# Surry Hills Shopping Village Development

DECEMBER 2015

# Waste Management Plan

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# 1 Introduction

This Waste Management Plan (WMP) has been prepared on behalf of Surry Hills Project Pty Ltd (a Toga Group related entity), to accompany a Planning Proposal for the development of the Surry Hills Shopping Village. This Plan has been developed with consideration of the City of Sydney Council's requirements.

The development consists of a residential and retail mixed-used building broadly comprising the following uses:

- Residential (approximately 265 apartments)
- Supermarket
- Speciality retail
- Residential parking
- Retail parking

The following table summarises the size of each tenancy of the development.

Table 1 – Tenancy mix

| Tenancy Type | GFA $M^2$ / Room Numbers |
|---|---|
| Coles Supermarket[1] | 4,550 |
| Specialty Retail | 3,275 |
| 1 bedroom units/studio | 151 |
| 2 bedroom units | 101 |
| 3 bedroom units | 13 |

[1] This includes the Coles Office and Liquorland retail premises

# 2 Waste Generation

## 2.1 Waste Streams

Based on the development profile, the following waste streams would be expected:

- Cardboard recycling;
- Paper recycling;
- Comingled (container) recycling;
- Polystyrene recycling;
- Food organics recycling;
- Soft plastic recycling;
- General waste;
- Kitchen supplies reuse or take-back system e.g. milk crates;
- Cooking oil;
- E-waste recycling;
- Toner cartridge recycling; and
- Fluorescent light tube recycling.

## 2.2 Waste Generation Estimates

Based on averages for quantity of waste generated and composition as determined by industry data (ie., data/information provided by WACS' waste audits conducted in a broad range of sectors) as well as consideration of the waste generation rates as detailed in the City of Sydney "Policy for Waste Minimisation in New Developments, 2005", it is estimated that the development will generate a total of 1,958 kilograms or 29,709 litres of waste and recyclables per day (this is total – supermarket, retail and residential).

The following tables summarise the expected quantities of waste and recyclables generated for the development in terms of weight and volume per day.

Table 2 – Waste/recycling generation (Total Development)

| Tenancy | General Waste | | Recycling | |
|---|---|---|---|---|
| | Kgs | L | Kgs | L |
| Coles Supermarket | 655 | 10,920 | 764 | 10,920 |
| Retail | 100 | 1,663 | 116 | 1,663 |
| 1 bedroom units/studio | 138 | 1,726 | 45 | 863 |
| 2 bedroom units | 92 | 1,154 | 30 | 577 |
| 3 bedroom units | 12 | 149 | 4 | 74 |
| **TOTAL** | **997** | **15,612** | **960** | **14,097** |

In regards to the supermarket, it is expected that the following is the estimated quantities of waste and recyclables generated for the development in terms of weight and volume per day.

Table 3 – Waste/recycling generation (Supermarket)

| Supermarket | General Waste | |
|---|---|---|
| | Kgs | L |
| Paper/Cardboard | 224 | 1,700 |
| Comingled | 157 | 800 |
| Organics | 497 | 1,500 |
| General | 542 | 4,000 |
| **TOTAL** | **1,420** | **8,000** |

# 3 Residential & Retail Bin Requirements

## 3.1 Residential Development

Based on apartment numbers (and averaging out waste/recycling generation rates between the 1, 2 and 3 bedroom apartments), it has been estimated the following number of bins will be required and associated footprint is illustrated in Table 4.

**Table 4 – Waste and recycling bin requirements and footprint (uncompacted)**

| Waste Stream | Bin Type | No. of Bins | Clearance Frequency (week) | Capacity - Litres (daily) | Estimated volume / daily (litres) | Footprint per bin (m2) | Total Footprint |
|---|---|---|---|---|---|---|---|
| Commingled Recycling | 1100 MGB | 4 | **1** | **629** | 568 | 1.04 | 4.16 |
| Paper Recycling | 1100 MGB | 7 | **1** | **1,100** | 946 | 1.04 | 7.28 |
| General Waste | 1100 MGB | 11 | **2** | **3,457** | 3,029 | 1.04 | 11.44 |
| **TOTAL** | | **22** | | **5,186** | **4,543** | | **22.88** |

Taking into account the 30% allowance, this results in a total space allocation requirement of approximately **30.4 m²**. Note that also an allocation of minimum 8.0 m2 will be required for a bulky waste store.

