Guidelines for Waste Management Plans - New Multi-residential Developments

Introduction

The Waste Management Plan and waste systems of new developments must be designed to accommodate Local Government provided waste collection services, a designated essential service, and to comply with health regulations.

To enable better practice waste management in multiple dwelling developments, proponents and their designers should liaise early with Local Government officers in relation to the waste and recycling service options available and whether what is being proposed is suitable for the proposed development. To reduce the potential risk associated with conflict between building/development design and Local Government waste collection services, proponents are strongly encouraged to future proof waste collection services i.e. additional bin capacity for future growth. This means providing additional space for extra bins in the future as well as ensuring that the appropriate collection vehicles can service the site. By catering for larger collection vehicles, developers will also ensure that the site can also be safely accessed by emergency service vehicles.

To assist applicants and their consultants to meet the conditions above, the City of South Perth has developed the following Guidelines for Waste Management Plans – New Multi-residential Developments, which complements other development guidelines and are in accordance with the City of South Perth Policy P212 Waste Management and the City of South Perth Waste Local Law 2017.

It is vitally important that waste management be considered at an early design stage of a development. This will ensure that sufficient waste capacity has been catered for, enough space has been provided to store waste prior to collections or in the event of service delays, that recycling of waste has been considered, sufficient space allocated to allow for collection, and that clearance for a waste collection vehicle has been considered as well as the minimisation of vermin, pests and odours from the Waste Collection system.

All of the above components will be formally addressed for compliance by the City prior to the issuing of a Building Permit so it is imperative that these guidelines are uniformly applied by the applicant.

Background

The Western Australian State Planning Policy 7.3: Residential Design Codes Volume 2 – Apartments focuses on improved design outcomes for apartments (multi dwelling developments). In addition to quantitative planning for design standards Policy 7.3 has introduced qualitative performance-based criteria to evaluate proposals against desired outcomes and planning objectives. Part 4.17 Waste Management goes on to describe “Waste management as an important function of an apartment building requiring early consideration.” Furthermore, it references the State Government target of diverting solid waste from landfill, which is managed by the Waste Authority through the Waste Avoidance and Resource Recovery (WARR) Act 2007 which sets annual targets for Western Australia.

The target for better practice waste management is characterised by a hierarchy strategy approach of reduce, reuse, recycle, dispose (WALGA, 2014) to ensure that WA State Government target of diversion of waste from landfill is not overlooked in the Waste Management Plan of new Developments.

Therefore, depending upon the proposed development application, the City of South Perth will apply Waste Management Plan conditions to ensure that the size or type of approach is proportional to the scale of the development, and may include some or all of the conditions found on page 3.

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Waste Conditions

Waste Management Plans are required for all commercial developments and residential development of 10 units and above - the applicant shall, prior to submission of an application for a building permit, prepare and have approved to the satisfaction of the City, a Waste Management Plan. The Waste Management Plan is to demonstrate:

a) Details of the on-going management of waste that will address the Waste Avoidance and Resource Recovery (WARR) Act 2007 for the duration of the occupation of the development

b) Inclusion of the Waste Management Plan in the Strata Company Body Corporate By-Laws

c) The location of compactors, bin storage, and bin collection set-down areas

d) The number, volume, type, and class of 240Lt, 360Lt, 660Lt or 1100Lt bins

e) The frequency of proposed bin collections

f) Details on how access through the site in forward gear will be achieved, to the satisfaction of the City of South Perth

g) The bin storage or enclosure(s) is large enough to fit all waste receptacles for the proposed number of units. Ensuring that the receptacles do not cause a nuisance to the occupiers of adjoining properties

h) Details of a waste system that includes chutes, compactors, and equipment to move and sort waste and recycling, transport waste receptacles, occupational safety and health, sanitation and hygiene, and the mitigation of vermin, pets and odours from the Waste collection system.

Waste Management Plan

The Waste Management Plan (WMP) must address the type of waste collection, the number and type of waste receptacle bins and waste storage and/or waste system to be used for the proposed development. The WMP is to be based on the standard waste generation rates for putrescible and recycling, the storage areas, and waste occupational safety and health requirements.

