

The North Plot & The Square Waste Management Plan

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This report is based on information provided by Lend Lease coupled with Waste Audit and Consultancy Services knowledge of waste generated within the residential sector. To that extent this report relies on the accuracy of the information provided to our consultant. It has been compiled by Waste Audit and Consultancy Services (Aust) Pty Ltd on behalf of Lend Lease.

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1. Project Overview

1.1 Introduction

This report supports a State Significant Development (SSD) Development Application (DA) submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Application (referred to as SSDA 10) follows the approval of a staged SSD DA (SSDA 2) in December 2013. SSDA 2 sets out a Concept Proposal for a new mixed use neighbourhood at Haymarket, now called Darling Square. Darling Square forms part of the Sydney International Convention, Exhibition and Entertainment precinct (SICEEP).

More specifically this subsequent DA seeks approval for the construction and use of a mixed use development within the North development plot of Darling Square and public domain works for the new 'Square'.

1.2 Overview of Proposed Development

The proposal relates to a detailed ('Stage 2') DA for a mixed use development in the North Plot of Darling Square together with domain works for the new Square. The Darling Square Site more broadly is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and public space. The North Plot is one of six development plots identified within the approved Concept Proposal.

Under the Concept Proposal, the North Plot is planned to accommodate a small scaled mixed use building. More specifically, this SSD DA seeks approval for the following components of the development:

- Construction and use of a mixed use building including retail, commercial, food and beverage offerings and community uses;
- Public domain and landscaping improvements comprising the creation of a new Square which links with new pedestrian connections, including laneways and the Boulevard; and
- Extension and augmentation of physical infrastructure / utilities as required.

1.3 Background

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of SICEEP.

In December 2012, following an extensive and rigorous Expressions of Interest and Request for Proposals process, Darling Harbour Live (a consortium comprising Lend Lease, Hostplus, Capella Capital, AEG Ogden and Spotless) and Lend Lease were announced by the NSW Government as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
 - Up to 40,000m² exhibition space;

- Over 8,000m² of meeting rooms space, across 40 rooms;
 - Overall convention space capacity for more than 12,000 people;
 - A ballroom capable of accommodating 2,000 people; and
 - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.
- Providing a hotel complex at the northern end of the precinct.
 - A vibrant and authentic new neighbourhood at the southern end of the precinct, now called 'Darling Square', including apartments, student accommodation, shops, cafes and restaurants.
 - Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park; and
 - Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network (now The Goods Line) drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pymont and the City.

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the (now) Department of Planning and Environment. The key components of these proposals are outlined below.

Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades. SSDA1 was approved on 22 August 2013.

Concept Proposal (SSD 13_5878)

The Concept Proposal SSD DA (SSDA 2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Darling Square Site. SSDA2 was approved on 5 December 2013. The Stage 1 Concept Proposal approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots, development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
- A maximum total gross floor area (non-residential and residential GFA);
- Above ground car parking including public car parking;
- Residential car parking rates;

- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

The Concept Proposal was modified on 26 November 2015 to increase the amount of non-residential GFA. This minor increase in GFA was allocated to the approved North-West Plot building to meet tenant requirements. In addition to the approval of SSDA2, the following approvals have been granted for various stages of Darling Square site:

- Darling Drive (part) development plot (SSDA3) for the construction and use of a residential building (student accommodation) and the provision of associated public domain works approved on 7 May 2014;
- North-West development plot (SSDA4) for the construction and use of a mixed use commercial development and public car park building and associated public domain works approved on 7 May 2014; and
- South-West development plot (SSDA5) – construction and use of a mixed use residential development and associated public domain works approved on 21 May 2014.
- North-East development plot (SSDA7) – construction and use of a mixed use residential development and associated public domain works approved on 16 April 2015.

Approval was also granted on 15 June 2014 for SSDA6 which includes the construction and use of the International Convention Centre (ICC) Sydney Hotel and provision of public domain works. Approval was also granted for SSDA8 on 16 October 2015 which comprised the ICC Hotel fitout, external lighting and subdivision.

This report has been prepared to support a detailed Stage 2 SSD DA for the mixed use development and public domain works within Darling Square (SSDA 10), consistent with the Concept Proposal (SSDA 2).