The addition of the bulky waste store results in a storage requirement of **38.4 m²** for the residential waste/recycling generation.

However, due to the nature of this development and that there are seven chute rooms, the waste storage capacity needs to be calculated on the need to service the chute rooms and the volumes generated.

Therefore, each chute room will have on its carousel 2 x 1100 litre MGB for general waste and 2 x 1100 MGB for comingled recycling. Each carousel will have a footprint of approximately 3.0 $m^2$. In addition, there will be 1 x 1100 litre MGB for paper recycling (of a footprint of 1.04 $m^2$. Adding 30% to allow for bin movement – this requires a minimum space within each chute room of 4.1 $m^2$.

This then means that the central waste storage area for residential waste will need to be able to manage a minimum of 21 x 1100 litre MGB. As indicated in Table 4, the space requirement is based on 22 bins and this is sufficient.

## 3.2 Retail Development (excluding Supermarket)

Based on the number and type of retail premises, the following it has been estimated that the following number of bins will be required and associated footprint is illustrated in Table 5. The estimated retail waste generation profile is based on an indicative retail mix using WACS' retail waste model derived from extensive current and historical data from a broad number of retail portfolios.

Table 5 – Retail waste and recycling bin requirements and footprint

| Waste Stream | Bin Type | No. of Bins | Clearance Frequency | Capacity - Litres (daily) | Estimated volume / daily (litres) | Footprint per bin (m2) | Total Footprint |
|---|---|---|---|---|---|---|---|
| Commingled Recycling | 660 MGB | 3 | 2 | 566 | 416 | 0.98 | 2.94 |
| Paper Recycling | 660 MGB | 7 | 2 | 1,320 | 1,247 | 0.98 | 6.86 |
| General Waste | 660 MGB | 9 | 2 | 1,697 | 1,663 | 0.98 | 8.82 |
| TOTAL | | 19 | | 3,583 | 3,326 | | 18.62 |

Taking into account the 30% allowance, this results in a total space allocation requirement of approximately **25 m²**.

## 3.3 Coles

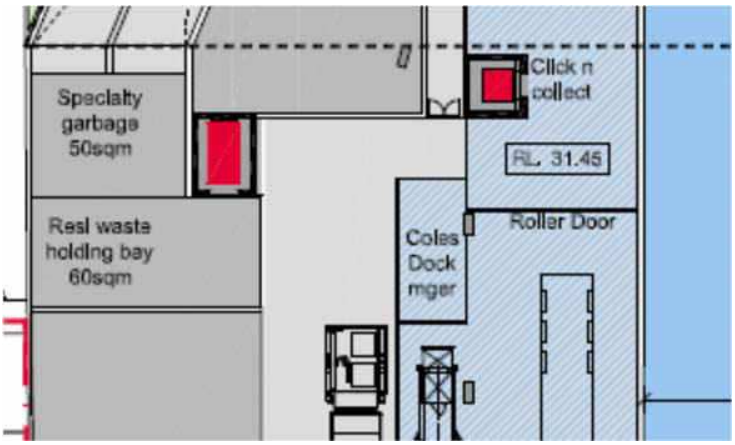
Details for the waste bins and systems for the Coles Supermarket are provided in Section 4.3.