Waste – Collection and Retention

Waste collection can be from the external property roadside collection, an internal property bin storage compound or an under-croft storeroom. Proponents of new developments will need an understanding of the City of South waste collection service and frequency to determine if the proposal will be accommodated by the standard weekly and bi-weekly service or if a special service offering will be necessary for a service more frequent than once a week.

The collection applicable to the development will be determined by the following constraints:

Roadside Collection – multi-unit roadside collection is only appropriate where the bin size is typically no more than 240Lt general & putrescible and 360Lt recycling mobile garbage bins (MGB's); and

1. Where the space requirement is no more than 1/3 of the road frontage or up to 15 MGB's equivalent for a 12.5m long waste truck access and manoeuvrability
2. MGB receptacles must be presented to an agreed paved location on the specified collection days(s) ONLY; and must not obstruct pedestrians, cyclists, motorist sightlines or street furniture
3. Where the waste service requirements can be accommodated by the standard weekly and bi-weekly waste collection service. See attachment.

Storage Compound – an internal property storage compound within a multi-unit Apartment Complex where

the bin size is typically 240Lt up to 660Lt putrescible and recycling MGB's; and

1. Where the compound can accommodate enough MGB's to service the peak (summer) season waste requirements
2. Where bins can be manoeuvred on gradients less than 1 in 14 from the bin storage area or compound to be collected on-site in a designated bay by a waste truck.

Under-croft Storeroom – an internal property storeroom will ideally be within 10m of a level dedicated waste collection bay constructed to accommodate an 18-tonne gross vehicle mass waste truck; and

1. Where a minimum 2.4m vehicle height clearance to structural beams, pipework services, ducting and signage is required; and vehicle manoeuvring, and swept path radii is in accordance with applicable Australian Standards AS2890.1/2004 and AS/NZS 1428;
2. Where the waste truck access and egress is in a forward manner, and where a turning table is provided to permit on-site manoeuvring, that the turn table is a minimum 20-tonne capacity, to accommodate a 12.5m long waste truck, with a designated three point turn area as a back-up;
3. Bin storerooms and/or compounds must have a smooth impervious floor sloped to a drain connected to the sewer system of not less than 75 millimetres in think-ness subject to the City's approval;
4. The bin storeroom and/or compound must have enough space to facilitate the cleaning of receptacles inside the bin storage area, and the walls and floors of bin storage areas must be constructed of a material which facilitates the cleaning of the bin storage area;
5. An enclosed bin storeroom and/or compound must be vermin proof, fitted with a self-closing door or gate, and mechanical ventilation where the outlet for vented air must not adversely impact residents, and
6. Bin storerooms and/or compounds shall be provided with artificial lighting, to comply with AS4282-1997, and include safety signing clearly identifying prohibited standing areas.

Waste Receptacles (Bins)

Wheeled 240Lt, 360Lt and 660Lt waste receptacle bins are preferred over skip bins because they can be easily moved and can accommodate general waste and various recycling waste streams.

Standard 240Lt MGB's used for general waste and 240Lt or 360Lt recycling MGB's from multi-unit developments and apartments will be provided, at a cost, by the City of South Perth or the local government waste contractor. Larger 660Lt bins may be substituted in multi-unit apartments and multi-story high-rise where there is no individual ownership of bins. All bins shall be fitted with permanent lids, coloured green for general waste and yellow for recycling, and conform with Australian Standard for Mobile Waste Containers (AS 4213).

Typical bin dimensions currently used to service the City of South Perth residential waste streams are as follows:

Size	Height (mm)	Width (mm)	Depth (mm)
240L	1100	600	800
360Lt	1100	700	900
660Lt	1200	1300	800

Waste Bin Storage Areas - provided for common use bins, must be large enough to manage all waste and recyclables likely to be generated on the premises between collections, including a 24hr contingency in the event of delays or public holidays.

1. Storage compounds should accommodate associated equipment, and bins should sit next to each other not behind each other, as residents/tenants may not take responsibility for rotating bins
2. Storage compounds should comply with the relevant local health laws. These include, but are not limited to, smooth and impervious bin room walls over 1.5m and adequate ventilation if covered.