1.4 Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the light rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (refer to **Figure 1**). The Darling Square Site is:

- located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket;
- bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and
- irregular in shape and occupies an area of approximately 37,700m².

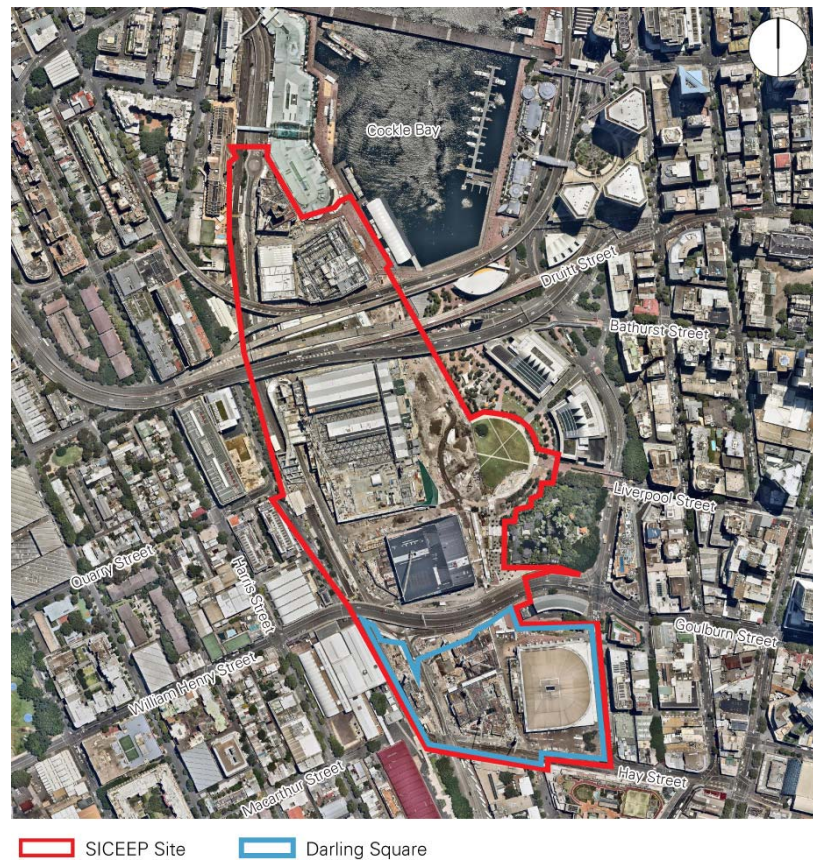


Figure 1 – Aerial Photograph of the SICEEP Site

The Concept Proposal DA provides for six (6) separate development plots across the Darling Square Site (refer to **Figure 2**):

1. North Plot;
2. North East Plot;
3. South East Plot;
4. South West Plot;
5. North West Plot; and
6. Western Plot (Darling Drive).

The Application Site area relates to the North Plot and adjoining 'Square' as detailed within the architectural and landscape plans submitted in support of the DA.

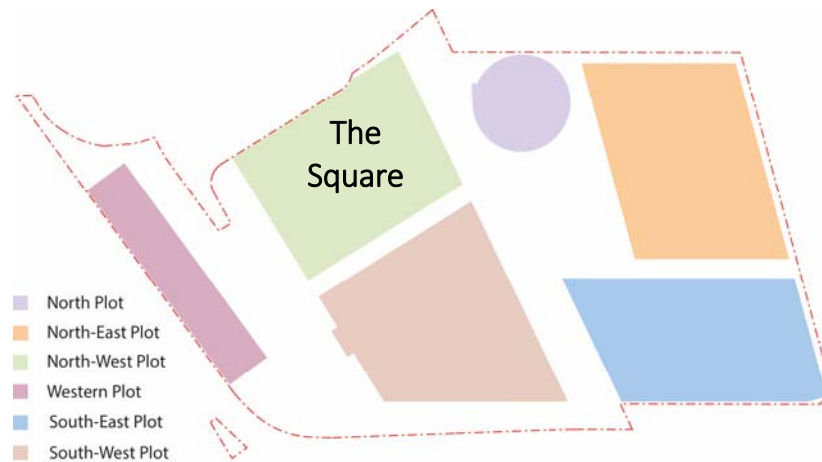


Figure 2 – Concept Proposal Development Plots

1.5 Planning Approvals Strategy

The SICEEP Project has resulted in the lodgement of numerous SSD DAs for the various components of the redevelopment project. Future applications will continue to be lodged in accordance with the Concept Proposal SSD DA for the remaining development plots of the Darling Square Site.

