



Waste Management Guideline

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Version	Description of revision	Date
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1. Introduction

Camden Council has created the Waste Management Guideline as a tool to assist in the design and development of subdivisions; residential development; commercial development; and industrial development. The Waste Management Guideline is intended to accompany the Camden Council Development Control Plan 2019 (DCP) and should be read in conjunction with the relevant sections of the DCP.

The Waste Management Guideline has been prepared to assist applicants in achieving positive design outcomes whilst incorporating best practice waste management techniques.

The Guideline details the requirements for:

- Demolition of buildings or structures;
- Construction of buildings or structures;
- On-going use of developments, including:
 - Subdivisions;
 - Residential;
 - Mixed Use;
 - Commercial; and
 - Industrial.

Guiding principles

The following guiding principles should be followed when developing within the Camden LGA:

- a. Minimise waste generation and disposal to landfill wherever possible, including during demolition and construction phases;
- b. Ensure waste can be effectively managed onsite;
- c. Ensure that it is as easy to recycle as it is to dispose of garbage during all stages of development;
- d. Ensure that users can easily use and understand waste management systems;
- e. Ensure adequate storage areas are provided for general and recyclable waste during all stages of development;
- f. Ensure easy and efficient transportation of waste can occur onsite;
- g. Ensure safe access and manoeuvrability for waste collection vehicles during all stages of development; and
- h. Ensure all developments are planned and equipped for the on-going waste management during operational life.

Residential Waste Service

General Residential and Attached Dwellings

Collection of waste from these properties will occur on a weekly basis, kerbside at the front of each dwelling.

The service is provided by way of individual bins.

The service consists of:

- Either an 80L, 120L or 240L garbage bin;
- A 240L recycling bin;
- A 240L green waste bin; and
- 2 bulky waste collections a year.

Note: Rural and green waste exempt properties differ as they are not provided with a green waste bin and must manage their own green waste.



Multi dwelling housing

Collection of waste from these properties will occur on a weekly basis kerbside at the front of the property (upon agreement a collect and return service may be provided).

The service is to be provided by way of shared bins, with the number of bins onsite determined by Council's generation rates as per APPENDIX 1.

The service consists of:

- Shared 240L or 360L garbage bins
- Shared 240L or 360L recycling bins; and
- 2 bulky waste collections per unit each year.

Residential Flat Buildings

Collection of waste from residential flat buildings may be either weekly or twice weekly upon agreement. Collection for residential flat buildings will occur on-site from a dedicated waste collection point (upon agreement a collect and return service may be provided).

The service is to be provided by way of shared bins, with the number of bins onsite determined by Council's generation rates as per APPENDIX 1.

The service consists of:

- Shared 660L garbage bins;
- Shared 660L or 1100L recycling bins; and
- 2 bulky waste collections per unit each year.

Note: As part of the Development Application review process Council's waste team would consider other waste storage and collection methods, some options are outlined in APPENDIX 3.

Commercial Waste Service

Camden Council also provides a user pays commercial waste collection service to businesses and commercial properties.

This service allows commercial properties to select from:

- 240L, 360L, 660L or 1100L garbage bins; and/or
- 240L or 360L recycling bins.

Collection frequency is as required and is to be determined through negotiations with Council's waste team.

Visit Council's website for a full list of our fees and charges. www.camden.nsw.gov.au



2. Demolition Waste Management

Applicability

Any Development Application proposing demolition works must provide relevant plans and a Waste Management Plan (WMP) to meet the Demolition Waste Management Submission Requirements.

Objectives

The following Objectives should be incorporated when writing the demolition section of a WMP:

- Pursue opportunities to reuse or recycle the building materials on-site or elsewhere; and
- Demolish structures in stages to facilitate increased separation of waste and increase reuse opportunities.

Submission Requirements

1. A Waste Management Plan (WMP) must be submitted with any Development Application proposing demolition works. The WMP must include the following information:
 - a. Estimated volumes of waste materials generated (in cubic metres). See the rates in APPENDIX 1 for a guide;
 - b. Whether hazardous waste or special waste (including asbestos) will be generated during the demolition phase;
 - c. How each waste type will be recycled on and/or off site, or sent to landfill; and
 - d. If waste is to be reused or recycled on-site it must be specified how the material will be reused or recycled, for each waste type.
2. A site plan or similar which indicates:
 - a. Location of sorting area/s where waste will be sorted for disposal or recycling;
 - b. Location of storage area/s where waste and soil stockpiles will be stored onsite; and

Note: This is to include colour coding of waste containers or the provision of detailed signage.

- c. Collection area which is clear of any obstructions.

Note: Generation, storage, treatment and disposal of hazardous waste and special waste (including asbestos) must be undertaken in accordance with relevant legislation administered by the Appropriate Regulatory Authority (ARA); and the Work Health and Safety Act 2011 administered by Safe Work NSW.

Note: Stockpiles of excavated material should be constructed and managed in accordance with the Department of Environment & Climate Change NSW: Managing Urban Stormwater; Soils and Construction 2008 ("The Blue Book").

3. Construction Waste Management

Applicability

Any Development Application proposing construction works must provide relevant plans and a Waste Management Plan (WMP) to meet the Construction Waste Management Submission Requirements.

Objectives

The following Objectives should be incorporated when writing the construction section of a WMP:

- Incorporate the use of prefabricated components and recycled materials where appropriate;
- Arrange for the delivery of materials so that materials are delivered 'as needed' to prevent degradation of materials through weathering and moisture damage causing additional waste; and
- Return excess materials to supplier or manufacturer as appropriate.

Submission Requirements

1. A Waste Management Plan (WMP) must be submitted with any Development Application proposing construction works. The WMP must include the following information:
 - a. Estimated volumes of waste materials generated (in cubic metres). See the rates in APPENDIX 1 for a guide;
 - b. Reuse/recycling opportunities to manage excess construction materials generated during the construction phase; and
 - c. Steps taken to reduce waste brought to site.
2. Provide a site plan or similar which identifies:
 - a. Location of sorting area/s onsite where waste will be sorted for disposal or recycling;
 - d. Location of storage area/s where waste and soil stockpiles will be stored onsite; and

Note: This is to include colour coding of waste containers or the provision of detailed signage.

- b. Collection area which is clear of any obstructions.

Note: Where an application includes the construction of temporary roads, temporary turning heads, half roads, laneways and/or roads, a swept path analysis prepared by a suitably qualified professional must be provided in accordance with AS2890.2. The swept path analysis must demonstrate a HRV safely accessing the site and the manoeuvring of vehicles for the provision of waste collection services.

Note: Stockpiles of excavated material should be constructed and managed in accordance with the Department of Environment & Climate Change NSW: Managing Urban Stormwater; Soils and Construction 2008 ("The Blue Book").

4. Ongoing Waste Management

Guide to Waste Collection Arrangements

	Dwelling House	Attached Dwellings	Multi-Dwelling Housing	Residential Flat Buildings	Shop Top Housing	Commercial Development	Industrial Development
Kerbside Collection							
Collect and Return							
Onsite Collection							

	Permitted
	Via consultation
	Not permitted

4.1 Subdivisions

Applicability

Any Development Application proposing to subdivide land shall prepare relevant plans and a Waste Management Plan (WMP) to meet the following General and Submission Requirements regarding ongoing waste management.

General Requirements

- a. Any roads intended for waste collection must comply with the relevant DCP;
- b. Laneways intended for waste collection must be designed as per Council's Engineering Design Specifications. Refer to APPENDIX 4 Laneways for design guides;

Note: Bins to be collected along one side only for one-way laneways, bins must be presented on the left-hand side of the direction of travel.

- c. Where a cul-de-sac is included in the design a minimum 9.2m radius should be provided to accommodate waste collection. Appropriate layouts and dimensions are indicated in APPENDIX 4 and in Council's Engineering Design Specifications;
- d. The street network must reduce the need for reversing of waste collection vehicles. This includes temporary turning heads as a result of staging and construction works.
- e. Any turning heads anticipated to be used by waste collection vehicles must meet Council's Engineering Design Specifications and be designed as per APPENDIX 4;
- f. Temporary turning heads intended for waste collection must provide 'No Stopping' (R5-400) signage within the turning head. The decommissioning of the temporary turning heads must accommodate waste collection whilst road connection is completed;
- g. Where possible new developments must be designed so that waste collection does not occur from arterial roads, sub arterial roads or any four lane (dual carriageway) roads;
- h. Indicative bin collection area/s must be provided; and

Note: Where bins do not fit at the front of a lot, bins may be collected from another suitable area upon consultation with Council.

Note: Collection area must have sufficient clearance from any obstruction such as a driveway or street trees (removal of specific street trees may be required to ensure servicing can occur).

Note: Waste collection will not occur from lot driveways, communal space such as parks or in car parking bays.

- i. Where the application proposes the construction of dwellings refer to the relevant Section (4.2 – 4.8).

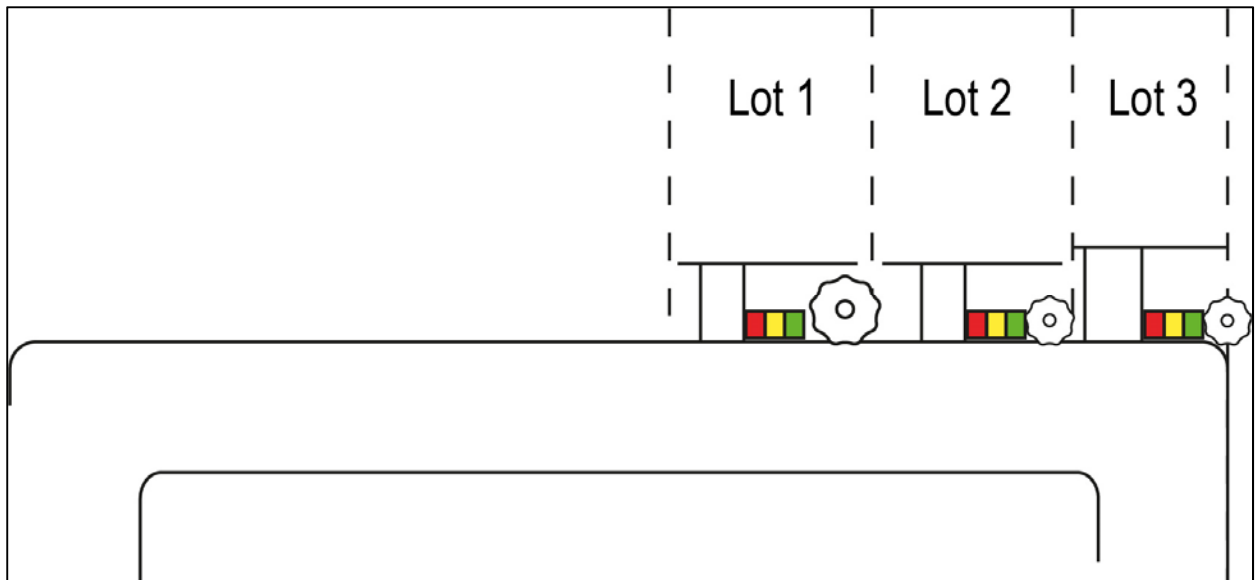


Figure 1. Example subdivision landscape plan.

Submission Requirements

1. Landscape plans showing:
 - a. Indicative bin collection area with relevant lot number;
 - b. Street tree placement; and
 - c. Concrete bin pads (where applicable), see APPENDIX 3 for design requirements.
2. Swept path analysis prepared by a suitably qualified professional in accordance with AS2890.2 must be provided. The swept path analysis will illustrate that a heavy rigid vehicle and Council's waste collection vehicle as per AS2890.2 and APPENDIX 4 can:
 - a. Access each property in a forward direction;
 - b. Manoeuvre throughout the subdivision, ensuring all turns can be made legally and safely;
 - c. Perform collections in a safe manner, allowing for lift arm movement/rotation (specification for lift arm provided in APPENDIX 4); and
 - d. Perform any turning movements in the vicinity of a turning bay or turning head. Trucks will not use private driveways or carparks as a turning area.

Note: If waste collection occurs from private roads an Indemnity Agreement must be entered into with Council prior to the issuing of the Occupation Certificate (OC).

3. Where the application proposes construction, please refer to the relevant section (4.2 – 4.5) for additional requirements.

4.2 General Residential Controls

Applicability

This section details the waste collection requirements for residential dwellings to identify how bins will be allocated, managed and collected. General Residential Controls typically include single dwellings, secondary dwellings, semi-detached dwellings, studio and dual occupancy developments.

4.2 General Residential Controls applies if the development meets both of the following requirements:

- The development proposed is Torrens Title; and
- Each dwelling has a separate residential waste service and individual bin storage (no communal arrangements).

General Requirements

1. Each dwelling must allow for the storage and presentation of 3 (three) 240L bins;

Note: Bins should be presented at the front of the lot for collection.

Note: Collection area must have sufficient clearance from any obstruction such as a driveway, marked parking or street trees.

2. Bins should be screened from the street frontage, or otherwise not be visible from the street;
3. The waste bin storage area should be easily accessed from the dwelling;

Note: Bin storage areas must **not** be located within a dwelling or garage.