Bin Storerooms - should be functional, to allow all bins to be easily moved, washed and cleaned. All personnel access ways should be minimum width of 900mm wide or 1500mm to accommodate the largest bin. All bins should have a min 50mm clearance on all sides (between bins, against walls etc.).

1. The City encourages the use of larger bin sizes (660L and 1100L) where practical to ensure efficient storage and collection of waste and recycling streams. Commercial and Residential services shall require separate bin rooms;
2. Bin Storerooms should have Mains water supply with floor graded to a plumbed sewer drainage outlet/s to allow for the washing of all room surfaces and for the cleaning of bins as required. and
3. Waste or recycling bin room/s should allow for universal access, including circulation space and have a minimum 1500mm in width door opening to allow easy removal and return of all bin sizes. Door openings should be vermin proof, self-closing, but able to be locked open.

Bulky Goods Collection Room

Although many Local Governments provide a bulk waste collection service once or twice a year, the higher turnover of apartment residences, particularly residential tenancies, in multi dwelling developments may necessitate that bulky waste material is stored onsite for some time or until an independent waste contractor can be engaged.

Residential multi-unit developments are required to provide a bulky goods collection room for every 100 units, for the placement of various household items including mattresses, furniture and other goods to be collected by the City's waste collection service.

The room will need to incorporate the following requirements into the design:

1. be a minimum of 4m x 3m to permit the safe storage of bulky good items
2. provide a minimum unobstructed width of 1.8m
3. provide suitable dual door access for the service of bins with a minimum width of 1.8m and accessed by a 1.8m unobstructed access corridor
4. located within proximity to the on-site loading bay
5. fully enclosed, walled and not permit through access to other on-site waste infrastructure. Separate unobstructed access is required
6. partitioned and enclosed with a minimum 2.7m unobstructed internal room height in accordance with the Building Code of Australia
7. provided with an adequate supply of water through a centralised mixing valve and hose cock
8. adequate lighting and natural/mechanical ventilation in accordance with the Building Code of Australia

The floor of the bulky good collection room will need to incorporate the following requirements into the design:

1. waterproofed, non-slip and sealed in accordance with the Building Code of Australia to permit the use of wash facilities; and

2. graded to a central drainage point connected to the sewer, enabling all waste to be contained and safely disposed of.

Waste System – Handling and Volume Reduction Equipment

Details of any on-site waste systems, waste handling and volume reduction equipment must be provided including details about chutes, lifters, compactors, and any other waste management equipment or devices to be used.

Waste Chutes - where a waste chute system is planned, the City encourages a chute system.

1. It is recommended that a service room (or compartment) needs to be provided on each floor of the development to allow access to the waste chute. Chutes should not open onto any habitable or public space
2. Waste chutes are only recommended if mechanical ventilation is installed and the WMP outlines the long-term cleaning and maintenance of such waste duct(s)
3. Chutes should be designed with insulation to avoid noise disturbing neighbouring units and fire risks
4. Chutes dimensions should be greater than the service opening and inlet hoppers opening to avoid waste being caught within the chute.

Bin Lifters - equipment to assist a user in emptying smaller MGBs into larger bins will reduce the occupational health and safety (OHS) risk of doing so. Bin lifters can attach to small or large bins, usually front lift, and allow a smaller MGB to be emptied into a large bin using hydraulics and come in both powered and unpowered configurations and with safety cages.

Compactors - are used to compress general waste into bin receptacles to facilitate an efficient on-site waste collection solution. Recycling Waste should not be compacted.

1. The compaction ratio must be no more than 2:1 to mitigate OSH issues and/or mechanical damage to compactor or receptacles
2. Compaction systems should compact directly into the receptacle to reduce the requirement to manually load the waste receptacle
3. Compactors must have a regular maintenance schedule to ensure they operate reliably
4. Enough space to store at least 3 days' worth of uncompacted waste generation must be provided in case the compactor is inoperable.

Dock Leveller - may be required for the safe movement of waste equipment for the movement of bins from the chute room to the waste collection room.