1.6 Development Summary

Based on the following design criteria that have been provided, the following table summarises the development and estimated waste generating areas per Level.

Table 1 – GFA and waste generation areas per Level

Level	GFA (m ²)	Terrace	Storage	Generation area
Ground Floor: Market Hall	922	-	11	525
Mezzanine: Market Hall	494	-	8	100
First Floor: Library	943	177	6	747
Second Floor: Library	863	203	6	699
Third Floor: Child Care	904	46	39	880
Fourth Floor: Child Care	876	124	25	720
Fifth Floor: Restaurant	638	429	18	650
Total	5,640	979	113	4,321

Note: Stall Areas represent the following GFAm²

- Ground Floor (Market Hall) – 379.5
- Mezzanine – 106.0
- Temporary Stalls (within the Market Square) – 135.0
- Permanent Retail Offerings (pods) located under the Canopy – 60.0

2. Waste Generation

Based on industry averages for quantity of waste generated and composition, it is estimated that the development will generate a total of **655 kilograms** or **5,386 litres** of waste and recyclables per day for the North Plot (Refer Table 1 - this includes all Levels,). Waste generation in The Square is estimated to be approximately 95kg per day – refer Table 2.

2.1 Waste Streams

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

- Cardboard/paper recycling;
- Comingled (container) recycling;
- Food organics recycling;
- General waste;
- Cooking oil;
- E-waste recycling;
- Toner cartridge recycling; and
- Fluorescent light tube recycling.

2.2 Waste Generation Estimates

The following tables detail the estimated retail waste generation quantity and profile based on the indicative retail mix provided by Lend Lease using WACS' retail waste model derived from extensive current and historical data from Lend Lease national retail portfolio. Due to the location (inner Sydney) and the lack of space it is expected that waste and recyclables would be collected daily. Thus daily waste generation rates have been calculated.

Table 1 – Waste and recycling generation rates per stream

Waste Type	Est. waste/day	
	kg	L
General Waste	89.11	1,485
Recycling	565.42	3,901
TOTAL	654.52	5,386

In addition to the above, the site will also have approximately 17 market stores based on 3 times per week. In addition, there are 2 “Permanent Retail Offerings” that will also generate food and beverage waste. The weekly generation rates for these stores are illustrated in the following table (note that this is indicative and assumes mix of stalls as per within the building).

Table 2 – Market stalls and Permanent Retail Offerings within The Square - waste and recycling generation rates per stream

Waste Type	Est. waste/day	
	kg	L
General Waste	10	100
Recycling	90	500
TOTAL	95	600

The waste/recyclables from these market stores will be subject to SHFA ongoing waste management service.

2.3 Site Waste/Recycling Bin Requirements

The number of bins required and associated footprint for the development is estimated using assumptions for the calculations that 240 litre bins would be used for general waste and recyclables and 120 litre bins for organics, with the servicing frequency being 7/week for all streams (the exception being 5/week for the child care responding to the proposed usage).

The number of bins required and associated footprint for whole of building waste storage is estimated based on a daily collection for general waste and daily for recyclables (ie., 7 days per week):

Table 3 – Bin requirements per stream

Waste Type	Bin Type	No. of Bins	Footprint per bin (m ²)	Total Footprint (m ²)
General Waste	240 litre Mobile Garbage Bin	9	0.42m ²	3.78m ²
General Waste	1100 litre Mobile Garbage Bin	2	1.5m ²	3.0m ²
Mixed recycling	240 litre Mobile Garbage Bin	10	0.42m ²	4.2m ²
Mixed recycling	1100 litre Mobile Garbage Bin	2	1.5m ²	3.0m ²
Organics	120 litre Mobile Garbage Bin	15	0.28m ²	4.2m ²
TOTAL		38		18.18m²