4. The path of travel for moving bins between storage and collection area should be smooth and unobstructed;
5. In exceptional circumstances where bins cannot be presented at the front of the lot, Council may consider the provision of an alternate collection area within 50m of the lot boundary following consultation with Council:
 - a. A maximum of 9 (nine) bins to be presented in proposed bin collection area;
 - b. Bin collection area must not negatively impact on neighbouring properties; and
 - c. Bin collection area must not negatively impact on the street scape or visual amenity.

Note: Where bins are presented for collection at the kerb, a 0.3m gap must be provided between each bin with a 0.9m clearance at the rear of each bin.

Note: In instances where bins are not collected from the front of a lot, Council may request the provision of concrete bin pad/s at the collection area. Concrete bin pad/s are to be installed at the applicant's expense, specifications are provided in APPENDIX 3.



Figure 2. Sample low density landscape plan.

Submission Requirements

1. Architectural or Landscape plans showing:
 - a. Both bin storage and collection areas suitable for 3 (three) 240L bins per dwelling, each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2; and

Note: Should collection not be possible at the properties frontage alternate collection area/s must be shown and appropriately labeled.

4.3 Attached Dwellings

Applicability

This section details the waste collection requirements for attached dwellings with waste collection occurring from either the property frontage.

4.3 Attached Dwellings applies if the development meets the below requirements:

- The development proposes to construct 2 or more dwellings which are attached; and
- Each dwelling has a separate residential waste service and individual bin storage (no communal arrangements).

General Requirements

1. Bins are to be stored within each individual property's boundary;
2. Bin storage area/s must be provided in accordance with Section 4.2 General Requirements;
3. Bins must be presented kerbside. The total number of bins awaiting collection must not negatively impact on neighbouring properties, streetscape and/or local amenity. Where this control cannot be met refer to Section 4.2. General Requirement 5;
4. There must be no lip or step between bin storage area/s and bin collection area/s.

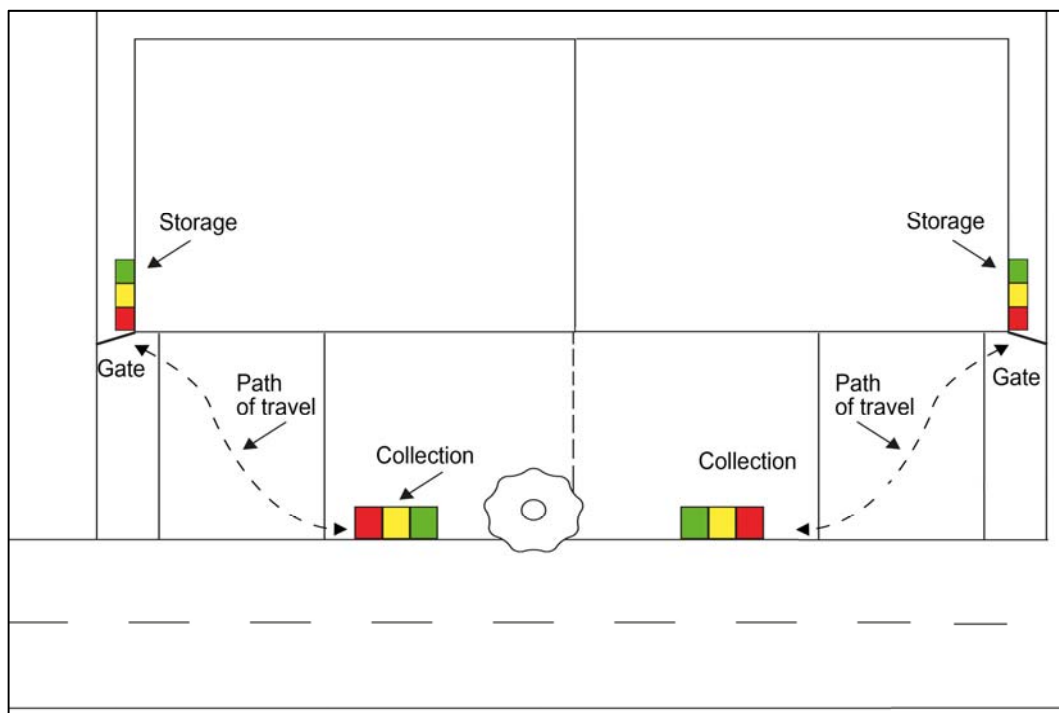


Figure 3. Sample attached dwelling architectural/landscape plan.

Submission Requirements

1. Architectural or Landscape plans showing:
 - a. Bin storage area/s suitable for 3 (three) 240L bins per dwelling, each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2;
 - b. Bin collection area/s suitable for 3 (three) 240L bins per dwelling. Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2; and



4.4 Multi Dwelling Housing

Applicability

This section details the waste collection requirements for multi dwelling housing with waste collection occurring from either the property frontage or from an onsite communal waste storage area/temporary waste holding area.

4.4 Multi Dwelling Housing applies if the development meets one or more of the below requirements:

- The proposed development is residential multi dwelling housing between 1 – 2 storeys high.
- Individual bin storage cannot be provided.

Note: Individual bin storage may be considered by Council provided the General Requirements in Section 4.2 can be met (All '4.4 Multi Dwelling Housing General and Submission Requirements' excluding General Requirement 1 continue to apply).

General Requirements

1. All bins must be stored in a communal waste storage area. Communal waste storage area must:
 - a. Be integrated into the built form, the design should enhance the building and on-street amenity;
 - b. Be screened from the street frontage by minimum 1.5m high walls, or otherwise not be visible from the street;
 - c. Be well built and lit, in accordance with the Building Code of Australia as well as ventilated in accordance with AS 1668.4 (AS 1668.2 for buildings requiring mechanical ventilation);
 - d. Have a smooth graded ground surface;
 - e. Have a minimum ceiling height of 2.4m;
 - f. Be protected from inclement weather conditions via a roof;
 - g. Provide an external water tap adjacent to the storage area;
 - h. Provide a drain in the bin storage area discharging to a sewer connection;
 - i. Allow for each bin to be readily accessed and manoeuvred in and out of the area, providing a 1.6m wide unobstructed walkway and 1.8m wide doors/doorways (doors must be able to be locked open);

Note: Stacked bin arrangements are not acceptable.

- j. Have a floor area at least 50% larger than the size of the bins and/or equipment;
- k. Have marked sections in the storage area for garbage and recycling;
- l. Contain educational waste signage, minimum size 0.6m x 0.3m sample artwork available from Council;
- m. Council's master locking system to be installed upon request; and
- n. Provide a minimum of 6m² additional storage space for bulky waste in the communal waste storage area.

2. There must be no lip or step between the bin storage area and bin collection area. The bin travel path must have a maximum gradient of 1:14 and have a minimum access width of 1.6m;
3. Waste collection areas must not obstruct traffic flows on the road, vehicle entry to the property or pedestrian traffic in front of the property;
4. Collection arrangements:
 - a. Bins must be presented kerbside provided the total number of bins awaiting collection does not exceed **50%** of street frontage (driveways **not** included in street frontage) and bins do not negatively impact on neighbouring properties, streetscape or public amenity.

Note: Where bins are presented for collection at the kerb, a 0.3m gap must be provided between each bin with a 0.9m clearance at the rear of each bin.

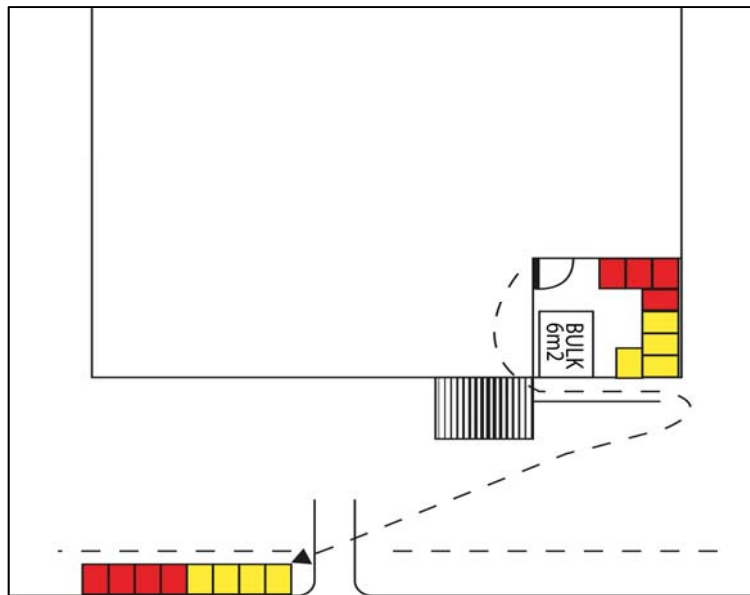


Figure 4. Example of kerbside presentation.

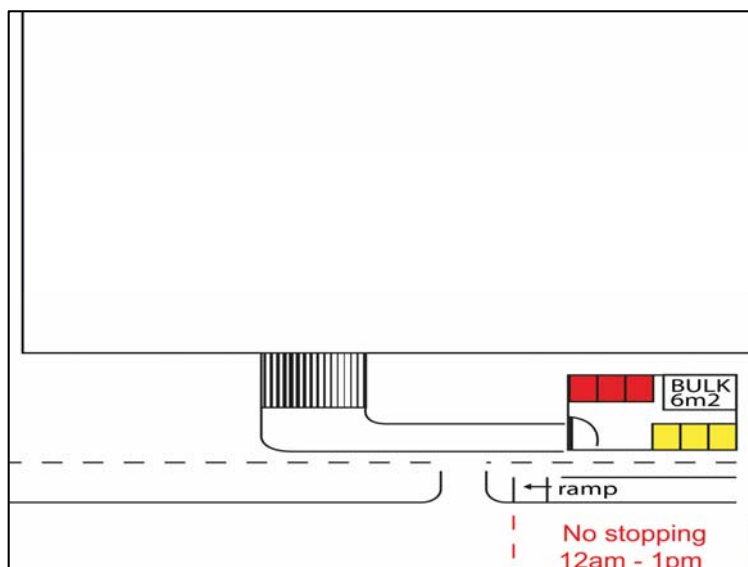


Figure 5. Example of a collect and return service.

- b. If the total number of bins awaiting collection exceeds **50%** of street frontage or negatively impacts on neighbouring properties, streetscape or public amenity, a collect and return service must be provided (to be discussed with relevant Council Officers).

In order to facilitate collect and return bins must be presented for collection in a temporary bin holding area which must:

- Be at street frontage (maximum 10m from the kerb);
- Be setback at least 3 metres from the front boundary;
- Be integrated with the built form, the design should enhance the building and on street amenity;
- Allow for each bin to be readily accessed and manoeuvred in and out of the area, providing a 1.6m wide unobstructed walkway and 1.8m wide doors/doorways
- Have a floor area at least 20% larger than the size of the bins;

Note: Bins must not be placed in stacks more than 3 deep, or in such a way as to restrict access to and movement by collectors.

- Be screened from the street frontage by minimum 1.5m high walls, or otherwise not be visible from the street;
- Have a smooth, sealed and graded ground surface (must not allow for pollution of storm water); and
- There must be a smooth sealed path with a minimum width of 1.6m from the temporary bin holding area to the loading zone.

Note: Bins should **not** be stored in the temporary bin holding area for longer than a 24-hour period.

Note: Space must be made available in front of the property for Council's waste collection vehicle to safely service bins while not impeding traffic (see APPENDIX 4). The creation of a no stopping zone on collection day may be considered.

Note: The kerb must include a ramp within the proposed waste loading zone.

- c. Developments which do not comply with the above conditions are to refer to 4.5 Residential Flat Buildings.

Submission Requirements

1. Architectural or Landscape plans showing:
 - a. Communal bin storage area or individual bin storage area. Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2;
 - b. Bin collection area (kerbside or collect and return). Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2; and
 - c. Path of travel for moving waste bins between bin storage area and bin collection area.
2. An Ongoing Waste Management Plan (WMP) must be submitted with the Development Application and must include the following information:
 - a. An estimation of the weekly waste generation for garbage and recycling. Waste generation rates to be used for calculations and example calculations are provided in APPENDIX 1. Estimates should be provided as a volume of waste per week (in litres);
 - b. Number of each type of bin (garbage and recycling) required by the development;
 - c. Details of waste storage areas including dimensions, floor area (m²) and location;
 - d. Details of waste collection arrangements including the collection point (with dimensions), floor area (m²) and location;
 - e. Proposed arrangements for management and collection of waste including contact details of relevant stakeholders e.g. building managers;
 - f. Proposed arrangements for the management, maintenance and cleaning of all waste/recycling management areas;
 - g. Proposed arrangements for the management and collection of bulky waste;
 - h. Proposed arrangements for the management of litter within the property boundaries (the area of public footpath or public area adjacent to the premises is to be maintained in a clean and tidy condition);
 - i. Provisions for additional recycling/waste disposal throughout the move in phase such as bulk cardboard collection; and
 - j. Proposed method to educate tenants/owners about waste and recycling.

4.5 Residential Flat Buildings

Applicability

This section details the waste collection requirements for residential flat buildings, with waste collection occurring via an on-site dedicated waste collection point. This typically applies to residential flat buildings, boarding houses, shop top housing and large multi dwelling housing developments.

On-site waste collection from a communal waste collection area is required if:

- The development proposes residential flat building 4 or more storeys high; and
- The only available property frontage is on an arterial road, sub arterial or any four lane (dual carriageway) road.

