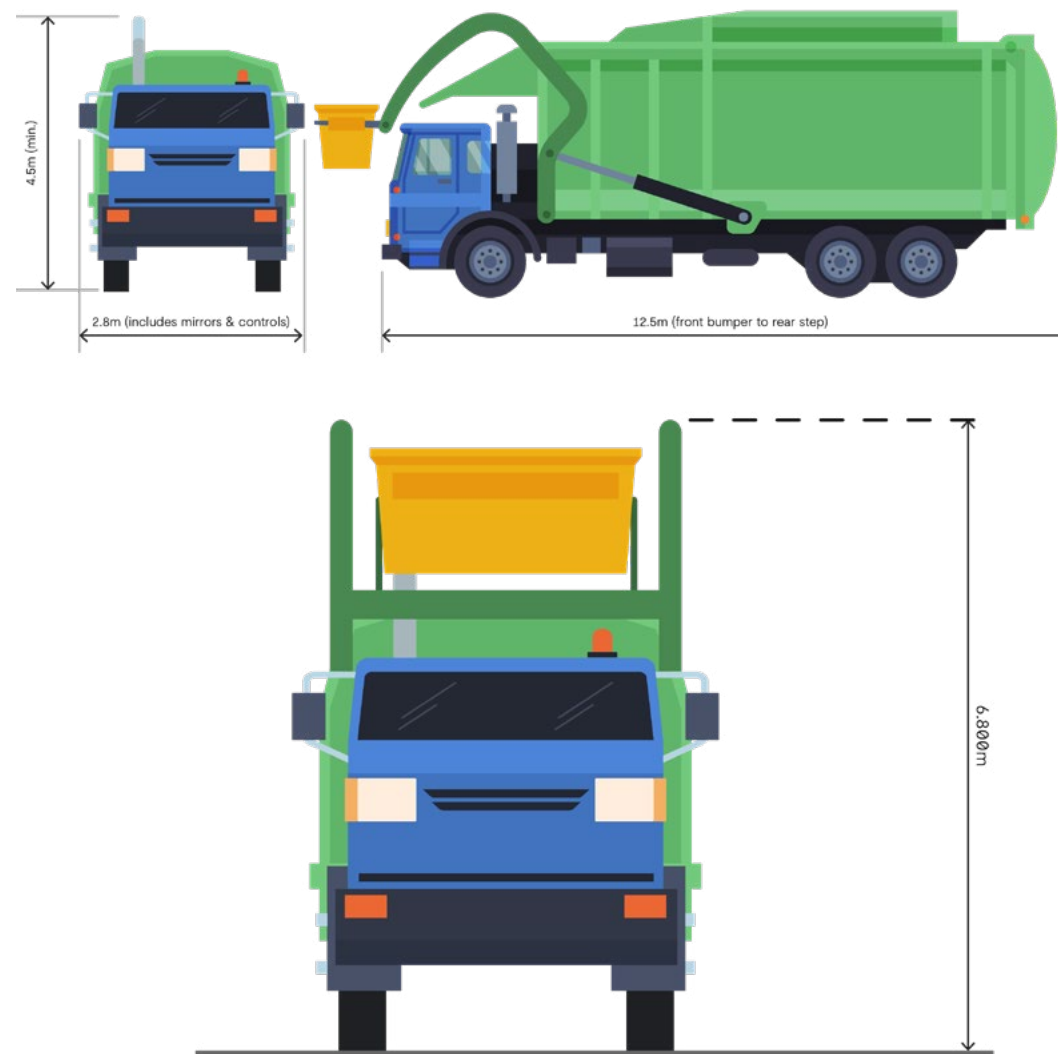


Figure 19 Waste truck dimensions – front loading collection vehicle

The above dimensions are given are provided for guidance only as vehicle sizes and dimensions can vary between manufacturers. Clearance and access requirements for Council service vehicles to enter a property are provided below.