## 3.4 Waste Storage

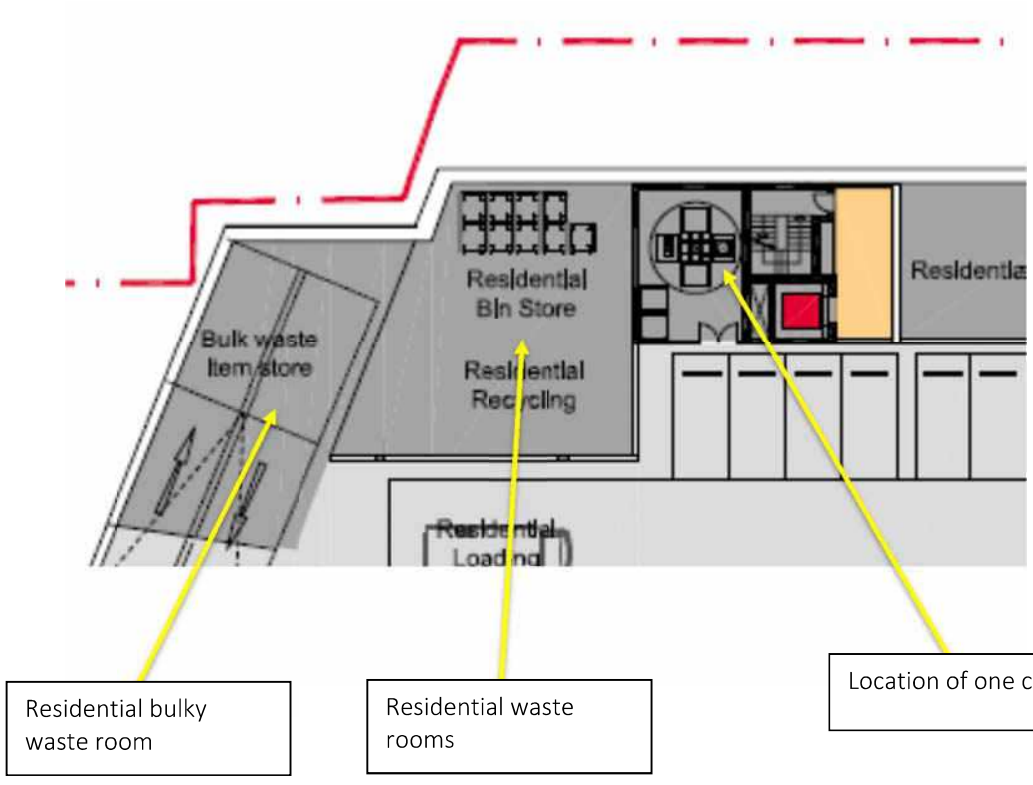
The following diagram illustrates both the residential and speciality retail premises waste storage areas located on the Lower Ground Floor. This location enables waste/recycling vehicle access and to ensure vehicles leave the premises in a forward direction (ie., not reversing).

Wastes will be transported to these areas from chute rooms for residential waste, and either direct from the specialty retail premises or the intermediary holding areas.

Coles will establish their own waste/recycling management system within this loading dock area.



The following diagram illustrates one of the chute rooms as well as the waste/recycling holding areas – it is from these areas that bins will be transported to the Lower Ground Floor for collection by the service provider.



# 4 Waste Management Systems

The following summarises the recommended waste and recycling systems that will be implemented within each tenancy. These recommendations are based on the City of Sydney requirements and systems implemented for similar developments (ie., types of tenants and residential areas).

Note that all waste/recycling collections will occur within the building (and not on the street/kerbside).

## 4.1 Residential Apartments

All buildings will utilise a split chute which will be accessible from each level and will terminate in the Basement 002 level residential waste chute rooms. The split chute provides for the disposal of general waste and mixed recycling from each apartment.

The 1100 litre MGB will be collected daily by cleaning staff and transported to the bin storage area on Basement 002 level and then once a week transported to the loading dock for collection by Council.

Waste from retailers will be kept separate from residential waste and a commercial waste contractor will be engaged to collect and dispose of all waste and recycling streams.

Chute access will be provided for residents on each floor of each building. The split chute system allows general waste and recycling to be deposited in the one chute – residents must select which stream they are depositing and the diverter at the base of the chute will direct the material into the appropriate bin in the waste storage room at the base of the chute (refer to Appendix B for chute information).