In exceptional circumstances kerbside collection or a collect and return service may be considered if both the following conditions are met:

- The development proposes to construct a maximum of 24 residential dwellings on a single lot; and
- The proposed development meets the General Requirements in Section 4.4.



General Requirements

1. Where development is four or more storeys it must include a waste chute system in the design (E-diverters will not be permitted). Waste chutes must:
 - a. Have restricted openings (250mm X 250mm) to reduce occurrences of blockages;
 - b. Be designed to a minimum of 500mm in diameter;
 - c. Be constructed of metal or another fire-resistant material;
 - d. Comply with the relevant provisions of the Building Code of Australia, and relevant Australian Standards (e.g. AS1530.4-2005).
 - e. Discharge to the atmosphere and be cylindrical in nature, minimising bends within the column of the system;
 - f. Incorporate a linear track system or circular carousel device under each individual chute;

Note: Compaction of residential bulk bins (660L and 1100L) is not permitted.

- g. Have a minimum of 1m clearance around the linear or circular carousel system to allow for manoeuvrability and system maintenance; and
- h. Have a cut off device located at or near the base of the chute so that the chute can be safely isolated while maintenance works are taking place.

Note: If a chute is provided, each floor must provide a dedicated waste service room for the storage of garbage and/or recycling chutes or bins.

Note: 240L bins may be provided as a substitute for recycling chutes. 240L bins must be mechanically decanted into 660L or 1100L bins for collection in **all** developments with **more than 90** residential dwellings, refer to APPENDIX 3 for details on bin lifters.

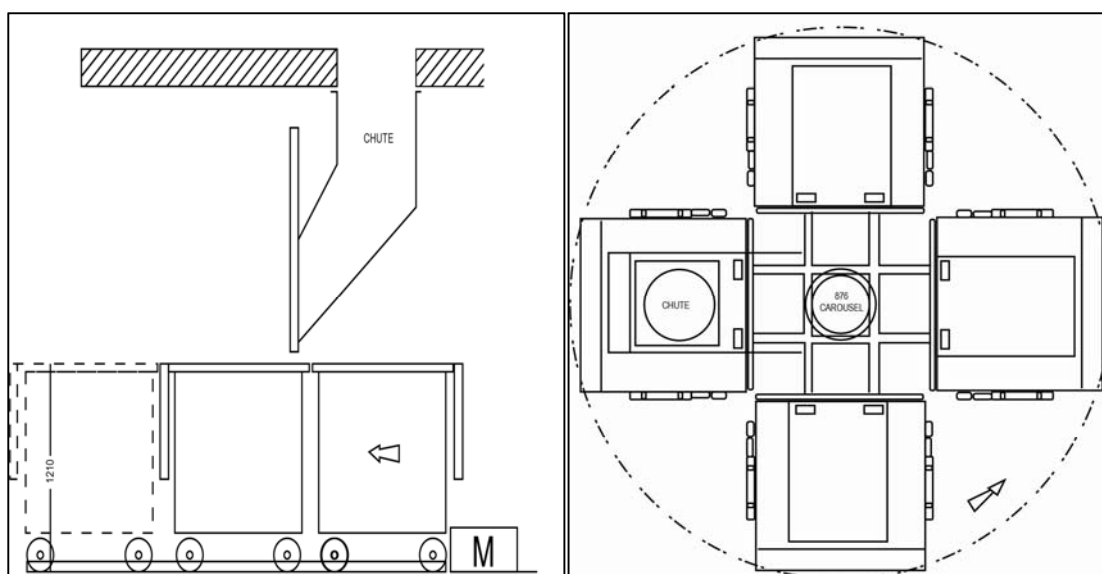


Figure 6. Bin carousel and linear track system.

2. Where development is four or more storeys it must include waste service rooms within each level of the development. Waste service rooms must:
 - a. Be located in a convenient location for all relevant users;
 - b. Be of an adequate size to contain both garbage and recycling infrastructure;
 - c. Have a floor area at least 150% larger than the size of the bins/equipment required;
 - d. Be well built and lit, in accordance with the Building Code of Australia as well as ventilated in accordance with AS 1668.4 (AS 1668.2 for buildings requiring mechanical ventilation);
 - e. Have floors, walls and ceilings of the service rooms which are finished with smooth impervious materials that are capable of being easily cleaned; and
 - f. Contain clear signage that describes the types of waste that can be put in each chute/bin.

Note: Ongoing Waste management Plan must detail rotation of bins (where applicable).

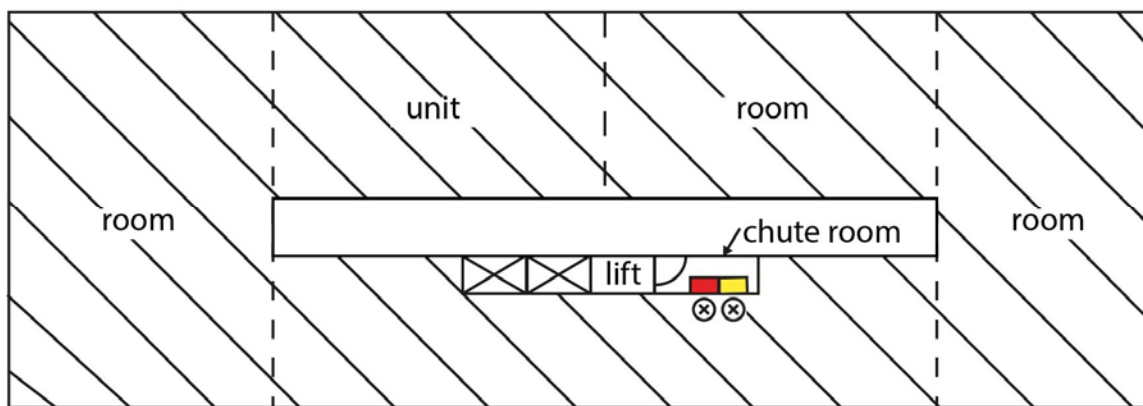


Figure 7. Waste service room design.

3. Where a residential development includes more than 400 residential dwellings garbage and recycling compactors should be considered.

Note: Contact Council's waste team for specifications and details on service availability, refer to APPENDIX 3 for more information.

4. All developments must provide bin storage area/s. Where chute systems are installed, chutes must discharge into the bin storage area and access to the bin storage area must be restricted. Where chutes and waste service rooms are not provided all residents must have convenient access to a bin storage area which meets general requirement 1 in Section 4.4. Bin storage area/s must also include the following additions:
 - a. All bin storage areas must be sealed sufficiently to prevent vermin;
 - b. Council's master locking system to be installed on doors accessing the bin storage area;
 - c. Council suggests that CCTV may be installed to monitor both the bin storage area as well as the entry to the bin storage area.
 - d. A separate service lift (or goods lift) or bin tug may be required to transfer waste from the various building floors to the dedicated waste collection point (where relevant).

5. All residential flat buildings must provide a separate bulky waste storage area. The bulky waste storage area must:
- Provide space for bulky waste storage adjacent to bin storage area/s or the dedicated waste collection point, this space must:

6-20 Units	Minimum of 6m ²
20+ Units	6m ² for every 20 units (maximum of 24 m ²).

- Be serviced by a minimum 1.8m wide door/s, opening in an outwards direction (door/s must be able to be locked open);
- Have a smooth graded ground surface;
- Be well built and lit, in accordance with the Building Code of Australia as well as ventilated in accordance with AS 1668.4 (AS 1668.2 for buildings requiring mechanical ventilation);
- Provide an external water tap adjacent to the storage area;
- Provide a drain discharging to a sewer connection;
- Have Councils master locking system installed on doors accessing the bulky waste room; and
- Consider provision of charity collection bins as well as other specialised recycling bins.

Note: If a dual chute system is installed additional space must be allocated within the bulky waste room for the provision of 2 X 1100L recycling bins for bulk cardboard disposal.

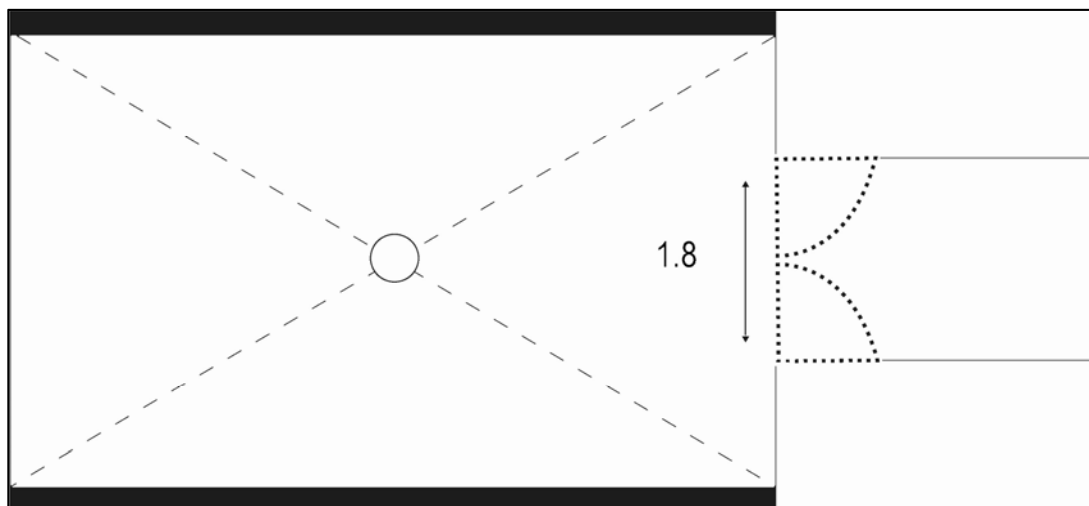


Figure 8. Example bulky waste room.

6. All residential flat buildings should provide onsite collection via a dedicated waste collection point for bins and bulky waste. Dedicated waste collection point must include:

Note: In exceptional circumstances kerbside collection or a collect and return service may be considered provided the development is less than 24 dwellings and the provisions of General Requirements in Section 4.4 can be met.

- a. A loading dock/truck standing area or similar which is level and free from obstructions which allows adequate space for Councils waste collection vehicle (refer to APPENDIX 4) including:
- a minimum of 1.5m clearance on either side of the collection vehicle;
 - a minimum of 3m clearance at the rear of the vehicle; and
 - kerb faces which are at least 0.6m clear of wheel paths.

Note: Must be designed in a way which collection vehicles do not impede access to, within or from the site for other users.

- b. A waste holding room adjacent to the loading dock/truck standing area for the storage of **all** bins prior to collection. Waste holding room must:
- Have a floor area at least 20% larger than the size of the bins;
 - Be serviced by a minimum 1.8m wide door/s, opening in an outwards direction (door/s must be able to be locked open);
 - Have a smooth graded ground surface; and
 - Be well built and lit, in accordance with the Building Code of Australia as well as ventilated in accordance with AS 1668.4 (AS 1668.2 for buildings requiring mechanical ventilation).

Note: Bins must not be placed in stacks more than 3 deep, or in such a way as to restrict access to and movement by collectors.

- c. A bulky waste holding area adjacent to the loading dock/truck standing area as above (General Requirement 5);
- d. A 'traffic control system' to limit vehicular and pedestrian access to the loading dock/truck standing area and the collection vehicles path of travel. Retractable bollards or a similar restrictive device may be installed;
- e. Where a Council vehicle is required to manoeuvre on private property, an Indemnity Agreement must be entered into with Council prior to the issue of the Occupation Certificate;

f. Applicant must select between either of the onsite collection options:

Underground collection

- A loading dock/truck standing area is to be provided within the first level of the basement;
- Access for collection vehicles should be via a secondary frontage;
- Development to be designed in a way which collection vehicles can enter and exit the site in a forward direction. Reversing of a truck onsite must only be done in the vicinity of a turning bay. Trucks will not use private driveways or carparks as a turning area;
- Full path of travel throughout basement must be suitable for a heavy rigid vehicle and Council's collection vehicle as per AS2890.2 and APPENDIX 4, including:
 - Pavement strength;
 - Maximum grade of ramps and driveways 1:6.5 (15.4%);
 - Height and width clearances (minimum height clearance of 4.5m, minimum ramp width of 6.2m to allow for two-way vehicle access and Kerb faces must be at least 0.6m clear of wheel paths); and
 - Turning circles.