Numbers of bins and footprint for bins/stream per level is (spare empty bins will be required – for this development this would be 1 x 1100 MGB for general waste; 1 x 1100 MGB for mixed recycling, 2 each x 240 MGB for general waste and recycling and 1 x 120 MGB for organics):

Table 4 – Bin requirements per Level

Level	General Waste	Mixed Recycling	Organics	Total	TOTAL Footprint (m ²)
Ground Floor: Market Hall	1 x 1100	1 x 1100	7 x 120	9	4.96
Mezzanine: Market Hall	1 x 1100	1 x 1100	4 x 120	6	4.12
First Floor: Library	1 x 240	1 x 240	-	2	0.84
Second Floor: Library	1 x 240	1 x 240	-	2	0.84
Third Floor: Child Care	1 x 240	1 x 240	-	2	0.84
Fourth Floor: Child Care	1 x 240	1 x 240	-	2	0.84
Fifth Floor: Restaurant	5 x 240	6 x 240	4 x 120	15	5.74
Total	11	12	15	38	18.18

The addition of the “spare bins” would add an additional 4.96m² requirement for storage space.

Bins will be provided in the market halls for general waste and recyclables from the public/patrons. The design and capacity of these are yet to be determined, but the calculations above in regards to quantity of waste/recyclables generated and bins required to service this source have taken into account these public place bins.

Based on the estimated waste volumes for the 17 market stores operating 3 times per week. In addition, there are 2 “Permanent Retail Offerings”, an additional 2 x 240 litre MGB for each of general waste and mixed recycling and 1 x 120 litre MGB for organics would be sufficient to service the waste from these two sources should bins be needed to be provided.

3. Waste Systems

The following details the recommended waste and recycling systems to be implemented as well as the required collection frequency.

3.1 Levels (First to Fourth)

Space will be provided on each Level for the temporary storage of recyclables and general waste. The area provided will have enough space for the separation of waste and recyclables. Waste and recyclables will be transported to the waste room located in the adjacent building by cleaning staff and disposed in the appropriate receptacle (i.e., 1100 litre MGB)

3.2 Fifth Level (Restaurant)

Multi-sort bins will be implemented in the restaurant to allow the source segregation of all waste streams generated by staff employed within these premises at the “points” of generation. Space will then be provided for the storage of 240 litre MGB for waste and recyclables and 120 litre MGB for organics. Restaurant staff will empty the multi-sort bins into these MGB. Waste, recyclables and organics will be transported to the waste room located in the adjacent building by cleaning staff and disposed in the appropriate receptacle. Organics will also be transported as with the other materials but remain in the 120 litre MGB for collection by the waste contractor.

3.3 Ground Floor and Mezzanine

Multi-sort bins will be implemented in the market stalls to allow the source segregation of all waste streams generated by staff employed within these premises. In addition, bins will be located within the market area for patrons to deposit waste/recyclables.

Cleaning or stall staff will circulate and collect the full bins or liners from both the public and stall receptacles and empty them into their trolleys (that will have separate sections for the streams). The trolleys will then be transported to the adjacent building for decanting into 1,100 litre MGB (except for 120 litre MGB for organics). These 1,100 litre MGB will be collected by the appointed waste/recycling contractor. A similar process will be undertaken for the public place waste/recycling bins within the market and mezzanine levels.

If used cooking oil is generated by the market stall owners, they will be required to decant back into the original container for collection by the cleaners for transport to the adjacent building for decanting into an oil collection tank or left in the containers for collection by the appropriate waste contractor.

3.4 Temporary Outside Market Stalls

There will be approximately 17 market stores based on operating three days per week in Market Square. Discussions will be conducted with each stall operator as to expected waste/recyclables that will be generated. Each stall will then be provided with appropriate type and number of small bins for them to deposit the wastes and recyclables into them. Staff of these stalls will then be required to transport the bins to 240 litre MGB bins for collection by SHFA.