Residents will be briefed on the proper use of the split chute system and any contamination of the recycling stream will be monitored and reported by cleaners/building management as it is imperative that the recycling stream remain free of contamination to ensure compliance with collection protocols. Residents will be encouraged to maximise the separation of general waste and mixed recyclables within their apartments to aid the proper disposal of all materials.

Building management/onsite cleaning staff will monitor the carousels and as required transport full bins to the holding area on the Basement 002 level.

Prior to each collection, building management/onsite cleaning staff will transfer all bins from the waste storage room to the central waste collection area located on the Lower Ground Floor. The contractor vehicle will service the bins from this area and it will be the responsibility of building management/onsite cleaning staff to return the bins to the waste room after collection.

Items such as furniture/whitegoods stored within the bulky items storage cage/room will be managed by building management and offered to other residents for reuse if desired. If items remain unclaimed, appropriate collection organisations will be called to collect the items for recycling/reuse as required.

In order to ensure that wastes are effectively managed, carousels should be provided at the bottom of each chute system. Chute access will be provided for residents on each floor of the buildings. The split chute system allows general waste and recycling to be deposited in the one chute – residents must select which stream they are depositing and the diverter at the base of the chute will direct the material into the appropriate bin in the waste storage room at the base of the chute – alternatively a dual chute system can be utilised and this has the same system at the base.

Carousel generally require an allowance of approximately 3.0m$^2$. The actual footprint is dependent on whether a circular or linear one is chosen.

## 4.2 Retail

The retail tenancies will be designed so as to allow effective segregation of recyclables. These tenancies will (depending on the types of wastes/recyclables generated) be provided with sufficient smaller bins to allow for effective segregation of wastes/recyclables. This will include:

- Paper and Cardboard recycling
- Comingled recycling
- Soft plastics
- Organics
- General waste

A bin storage area for 660 litre MGB bins will be provided for near the retail shops and again this will be cleared daily by cleaners and taken to the Lower Ground Floor for collection.

Retail waste and recycling collection services will be provided by a commercial waste contractor (TBA). Utilising a commercial waste contractor affords the retail sites greater flexibility regarding collection schedules and the appropriate collection frequencies will be determined in consultation with the waste contractor once appointed – however once operational, collection schedules may need to be adjusted accordingly depending on actual waste generation.

The contractor truck will service the bins from the loading dock and it will be the responsibility of building management/onsite cleaning staff to return the bins to the waste room after collection.

A used cooking oil facility will be located in the waste area. Should any of the commercial tenancy generate this material, it will be kept separate and sent to a recycling facility. Measures will be taken to ensure safe transportation to the waste room and safe storage. Any spillages will be cleaned immediately.

In addition, tenants will be provided with ad hoc recycling systems such as e-waste; batteries; mobile phones etc. Systems for these streams will be located within each tenancy or in common areas or be available upon request from building management.

Signage will be a crucial element of the waste management system. Appendix C contains examples of signage. These are the type of signs that should be used throughout the retail tenancies and waste storage area(s).

## 4.3 Supermarket

The management of wastes will be the responsibility of the supermarket operator (Coles). This tenant will implement their own waste management system. Reviews of other systems implemented by Coles in other developments demonstrates a commitment to reducing waste to landfill by maximising diversion systems.

However an indicative footprint of space requirements is provided in the following Table.

Table 6 – Indicative Coles waste and recycling bin requirements and footprint

| Waste Stream | Bin Type | No. of Bins | Clearance Frequency (week) | Capacity - Litres (daily) | Estimated volume / daily (litres) | Footprint per bin (m2) | Total Footprint |
|---|---|---|---|---|---|---|---|
| Paper/Cardboard | 1100 MGB | 2 | 6 | **2,200** | 1,700 | 1.04 | 2.08 |
| Commingled | 1100 MGB | 1 | 6 | **1,100** | 800 | 1.04 | 1.04 |
| Organics | 120 MGB | 7 | 6 | **840** | 750 | 0.28 | 1.96 |
| General Waste | 1100 MGB | 4 | 6 | **4,400** | 4,000 | 1.04 | 4.16 |
| **TOTAL** | | **14** | | **28,980** | **7,250** | | **9.24** |

Wastes/recyclables from this tenant will be consolidated in the storage areas located on the Upper Ground level. Equipment to assist will be:

- Cardboard and Soft Plastic Baler
- Commingled recycling bin
- General waste bin

Cole's staff will be responsible for the correct segregation, consolidation of waste and recyclables and when required ensuring bales and bins are located in the required position for collection by the appointed contractor.