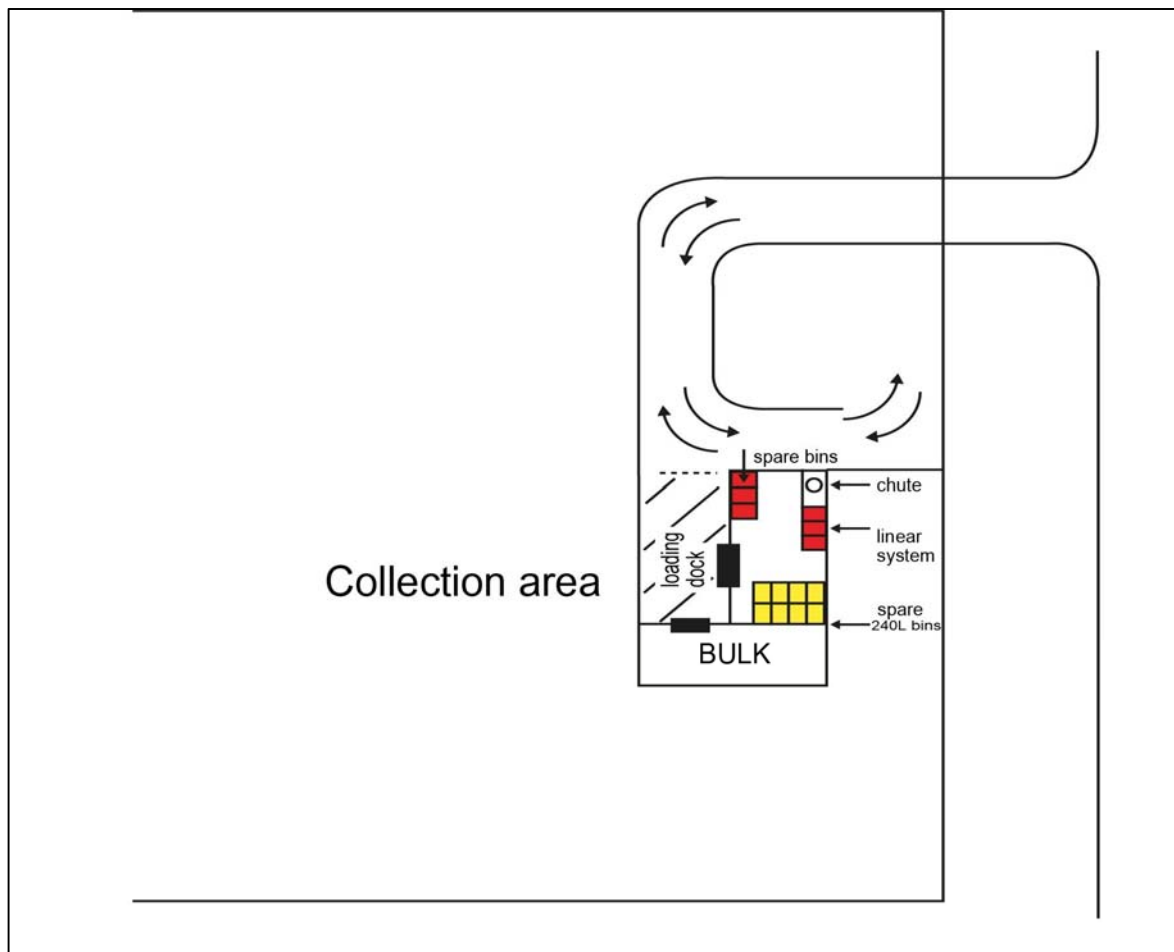


Figure 9. Example underground collection.

At-grade collection

- An onsite collection area is to be provided at grade;
- Onsite path of travel to be reduced where possible;
- Access for collection vehicles should be via a secondary frontage;
- Development to be designed in a way which collection vehicles can enter and exit the site in a forward direction. Reversing of a truck onsite must only be done in the vicinity of a turning bay. Trucks will not use private driveways or carparks as a turning area;

Note: Waste vehicles must not reverse along or onto a main road.

- Full path of travel throughout site must be suitable for a heavy rigid vehicle and Council's collection vehicle as per AS2890.2 and APPENDIX 4, including:
 - Pavement strength;
 - Height and width clearances (minimum height clearance of 4.5m and kerb faces must be at least 0.6m clear of wheel paths); and
 - Turning circles.

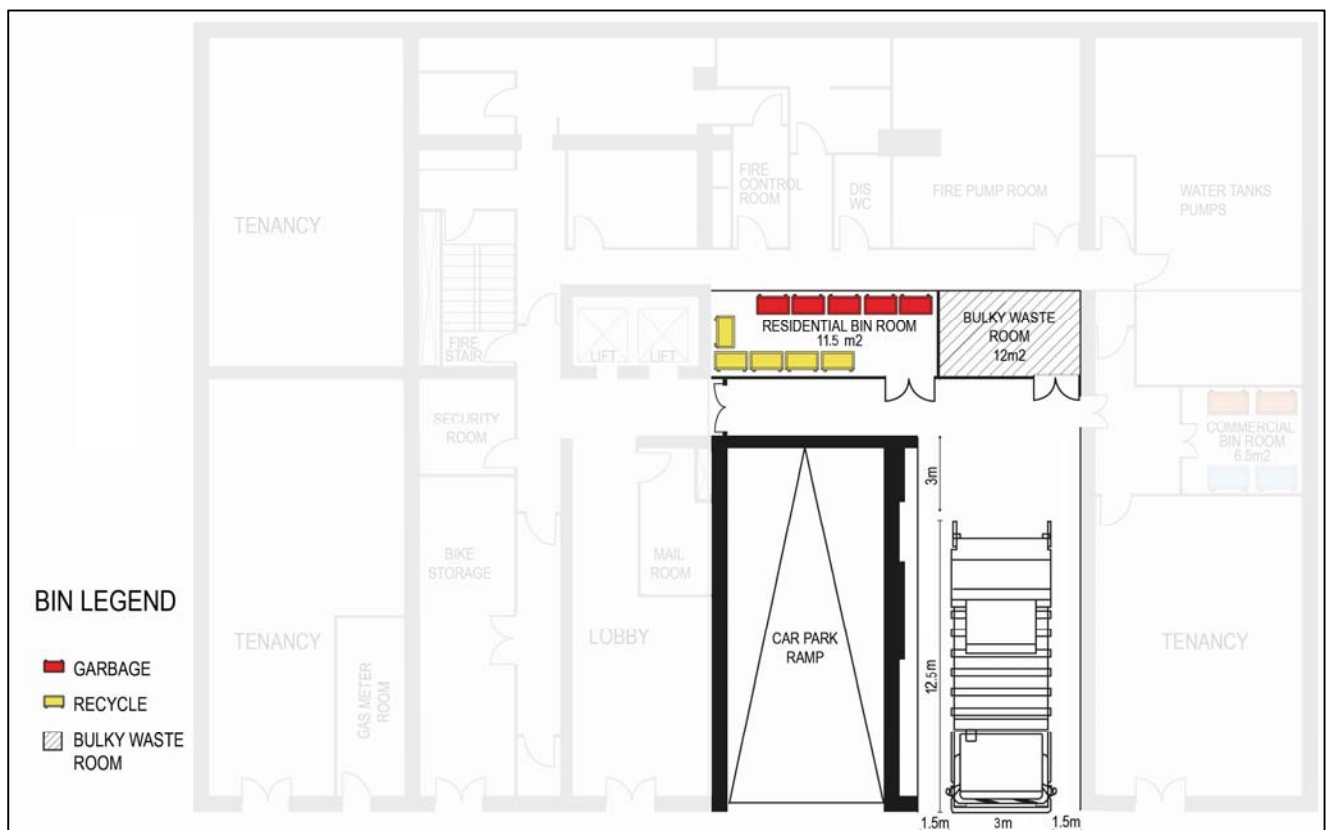


Figure 10. Example At-grade collection.

7. There must be no lip or step between the bin storage area and bin collection area. The bin path of travel must have a maximum gradient of 1:30 and a minimum access width of 1.6m.

Submission Requirements

1. Architectural plans showing:
 - a. Bin storage area/s. Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2;
 - b. Waste service rooms (where applicable);
 - c. Bulky waste storage facility; and
 - d. Dedicated waste collection point (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. Typical bin dimensions are provided in APPENDIX 2.
2. Swept path analysis prepared by a suitably qualified professional in accordance with AS2890.2 must be provided. Specifications for waste collection vehicles are provided in APPENDIX 4. The swept path analysis will illustrate that a heavy rigid vehicle and Council's waste collection vehicle can;
 - a. Enter and manoeuvre throughout the site in a forward direction with appropriate clearances (may be modified where at grade collection is proposed);
 - b. Perform collections in a safe manner;
 - c. Perform any turning movements in the vicinity of a turning bay; and
 - d. Exit the site in a forward direction.

Note: Ramps and private roads are to be provided at appropriate gradients for collection vehicles, maximum gradient 1:6.5 (15.4%).

Note: If waste collection occurs from private roads an Indemnity Agreement must be entered into with Council prior to the issuing of the Occupation Certificate (OC).

3. An Ongoing Waste Management Plan (WMP) must be submitted with the Development Application and must include the following information:
 - a. An estimation of waste generation for garbage and recycling. Waste generation rates to be used for calculations and example calculations are provided in APPENDIX 1. Estimates should be provided as a volume of waste per week (in litres);
 - b. Number of each type of bin (garbage and recycling) required by the development;
 - c. Number of waste collections per week for each waste type;

Note: Council provides a maximum of 2 weekly collections for garbage and recyclable waste, for this type of development;

 - d. Details of bin storage and holding areas including dimensions, floor area (m²) and location;
 - e. Details of any waste management equipment included in the development. Descriptions of some available waste management equipment options are provided in APPENDIX 3;

- f. Details of dedicated waste collection point including dimensions, floor area (m²) and location;
- g. Path of travel for moving waste bins between bin storage area and holding areas. The passageway should have a 1.6m access corridor with a maximum grade of 1:30;
- h. Proposed arrangements for management and collection of waste including contact details of relevant stakeholders e.g. building manager;
- i. Proposed arrangements for the management, maintenance and cleaning of all waste management areas;
- j. Proposed arrangements for the management and collection of bulky waste;
- k. Proposed arrangements for the management of litter within the property boundaries (the area of public footpath or public area adjacent to the premises is to be maintained in a clean and tidy condition);
- l. Provisions for additional recycling/garbage disposal throughout the move in phase such as bulk cardboard collection; and
- m. Proposed method to educate tenants/owners about waste and recycling.

4.6 Mixed Use Developments

Applicability

Any development application proposing to construct a development with both residential and non-residential uses shall prepare relevant plans and a WMP to meet the following General and Submission Requirements regarding design and on-going waste management.

General Requirements

1. Residential waste and non-residential waste must be stored and managed separately;
2. Residents must be prevented from accessing non-residential waste storage areas and vice versa;
3. Residential and non-residential waste management systems should be able to operate concurrently without conflict;
4. Residential component of Mixed-use Development must meet relevant General Requirements detailed in Sections 4.4 or 4.5; and
5. Non-residential component of Mixed-use Development must meet relevant General Requirements detailed in Section 4.7.



Submission Requirements

1. Architectural plans showing:
 - a. Residential and non-residential bin storage areas. Each bin should be illustrated on the submitted plans. Typical bin dimensions are provided in APPENDIX 2;
 - b. Waste service rooms (where applicable);
 - c. Residential bulky waste storage area; and
 - e. 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. Typical bin dimensions are provided in APPENDIX 2.
4. Swept path analysis prepared by a suitably qualified professional in accordance with AS2890.2 must be provided. Specifications for waste collection vehicles are provided in APPENDIX 4. The swept path analysis will illustrate that a heavy rigid vehicle and Council's waste collection vehicle can;
 - a. Enter and manoeuvre throughout the site in a forward direction with appropriate clearances (may be modified where at grade collection is proposed);
 - b. Perform collections in a safe manner;
 - c. Perform any turning movements in the vicinity of a turning bay; and
 - d. Exit the site in a forward direction.

Note: Ramps and private roads are provided at appropriate gradients for collection vehicles, maximum gradient 1:6.5 (15.4%).

Note: If waste collection is conducted by Council and occurs from private roads an Indemnity Agreement must be entered into with Council prior to the issuing of the Occupation Certificate (OC).

2. An Ongoing Waste Management Plan (WMP) must be submitted with the Development Application, WMP must have sections for both residential and commercial and must include the following information:
 - a. An estimation of waste generation for garbage and recycling. Waste generation rates to be used for calculations and example calculations are provided in APPENDIX 1. Estimates should be provided as a volume of waste per week (in litres);
 - b. Number of each type of bin (garbage and recycling) required by the development;
 - c. Number of waste collections per week for each waste type;

Note: Council provides a maximum of 2 weekly collections for garbage and recyclable waste, for this type of development;

- d. Details of waste storage areas including dimensions, floor area (m²) and location;

- e. Details of any waste management equipment included in the development. Descriptions of some available waste management equipment options are provided in APPENDIX 3;
- f. Details of dedicated waste collection point including dimensions, floor area (m²) and location;
- g. Path of travel for moving waste bins between storage area and collection area. The passageway should have a 1.6m access corridor with a maximum grade of 1:30;

Note: Residential waste and non-residential waste components should be detailed separately in the WMP.

- h. Proposed arrangements for management and collection of waste including contact details of relevant stakeholders e.g. building manager;
- i. Proposed arrangements for the management, maintenance and cleaning of all waste/recycling management areas;
- j. Proposed arrangements for the management and collection of bulky waste;
- k. Proposed arrangements for the management of litter within the property boundaries (the area of public footpath or public area adjacent to the premises is to be maintained in a clean and tidy condition);
- l. Provisions for additional recycling/waste disposal throughout the move in phase such as bulk cardboard collection; and
- m. Proposed method to educate tenants/owners about waste and recycling.

4.7 Commercial Developments

Applicability

Any development applications proposing to construct a development classified as a commercial premise shall prepare relevant plans and a Waste Management Plan (WMP) to meet the following General and Submission Requirements regarding design and on-going waste management.