1. Specifications of the dock leveller is to be provided with scaled architectural plans indicating its position located adjacent to the chute room and waste collection room
2. The dock leveller is to have an unobstructed doorway opening of 1.8m wide to provide manoeuvrability and access size to transport a minimum of two 1100L bins in one trip.

Bin Service Lift - is a designated elevator for the transportation of bins from the chute room to the waste collection room.

1. Specifications of the bin service lift is to be provided with scaled architectural plans indicating its

position located adjacent to the chute room and waste collection room

2. The service lift is to have an unobstructed doorway opening of 1.8m wide to provide manoeuvrability and access size to transport a minimum of two 1100L bins in one trip.

Volume Reduction Equipment - are compactors used to compress waste into collection receptacles, used in conjunction with chute systems, and should be no more than 2:1.

Other Infrastructure Solutions - such as vacuum or tube networks, balers for cardboard, glass crushers, and anaerobic and aerobic digestion or dehydration food waste will be considered on their merits.

Waste Stream – Composition and Generation Rates

Within multiple unit developments there will be a range of waste materials generated. Apart from general waste, and comingled recyclables, the WMP will need to demonstrate how it will also encourage the source separation of glass, paper and cardboard, and ferrous and non-ferrous metals and household hazardous waste. Provision must also be made for the storage of bulky goods waste. The following composition and generation rates requirements will need to be detailed:

Waste Composition - Appendix B shows the composition of various types of waste that are likely to be generated and managed.

1. The WMP must address in summary a detailed list of the intended land uses, floor areas, apartment sizes etc, to clearly show how the waste generation of the development was calculated, with any assumptions explained, and
2. Where specific commercial land uses are not known, the City encourages the use of higher generation rates to ensure the development has adequate storage capacity.

Waste Generation Rates - Appendix C identifies likely generation rates for the various types of waste.

1. The WMP must address the predicted waste and recycling generation rates for the development
2. The number of bins required for landfill waste and recycling streams should be clearly identified, as well as the proposed collection frequency
3. The proposed number of collection day/s and frequency
4. The generation rates which should include the entire building, tenancies, commercial and vacant areas.

Building Design - Considerations

It is important that the building design adequately considers waste management issues regarding collection vehicles, OS&H, noise, odour, hygiene and vermin early in the preliminary design process to avoid costly modifications to plans by not adequately addressing health, safety, environment and security issues.

Collection Vehicles - the development will need demonstrate how it will accommodate the City's current waste collection vehicles to permit on-site waste collection within the development. The standard waste collection vehicle must be able to access the site and nominated collection point in a forward direction and service the development safely and efficiently with little or no need to reverse. Building design will need to illustrate:

1. Swept path models are to be provided illustrating how the standard waste collection vehicle will enter,

service and exit the site

2. An unobstructed 500mm clearance is required on either side of the vehicle for driver movements and accessibility, and from all obstructions for the vehicle's ingress and egress manoeuvres
3. For rear-load vehicles an additional 2m unobstructed loading zone is required behind the vehicle for the loading of 660L and 1,100L bins
4. All on-site waste collection loading bays are to be integrated wholly within the building built form and clearly delineated
5. Waste collection vehicles are required to enter and exit the designated loading bay in a forward direction. Where this is not possible a turntable is to incorporate a hydraulic override or similar assisted override system. This will allow the turntable to be rotated in the event of a system's malfunction, alleviating the collection vehicle from becoming lodged during collection manoeuvres
6. Turntable specifications are required to be outlined within the Waste Management Plan and Plan of Operations
7. The bays are to be accessed via a restricted opening (roller door or sliding retractable door)
8. The room to provide adequate light, ventilation, and acoustic attenuation treatments in accordance with the Building Code of Australia.

Safety - the WMP must consider the impact of the building design to ensure that the waste management system and collection complies with the Occupational Safety and Health Act 1984, and Regulations 1996, most notably:

1. A Worksafe Plan or proposals for managing cleaning staff, service collection staff, and residents or tenants has been assessed for all development workplaces
2. A preliminary Occupational Health, Safety and Environment (OHSE) risk and hazard analysis should be undertaken during the design phase to identify any potential risks to health and safety associated with the proposed services and design layout.