## 4.4 Storage

In keeping with best practice sustainability programs, all waste areas and waste and recycling bins will be clearly differentiated through appropriate signage and colour coding to Australia Standards to reflect the materials contained.

There will be a need to ensure that there is sufficient space to allow for bin movement. As a general rule, it is recommended that an additional 30% of the estimated footprint for

bins be allocated to this and this has been factored into the waste storage area space calculations.

The waste areas will be accessed by the Shopping Village Supermarket/Retail premises staff and/or cleaning staff only.

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by those with authorised access.

### Photographs 1 & 2 - Examples of waste room colour coding


The garbage room will contain the following to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- waste room floor to be sealed with a two pack epoxy;
- waste room walls and floor surface is flat and even;
- all corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- a water facility with hose cock must be provided for washing the bins;
- any waste water discharge from bin washing must be drained to sewer in accordance with the relevant water board;
- tap height of 1.6m;
- storm water access preventatives (grate);
- all walls painted with light colour and washable paint;
- equipment electric outlets to be installed 1700mm above floor levels;
- the room must be mechanically ventilated;
- light switch installed at height of 1.6m;
- waste rooms must be well lit (sensor lighting recommended);
- optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;

- all personnel doors are hinged and self-closing;
- waste collection area must hold all bins – bin movements should be with ease of access;
- conform to the Building Code of Australia, Australian Standards and local laws; and
- childproofing and public/operator safety shall be assessed and ensured.

Occupational Health and Safety issues such as slippery floors in waste rooms and the weight of the waste and recycling receptacles will need to be monitored. Cleaners will monitor the bin storage area and all spills will be attended to immediately by cleaners.

## 4.5 Organics

Organic waste will be deposited directly into 120 litre MGB at the "point of generation". These MGB will then be transported to the storage room located in the Basement level. This is to avoid odour generation.

## 4.6 Summary of management process

The following summarises the management system for the wastes and recyclables for the retail tenants.

Table 7 – Retail waste systems

| Stream | System | Comment |
|---|---|---|
| Cardboard recycling | MGBs | Tenants separate paper/cardboard materials to deposit directly into bins. Cleaners to transfer bins from waste storage room to the waste storage area for collection. |
| Food organics | MGBs | Tenants separate food waste materials in BOH/kitchen areas and then deposit material directly into 120L MGBs. Alternatively, a high organics generator such as a café may prefer to use a 120L MGB in their BOH area and then take it to the waste storage room when full. Cleaners to transfer bins from waste storage room for collection and then return empty bins to waste storage room for use. |
| Comingled Recycling | MGBs | Tenants separate comingled materials in BOH area and then deposit directly into the provided MGBs. Cleaners to transfer bins from waste storage room for collection and then return empty bins to waste storage room for use. |
| Oil Recycling | TBA | Tenants transfer used cooking to waste room as required. Specialty oil contractor collects as determined. |
| General Waste | MGBs | Tenants separate general waste in BOH areas and then deposit directly into provided MGBs. Cleaners to transfer bins from waste storage room for collection and then return empty bins to waste storage room for use. |

# 5 Waste Stream Acceptance Criteria

## 5.1 Acceptance Criteria

**General Waste:**

General waste bins will be a variety of sizes of MGB's. The lids and signage should be colour-coded red. The general waste stream does not include hazardous material (such as batteries, fluorescent light tubes, light bulbs and/or toner cartridges), recyclable material or electronic equipment such as computers, TVs and mobile phones.

**Comingled (Mixed Recycling):**

The comingled recycling system will be a variety of sizes of MGB's and should accept all recyclable plastic containers, aluminium containers, glass bottles and steel cans. Comingled recycling bin lids and signage should be colour-coded yellow.