General Requirements

1. Temporary garbage and recycling storage area/s must be provided within each tenancy. These are to be of sufficient size to store a minimum of one day's worth of waste (this may vary depending upon size of development);
2. Between collection periods, all waste/recyclable materials generated on site must be kept in enclosed bins with securely fitting lids so the contents are not able to leak or overflow. Bins must be stored in the designated waste/recycling storage room/s or area/s;
3. The number of bins to be provided must be calculated based on waste generation rates in APPENDIX 1.
4. Bin storage area/s and facilities for food premises must comply with AS4674. Premises which generate at least 50 litres per day of meat, seafood or poultry waste must have that waste collected on a daily basis or must store that waste in a dedicated and refrigerated waste storage area until collection;
5. Every development must include designated communal bin storage area/s, to accommodate waste from all tenancies prior to collection. Storage area/s must:
 - a. Provide convenient area/s for separation of waste;
 - b. Provide convenient access to each commercial area/tenancy of the development;
 - c. Provide for storage of all bins required, refer to Councils Waste Management Guideline for waste generation rates and bin requirements;
 - d. Have a floor area at least 50% larger than the size of the bins and/or equipment;
 - e. Have a smooth graded ground surface;
 - f. Be well lit, built in accordance with the Building Code of Australia and well ventilated in accordance with AS 1668.4 (AS 1668.2 for buildings requiring mechanical ventilation);
 - g. Allow for each bin to be readily accessed and manoeuvred in and out of the area, providing a minimum 1.6m wide unobstructed walkway and a minimum 1.8m wide door/doorway (doors must be able to be locked open);
 - h. Be suitably enclosed, covered and maintained so as prevent polluted wastewater runoff and unpleasant odour;
 - i. Provide an external water tap adjacent to the storage area;
 - j. Provide a drain in the bin storage area discharging to a sewer connection (where relevant);
 - k. Be sealed sufficiently to prevent vermin;
 - l. Provide signage instructing users on bin type/s and appropriate material/s; and
 - m. Be adaptable to changes in waste generation rates and type of waste produced.

6. Waste compactors should be considered for large commercial developments.

Note: Refer to Section 4.8 Industrial Developments, General Requirement 4.

7. Onsite collection must generally be provided for commercial developments. Sites must allow for a Heavy Rigid Vehicle throughout the vehicle's entire onsite path of travel as per AS2890.2. Onsite waste collection area must:
 - a. Be designed in a way which collection vehicles do not impede access to, within or from the site for other users; and
 - b. Be designed in a way which collection vehicles can enter and exit the site in a forward direction. Reversing of a truck onsite must only be done in the vicinity of a turning bay. Trucks will not use private driveways or carparks as a turning area.
8. In exceptional circumstances where suitable arrangements for onsite collection are not possible waste/recycling bins should be collected from a kerbside, rear laneway or service passage, with the aim of preventing collection from shop frontages;
9. Arrangements must be in place regarding the regular maintenance and cleaning of waste management facilities. Tenants and cleaners must be aware of their obligations in regards to these matters; and
10. All commercial developments which produce niche waste i.e. food waste, polystyrene, etc are to consider recycling opportunities in their WMP.

Submission Requirements

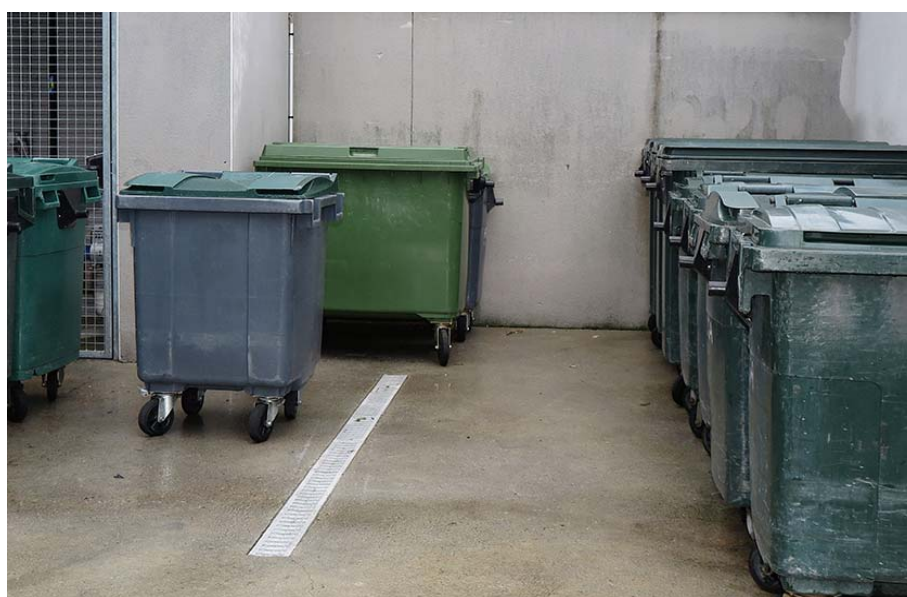
1. Architectural plans showing:
 - a. Temporary bin storage area/s within each tenancy (where relevant). Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2;
 - b. Communal bin storage area/s. Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2;
 - c. Bin collection area/s. Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2; and
 - d. Path of travel for moving waste bins between storage area and collection area as applicable.
2. Swept path analysis prepared by a suitably qualified professional in accordance with AS2890.2 must be provided. Specifications for waste collection vehicles are provided in APPENDIX 4. The swept path analysis will illustrate that a heavy rigid vehicle and Council's waste collection vehicle can;
 - a. Enter the site in a forward direction;
 - b. Perform collections in a safe manner; and
 - c. Exit the site in a forward direction.

Note: If waste collection is conducted by Council and occurs from private roads an Indemnity Agreement must be entered into with Council prior to the issuing of the Occupation Certificate (OC).

3. An Ongoing Waste Management Plan (WMP) must be submitted with the Development Application and must include the following information:
 - a. An estimation of waste generation for garbage, recycling, and any other relevant waste type. Waste generation rates to be used for calculations and example calculations are provided in APPENDIX 1. Estimates should be provided as a volume of waste per week (in litres);
 - b. Number of each type of bin (garbage, recycling and any other relevant type) required by the development;
 - c. Number of waste collection/s for each type of waste per week;
 - d. Whether collection will be conducted by Council or private contractor.

Note: Council will determine whether it can provide a waste collection service to the development.

- e. Details of waste storage areas including dimensions, floor area (m²) and location;
- f. Details of any waste management equipment included in the development. Descriptions of some available waste management equipment options are provided in APPENDIX 3;
- g. Details of dedicated waste collection point including dimensions, floor area (m²) and location;
- h. Proposed arrangements for management and collection of waste including contact details of relevant stakeholders;
- i. Proposed arrangements for the management, maintenance and cleaning of all waste/recycling management areas;
- j. Proposed management of litter within the property boundaries (the area of public footpath or public area adjacent to the premises is to be maintained in a clean and tidy condition);
- k. Proposed method to educate tenants/owners about waste and recycling.



4.8 Industrial Developments

Applicability

Any development application proposing to construct a development classified as an industrial premise shall prepare relevant plans and a Waste Management Plan (WMP) to meet the following General and Submission Requirements regarding design and on-going waste management.

General Requirements

1. A suitably qualified private contractor must conduct industrial waste collection;
2. Temporary garbage and recycling storage area/s must be provided within each tenancy. These are to be of sufficient size to store a minimum of one day's worth of waste (this may vary depending upon size/type of development);
3. Between collection periods, all waste/recyclable materials generated on site must be kept in enclosed bins with securely fitting lids so the contents are not able to leak or overflow. Bins must be stored in the designated waste/recycling storage room/s or area/s;
4. Development must include a designated bin storage area or room, as well as designated storage areas for industrial waste streams to be designed in accordance with the relevant waste laws/protocols. Storage areas must:
 - a. Provide convenient facilities for separation of recyclable material, garbage and other waste;
 - b. Provide for storage for all bins required, refer to Councils Waste Management Guideline for waste generation rates and bin requirements;
 - c. Have a floor area at least 50% larger than the size of the bins and/or equipment;
 - d. Have a smooth graded ground surface;
 - e. Be well lit, built in accordance with the Building Code of Australia and well ventilated in accordance with AS 1668.4 (AS 1668.2 for buildings requiring mechanical ventilation);
 - f. Be suitably enclosed, covered and maintained so as prevent polluted waste water runoff and unpleasant odour (where relevant);
 - g. Be designed to prevent vermin;
 - h. Provide an external water tap adjacent to the storage area;
 - i. Provide a drain in the bin storage area discharging to a sewer connection (where relevant);
 - j. Space is to be provided for compactors and for any other equipment necessary to manage the garbage and recycling likely to be generated on the premises. Sufficient space is also required for storage of the waste (such as cardboard boxes) prior to processing;
 - k. Ensure untrained users cannot access any waste infrastructure and/or equipment (i.e. chutes, compactors);
 - l. Provide signage instructing users on bin type/s and appropriate material/s; and
 - m. Be adaptable to changes in waste generation rates and type of waste produced.

5. Waste compactors should be considered for large industrial developments, for more details refer to APPENDIX 3. All compactors must:
 - a. Be suitably sealed to prevent leaks;
 - b. Be placed on a smooth and graded or bunded ground surface; and
 - c. Be suitably enclosed, covered and maintained so as prevent polluted wastewater runoff.
6. Onsite collection must be provided for industrial developments. Sites must allow for a Heavy Rigid Vehicle throughout the vehicle's entire onsite path of travel as per AS2890.2. Onsite collection area must:
 - a. Be designed in a way which collection vehicles do not impede access to, within or from the site for other users;
 - b. Be designed in a way which collection vehicles can enter and exit the site in a forward direction. Reversing of waste vehicles onsite must only be done in the vicinity of a turning bay. Trucks will not use private driveways or carparks as a turning area; and
 - c. Be designed to accommodate for all waste equipment including compactors.
7. The production, storage and disposal of all wastes must comply with the relevant laws and protocols. The NSW Environment Protection Authority (EPA) generally regulates the management of hazardous waste. Evidence of compliance with any specific industrial waste laws/protocols and/or relevant approvals shall be submitted with a development application;
8. Every development must include all specific waste requirements of any other regulatory authority were the activity is licensed or regulated by others;
9. Arrangements must be in place regarding the regular maintenance and cleaning of waste management facilities. Tenants and cleaners must be aware of their obligations in regards to these matters; and
10. All industrial developments which produce niche waste i.e. food waste, polystyrene, chemical waste etc are to consider recycling opportunities in their WMP.



Submission Requirements

1. Architectural plans showing:
 - a. Bin storage area. Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2;
 - b. Bin collection area. Each bin should be illustrated on the submitted plan. Typical bin dimensions are provided in APPENDIX 2; and
 - c. Path of travel for moving waste bins between storage area and collection area as applicable.
4. Swept path analysis prepared by a suitably qualified professional in accordance with AS2890.2 must be provided. Specifications for waste collection vehicles are provided in APPENDIX 4. The swept path analysis will illustrate that a heavy rigid vehicle can;
 - a. Enter the site in a forward direction;
 - b. Perform collections in a safe manner; and
 - c. Exit the site in a forward direction.
2. An Ongoing Waste Management Plan (WMP) must be submitted with the Development Application and must include the following information:
 - a. An estimation of waste generation for garbage, recycling, and any other relevant waste type. Waste generation rates to be used for calculations and example calculations are provided in APPENDIX 2. Estimates should be provided as a volume of waste per week (in litres);
 - b. Number of each type of bin (garbage, recycling and any other relevant type) required by the development;
 - c. Number of waste collections for each type of waste per week required by the development;
 - d. Details of waste storage areas including dimensions, floor area (m²) and location;
 - e. Details of any waste management equipment included in the development. Descriptions of some available waste management equipment options are provided in APPENDIX 3;
 - f. Details of dedicated waste collection point including dimensions, floor area (m²) and location;
 - g. Proposed arrangements for the management, maintenance and cleaning of all waste/recycling management areas;
 - h. Proposed management of litter within the property boundaries (the area of public footpath or public area adjacent to the premises is to be maintained in a clean and tidy condition); and
3. Evidence of compliance with any specific industrial waste laws/protocols provided by the licensing authority. For example, those related to production, storage and disposal of industrial and hazardous wastes as defined by the Protection of the Environment Operations Act 1997.

Definitions

Attached dwelling means a building containing 2 or more dwellings, where:

- a. each dwelling is attached to another dwelling by a common wall, and
- b. each of the dwellings is on its own lot of land, and
- c. none of the dwellings is located above any part of another dwelling.

Bin storage area means an area designed to be used as an area for individuals to dispose of their waste.

Classified road means any of the following:

- a. a main road,
- b. a highway,
- c. a freeway,
- d. a controlled access road,
- e. a secondary road,
- f. a tourist road,
- g. a tollway,
- h. a transitway,

(See Roads Act 1993 for meanings of these terms.)

Collect and return means the collection of bins from a temporary bin holding area or communal storage area and the subsequent return of the bins to this area.

Commercial premises means any of the following:

- a. business premises,
- b. office premises,
- c. retail premises.

See Camden Local Environmental Plan 2010 for further definitions.

Council means the Camden Council.

Dual occupancy (attached) means 2 dwellings on one lot of land that are attached to each other, but does not include a secondary dwelling.

Dual occupancy (detached) means 2 detached dwellings on one lot of land, but does not include a secondary dwelling.

Dwelling means a room or suite of rooms occupied or used or so constructed or adapted as to be capable of being occupied or used as a separate domicile.

Dwelling house means a building containing only one dwelling.

Industrial means any of the following:

- a. general industry,
- b. heavy industry,
- c. light industry,

but does not include:

- d. rural industry, or
- e. extractive industry, or
- f. mining.