Swept path analysis requirements

Swept path analysis is required to ensure the feasibility of vehicle movements within a proposed location. Swept path analysis should also be used to check the movement out of a loading dock to establish that sufficient width is provided for the vehicle swept path, including manoeuvring clearances. In providing turning path analysis, the following should be provided:

- Road geometry: Include specific dimensions of the driveway, road width (carriage way), footpath, kerb and gutter, median, and on-street parking if applicable.
- Design vehicle details: Provide dimension details of the design vehicle being used for the analysis.
- Turning radius and operable speed: Specify the turning radius and recommended operable speed of the vehicle.
- Lock to lock time: It is advisable to use a value between three and six seconds as a reasonable estimate for most conventional vehicles. This information can typically be obtained from a vehicle data sheet. If unavailable, a lock-to-lock time of six seconds should be chosen.

- Clear swept paths: Provide three clear swept paths lines, namely the wheel path, vehicle body path, and a 1000 mm clearance path.

When conducting a swept path analysis, the parameters in Table A 1 should be used as minimum requirements.

For the best design practice, access and egress from a development should include separate entrance and exit points to facilitate forward travel of collection vehicles. In situations where collection vehicles need to turn at a cul-de-sac head within a development, the design should incorporate a bowl or 'T' or 'Y'-shaped arrangement.

Important design aspects to consider include:

- Placement of waste and recycling bins: Each dwelling should have designated areas outside or a common collection area for waste and recycling bins.
- Presence of parked cars: Account for parked cars on access roads and ensure sufficient space for manoeuvring.
- Three-point turns: Design the layout so that collection vehicles only need to perform a three-point turn to complete a U-turn.
- Collection vehicle overhang: Consider the overhang of collection vehicles and potential interference with bins and road furniture.

By incorporating these considerations into the design, access and egress from a development can be optimised for efficient and safe collection vehicle movements.

Legal requirements and constraints

All waste collections should take place in accordance with all the relevant acts, regulations, guidelines and codes administered by Austroads, Transport for NSW (TfNSW), NSW WorkCover and any local traffic requirements (NSW EPA, 2012).

New developments, as well as existing developments and modifications must ensure that waste collection can occur in a safe and legal manner. This includes compliance with the *Road Rules 2014 (NSW)*. While people might assume that drivers of waste collection vehicles have exemptions from a number of road rules, the only road rules they have an exemption from are:

- Rule 187 Stopping in a bicycle lane, bus lane, bus only lane, tram lane, tramway, transit lane, truck lane or on tram tracks, provided that there is also signage indicating that they can drive in the special purpose lane. At the time of publication of this Guideline, there are no special purpose lanes within the QPRC LGA that meet this requirement
- Rule 213(3), (4) and (5) related to making a motor vehicle secure when further than 3m from the vehicle

While it is ultimately the driver's responsibility to ensure that they comply with the *Road Rules 2014*, all stakeholders need to ensure that the design and construction of new developments does not encourage or require that drivers break the road rules to service the development, regardless of whether the driver is a private contractor engaged by the owner(s) or Council kerbside waste collection staff/contractors.

New developments should ensure:

- That the proposed collection location does not coincide with special purpose lanes (such as bicycle lanes and bus lanes)
- That the development does not require or encourage drivers to park contrary to the direction of traffic
- That the development does not require or encourage drivers to reverse unsafely or drive on the wrong side of the road
- Appropriate gradient of traverse (recommended maximum 1:8).

Appendix F Waste management plan template

Development details

Applicant information	
Applicant name	
Applicant's address	
Applicant's phone/mobile	
Applicant's email	
Development Information	
Site address and lot/plan(s)	
Application number	
Existing buildings and other structures currently on the site	
Description of proposed development	
Declaration	
1. The WMP has been developed to meet the waste objectives outlined in this Guideline. 2. The information provided in the WMP outlines the proposed measures and commitments to minimise waste and reuse recycling waste associated with the development. 3. Plans displaying waste storage areas, waste collection locations, and waste collection vehicle access during all stages (construction, demolition and operation) are provided in this application and will be distributed to all construction process participants. 4. The checklist has been accurately and completely completed. 5. The information on this form reflects the applicant's intention to manage wastes specifically associated with this development. 6. All records demonstrating lawful transport and disposal of waste will be retained and kept readily available for inspection by regulatory authorities, including Council and relevant NSW waste, health and safety agencies.	
Applicant or Authorised Agent name	
Signature	
Date	