**Paper/cardboard Recycling:**

All paper and cardboard (excluding waxed cardboard) will be deposited into a variety of sizes of MGB's which have a blue bin lid and signage.

## 5.2 Bin Requirements

Containers located within the development for waste and recycling should be consistent. The following table outlines the colour coding that has been developed by Standards Australia.

Table 8: Standards Australia waste/recycling container colour coding

| Waste Stream | Bin Body Colour | Lid Colour |
|---|---|---|
| Paper Recycling | Blue | Blue |
| Cardboard Recycling | Green | Blue |
| Food Organics | Burgundy | Burgundy |
| Commingled Recycling | Green | Yellow |
| Used Cooking Oil Recycling | NA | NA |
| General Waste | Green | Red |

Appendix A contains illustrations of bins (and other waste management equipment), that could be used within the various tenancies and retail areas. The pictures provide examples of the different options for equipment such as MGB, tugs for transporting bins, trolley unit and a wheelie-safe trolley.

# 6 Tenant Education

All commercial tenants will receive information regarding the waste collection systems including how to use the system, which items are appropriate for each stream and collection times. Appropriate signage and updated information will also be provided.

Essentially commercial tenants will be responsible for transporting waste/recyclables to the waste storage area and decant into the appropriate bins located in this area.

All waste receptacles will be appropriately signed and additional room signage is usually provided from most waste contractors during implementation of the waste contract. Examples of signage is included in Appendix C.

It is recommended that all signs should;

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.
- As part of the tenant induction process, a waste and recycling toolkit will be provided. This toolkit will include the details of each of the systems in place; acceptance criteria for each stream and how each stream is managed. A visual communication aid such as short video will also be provided to enable tenants to educate their employees.

On a monthly basis waste and recycling performance reports will be reported back to tenants so that they are aware of their performance and areas for improvement. An active waste monitoring program will be employed. The waste and cleaning contracts will ensure that contractors actively participate in the waste reduction program for the site and meet monthly to identify performance and new opportunities for diversion and avoidance.

# 7 Other Systems

In addition to the diversion system that will be implemented, other waste diversion and minimisation practices may also be implemented.

## Fluorescent Light Tubes

A fluorescent light tube recycling stream may be required depending on the contractual arrangements for replacing light tubes. Recycling of used fluorescent light tubes could be a contractual requirement of the electrician responsible for servicing the lights. Alternatively if lights are services using in-house staff a fluorescent light tube recycling receptacle should be located in the recycling area.

## Toner Cartridges

A toner cartridge recycling bin/box should be placed in key printing areas to capture used cartridges. These can be recycled on an as-needed basis.

## E-Waste

Electronic equipment should be recycled on an as-needed basis.

## Mobile Phones

Mobile phones can be collected in secure receptacles at centralised collection points. Alternatively, boxes containing postage satchels can be placed in centralised areas for use as needed.

## Used Cooking Oil

If used cooking oil is generated by any tenant, they will be required to decant back into the original container for transport (by the tenant), to the oil storage facility provided on the Basement level for decanting into an oil collection tank or left in the containers for collection by the appropriate waste contractor.

# 8 Ongoing Management

Having suitable systems in place is only one element of an effective waste management system. Compliance by all stakeholders is essential.

Cleaners are a key element in the effectiveness of the systems in place. Prior to acceptance of the cleaning contract, the contractor will be required to demonstrate how the management of waste and recycling will be carried out so as to ensure that segregated materials are placed in the correct systems. This process will be agreed and a training program implemented by the cleaning contractor to ensure full understanding by all cleaners. Monitoring of the system will be carried out by the cleaning supervisor and site management throughout the term of the contract.

In addition, cleaners will be required to feed back to site management any non-compliance issues they observe during their cleaning activities. This may include contamination of recycling; non-participation in the recycling system, or missing or damaged bins. In this way issues can be promptly dealt with by management.

Waste and recycling contractors will be required to report actual volumes collected by stream so that site management can monitor performance and feed this back to stakeholders.