See Camden Local Environmental Plan 2010 for further definitions.

Kerbside collection means bins are collected from the kerb in front of a property.

Mixed use development means a building or place comprising 2 or more different land uses.

Multi dwelling housing means 3 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.

Onsite collection means the collection of waste from an at grade or underground dedicated waste collection point on site.

Residential flat building means a building containing 4 or more storeys, it does not include an attached dwelling or multi dwelling housing.

Secondary dwelling means a self-contained dwelling that:

- a. is established in conjunction with another dwelling (the principal dwelling), and
- b. is on the same lot of land as the principal dwelling, and
- c. is located within, or is attached to, or is separate from, the principal dwelling.

Semi-detached dwelling means a dwelling that is on its own lot of land and is attached to only one other dwelling.

Shop top housing means one or more dwellings located above ground floor retail premises or business premises.

Storey means 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. a space that contains only a lift shaft, stairway or meter room, or
- b. a mezzanine, or
- c. an attic.

Temporary bin holding area means an area where bins are permitted to be presented for 24 hours.

Waste service room/compartments means a compartment on each level of a building containing waste chutes.

APPENDIX 1 Waste Generation

Table 1. Demolition waste generation rates

Material	Estimated Demolition Waste Quantities (per dwelling) (m ³)			Estimated Demolition Waste Quantities (per 100m ²) (m ³)		
	One Bedroom Brick and Fibre board House	Three Bedroom Brick House	Three Bedroom Weatherboard House	Residential Flats	Industrial/ Factory	Office Block
Brick	3 to 5	10 to 15	N/A	504	158	1142
Concrete	4	4	20 to 30	739	407	6736
Timber	5 to 10	12 to 15	7 to 15	10	2	56
Metal	1 to 2	N/A	20 to 25	14	35	45
Plasterboard	N/A	10 to 15	4 to 6	15	3	83
Garbage	10 to 15	N/A	N/A	26	18	155
Roof Tiles	N/A	7 to 9	N/A	25	N/A	N/A
Asbestos	Variable	N/A	N/A	N/A	N/A	N/A

Table 2. Construction waste generation rates

Material	Estimated Construction Waste Quantities (per dwelling) (m ³)			Estimated Construction Waste Quantities (per 100m ²) (m ³)
	General residential	Multi dwelling housing	Residential flat buildings	Industrial/ Factory
Bricks	1 to 3	2.5 to 4.5	3 to 4	1 to 2
Tiles	0.5 to 2.5	1 to 2.5		N/A
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	N/A
Timber	0.5 to 3	1 to 3	1 to 2	1 to 3
Metal	N/A	N/A	1 to 2	2 to 3
Roof Sheeting	N/A	N/A	N/A	3
Other Waste	0.5 to 3	1 to 3	10 to 15	10

Table 3. Residential waste generation rates

Development Classification	Garbage (L per dwelling per week)	Recycling (L per dwelling per week)	Green waste (L per dwelling per week)
General housing and Attached dwellings	120	240	240
Multi dwelling housing and Residential flat buildings	120	120	-

Example residential waste generation calculation

For a development with 12 units (multi dwelling housing) in accordance with the Waste Generation Rate in Table 3:

Garbage Generated = 12 units x 120L/unit/week = 1440L garbage per week

Number of garbage bins required = 1440L/week ÷ 240L bin/week = 6 X 240L bins per week

Table 4. Commercial waste generation rates

Type of premise	Garbage (L per 100m ² floor area per day or as stated)	Recycling (L per 100m ² floor area per day or as stated)
Accommodation		
Backpackers accommodation, boarding house	80L unit/week	80L unit/week
Motel, Hotel	10L/bed/day	5L/bed/day
Food Premises		
Restaurant	200L	200L
Food retail	180L	180L
General		
Offices	10L	10L
Tourist/Community facilities	300L	150L
Retail	80L	80L
Educational institution	25L	15L
Seniors housing	80L unit/week	120L unit/week
Child care/Aged care	80L	80L
Industrial	200L	150L
Medical	60L	60L
Shopping Centre	15L	10L

APPENDIX 2 Typical Waste Bin Sizes

Mobile bins 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.

Council provides three different sizes for garbage bins at residential developments which include 80 litres, 120 litres and 240 litres. Recycling and green waste bins are only available in 240 litres.

Table 5. Typical mobile garbage bin sizes (two wheeled)

Bin type	Height (mm)	Depth (mm)	Width (mm)	Area (m ²)
80 Litre Bin	825	500	452	0.23
120 Litre Bin	930	545	480	0.26
140 Litre Bin	915	615	535	0.30
240 Litre Bin	1060	730	585	0.43
360 Litre Bin	1100	850	680	0.58

Note: these dimensions are only a guide and differ slightly according to the manufacturer if bins have flat or dome lids and are used with different lifting devices.

Council provides four sizes for garbage bins at commercial developments which include 240 litres, 360 litres, 660 litres and 1100 litres. Recycling bins are available in 240 litres and 360 litres.

Table 6. Typical larger (four wheeled) mobile bin dimensions

Bin type	Height (mm)	Depth (mm)	Width (mm)	Area (m ²)
660	1230	810	1260	1.02
1100	1330	1070	1240	1.33

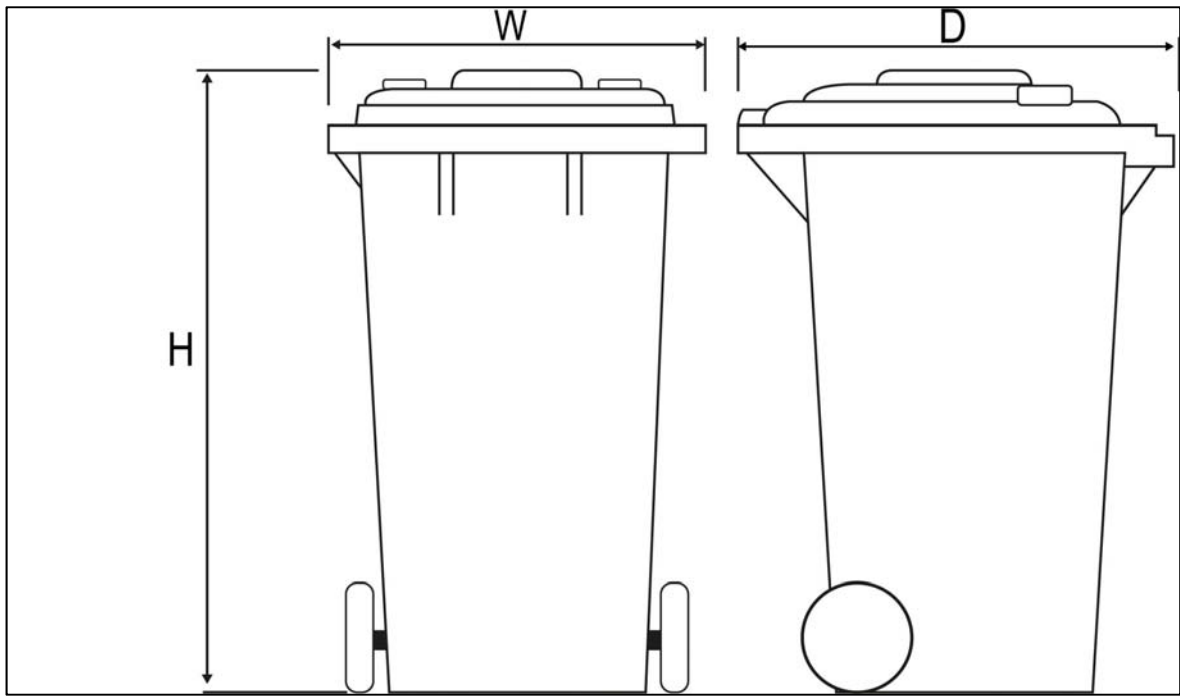


Figure 11. Two wheeled mobile bin key.

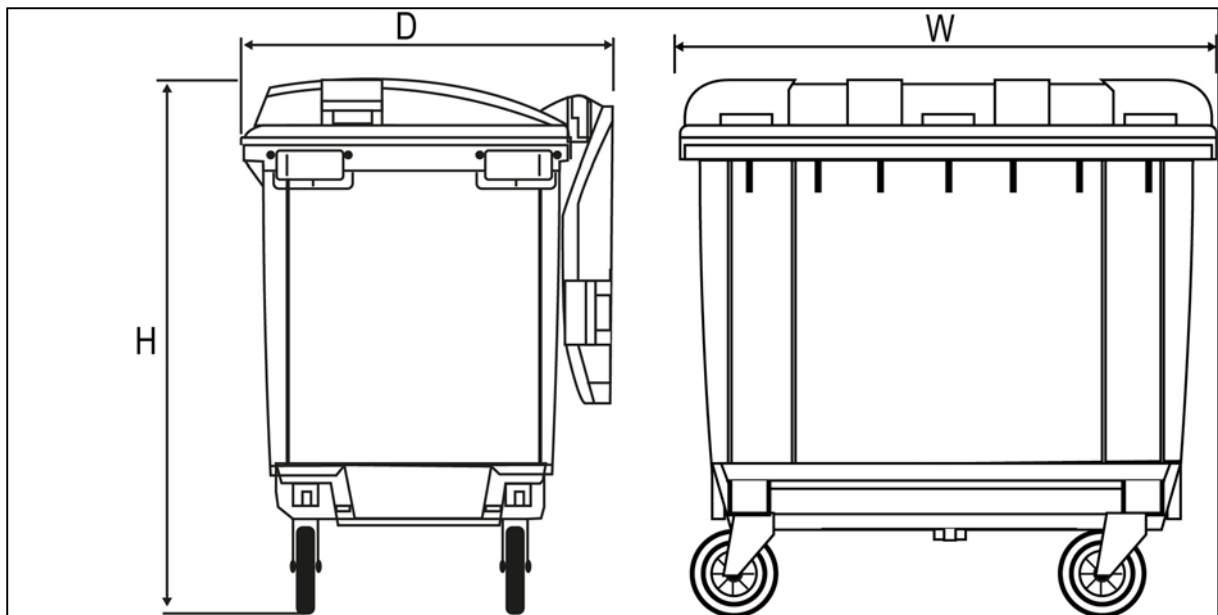


Figure 12. Four wheeled mobile bin key.

APPENDIX 3 Waste Management Equipment

Bin Pads

In instances where waste is not collected from the front of a lot, Council may request the provision of concrete waste bin pad/s at the collection area. If required, bin pads are to be located adjacent to the back of the kerb. Bin pads are to be installed at the applicant's expense and must be constructed to 3m X 0.9m per lot requiring a collection pad.

Bin lifter

Bin lifters assist users in emptying contents from wheelie bins into larger bins. This is by attaching to larger bins (i.e. front-lift bins or open bins) and using air strut or hydraulic supports. Bin lifters could be either hydraulically powered or unpowered and are available in a range of types, sizes and lifting capacities.

Bin tug

Bin tug's assist users in the transport of waste bins throughout a development. Bin tugs come in a variety of sizes and configurations for all development types, bin tugs are typically required for developments with underground storage or large basement configurations.

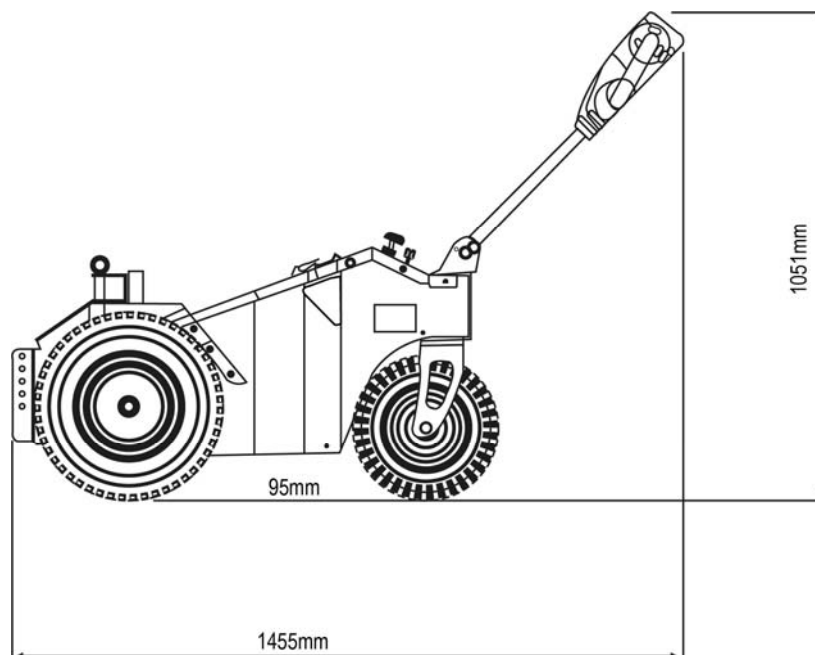


Figure 13. Example bin tug.

Chutes

Note: Council does not support e-diverter chute systems.

Chutes are commonly used in high-rise residential developments, and in some instances in office buildings. Auger compactors can be used in conjunction with the chutes if large volumes of waste are generated, see APPENDIX 3 Compactors for more details.