3.5 Permanent Retail Offerings – Market Square

The waste and recyclables generated by the permanent retail offerings will be as the same as for the temporary market stalls. Discussions will be conducted with each stall operator as to expected waste/recyclables that will be generated. Each stall will then be provided with appropriate type and number of small bins for them to deposit the wastes and recyclables into them. Staff of these stalls will then be required to transport the bins to 240 litre MGB bins for collection by SHFA.

3.6 Public Realm

Appropriately designed bins for the collection of general waste and commingled recyclables will be located throughout the public realm. The design, actual and location of these bins will be finalised through discussion with SHFA who will also manage the emptying and disposal of contents.

3.7 Waste Collection

For the North Plot, waste will be collected seven times per week by an appointed contractor from the NE Development Plot. Waste will be transported to the collection point by cleaning personnel on the night of a scheduled collection (or as otherwise arranged). The waste and recycling material will then be collected by the contractor and taken to appropriate facilities.

Waste/recycling bins are being transported from this development to the co-located waste storage area in the NE Plot. This is to avoid the potential noise and acoustic issues associated with early morning waste collection.

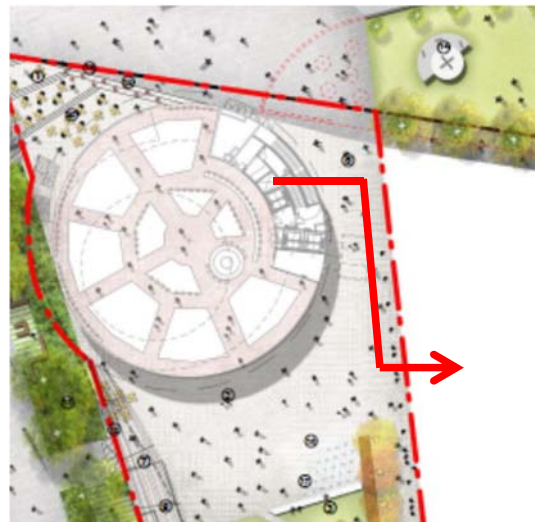
4. Waste Storage

For this building a centralised waste storage area has been provided within a back of house area in the NE Plot retail tenancy. As described in the previous section, wastes and recyclables are collected by cleaning staff from the various levels and safely transported to an adjacent building (NE Plot), for consolidation in larger bins and collection by the service contractor accessing through the Plot loading dock.

The location of the waste storage area within the NE Development will allow for easy access by the Darling Exchange cleaning/stall staff to transport cleaning trolleys, and 240 litre and 120 litre MGB. It also allows for access by the waste/recycling contractors vehicles to collect material for disposal.

The indicative pathway for transport of the waste/recyclables is illustrated in the diagram below.

Figure 4 – Indicative waste/recycling transport from Darling Exchange



All streams will be correctly colour-coded to the Australian Standard and stored separately to avoid any confusion. Signage will be displayed on bin lids as well as at eye level on the wall of the temporary Ground Floor storage area.

5. Waste Stream Acceptance Criteria

5.1 Acceptance Criteria

General Waste:

General waste bins will be 240L 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 should accept all recyclable plastic containers, aluminium containers, glass bottles and steel cans in. Comingled recycling bin lids and signage should be colour-coded yellow.

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 5 – 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
General Waste	Green	Red

The following diagrams illustrate colours and sizes of MGB that could be used for both tenants and in the public areas.

Figure 5 – MGB bin colour



Figure 6 – MGB bin colour



6. Compliance Criteria

The development utilises the “*Policy for Waste Minimisation in New Developments*” (Council of the City of Sydney, 2005) as a guide for waste management systems.