It is highly recommended that a basic reporting program be set up at the site which would include bin tally sheets that detail the number of bins collected and how full they are at the time of collection, in addition to communication procedures to allow waste contractors to provide feedback regarding contamination and leakage.

All tenants and staff should be educated and made aware of any changes to the existing waste systems.

If a public place recycling system was implemented it would need to be accompanied by clear signage and colour coding to help differentiate the systems. It is likely that staff would also be required to inform the public about the systems and to guide their waste disposal practices. Additionally, notices and information sheets could be placed on public notice boards informing the public of the changes at the centre.

# 9 Public Place Recycling

With public open spaces, consideration needs to be taken regarding public place recycling (PPR). General waste and recycling facilities will be provided in public realm areas throughout the precinct. The final number of bins will be determined in consultation with the City of Sydney and tenants.

Simple, colour-coded and consistent representation of common recycling and waste streams makes it easier for people to know how and what to recycle - whether at work, school or a public event. Introducing a public recycling system has environmental, social and financial benefits including:

- Responding to community expectations to 'Do the Right Thing'.
- Reducing the amount of waste sent to landfill and recovering valuable resources to be made into new products.
- Financial benefits over time as materials are diverted from landfill and into recycling.
- Improving the competitive edge of the centre in the eyes of shoppers and tenants.
- Contributing to triple bottom line reporting.

It is important that general waste and recycling bins are always located together in order to make recycling as accessible as general waste disposal. Recycling bins should never be located on their own in isolation from a general waste bin as patrons are likely to contaminate the recycling bin with general waste if there is no other option to dispose their general waste.

The implementation of organics recycling bins is not recommended in public places due to the high levels of contamination commonly observed in such systems.

All bins should be clearly signed and appropriately colour-coded to ensure the streams are readily identifiable. Signage for PPR should be:

- Colour-coded: red for general waste and yellow for recycling
- Large and easily viewed from all angles: this may mean that signs are placed on all sides of the bin or above the bin.
- Simple: don't use jargon (words such as PET, comingled, HDPE and even the recycling triangle can be confusing as this symbol can appear on a number of items that are not necessarily recyclable.
- Unambiguous and uses visual imagery

All public domain waste and recycling bins will be managed and collected by the appointed waste contractor as part of their existing waste and recycling operations.

# Appendix A – Waste Management Equipment

The following diagrams illustrate colours and sizes of different bins that could be used within the development.

Figure 1 – MGB bin

Figure 2 – MGB bin


Figure 3 – Indicative size of MGB

Figure 4 – General waste compactor

Figures 5 and 6 – Cardboard balers


Figure 7 – Oil collection unit


Tenants drain oil from the fryer into the Oil Kaddy transporter then wheel the transporter to the main oil unit in the dock, connect the hose and run the cycle – thus avoiding the need for lifting oil containers and reducing the chance of spills and slips.