Modern chutes have built in fire mitigation features (i.e. sprinkler systems and automatically closing doors) to avoid fires from flammable materials such as some plastics and cardboard. Chutes should be designed with minimal noise and fire risks. Applicants should ensure that the chutes supplied are made of an approved material, enclosed in a fire-rated shaft and have sprinklers installed in accordance with *Building Code of Australia*.

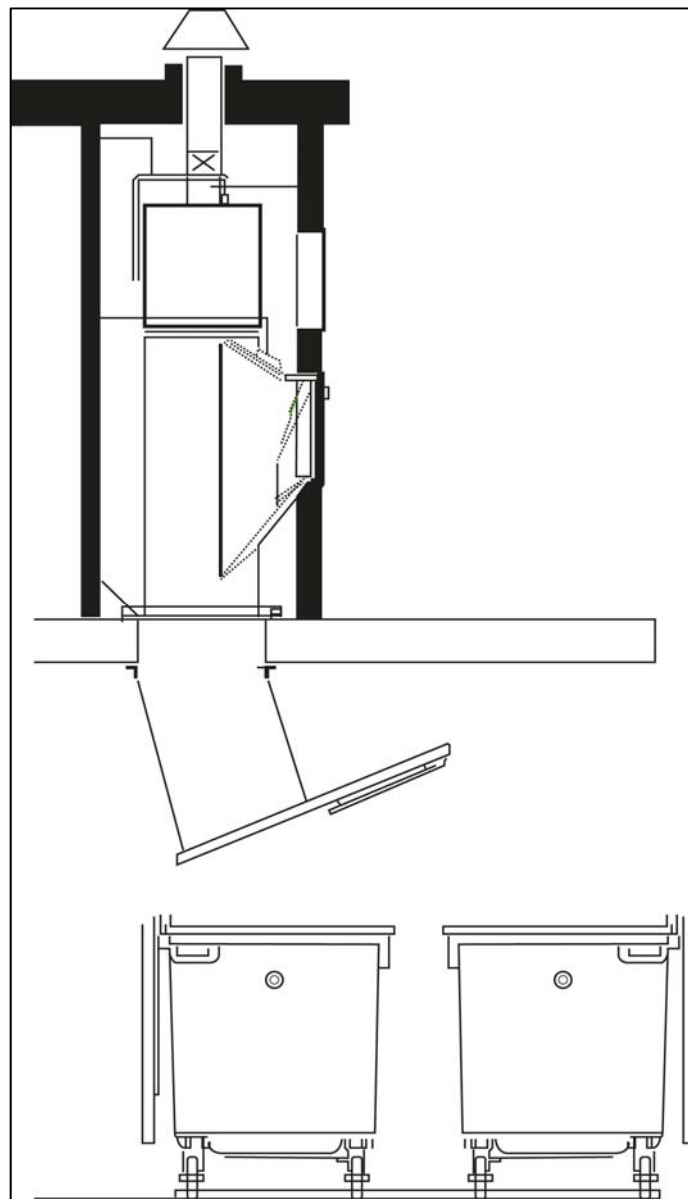


Figure 14. Example bin chute arrangement.

Compactors

Note: Council does not support mobile garbage bin compactors.

Compactors come in a stationary or transportable form. The compactor bins can range from 5-30m³ in size and generally require a minimum height requirement of 6m (dependent on collection vehicle and compactor).

A stationary compactor has two parts:

- a. A compactor consisting of a hydraulic ram which compresses waste and is fixed to the ground
- b. Bin for storage of compacted waste

Transportable compactors consist of:

- a. Mechanism and bin in one unit

Compactors are generally used in areas that generate large amounts of easily compacted materials (i.e. cardboard and putrescible waste). These areas should also have sufficient space for storage and movement of the compactor bins. Areas such as shopping centres, residential flat building developments and universities would benefit from using compactors on-site.

Compactors compress materials to a third of its original volume hence a 17m³ compactor can hold up to 51m³ of uncompacted waste.

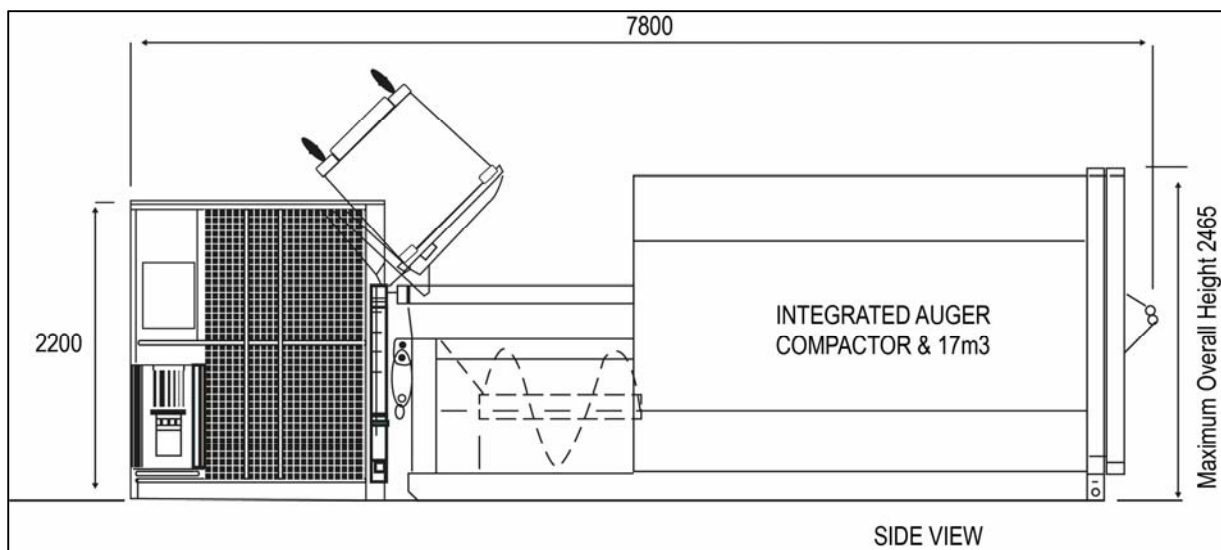


Figure 15. Example compactor setup.

Balers

Balers are generally used to compress and group cardboard and plastic film into bales to ensure the materials remain compacted. Balers could be used in areas that generate these materials but not in the quantities expected to purchase or rent compactors. Balers could also be used in areas with limited space to cater for a compactor.

Front-lift bins

Front-lift bins range from 1 - 4.5 m³ in size and are generally collected by vehicles which lift the bins over the vehicle using front hydraulic 'forks'. The hydraulic ram in the collection vehicle would then compact the collected waste. The collection vehicles require 6.2m height clearance to empty the bins and hence the front-lift bins are commonly used in outdoor areas with no restrictions on overhead clearance.

Table 7. Large bin dimensions

Bin type	Height (mm)	Depth (mm)	Width (mm)
3m ³	1460	1450	2020
4.5m ³	1800	1800	2020

Skip bins

The most common skip bin used is the 'marell' bins while roll-on-roll-off or 'RORO' bins are also used in some areas.

Skip bins range from 1 - 36m³ and are usually used in areas generating large amounts of dry waste (i.e. building material or recyclables). Skip bins require a large amount of space for vehicle access if not located along the property boundary. Skip bins are generally used in industrial and commercial settings.

Organic dehydrator/ digestors/ composters

Developments with food businesses such as cafes and restaurants can benefit from an on-site food waste processing system. These systems use a range of technologies, such as anaerobic or aerobic digestion or dehydration to process food waste, with the result of removing food waste from landfill. Information on the system Submission Requirements, potential benefits and costs is available from technology providers.

APPENDIX 4 Waste Truck Specifications and Design Requirements

Waste collection vehicles are generally heavy rigid vehicles and can be side-loading, rear-end loading or front-end loading.

All waste management plans are assessed based on the ability for Council's waste collection vehicle to service the development.

Table 8. shows the dimensions of Council's waste collection vehicle. Developments that require on-site underground or at grade collection should be designed to accommodate on-site truck movement. Submission Requirements regarding vehicle driveway width/gradient and turning circles are contained in Australian Standard 2890.2 2018/Parking Facilities – off street commercial vehicles.

Table 8. Typical Council Garbage Truck used for Domestic Waste Collection

Dimension	Measure	Design Requirements
Length overall	10.5m	12.5m
Width (vehicle)	2.5m	3m
Width (extended arm grab)	6m	6m
Height overall	4.3m	4.5m
Weight (vehicle and load)	22.5 tonnes	23 tonnes
Weight (vehicle only)	13 tonnes	14 tonnes
Turning circle	19m	27.8m

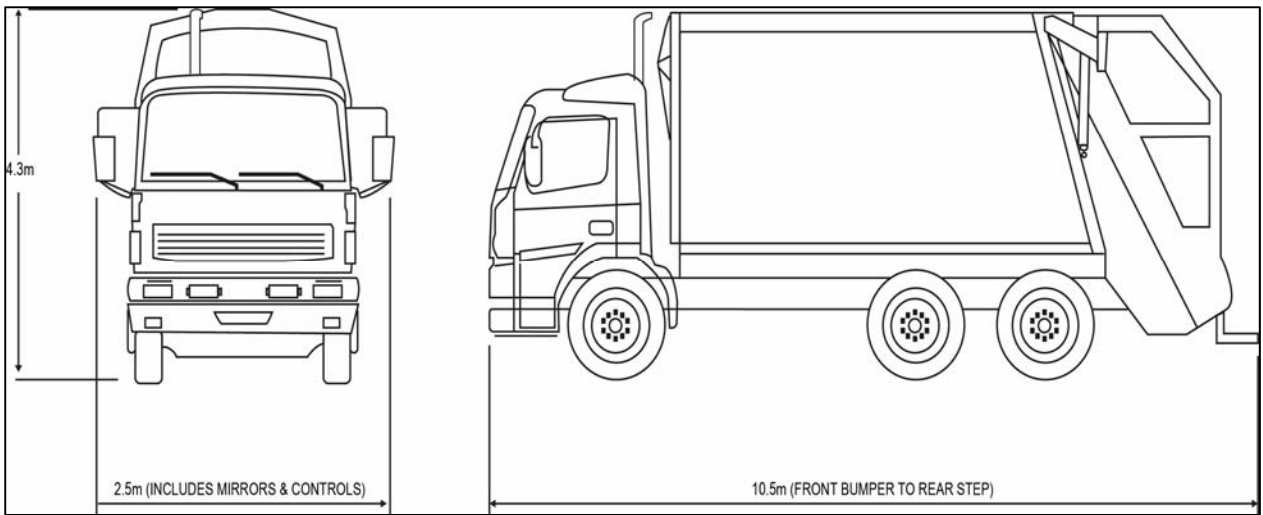


Figure 16. Waste truck dimensions.

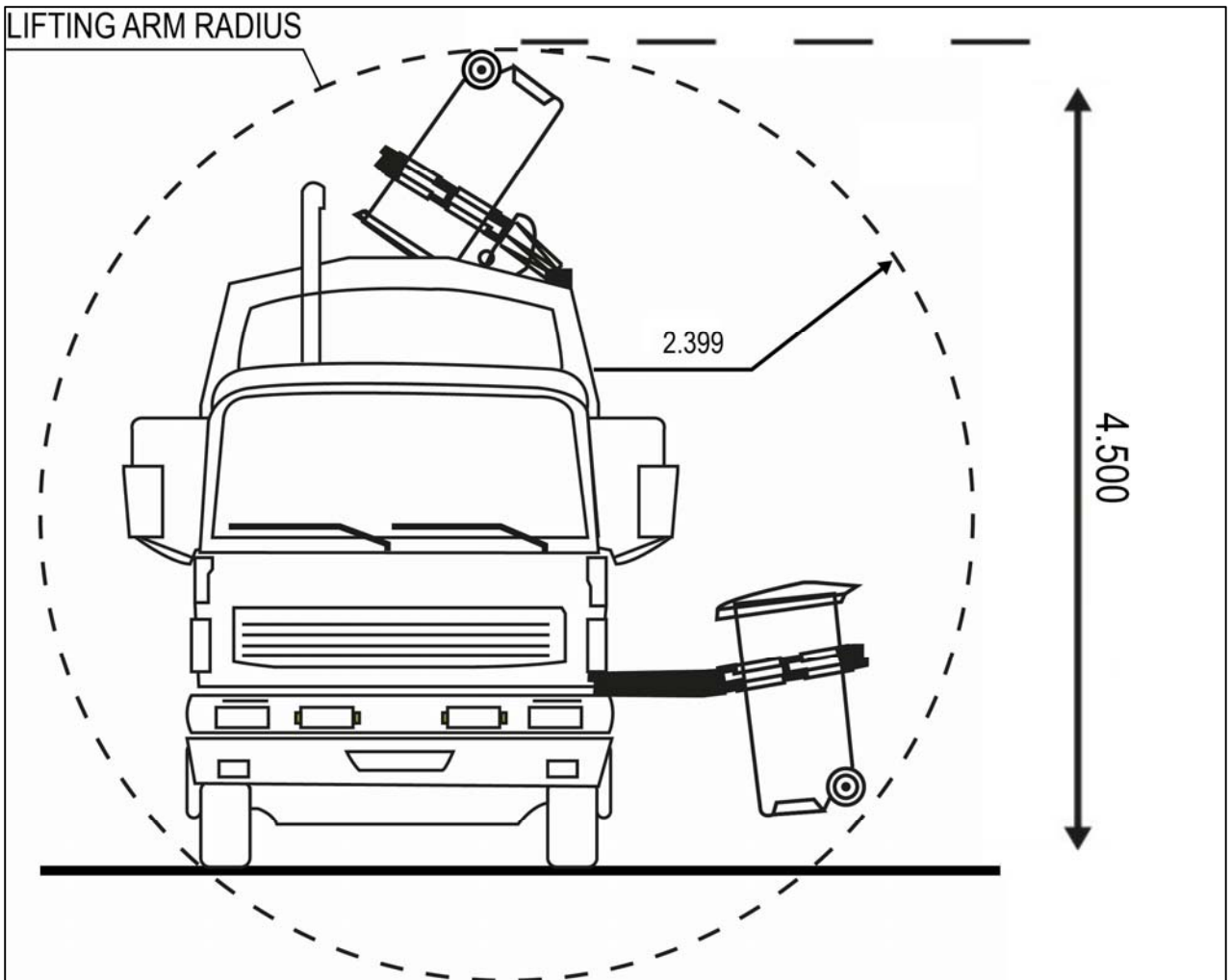


Figure 17. Lifting arm radius.