Table 6 - Consistency with the City of Sydney criteria

Reference	City of Sydney Requirement	Compliance Status
A-6	Waste and recycling storage containers must be stored at all times within the boundary of the subject site unless formally approved by Council under a Local Approvals Policy (LAP) for the storage of waste in a public place.	Partially Consistent – approval from City of Sydney may be required
A-10	Sufficient space must be provided for equipment to handle or manage all waste and recycling likely to be generated on the premises between collections	Consistent
A-12	The room/s for storing waste and recycling must be located in a position that is convenient for both users and waste collection staff.	Consistent
A-24	The walls, floors and ceilings of the waste room(s), recycling room(s) and service compartment(s) must be finished with a light colour.	Consistent - Waste storage area will be painted in a light colour.
A-28	Waste rooms and recycling room(s) must be constructed in such a manner as to prevent the entry of vermin.	Consistent – The construction is designed to prevent vermin access and in addition no waste/recyclables will be stored on the floor or outside a bin.
A-29	Waste and recycling rooms must be ventilated by either: • Permanent, unobstructed natural ventilation openings direct to the external air, not less than one-twentieth i.e. 5% of the floor area. • A mechanical exhaust ventilation system exhausting at a rate of 5L/s.m2 floor area, with a minimum rate of 100L/s min; or (A-30).	Consistent – Natural ventilation is provided.
A-30	Waste and recycling rooms must be provided with artificial light controlled by switches located both outside and inside the room.	Consistent – Light switches are provided outside and inside the waste storage area.
A-37	Clear and easy to read “NO STANDING” signs and “DANGER” warning signs for children must be fixed to the external face of each waste and recycling room where appropriate.	Consistent – Will be provided.

Reference	City of Sydney Requirement	Compliance Status
A-38	Clear and easy to read sign(s) designating the storage of RECYCLABLES must be fixed to the internal wall(s) or on any racks provided.	Consistent - Will be provided and the signs will be developed from those provided for on the Sustainability Victoria website.
A-40	Vermin must be prevented from entering waste areas and containers.	Consistent - Refer to Section A-28.
A-41	Equipment must be protected from theft and vandalism.	Consistent - The waste storage area will be locked whenever not being accessed for depositing or collection of materials.
C-12	Waste and recyclables from the waste service compartment or waste and recycling holding area on each floor must be transferred to the centralised waste and recycling room or holding area daily or more frequently as required.	Consistent
C-16	For premises, • Whose waste generated contains 20% by weight or volume of fish, poultry or meat, OR • Which generates 50 litres of seafood, poultry or meat waste per day, Waste must be collected daily or refrigerated whilst awaiting collection.	Consistent - The percentages for organic materials will not be exceeded.
C-17	Storage of paper and cardboard must be in a dry, vermin-proof area. Paper and cardboard must not be stored for more than 2 weeks to prevent breeding of pests in the stored material.	Consistent - Refer to Section A-28. Collections will be daily.

7. Signage

All tenancies will receive information, including training (education) 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.

All waste receptacles will be appropriately signed and additional room signage is usually provided from most waste contractors during implementation of the waste contract. Below are examples of signage developed by Waste Audit which can be implemented onsite.

Waste Audit recommends 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.

Figures 7 and 8 – Signage examples



8. Education

The ongoing waste program should include regular updates to tenants regarding current recycling performance as well as tenant education and awareness programs.

It is recommended that the tenant education and awareness program be conducted by building management to ensure that tenants are aware of their responsibilities in relation to segregation of recyclables, and to ensure they are following the building protocols. The program should be tailored to the requirements of the building and will detail the waste and recycling systems in place, what materials are appropriate for each stream, the procedures involved in effective waste and recycling management, recommendations on how to minimise waste generation and instruction on how to operate the machinery safely.

Included in the information provided to tenants should be information directed at ongoing waste minimisation rather than just waste diversion. Building management should actively engage tenants at the beginning of their lease period to encourage initiatives that seek to increase the use of recyclable materials in their packaging and also minimise the amount of packaging used in their products and by their suppliers. Guidelines to tenants regarding packaging could include the following information:

- Re-usable
- Recyclable
- Made from recycled materials
- Utilise renewable raw resources
- Supplier take-back programs, and
- Packaging minimisation

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.

9. 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

Used cooking oil will be decanted into the original container and collected by cleaners and transported to the storage area located in the adjacent building. These containers will either be stored or the oil decanted into a drum awaiting collection.

10. 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 and reporting 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 residents and staff should be educated and made aware of any changes to the existing waste systems. Given the culture within the staff there should not be any obstacles in conveying the protocols of new recycling systems to the staff.

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 tenants of the changes at the site.

11. 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 SHFA.

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.