Security - the building design (WALGA, 2014) should incorporate Crime Prevention through Environmental Design (CPTED) principles to mitigate nefarious activities to include:

1. Surveillance – to allow people to see what others are doing by ensuring clear sightlines, selecting appropriate landscaping, and providing adequate lighting
2. Access control – to establish physical and symbolic barriers to attract, channel or restrict the movement of people
3. Territorial reinforcement – to create a sense of community ownership to promote use and discourage antisocial behaviours
4. Space management – to manage and maintain spaces to ensure that space is appropriately utilised and well cared for i.e. repair or removal of vandalism and graffiti, replacement of burnt out lighting and removal of litter.

Vehicle Turntable (Access & Egress) - where a forward direction access and egress cannot be provided, and a turntable is proposed, the specification must include a hydraulic or similar assisted override system to allow for the turntable to be rotated in the event of a system failure. This will allow the turntable to be rotated in the event of a system's malfunction, alleviating the collection vehicle from becoming lodged during collection manoeuvres. Specifications of this feature are required to be outlined within the WMP and in the Development – Waste Management operations.

Details of the turntable components as well as specification of how the turntable inspection and maintenance is to be carried should be detailed.

Vehicle Specification - waste vehicles come in various designs. Specific vehicular dimension and height clearance requirements should be confirmed and will depend upon whether the vehicles are front-lift, rear-lift, side-lift, or hook-lift. It is important to consider:

1. vehicle dimensions
2. clearance distances
3. manoeuvrability
4. lifting height
5. loaded weight
6. gradients and/or cross-falls
7. sight-distance
8. visibility
9. whether they will be used in conjunction with compaction equipment.

Development – Waste Management

Developments usually operate and function within the Strata Title Act 1985 and the Strata Company must function within the scheme by-laws.

By-Laws - it is a requirement that the WMP is incorporated into the Body Corporate By-Laws to operate post development, and therefore must be included in the Scheme by-laws on registration (Strata Titles Act 1985 Sch 2 bl. 11(b). Early engagement with the responsible City officers is important so that this requirement does not hold up development at a later stage.

Body Corporate Waste Management – Apart from addressing the on-going management of the waste system regardless of whether it is via an MGB collection, waste chutes, or compactors, the WMP will need to address individual owner/occupier responsibilities with regard to access, and storage of bulky items etc., and that the health, hygiene, safety of the owner/occupiers and waste staff and contractors.

Signage – Bin signage should be educational and placed in a prominent location easily accessible to users of the developments waste management facilities. Signage should identify allowable items and encourage positive waste management behaviour through stickers on bins and posters in and around the storage compounds or storerooms.

Design Checklist

The WMP must demonstrate, through figures and explanations, how the applicant will achieve the outcomes of these guidelines. Matters to consider inter alia are:

1. Generic residential & commercial floorplans, showing convenient and practical waste and recycling collection
2. Bin Room/s size (m2) to demonstrate functionality and adequate size
3. Bin Storeroom - details should include area dimensions and units. Access to bin room, including access widths, and door opening widths. Details of any chutes/compaction equipment etc. with all associated

details and specifications where proposed. Bin arrangement distinguishing the various waste streams. Drop off areas (e.g. Bulk waste). Plumbing of tap and sewer points

4. Waste presentation point (hardstand or bin room) with bin arrangement and waste collection vehicle location shown. Details should include: - Access to bin room, including access widths - Operating space at the rear of the vehicle
5. Where waste collection vehicles are intended to be collected from within the property, a plan of the access and a swept path analysis should be provided
6. Responsible officer allocated to manage the WMP
7. Transfer of bins within the property and to the waste presentation point (if required); should be determined when designing the system and clearly stated in the WMP
8. Chute access housed in bin rooms on residential levels
9. Commercial and residential and hazardous waste
10. Number of residential units and size (m2) of commercial premises.