Demolition waste management

Checklist for demolition waste management

Waste generation	Yes/No/NA
All waste types from demolition works have been identified with appropriate estimates of expected waste to be generated and the destination of the materials once they leave site (i.e., recycling, reuse facilities and landfill).	
Does your demolition waste include asbestos?	
Waste storage	
There is a clear procedure in place for how materials will be stored on-site.	
Size and location of waste storage area(s) have been clearly defined in the WMP.	
Waste handling	
There is a clear procedure for how waste will be managed on-site.	
There are methods to communicate the responsibilities to the relevant parties involved. DEMO	
Access for waste collection has been clearly defined in the WMP.	

Estimated waste generation - demolition

Type of material	Total		Reuse on-site	Recycling	Disposal	Method
List the waste material	Estimated quantities		Estimated volume (m³) or weight (t)	Estimated volume (m³) or weight (t)	Estimated volume (m³) or weight (t)	Specify method of on-site reuse, contractor and recycling/disposal facility to be used
	Vol (m³)	Wt (t)				
Excavation material						
Timber (specify)						
Concrete						
Bricks/pavers						
Tiles						
Metal (specify)						
Glass						
Furniture						
Fixtures and fittings						
Floor coverings						
Packaging (used pallets, pallet wrap)						
Garden organics						
Containers (cans, plastic, glass)						
Paper/ cardboard						
Residual waste						
Hazardous/ special waste e.g. asbestos (specify)						
Other (specify)						
TOTAL						

The Waste and Sustainable Materials Strategy 2041 (NSW Government, 2021) has a diversion rate target of 80% for C&D waste. Diversion rate should be calculated using the estimated volume or weight of materials for reuse, recycling and disposal:

Diversion rate =

Reuse+Recycling

Reuse+Recycling+Disposal

x 100%

Diversion rate (%)

Justification if diversion rate is less than 80%

Construction waste management

Checklist for construction waste management

Waste generation	Yes/No/NA
Wastes from the construction of floors, walls, roofing, structures, fencing, paving, doors and windows, fit out, fixtures, conduit and wiring, landscaping and any additional infrastructure are all considered and listed if applicable.	
Waste avoidance, reuse and recycling	
All waste generated that can be reused or recycled has been identified in the WMP.	
The WMP has maximised the reuse of infrastructure, buildings and materials on-site.	
Diversion of construction waste to reuse, recycling or composting has been maximised.	
Used and recycled materials will be used in construction where possible and when doing so visually complements the nature of the natural terrain and the design of the dwellings.	
The WMP includes the name of a licenced facility where the appropriate construction waste could be sent for reuse, recycling or disposal.	
Waste storage	
Materials for on-site reuse can be stored appropriately and effectively.	
The waste storage areas for construction waste are clearly identified on the DA plans and drawings.	
Sufficient area has been allocated for storage and collection of construction waste.	
For staged constructions, waste management for each stage is shown in the WMP and described in the construction waste management plan.	
All waste management plans show the appropriately located, sized and suitably screened waste storage locations related to the construction sequencing of the development.	
The waste storage area is located conveniently for construction personnel to use.	
The routes for movement of waste between work site and waste storage area are obstruction-free.	
Waste collection	
Routes between the bins, waste storage area and collection points are obstruction-free (if waste is moved between the waste storage area and collection point).	
Waste bin collection point is provided that are accessible for waste collection vehicles. There are no obstructions to turning or reversing, pulling up vehicles and lifting bins.	
WMP shows access and turning space areas for waste collection vehicles through each construction stage.	
Access will not be compromised by construction-related activities vehicles or other consequences of construction staging.	
All waste not being reused on-site will be removed during, or at the completion of, the construction stage.	
No waste will be left on the property unless it is a spare part for use in upcoming maintenance repairs, is part of a valid reuse on the property that is integral to and in place in the design, or has a valid reuse for another allowed use of the property.	
Waste collection from the construction site will only take place during the times that have been designated for construction activities in order to control noise levels.	
Waste collection from the construction site will not have adverse impacts on local amenity.	