Turning Head specifications

All turning heads including temporary turning heads should abide by the dimensions illustrated below in Figure 18 (not drawn to scale).

Consideration should be given to placement of the waste bin collection areas within a “T” (hammerhead) turning area of a cul-de-sac. Bin pads should be provided in a “T” head on the left hand (forward end and 8 meters from the reverse end of the “T” head to enable trucks to pick up from the left-hand side of the truck).

Note: To minimise the necessary manoeuvring of the waste collection trucks in a cul-de-sac head, waste bin pads are preferred to be placed on the straight road just before a cul-de-sac turning head. All development applications should identify the storage area of the waste bins behind the building line.

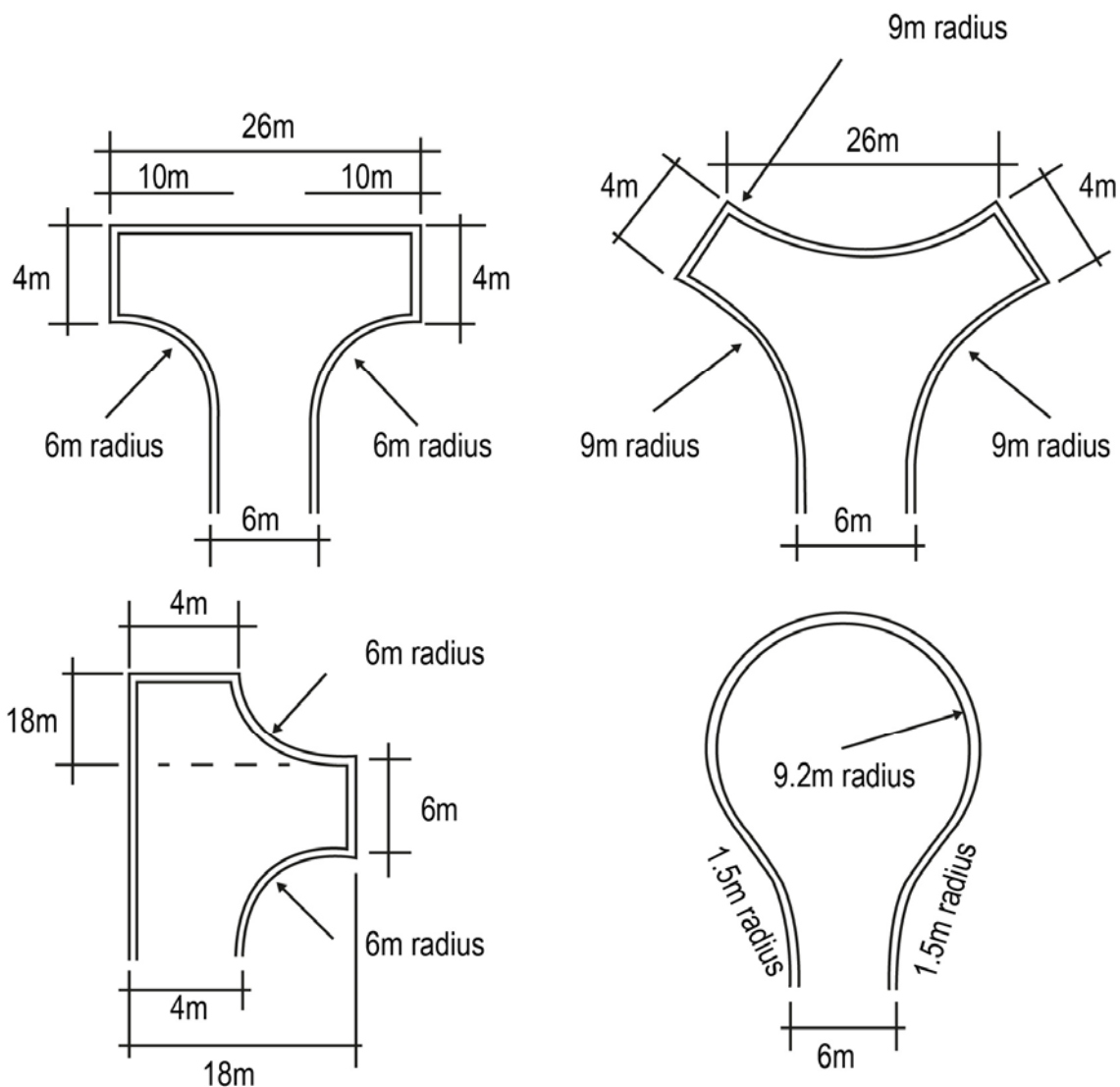


Figure 18. Turning head specifications.

Laneway Dimensions

Laneways intended for waste collection must be designed as per Council's Engineering Design Specifications. Figure 19 illustrates the minimum dimensions of a one lane laneway required to facilitate waste collection. Figure 20 illustrates the minimum dimensions of a two-lane laneway required to facilitate waste collection.

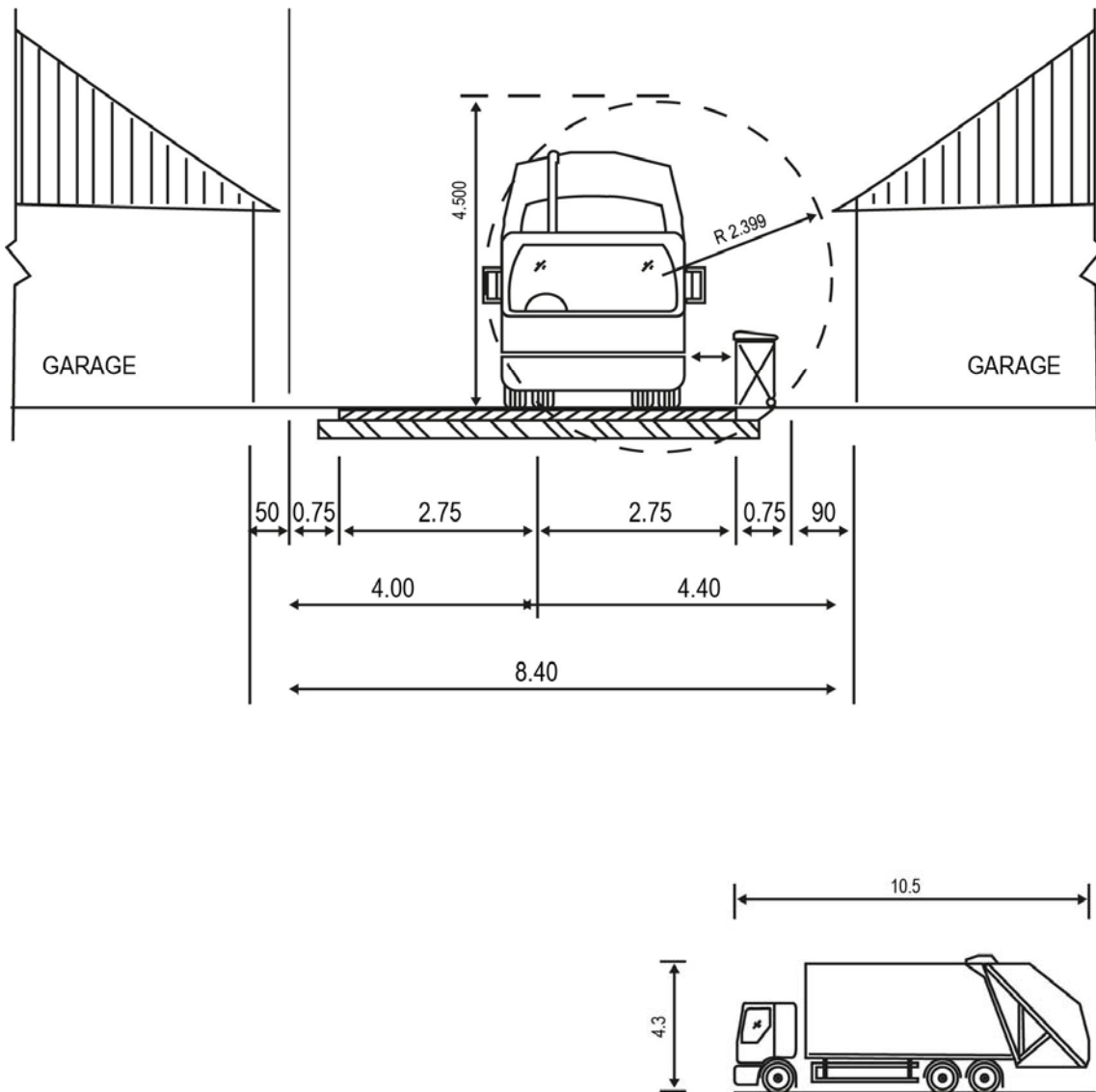


Figure 19. One way laneway design guide.

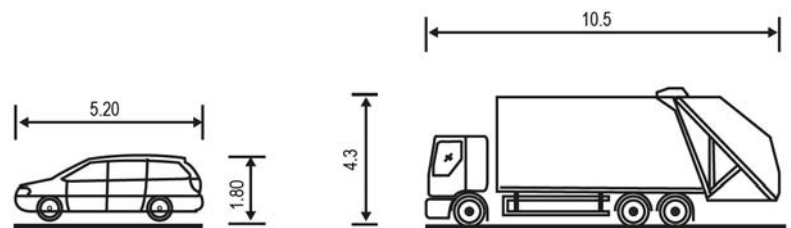
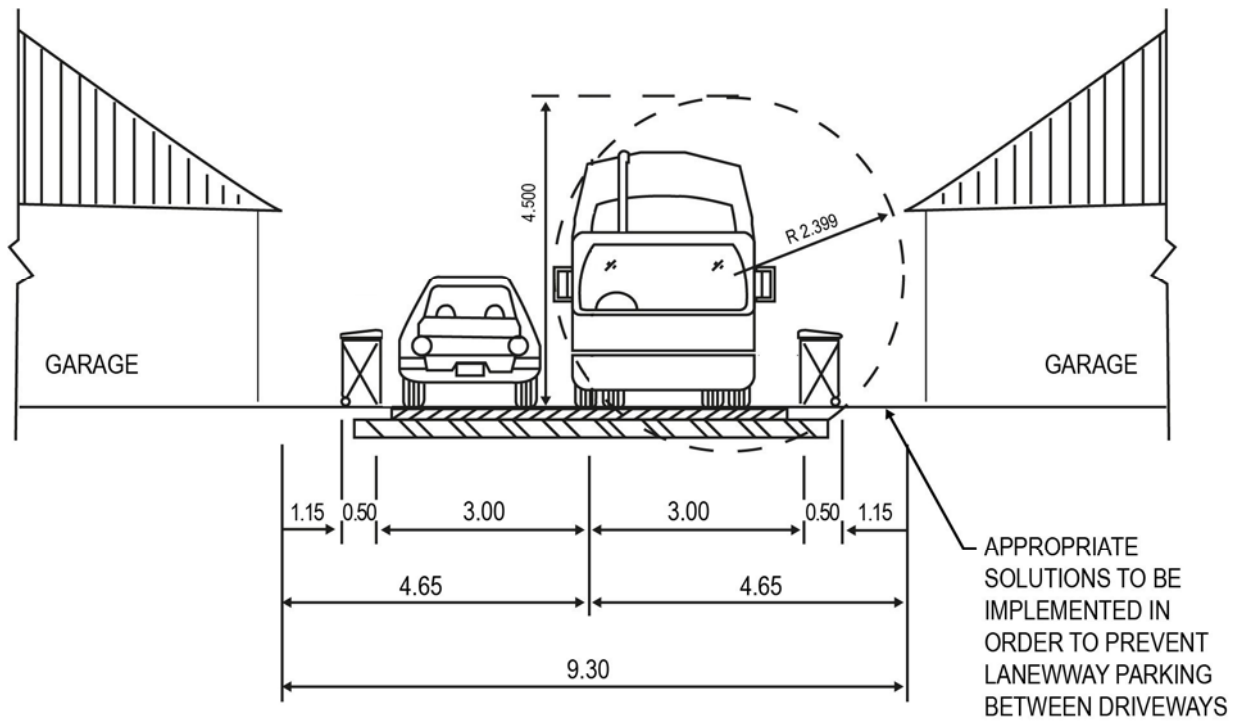


Figure 20. Two way laneway design guide.