Definitions

The following Waste Guideline definitions are in the context of New Developments:

Comingled Recycling - consists of an assortment of recyclable materials. Materials collected for recycling may vary due to market demand. Currently in the City, recyclables include glass (bottles and jars), hard plastics (bottles and containers), aluminium, steel, paper and cardboard. Comingled recycling may include paper and cardboard but often, in commercial buildings, paper and cardboard are collected separately.

Landfill Waste - usually includes non-recyclable materials, such as non-recyclable plastic packaging, paper packaging contaminated with food waste and organic materials, such as garden trimmings and food waste. Batteries, hazardous waste (chemicals, paints, cleaning products, medicines or flammable liquids) should not be included in the landfill waste stream.

Group Dwellings – refers to multi-unit developments typically comprising single and double storey residences within the one strata complex.

Apartments – refers to multi-unit developments typically comprising up to four or five storey primarily residential units within the one strata complex.

Multi-story high-rise – refers to multi-unit developments typically compromising more than five storey units compromising of both residential and/or commercial units within the one strata complex.

References

Australian Standards AS2890.1/2004 and AS/NZS 1428

City of Melbourne Guidelines for Preparing A Waste Management Plan 2017

City of Perth Waste Guidelines for All Developments, Rev 5, June 2019

City of Penrith Residential Flat Building Waste Management Guidelines

City of South Perth Waste Local Law 2017

City of South Perth Policy P212 Waste Management

City of Sydney Guidelines for Waste Management in New Developments 2017

Strata Titles Act 1985

Sustainability Victoria Waste Management and Recycling in Multi-unit Developments – Better Practice Guide

The Western Australian State Planning Policy 7.3: Residential Design Codes Volume 2 – Apartments

Victoria Environment, Land, Water and Planning – Better Apartment Design Standards 2016

WALGA Multiple Dwelling Waste Management Plan Guidelines 2014
Waste Avoidance and Resource Recovery (WARR) Act 2007

Appendix A. City of South Perth Waste Collection Service

By the powers conferred on it by the Waste Avoidance and Resource Recovery Act 2007, the Local Government Act 1995, and the Health Act 1911 the City provides Waste Services to all rateable properties throughout the district as a part of its statutory requirements in accordance with the Waste Local Law 2017.

The City's Residential property collection services operate Monday to Friday ONLY. Commercial property collection service currently only operates on Saturdays and Sundays by application subject to the City's approval. The City's waste collection service is an outsourced contract through annual tender in accordance with Policy P212 Waste Management. The waste collection receptacles or mobile garbage bins (MGB's) include the following:

1. 240L/360L MGBs for refuse (Kerbside Collection/Sidearm operation)
2. 240L/360L MGBs for recycling (Kerbside Collection/Sidearm operation)
3. 660L MGBs for refuse (under special arrangements Rear lift).

MGB Specifications

The typical MGB dimensions are as follows:

MGB Size (Lt)	Height (mm)	Width (mm)	Depth (mm)
120	1000	500	600
240	1100	600	800
360	1100	700	900
660	1200	1300	800

The typical MGB body and lid colour are as follows:

Waste Stream	MGB Body Colour	MGB Lid Colour
Refuse	Green	Green
Recycling	Green	Yellow

The City also provides the following services through annual tender:

1. Annual Verge Collection Services
2. City of South Recycling Centre Vouchers.

The City's Contractor operates the following collection vehicles:

1. Side Loader Collection Vehicle – refuse and recycling
2. Rear Loader Collection Vehicle – refuse only.

Waste Collection Vehicle Dimensions

The current Rear Loader waste collection vehicle dimensions are as follows:

Feature	Clearance of Vehicle (m)	Required Clearance (m)
Overall length	8.0	9.5
Overall width	2.5	3.0

Overall height	2,5	4.0
Height in Operation	3.5	4.0

The Small Rear Loader waste collection vehicle (basement application) dimensions are as follows – these are only suitable when generation rates of general waste are under 10,000l per week:

Feature	Clearance of Vehicle (m)	Required Clearance (m)
Overall length	7.56	8.0
Overall width	2.3	2.8
Overall height	2.4	2.4
Height in Operation	2.3	2.4
Turning Circle		15.0

The current Side Loader waste collection vehicle dimensions are as follows:

Feature	Clearance of Vehicle (m)	Required Clearance (m)
Overall length	9.8	11.0
Overall width	2.5	3.0
Overall height	4.1	4.5
Height in Operation	5.2	5.5

The City may collect refuse in MGBs from inside a property under special arrangements and at its sole discretion.