Estimated waste generation - construction

Type of material	Total		Reuse on-site	Recycling	Disposal	Method
	Estimated quantities		Estimated volume (m³) or weight (t)	Estimated volume (m³) or weight (t)	Estimated volume (m³) or weight (t)	Specify method of on-site reuse, contractor and recycling/disposal facility to be used
List the waste material	Vol (m³)	Wt (t)				
Excavation material						
Timber (specify)						
Concrete						
Bricks/pavers						
Tiles						
Metal (specify)						
Glass						
Furniture						
Fixtures and fittings						
Floor coverings						
Packaging (used pallets, pallet wrap)						
Garden organics						
Containers (cans, plastic, glass)						
Paper/ cardboard						
Residual waste						
Hazardous/ special waste e.g. asbestos (specify)						
Other (specify)						
TOTAL						

The Waste and Sustainable Materials Strategy 2041 (NSW Government, 2021) has a diversion rate target of 80% for C&D waste. Diversion rate should be calculated using the estimated volume or weight of materials for reuse, recycling and disposal:

Diversion rate =

Reuse+Recycling

Reuse+Recycling+Disposal

x 100%

Diversion rate (%)

Justification if diversion rate is less than 80%

Operational waste management

Checklist for operational waste management

General requirements	Yes/No/NA
Has the Guideline been considered in conjunction with Councils' current DCP?	
Bin requirements	
Appropriate bins have been considered and included in the plans.	
Waste storage	
Is there a waste storage area provided?	
Is the waste and recycling area located in a position that is convenient for both users and waste collection staff?	
Size of waste storage area (m²)	
What is the ceiling height of the storage area?	
Does the layout of the waste storage area encourage easy recycling and separation of waste types by all users?	
Have you submitted a detailed plan of the waste storage area, together with the nominated collection point and access pathway marked?	
Waste collection	
Distance (m) from the waste storage area to the collection point	
Is the collection point sufficiently accessible by collection operators?	
What is the maximum manual handling distance between the storage area and the collection point for bins?	
What is the maximum grade of the path for wheeling bins between the storage area and the collection point?	
Are all externally located on-site collection points constructed within 15 metres from the property boundary?	
What is the clearance height allowed for collection vehicles to enter the site for collection?	
Is entry and exit of a collection vehicle from the site in a forward direction?	
Can collection vehicles service the development with minimal reversing?	
Are there no steps or kerbs in the way of the collection point?	
Responsibility	

Who will be responsible for waste management (waste storage area management, cleaning, bin transfer, educating occupants, etc.) for the development?

Amenity

Design to avoid potential odour issues with appropriate containers, lids and collection frequencies.

Prevent dust, noise and glass breakage issues in collection and access areas.

Reduce any potential traffic and amenity impacts, such as noise and odours by designing the facility appropriately.

Risk assessment

Reduce any potential traffic and amenity impacts, such as noise and odours by designing the facility appropriately.

Signage and education

Signage for waste and recycling collection services will be clearly identified where waste and recycling collections can be picked up and dropped off.

Prevent dust, noise and glass breakage issues in collection and access areas

Please provide an overview summary of the development's waste management system and arrangements, including a description of how occupants, cleaners and/or building management will use the waste management facilities and how waste will be stored, transported and collected.

(This is to be consistent with the drawings attached. Please attach additional pages if more space required).

Specific requirements for operational waste management

Specific requirements for each development type are listed below. Please complete the relevant part of the table.

Specific requirements for operational waste management

Yes/No/NA

SUDs

Has space for at least two day's generation of waste, recycling and food waste been provided per dwelling?

Has storage area for one each of Council's specified waste bins been allocated per dwelling? (Including general waste, recycling and FOGO)

Has appropriate access between the waste storage area and kerbside collection point been allocated?

Has sufficient space for the storage of bulky waste, textile waste and problem waste been allocated?

MUDs

Has space for at least two day's generation of waste and recycling been provided per unit?

Is the waste storage area(s) easily accessible by all residents of the development?

How far is the waste storage area from the farthest residential dwelling?

m

Are any collection and vehicle access points located adjacent to a habitable room?

Waste technology: Are you requesting any additional infrastructure in the waste storage room (carousel, optic sensors, automatic bin exchange)?