Figures 8, 9, 10 and 11 – Bin movers and tugs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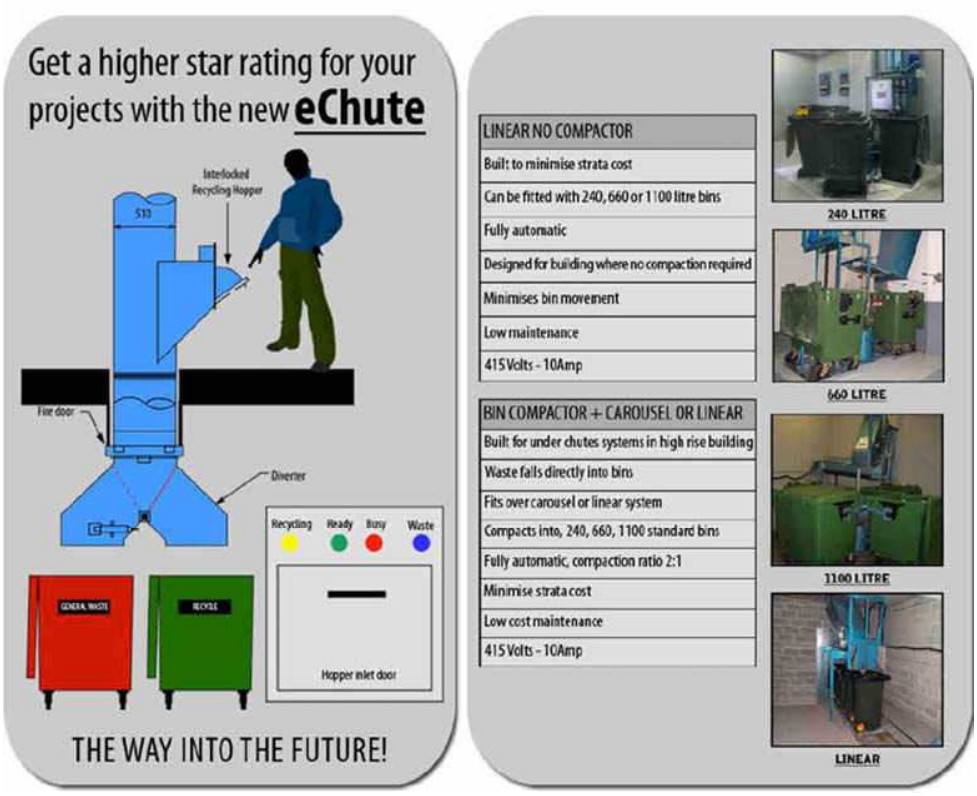
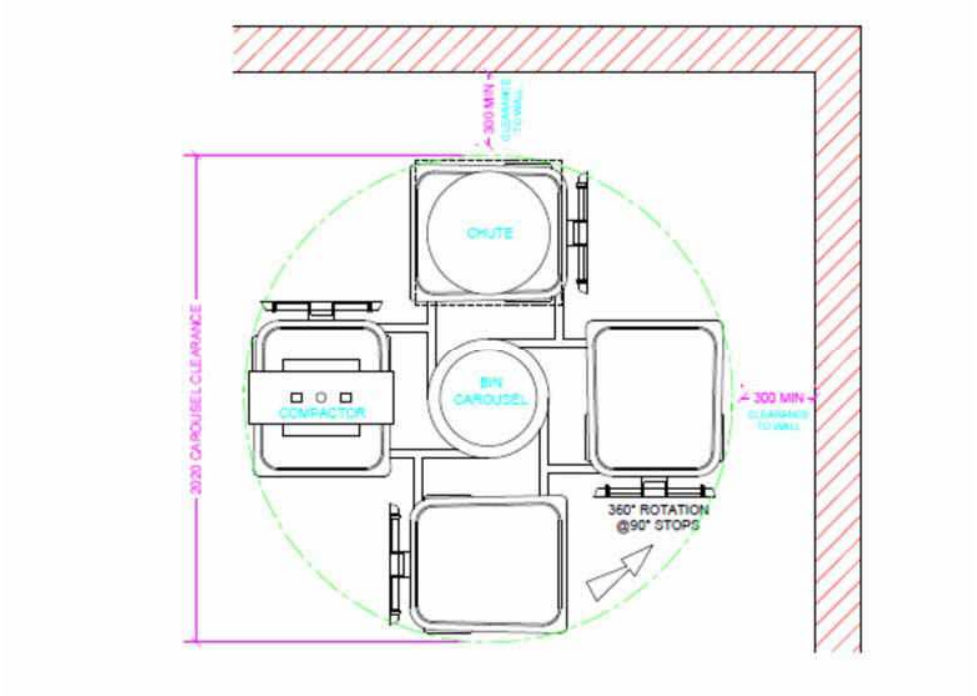
# Appendix B – Indicative Chute Design and Carousel Space Requirements




300 MIN
CHUTE
BIN CAROUSEL
COMPACTOR
300 MIN
360° ROTATION
@90° STOPS
3020 CAROUSEL CLEARANCE

# Appendix C – Example Signage



Example wall posters


Example bin lid stickers