Appendix B. Waste Composition

Waste Stream	Description
General Waste	General waste usually includes non-recyclable materials, such as non-recyclable plastic packaging, paper packaging contaminated with food waste and organic materials, such as garden trimmings and food waste.
Organic waste	Organic waste includes garden waste, food scraps, compostable paper (tissues, serviettes, soiled paper, paper plates, etc.) and can make up a significant percentage of the general waste stream.
Comingled recyclables	Comingled recyclables consist of the assortment of recyclable materials generated in households. Materials collected for recycling may vary, but generally include plastic and glass containers, paper, cardboard and steel and aluminium cans. Provision should be made to source separate glass, paper and cardboard, ferrous and non-ferrous metals.
Household Hazardous Waste	Household hazardous waste (HHW) is broadly defined as leftover household products that are corrosive, toxic, flammable or reactive. If improperly used or disposed of, HHW can be harmful to human health and the environment. HHW includes chemical waste and other hazardous materials, such as batteries, fluorescent lamps, and gas cylinders Batteries, hazardous waste (chemicals, paints, cleaning products, medicines or flammable liquids) should not be included in the general waste stream. Provision should be made to source separate these items from the general waste stream.
Bulky Waste	Bulky waste can include old and broken furniture and electronic items/white goods and materials generated. Bulky waste can be a significant issue within developments with a high residential turnover, such as rental unit complexes, where tenants are required to dispose of various unwanted household items.

Appendix C. Waste Generation Rates (WALGA, 2014)

Waste generation calculations must be based on the information in the tables below as per WALGA Multiple Dwelling Waste Management Plan Guidelines.

Table 1: Residential Waste Generation Rates

Dwelling Size	Refuse (Lt/week)	Co-mingled Recycling (Lt/week)
Individual Dwelling	240	240-360
3 Bedroom apartment	240	120
2 Bedroom apartment	160	120
1 Bedroom apartment	80	80

Table 2: Commercial Waste Generation Rates

Type of premises	Refuse Generation	Recycling Generation
Food premises		
Butcher	80L/100m2 floor area/day	50L/100m2 floor area/day
Delicatessen	80L/100m2 floor area/day	50L/100m2 floor area/day
Fish shop	80L/100m2 floor area/day	50L/100m2 floor area/day
Greengrocer	240 L/100m2 floor area/day	120L/100m2 floor area/day
Restaurants	660L/100m2 floor area/day	200L/100m2 floor area/day
Supermarkets	660L/100m2 floor area/day	200L/100m2 floor area/day
Café	300L/100m2 floor area/day	200L/100m2 floor area/da
Takeaway / Café (pre-packaged food only)	150L/100m2 floor area/day	150L/100m2 floor area/day
Retail (non-food)		
Shops (non-food)	50L/100m2 floor area/day	50L/100m2 floor area/day
Showrooms	40L/100m2 floor area/day	10L/100m2 floor area/day
Hairdresser	60L/100m2 floor area/day	60L/100m2 floor area/day
Other		
Licensed club	50L/100m2 floor area/day	50L/100m2 of floor area/day
Offices	10L/100m2/day	10L/100m2/day
Education/Training (teaching space)	5L/100m2 floor area/day	5L/100m2 floor area/day
Childcare	250L/100m2 floor area/day	120L/100m2 floor area/day
Backpacker	40L/occupant/week	20L/occupant/week
Boarding house/guesthouse	60L/occupant/week	20L/occupant/week
Hotel/Motel (accommodation)	5L/bed/day	5L/bed/day
Serviced Apartment	35L/apartment/week	35L/apartment/week

Source:

Appendix D. Waste Management Plan Approval Process