If yes, please detail the type of additional infrastructure:

If a compactor is included, what is the proposed compaction ratio (it is recommended not to exceed 2:1)?

Will the development elect to have kerbside collection?

How much space in the waste storage area has been allocated for textile waste?

Will a chute system be utilised in the new development? If yes, will the chute system have two separate chutes for garbage and recycling?

If a FOGO chute is not proposed, is there dedicated space for FOGO bins allocated within the communal waste storage area or within chute rooms?

What is the total maximum travel distance from any residential dwelling entry to a chute system on any given storey?

Has the chute system been designed according to the relevant minimum manufacturing standard?

Has the chute system been designed and certified according to the relevant acoustic standards?

Is there a chute room on each habitable floor of the development with a chute system?

Specific requirements for operational waste management	Yes/No/NA
Does the chute room include space for: • The chute inlet hopper • Spare MGBs (in case of chute failure) • Large cardboard and/or bulky items to reduce the likelihood of blockages in chutes. • FOGO bins, if there is no dedicated space for FOGO bins allocated within the communal waste storage area	
In which of the following ways will on-site collection of waste, recycling, FOGO, textile waste and bulky items take place? • In the building's basement forward direction • At grade within the building in a dedicated collection or loading bay • At grade and off-street within a safe vehicular circulation system where, in all cases, vehicles will enter and exit the premises in a forward direction	
RURAL	
Have the requirements outlined for rural residential been met?	
Have the traffic requirements been met?	
SUBDIVISIONS	
Can the waste systems accommodate storage and handling requirements of the total development?	
Is there clear and secure separation of residential and commercial waste facilities?	
Is there enough public street frontage to support the presentation of bins at kerbside?	
Are the widths and alignment of public roads, internal roads and/or rear laneways sufficient to support access and movements of waste collection vehicles?	
Does off-street parking allow for access of waste collection vehicles?	
Are there transitional arrangements in place to support efficient waste management as the development is being staged such as turning areas for waste collection vehicles?	
Private roads: Are the roads designed to support access by heavy right class collection vehicles?	
Greenfield sites: Has a minimum carriageway of 5.5 m been provided allowing for a total width of 8 m (face of kerb to face of kerb)?	
Is there an allowance for minimum two 240 L MGBs with 50 cm space in between for properties with public road frontage?	
Are waste collection vehicles able to service new dwellings without needing to reverse out of the street for staged developments where the full length of the road will not be completed at initial stage?	
Have temporary turning areas met Council's turning requirements (refer to Appendix E)	
Can the temporary turning area be removed at the next stage of development?	
Battle – axe lots: Is the width of the access handle sufficient to allow all bins to be presented for collection without restricting vehicle access?	
Is there sufficient space for a minimum of four bins if space cannot be provided at the access road?	

Specific requirements for operational waste management	Yes/No/NA
Laneways: Are the collection points located away from overhead wires, street tree canopies, building awnings and overhangs and other structures that can impede the operation of waste collection vehicles?	
If side – loading vehicles are being used, is the waste collection occurring from one side of the laneway?	
Are the property setback and carriageway wide enough to accommodate waste collection vehicles where waste is to be collected from both sides of the laneway?	
Have 'No parking' and one way traffic requirements been considered for laneways where bins are serviced and there is limited road reserve.	
SHOP-TOP AND MIXED-USE	
Has separate waste storage been allocated for residential and non-residential aspects of the site?	
Will the collection point be shared for residential and non-residential waste?	
Have relevant site plans identified the storage areas, collection points and management systems for both residential and non-residential waste streams?	
Does your architectural plan show: • Residential and non-residential bin storage areas. Each bin should be illustrated on the submitted plans. • Waste service rooms (where applicable). • Residential bulky waste storage area; and • Residential and non-residential waste dedicated waste collection point/s (including loading dock/truck standing area, bin holding area and bulky waste holding area). Each bin should be illustrated on the submitted plan and there should be sufficient collection area at the rear of collection vehicle	
An estimation of waste generation for garbage, recycling and FOGO	
Waste storage: Details of waste storage areas including dimensions, floor area (m²) and location.	
Waste collection: Details of dedicated waste collection point including dimensions, floor area (m²) and location.	
Number of each type of bin (garbage, recycling and FOGO) required by the development.	
Number of waste collections per week for each waste type.	
COMMERCIAL/INDUSTRIAL	
Land use details: Review land use zoning/overlays applicable to the site.	
Check with Council to ensure that any Council specific matters have been considered.	
Ensure circular economy principles have been applied.	

Specific requirements for operational waste management	Yes/No/NA
DA plans and drawings: Have the following details been included in the plans: • Number of each type of bin (waste, recycling, FOGO and any other relevant type) required by the development; • Details of waste storage areas; • Details of any waste management equipment included in the design; • A site plan or floor layout showing: - Storage area/s inside all tenancies; - Storage areas for nominated waste bins. - Collection area (if different to storage area); and - Path of travel for moving waste bins between storage area and collection area (if bins not collected from storage area).	
A swept path analysis should be included below detailing: • Enter the site in a forward direction; • Perform collections in a safe manner; and • Exit the site in a forward direction. Note: Swept path analysis must be prepared by a traffic engineer in accordance with AS2890.2.	
Waste and recycling type generation: Ensure that the design has considered all streams (including waste, recycling and FOGO) relevant to the development	
Ensure the design plans for: bins, skips, compactors, automation, on-site organic waste processing, balers and glass crushers, where relevant.	
Ensure separation, storage and collection areas for each material stream, is easy to use and understand and signed appropriately.	
Check with Council as to which material streams can be collected by either Council or private collection service.	
Separate waste, recyclables and FOGO at the source: Maximise the separation of waste, recyclables and FOGO on-site, where possible.	
Waste storage: Bins must be separated according to Council's guidelines	
Provide large enough bins to store waste, recyclable and FOGO based on waste types, waste generation estimates and collection frequency.	
Design secure bin storage areas to protect against potential vandalism or theft.	
Fit fire sprinklers according to the Building Code of Australia's fire safety standard.	
Screen, enclose or hide bins so that visual amenity is not reduced for customers, the public and visitors.	
Design to ensure vehicle manoeuvring is in line with Australian Standards and ensure bins are safely accessible for pedestrians	
Provide space for heavy vehicles (e.g. waste collection trucks) in line with relevant Council guidelines and codes administered by Austroads, TfNSW and any local traffic requirements.	
Design office areas to provide space for interim storage of waste paper, used toner and printer cartridges for recycling.	
Separate storage of liquid waste, such as oils from restaurants or cafes.	
Separate storage of clinical or hazardous waste in specialised containment bins and allow for collection by specialised services. Contact Council or the NSW EPA for further information on the correct services to use.	

Specific requirements for operational waste management	Yes/No/NA
Perishables/FOGO: Refrigerated waste, recycling rooms or processing equipment have been provided for FOGO, such as a large supermarket or food processing factory.	
Food preparation areas have been designed with enough dedicated space to collect and recycle food, plastics and glass waste. This includes kitchens, office tearooms, service areas and food processing plant areas.	
Collection frequency: Identify appropriate collection services. These could include private, public or both depending on waste generated.	
Contact Council or a private collection service provider to find out specific requirements.	
Consider the amount of waste generated annually as this may impact collection frequency.	
Collection location: Collection points should be clear of all obstacles, on a level surface, and have access-way rated for use by heavy vehicles.	
Collection points should have enough room for bins to be manoeuvred by the driver for servicing and be accessible during collection times	
Collections areas shouldn't be restricted by parked cars, vehicle loading or unloading bays, bollards, signs, plants, bins, seats or other street furniture.	
Collection areas shouldn't require vehicles to reverse or impede the normal operations of the building, or be located behind locked gates.	

Estimated waste generation - operation

Parameter	Unit	Waste	Recycling	FOGO	Other (i.e. bulky waste)
Amount generated	L/unit/day				
Total amount generated	L/development/week				
Amount generated after any reduction due to compacting equipment	L/development/week				
Number of collections	per week				
Number of storage bins required	-				
Size of storage bins required	L				
Floor area required for storage bins	m ²				
Floor area required for manoeuvrability	m ²				

